

April 3, 2020

## More Competition For Underground Disposal Space

By: Nigel Bankes

**Decisions Commented On:** [2020 ABAER 005](#), Pure Environmental Waste Management Ltd. Applications for the Hangingstone Project February 27, 2020 and [2020 ABAER 004](#), Pure Environmental Waste Management Ltd. Regulatory Appeal of Approval WM 211 for Pure Environmental Waste Management Ltd.'s Hangingstone Facility February 27, 2020

Conventional and non-conventional oil and gas operations frequently seek to dispose of liquid oilfield waste in underground formations that have suitable injectivity and sealing properties. Not all formations are suitable for injection purposes and even those that are suitable may have limited capacity, especially where the characteristics of the formation limit opportunities for pressure leakoff. Locally limited capacity or scarcity may lead to competition for the available disposal capacity.

These two decisions (and especially 2020 ABAER 005) address the licensing of disposal wells in such a competitive setting. These are not the first such examples we have seen in Alberta. I commented on an earlier AER decision (2014) on a disposal well application [here](#). See also Bankes, "Disputes between the owners of different sub-surface resources" in Don Zillman et al (eds), *The Law of Energy Underground* (Oxford University Press, 2014) p 433.

As noted above there are two decisions here. Decision # 4 is a decision on a regulatory appeal launched by Suncor against the AER's decision to issue an approval to Pure for the Hangingstone waste management facility as one part of Pure's proposed Hangingstone waste management project. The project is about 25 km south of Fort McMurray. The proposed facility would accept for disposal, third-party-generated waste, such as drilling waste, rig washwaters, tank bottoms, boiler blowdown, brine wastewaters, slop oil, landfill leachate, hydrovac waste, and other complex waste streams. The waste would be disposed of into solution-mined salt caverns, which would treat the waste through phase separation. Separated hydrocarbons would be recovered and sold. In order to construct the salt caverns Pure needed to be able to dispose of the brine recovered from the solution mining of the salt caverns and to that end Pure also sought licences for two new injection wells. These wells were the subject of Decision # 5.

The AER assigned the same hearing panel to both the regulatory appeal and the original applications. That panel decided to consider the merits of those original applications before the regulatory appeal.

In summary the panel rejected the applications for well licences for the two new disposal wells but also rejected Suncor's appeal of the facility approval. That said it is clear that Pure will not be in a position to proceed with constructing its waste management facility unless and until it secures

an alternative disposal solution for the brine from the mining and operation of the salt caverns. My focus in this post is on Decision # 5 but before moving to that decision I have a brief comment on Decision # 4.

