

## **Follow Up Questions for the Alberta Energy Regulator- October 29, 2024**

1) How was the new AER threshold of 0.35m<sup>3</sup>/s minimum established? What was the methodology for determining that value and is it an official rule or is it an ad-hoc condition that an approvals officer may or may not follow? **We would like to acknowledge that this is a significant change. It does address many of the concerns with protecting the viability of the Blindman watershed as a functioning ecosystem and protecting other downstream users.**

The 0.35m<sup>3</sup>/s was applied to Baytex Licence 499334. The instream objective for the Blindman River has not increased, it remains at 0.156m<sup>3</sup>/s. Baytex is required to manage this licence and ensure at all times that there is sufficient water in the stream to meet the instream objective. At the same time, Baytex must ensure there is enough water in the stream to meet downstream demands. The reason for the increase in the bottom threshold is to mitigate the following:

1. When following the hydrometric station, at Blackfalds it is understood that all demand has taken place given that the hydrometric station is downstream from all diversion points. However, during the low flows, the licensee needs to understand the significant difference in drainage area between the proposed point of diversion upstream of Rimbey and the hydrometric station at Blackfalds. To ensure that the flows at the point of diversion are within the Instream objective the AER has raised the threshold at Blackfalds to account for the difference in drainage area.
2. When following a measured flow at the point of diversion, it is known that Baytex diversion is upstream from the major diversions downstream. The increase of the threshold is to account for potential downstream demand.

2) It is stated that the AER 'may' incorporate monitoring groundwater wells into a licence if there is a risk posed to existing groundwater users. Spartan Delta is actively monitoring multiple wells around the Leedale source-water-body and it has shown drawdown does affect at least one well. This monitoring is voluntary by the company. How do residents have the certainty this will be continued if it is not a condition on the licence? How is it determined if groundwater monitoring should be a condition on a licence? Why isn't there a mandated well monitoring requirement upon request of local residents?

The AER has reviewed Spartan's voluntary monitoring program and incorporated continued monitoring of select wells into recent TDL conditions. As Spartan continues to monitor groundwater

wells and waterbodies in the area, the AER will continue to review the data to inform further monitoring/mitigation measures as required. In the case of the Leedale source, TDL conditions also enforce a drawdown limit, which serves to mitigate impacts on nearby wells. For large volume requests (meaning the volume of water requested is large compared to the estimated dugout or gravel pit capacity) and a connection to groundwater is possible, a groundwater assessment may be requested. A groundwater assessment can include the impact on the aquifer, the environment and other groundwater and surface water users as a result of the diversions. Based on the results of the groundwater assessment, including reviewing proximity of the wells and well logs, monitoring of dedicated water wells or domestic wells, with consent, may be added to a licence to monitor any impacts to other users. Alternatively, a drawdown threshold for the dugout or gravel pit may be added to the licence to mitigate impacts to other users in the area. The public can submit information with respect to potential impacts, the AER will review the submitted complaint and act accordingly based on the results of the complaint review.

According to the Alberta Environment Guide to Groundwater Authorization, Complaints related to water wells should be reported to the EPA hotline at 1-800-222-6514. Visit the Energy and Environmental Response Line for useful information needed when filing a complaint. Alberta Environment and Protected Areas, in partnership with other agencies, has developed the Working Well program, which provides well owners with information on well management, including tips on proper operation, maintenance and repair. Access to this information may be found at <https://www.alberta.ca/working-well.aspx>.

3) How does the public (and industry) know what to expect from the AER on licences? Are there formal directives for setting conditions on water licences or is it up to each approvals officer's judgement? If there are directives or guidelines, can we see them? If not, why are there none? To an outsider, many of the decisions seem to be ad hoc with little transparency on how or why decisions are made. (When is there a requirement for instantaneous and cumulative diversion monitoring equipment, for example. Some licences have one, some have both.) Since TDL's are issued by the AER, is it possible to create an AER Directive specifically on large volume TDLs, like Manual 25? It would be useful for clarity on how TDL's are issued and the conditions. If so, what needs to be done to make it happen? If not, why not?

