



Alberta Drought Response Plan

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Foreword

Drought is a period of critically low water supply caused by below-normal precipitation (snow and rain). It results in decreased surface water and groundwater supplies and soil moisture. There are many different accepted definitions of drought, depending on those who are affected and the factors to which they are exposed such as precipitation, stream flow, lake and reservoir levels, groundwater supplies, soil moisture, crop yields, pasture conditions and economic impacts. There are meteorological, agricultural, hydrological, and socio-economic types of droughts.

Water is used throughout Alberta's economy, across all communities, and is essential for the sustainability of our environment. Water is used for everything from filling small dugouts for agriculture, to use in factories and plants, fire suppression and power generation, growing crops and watering livestock, and by all Albertans for their daily household needs, including drinking, cooking and cleaning. Water moves from the environment to human use points and back again through a complicated array of rivers and lakes, water storage reservoirs and canals, intakes and outflows. As water use is so pervasive throughout Alberta's society and the actual delivery and discharge mechanisms are interconnected, water management, especially during drought, requires all Albertans to share responsibility, conserve water and work together to achieve the best possible outcomes for all.

While the onset and severity of drought can be predicted using forecasting and modelling, the length of drought can be unpredictable due to the inability to forecast precipitation with certainty for long periods of time. As such, the drought response plan needs to be conservative, proactive and flexible to adjust to constantly changing drought conditions.

Alberta Environment and Protected Areas (EPA) is responsible for the protection and management of water resources within the province of Alberta. The Alberta Emergency Plan identifies EPA as the lead organization for drought. As lead organization, EPA is responsible for drought response coordination operations, and this response plan will guide its work and the provincial response.

Summary of Revisions

Version/Date	Summary of Revisions
May 2, 2024	Drought Response Plan published (version 1)
June 21, 2024	Language and technical updates
August 14, 2024	Drought stage updates
April 1, 2025	Drought stage updates, drought index inclusion, risk assessment, revised response structure, and updated MOU process for water sharing

Glossary of terms used within the Drought Response Plan

Alberta River Basins Website: A publicly available application and online tool that allows users to explore real-time river flow data, water shortage advisories, water quality and other environmental data. Information also includes water supply outlooks with current reservoir levels, mountain and plains snowpack, and long lead precipitation outlooks.

Apportionment Agreement: An inter-provincial or international contract specifying the sharing of water resources from trans-boundary sources. For example, Alberta and Saskatchewan share the resources of the North and South Saskatchewan Rivers through apportionment agreements.

Approved Water Management Plan: A plan undertaken with the consent of the Minister and approved and adopted by a Director under the *Water Act*, which provides direction regarding how water should be conserved and managed.

Approved Water Shortage Response Plans: Some licences within the South Saskatchewan River Basin (SSRB) contain terms and conditions requiring the licensee to follow an approved water shortage response plan. The approved water shortage plan is a proactive regulatory mechanism to ensure that licensees have adequate plans in place should flow restrictions within their licence obligate them to cease license diversions.

Aquatic Environment: The components of the Earth related to, living in, or located in or on water or the beds or shores of a water body including (but not limited to) all organic and inorganic matter, living organisms and their habitat (including fish habitat), and their interacting natural systems.

Diversion of Water: The impoundment, storage, consumption, taking or removal of water for any purpose. This does not include removal for the sole purpose of removing an ice jam, drainage, flood control, erosion control or channel realignment. This includes the conveyance of water from a stream, lake, aquifer, or other source of water by a canal, pipe, well, or other conduit to another watercourse or to the land, as in the case of an irrigation system.

Drought: Periods of less than average precipitation over a certain period of time. Drought is naturally occurring and can cause imbalances in the hydrologic system.

Effluent: The liquid waste of municipal, industrial or agricultural operations. Usually, the term refers to a treated liquid released from a wastewater treatment process such as sewage treatment.

Enforcement: Utilizing regulatory tools that compel compliance when voluntary compliance cannot be achieved.

Environmental and Protected Areas (EPA): Is responsible for the protection and management of water resources within the province of Alberta. Supports environmental conservation and protection, sustainable economic prosperity and quality of life.

Groundwater: All water under the surface of the ground whether in liquid or solid state. It originates from rainfall or snowmelt that penetrates the layer of soil just below the surface. For groundwater to be a recoverable resource, it must exist in an aquifer. Groundwater can be found in practically every area of the province, but aquifer depths, yields, and water quality vary.

Indicator: A direct or indirect measurement of some valued component or quality in a system, including an ecosystem or organization. For example, an indicator can be used to measure the current health of the watershed or to measure progress toward meeting an organizational goal.

Instream Objective (IO): Regulated flows that should remain in the river via improved dam operations or restrictions on licences. In-Stream Objectives were usually set in response to fish habitat in-stream needs and/or water quality requirements.

Irrigation: The controlled application of water for agricultural purposes through man-made irrigation systems, especially where rainfall is insufficient or irregular.

Irrigation District: The purpose of an irrigation district is to: construct, operate, and maintain irrigation works in each district for the conveyance and delivery of water; divert and use of water in accordance with the terms and conditions of license under the *Water Act*; and, to maintain and promote the economic viability of the district. In Alberta, there are 13 irrigation districts used for agriculture. Some districts also convey water for other purposes, such as municipal use or stock watering.

Licence: Licence means a licence issued under the *Water Act* and includes a renewed licence and a deemed licence under the Act. (Act, s. 1(1)(dd).

Licensee: Licensee means a person who holds a licence.