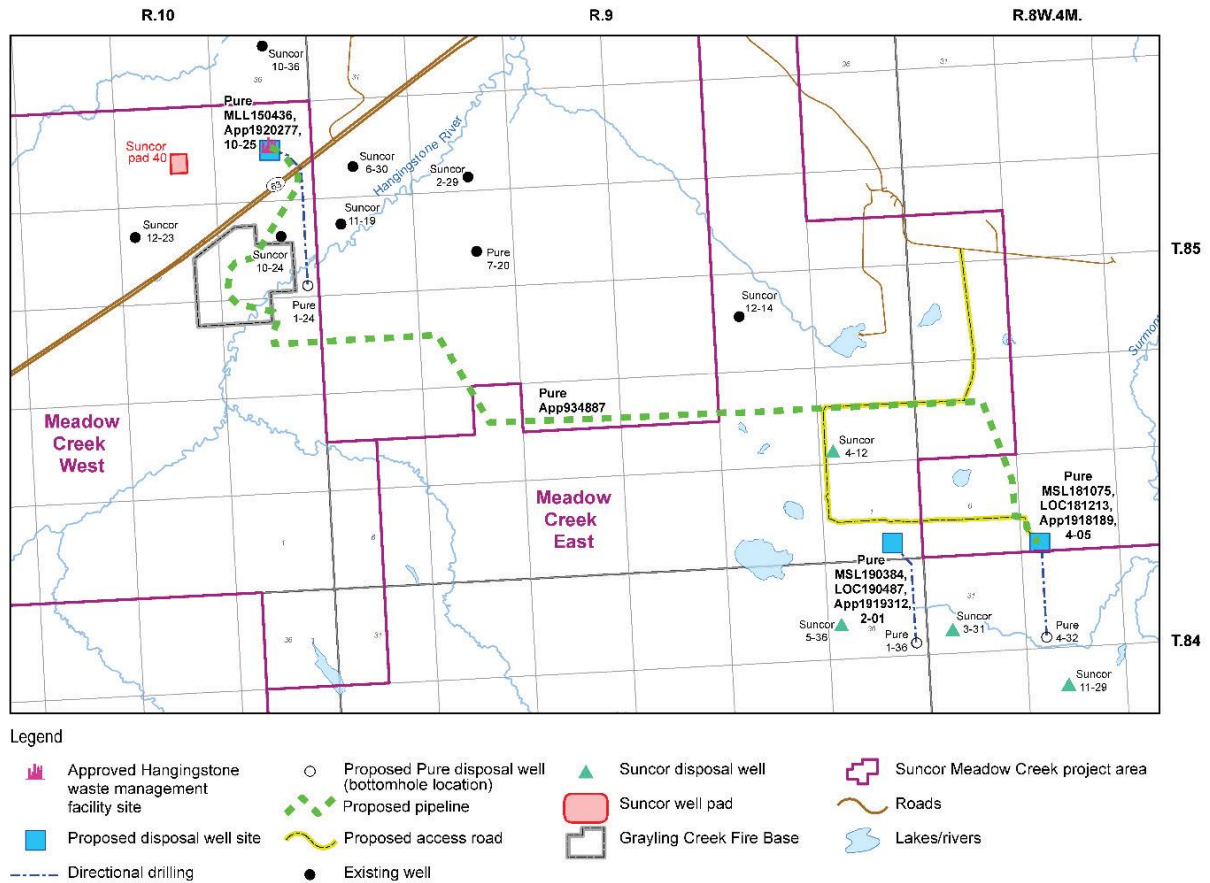
#### **2020 ABAER 004**

Suncor's grounds for appealing the facility approval included arguments to the effect that the construction of the Hangingstone facility would prejudice its ability to carry out in-situ recovery operations underneath the facility because it would compromise its ability to characterize the resource and its plans for well locations and steaming operations. The panel was not convinced by these arguments either on the grounds of safety or resource sterilization. It observed that the facility had a small footprint (0.0153%) of Suncor's project area, that bitumen producers often faced naturally occurring as well as human constructed facilities and infrastructure and that it was (at para 98) "not reasonable to expect to be able to rely on unconstrained surface access over the entirety of leases as a means of ensuring the acquisition of comprehensive data." Similarly, even if the presence of the facility led Suncor to conclude that it should not steam under the facility this would result in such a small amount of the resource not being recovered that it could not give rise to resource conservation or sterilization or waste concerns. It could not materially affect the value of Suncor's mineral leases, and:

There is also no basis for concluding that the rights granted to Suncor through its mineral leases will be negatively affected. Those instruments do not provide Suncor with a guarantee that it will be able to extract 100 per cent of the bitumen in the area. (at para 117)

#### **2020 ABAER 005**

Although Decision # 5 involved ten different applications, the core of the matter was Pure's application for licences to drill two horizontal wells to dispose of brine, waste, and water resulting from the solution mining and operation of salt caverns at the Hangingstone facility. The two wells would be 14 to 16 km southeast of Pure's approved Hangingstone facility and close to existing injection wells of Suncor. The wells would be connected to the facility by pipeline for which Pure also sought approval. The configuration of Pure's facility and the proposed injections wells can be observed in the diagram below (reproduced as Figure 1 in each of the decisions).



Suncor’s interest in Pure’s applications arose from its *proposed* Meadow Creek projects which are described in Decision # 5 as follows:

[99] Suncor’s anticipated bitumen production from its two Meadow Creek projects is 120 000 barrels of oil per day: 80 000 barrels of oil per day from Meadow Creek East and 40 000 barrels of oil per day from Meadow Creek West.

