RESPONSE AFFIDAVIT OF NATHAN MILLER, PH.D.

October 23, 2020

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1. SUMMARY OF MS. SANDERSON'S OPINIONS AND MY RESPONSE

1. I have been asked by the Commissioner of Competition to respond to the Response Affidavit of Ms. Sanderson with respect to the acquisition of grain elevators and related assets from Louis Dreyfus Company by Parrish & Heimbecker, Limited. I attach as Appendix "A" to this Affidavit my Documents Relied Upon.

2. Ms. Sanderson claims that my analysis is unreliable. In various ways, she makes the following arguments:

- Ms. Sanderson claims that there is no distinct price for grain handling services and that farmers care about the overall price they receive. Therefore, she concludes that there is not a market for services provided by an elevator.
- Ms. Sanderson disagrees with my geographic market definition, arguing that it should comprise at least southeastern Saskatchewan and southwestern Manitoba.
- Ms. Sanderson argues that, in the relevant markets she claims, the Transaction falls under a safe harbor.
- Ms. Sanderson criticizes the inputs used to conduct my analysis because the data used to impute prices for grain handling services are imperfect.
- Ms. Sanderson also criticizes the inputs used to conduct my analysis for excluding costs and revenues from related businesses that are purportedly part of her preferred market definition.
- Finally, Ms. Sanderson claims that any estimated anticompetitive effects are dwarfed by other factors independent from the Transaction and do not comport with P&H's post-transaction behavior.

3. On each of these points, I disagree with Ms. Sanderson, and maintain that the findings in my Affidavit are correct and reliable. In particular, I explain in this Response Affidavit that:

- The worldwide market for grain determines an important component of returns to Canadian farmers, but it is distinct from the service provided by local elevators—the service which allows these farmers to access the global market. (See Section 2.1)
- Evidence that some farms choose elevators other than Moosomin, Virden, and Fairlight does not disprove the geographic market. Rather, it

highlights the need to test, as I have done, whether the farmers who would switch from those three to other elevators in response to higher prices represent enough lost profit to prevent a price increase on those that would remain. (See Sections 2.2.1–2.2.4)

- Despite the arguments to the contrary, the relevant markets are the markets for grain handling services for wheat and canola at the Moosomin, Virden, and Fairlight elevators. The Transaction does not qualify for any safe harbour in correctly defined markets. (See Section 2.2.5)
- The inputs to my analysis are reliable and correctly distinguish between the local competition to serve local farms and the determinants of a grain's value in a worldwide market. (See Section 3.1)
- The anticompetitive effect follows from the change in incentives due to the Transaction. Even if those incentives have not been acted upon during the pendency of this proceeding, once P&H's managers are free to pursue profits for their shareholders, the farmers—particularly those farmers located between Moosomin and Virden—are likely to be harmed. (See Sections 3.2–3.4)
- My merger simulation model generates deadweight loss and surplus calculations that are reliable and consistent with standard merger review. My model improves upon a canonical, simplified supply and demand model in order to include factors that matter in this industry—including a role for competition that is imperfect and therefore better reflects both the pre- and post-Transaction state of this market. (See Section 4)

2. MARKET DEFINITION

4. The bulk of Ms. Sanderson's criticism is directed at my market definition. In a nutshell, she insists that there can be no local competition to analyze because the service provided by elevators to local farms is part of those farms gaining access to the worldwide market for grain. Yet she identifies instances where a farm went beyond the local market that I have identified—presumably because the local competition was not enough—and argues that the right locale in which to study competition among elevators is somewhere between the market I identified and all of Western Canada.

5. In section 2.1, I explain how Ms. Sanderson correctly considers that elevators are able to compete over the service offered to local farmers. Since no local elevator could hope to change global grain prices, it would be difficult to understand Ms. Sanderson's examples of farmers seeking a better deal from different elevators unless the elevators provide a distinct service and that service has a price that can be affected locally. Ms. Sanderson offers these examples as proof that the geographic market is larger than I have found, but they seem to better demonstrate that global grain prices can coexist with a service that is priced independently and subject to local market competition. Indeed, the price of this service is readily and routinely differentiated from the global price of grain. A competitive analysis of the service provided by these elevators to local farmers is proper and should focus on the value of that service—its price in the form of the basis—rather than be obscured by the value of the grain involved in the service.

6. In section 2.2, I explain why Ms. Sanderson's observation that there is some competition between the elevators at Moosomin, Virden, and Fairlight and local elevators just outside of this market is an ordinary and even necessary aspect of market definition. The fact that some individual farms sometimes seek services from elevators outside of the market is a reason to perform a test that weighs those choices against the market conditions, such as the Hypothetical Monopolist Test I presented in my Affidavit. It is not a reason to disbelieve the results of the test.

2.1. The relevant product market is grain handling services, not the purchase of grain, as Ms. Sanderson claims.

7. Ms. Sanderson alleges that the relevant product market is the purchase of grain (wheat or canola) and argues that my proposed market for grain handling services is an "artificial construct."[1] In drawing such a conclusion, she relies on a few flawed observations related to how the grain industry operates. Specifically, she asserts the following industry "facts," which she purports are at odds with my relevant product market:

- Elevators contract with farmers for "cash prices."[2]
- Farmers only care about the cash price of the transaction, and this price should be the subject of all analysis.[3]
- P&H purchases grain from farms and sells that grain to customers worldwide.[4]

8. Consequently, she argues that these industry facts suggest that this case is about "whether P&H's purchase of Virden provides P&H with monopsony power in the purchase of these grains."[5]

9. In this section, I demonstrate that Ms. Sanderson's argument and conclusion are incorrect for the following reasons:

- **First**, elevators do provide farmers with more than just a single "cash price." Advance contracts explicitly specify a futures price and a basis, which are then combined to determine the farmer's net compensation. For farmers that do not sell in advance, the elevators' own mobile applications for farmers list both the current value of the grain—in the

[1] Response Affidavit of Margaret Sanderson, October 9, 2020 at ¶ 68 ("Sanderson Response Affidavit" hereafter).

[2] Sanderson Response Affidavit at ¶ 8 ("Farms sell grain to elevators and canola crushing facilities for a single "cash" price. Elevators and crushers purchase grain from farms for a single cash price. The cash price paid to farms to purchase grain is the "ordinary" and "prevailing price in the relevant market."); Sanderson Response Affidavit ¶ 41 ("The posted price is sometimes called the 'flat' price, the 'net' price, the 'bid' price, or the 'cash' price.").

[3] Sanderson Response Affidavit at ¶ 10 ("The relevant product markets are properly defined as the purchase of canola and the purchase of CWRS, such that the prices used to evaluate competition in the relevant product markets are the cash prices paid to farms for the purchase of their canola or CWRS.").

[4] Sanderson Response Affidavit at ¶ 33 ("P&H acquires grain using a network of 29 primary elevators throughout Western Canada. Western Canadian elevators are connected by rail. [redacted]").

[5] Sanderson Response Affidavit at ¶ 11 ("The issue to be addressed is whether P&H's purchase of Virden provides P&H with monopsony power in the purchase of these grains such that P&H will be able to depress purchase prices by a material amount post-Acquisition.").

form of the futures market price—and the discounted price being offered by that elevator at that time.

- **Second,** the transparency in this market distinguishes it from other intermediary services. P&H, as well as all other local elevators, rely on the same futures market price. Their institutions recognize that this price is common to all of them because the grain's value does not depend on which elevator a farm uses. P&H and local elevators control only the discount from that price applied to their local customers—i.e., the basis is the only price set for a local elevator's service.
- **Finally,** the logic of Ms. Sanderson's analysis would introduce a gap between the legal framework used for antitrust enforcement and economic analysis of the incentive to add value in the face of more competition from rivals. In particular, the safe harbour based on the cash price would be dependent on the value added by other firms at other levels in the supply chain. These other firms are competing to offer altogether different services, and as those firms' services change, so does the "price" being analyzed. There is no economic reason for the analytic framework to depend on the value added to the final product by firms outside of the market in which merging firms compete.

10. I discuss these points in detail below. It should be noted, however, that ultimately my competitive effects analysis is unaffected by whether I include an unvarying (across elevators) reference price component to model farms' elevator choices. Regardless, I predict the same level of price change, the same surplus loss to farms, and the same deadweight loss. The only possible difference lies in interpretation when the predicted changes are expressed as percentages. Because the reference price (discussed in more detail below) is unaffected by local competition among primary elevators, including it in the denominator naturally deflates any percentage in a way that makes it less appropriate for analyzing that competition.

2.1.1. Pricing concepts

11. Before discussing the economic analysis, however, it may be useful to clarify terminology. Between my own analysis, Ms. Sanderson's critique, and Mr. Heimbecker's witness statement, there are now a number of explanations of pricing concepts that are, indeed, not straightforward. A number of similar-

sounding terms or different terms for similar concepts have introduced some potential for confusion.

12. As we have all variously described, the "cash price" is a composite of a reference or futures-market price and a basis. All three (cash price, reference/futures price, and basis) are often reported in the advance and spot contracts signed between farms and elevators.[6] Despite this common framework, confusion can also arise from the nuances of calculating these prices depending on whether one is working with transactions data, evaluating contracts, or describing the process of setting a target level for one of these prices. In this section, I try to resolve some of this confusion and clarify what the terms mean.

- **Reference price**. Ms. Sanderson introduces this term and then explains that the reference price "provides the farm with information on the world commodity index" underlying the posted cash price.[7] Indeed, prices in the futures market reflect the expectation across all market participants of the worldwide value of the grain. She identifies the reference price for P&H and other grain companies operating elevators in this region as the Minneapolis Hard Red Spring wheat market's price for wheat (which is quoted in USD and must be converted to CAD for comparison with prices paid to farmers, below) and the ICE canola market's price for canola (which is quoted in CAD).[8] These are the financial futures markets that I described in my Affidavit.[9] Therefore, Ms. Sanderson's "reference price" appears to be conceptually equivalent to my "futures market price." In practice, financial instruments are complex and choosing a single price from a given exchange market can suggest nuanced differences. In Section 3.1, I will discuss why my implementation is appropriate and why Ms. Sanderson's suggestion of alternative implementations does not affect the conclusions of my analysis.

[6] Sanderson Response Affidavit at ¶ 43 ("It is common in the industry for elevators to post the difference between their cash prices and the futures price, which is referred to as the 'basis'."); Sanderson Response Affidavit, Figure 1a, 1b, 2, 4.

[7] Sanderson Response Affidavit at ¶ 43.

[8] Witness Statement of John Heimbecker, October 13, 2020, pp. 1-59 at p. 24 ("The Minneapolis Hard Red Spring wheat futures contract price (traded in USD per MT on the MGEX) is used for wheat and for canola P&H uses the ICE price for canola in Saskatchewan in CAD/MT.").

[9] Affidavit of Nathan H. Miller, Ph.D., September 4, 2020 at ¶¶ 31–34 ("Miller Affidavit" hereafter).

- **Terminal Elevator Export Price**. Mr. Heimbecker states that [redacted].[10] The financial futures market price is related to, but distinct from, the price P&H expects it can earn in the future. The difference results from the fact that buyers in the futures market incur the cost of transportation to the terminal elevator. However, [redacted] and financial futures market prices will tend to be correlated. If grain marketing companies like P&H have a higher expected [redacted], then they will bid for more grain and the futures price will rise accordingly.[11] Indeed, the financial market is premised on participants such as P&H using their information about expected grain sales around the world as inputs to the current expected value of that grain if one were to take possession of it in the center of the continent.
- **Basis**. The difference between the value of the grain in the financial market and the amount the farmer takes home at the end of the day (sometimes referred to as the "net price") is what the farmer is paying for the elevator's services. This difference is also what I have measured as the basis. In measuring the basis, I include both the "cash price" that Ms. Sanderson focuses on and any ancillary charges or adjustments that the elevator may add into the calculation.[12] I should also note that my calculation of basis reflects the payments in actual transactions between farms and elevators - not the aspirational, network-wide, "posted cash price" benchmark that falls from [redacted] There is also a currency conversion implicit in contracts for wheat as the futures market is located in the US.[13] Despite these details, the concept throughout my analysis should be clear. The difference between what the farms take home and the value of their grain—the basis—is the price of grain handling service.

[10] Witness Statement of John Heimbecker, October 13, 2020, pp. 1-59 at p. 21 [redacted]").

[11] Sanderson Response Affidavit at ¶ 47 ([redacted]").

[12] Sanderson Response Affidavit ¶ 43 ("It is common in the industry for elevators to post the difference between their cash prices and the futures price, which is referred to as the 'basis.'").

[13] In calculating values for the basis, I have converted the futures-market prices into CAD in order to define a value for basis that is consistently measured in one currency. See Miller Affidavit at ¶¶ 39, 174.

2.1.2. Ms. Sanderson mischaracterizes the way pricing works in this market.

13. Ms. Sanderson claims that elevators contract with farmers using "cash prices," but this is inaccurate and misleading. In reality, advance price contracts often include a reference futures price and basis, which are combined to arrive at Ms. Sanderson's cash price.[14] Farmers that receive day-of pricing through mobile applications, for example, can view the cash price by delivery month along with the futures price and basis,[15] as demonstrated in Ms. Sanderson's own screenshot figures.[16]

14. Indeed, Ms. Sanderson repeatedly describes the cash price as the composite of two prices, but she does not seem to consider the economic implication of why farmers and elevators would maintain such a complicated approach if price was as simple and singular as she argues.

15. As I discuss in my Affidavit, there is an economic reason for this industry to maintain such a cumbersome approach to pricing. A large component of the price is driven by the global market. Ms. Sanderson notes that P&H and other grain companies use the same financial markets for reference. Consequently, farmers will face the same futures market price—reflecting the grain's global market value—wherever they go.[17] Providing the futures price component as a benchmark (or reference) highlights how an elevator's posted price compares to rivals, placing the focus on the basis component affected by local competition.

16. Of course, farmers care about how much money they will net from a transaction with a specific elevator. However, that does not necessitate, as Ms. Sanderson claims, that the net (or cash) price should be the subject of all analysis.[18] Her claim ignores the fact that elevators cannot offer a different

[14] Sanderson Response Affidavit at ¶ 43 ("The reference price provides the farm with information on the world commodity index that underlies the posted cash price. … It is common in the industry for elevators to post the difference between their cash prices and the futures price, which is referred to as the 'basis'."). Ms. Sanderson even cites to contracts that report futures, basis, and cash prices. See Sanderson Response Affidavit at ¶45, Figures 2 and 4.