Master Agreement on Apportionment:

Apportionment Agreement Signed in 1969, this Agreement between Canada, Alberta, Saskatchewan, and Manitoba outlines the quantity of water that each province is allowed to divert, store and/or consume and the quantity and quality of water that each province must allow to pass to its downstream neighbour. Under the general terms of this agreement, Alberta is allowed to “divert, store or consume” up to one-half of the natural flow volume of each watercourse that flows into Saskatchewan (as measured at the Alberta-Saskatchewan border) and must allow at least one half of the natural flow volume to pass downstream to Saskatchewan. The Prairie Provinces Water Board regulates the Agreement.

Non-Compliance: Where legislative requirements, such as those found in an Act, regulation, Code of Practice, or authorization are not met.

Priority Number: The number that has been assigned to a water licence or registration in accordance with the *Water Act*. The priority number of a water licence indicates its seniority relative to other water licences.

Reservoir: A man-made impoundment that collects and stores water for future use. During periods of low river flow, reservoirs can release additional flow if water is available.

River Basin: An area of land drained by a river and its associated streams or tributaries. Alberta's *Water Act* identifies seven Major River Basins within the province: (1) Peace/Slave River Basin, (2) Athabasca River Basin, (3) North Saskatchewan River Basin, (4) South Saskatchewan River Basin, (5) Milk River Basin, (6) Beaver River Basin, and (7) Hay River Basin.

Stakeholder: An individual, organization, or government with a direct interest in a particular process or outcome.

Sub-Basin: Is a smaller division within a larger river basin that is drained by a tributary or section of a river.

Surface Water: Water bodies such as lakes, ponds, wetlands, rivers, and streams, as well as groundwater with a direct and immediate hydrological connection to surface water (for example, water in a well beside a river).

Wastewater: A combination of liquid and water-carried pollutants from homes, businesses, industries, or farms; a mixture of water and dissolved or suspended solids.

Water Allocation: The permitted volume, rate, and timing of a diversion of water outlined in a water licence. When water is permitted to be redirected for a use other than for domestic purposes, it is referred to as an allocation. Agricultural, industrial, and municipal water users must apply to EPA for a licence to use a set allocation of water.

Water Conservation Objective (WCO): As outlined in Alberta's *Water Act*, a water conservation objective is the amount and quality of water set by a Director for the protection of a natural water body or its aquatic environment; the protection of tourism, recreational, transportation or waste assimilation uses of water; or the management of fish or wildlife.

Water Licence Conditions: Water licence provisions that specify monitoring, reporting, diversion timing, or diversion volume requirements and site or project restrictions.

Water Quality: The chemical, microbiological, and physical characteristics of water.

Acronyms used within the Drought Response Plan

AEMA: Alberta Emergency Management Agency	NDVI: Normalized Difference Vegetation Index
AER: Alberta Energy Regulator	NSRB: North Saskatchewan River Basin
AGI: Alberta Agriculture and Irrigation	PASRB: Peace-Athabasca-Slave River Basin
B.C.: British Columbia	PECC: Provincial Emergency Coordination Center
DCC: EPA's Department Coordination Center	PHDI: Palmer Hydrological Drought Index
DEOC: Drought Emergency Operations Center	PIA: Post Incident Assessment
EPA: Environmental and Protected Areas	PPWB: Prairie Provinces Water Board
EPEA: <i>Environmental Protection and Enhancement Act</i>	SoDI: Soil moisture Drought Index
FITFIR: First in Time; First in Right	SPEI: Standardized Precipitation Evapotranspiration Index SPEI
FP: Alberta Forestry and Parks	SSRB: South Saskatchewan River Basin
GoA: Government of Alberta	SwDI: Snow Water Equivalent Drought Index
IO: Instream Objective	TDL: Temporary Diversion Licence
LGIC: Lieutenant Governor in Council	TMN: Tributary Monitoring Network
LTRN: Long-term River Network	WCO: Water Conservation Objective
MA: Alberta Municipal Affairs	WS MOU: Water Sharing Memorandums of Understanding
MAA: Master Agreement on Apportionment	WSC: Water Survey of Canada

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1.0 Introduction

1.1 Intent of Drought Response Plan

The intent of the Alberta Drought Response Plan is to ensure Alberta is well-prepared for the potential of widespread drought. The plan describes activities that EPA will implement to effectively address all possible drought conditions, which may range from localized impacts to multiple river basins simultaneously. In all cases, as the challenges that occur during drought can be variable and complex, a coordinated provincial response is necessary. Given the dynamic nature of planning for a severe drought and the complexities of Alberta's water management system, the plan is intended to be proactive and flexible enough to address changing drought conditions as they occur.

1.2 Plan Applicability

EPA is the Government of Alberta (GoA) lead organization for drought. The Drought Response Plan and EPA's activities are focused on ensuring that water demands in the province do not exceed water supply. To accomplish this goal, the department:

- utilizes specialized data analysis, water modelling and information systems;
- applies strategic and operational policies and procedures;
- utilizes non-regulatory approaches and regulatory tools; and
- actively leads outreach and engagement for all stakeholders.

This plan applies to drought response activities across EPA, and activities that may need to be taken by Alberta Agriculture and Irrigation (AGI), Alberta Municipal Affairs (MA), Alberta Forestry and Parks (FP), the Alberta Energy Regulator (AER), and other partner ministries.

1.3 Alberta Drought Response Plan Objectives

The objectives of the Alberta Drought Response Plan are:

- protecting the health and safety of Albertans from the impacts of drought;
- minimizing the impacts of drought on Alberta's communities, economy and the environment;
- implementing a proactive, risk-based approach to rapidly assess, prepare for, respond, and recover from the impacts of a drought;
- ensuring response to drought conditions is flexible and adjusted in real time as information changes; and
- enabling all Albertans to take appropriate action to conserve water and work together toward drought management goals.