The AER follows the two key principles of the *Water Act*, the allocation should not cause adverse effects to the Environment and any other user. As per the *Water Act*, adverse effect means impairment of or damage to. The Red Deer basin is guided by the South Saskatchewan River Basin Water Management Plan (SSRBWMP). The SSRBWMP guides licensing by providing Water Conservation Objectives (WCOs) for the Red Deer main stem. The WCO is the greater of 45% of the Naturalized flow or 110% of existing Instream Objective. WCOs are computed and available in the [Alberta River Basin Websites](#). The WCO and IOs in the Red Deer Basin and Tributaries such as the Blindman and Medicine Rivers are also guided by the Establishment of the Red Deer River

Sub-Basin Water Conservation Objectives <https://open.alberta.ca/dataset/61a1280d-6f5d-4f62-aeba-7ace9d776a94/resource/8e5aa1f6-01bf-47cd-bd85-995a6ee39de5/download/zz-2007-establishment-south-red-deer-river-sub-basin-water-conservation-objectives-2007-01-16.pdf>

for the tributaries within the Red Deer River Basin the following is described:

- For the headwater reaches (above Dickson Dam) of the Red Deer River and the tributaries of the Red Deer River, a rate of flow to be not less than the existing instream objective or the WCO downstream on the mainstem, whichever is greater at any point in time, for any applications received or licences issued after May 1, 2005.

From Alberta Environment and Protected Areas and the SSRBWMP, the Instream Objectives for the Blind man River and Medicine River are as follow:

### **Tributary IO**

The following tributaries in sub-basin 05CC have a minimum IO flow below which no abstractions are permitted:

- The Blindman River and its tributaries a flow in the Blindman River of 0.156 cubic metres per second (m<sup>3</sup>/s).
- Lasthill Creek and its tributaries a flow in Lasthill Creek of 0.093 m<sup>3</sup>/s.
- The Medicine River and its tributaries: upstream of the confluence with Lasthill Creek a flow in the Medicine River of 0.093 m<sup>3</sup>/s, and downstream of the confluence with Lasthill Creek a flow in the Medicine River of 0.187 m<sup>3</sup>/s.

While reviewing Term or Temporary diversion licences the AER has always followed policies and the SSRBWMP set by the Province of Alberta. Water Conservation Objectives and Instream Objectives are set by Alberta Environment and Protected Areas and not by the AER.

Alberta Environment and Protected Areas (AEPA) has also provided guidance to AER with respect to monitoring and using existing hydrometric stations. Below is the guidance provided by AEPA.

### **Tributaries with Gauging Stations**

The summer open water season typically runs from March 1 to October 31 however the dates may vary annually. Near real-time tributary flows in sub-basin 05CC are monitored by Water Survey Canada for the select stream(s) listed below:

- The Bindman River and its tributaries: upstream of the Blindman River near Bluffton (05CC008) hydrometric station use 05CC008, and downstream of 05CC008 use the Blindman River near Blackfalds (05CC001) Water Survey Canada hydrometric station.
- The Lasthill Creek and its tributaries use the Lasthill Creek near Eckville (05CC013) Water Survey Canada hydrometric station.
- The Medicine River and its tributaries upstream of Lasthill Creek subtract the flow for Lasthill Creek near Eckville (05CC013) from the Medicine River near Eckville (05CC007) Water Survey Canada hydrometric stations.
- The Medicine River and its tributaries downstream of Lasthill Creek use the Medicine River near Eckville (05CC007) Water Survey Canada hydrometric station.
- Wascasoo Creek and its tributaries use Wascasoo Creek at Red Deer (05CC011) Water Survey Canada hydrometric station.

In addition to the above guidance the AER has limits on TDLs to divert no more than 10% of the recorded or measured flow, this is to reduce any potential impact of high maximum diversion rates, during low flow. Also due to hydrometric stations not being available during the winter the AER does request flow measurements at the points of diversion prior to any diversion. If multiple TDLs to the same company are issued from the same source, the maximum diversion may be restricted to cumulative maximum diversion rate similar to only one TDL.

For licences and TDLs high upstream from 05CC001 the AER will use a similar threshold to those in Baytex Licence 499334.

As previously mentioned, it is up to AEPA to establish new policies for this basin. The AER has no jurisdiction to create an isolated Directive for large volume TDLs. The AER will continue to follow the existing Approved Water Management Plan and policies in the area.