[15] Sanderson Response Affidavit at ¶ 42 ("The posted price is the cash price for immediate (i.e., within the month) delivery to the elevator (also referred to as 'spot')."); Witness Statement of John Heimbecker, October 13, 2020, pp. 1-59 at p. 20.

[16] Sanderson Response Affidavit at ¶ 45, Figures 1a, 1b.

[17] Sanderson Response Affidavit at ¶ 43 ("World commodity prices for grain can change frequently throughout a day and across days. The futures price used by P&H (and other grain companies) as its reference price for CWRS is the Minneapolis Hard Red Spring Wheat price which is in USD/MT. The futures price used by P&H as its reference price for canola is the Intercontinental Exchange ('ICE') price for canola in Saskatchewan in CAD/MT.").

[18] Sanderson Response Affidavit at ¶ 8 ("Farms sell grain to elevators and canola crushing facilities for a single "cash" price. Elevators and crushers purchase grain from farms for a single cash price. The cash price paid to

reference price if they all use the same futures market as this component of their pricing. And, if they cannot differ in this component, then it is not subject to any local competition factors.

17. In contrast, [redacted] and farm testimony support that basis can and does vary locally and by elevator to accommodate differing needs for grain across different elevators.[19] In reality, an elevator that offers a better cash price is also offering a better basis, so there is no true distinction regarding which price farmers "care about." In technical terms, the two prices are *isomorphic*—two ways of expressing the same quantity. Ms. Sanderson argues for a distinction that does not exist in economics between these two versions of the same concept. As I will discuss in Section 2.1.5, the distinction also should not introduce a difference between the economic analysis and a measured application of legal standards.

18. Ms. Sanderson attempts to obscure the determinants of basis by detailing the [redacted] and concludes that the *only local factor* identified [redacted].[20] In fact, I agree that there are network-wide factors that affect the basis. In my Affidavit, I described how [redacted]" which accounts for grain deliveries of a lower protein count, for example.[21] However, I have reviewed Mr. Heimbecker's statement, and I do not agree with the suggestion that the [redacted] precludes the possibility of competition affecting the basis offered at any particular elevator.

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farms to purchase grain is the "ordinary" and "prevailing price in the relevant market". The cash prices to purchase grain are the correct base prices to use when postulating a price decrease in the prices to be paid to farms under the hypothetical monopolist test, and when considering the competitive effects of the Acquisition.").

[19] Witness Statement of [redacted] September 3, 2020, August 6, 2020, pp. 1-11 at pp. 5–6 ("This price is known as the basis which is essentially the amount deducted from the futures price to account for the elevator's costs of handling and shipping the grain to market. The elevator will also adjust its basis to reflect its need for grain. A wide basis (a greater discount and hence a lower price for my grain) means that the elevator does not need as much grain."); [redacted]

[20] Sanderson Response Affidavit at ¶ 48 ("[redacted]").

[21] Miller Affidavit at ¶ 47. See also Undertaking to John Heimbecker's Examination for Discovery, July 16, 2020, pp. 315-550 at p. 458, found in Appendix I.xlsx; Undertaking to John Heimbecker's Examination for Discovery, July 17, 2020, pp. 551-771 at p. 688, found in the undertaking, pp. 31-32.

19. Mr. Heimbecker originally testified that [redacted]"[22] Ms. Sanderson and Mr. Heimbecker now detail the [redacted] and suggest that [redacted] prevents the company from pursuing the type of profit-maximization I have modeled. However, [redacted] includes a number of levers that seem well suited to implement the types of marginal price corrections at an individual elevator, which were implied by Mr. Heimbecker's original testimony. In the context of the [redacted].[23] Merchants periodically post special rates across elevators in order to meet short-term supply constraints, for example.[24] Further, merchants (or an elevator's customer service representatives) routinely negotiate different rates for some [redacted] of its farm customers.[25]

[22] [redacted]"). I understand that Mr. Heimbecker later clarified his statement to be that [redacted] See Letter from Davit Akman to Jonathan Hood, "Re: P&H ats Commissioner of Competition," pp. 1-6 at p. 2 ("[redacted]").

[23] [redacted]").

[24] Witness Statement of John Heimbecker, October 13, 2020, pp. 1-59 at pp. 26-27; Witness Statement of John Heimbecker, October 13, 2020, pp. 1-59 at p. 27 ("Across its network, on average, P&H will offer a special at one or more of its Elevators roughly once a week and, over the course of a year, an individual Elevator may offer such specials roughly a dozen times.").

[25] Witness Statement of John Heimbecker, October 13, 2020, pp. 1-59 at p. 27 ("Across its network, on average, P&H will offer a special at one or more of its Elevators roughly once a week and, over the course of a year, an individual Elevator may offer such specials roughly a dozen times."). Undertaking from John Heimbecker's

20. I have one further observation regarding Mr. Heimbecker's explanation of [redacted]. He describes the [redacted], implying that the specific futures price quoted to farmers plays no role in setting the [redacted] for P&H.[26] However, the futures market summarizes P&H and other grain marketing companies' expectations about [redacted] Therefore, even if Mr. Heimbecker chooses to use only his own information in setting [redacted], "[t]he world futures prices for wheat and canola are determinative of P&H's prices for those commodities."[27]

2.1.3. Elevators are intermediaries in the supply chain and only have control over the basis component of price.

21. Whether a farmer chooses an elevator in advance or when they yield the crop, the information that elevators present—what they sense farmers need to know to make their choice—is more than a simple cash price. In reviewing advance purchase contracts or prices posted to the elevator mobile apps, the farmer sees both the basis and the futures price against which that basis will be offset. As I explained above, this is not an industry where there is one simple price, and I find it instructive that elevators go to the trouble of presenting their potential customers with this array of information. In focusing on the basis, I have reflected the choice as elevators present it to farmers.

22. Ms. Sanderson notes that the futures market price fluctuates, even within a day,[28] which would explain why elevators feel a need to give farmers information about both the futures market price and the basis. If, instead, farmers could only see a single cash price, they would have difficulty determining if one elevator's price differed from another's because the elevator was offering a better deal or because the world market just happened to fluctuate between the quotes. Since all of the elevators in an area use the same futures market for a given grain, the elevators can help the farmer see the value

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Examination for Discovery, July 16, 2020, pp. 315-550 at pp. 427, found in the undertaking, pp. 1-38 at p. 24 ("The merchants estimate that only approximately [redacted] of their purchases are outside posted pricing.").

[26] [redacted]")

[27] Witness Statement of John Heimbecker, October 13, 2020, pp. 1-59 at p. 20.

[28] Sanderson Response Affidavit at ¶ 130.

they are offering by presenting the basis distinct from the futures market price in presenting their offer to the farmer.

23. As the explanation highlights, the futures market price fluctuates in a way that is both outside the control of any elevator operator and is often common to all the elevators. The basis is the only component of a farmer's net compensation that an elevator can control. Any effort to be more competitive on price with other elevators has to be done through a better basis. Conversely, any lack of competition will have to be seen in a basis that is larger (in magnitude). In light of the transparency that elevators have afforded farmers into which component of the cash price will be outside of their hands and which is potentially a difference with other elevators, it is appropriate to reflect that information and focus the analysis of competition on the latter.

24. Ms. Sanderson repeatedly refers to the reference price (or futures price) and the calculation that combines basis with this reference to get the cash price. However, she does not attribute any significance to the practice when she asserts that the cash price is the only one that matters. Indeed, while the cash price undoubtedly matters to a farmer, it is the basis that matters to the farmer's choice of elevator. The rest of the cash price will be the same regardless of the choice.

25. It is appropriate to use the same tool offered to customers to also analyze competition—focusing on the parts of the transaction that are under the influence of local elevators and that are the focus of competition between those elevators. Using the basis, net of the reference price, as the signal to farms of what they can potentially gain through their choice among local elevators recognizes that this feature of this market serves a purpose. It is not suggesting farmers care less about the rest of the price—merely that it is invariant and irrelevant to the farmers' elevator choices.

2.1.4. Ms. Sanderson proposes to analyze the matter as a "case about monopsony power" which would not materially change any of the analysis.

26. Treating this matter as an example of monopsony does not change any of the analysis in my Affidavit. As Ms. Sanderson notes, the Hypothetical Monopolist Test would become a Hypothetical *Monopsonist* Test, merely relabeling the elevators as purchasers and turning around the terminology. It

does not alter which prices elevators control versus those that are set globally. Regarding *how* elevators set prices, the framing choice does not change the competitive pressure to raise prices when there are fewer rivals (or, identically, to lower the net price received by a farmer) or the way that profit maximization balances the elevator's incentives and constraints.

27. Ms. Sanderson presents a Hypothetical Monopsonist Test to suggest, somehow, that the analysis would be different. To support her claim that there is no reason to "artificially divide the single cash price," she posits:

> "If there were only one primary elevator in all southeastern Saskatchewan and southwestern Manitoba, it would have market power with respect to purchasing grain from farms within the region as well as the same degree of market power providing 'grain handling services' to farms within the region, even though this hypothetical elevator would not have market power in the sale of CWRS in export markets."[29]

28. Her hypothetical appears to mirror the test I have performed—just with a larger set of competitors.[30] In her hypothetical example, the reference price of the grain would not change because her elevator is still too small to affect the global price component. If the reference price remains unchanged, then the only channel by which elevators exert monopsonistic pressure in her geographic market is through the *basis*. Framing the test as a monopsonist elevator reaches the same conclusion, which is that the elevator's price-setting lever is through the basis—i.e., the price for grain handling services.

29. I should also note that framing the analysis as one about monopsony does not explain why Ms. Sanderson, at times, suggests a variety of ways in which P&H might operate differently from any other profit-maximizing firm. For example, Ms. Sanderson suggests that [redacted][31] However, all firms that have a positive margin would make more profit if they could [redacted]

[29] Sanderson Response Affidavit at ¶ 129.

[30] It is a well-established principle that, if an HMT is satisfied for one set of competitors, performing the test on a larger set will also pass. The same result applies to the test framed as hypothetical monopsony.

[31] Sanderson Response Affidavit at ¶ 34 ("[redacted]").

[redacted]. The relevant question for merger analysis is how much a firm must change its price in order to achieve greater throughput, taking into account the competitive environment. This question is the same whether the firm is a buyer or seller.

30. What Ms. Sanderson suggests is not a property that somehow follows from the peculiarities of monopsony. Instead, she suggests that [redacted]. Competition plays a role in the ability of P&H to take in additional grain. Ignoring the role of competition is an odd choice for an analysis that assesses how acquiring a competitor changes the competitive environment. Nevertheless, the oddity of this omission is not explained by framing the competitive analysis as one concerned with monopsony.

2.1.5. Ms. Sanderson's assertion that the world price of grain must be included in market definition is at odds with economically appropriate analysis of grain companies competing to add value with their services.

31. As I mentioned above, the cash price is isomorphic to the basis for any economic analysis of competition in the choice of local elevators, because elevators use the same futures markets. Thus, the economic analysis would be the same whichever way we define this price. In particular, the level of price increase would be the same, the consumer harm would be the same, and the deadweight loss would be the same. One might wonder, then, why Ms. Sanderson has argued that it is necessary to use the cash price. Using one or the other is only relevant in terms of the rule-of-thumb thresholds based on percentage price changes, such as whether a hypothetical monopolist would find it profitable to increase prices by 5%.

32. What Ms. Sanderson's approach implies is that antitrust analysis depends directly on the value added by *other* firms and markets in the supply chain. That is, rather than making price change a ratio between the predicted effect of a merger and the prevailing price that existing competition has produced in the market, this approach would add prices outside the possible control of market participants to the denominator. The result is a ratio that misrepresents competitive effects in the market.

33. For example, if a drought in China caused world grain prices to rise, under Ms. Sanderson's approach, the analysis of competition in this market would change as a result. Even though nothing at all has changed about competition for grain handling services in this part of Canada, the change in global grain prices would require an even larger price change for any lost competition in Canada to be significant using her method. The reason is that Ms. Sanderson's treatment of the worldwide grain price makes the value added in this market relatively less important. This seems to miss the goal of market definition which is to identify a part of the economy that can be reasonably studied in isolation—not to make the analysis particularly dependent on parts of the economy that are far removed from the competition to be studied.

34. This issue has a number of possible solutions. The one most relevant to this case can be found in one of the examples discussed in the U.S. Horizontal Merger Guidelines:

> "Example 8: In a merger between two oil pipelines, the SSNIP would be based on the price charged for transporting the oil, not on the price of the oil itself. If pipelines buy the oil at one end and sell it at the other, the price charged for transporting the oil is implicit, equal to the difference between the price paid for oil at the input end and the price charged for oil at the output end. The relevant product sold by the pipelines is better described as 'pipeline transportation of oil from point A to point B' than as 'oil at point B.'"[32]

35. In this example, the price of "oil at point B" would measure the effects using global oil prices and, since the price of that service can be readily identified as a difference, the market is better described when the analysis of local competitive effects among pipeline operators is compared to the value of their service and not relative to the larger value of oil.[33] Likewise, the basis component, and not the cash price, is better as it allows comparisons without dividing by the global price for grain.

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[32] U.S. Department of Justice and the Federal Trade Commission, Horizontal Merger Guidelines, August 19, 2010, pp. 1-34 at p. 10 ("U.S. Horizontal Merger Guidelines" hereafter).

[33] The U.S. Horizontal Merger Guidelines discuss variants of this issue directly by examining three specific examples. Importantly, they note that, if the analysis has to include the extra value added (i.e., if the price is not transparently separable as it is in this case via the futures price and basis), then the SSNIP should be reduced to offset this effect. Ms. Sanderson does not accept this approach either. The U.S. Horizontal Merger Guidelines makes it clear that the relevant price maybe implicitly calculated in the absence of an explicit price that reflects the "firms' specific contribution to value." See U.S. Horizontal Merger Guidelines, pp. 1-34 at pp. 10–11 (Examples 9 and 10).