1.4 Water Management within the Province

Water management in Alberta is shaped by the distinct geographic, ecological and socio-economic contexts of Alberta's river basins. Rivers in the northern half of the province flow into the Arctic Ocean, those in central and southern Alberta flow to the Hudson's Bay, and in the far south, the Milk River flows to the Gulf of Mexico. As rivers are not confined to provincial boundaries Alberta works with neighboring jurisdictions to ensure each has access to a portion of the natural flow (i.e., apportionment through transboundary agreements).

Most of Alberta's population is supported by the South Saskatchewan River Basin (SSRB) and large irrigation districts shape the storage and distribution of water across this landscape to support agriculture and community development. Northern basins comprise more than 90 per cent of river flow in Alberta, and traverse large areas of public land. The Milk River Basin flows through semi-arid landscape, is sparsely populated, and subject to seasonal water shortages. This context shapes the "place-based" opportunities and constraints for water management – including which regulatory tools are available for the management of water. Allocations are granted under a licence, and a licence must be obtained to use water in Alberta unless exempted by legislation, such as household use.

Some licences, (i.e., municipal and irrigation licences) allow water to be distributed to multiple users (rate payers) under the conditions of their licence. All licenced water use is subject to the specific conditions of the licence, including during times of drought. Licences

are subject to water management thresholds, including timing restrictions and low flow restrictions and in some cases, broader water management thresholds such as Instream Objectives (IOs) and Water Conservation Objectives (WCOs).

Water Management Advisories (WMAs) are applied when stream flow levels are lower than normal and are either approaching or are below key water management thresholds. Depending on the severity of the conditions, water conservation measures may be recommended, or management actions may be invoked relating to angling, temporary diversion licences, or licenced water withdrawals.

Milk River Basin

The Milk River Basin (not part of the SSRB) traverses the Canada and United States border in the far south of the province. Water apportionment in the basin is administered under the Boundary Waters Treaty, which governs the sharing of water between Canada (Alberta) and the United States (Montana). The Milk River is used as a conveyance channel by Montana to supply water to the eastern portion of the state from their upstream diversion structure on the St. Mary River. This results in an augmentation of seasonal flows in the Milk River. *Water Act* licences in the Milk River Basin include terms and conditions to comply with the requirements of the treaty.

South Saskatchewan River Basin (SSRB)

The SSRB is comprised of the Red Deer, Bow, Oldman, and South Saskatchewan River sub-basins. In 2007, the Approved South Saskatchewan River Basin Water Management Plan (SSRB WMP), closed the Bow, Oldman, and South Saskatchewan River sub-basins to new allocations of water except under limited circumstances, and placed interim allocation limits on the Red Deer River sub-basin. As a result, few new licences are issued in the SSRB, and water licence transfers have become the primary regulatory mechanism to acquire water.

The SSRB WMP places additional conditions on statutory decisions under the *Water Act*, including conditions for licence transfer decisions. Water management within the SSRB is heavily influenced by large government and privately owned water storage reservoir and canal conveyance infrastructure that is mostly focused on supporting water availability for agricultural irrigation. Many of the largest and most senior licences are held by irrigation districts, which is an important management factor in times of drought.

The 1969 Master Agreement on Apportionment (MAA) sets out the approach for apportionment and specific commitments between Alberta and Saskatchewan in the SSRB. Signatories of the MAA include the governments of Alberta, Manitoba, Saskatchewan, and Canada. The agreement is administered by the Prairie Provinces Water Board (PPWB). Under the MAA, Alberta is permitted to make a net depletion of 50 per cent of the natural flow from the South Saskatchewan and Red Deer Rivers each year, and the remaining 50 per cent must pass to Saskatchewan.

Northern Basins

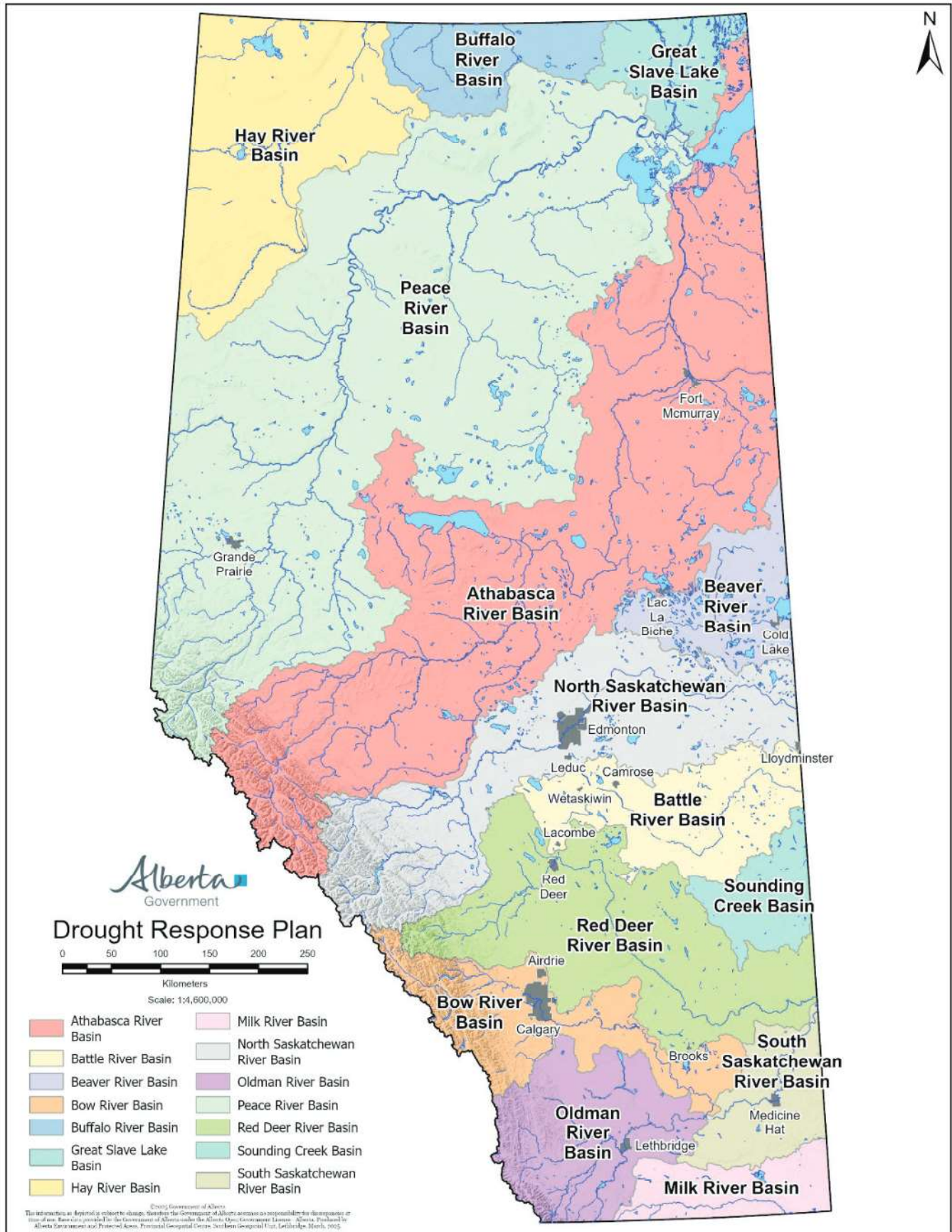
The Northern Basins are comprised of four river basins: the North Saskatchewan River Basin (NSRB), Peace-Athabasca-Slave River Basin (PASRB), Hay River Basin, and the Beaver River Basin. Although not as intensively managed as the rivers in the south, the northern basins contain almost 90 per cent of the province's water.