4) Please clarify AER's answer to question 10, that states if the Water Survey of Canada station is not representative of flow in the water source, then the licensee is required to measure the flow at point of diversion. Non-representative flow has occurred at least twice in the past 12 months, as was admitted by the AER/AEPA. Neither the licensee nor the regulator noticed that the flow at point of diversion was not representative of the actual flow and diversion occurred when it was not allowed. How is it determined if the WSC gauging station is accurate? Who is responsible for making this determination?

In AER's response to question 10, "non-representative" was meant to mean in situations where the flow readings at a particular hydrometric station are not representative of the flow conditions at another, usually distant, location. The phrase "non-representative" was not intended to be interpreted as meaning hydrometric stations that do not measure correct water levels to provide flows. Hydrometric stations are the best way to measure continuous near real time flows and are used as much as possible in all licences. Typically, recorded flows at the hydrometric stations are a reliable indicator of the flow conditions at the point of diversion. That is, the hydrometric station is hydrologically representative of the conditions at the point of diversion.

AER is aware that hydrometric stations sometimes may produce erroneous flows. This is why Water Survey of Canada in conjunction with Alberta Environment and Protected Areas every year conduct field visits to verify flows. Some stations such as the Lloyd Creek station are highly affected by beaver activity. Every year during open water operations, flows are constantly monitored and if beaver activity is suspected it is reported to AEPA for WSC to look at.

Minor shifts to flows are only captured after Water Survey of Canada Visits the station. It is not possible to capture such small shifts on a near real-time basis as it would defeat the purpose of a hydrometric station. Data from hydrometric stations are used unless they are suspected of error, most times associated with large flow discrepancies and not minor shifts in the flow.

Water Survey of Canada for the most part, is the agency responsible for the provincial hydrometric network in partnership with the Government of Alberta. The data presented in the Alberta River Basins website is the best data available from the hydrometric stations, which is looked after by AEPA. Where available the AER uses the hydrometric stations in the Alberta River Basins Website to guide diversions, however accuracy and reliability of the data falls on GoA working together with Water Survey of Canada.

5) If the basin is being managed on a weekly basis by numerous experts from various fields, yet diversions have still occurred due to erroneous Water Survey of Canada gauging stations (either due to electronic or 'beaver-dam' error), why are TDL licensees over a certain volume (say, >50,000m<sup>3</sup>/year) not required to have flow metering *at point of diversion*? This is an inexpensive technology that would alleviate many issues with technology, interpretation and communication regarding the use of downstream flows to set diversion rates.

Differences or shifts of hydrometric station flows is expected at every single hydrometric station every year, hence WSC has a rigorous field visit schedule to continually verify and adjust flows, this inherent of the complexities of river flow monitoring, however beaver activity is mainly captured during field visits, by a member of the public, or by experience and known current conditions.

When WSC and AEPA have confirmed errors in flow the AER asks companies to measure flows to see if diversions are possible and if they are, what maximum diversion rate they should use. Licensees can measure flow rates for review by the AER and GoA but the AER usually defaults back to the measurements taken by WSC or AEPA due to the rigorous checks and validations done by these organizations.

6) What happens if the monitoring station's data is not accurate? How do you ensure the data is accurate? How often are those monitoring stations audited including in-person?

All hydrometric stations will have shifts and corrections with respect to water level reading against their established rating curves, please see answer in question 4. Shifts in water level are always expected to happen, however, if the water level change is caused by a malfunction of the equipment or by natural conditions such as a beaver dam, such large anomalies are reported to AEPA, who then inform Water Survey of Canada. Water Survey of Canada will then advise on how long it may take to fix the issue at the hydrometric station. Based on timelines the AER may communicate to companies with active licences, requesting companies to conduct manual flow measurements until the hydrometric data is fixed. In some instances, AEPA may also stop producing and showing flows on the Alberta River Basins Website, such decisions will automatically require companies to manually measure flows.

Please contact AEPA at [RFC.Information@gov.ab.ca](mailto:RFC.Information@gov.ab.ca) for further information with respect to how often the monitoring stations are audited, including in person visits. Based on experience, each station is visited at least once every three to four weeks unless there is an issue of priority that requires attention.