36. The U.S. Horizontal Merger Guidelines include two more examples on this topic. In Example 10, they consider a case where, unlike grain handling services, the value added cannot be distinguished. This example illustrates another possible solution—adjusting the size of the SSNIP downwards—that helps illuminate the nature of the problem with Ms. Sanderson's approach.

If the world price of grain is not removed from the denominator, a hypothetical monopolist of grain elevators could nearly *double* its markup and still not have increased the cash price by 5%.[34] If, however, one recognizes that such a price increase would definitely be significant, it is clear that Ms. Sanderson's approach depends on both an inclusion of the global grain price and exclusion of a proportionate adjustment to any threshold values.

2.2. The relevant geographic market is no larger than the Moosomin, Virden, and Fairlight elevators.

37. Ms. Sanderson claims that the relevant geographic market includes all of southeastern Saskatchewan and southwestern Manitoba.[35] To draw this conclusion, Ms. Sanderson obscures the *Guidelines*' definition of a relevant geographic market and relies on several cherry-picked, misleading facts. Specifically, she claims that:

- There are numerous other elevators in the area and, relatedly, that diversion ratios outside the proposed geographic market are high.[36]
- [redacted] show that Moosomin and Virden [redacted].[37]
- Several farmers near the Moosomin and Virden elevators [redacted].[38]

[34] See my workpaper 1.

[35] Sanderson Response Affidavit at ¶ 14 ("The relevant geographic market is properly defined to include current purchasers of canola and CWRS that compete with Moosomin and Virden. This area may be defined as (at least) southeastern Saskatchewan and southwestern Manitoba.").

[36] Ms. Sanderson uses maps to identify other, geographically proximate elevators to the Moosomin and Virden elevators. See Sanderson Response Affidavit at ¶ 73; Sanderson Response Affidavit at ¶ 148 ("The Miller Report states 'high diversion ratios between the Moosomin and Virden elevators indicate that many farms view the Moosomin and Virden elevators as substitutes', yet the Miller Report ignores equal or higher diversion ratios between Moosomin or Virden and rival competing elevators and crushers when defining the geographic market.").

[37] Sanderson Response Affidavit at ¶¶ 80–81.

[38] Sanderson Response Affidavit at ¶ 18.

- Moosomin and Virden's 95% draw areas are [redacted] and overlap with those of numerous other elevators.[39]
    - » In particular, the area around Fairlight, Moosomin and Virden (and Western Canada in general) has [redacted] elevators' 95% draw areas overlapping. Thus, many elevators are competing for grain.[40]

38. In this section, I show that Ms. Sanderson's argument and conclusion are incorrect for the following reasons:

- **First,** Ms. Sanderson misinterprets and misapplies the *Guidelines* as they pertain to geographic market, incorrectly assuming that a relevant geographic market must contain *all* competitors.
- **Second,** the fact that farms work with more distant elevators is consistent with my modeling analysis and consequent geographic market definition.
- **Third,** the facts she presents highlight the need for a formal test of market definition. I presented the results from the widely-accepted HMT in my Affidavit, and they support my geographic market.
- **Fourth**, Ms. Sanderson's assertion that diversion ratios outside the proposed market are, nevertheless, [redacted] is an operative assessment addressed by the test. To clarify how the test uses competition parameters to assess the level of diversion outside the market, I follow the academic literature's construction of the test as a measure of this diversion and show that the observed diversion is not high enough that a SSNIP would be unprofitable.
- **Fifth**, Ms. Sanderson also misapplies the *Guidelines*' safe harbour test, focusing on a much larger region than my well-tested geographic market would outline.

2.2.1. Ms. Sanderson's analysis misapplies the Guidelines *regarding geographic market definition, and the relevant market she proposes is not a relevant antitrust market.*

39. To begin, it is not entirely clear which method Ms. Sanderson advocates using to define a geographic market. At times, she suggests that every elevator

[39] Sanderson Response Affidavit at ¶¶ 74, 78–79.

[40] Sanderson Response Affidavit at ¶¶ 99–100.

that *ever* competes with an elevator in the candidate market should be included—a geographic region that includes "(at least) Southwestern Saskatchewan and southwestern Manitoba."[41] Alternatively, she suggests that market definition should stem from a group of farms and include any elevator that ever took in any amount of grain by one of them.[42] Elsewhere, she suggests a comparison of pairwise diversion ratios dictate market participants without explaining how or why.[43]

40. In fact, the Guidelines and standard antitrust practice do not specify the requirements suggested by Ms. Sanderson and documented above. According to the *Guidelines*,

> "a relevant market is defined as the ***smallest group of products***, including at least one product of the merging parties, and the ***smallest geographic area***, in which a sole profit-maximizing seller (a 'hypothetical monopolist') would impose and sustain a small but significant and non-transitory increase in price ('SSNIP') above levels that would likely exist in the absence of the merger."[44] (emphasis added)

41. As I stated in my Affidavit, defining a relevant market is important because it is impractical to consider all sources of competition. Indeed, doing so would significantly increase the burden of antitrust inquiry, while shedding very little light on the competitive effects of the Transaction. My geographic market satisfies a hypothetical monopolist test, which means that the "smallest geographic area" is no larger than my geographic market.

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[41] Sanderson Response Affidavit at ¶ 83 ("The relevant geographic market should include current purchasers of canola and CWRS that compete with Moosomin and Virden," comprised of the geographic region that includes "(at least) Southwestern Saskatchewan and southwestern Manitoba.").

[42] Sanderson Response Affidavit at ¶¶ 13–14 ("It is clear from this data that many elevators and crushers purchase canola and CWRS from the same farms from which Moosomin and Virden purchase … The relevant geographic market is properly defined to include current purchasers of canola and CWRS that compete with Moosomin and Virden.").

[43] Sanderson Response Affidavit at ¶¶ 149–150 ("If Dr. Miller regards Moosomin and Virden as having 'high diversion ratios' for canola, then [redacted] diversion ratios to rival elevators and crushers mean these rival elevators and crushers are closer competitors to Virden and Moosomin than they are to each other.").

[44] Competition Bureau Canada, Merger Enforcement Guidelines, October 6, 2011, pp. 1–53 at p. 11 ("Merger Enforcement Guidelines" hereafter).

2.2.2. Ms. Sanderson's geographic market analyses are consistent with my geographic market analysis and do not support her claim that a wider geographic market is appropriate

42. It should be noted that Ms. Sanderson does not conduct a formal hypothetical monopolist test to support her geographic market that includes "(at least) Southwestern Saskatchewan and southwestern Manitoba."[45] Rather, Ms. Sanderson presents several pieces of evidence that she falsely suggests counter my relevant geographic market.

43. For example, Ms. Sanderson presents an "overlapping 'draw' area analysis" that she alleges refutes my geographic market. To be clear, I also made use of the draw area under the term "service area" in my analysis, but in a very different way. Because market definition depends on how customers will respond to a price increase, I started by identifying a group of customers—farmers within the union of the 90% service areas of Moosomin, Virden, and Fairlight—and estimated demand parameters from their choices among all of the elevators in the data. This estimation, and not the arbitrary boundary of the draw or service area, allowed me to define a market based on the way different farms would likely respond to price changes.[46]

44. Ms. Sanderson, instead, attempts to define markets based on overlap in elevators' draw areas. Her argument that the "relevant geographic market for the purchase of canola [and wheat] clearly includes more than Moosomin, Virden and Fairlight"[47] is based only on the fact that draw areas overlap without any evident consideration of what factors affect a farm's choice of elevator or, most importantly, how the farms would likely respond to a price change.

45. All geographic markets are necessarily porous, and I agree with Ms. Sanderson that some farms scattered throughout the region, for their own reasons, may elect to work with a more distant elevator. This is what Ms. Sanderson's overlap analysis conveys. However, it masks the fact that the desirability of travelling to a particular elevator will differ for farms located at

[45] Sanderson Response Affidavit at ¶ 83 ("The relevant geographic market should include current purchasers of canola and CWRS that compete with Moosomin and Virden," comprised of the geographic region that includes "(at least) Southwestern Saskatchewan and southwestern Manitoba.").

[46] Service areas or draw area restrictions are common in merger analyses where market participants are differentiated along a geographic dimension, and there is a distinction between service area and the relevant geographic market in these analyses. For example, in *FTC and State of Ohio v. ProMedica Health System, Inc.* (2011) the relevant geographic market is defined for a single Ohioan county, while the hospitals draw patients from an overlapping, yet distinctly defined, "service area" region. See *In the Matter of ProMedica Health System, Inc., Docket No. 9346*, Initial Decision, December 12, 2011, p. 2, 15, 37–38, 42.

[47] Sanderson Response Affidavit at ¶ 77.

different points—even within that elevator's draw area. Consequently, the draw areas cannot be interpreted as if every customer inside their boundary is equally willing to choose that elevator. Nevertheless, that appears to be exactly what Ms. Sanderson assumes. Or, perhaps, she is not considering where those farmers would likely turn in reaction to a price increase as market definition requires.

46. Exhibit 1 and Exhibit 2 make this clear. They show that [redacted] While it is rare [redacted], and this pattern holds for both wheat (Exhibit 1) and canola (including crushers) (Exhibit 2).

EXHIBIT 1
Percentage of wheat MTs sold to Moosomin, Virden, and Fairlight by town

Source: Grain Elevators in Canada Data; 2016 Census Program CCS Boundary Files; LDC Transaction Data; P&H Transaction Data; ADM Transaction Data; Cargill Transaction Data; G3 Transaction Data; Richardson Transaction Data; Viterra Transaction Data

Note: Primary elevators and process elevators, which include crushers, are shown as triangles. CCSs with a centroid within 100 km from Virden or Moosomin are shown. Includes CWRS wheat transactions occurring between August 2018 and July 2019. The analysis is limited to transactions in the 90% service area. CCSs in gray are outside of the 90% service area. Only cities that are geocoded within 90% service area CCSs are shown.

EXHIBIT 2
Percentage of canola MTs sold to Moosomin, Virden, and Fairlight by town

Source: Grain Elevators in Canada Data; 2016 Census Program CCS Boundary Files; LDC Transaction Data; P&H Transaction Data; ADM Transaction Data; Cargill Transaction Data; G3 Transaction Data; Richardson Transaction Data; Viterra Transaction Data

Note: Primary elevators and process elevators, which include crushers, are shown as triangles. CCSs with a centroid within 100 km from Virden or Moosomin are shown. Includes canola transactions occurring between March 2018 and February 2019. Nexera and non-GMO canola are excluded. The analysis is limited to transactions in the 90% service area. CCSs in gray are outside of the 90% service area. Only cities that are geocoded within 90% service area CCSs are shown.

47. Assuming that distant elevators should be included in the relevant area simply because certain farms choose to work with these elevators would miss the point that [redacted]. The relevant question is how this preference balances against [redacted]—not whether such farms exist at all. By Ms. Sanderson's underlying logic that the market needs to include all "current purchasers," her geographic market might grow until it is the size of Canada because any smaller market will have some farms close to its edge who are more inclined to work with an elevator just beyond that market's proposed lines.

48. Similarly, Ms. Sanderson's "corridor of concern" analysis is not dispositive regarding the extent of the relevant geographic market.[48] As Ms. Sanderson

[48] Sanderson Response Affidavit at ¶¶ 84–94.

summarizes herself, her "corridor of concern" analysis amounts to showing that "farms 'within the corridor of concern' sell canola and CWRS to many different rival elevators and crushers beyond" elevators in my relevant market.[49] As I discussed above, the fact that farms purchased services from elevators outside the relevant market does not imply that these elevators should be included in the relevant market. Simply counting the number of elevators that these farms chose hides the fact that farms along this corridor are more likely to purchase grains from the elevators in my geographic market, as is evident in Exhibit 1 and Exhibit 2.

49. The elevator characteristics that inform farms' choices ultimately determine the extent to which farms view them as close substitutes for grain handling services and the extent to which elevators compete against one another. These characteristics include the distance between farms and elevators and potentially many other elevator-specific characteristics that may be important to farms, such as the elevator's grain capacity, rail access, and the overall desirability of certain elevators.

50. I account for all these characteristics when defining my relevant geographic market. I also account for the fact that farms may consider multiple elevators for grain handling services and that some farms may have an idiosyncratic reason to seek the services of a distant elevator.[50] Unlike Ms. Sanderson's analysis, my Hypothetical Monopolist Test (HMT) analyzes farms' choices using a rich model of demand.

51. The results of the HMT demonstrate that my proposed geographic market meets the SSNIP standard, as demonstrated by Exhibit 9 in my Affidavit.

2.2.3. Ms. Sanderson's observation that diversion ratios outside the relevant market are "high" does not refute my geographic market.

52. Ms. Sanderson observes that my model predicts diversion ratios to elevators located outside the market that are above [redacted]. Virden, for example, has a

[49] Sanderson Response Affidavit at ¶ 93. Incidentally, I am not sure Ms. Sanderson's staff have correctly identified all of the farms and transactions that should be in her set as it does not match the data I have. However, I do not find the qualitative points drawn from this analysis of her "corridor" farms to be a reason to doubt the market definition.

[50] Ms. Sanderson cites to witness testimony that farms consider several elevators and presents it as evidence against my geographic market definition. See Sanderson Response Affidavit at ¶ 20.

[redacted] diversion to elevators other than Moosomin and Fairlight for wheat, and she asserts that this diversion is too high for my market to constitute a relevant antitrust market.[51] However, diversion is not "high" or "low" in the abstract sense. The test is whether the diversion is *high enough* to counter incentives reflected in the prevailing competitive environment.

53. This is precisely what I have done in my HMT. In my Affidavit, I use the merger simulation model to conduct this test. The fact that my market passes means that diversion outside the defined market is not too high.