The NSRB covers approximately 12 per cent of the province and 6 per cent of the total flow of the province. It is comprised of the North Saskatchewan River, Battle River, and Beaver River sub-basin. Major water users include the City of Edmonton, and industrial and commercial users. NSRB is subject to the 1969 MAA that commits Alberta to send 50 per cent of the natural flow from the North Saskatchewan River to Saskatchewan each year.

The PASRB occupies 64 per cent of the province, is Alberta's largest and most northerly river basin, carrying 86 per cent of Alberta's total river flow. The Peace River originates in British Columbia (B.C.). The PASRB is a part of the larger Mackenzie River Basin and apportionment is set out in the 1997 Mackenzie River Basin Transboundary Water Master Agreement. Members of the agreement include Alberta, Saskatchewan, B.C., Northwest Territories, Yukon and Canada. Each province is committed to transboundary water management and specific cooperative measures for watershed protection.

The Hay River Basin in the northwest corner of Alberta originates in B.C.'s mountains and eventually empties into the Arctic Ocean. Two lakes within Alberta, in the basin are Zama and Hay, and are recognized for their particular importance to wildlife.

Map 1: Provincial drought basins



1.5 Water Monitoring

Water Monitoring for Drought Response

EPA works collaboratively with various partner agencies to monitor Alberta's water resources through its province-wide networks of monitoring stations. These networks provide the data required to understand baseline conditions, natural variability, and quantify cumulative effects. Monitoring information, including water quantity, groundwater, snowpack, climate, water quality and fisheries data provides the necessary situational awareness and escalation indicators as drought progress.

Water quantity is monitored in partnership with the Water Survey of Canada (WSC) with a network of over 400 hydrometric stations, providing continuous and near real-time information on water level and flow. The water quantity-monitoring network includes stations that operate annually and those that operate seasonally (April to October).

Groundwater levels are monitored hourly at more than 300 wells in the Groundwater Observation Well Network (GOWN) using digital water level loggers. Near real-time information on groundwater levels is available for approximately 50 of these wells.

Snowpack data is actively collected from over 100 alpine and plains sites as part of the Provincial Snow Survey Network. This includes a network of snow pillows reporting continuous snowpack data year-round, and a network of snow survey sites where snow depth is measured at monthly intervals throughout the winter and spring.

Water quality monitoring consists primarily of the Long-term River Network (LTRN) and Tributary Monitoring Network (TMN). The LTRN is a collection of sites located in several of Alberta's major river systems. Water is collected monthly at over 30 stations along 13 major rivers and is analyzed for over 100 parameters at analytical laboratories. Under the TMN, water is also collected and analyzed monthly at over 70 tributaries that contribute water to many of Alberta's major rivers.

Alberta River Basins Website

Near real time information on surface water levels in Alberta's rivers and water storage reservoirs, along with snowpack monitoring data are available on the Alberta River Basins website. This enables all water users to monitor surface water availability in near real time and make decisions about water conservation measures that they can take, as needed. This information is also vital for EPA to assess current and near future water supply levels, which informs progression through the five stages of drought response outlined in Section 2.0 of this plan.

2.0 Drought Response Process

2.1 Introduction

Droughts are complex, can fluctuate in severity, temporarily improve, or worsen, and can have different effects depending on their geographical location within the province. The area affected by drought are typically larger than other natural disasters, which are usually constrained to floodplains or storm tracks. In addition to their severity and as with other natural disasters, droughts can be characterized based on their location, duration and timing.

The drought response process outlined in Figure 1 and described in this section provide the tools required to assess and describe the drought conditions, analyze the risk associated with those conditions and apply appropriate response structure and management actions to respond to that risk. The process essentially incorporates monitoring and forecasting with preparedness and mitigation in response to the impacts expected to be experienced during droughts.