7) In the response to question 13, the AER states there is a limit of three **consecutive** years for TDLs. Can you clarify? If applicants apply for a TDL for 2-3 years, not apply for a year, are they then able to apply for another three consecutive years? Is there an AER rule stating a maximum number of years and or maximum volume per licensee, before additional TDLs are refused and they are required to apply for a term licence?

The response to question 13 states that “companies using temporary diversion licences to fulfil their nonsaline water needs may only be issued such temporary licences for three consecutive years”. It is not a limit, however, when companies apply for consecutive TDLs from the same source for the same purpose and point of use, the AER will have a conversation with the company about the need to apply for a Term Licence. Based on the future needs of the company, they may not require any more water from the source, or they may apply for a term licence. Applying for a term licence is in many cases in the interest of the company given that TDLs are only temporary, and they may be approved, rejected, suspended, or cancelled based on flows and the needs of other Term

Licences in the system. For hydraulic fracturing operations, the AER does not accept long term plans or area of use maps for TDL's and ensures that the TDL is for short term and immediate development.

8) Thank you for sharing the link to the AEPA directive to AER, '*the directive for water licensing of hydraulic fracturing projects - area of use approach*'. We feel it is very clear that the AER has failed to meet the purpose of this directive and will be reaching out to AEPA for comment on it. Specifically, why it has not been updated since the Water Conservation Policy for Upstream Oil and Gas was released, superseding the referenced 2006 Water Conservation and Allocation Guideline for Oilfield Injection.

From the directive:

"Traditionally, applications to divert water for oil and gas wells have been handled on a 'well-by-well' basis by issuing temporary diversion licences for each well completion, or for each well pad development. **However, this approach generally would not explicitly consider potential cumulative effects within long-life projects; and also does not provide sufficient regulatory certainty or incentive for applicants to consider longer-term investments in infrastructure that could reduce the overall impact of activities.**"

"Alternatives Assessment: It is expected that proponents will seek the use of alternative water sources before considering the use of non-saline water for their projects. Alternative water sources include, but are not limited to, recycled flowback, recycled municipal or industrial wastewater, saline groundwater, groundwater containing hydrocarbon compounds (excluding methane) and/or non-water technologies. As part of the application submitted under this directive, proponents must include an alternatives assessment that demonstrates **no other economically and environmentally feasible water sources are available over the proposed term of the licence**. The 2006 Water Conservation and Allocation Guideline for Oilfield Injection provides guidance on conducting alternatives assessments. "

In this directive to AER, it states TDLs do not consider cumulative effects of non-saline water use by large area projects. This is a concern due to the large volumes being used and the purpose of the directive is to encourage companies to:

- Seek term licences and,
- Carry out alternative assessments before considering the use of non-saline water.

What is the AER's plan for getting companies to invest in longer term infrastructure to reduce reliance both on TDLs and freshwater. What does the AER require licence applicants to show for alternative assessments beyond municipal waste, which has been completely allocated in our

area? What sort of investigation and assessment of alternative groundwater and/or produced water has the AER required from licence applicants, as the directive references a 2006, superseded policy? Many alternatives are available, beyond municipal wastewater, as Baytex and Spartan Delta have been presented at their open houses, however, the cost is higher than using freshwater and, in some cases, there are also regulatory barriers. So, what is the AER's plan to incentivize the industry to start using alternative groundwater, or deeper saline produced water, etc? What is the AER's definition of economically feasible in judging the assessments?

The AER does not prescribe or direct companies on their development plans. Development plans are the applicant's responsibility and take into account many factors. Water is a key factor to long term project planning and companies understand the risk of relying on TDLs alone. In most cases companies develop long term plans that will include some security of water sources via Term licences with potential TDLs to cover unforeseen future demands. The AER sometimes provides education of the Water System, so companies understand that TDLs are not the best option for long-term project success. One of the biggest differences between a Term Licence and a TDL is that a Temporary Licence does not have a priority, meaning that they may be the first to be suspended or cancelled during low flows. Having priority gives certainty that the licence is taken into consideration during low flows. TDLs, because they do not have priority, will immediately be suspended or cancelled to give priority to a Term Licence.