54. This aspect of the HMT can be isolated, following Katz and Shapiro, to illustrate more directly how the test evaluates whether diversion outside the market is high relative to the incentives evident in the market pre-merger.[52] Specifically, Katz and Shapiro identify a test statistic for the profitability of a price increase based on the hypothetical monopolist trading off the increased revenue from customers that stay against the lost profits from customers that leave. For an industry with gross profit margin (the ratio of price less marginal cost to the price) of M, they show that a price increase of X (say 5%) on one product will be profitable for the hypothetical monopolist if D_{out} (diversion outside of the market) is lower than their test statistic:[53]

$$D_{out} < \frac{M}{X+M} \; or, rearranging, \; \frac{M}{(X+M)\,D_{out}} > 1 \qquad (1)$$

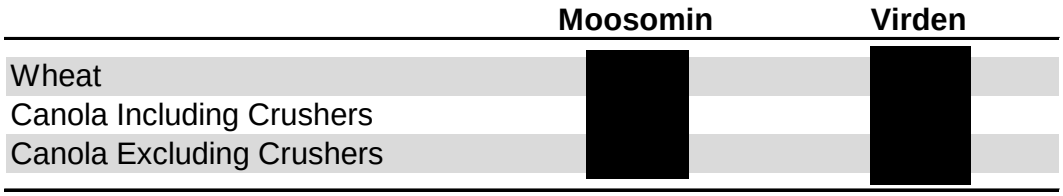
[51] Miller Affidavit at Exhibit 11; Sanderson Response Affidavit at ¶ 148 ("The Miller Report states 'high diversion ratios between the Moosomin and Virden elevators indicate that many farms view the Moosomin and Virden elevators as substitutes', yet the Miller Report ignores [redacted] diversion ratios between Moosomin or Virden and rival competing elevators and crushers when defining the geographic market.").

[52] Katz, Michael L., and Carl Shapiro, "Critical Loss: Let's Tell the Whole Story," Antitrust, Spring 2003, available at https://www.law.berkeley.edu/wp-content/uploads/2015/04/Katz-Shapiro-Critical-Loss-Lets-Tell-the-Whole-Story-2003.pdf (accessed on October 20, 2020).

[53] Katz and Shapiro frame their finding in terms of critical loss and the aggregate diversion ratio *inside* the market, and I am able to construct an equivalent test using diversion *outside* the market, or one minus diversion inside the market. The Katz and Shapiro result is that if $D_{in} > CL_{in}$ = X/(X+M), then the HMT passes. Taking one minus each side of the inequality (and accordingly reversing the inequality), yields $1 - D_{in}$ < 1-(X/(X+M)) or, equivalently, D_{out} < M/(X+M). Katz and Shapiro also assume the gross margin M is the same for all industry participants. See Katz, Michael L., and Carl Shapiro, "Critical Loss: Let's Tell the Whole Story," *Antitrust*, Spring 2003, available at https://www.law.berkeley.edu/wp-content/uploads/2015/04/Katz-Shapiro-Critical-Loss-Lets-Tell-the-Whole-Story-2003.pdf (accessed on October 20, 2020), pp. 49–56 at pp. 53-54 ("If and only if the aggregate diversion ratio is larger than the critical loss, then the actual loss is less than the critical loss and thus a hypothetical monopolist would find a SSNIP profitable … In practice, the gross margins of the merging suppliers are typically taken as representative of the industry because the most reliable data on price and cost readily available usually come from the merging parties. In practice, then, the prices and costs of the merging parties serve as the basis for the hypothetical monopolist calculations.").

55. Exhibit 3 shows the rightmost ratio in Equation (1) for a 5% increase in the price of handling services for each type of grain I have considered at Moosomin and at Virden. It is apparent that, in all of these cases, the ratio is greater than one. This means that the hypothetical monopolist would have a profit-maximizing incentive to impose a 5% price increase on each of the products. In fact, the ratio far exceeds one in some cases, such as for wheat at Moosomin, which suggest that the pre-existing competitive conditions create a strong incentive to raise price on that product. Diversion in this case may seem "high" in an absolute sense, but given the incentives present in the market, it is not high enough to constrain market power.

EXHIBIT 3
Diversion Test Statistic for Hypothetical Monopolist Test (5% Price Increases)



Source: LDC Transaction Data; P&H Transaction Data; Cargill Transaction Data; Richardson Transaction Data; Viterra Transaction Data; Bunge Transaction Data; ADM Transaction Data; G3 Transaction Data; Grain Elevators in Canada Data; Canada/U.S. Exchange Rate (DEXCAUS) Data; iVolatility Minneapolis Spring Wheat Futures Data; Capital IQ ICE Canola Futures Data; 2016 Census Program CCS Boundary Files

Note: The analysis for wheat runs from August 2018 through July 2019, and the analysis for canola runs from March 2018 through February 2019. Analysis limited to transactions in the 90% service area and within 600 Km of Moosomin or Virden. Nexera and non-GMO canola are excluded. Only CWRS wheat is included. The 90% service areas represent the union of the CCSs in the 90% service areas of Moosomin, Virden, or Fairlight. The 90% service area of each individual elevator represents the closest CCSs to the individual elevator that collectively form 90% of the total net quantity bought by the individual elevator. Moosomin aggregate diversion outside the market is 100% minus the diversion ratio from Moosomin to Virden and Fairlight, and Virden aggregate diversion outside the market is 100% minus the diversion ratio from Virden to Moosomin and Fairlight. Diversion ratios are weighted by net quantity sold per farm per crop year to the chosen elevator. Diversion ratios are based on a choice model that controls for drive times to each elevator choice and is weighted by net quantity sold per grower per crop year to the chosen elevator. The canola crushers in the data are ADM's Velva, Bunge's Altona and Harrowby, LDC's Yorkton, and Richardson's Yorkton canola crushers. The row "Canola Excluding Crushers" excludes these crushers from the transaction data and the choice set in the choice model.

2.2.4. The relevant geographic market need not include elevators that have higher diversion relative to the diversion between Moosomin and Virden as Ms. Sanderson appears to suggest.

56. Ms. Sanderson notes a series of pairwise diversion ratios and suggests that some aspect of market definition requires inclusion of any elevator that has a higher diversion from one of the market participants than they have to one another. Ms. Sanderson does not explain how this requirement follows from the process or principles of market definition. In fact, exclusion of these elevators is

consistent with the process for defining a geographic market as outlined in the *Guidelines*. Specifically, the *Guidelines* note that:

> "The market definition analysis begins by postulating a candidate market for each product of the merging parties. For each candidate market, the analysis proceeds by determining whether a hypothetical monopolist controlling the group of products in that candidate market would profitably impose a SSNIP, assuming the terms of sale of all other products remained constant. If the price increase would likely cause buyers to switch their purchases to other products in sufficient quantity to render the price increase unprofitable … [t]he analysis then repeats by determining whether a hypothetical monopolist controlling the set of products in the expanded candidate market would profitably impose a SSNIP. This process continues until the point at which the hypothetical monopolist would impose and sustain the price increase for at least one product of the merging parties in the candidate market."[54]

57. This process is exactly what I have done in defining my relevant market. Given the importance of transportation costs in this industry, the farmers most likely harmed by the Transaction are located between the Moosomin and Virden elevators. Thus, I postulated a candidate market of those two elevators plus the other elevator—Fairlight—that is closest to this set of customers. The test passes for this group of elevators. It would also pass for a larger group of elevators, but the process stops as soon as a candidate market passes in order to get a "smallest geographic market."[55]

58. However, it should also be noted that the algorithm envisioned in the process is hardly unique. Depending on where one starts and which direction one goes in adding additional products, it is possible to have different markets and even to generate markets that are not particularly representative of the area where merging parties compete. For example, if one started at Moosomin and added elevators that were close to Moosomin, but not in the direction of Virden,

[54] Merger Enforcement Guidelines, pp. 1–53 at p. 11.

[55] Merger Enforcement Guidelines, pp. 1–53 at p. 11 ("[A] relevant market is defined as the smallest group of products, including at least one product of the merging parties, and the smallest geographic area, in which a sole profit-maximizing seller (a 'hypothetical monopolist') would impose and sustain a small but significant and non-transitory increase in price ('SSNIP') above levels that would likely exist in the absence of the merger.").

it is likely possible to construct a market which does not focus on competition for farms between Moosomin and Virden.

59. The pairwise diversions Ms. Sanderson identifies appear to be a suggestion that I could have found another market which started at either Moosomin or Virden and headed in another direction and that this alternative market would have also passed the test. That may be true, and such a market may have been relevant for some other hypothetical merger, but it does not invalidate the market I have identified nor the implications for this merger.

60. It is also possible that Ms. Sanderson believes that the diversion ratio measures suggest something about "closer" competitors. There is a principle of market definition that one should not "skip over" a product in between the merging parties, and that principle is often expressed misleadingly as if the merging products were arrayed at opposite ends of line segment—so only closeness to one or the other matters to inclusion. However, in geographic markets, direction matters as well as mere closeness. It is easy enough to look at the map and verify that no competitor in between the parties has been "skipped over." Indeed, the maps in Exhibit 1 (wheat) and Exhibit 2 (canola including crushers) demonstrate that the market does a good job of capturing the issue of whether farms located in the corridor between Moosomin and Virden are particularly affected by the loss of competition for their grain handling services.

2.2.5. Because my relevant geographic market is, in fact, appropriate, the Transaction does not qualify for the 35% safe harbour metric, as Ms. Sanderson claims.

61. Ms. Sanderson notes that, in Exhibit 14 of my Affidavit, I reported elevators' shares of all transactions in the data I use and she argues that these shares demonstrate that the Transaction qualifies for the 35% safe harbour metric.[56] However, the shares of transactions in Exhibit 14 are not the market shares. The market shares I obtained are clearly labeled in Exhibit 10 of my Affidavit, discussed in the market share section, and summarized in the Summary of Opinions.

[56] Sanderson Response Affidavit at ¶ 97 ("P&H's post-acquisition combined share of canola purchases is [redacted] and its combined share of CWRS purchases is [redacted] both of which are [redacted]").

62. Specifically, she notes:

> "Nevertheless, using the transactions data collected by the Commissioner … P&H's post-acquisition combined share of canola purchases is [redacted] and its combined share of CWRS purchases is [redacted], both of which are [redacted]."[57]

63. The share of transactions in the data is not the same thing as the market share. Indeed, the *Guidelines* specifically consider "market shares for all sellers who have been identified as participants in the relevant market," not just any arbitrary shares.[58] If the safe harbour threshold is to have any meaning, it must be in conjunction with the concepts limiting what a relevant market is. Indeed, as I have discussed in my Affidavit, market definition allows one to delineate a market and identify market shares/concentration measures that reflect the current competition in the market.[59] Exhibit 10 of my Affidavit does just that, and the combined market shares of Moosomin and Virden reported therein exceed the safe harbour threshold at [redacted]% for canola and [redacted]% for wheat.

[57] Sanderson Response Affidavit at ¶¶ 96–97.

[58] Merger Enforcement Guidelines, pp. 1–53 at p. 17.

[59] In describing these numbers as "shares" in my report, I did not mean to suggest they represent the share of any valid, relevant geographic market—just the share of revenue included in the model. I use the standard nomenclature of distinguishing between shares as a factual measure versus market shares, which are shares based on relevant antitrust market. Ms. Sanderson appears to needlessly muddle these two points.

3. CONTRARY TO MS. SANDERSON'S CLAIMS, MY TREATMENT OF THE DATA AND MY ANALYSIS ARE RELIABLE AND DEMONSTRATE ANTICOMPETITIVE EFFECTS.

64. Ms. Sanderson spends considerable time criticizing my merger simulation model's predicted, anticompetitive effects, highlighting the following:

- She notices that the data in this case are imperfect.[60]
- She believes my model's predicted price effects are [redacted] and inconsistent with a regression of prices post-transaction,[61] and she does not believe that the predicted changes in profits can explain [redacted][62]
- She also believes that my model's implied, post-transaction quantity decreases do not comport with P&H's grain intake post-transaction.[63]

65. I recognized and discussed in my Affidavit that there are limitations to the data. However, these limitations are readily addressed with common empirical techniques. The resulting predictions of my model are a reliable measure of P&H's incentive to maximize profits post-transaction through price increases. Conversely, Ms. Sanderson endorses an unreliable approach of replacing this prospective analysis—the norm established in the *Guidelines*[64]—with a retrospective one. She aims to test whether P&H raised price and constrained output after the Transaction even while engaged in this very proceeding. In the rest of this section I will explain:

- **First**, the data, while imperfect, are in fact reliable and reliably employed to capture the important aspects of the industry—namely, how farms trade off the price of grain handling services against other factors (e.g., distance and elevator quality).

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[60] Sanderson Response Affidavit at ¶¶ 130–140.

[61] Sanderson Response Affidavit at ¶¶ 105–106 ("… a material change in price cannot be less than [redacted] … the weighted average price increases predicted using the Miller Report simulations are [redacted] in canola and [redacted] for CWRS (for Moosomin, Virden and Fairlight), which are [redacted] let alone [redacted] of cash prices.") and ¶ 113 ("… there has been no material reduction in the cash prices paid to farms resulting from the Acquisition.").

[62] Sanderson Response Affidavit at ¶ 186 ("P&H paid more than [redacted] for the 10 LDC elevators and allocated [redacted] of its purchase price for the [redacted] The annual profit improvement of [redacted] is [redacted] in the context of these purchase prices").

[63] Sanderson Response Affidavit at ¶ 118 ("P&H's demonstrated purchases post-Acquisition, and its plans for the future (at Virden and also given its investments in the Fraser Grain Terminal) show it is [redacted] its total purchases at the Moosomin and Virden elevators…").

[64] Merger Enforcement Guidelines, pp. 1–53 at p. 6 ("The jurisprudence establishes that it is the ability to raise prices, not whether a price increase is likely, that is determinative.").

- **Second**, the predicted anticompetitive effects of the Transaction are relevant. The lost consumer surplus—i.e., the harm to farms—is concentrated in farms that are geographically proximate to the Moosomin and Virden elevators. Ms. Sanderson's observations of [redacted] effects are an attempt to focus attention on the less-affected farms farther from Moosomin and Virden, which do not alleviate the harms in this central area.
- **Third**, my analysis does not depend on or assume that elevators are limited by capacity constraints.
- **Finally**, Ms. Sanderson's retrospective analysis is inappropriate. Moreover, her implementation of a retrospective analysis is flawed. Even if one attempted to correct the flaws, this approach necessarily would have very limited ability to identify effects due to its reliance on a very short time period, which happens to be a generally atypical time worldwide.