Figure 1: Drought response process



2.2 Drought Index

The Alberta Drought Index is based off data generated by the Canadian Drought Monitor (CDM). The CDM provides monthly drought assessments that feed directly into the North American Drought Monitor, a cooperative effort between drought experts in Canada, Mexico and the United States.

The CDM is a composite product developed from a wide assortment of information such as the Normalized Difference Vegetation Index (NDVI), streamflow values, Palmer Drought Index, and drought indicators used by the agriculture, forest and water management sectors. For each of the basins identified in Map 1, EPA will, on a monthly basis, proactively assess the environmental conditions to determine the drought stage and help apply appropriate management activities based on the severity. Drought prone regions are additionally analyzed based on precipitation, temperature, drought model index maps, and climate data and is comprised of the following:

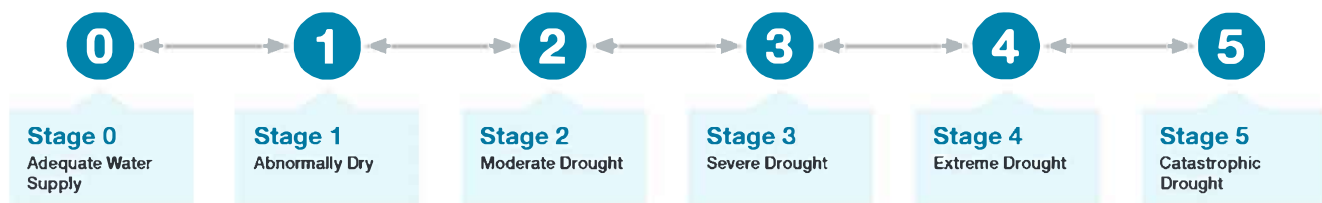
- Standardized Precipitation Evapotranspiration Index (SPEI)**
 The Standardized Precipitation Evapotranspiration Index (SPEI) is an index based on climatic data and is designed to consider both precipitation and potential evapotranspiration in providing a standardized index of drought. The basis of the index is that it builds upon the relationships of drought to frequency, duration, and timescales and includes a temperature component. This allows the SPEI to account for the effect of temperature on drought development through a basic water balance calculation.
- Snow Water Equivalent Drought Index (SwDI)** The Snow Water Equivalent Drought Index (SwDI) is a measurement used to measure the amount of water contained within the snowpack at a particular location and is determined by depth, density, type of snow, changes in the pack, previous freeze/thaw cycles, and recent precipitation events.

- Normalized Difference Vegetation Index (NDVI)**
 The Normalized Difference Vegetation Index (NDVI) measures the greenness, and the density of the vegetation captured in a satellite image and provides a quantitative estimate of biomass, vegetation health, and growth. The NDVI evaluates the health of vegetation by calculating the spectral difference between the near-infrared (reflective zone) and red (absorption zone) portions of electromagnetic radiation. In general, NDVI is directly related to photosynthetic capacity and, thus, energy uptake of plant canopies.
- Palmer Hydrological Drought Index**
 The Palmer Hydrological Drought Index (PHDI) is a water balance model which analyzes precipitation and temperature and used as a tool to measure meteorological and hydrological drought across space and time. The PHDI uses monthly temperature and precipitation data to calculate a simple soil water balance. The PHDI represents how soil moisture availability differs from that expected for a given place and time of year. The PHDI includes a “memory” component that considers past conditions and persistence of soil moisture surplus or deficit.

2.3 Drought Stages

EPA has established stages of escalating drought response based on drought frequency period and that are triggered by specific environmental conditions. The drought stage categories are based on precipitation percentiles that generally relate to the statistical return period and use a 6-category system that define the severity, spatial extent, and impacts of drought (Figure 2). Each category is based on the percentile chance of those conditions occurring and range from S0 to S5 with S0 indicating adequate water supply and S1 to S5 indicating moderate to catastrophic drought. A catastrophic drought (S5) for example, represents conditions that historically a 1 in 50-year event.

Figure 2: Environment and protected areas’ stages of drought response



Drought stages are place-based and context specific, and as such, they may not follow a linear progression. Stages may change depending on the impacted basins environmental conditions (i.e., it may be possible that a stage is skipped, or that conditions overlap between two stages, etc.).

2.4 Drought Risk Assessment

EPA's drought risk-management approach establishes a reliable, repeatable, and transparent process to incorporate risk management into decision making and planning. It recognizes that people manage risks differently at different scales and thus provides a broad framework focused on improving the effectiveness and efficiency of managing risks to objectives at all levels.

Regular risk evaluations are a critical component of effective water management. By systematically assessing various risk factors, EPA can anticipate potential challenges and implement proactive measures to mitigate impacts.

The level of risk to be applied to a basin is comprised of a number of elements in addition to its drought stage. Those elements specifically include reservoir storage levels, water management advisories, and water supply and demand. The risk assessment also includes an analysis of the severity of drought and the likelihood of that drought outcome occurring for five key impacts, environmental, economic, social/health, operational, and strategic.

The risk assessment process generates a drought risk ranking matrix ranging from low to extreme with associated management actions applied to each ranking as required.

2.5 Drought Response Structure and Coordination

Introduction

As noted in Section 2.6, Table 1, EPA implements two primary organizational response structures dedicated specifically to the management of drought response activities; the Water Management Support Team (WMST) and the Drought Emergency Operations Centre (DEOC). EPA's response to drought conditions escalates based on the severity of drought risk. The WMST and DEOC do not operate at the same time but instead run in series, moving from the WMST to the DEOC as risk increases.