[100] Suncor said that the scheme approval for Meadow Creek East was received in 2003. Oil sands exploration work and subsurface resource delineation in the Meadow Creek region has continued since 2003. Suncor did further work on the project between 2012 and 2015, applied for approval of the Meadow Creek East project in 2015, and received approval from the AER in 2017. Suncor applied for the Meadow Creek West project in 2017 and received notice from the AER on October 24, 2019, that the AER would be approving the Meadow Creek West application upon receiving authorization from the Lieutenant Governor in Council.

[101] Suncor said it has spent more than \$500 million advancing the Meadow Creek East and Meadow Creek West projects to date....

[104] Suncor stated that the approval for Meadow Creek East included conditional approval for disposal wells and surface land locations for the entire project life cycle. In its application, Suncor applied for approval to dispose of up to 1500 m<sup>3</sup> /d of wastewater into the Keg River Formation using the 11-29 and 3-31 disposal wells. The AER conditionally approved the scheme for disposal of Class Ib fluids through the 11-29 and 3-31 wells.

[105] Suncor said that the Hangingstone project poses substantial risks to Suncor's ability to produce oil sands resource in the Meadow Creek area. Suncor submitted that the Hangingstone project would compromise the efficient, orderly and economic recovery of bitumen and could result in bitumen sterilization by consuming limited and valuable disposal capacity and interfering with well pad placement. [106] Suncor is concerned that Pure's proposed 1-36 and 4-32 disposal wells are in close proximity to Suncor's conditionally approved disposal wells for the Meadow Creek East project and that the Keg River Formation in the Meadow Creek area has limited capacity to accept injected disposal volumes. Suncor noted that the horizontal trajectory of Pure's proposed 4-32 disposal well is directly towards Suncor's conditionally approved disposal wells.

However, at the time of these applications Suncor had yet to make a final investment decision. Should it do so it would be 3 – 4 years before production would start and 6 – 7 years before full production would be achieved. Suncor was therefore concerned that if Pure's disposal wells were to be authorized they might have consumed much of the available disposal capacity before production from Suncor's properties even came on line. This might require Suncor to explore other likely more expensive alternatives to meet its disposal needs.

In light of the above background the AER hearing panel identified the following issues:

1. Is there a need for the disposal wells and disposal scheme?
2. What rights do Pure and Suncor have to access disposal capacity within the Keg River Formation, and if disposal capacity is limited, how should disposal capacity be allocated?
3. Does the Keg River Formation have sufficient disposal capacity in the Hangingstone / Meadow Creek area to accommodate both Suncor's and Pure's anticipated disposal volumes?
4. Would Pure's proposed disposal wells and disposal schemes result in adverse effects to Suncor's Meadow Creek East or Meadow Creek West projects or result in the sterilization of bitumen resources?
5. Are other disposal options available to Pure in the Hangingstone / Meadow Creek area?
6. Would approval of Pure's disposal wells and disposal scheme be consistent with the AER's statutory mandates and in the public interest? (at para 24)

This post discusses the panel's findings with respect to issues 2 through 6.

### **What rights do Pure and Suncor have to access disposal capacity within the Keg River Formation, and if disposal capacity is limited, how should disposal capacity be allocated?**

Both Pure and Suncor held Crown Mineral Activity (CMA) authorizations to dispose into the Keg River Formation under s 54(4) of the *Mines and Minerals Act*, [RSA 2000, c M- 17 \(MMA\)](#). In addition to s 54 of the *MMA* the decision references a key Alberta Energy document, [Crown](#)

[Mineral Activity \(CMA\) Authorization Application Requirements For New Disposal Operation Requests In Undisposed Crown Rights](#) (no date) as well as the AER's own Bulletin 2019-21: [AER Approval Still Required for Disposal Schemes With a Crown Mineral Activity Authorization](#). The former document confirms that CMA authorizations do not provide any preferential right to the holder to access disposal capacity within a formation, while the latter confirms that the issuance of a CMA authorization does not constrain the AER's decision-making authority with respect to applications for disposal schemes. The panel went on to observe that it was not aware of (at para 53) "any legislation, regulations, or directives that obligate parties to share disposal zones equitably or that provide explicit guidance on how disposal capacity should be shared if there is a conflict." The panel also noted (at para 55) that while subsurface disposal capacity was important to support bitumen this did not afford Suncor's "exclusive use of all of the available disposal capacity within its oil sands lease boundary" both because disposal rights do not run with the lease but because Pure's project would also provide a service to oil sands operators.