3.1. The data I use in my analysis are reliable for the purposes for which I employ them.

66. Ms. Sanderson argues that the data I use in my analysis are flawed.[65] Her main concern appears to be that the price of grain handling services at the transaction level contains measurement error, and that this contributes to a wide dispersion of prices.[66] Ms. Sanderson further claims that taking the median over those transaction-level prices does not sufficiently address this problem.[67] Additionally, she takes issue with the inputs of my merger

[65] Sanderson Response Affidavit at ¶¶ 130–140.

[66] Sanderson Response Affidavit at ¶¶ 130, 136 ("Conceptually, the imputed price seems straightforward but practically it is measured with substantial error in the Miller Report … These measurement errors result in a wide range of imputed prices of "grain handling services" that do not reflect differences in local market conditions."). I do not agree with all of Ms. Sanderson's criticism related my measurement of prices. For example, Ms. Sanderson wrongly claims that my use of a future price based on transaction date as opposed to the "futures price referenced on the grain contracts" leads to measurement error. I use the price in the financial market around the time of the transaction as opposed to the contract date where I implicitly assume that farmers take on the financial risk of movements in the futures market. By assuming the farmer took that risk, I am not including an insurance service provided by elevators in my calculations. Sanderson Response Affidavit at ¶ 133 ("The transactions data does not include the futures price referenced on the grain contracts of any grain purchase transaction.").

[67] Sanderson Response Affidavit at ¶ 140 ("Choosing a median value among this diverse set of incorrectly defined prices will not provide an accurate representation of the markup or margin.").

simulation model worrying that all of my estimates are based on one figure: the cost to handle grain at Virden.[68]

67. Ms. Sanderson, however, has not identified any reason that my competitive effects analysis would be wrong or biased, in one direction or the other, due to these measurement error issues. She appears to fixate on whether the data are perfect instead of whether it is possible to overcome data imperfections in order to achieve reliable results. As I mention below, some level of data imperfection always needs to be dealt with, and there exists a plethora of analytical and econometric methods widely used in the discipline that allow researchers to do so and arrive at reliable conclusions.

68. The use of imperfect data to address economic issues is necessary in the academic and antitrust worlds. This is an exercise I have gone through multiple times as an academic—while the data in this matter are imperfect, they are in fact substantially better than many datasets used in the academic literature.[69] In my experience, Ms. Sanderson's standard for acceptable data would have dire consequences for academic research and even for antitrust enforcement.

69. In my Affidavit, I acknowledged the data imperfections that Ms. Sanderson mentions and used established techniques to employ the data in a way that respects this measurement error.[70] To be clear, an analysis of competition has to include some consideration of elevator prices and has to deal with the volatility of the transaction price data somehow. I recognized the limitations of these data and structured my analysis accordingly. In particular, my analysis does not use the individual transaction prices. Instead, it accounts for the variation in individual transaction prices by using, as a proxy for the poorly observed individual prices, a measure of central tendency—the median—that is resistant to the influence of outliers.[71]

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[68] Sanderson Response Affidavit at ¶ 140 ("The error in imputing a price for "grain handling services" introduces error in markups and margins making the conclusions reached in the Miller Report with respect the hypothetical monopolist test, UPP, GUPPI or merger simulation unreliable").

[69] For example, in Miller and Osborne (2014), my co-author and I demonstrated techniques to analyze markets where the only available data is regional average prices, consumption levels, and production capacity. Miller, Nathan H., and Matthew Osborne, "Spatial differentiation and price discrimination in the cement industry: evidence from a structural model," *The RAND Journal of Economics*, 45(2), 2014, pp. 221-247.

[70] Miller Affidavit at ¶ 178 ("[T]hese imputed prices involve many outliers.").

[71] Rousseeuw, Peter J., and Christophe Croux, "Alternatives to the median absolute deviation," *Journal of the American Statistical Association*, 88 (424), December 1993, pp. 1273-1283 at p. 1273 ("Although many robust estimators of location exist, the sample median is still the most widely known. The median has a breakdown point of 50% (which is the highest possible), because the estimate remains bounded when fewer than 50% of the data points are replaced by arbitrary numbers … The sample median and the MAD [median absolute deviation]

70. The specific example that Ms. Sanderson chose to illustrate her claim actually suggests that the proxy performs well at its intended purpose. Ms. Sanderson uses a contract that [redacted] farm entered with P&H at Moosomin to illustrate the different sources of measurement error she criticizes of my methodology.[72] Based on the stipulations of that contract, Ms. Sanderson calculates a price of grain handling services of $[redacted] and compares it with the prices I calculate for each transaction of wheat associated with this contract, focusing on the point differences. Some of these differences are quite large, as Ms. Sanderson points out. The *median*, on the other hand, of these transaction prices is $[redacted],[73] which is reasonably close to the price of $[redacted] obtained by Ms. Sanderson with complete information. Thus, contrary to the claims of Ms. Sanderson, this example actually demonstrates how using a median corrects for measurement error. In my Affidavit, I take the median over thousands of observations, which makes the approximation to the central tendency of price even better. In fact, interestingly, my calculated year-level median price for all wheat transactions with Moosomin is $[redacted],[74] which means that the [redacted] contract price is very well approximated in my model estimation.

71. On the other hand, the data I employ are extremely rich in other dimensions, which allows me to minimize reliance on the transaction prices. In particular, the data include details of which elevator was chosen by a specific farm and for how much volume. I exploit this richness to reliably estimate competitive effects in ways that do not require individual transaction prices. For example, I estimate diversion ratios using the choice probabilities predicted by my model, without relying on transaction price data whatsoever. I minimize the impact of these measurement errors in my results by confining the use of any price data—even the median—to the estimation of the markup earned by the Virden elevator. Thus, as is appropriate, I lean more heavily on the aspects of the data that are of higher quality.

72. Ms. Sanderson is particularly interested in claiming that the Virden markup is flawed by measurement error. She still does not present any explanation of why imperfections in the data render the calculation wrong or biased in either

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are simple and easy to compute, but nevertheless very useful. Their extreme sturdiness makes them ideal for screening the data for outliers…").

[72] Sanderson Response Affidavit at ¶ 131–135.

[73] See my workpaper 2.

[74] Miller Affidavit at Exhibit 6.

direction—but rather emphasizes that it is measured with error. Further, she focuses on my use of that markup to argue for the reasonableness of my geographic market definition.[75] Ms. Sanderson states that [redacted] margins cannot justify the small number of competitors included in my geographic market because the margins are measured with error. Her claim is that there is an inconsistency between how the prices of grain handling services and margins between Virden and Moosomin compare, and the fact that these elevators impose a competitive constraint to each other:

> "If Virden has a [redacted] margin on "grain handling services" for canola while its prices are [redacted] than Moosomin, the *implication* is Moosomin has not constrained Virden's prices for "grain handling services" in canola. In CWRS, the median price of "grain handling services" at Virden is [redacted] than at Moosomin, yet the Miller Report claims Virden has a [redacted] margin in wheat grain handling services."[76] (emphasis added)

73. Contrary to Ms. Sanderson's implication, however, these price differentials not only are consistent with the margins, but also they suggest that I have used the correct model of competition. From her implication, Ms. Sanderson appears to be assuming that competition is undifferentiated. That is, she assumes the only thing elevators compete on is the size of their basis offered. Rather than proving anything about the margins, however, this comparison just proves that elevators each have some local market power, i.e., there are farmers that, all else equal, would prefer to work with certain elevator. This is why I have modeled competition as between differentiated products and not used the undifferentiated model that Ms. Sanderson assumes.

[75] Sanderson Response Affidavit at ¶¶ 145–146 ("The importance of the error in defining and measuring the price of "grain handling services" is immediately evident. The Miller Report claims that the Virden elevator earns a [redacted] margin on "grain handling services" for canola and a [redacted] margin on "grain handling services" for CWRS … The percentage margins defined in the Miller Report for "grain handling services" at Virden are not correctly defined or measured indicators of market power. As such, these margins should not be used to define the relevant market.")

[76] Sanderson Response Affidavit at ¶ 145.

3.1.1. Ms. Sanderson's criticism of my calculation of the cost of grain handling services reflects her misunderstanding of the economics behind market definition in this industry.

74. Ms. Sanderson also takes issue with the set of line items I use to calculate the marginal cost and Virden's markup, stating that such selection is inconsistent with my view of farms purchasing grain handling services instead of shipping to terminal ports directly.[77] Ms. Sanderson suggests that I should have included the cost of the logistical and transactional services needed to bring grain from the elevator to end-customers as part of the cost of grain handling services. This reflects a misunderstanding of the economics behind my proposed relevant product market. If the price P&H receives when it sells grain (in Vancouver, for example, or Thunder Bay) —what I call the terminal elevator export price in Section 2.1.1—is higher than the futures market price, then P&H would earn a positive markup on the grain itself, in addition to their markup on grain handling services. I exclude both the costs and the revenues of these downstream operations because they are segmented from the local competition for grain handling services. P&H competes with different companies in this part of its business than it does in offering services to local farmers at primary elevators. Including only the costs—and not the revenues—associated with this downstream line of business, as Ms. Sanderson proposes, would be incorrect.

75. The futures market price, which (as I discuss above in Section 2.1.1) Ms. Sanderson repeatedly notes is the reference price used in transactions between elevators and farmers, is defined to focus on taking possession of the grain in the middle of the continent. It distinctly separates this initial operation from operations even farther downstream in the grain's movement from farm to table. Since this first operation is where elevators and farms interact and where all of the competition at issue occurs, drawing the line there for product market definition is appropriate for analysis in this case. Ms. Sanderson suggests drawing no line as a result of P&H being vertically integrated. While vertical integration may give P&H the incentive and ability to coordinate between their primary elevator operations and their downstream operations, other companies have different vertical arrangements. Attempting to delineate a market around the structure of only one participant is bound to create a misleading impression and is prone to bizarre suggestions such as substitution between links in a

[77] Sanderson Response Affidavit at ¶¶ 123–125.

supply chain. The vertical levels of this supply chain need to be carefully delineated for proper product market definition.

76. I should also note that accounting for the fact that P&H is vertically integrated, as Ms. Sanderson appears to have suggested in this critique, only adds to their incentive to raise prices. Specifically, as discussed in my Affidavit, the primary economic force driving the price increase after the Transaction lies in the fact that P&H can recapture some of the lost profits in response to a price increase in one elevator (e.g., Moosomin) through its potential to earn a markup on sales at the other elevator (e.g., Virden).[78] Adding the markup P&H earns downstream to this calculation will lead to additional incentives to increase price.

77. This effect can be illustrated with the formula for Upward Pricing Pressure (UPP). As discussed in my Affidavit, the UPP is a measure of the incentive of the recapture of lost profits.[79] Formally, the UPP from elevator i to elevator j is defined as follows:

$$UPP_{i \to j} = Diversion\ ratio_{i \to j} \times Markup_j$$

78. Note that the markup I have used in the analysis in my Affidavit *only* includes the markup earned by P&H from the grain handling component of its business line.[80] Presumably, P&H makes additional profits by trading these grains, and as such, accounting for such additional markup would tend to increase the UPP above the level I used in my analysis. Since the UPP measures the incentive to raise prices, accounting for this additional markup in my merger simulation analysis would also tend to increase the predicted price increase in my merger simulation, as well as the consumer surplus loss and deadweight loss estimates.

[78] Miller Affidavit at ¶ 88.

[79] Miller Affidavit at ¶¶ 120–121.

[80] Miller Affidavit at ¶ 156.

3.2. Anticompetitive effects are not negligible, and it is not relevant whether they are sufficient to explain the transaction.

79. Ms. Sanderson claims that the price increases predicted by my model are not material.[81] My model predicts price increases at the Virden and Moosomin elevators of [redacted] and [redacted] for wheat and [redacted] and [redacted] for canola, respectively.[82] These amount to a [redacted] and [redacted] increase in the price of grain handling services for wheat at the Virden and Moosomin elevators, respectively, and a [redacted] and [redacted] increase in the price of grain handling services for canola at the Virden and Moosomin elevators, respectively. These are also [redacted].[84] Ms. Sanderson disregards this threshold based on the fact that 2 cents is less than one percent of the cash price for both canola and wheat.[85] However, in the correct context of the price of grain handling services, 2 cents is a reasonable threshold—it represents [redacted] of wheat and [redacted] of canola handling prices for Moosomin and [redacted] of wheat and [redacted] of canola handling prices for Virden.[86]

80. Contrary to Ms. Sanderson's statements,[87] the price increases predicted by my model would generate a level of harm per farm that would reasonably raise

[81] Sanderson Response Affidavit at ¶¶ 101–106.

[82] Miller Affidavit at Exhibit 14. Note that the canola prices are expressed a range that captures the predicts price increases for canola including crushers on the lower bound and the predicted price increases for canola excluding crushers on the upper bound.

[83] See my workpaper 3 using Ms. Sanderson's conversion factor (Sanderson Response Affidavit at ¶ 104; Sanderson Response Affidavit at Footnote 136 ("For canola, there are 44.092 bushels of canola in a MT of canola. Thus, the average variation in futures price is [redacted] For wheat, there are 36.744 bushels of wheat in a MT of wheat. Thus, the average variation in futures price is [redacted] ").

[84] Sanderson Response Affidavit at ¶ 104; [redacted] ").

[85] Sanderson Response Affidavit at ¶ 105 ("[A] material price decrease … should not be less than 1% of the cash purchase price…").

[86] See my workpaper 3.

[87] Sanderson Response Affidavit at ¶¶ 105–106 ("If the 5% threshold were to be used, a material price decrease would be [redacted] Even if a material price decrease is less than 5%, it should not be less than [redacted] of the cash purchase price; hence, a material change in price cannot be less than [redacted] … the weighted average price increases predicted using the Miller Report simulations are [redacted] in canola and [redacted] for CWRS (for Moosomin, Virden and Fairlight), which are [redacted] let alone [redacted] of cash prices.").

antitrust concern. I find harm to farms—or decrease in consumer surplus—of around [redacted] per year for wheat and [redacted] per year for canola.[88] This welfare loss from the Transaction would be concentrated in areas where farms are most likely to purchase from the Moosomin and Virden elevators.[89]

81. In Exhibit 4 and Exhibit 5, I illustrate this point. The exhibits allocate, by town, the total loss in consumer surplus for wheat and canola (with crushers), respectively.[90] The light yellow dots represent towns where harm is likely to be relatively small, but not negligible, in combination with the larger losses in red located closer to the area between Moosomin and Virden.