The DEOC integrates with broader departmental and government-wide coordination supports including EPA's Department Coordination Center (DCC) and the Provincial Emergency Coordination Center (PECC) should these structures be activated as drought severity increases.

Water Management Support Team (WMST)

The WMST is activated on an annual basis to provide strategic coordination for provincial drought preparedness and all matters related to WS MOUs, regulatory operations, risk assessment, outreach and engagement, and situational reporting related to drought at the provincial scale. The WMST supports provincial drought activities under low-risk conditions, as well as limited-scale medium-risk drought responses delivered by regional teams. Critical inter and intra-departmental coordination and integration commences under the WMST and continues at varying intensities as the degree of risk and required drought response changes. This includes WMST integration and coordination with key drought response partners such as AGI-WIOB and the AER.

Drought Emergency Operations Centre (DEOC)

The DEOC is activated to lead drought responses utilizing an Incident Command Structure (ICS) for some medium, and all high and extreme risk conditions that require an enhanced level of coordination, resource allocation and communications that is outside the scope of the WMST. The DEOC will support local entities and initiate any required water management activities, regulatory and non-regulatory, to manage water supply and use with the objective of minimizing impacts to Alberta's communities, economy and environment. The DEOC will incorporate into its organizational structure any required Government of Alberta ministry and agency needed to manage water supply and use appropriately. Further, the DEOC will integrate with other coordination and response structures as outlined below in Section 5.14 as needed.

EPA Department Coordination Center (DCC)

The EPA Department Coordination Center (DCC) activation may occur for several reasons and support different types of emergencies. Activation could occur to support concurrent events, such as drought, flood, wildfire, pollution spills and releases, and aquatic

invasive species. The DCC provides broader-scale emergency coordination and response capability when complexities and significance of an emergency event overwhelm existing organization structures. It is anticipated that the DCC will be activated under extreme risk conditions noted in this plan.

AEMA Provincial Emergency Coordination Centre

The Alberta Emergency Management Agency (AEMA) leads the coordination and cooperation of all organizations involved in emergencies and disasters as described in the *Emergency Management Act*. The Provincial Emergency Coordination Centre (PECC) is the overall Government of Alberta communication and response coordination centre operated by AEMA to fulfill this role. It is staffed 24/7 and serves as a central point for the collection, evaluation and dissemination of information concerning single or multiple incidents across the province. It is responsible for coordinating the initial response and maintaining support for a response to large scale provincially significant natural or human-induced disasters.

The PECC is typically activated where a very significant incident has occurred that is causing a full disruption of community functioning and has caused significant harm to Albertans, their property, the environment, or the economy. Like the DCC, it is anticipated that the PECC will be activated under extreme risk conditions noted in this plan.

Other Emergency Operations Centres (EOCs)

Depending on the nature and severity of drought conditions, there is potential that other government agencies, local authorities or private municipal or industrial facility owners may activate local EOCs as per their individual emergency response plans. EOCs of this nature are also typically activated using the ICS model, and the DEOC structured to efficiently coordinate with these types of EOCs. In the context of drought, the activation of a local EOC may be related to an emergency associated with the operation of critical infrastructure posing a risk to things like human health, safety or the environment. Where the emergency relates to matters overseen by EPA, such as municipal drinking water or wastewater, the department may play a regulatory or technical support role. Depending on the situation, EPA's support can range from technical advice to embedding EPA staff within the local EOC to ensure coordination.

Other Hazards

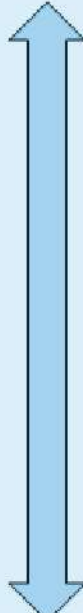
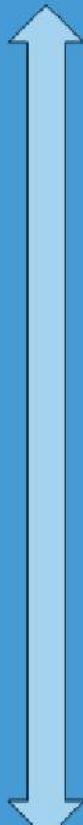
It is recognized that incidents related to other hazard types may occur during DEOC responses, including those hazards that are influenced by the same environmental conditions and seasonal timing that can intensify drought. Overlapping hazards may include other natural occurrences such as wildfire and spring floods during the broader drought cycle but may also include major environmental incidents such as substances releases, or critical municipal infrastructure failures. This potential overlap in hazard management and response is incorporated into the DEOC organizational framework via specific connections to other government departments, local authorities and sector groups at the strategic and tactical levels. These connections are further incorporated into DEOC preparation and operational planning processes to ensure that DEOC can support and integrate with other response structures to address the risk of overlapping hazard responses including at the inter-provincial scale.

2.6 Drought Risk Management Actions

EPA leads and undertakes management actions in response to drought risk. A graduated range of drought response management actions will be implemented to align with the scope and scale of the assessed risk including non-regulatory approaches, regulatory tools and under extreme circumstances declaration of a water emergency under Section 107 of the *Water Act*. Sections 3.0 and 4.0 of this plan further describe the range of specific non-regulatory approaches and regulatory tools that EPA may utilize during a drought response.

Table 1 below sets out how drought risk rankings inform the EPA drought response structure and summarizes the management actions that may be implemented as part of response activities.