The Panel did however offer the following guidance:

If the disposal capacity in the Keg River Formation is not sufficient to accommodate both Pure's and Suncor's anticipated disposal volumes, then we are of the view that disposal capacity should be allocated based on the relative benefits of Pure's and Suncor's projects and the potential for Pure's proposed disposal wells and disposal scheme to adversely affect bitumen recovery at Suncor's Meadow Creek East and West projects. These factors need to be considered and weighed to inform our public interest determination and our decision on the applications. (at para 56)

This suggests two criteria for any allocation: (1) relative benefits of each project, and (2) the effect of a non-resource project on the resource recovery of a resource project.

**Does the Keg River Formation have sufficient disposal capacity in the Hangingstone / Meadow Creek area to accommodate both Suncor's and Pure's anticipated disposal volumes?**

There was significant disagreement between the parties as to the disposal capacity of the Keg River formation in this area. Whereas Suncor was of the view that the formation had little disposal capacity due to flow barriers and therefore rapid pressurization of injection wells and no leakoff, Pure had a much rosier view of the disposal potential of the formation. Suncor was able to support its interpretation with more than 15 years of data collection and analysis and while it did not share all of its information with the panel the information it did publicly share was enough to convince the panel to prefer Suncor's interpretation. This led the panel to conclude that (at para 95) "the disposal capacity in the Keg River Formation, specifically in the vicinity of Suncor's 3-31 and 11-29 disposal wells and Pure's proposed 1-36 and 4-32 disposal wells, appears to be limited and not sufficient to accommodate both Pure's and Suncor's anticipated disposal volumes."

## **Would Pure’s proposed disposal wells and disposal schemes result in adverse effects to Suncor’s Meadow Creek East or Meadow Creek West projects or result in the sterilization of bitumen resources?**

Given the panel’s findings as to the limited disposal capacity available as well as Suncor’s project timing, the panel concluded that were Pure to proceed its proposed use of the 1-36 and 4-32 disposal wells would (at para 121) be “likely to adversely affect Suncor’s proposed Meadow Creek projects by significantly reducing the amount of available disposal capacity and that this could adversely affect the economics of bitumen recovery at Suncor’s Meadow Creek projects.” This was not the case for Pure’s existing 1-24 well which was located some 14 – 16 km from Suncor’s disposal wells and close to its proposed facility. This section of the panel’s report also contains its observation (at para 115) that Suncor has already invested significantly in its projects and that were it to proceed, the projects “would provide significant economic benefits to Alberta through employment, capital and operational expenditures, taxes, and royalties.”

## **Are other disposal options available to Pure in the Hangingstone / Meadow Creek area?**

Here Pure found itself hoist on its own petard since the panel, not unreasonably, suggested that if Pure’s interpretation of the Keg River Formation were correct (at para 143) “it should be able to locate its disposal wells closer to the approved Hangingstone facility and in an area where there is less potential to interfere with Suncor’s approved disposal scheme.”