EXHIBIT 4
Change in consumer surplus by town for wheat

Source: Grain Elevators in Canada Data; 2016 Census Program CCS Boundary Files; LDC Transaction Data; P&H Transaction Data; ADM Transaction Data; Cargill Transaction Data; G3 Transaction Data; Richardson Transaction Data; Viterra Transaction Data

Note: Primary elevators and process elevators, which include crushers, are shown as triangles. CCSs with a centroid within 100 km from Virden or Moosomin are shown. Includes CWRS wheat transactions occurring between August 2018 and July 2019. The analysis is limited to transactions in the 90% service area and within 600 km of Moosomin or Virden. CCSs in gray are outside of the 90% service area. Only cities that are geocoded within 90% service area CCSs are shown.

[88] Miller Affidavit at Exhibit 15. Canola values reported reflect the welfare results of canola including crushers.

[89] See Exhibit 1 (wheat) and Exhibit 2 (canola including crushers).

[90] I report total consumer surplus loss by town because the data I have does not identify unique farms consistently across transactions from different elevator parent companies.

EXHIBIT 5
Change in consumer surplus by town for canola including crushers

Source: Grain Elevators in Canada Data; 2016 Census Program CCS Boundary Files; LDC Transaction Data; P&H Transaction Data; ADM Transaction Data; Cargill Transaction Data; G3 Transaction Data; Richardson Transaction Data; Viterra Transaction Data

Note: Primary elevators and process elevators, which include crushers, are shown as triangles. CCSs with a centroid within 100 km from Virden or Moosomin are shown. Includes canola transactions occurring between March 2018 and February 2019. Nexera and non-GMO canola are excluded. The analysis is limited to transactions in the 90% service area and within 600 km of Moosomin or Virden. CCSs in gray are outside of the 90% service area. Only cities that are geocoded within 90% service area CCSs are shown.

82. This area between Moosomin and Virden also roughly maps to the area Ms. Sanderson identified as her "corridor of concern," where her staff tracked down the specific farm locations using various data sources.[91] The widest, most inclusive spot in her "corridor of concern" is around the town of Elkhorn MB. Of the 82 farms in her corridor, Ms. Sanderson identified 27 farms located in Elkhorn. If these farm counts correctly account for all the farms in Elkhorn, then my consumer surplus estimates show an average loss per farm in Elkhorn of around [redacted] per year for wheat, which seems credible.[92] Specific farms located in the central area—ones for which volumes are reported in their witness statements—would have expected losses of more than [redacted] a year for wheat.[93]

[91] Sanderson Response Affidavit at ¶ 85.

[92] See my workpaper 4.

[93] [redacted] a witness with a farm located in the town of Elkhorn, testified that he planted about [redacted] bushels of wheat, which is approximately [redacted] MTs. Using the consumer surplus loss per metric tonne in

3.3. My analysis does not depend on capacity constraints—elevators are assumed to be able to absorb any increase in volume.

83. Mr. Heimbecker notes that it should be easy for rival elevators to expand capacity in his witness statement. He describes how rivals are not constrained by their capacity to take in grain and how rivals are able to easily expand their elevator capacity. He notes that:

> "Based on P&H's experience with its own capacity and throughput expansions, I believe that rival Elevators could easily add significant grain purchasing capacity, if needed, in less than 2 years. More particularly, P&H has been able to complete rail and storage expansions at several of its Elevators in nine months or less. In each case, those projects significantly increased throughput capacity at the facility in question."[94]

84. In fact, I have assumed that elevators can absorb any relevant increase in their volume without any need to invest in additional capacity. Capacity constraints are not what I have modeled as the limiting factor for an elevator to win new business in competition. Rather, the model assumes that the key to competition is the preferences of farmers and the need to compensate them through lower prices for a less suitable match to their preferences. Consequently, I have modeled each elevator as having a constant marginal cost no matter how much volume the elevator manages to win. That is, I have assumed the extreme form of Mr. Heimbecker's assertion—that capacity expansion is so easy that it is not a consideration at all.

85. Of course, if elevators realistically would hit a capacity constraint and would have to make sizable investments to win additional customers, this would tend

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Elkhorn [redacted] he would experience consumer surplus loss in monetary terms of [redacted] per year on that wheat. Another witness with a farm located in the town of Moosomin, [redacted] testified that last year he grew approximately [redacted] metric tonnes of wheat. The consumer surplus loss in Moosomin [redacted] means that he would lose around [redacted] per year on that amount of wheat. See my workpaper 5. See Witness Statement of [redacted] August 25, 2020, p. 1-7 at p. 4 ("This year I planted [redacted] acres of wheat and [redacted] acres of canola. Based on previous harvests, I expect this will yield approximately [redacted] bushels of wheat and [redacted] bushels of canola."); Witness Statement of [redacted] August 26, 2020, pp. 1-7 at p. 2 ("Last year, I grew approximately [redacted] metric tonnes in canola and approximately [redacted] metric tonnes of wheat.").

[94] Witness Statement of John Heimbecker, October 13, 2020 at ¶ 152. He goes on to describe specific examples of P&H capital investments completed in that last 10 years. See Witness Statement of John Heimbecker, October 13, 2020 ¶ 153 ("For example, P&H completed a rail expansion at its Hamlin SK Elevator which increased the rail car spots from 56 to 104 in six and a half months. Construction work began August 2009 and was completed in February 2010 [redacted] ").

to soften the competitive constraint that rivals could place on P&H. To that extent, my assumption of constant marginal costs may be conservative. It would also introduce the possibility that the merger reduces the incentive to make competitive investments in capacity, which, as I noted in my Affidavit, may be an explanation for changes in the investment to upgrade Moosomin's capacity.[95] However, the analysis in my merger simulation and the harm I calculate from that simulation is not assuming constrained capacity.

3.4. Ms. Sanderson's retrospective analysis is inappropriate for evaluating the competitive effects of the Transaction.

86. Ms. Sanderson argues, using a brief retrospective analysis, that the Transaction did not in fact produce the sorts of anticompetitive effects that my analysis predicts.[96] There are both conceptual and methodological reasons why this piece of Ms. Sanderson's analysis should be ignored.

87. Conceptually, there is no reason to expect that P&H would have been acting on its incentives immediately after the Transaction. Indeed, it would be surprising to learn that P&H has moved ahead to implement price increases while this proceeding is underway and while it is soliciting farmers in the affected area for witness statements. The *Guidelines* are clear that it is the *incentive* to profitably raise prices that is dispositive for good reason.[97] Any merger retrospective analysis would yield inconsistent and misleading results if the data that is supposed to reflect P&H acting on its new incentives instead reflected a temporary period of [redacted]"[98]

[95] Miller Affidavit, Section 5.6.

[96] Sanderson Response Affidavit at ¶¶ 107–120.

[97] Merger Enforcement Guidelines, pp. 1–53 at p. 6 ("The jurisprudence establishes that it is the ability to raise prices, not whether a price increase is likely, that is determinative.").

[98] [redacted]").

88. Even if one were to accept the conceptual validity of this exercise, Ms. Sanderson's analysis is flawed and her regressions are not reliable for examining changes in posted prices explained by the Transaction. Ms. Sanderson's attempts to implement a difference-in-differences framework that, when applied correctly, can be informative about whether an event introduced a difference between two economic actors who had behaved similarly prior to the event.

89. In particular, Ms. Sanderson has not attempted to demonstrate that her selected comparator elevator behaved similarly to the affected elevators prior to the Transaction or why any differences should be ascribed to the timing of the event.[99] Moreover, the posted prices are used as if they are independent observations, rendering her analysis unreliable and prone to significant correlation issues.[100] Among the other flaws in her analysis:

- The bid prices are not the actual transaction prices.[101]

[99] She has not, in fact, shown anything about why this comparator elevator meets the predicate of the test. This "parallel trends" test is well-known in the literature as the most basic requirement for a difference-in-differences approach to give reliable estimates. See Ahlfeldt, Gabriel M., "Weights to Address Non-parallel Trends in Panel Difference-in-differences Models," *CESifo Economic Studies*, 64(2), May 24, 2018, pp. 216-240 at p. 216 ("The key identifying assumption in this comparison is that of parallel counterfactual trends. In the simplest case of a binary treatment (either treated or not treated), the treated and non-treated (control) subjects are assumed to follow the same outcome trend in the absence of a treatment. This assumption, however, is not only ambitious but also not testable because the counterfactual cannot be directly observed. Arguably, the closest approximation of the counterfactual trend is the 'pre-trend', the trend observed before the effects of a treatment can be anticipated.").

[100] For example, her analysis does not examine or allow for correlation between prices posted at the same time as part of a menu of options, nor does it account for correlation over time—particularly important in this matter as the world price of grain continuously reacts to an evolving history. These omissions have been shown in the literature to overstate the precision of regression estimates. See Bertrand, Marianne, Esther Duflo, and Sendhil Mullainathan, "How much should we trust differences-in-differences estimates?," *The Quarterly Journal of Economics*, 119(1), February 2004, pp. 249-275 at pp. 249, 273. ("Most papers that employ Differences-in-Differences estimation (DD) use many years of data and focus on serially correlated outcomes but ignore that the resulting standard errors are inconsistent. … Our study suggests that, because of serial correlation, conventional DD standard errors may grossly understate the standard deviation of the estimated treatment effects, leading to serious overestimation of t-statistics and significance levels.") and at p. 250 ("DD estimates and their standard errors most often derive from using Ordinary Least Squares (OLS) in repeated cross sections (or a panel) of data … Standard errors used to form confidence interval for $\hat{\beta}$ are usually OLS standard errors, sometimes corrected to account for the correlation of shocks within each [group]-[time] cell … This correction accounts for the presence of a common random effect at the [group]-[time] level. … Ignoring this grouped data problem can lead to inconsistent standard errors.").

[101] For example, I believe that her bid prices are those set and offered network-wide through [redacted] for each grain grade and delivery date based on the structure of the price data. If that is the case, these prices do not describe the actual transaction price, nor do they account for whether a transaction occurred. See P&H LDC Pricing Data.xlsx; Sanderson Response Affidavit at ¶ 28 ("In keeping with these [redacted] in purchases, regression analysis of bid prices since the Acquisition shows P&H has [redacted] for canola or for CWRS at Moosomin or Virden.").

- Her analysis does not include appropriate weighting of the observations.[102]
- Her model does not control for idiosyncratic factors that may have affected an elevator's bid price in a given month.[103]
- She does not control for any trends in bid prices that may have spanned the four years of her analysis.[104]

90. In another retrospective analysis Ms. Sanderson asserts that, contrary to my model's predictions, [redacted] post-Transaction using changes in total quantities.[105] This retrospective analysis is also subject to the issue of assuming P&H's incentives are independent of its advocacy during this time period. However, for this analysis, Ms. Sanderson did not even attempt to use a regression analysis, but only compared raw percentage changes in quantity.

[102] Weighting observation by transacted volume allocates appropriate significance to the observations that are most affected by competition. Korn, Edward L., and Barry I. Graubard, "Examples of differing weighted and unweighted estimates from a sample survey," *The American Statistician*, 49, (3), August 1995, pp. 291-295, at p. 291 ("Weighted estimators, which are weighted by the sample weights, are approximately unbiased for their corresponding population quantity (Kish and Frankel 1974) … Unweighted estimators that ignore the sample weights can be badly biased for population quantities.").

[103] She does not include elevator-month fixed effects. These fixed effects would control for factors affecting all prices of an elevator in a given month, but that are not observed and cannot be included directly in the model. See Angrist, Joshua D., and Jörn-Steffen Pischke, *Mostly Harmless Econometrics: An Empiricist's Companion*, (Princeton, NJ: Princeton University Press, 2009), p. 221 ("The key to causal inference … is control for observed confounding factors" including "strategies that use data with a time or cohort dimension to control for unobserved but fixed omitted variables," which is in reference to fixed effects estimators.).

[104] In particular, the pricing data she uses for her regression analysis includes the years 2016 to 2020 and her month-level fixed effects do not account for the years in which they occur, capturing perhaps seasonality effects alone. See Sanderson Response Affidavit, Figures 33–34, Appendix at p. 84 ("Here, these control variables include the futures price in the same day of the observed price, and a collection of indicator variables associated with the month of the posted price and the delivery month of the posted price.").

[105] Sanderson Response Affidavit at Figure 36, ¶ 118 ("Figure 36 provides the year over year grain deliveries to Moosomin and Virden comparing deliveries for the January to July period. Total canola deliveries to the combined elevators [redacted] post-Acquisition. Total CWRS deliveries to the combined elevators [redacted] post-Acquisition.").

4. CONTRARY TO MS. SANDERSON'S CLAIM, MY SURPLUS CALCULATIONS ARE RELIABLE AND CONSISTENT WITH STANDARD MERGER REVIEW

91. Ms. Sanderson's attempts to "explain" my surplus calculations and suggests that the results are unusual or inconsistent.[106] In doing so, she makes four flawed arguments about my surplus calculations:

- **First,** she compares my surplus calculations to those she calculates from a simpler model of supply and demand, and she obtains much smaller values. However, my model is richer and more appropriate. Furthermore, her calculations using the simpler model are incorrect and, when corrected, they closely match my original estimates. (See Section 4.1)
- **Second,** she notes that, in the model, many farms have a low probability of choosing Moosomin or Virden and suggests their loss of choice is irrelevant.[107] As I explain in detail in Section 4.2, that implication is incorrect. The correct and consistent approach is to count them as what they are—small effects for some farms combined with large effects for others that may be of significance as a whole.
- **Third**, Ms. Sanderson notes that much of the welfare effect captures farms that are pushed to leave the market and suggests that the calculation should include all the implications from these choices—even those *outside* of the market.[108] Her suggested method is inconsistent with the usual line drawn between partial-equilibrium analyses, which are used to examine competitive conditions in a market, and the general-equilibrium concepts of surplus or the economic efficiency notions of deadweight loss. The normal practice uses partial-equilibrium analysis to identify the impetus created by changes in competition in a specific market—not to trace every ripple of that change throughout the economy outside of the properly-defined market. (See Section 4.3)

[106] Sanderson Response Affidavit at ¶ 168–187.