Table 1.0: Risk, response structure and management actions

Risk Ranking	Response Structure		Management Actions Summary
	WMST	DEOC	
LOW			<ul style="list-style-type: none"> • Risk conditions are managed by the WMST. • Risk and associated key water supply and demand data is routinely assessed (e.g. drought indices, water supply outlooks, applicable reservoir levels, short and long-term precipitation forecasts, water modelling, etc.). • Drought response readiness is maintained to ensure an effective response should risk conditions increase. • Conditions are assessed in relation to potential WS MOU processes. • Routine regulatory and water management activities are conducted. • Routine outreach and engagement activities occur.
MEDIUM			<ul style="list-style-type: none"> • Risk conditions are managed by the WMST, the DEOC may be activated where required to effectively manage drought response. • Assessment of risk and key water supply and demand data continues and may be increased based on conditions. • Operational drought response and water management activities are activated to effectively respond to medium-risk conditions including both non-regulatory approaches and regulatory tools. (See Sections 3.0 and 4.0) • WS MOU processes are implemented or activated where required. See section 3.4 • Strategic outreach and engagement activities are implemented
HIGH		<ul style="list-style-type: none"> • The DEOC is activated to effectively manage drought response. • Assessment of risk and key water supply and demand data is conducted at a frequency directed by the DEOC. • The intensity of operational drought response activities is increased to effectively respond to high-risk conditions. • WS MOU are activated where required. • Strategic outreach and engagement continues. 	
EXTREME		<ul style="list-style-type: none"> • The DEOC remains activated and operating at maximum capacity. • WS MOU are activated. • The EPA DCC and GoA PECC are activated to provide a broader scale emergency coordination. • Declaration of Emergency under Section 107 <i>Water Act</i> may be considered at a local, regional or provincial scale when all other options have been exhausted, and the specific triggers for declaring a water emergency have been met. See section 5.0 • Where applicable, specific outreach and engagement occurs in relation to a water emergency declaration. 	

3.0 Non-Regulatory Approaches

3.1 Introduction

Previous drought management experiences have demonstrated that responses to drought are most effective when multiple management approaches are applied in unison. Given that EPA is the primary regulator and overall administrator of Alberta's water management system, the department can apply both non-regulatory approaches and regulatory tools during a drought response as necessary.

Non-regulatory approaches are voluntary and not required by any GoA legislation. However, all non-regulatory approaches must not conflict with any provincial legislation or regulation. While EPA plays an important support role, some non-regulatory approaches rely heavily on stakeholder initiative, participation, and collaboration to achieve success. The non-regulatory approaches that will be utilized in drought response include outreach and education, voluntary water restrictions, voluntary water sharing memorandums of understanding between water users, and additional water quality monitoring and support for effluent discharges in low flow conditions.

3.2 Outreach and Engagement

EPA will reach out early and often to water licensees and other key stakeholders to provide information on the current situation and steps stakeholders should consider in preparing for water shortages and responding to drought conditions. EPA will develop and disseminate resources and information to support the actions stakeholders should take.

Outreach and engagement activities include proactive information sharing and discussions with licensees and stakeholders related to the:

- current and predicted future status of drought conditions;
- actions EPA is implementing to address predicted conditions; and
- complimentary strategies that licensees may consider for mitigating the impacts of drought on their water use.

Outreach and education activities will initially be targeted to water users in areas of concern, as well as other influential organizations that could disseminate information to their networks, to expand the reach of outreach messaging.

EPA plays an important role as the key technical knowledge holder, primary regulator and manager of Alberta's water system. As part of drought response, EPA initiates outreach and engagement activities and plans additional activities based on stakeholder needs. EPA will update and add to its outreach plans, information and resources based on input received from stakeholders.

Role of EPA

EPA will undertake broad public communications to increase individual Albertans' awareness of drought conditions, the government's response actions and steps individuals can take to conserve water.

Outreach and Engagement for Drought Response

EPA will develop and implement an outreach and engagement plan to support effective drought response. The overarching goals of the plan will be to ensure:

- the public is aware of the GoAs drought response and potential management actions; and
- the public understand and participate in conservation measures to help mitigate the impacts of drought on individuals, communities, and businesses.

The outreach and engagement plan describes tasks, timing and leads for three major areas of work including:

- engaging directly with water licence holders and other key stakeholders to ensure they have the information and resources they need to respond to drought conditions;
- sharing information publicly on the current drought conditions, future drought scenarios, government response actions and steps individuals should take to conserve water; and
- ensuring elected officials and partners in other GoA ministries are kept informed of the current situation and response actions.

Outreach and Engagement for Indigenous Communities

EPA's Indigenous Initiatives Section will continue to facilitate ongoing communications with Indigenous communities in Alberta. Information regarding drought mitigation and voluntary water conservation activities, as well as current forecasts and potential impacts on communities are some of the frequent information sharing that will be undertaken.

EPA will provide Indigenous communities within the province regular engagement opportunities to discuss community concerns by providing them with a direct EPA contact. Additional EPA follow up and correspondence may be focused on communities located in sub-basins impacted by drought conditions.

3.3 Voluntary Water Restrictions

Voluntary water restrictions are discretionary actions taken by a water user that limit the use of water for certain purposes to preserve water supply. The decision to enact voluntary water restrictions is often informed by EPA data sources or by the individual circumstances of the licensee. EPA encourages and supports voluntary water restriction approaches, as they contribute to the overall mitigation of drought impacts. In many cases, early voluntary restrictions can help communities and commercial entities avoid increasingly stringent restrictions, mandatory regulatory actions, or loss of water access or supply.

Voluntary water restrictions include water conservation measures by water users or rules that licensees may place on themselves or the users they supply. Water conservation measures can range in scope and scale and include measures to minimize non-essential water use at their homes or businesses.

Water licence holders may also choose to self-impose rules for their authorized water use. This is mostly seen in the municipal context, where communities that hold water licences may implement bylaws and drought response plans requiring themselves and their water users to restrict certain uses of water. Restrictions may escalate as drought conditions worsen. For example, initially, restrictions may include limiting activities such as municipal and household lawn watering but may progress as drought conditions worsen to restricting all non-critical municipal and household water uses.

Role of EPA

EPA's primary role in supporting voluntary water restrictions is by providing data, such as real-time flow data, as well as general information related to how to prepare water shortage response plans.

Voluntary water restrictions are enacted and enforced (where applicable) at the discretion of the licensee.