While the Directive for Water Licensing of Hydraulic Fracturing Projects – Area of Use Approach references the now-archived 2006 Water Conservation and Allocation Guideline for Oilfield Injection and not the current 2020 [Water Conservation Policy for Upstream Oil and Gas Operations \(WCP\)](#) and associated [Manual 025: Applications Under the Water Conservation Policy for Upstream Oil and Gas Operations](#), the GoA website clearly indicates the older [Water Conservation Policy for Oilfield Injection and Guideline](#) have been archived and replaced by the newer Policy and AER Manual. Individuals and organizations involved in this work are aware that the newer 2020 Policy and AER Manual 025 are the current Policy and guidance documents applicable to this subject. The AER requires applicants to follow the new policy when submitting applications for term licences.

What is the AER's plan for getting companies to invest in longer term infrastructure to reduce reliance both on TDLs and freshwater.

To help reduce reliance on TDLs and freshwater in general, the AER has revised [Directive 055: Storage Requirements for the Upstream Petroleum Industry](#) to enable and describe the regulatory requirements for construction of water storage facilities that can contain

alternative water. To further enable the use of alternative water sources for energy development, AER [Directive 077: Pipelines – Requirements and Reference Tools](#) was revised to allow for conveyance of various types of waters through temporary surface pipelines; these temporary surface pipelines enable conveyance of alternative waters from long-term water storage facilities to wellsite locations where the water is used for relatively short durations, rather than moving water with water-tanker trucks. Long-term buried pipeline infrastructure is not a practical option for this type of water conveyance operation.

What does the AER require licence applicants to show for alternative assessments beyond municipal waste, which has been completely allocated in our area?

The [WCP](#) and AER [Manual 025](#) provide discussion and description of various alternative sources to high-quality nonsaline water beyond municipal waste. AER Manual 025 describes three levels of 'Alternative Source Assessment' (ASA) (Section 3.1) applicable to the four 'risk tiers' of Water Act applications (Section 2.1). Generally, an ASA requires identifying potential alternative water sources and assessing the operational suitability of those identified sources; information to be submitted in the application varies by the risk tier of the application and can be found in section 3.1. Beyond municipal wastewater, applicants may assess industrial runoff (non water short areas), industrial wastewater, produced water or flow back water, oil sands tailings water and saline groundwater; among other alternative sources of water.

What sort of investigation and assessment of alternative groundwater and/or produced water has the AER required from licence applicants, as the directive references a 2006, superseded policy?

As stated, the [WCP](#) and AERs [Manual 025](#) are the current Policy and regulatory documents directing this activity. [Manual 025](#) describes the ASA investigation requirements in Table 1 and Section 3.1; the radius of investigation increases with the risk tier of the application. Section 1.3.2 of Manual 25 provides specific details on alternative sources of groundwater and other alternative sources such as produced water.

Many alternatives are available, beyond municipal wastewater, as Baytex and Spartan Delta have been presented at their open houses, however, the cost is higher than using freshwater and, in some cases, there are also regulatory barriers. So, what is the AER's

plan to incentivize the industry to start using alternative groundwater, or deeper saline produced water, etc?

AER has expanded both storage and conveyance options for alternative waters (AER [Directive 055](#) and [077](#), respectively) to enable the use of alternative water sources, including saline groundwater and produced water. In addition, AER has published a report on [Water Use Performance](#) since ~2018, with the intent of making water use for oil and gas development (at the industry, sector and company level) transparent and accessible to the public, thus encouraging conservation. The information in the report can influence investment decisions and public perception, which can affect decisions made by an individual company on their water sourcing strategies. AER implements the existing GoA policy and has created Manual 025 and several Directives 055 and 077 to assist with this.

What is the AER's definition of economically feasible in judging the assessments?

With respect to water sourcing, AERs [Manual 025](#) includes a section on Economic Evaluation (section 3.4), which states: "The policy (i.e., [WCP](#)) requires the applicant to identify whether an alternative water source is economically feasible for their project. It is not a cost comparison between options, as surface water is often the lowest cost, but provides an assessment of whether the proponent can use an alternative source and still have an economically viable project." The section further describes the requirements of an economic evaluation needed to support an application under the Policy.

9) In reference to Question 23, how often are in-field audits performed? To determine if the pump operator knows the current allowable diversion rate, how to control the pump to get that rate and if the diversion rates are being followed?