[107] Sanderson Response Affidavit at ¶ 177 ("… much of the change in expected utility that forms the basis of the Miller Report's consumer surplus losses are from farms that are not close to either Moosomin or Virden and for which one would not expect the Acquisition to matter.")

[108] Sanderson Response Affidavit at ¶ 178 ("Notwithstanding the Miller Report's finding that most consumer surplus losses are associated with farm locations that do not deliver grain to Moosomin or Virden pre-Acquisition and that do not have Moosomin and Virden as their closest elevator options, all farm location consumer surplus losses are included by Dr. Miller in his reported welfare results without including the profit improvement that accrues to the many rival elevators that these farm locations use.").

- **Fourth**, Ms. Sanderson claims that my merger simulation results suggest that price increases from the parties are "unlikely."[109] To make her claim, she relies on assumptions that are far removed from standard merger analyses and economic theory. She assumes that [redacted] if (1) such a [redacted] and (2) if the [redacted][110] She makes her claim as if [redacted]. (See Section 4.4)

92. I explain these points in detail below, but before I do so, I discuss the basic tenant of merger analysis under the canonical model of simple supply and demand. In particular, I explain how my model deviates from that canonical form in order to include factors that matter in this industry—including a role for imperfect competition that better reflects both the pre- and post-Transaction state of this market.

4.1. My surplus calculations are consistent with standard supply-and-demand models and better reflects market realities

93. The canonical supply and demand is a familiar and simple way to illustrate some of the core concepts of economics. However, this model has limitations that are particularly apparent in competition analysis. In particular, the model only allows one price, which can be either a price dictated by a monopolist or a price taken by perfectly competitive suppliers. It does not allow the flexibility to analyze how individual firms would set their prices and how those prices might change in response to specific competitors. The model also does not include any reason that customers would prefer one firm over another. There is no scope for firms to compete for customers through better quality or more efficient operations. These are all factors that are central to analyzing competition. Consequently, the economic models used in merger analysis, while consistent

[109] Sanderson Response Affidavit at ¶ 178 ("It is highly unlikely that P&H would increase prices for "grain handling services").

[110] Sanderson Response Affidavit at ¶¶ 185, 186 ("Dr. Miller's simulation model finds it is [redacted] for Moosomin to implement a price increase for "grain handling services" in respect of canola post-Acquisition … It is highly unlikely that P&H would increase prices for "grain handling services" as this model suggests given the [redacted]").

with the concepts of the canonical model, rely on more complicated assumptions about firms and consumers.

94. Analyzing how a merger changes competition requires modeling the reasons—including relative prices, different distances, objective quality, and subjective match—that farms choose one elevator over another. Those reasons establish the framework of the competitive dynamic played out among the competing elevators. Each elevator will have distinct pricing incentives depending on how their offer compares with those of competitors across all of these factors. And, in such a model, when competition is diminished and elevators raise prices, farmers make choices that are less efficient on each of these fronts—driving farther, settling for lower quality, or forgoing elements of the service at a particular elevator that the farmer values.

95. The canonical model is the model that Ms. Sanderson refers to as the "more familiar model of linear demand."[111] It differs from my richer model in several respects. In my model, firms operate on their own firm-specific demand curves, which are the product of strategic interactions among them. Also, my model expands the choices of farmers from simply "buy" or "don't buy" to a rich set of options the farmer values differently. Despite these important differences, she lifts parameters from my calibration and suggests they can be applied just as well within the canonical model—claiming that my simulation results yield an annual deadweight loss estimate of [redacted] in canola and [redacted] in CWRS.[112] Notwithstanding the fact that deadweight loss's role in this proceeding is limited to comparison with cognizable efficiencies, which I understand are not significant, her re-calculation is inappropriate.

96. My merger simulation measures the same concepts of consumer surplus and deadweight loss that are illustrated in the canonical example, but it is based on a more realistic model that respects the choices that elevators and farms actually make, and the tradeoffs that they evaluate, which opens up more levers through which harm and inefficiency can occur. By ignoring all of these and pretending that the simulation results can be ported to the canonical model, Ms. Sanderson is devaluing the farms' preferences, the reasons that there is

[111] Sanderson Response Affidavit, ¶ 181. This is a misapplication of my model. The two models, as I discuss above, are based on different assumptions.

[112] Sanderson Response Affidavit, ¶ 181.

competition, and the overall quality of the farm-elevator pairings as an aspect of economic efficiency.

97. In fact, Ms. Sanderson's deadweight loss calculation is incorrect *even if* one assumes a simple model of linear, downward-sloping demand, and horizontal supply. Ms. Sanderson has implicitly assumed, incorrectly, that the pre-merger price was equal to marginal cost. However, the pre-merger price was certainly higher than the marginal cost, as elevators were earning a profit pre-merger.

98. The incremental deadweight loss is not just the triangle above price. It includes this area, but the lost value is actually the difference between demand and marginal cost, which is a larger area. The fact that price changes have larger efficiency effects when a market is *already* inefficient is a well-understood phenomenon in microeconomics and public economics.[113]

99. In this case, change in deadweight loss would be approximately equal to the area of a $trapezoid$, or $\frac{1}{2}(\Delta P \times \Delta Q) + (M^{pre} \times \Delta Q)$, where M^{pre} represents the pre-merger markup. Of this change, Ms. Sanderson only computes the first term, $\frac{1}{2}(\Delta P \times \Delta Q)$, or the triangle at the top of the trapezoid.

100. In fact, doing a rough calculation using this improved formula, and incorporating changes at Fairlight, which she leaves out, gives a very close approximation to my original results. In particular, applying the above formula to each of the three elevators and summing yields numbers *within* [redacted] *of my original estimates for both wheat and canola*.[114]

4.2. I have appropriately weighted the expected effect of the Transaction on the farms' likelihood of choosing Moosomin and Virden in my calculation of consumer surplus.

101. Ms. Sanderson appears to suggest that the inclusion of all farms in the transaction data in my calculation of consumer surplus is inappropriate and claims that my calculation is "different from the more typical merger case."[115]

[113] Browning, Edgar K., "On the Marginal Welfare Cost of Taxation," *The American Economic Review*, 77(1) ("The increment in the total welfare cost produced by this increase in the marginal rate is shown by area CDEA [in Figure 2].").

[114] See my workpaper 6.

[115] Sanderson Response Affidavit at ¶ 175. See also Sanderson Response Affidavit at ¶¶ 171–178.

Her conclusion relies on the observation that in my calculation (1) a large percentage of the farms have a small amount of CS loss[116] and (2) that "much of the change in expected utility that forms the basis of [my] consumer surplus losses are from farms that are not close to either Moosomin or Virden."[117]

102. I agree with Ms. Sanderson that customers who are less likely to purchase from Virden and Moosomin are less likely to be harmed. This is evident in Exhibit 4 and Exhibit 5 above where I have shown that the farms that experience more harm are located in towns closer to Moosomin and Virden.[118]

103. However, even those farms that are less likely to procure the grain handling services of Moosomin and Virden may still be harmed because, ultimately, they consider the Moosomin and Virden elevators as a part of their choice sets. A price increase from these elevators worsens the farms' viable alternatives and choice sets.

104. The fact that farms consider the two elevators in their choice set reflects the fact that even farms that are less likely to choose Moosomin or Virden may, at some point in time, procure services from Moosomin and Virden, for whatever idiosyncratic reason they may have. My consumer surplus calculation properly accounts for this possibility—however small it may be. Specifically, as Ms. Sanderson correctly notes,[119] my consumer surplus calculation measures the expected decline in farm utility that results from an increase in the price of grain handling services. It accounts for both the increase in price that the farms may incur *and* the extent to which the farm expects to incur such price increase (i.e., the probability that the farm will choose the Moosomin and Virden elevator).

105. I have taken the consistent path of recognizing a farm's likelihood of making a given elevator choice and letting the size of that likelihood scale the role it plays in the overall assessment (of the market or of the harm). Exhibit 4 (wheat) and Exhibit 5 (canola including crushers) make it clear that farms distant from Moosomin and Virden—i.e., farms that are less likely to procure

[116] Sanderson Response Affidavit at ¶ 174.

[117] Sanderson Response Affidavit at ¶ 177.

[118] Certain towns located near Moosomin and Virden may have lower overall consumer surplus loss because they deliver smaller quantities of grain to elevators in the data, as shown in the size of the point representing the town. The reverse is true for towns who are located far from the two elevators and deliver high quantities of grain.

[119] Sanderson Response Affidavit at ¶ 170 ("the change in consumer surplus in the Miller Report's simulation is a change in the expected utility of farms—it is the difference in farms' expected utility post-Acquisition compared to farms' expected utility pre-Acquisition.").

services from the Parties—are weighted less in my calculation since they have a smaller change in consumer surplus. That many more-distant farms have a small likelihood and small contribution to harm does not negate the fact that there are parts of this region where the likelihood and the harm are high.

106. As noted in my Affidavit, my approach for calculating consumer surplus is standard in merger review and the academic literature.[120] Ironically, excluding farms that are less likely to purchase from Moosomin and Virden is inconsistent with Ms. Sanderson's argument in other parts of her Response Affidavit. Specifically, in her argument related to geographic market, she suggests that any elevator ever chosen by a farm is as important as the elevator most frequently chosen by that farm.[121] When she proposes excluding from surplus calculations any farms that are less likely to purchase from Moosomin or Virden, she takes precisely the opposite position—i.e., that one should remove these farms since they are less likely to be affected by the merger because they are less likely to choose the Moosomin or Virden elevator. Of course, the correct treatment in between these two extremes—scaling the increment to overall harm by the probability of choosing an elevator raising its price—as I have done in my analysis.

4.3. I have appropriately measured effects to market participants and not attempted to track harms and benefits throughout the entire economy

107. Ms. Sanderson correctly notes that the predicted price increases drive farms on the margin out of the market.[122] Where she errs is in arguing that, since some of those farms are modeled as switching to an elevator outside the market, that elevator should be treated as if it was a market participant.

108. As a matter of economic theory, it is always possible to imagine tracing out all of the ripples of effects throughout the economy. So, technically, Ms.

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[120] Miller, Nathan H., and Matthew C. Weinberg, "Understanding the rice effects of the MillerCoors joint venture," *Econometrica*, 85(6), 2017, pp. 1763–1791; Government of Canada, "Competition Bureau statement regarding La Coop fédérée's proposed acquisition of Cargill Limited's grain and retail crop inputs businesses in Ontario," November 18, 2018, available at https://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/eng/04403.html accessed on August 26, 2020 ("Both pricing pressure and merger simulation analyses were employed to quantify the likely harms to growers resulting from the loss of price competition between the parties and the loss of choice resulting from anticipated site closures").

[121] See my discussion in Section 2.2.

[122] Sanderson Response Affidavit at ¶ 169 ("The Acquisition changes the distribution of grain volumes from farms to elevators and crushers with volumes shifting away from Moosomin and Virden towards Fairlight and rival elevators and crushers").

Sanderson is not wrong that this would be logical. However, it would be impractical. One farmer might react to higher prices by buying new shoes less often. Another might buy more gas and drive to a farther away elevator. A third might decide this increase is the straw that breaks the camel's back and look into other uses of some acreage. The normal practice is to measure the effect on market participants directly and not to include the effect on the local shoe store, the gas market, the distant elevator, or whatever else one might do with farmland in this area. The market definition is a practical line and the measurement of changes within the market gives us a proxy for the merger's effect in the economy writ large.

109. However, if we were to break with the established line between the analysis we can practically perform and the theoretical analysis of the economy as a whole, and follow Ms. Sanderson's argument that we should include effects on elevators outside the market. Then, we would need to include not just any incremental profit earned by elevators outside the market, but also any adjustments such elevators made to their own prices, and those price adjustments' effects on farms.

110. I do not model these elevators as strategic actors because they are outside the market and I do not have the information to do so fully. However, even without fully modelling their choices, I can tell that the effect would be for these elevators to raise their own prices by some amount. The prices of elevators are strategic complements—that is a price increase is their profit-maximizing reaction to rival price increases driving customers to their product.[123] And that price increase will affect all of the farms that have these elevators in their choice set. Some of the affected farms are in the data. Some are even the very farms that have been measured as diverting to the elevator in question, which is outside the market. But, other farms are not in the data because they chose a

[123] Bertrand models with a logit demand system exhibit strategic complementarity in prices. *See* Vives, Xavier, "Strategic complementarities in oligopoly," Working paper, 2016, at pp. 3–4, 8. Available at https://blog.iese.edu/xvives/files/2017/06/Strategic-Complementarities-in-oligopoly.pdf, accessed 10/21/2020. ("The game is *log-supermodular* if $\pi_i \geq 0$ and $\log \pi_i$ fulfills the complementarity conditions … In the Bertrand oligopoly example … This holds when the own-price elasticity of demand η_i is decreasing in p_{-i} as with constant elasticity, logit, or constant expenditure demand … Condition (1) is a complementarity property in own strategies: the marginal payoff to any strategy of player i is increasing in the other strategies of the player. Condition (2) is a strategic complementarity property in rivals' strategies a_{-i}: the marginal payoff to any strategy of player i is increasing in any strategy of any rival player."). My merger simulation model is based on a Bertrand model of pricing where demand for each farm follows a logit specification and demand is aggregated across all farms. Moreover, the pass-through rates I observe lend confidence that demand curves more broadly meet the conditions for these elevators to respond to price increases inside the market with price increases of their own services.

competing elevator to the one we would be adding—an elevator even farther from Moosomin and Virden—and they would be affected as well.

111. Exhibit 6 provides a visual representation of this issue by illustrating how the transaction data collected by the Bureau covers the area around Moosomin and Virden. This figure maps out the primary and process elevators located within 200km of the Moosomin or Virden elevator. Elevators that are shaded in solid are elevators in my data, while elevators that are hollowed are missing in my data. These form a set of rings with Moosomin, Virden, and Fairlight in the center. The inner ring of elevators around these three is well represented in the data. For farms in the center, this inner ring ensures that all of their practical choices of elevator are in the data. And, with data on transactions provided by the elevators, inclusion of these elevators ensures that all the farms which might practically choose Moosomin or Virden are included. However, the same is not true around [redacted], for example. To get the same sort of coverage for farms in that area, we would need to have data from the outer ring of elevators.