## **Would approval of Pure’s disposal wells and disposal scheme be consistent with the AER’s statutory mandates and in the public interest?**

In this section of its decision the panel concluded that it should approve the proposed scheme for operating the existing 1-24 well but should reject the applications for the 1-36 and 4-32 wells. In support of that conclusion the panel observed, as it had in the introductory sections of its decision, that it must read together its related statutes including the *Responsible Energy Development Act*, [SA 2012, c &-17.3](#), the *Oil and Gas Conservation Act*, [RSA 2000, c O-6](#) and the *Oil Sands Conservation Act*, [RSA 2000, c O-7](#). That allowed the panel to conclude that:

... approval [of the two injection wells] would not be consistent with the AER’s mandate of efficient, economic and orderly development or in the public interest as the proposed activities are likely to result in adverse effects to Suncor’s Meadow Creek East and West in situ oil sands projects, potentially impacting bitumen recovery. As a result, we do not approve these applications. (at para 148)

Pure’s injection operations might preempt those of Suncor and while there would be some benefits associated with Pure’s project those benefits (at para 151) “are not sufficient to outweigh the potential risk to Suncor’s Meadow Creek projects that could result from approval of the 1-36 and 4-32 disposal wells.”

It is useful to examine this conclusion in light of the two allocation criteria the panel offered earlier, namely: (1) relative benefits of each project, and (2) the effect of a non-resource project on the resource recovery of a resource project. Rather than applying these criteria as allocation criteria

(after all Pure gets nothing in this “allocation”) the panel seems to have applied each criterion to justify affording Suncor a trumping entitlement. I think it is also possible that the panel is applying an additional unarticulated criterion that reflects the panel’s sense that Pure’s project was suboptimal; suboptimal in the sense that Pure’s main facility was located some 16 – 18 kms away and that Pure was proposing to locate its brine injection wells just about as close as it possibly could to Suncor’s injection wells, all the while arguing that the Keg River Formation generally (and not just this happy corner of it) had significant disposal potential. This odd geography, combined with claims of great and widespread disposal potential, made it easier for the panel to effectively say to Pure – go and do a more thorough assessment of disposal well locations before muscling in on Suncor’s preferred location chosen on the basis of its expensively acquired knowledge of the regional geology. I am not sure what label to give this criterion; it may be just fairness in the sense that one should not reap where one has not sown: *INS v Associated Press*, [248 US 215 \(1918\)](#) (per Justice Pitney).

Of course, the premise to the panel’s “allocation” is that Suncor will indeed proceed with these projects in a timely way. That may have been questionable even in February of 2020 with US\$55 a barrel WTI oil (after all Suncor had been sitting on a project approval for part of its site since 2003) but the premise dissolves entirely with WTI prices in the \$20 range or below. But if Suncor isn’t going to build then we don’t really have a competition for disposal capacity.

## Observations

The decision in 2020 ABAER 005 begs the question of how we *should* allocate scarce goods – in this case pore space for waste disposal purposes (assuming, for the purposes of argument, that underground disposal of waste is environmentally benign or at least environmentally preferable to other alternatives). We ordinarily use the market for allocation purposes and deviations from that norm typically require some justification. In some cases we do use other allocation rules such as queuing, historical interest, constitutional priority, or first in time first in right (FITFIR). But it is not obvious that the latter (FITFIR), for example, results in just outcomes unless (perhaps as here) the early entrants have made investments on which the late comers are free riding. Under the current scheme for underground disposal outlined above, a player receives an entrance ticket from the Department of Energy in the form of a Crown Mineral Activity authorization but the subsequent game lacks even the most basic rules. In the past this didn’t matter because we did not perceive a scarcity issue. But as in so many other resource contexts where we approach or experience scarcity (e.g. water basins; landscape level ecosystem integrity; the absorptive capacity of the atmosphere), we need to think more carefully about allocation criteria and process. In some cases this may be reflected in market design considerations for the allocation of the resource, whereas in other cases we may consider out of market solutions for ethical or other reasons (e.g. the difficulty of bringing markets to bear). In either case, careful reflection is in order and it is not clear to me that the common law approach of resolving these issues in the crucible of particular decisions (in this case regulatory decisions) is the best forum in which to engage in this reflective exercise. If this set of issues were within the ambit of the Alberta Utilities Commission it might well convene a generic hearing on the topic but (despite a shared past for at least some moments in history) this does seem to be part of the AER’s toolkit. By the same token, Alberta Energy tends to have a fairly narrow review of stakeholder participation and is therefore perhaps not best equipped to lead such an exercise.

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