There is a proactive AER inspection program in place for both temporary diversion licenses and term licenses that is a random verification program. Targets are chosen and field inspections are completed to ensure that licensees are compliant with the license conditions. In response to the drought conditions, we increased our inspections within drought affected areas. In addition, TDL inspections may also be completed as part of other inspections, such as drilling or completions operations. If we receive complaints or find poor compliance, we will inspect sites accordingly.

During 2024 the AER conducted 24 water licence inspections within the Medicine River and Blindman River watersheds. From those inspections, there was 96% compliance rate with respect to the diversion rate conditions based on recorded or measured flow identified in the licences.

10) Why does the AER not require companies have a *duty to inform* agricultural landowners (who they are approaching to buy their ag-exempt water from dugouts) that farmers who sell their water, would then need to obtain a water licence for their own ag-use. At the meeting at Last West Hall, the Spartan Delta engineer, when discussing how they were using ag-exempt water to make up their volume requirements in fall 2024, did not even know this.

The AER is unable to force companies to use specific procedures when negotiating with landowners regarding obtaining access to dugouts. Landowners should have knowledge of how much water is required for their operations, and if they provide consent to an oil and gas company to divert a volume of water from the dugout, the landowner should ensure adequate water remains for their needs. In most cases the landowner does not have a licence because they have an exemption under the Water (Ministerial) Regulation, Schedule 3 (1) (c) for Agriculture use.

11) In the AEPA directive on water licensing for hydraulic fracturing, it states that "Licences must include a condition that allows for Director-initiated amendments to reduce the allocation of water and/or reduction in the term of the licence."

Given the significant changes AER has made for new licences to protect the river and downstream users, are these new conditions also being placed on the two existing AER term licences in the Blindman (Baytex 00498767 and Vesta 00458425)? Given the large volumes of these licences, if they are not being amended to include the new conditions, what are the reasons?

The condition referenced to can be found at:

Condition 2.5 in Licence 00498767 <https://avw.alberta.ca/pdf/00498767-00-00.pdf> and  
Condition 2.5 in Licence 00458425 <https://avw.alberta.ca/pdf/00458425-00-00.pdf>.

Please see the response to question 1 and the reasons why the threshold for licence 499334 was set at 0.35m<sup>3</sup>/s rather than 0.156m<sup>3</sup>/s. Future TDLs from this reach are expected to have similar or slightly more restrictive thresholds given that the Term Licence has a priority over a TDL. Licence 00498767 is from gravel pits with no Instream Objective; however, the AER has added conditions as if diversion were from the immediately adjacent Lloyd Creek, therefore diversion is limited to 10% of the recorded flow at WSC station 05CC009 or a measured flow from Lloyd Creek near the Gravel pit. Licence 00498767 also contains conditions with respect to Red Deer main stem WCOs and Instream Objectives for Blindman River. The limiting factor of licence 00498767 is the 10% of the

flow in Lloyd Creek, which effectively limits the licensee to divert mainly during higher flows during the spring freshet.

Vesta's licence 00458425 is senior to licence 00499334 with a priority of November 29, 2019, and it is more than 40km downstream from licence 00499334, closer to WSC station 05CC001.

12) How was it determined that the Jones pit TDL was reinstated when other TDLs in the Blindman basin were not? It was stated significant rainfall in the area informed that decision, so where is "rainfall for the Blindman watershed" being recorded, and specifically, how did that allow the reactivation of only one TDL in the basin.

Only TDLs that were still needed were reinstated (TDL No.'s 00500126, 00500165, and 00503749). When flows in the subject sources of water reached and exceeded minimum flow thresholds set in the TDL conditions, the suspended TDLs were reviewed and licensees contacted to inquire whether those TDLs were still required. TDLs under which diversion had been completed or were no longer needed were cancelled.

13) Why isn't there a public notice when a licence is reactivated from being suspended?

AER's Public notice requirements are governed by Section 31 of the Responsible Energy Development Act whereby notice is provided upon receiving an application. A Public Notice of Application was posted for the TDL when it was first applied for. The reinstated TDL is the same TDL as the original, with the same conditions and TDL number, therefore it does not require new public notice.