EXHIBIT 6
Elevator locations within 200km of Moosomin and Virden

Source: Grain Elevators in Canada Data; 2016 Census Program CCS Boundary Files; LDC Transaction Data; P&H Transaction Data; ADM Transaction Data; Cargill Transaction Data; G3 Transaction Data; Richardson Transaction Data; Viterra Transaction Data;

Note: Elevators shown are primary elevators and process elevators, which include crushers. The size of each elevator is proportional to its capacity. CCSs with a centroid within 200 km from Virden or Moosomin are shown. Elevators within 200 km of Moosomin or Virden are shown. CCSs shaded green represent the aggregate 90% service area for CWRS, the union of the CCSs in the 90% service area of Moosomin, Virden, and Fairlight. The 90% service area of each individual elevator represents the closest CCSs to the individual elevator that collectively form 90% of the total net quantity bought by the individual elevator.Crushers include LDC's Yorkton, Richardson's Yorkton, ADM's Velva, and Bunge's Harrowby and Altona process elevators. Data exists for several elevators that are not shown on the map because they are outside the shown area: Wilkie, Hamlin, Hanover Jct, Altona, Bloom, and Velva. Pipeline Foods's Wapella location is not included because it specializes in organic, non-GMO products.[124] P&H's Langbank location is not included because it functions primarily as a crop input facility.[125] Capacity was not reported for G3's Melville elevator, so it was assigned the average capacity of all elevators shown. The hollow circles represent primary elevators that are not included in the data, and the hollow triangles represent the process elevators not included in the data.

112. In essence, this is the same practical problem that Ms. Sanderson's critiques of market definition ran into. If we want to have a reliable way to include the profits and price effects of these inner-ring elevators, we need to recognize that elevators in this area face competitive constraints that are excluded from the transaction data. Modeling the profits of these elevators based on the transaction data only of elevators from the inner ring would be unreliable—without a full picture of their competitive constraints one would tend to over-inflate the market power of these elevators among farms. And, without the transaction data from their competitors, one would tend to under-count the farms affected by these elevators' pricing changes. Cherry picking the measured diversion as simple profits of these elevators to include and ignoring all these other constraints and implications on other farmers and beyond would be inappropriate.

4.4. Ms. Sanderson's observation that price increases are unlikely because of which P&H plant profits or because Fairlight would profit are unreliable.

113. Ms. Sanderson incorrectly suggests that my merger simulation results indicate that price increase from the parties are "unlikely."[126] She relies on two observations on my merger simulation results and draws conclusions that are at odds with the simple fact that firms behave to maximize its profits.

[124] Grainews, "U.S. organic grain firm buys Saskatchewan elevators," September 20, 2017, available at https://www.grainews.ca/daily/u-s-organic-grain-firm-buys-saskatchewan-elevators/ (accessed on October 16, 2020).

[125] RealAgriculture News, "P&H Expands Saskatchewan Presence," April 16, 2013, available at https://www.realagriculture.com/2013/04/ph-expands-saskatchewan-presence/ (accessed on October 16, 2020).

[126] Sanderson Response Affidavit at ¶ 186 ("it is highly unlikely that P&H would increase prices for "grain handling services" as this model suggests").

114. First, Ms. Sanderson observes that the profit accrued to Fairlight from the alleged anticompetitive Transaction is "[redacted]"[127] The observation that Fairlight stands to gain the most from the merger is correct, but this result is not problematic or even [redacted]. Indeed, most models of competition suggest that all of the firms in a market would prefer for someone to raise prices. None of them want to be the one to do that, however, as the first to raise prices will also lose sales to the others and the models presume competition has reached a point where these incentives are in balance. A merger internalizes the loss of sales between two of the firms, making it willing to raise its price. The merged firm still typically loses sales to other firms when it acts on that new incentive, however.

115. In this case, many farms would divert to Fairlight in response to an increase in the price of grain handling services from Moosomin and Virden. Fairlight could just take a free ride on this price increase as P&H internalizes diversion between Moosomin and Virden, but the simulation also suggests that Fairlight will react with its own price increase, which it makes despite the fact that P&H benefits more from that increase.

116. The bottom line is that the model predicts that P&H will have its own profit-maximizing incentive to raise prices. It is reasonable to assume that P&H employs managers who will pursue the firm's profits and not be somehow dissuaded in that objective by considering if they are profiting more than other firms.

117. Second, Ms. Sanderson further claims that my merger simulation model finds that it is [redacted] for Moosomin to implement a price increase for "grain handling services" with respect to canola post-Transaction.[128] This observation is irrelevant once P&H has the profit of both Moosomin and Virden to consider. Managers would ensure that joint profit is maximized by appropriately incentivizing individuals responsible for pricing grain handling services at Moosomin. That is, the [redacted] between Moosomin and Virden should only matter if the managers of Moosomin might look at their own accounts and refuse to implement a price increase. The overall positive

[127] Sanderson Response Affidavit at ¶ 26 ("Dr. Miller's simulation model predicts a profit improvement for P&H of only [redacted] annually … Viterra's Fairlight elevator alone increases profits by [redacted] which is nearly [redacted] as much as the profit increase at Moosomin and Virden that Dr. Miller predicts. This is [redacted] one expects the beneficiary of an alleged anticompetitive transaction to be the merging parties, not their rivals.").").

[128] Sanderson Response Affidavit ¶ 185 ("Miller's simulation model finds it is [redacted] for Moosomin to implement a price increase for "grain handling services" in respect of canola post-Acquisition").

[redacted] to P&H is, again, something I assume they have the managerial know-how to accomplish for their shareholders.

118. Ms. Sanderson's assumption that the location of the profits might matter also misses the crux of any merger analysis.[129] The Transaction made Moosomin and Virden part of a single entity that should maximize joint profits. Merger analysis ultimately examines how that combined profit would alter the entity's behavior. As discussed in detail in Section 5.1 of my Affidavit, after the merger Moosomin internalizes the fact that it [redacted] from farms that leave in response to a price increase because some will switch to Virden. Consistent with standard merger analysis, I have quantified the impact of this incentive on prices, yet Ms. Sanderson asks us to ignore this staple of merger analysis: her claim assumes that P&H is unable to optimize over the whole firm's combined profits. Not surprisingly, when she assumes the core economic consideration does not apply, she predicts no effect of the merger.

Nathan Miller, Ph.D.
October 23, 2020

[129] Sanderson Response Affidavit ¶ 185.

Appendix A
Documents Relied Upon by Nathan H. Miller

Document Title, Bates Numbers, Date

Declarations

Witness Statement of [redacted] September 3, 2020

Witness Statement of [redacted], August 26, 2020

Witness Statement of [redacted], August 25, 2020

Witness Statement of John Heimbecker, October 13, 2020

Affidavits

Affidavit of Nathan H. Miller, Ph.D., September 4, 2020

Response Affidavit of Margaret Sanderson, October 9, 2020

Examination for Discovery

John Heimbecker Examination for Discovery, July 15, 2020

John Heimbecker Examination for Discovery, July 16, 2020

John Heimbecker Examination for Discovery, July 17, 2020

Undertaking to Examination for Discovery

Undertaking to John Heimbecker's Examination for Discovery, July 15, 2020, Appendix I

Answers to undertaking from John Heimbecker's Examination for Discovery, July 15–17, 2020

Publically Available Articles

Government of Canada, "Competition Bureau Statement Regarding La Coop Fédérée's Proposed Acquisition Of Cargill Limited's Grain And Retail Crop Inputs Businesses In Ontario," November 14, 2018, available at https://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/eng/04403.html

Grainews, "U.S. organic grain firm buys Saskatchewan elevators," September 20, 2017, available at https://www.grainews.ca/daily/u-s-organic-grain-firm-buys-saskatchewan-elevators/, accessed on October 16, 2020

RealAgriculture, "P&H Expands Saskatchewan Presence," April 16, 2013, available at https://www.realagriculture.com/2013/04/ph-expands-saskatchewan-presence/, accessed on October 16, 2020.

Appendix A
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Other Public Material

Competition Bureau Canada, "Merger Enforcement Guidelines," October 6, 2011

U.S. Department of Justice and the Federal Trade Commission, Horizontal Merger Guidelines, August 19, 2010

Legal Documents

In the Matter of ProMedica Health System, Inc., Docket No. 9346, Initial Decision, December 12, 2011

Letter

Letter from Davit Akman to Jonathan Hood, "Re: P&H ats Commissioner of Competition," August 20, 2020

[redacted]

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Ahlfeldt, Gabriel M., "Weights to Address Non-parallel Trends in Panel Difference-in-differences Models," *CESifo Economic Studies*, 64(2), May 24, 2018

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Katz, Michael L., and Carl Shapiro, "Critical Loss: Let's Tell the Whole Story," *Antitrust*, Spring 2003, available at https://www.law.berkeley.edu/wp-content/uploads/2015/04/Katz-Shapiro-Critical-Loss-Lets-Tell-the-Whole-Story-2003.pdf, accessed on October 20, 2020.

Korn, Edward L., and Barry I. Graubard. "Examples of differing weighted and unweighted estimates from a sample survey," *The American Statistician*, 49,(3), August 1995

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Document Title, Bates Numbers, Date

Miller, Nathan H., and Matthew C. Weinberg, "Understanding the rice effects of the MillerCoors joint venture," *Econometrica*, 85(6), 2017

Rousseeuw, Peter J., and Christophe Croux, "Alternatives to the median absolute deviation," *Journal of the American Statistical Association*, 88(424), December 1993

Vives, Xavier, "Strategic complementarities in oligopoly," Working paper, November 28, 2016, available at https://blog.iese.edu/xvives/files/2017/06/Strategic-Complementarities-in-oligopoly.pdf, accessed October 21, 2020.

Books

Angrist, Joshua D. and Jörn-Steffen Pischke, *Mostly Harmless Econometrics: An Empiricist's Companion*, (Princeton, NJ: Princeton University Press, 2009), p. 221

Other Produced Documents

[redacted]

Appendix A
Documents Relied Upon by Nathan H. Miller

Document Title, Bates Numbers, Date

Data

Transaction data

LDC

Agris Purch Data 2016 Virden & Wilkie.xlsx

Grain Assembly Data- Yorkton req 03-24-2020 ver 2.xlsx

Grain Purchase Data- Virden 1-1-19 thru 10-4-19 KH.xlsx

Grain Purchase Data- Yorkton req 03-24-2020 ver 2.xlsx

LDCCA Settlements 2016-2018 Virden & Wilkie.xlsx

LDCCA Ticket Detail 2016-2018 Virden & Wilkie.xlsx

Virden All Commodity Ticket Detail 2019 CWRS.xlsx

P&H

Appendix D - 2016-2018 Grain Purchases - Hamlin.xlsx

Appendix E - 2016-2018 Grain Purchases - Hanover Jct.xlsx

Appendix F - 2016-2018 Grain Purchases - Moosomin.xlsx

P&H_0005201_LEVEL A.XLSX

Third parties

Richardson

PMDC00004_000000001-CONFIDENTIAL LEVEL A.xlsx

PMDC00006_000000002-CONFIDENTIAL LEVEL A.xlsx

PMDC00007_000000002 - CONFIDENTIAL LEVEL A.xlsx

Viterra

PMDD00001_000000002-CONFIDENTIAL LEVEL A.xlsx

Cargill

Highly Confidential - Cargill Data Request - Elva and Oakner- Aug 2020.xlsx

Ceres

PMDB00002_000000046-CONFIDENTIAL LEVEL A.xls

Appendix A
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Document Title, Bates Numbers, Date

Bunge

PMJF00001_000000005-CONFIDENTIAL LEVEL A.xlsx

PMJF00001_000000001-CONFIDENTIAL LEVEL A.xlsx

PMJF00001_000000002-CONFIDENTIAL LEVEL A.xlsx

PMJF00001_000000003-CONFIDENTIAL LEVEL A.xlsx

PMJF00001_000000004-CONFIDENTIAL LEVEL A.xlsx

G3

PMGB00001_000000017-CONFIDENTIAL LEVEL A.xlsx

ADM

RABE00001_000000001- CONFIDENTIAL LEVEL A.xlsx

Markups

#4 Virden A.xlsx

2017 P&L by Location by Month.xlsx

2018 P&L by Location by Month.xlsx

LDCANADA P&L 2017 Virden & Wilkie.xlsx

LDCANADA P&L 2018 Virden & Wilkie.xlsx

LDCANADA Put Thru Volumes YTD 2017.12 by Month.xlsx

LDCANADA Put Thru Volumes YTD 2018.12 by Month.xlsx

Publically Available Data

Elevator locations, source: https://open.canada.ca/data/en/dataset/05870f11-a52a-4bf4-bc15-910fd0b8a1a3, accessed on 1/9/2020

cgcElevators2017.gml

cgcElevators2017.gfs

Commodity Prices, source: iVolatility (Minneapolis Spring Wheat Futures Data) and Capital IQ (ICE Canola Futures Data), accessed on 2/7/2020.

MW futures contracts underlying prices 2016-2019 iVolatility.csv

Canola.xlsx

Shapefiles, source: https://www12.statcan.gc.ca/census-recensement/alternative_alternatif.cfm?l=eng&dispext=zip&teng=lccs000a16a_e.zip&k=%20%20%20%2015876&loc=http://www12.statcan.gc.ca/census-recensement/2011/geo/bound-limit/files-

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fichiers/2016/lccs000a16a_e.zip, accessed on 1/17/2020.

lccs000a16a_e.shx

lccs000a16a_e.dbf

lccs000a16a_e.prj

lccs000a16a_e.shp

Exchange Rates, source: https://www.bankofcanada.ca/rates/exchange/annual-average-exchange-rates/, accessed 8/27/2020 and https://fred.stlouisfed.org/series/DEXCAUS, 2/10/2020.

FX_RATES_ANNUAL-sd-2017-01-01.csv

DEXCAUS.csv

I considered parties responses to supplementary information requests, Commissioner's affidavit of documents produced, P&H's affidavit of documents produced, P&H's responses to undertakings, and all items in my Documents Relied Upon.

Note: In addition to the documents on this list, I relied upon all documents cited in my affidavits, appendices, exhibits, and workpapers to form my opinions.