Voluntary Water Restrictions for Drought Response

EPA strongly recommends stakeholders draft and maintain voluntary water shortage response plans. EPA will provide information and resources to support these plans. The objectives of EPA's outreach and engagement plan (see Section 3.2) support this work.

EPA has online resources licensees and other water users can access to support the drafting of plans. Resources are intended to inform the licensee regarding drought risks related to their water supply, assist in the analysis of potential options for addressing drought risks, and to support sustainable plan implementation.

3.4 Water Sharing Memorandums of Understanding

Water Sharing Memorandums of Understanding (WS MOU) are documented understandings amongst *Water Act* licence holders to voluntarily modify their water use to maximize the benefit of available water supplies during periods of drought. WS MOUs are one of the most important tools that Alberta uses to manage significant drought. The central premise is that large/senior water license holders work together to manage water wisely and withdraw less water, so more license holders can have water available for use. WS MOUs are collaborative and voluntary between licensees within a river basin or sub-basin but must remain regulatorily compliant with the *Water Act* and individual license terms and conditions.

Role of EPA

EPA's role in supporting water sharing MOUs is to initiate and facilitate the WS MOU development and implementation processes. EPA provides technical data to inform decision making processes in the WS MOU and monitors the outcomes of the process to ensure social, economic and environmental objectives are met. EPA also holds a regulatory role by conducting compliance inspections with non-signatories of the WS MOU located within an activated WS MOU area.

How Water Sharing Memorandums of Understanding Work

WS MOUs can occur between any licensees; however agreements that involve licensees with large-volume water allocations and/or senior license priorities are most likely to provide the greatest benefit to the overall water management system. These memorandums are predicated on the idea of large, consequential water users taking the initiative to voluntarily reduce diversions (take less water) so that there is more water in the overall system for smaller and more junior licensees to have access to their own existing allocations.

WS MOUs do not change the priorities or increase the allocations of licensees. The WS MOU are formalized through a voluntary, non-binding process signed by the participating parties (primary signatories and participants). Primary Signatories play a role in the collaborative development and implementation of the WS MOUs, providing feedback and decision making throughout the process. Primary Signatories typically include large/senior water license holders. Participants are smaller or junior water license holders, who voluntarily sign the WS MOU and have no decision-making authority. EPA monitors the outcome of the WS MOU, meaning the availability of water for all water users, but does not regulate the WS MOU, as it is not a legislative tool under the *Water Act*.

Water Sharing Memorandums of Understanding for Emergency Response

WS MOU templates have been developed to ensure all parties and actions pertinent to the WS MOU operate in a provincially consistent, and timely fashion. EPA will initiate water sharing discussions amongst large/senior licence holders early enough so that the parties and WS MOUs are ready for implementation before drought conditions warrant their activation. Senior licensees may also initiate these discussions.

Standard activation and deactivation triggers have also been established. These triggers are science based, measurable, defensible, and agreed upon by the Primary Signatories. Triggers are primarily based upon water supply and demand, in addition to potential risks to other licenced water use within the system and the aquatic environment. Triggers will be selected based on the specific needs and concerns identified in the WS MOU development process.

Once an WS MOU is implemented, EPA will conduct regular scheduled meetings with the Primary Signatories to collectively determine when the WS MOU should be activated and to share technical data and field observations. Once conditions and the pre-established triggers warrant it and there is a consensus between Primary Signatories, any activated WS MOUs will be deactivated.

3.5 Low Flow Water Quality Monitoring and Support for Effluent Discharges

Role of EPA

Wastewater facilities service approximately 80 per cent of the province's population which consist of municipal and industrial operations, with many of these facilities releasing treated effluent into surface water bodies under EPEA authorizations. In addition to being a primary regulator of authorized wastewater facilities, EPA is also responsible for the monitoring, sampling, and assessment of the province's surface water quality.

Low Flow Water Quality Monitoring for Drought Response

Under normal conditions, treated effluent poses an acceptable risk to the aquatic environment as it is managed through regulatory approvals and Codes of Practice. During instances of drought, low flows in the receiving water body may reduce the ability for effluent dilution and increase the risk to water quality and the aquatic environment. It is the responsibility of the facility operator to ensure that they remain compliant with EPEA and that planned effluent releases do not result in a contravention.

Based on geographic location and drought risk, EPA will contact facility operators to gather information regarding their effluent release plans and compile a data set of key information (i.e., release month, volume, duration of release). Planned facility releases will be assessed and assigned a level of risk in relation to the receiving waterbody. If a facility is deemed high risk, EPA will work with the facility to request additional voluntary measures be taken to help mitigate adverse effects, which may include:

- adjusting the timing of discharge to avoid releasing during the hottest and driest months;
- reducing the discharge flow rate to allow for improved dilution;
- additional effluent and surface water quality testing; and
- consideration of alternative discharge methods such as wastewater irrigation, land disposal, etc.

4.0 Regulatory Tools

4.1 Legislative Context

EPA utilizes two primary pieces of legislation to address drought, those being the *Water Act* and the *Environmental Protection and Enhancement Act* (EPEA). EPA and the AER have shared authorities under the *Water Act* and EPEA that are applied within their distinct jurisdictions. It should be noted that the AER does not have the authority to administer priority calls under the *Water Act*. EPA leads and is the statutory decision maker for all requests to administer priority under the Act.

Water Act

The *Water Act* supports the conservation and management of water through the allocation of water in Alberta. The Act sets out the legislative framework for the priority of water diversions amongst users, instruments available for the diversion and use of water, and a variety of compliance measures available to ensure the objectives of the Act are met. The Act has both authorization and compliance components that support drought response.

Environmental Protection and Enhancement Act

The EPEA sets out the legislative requirements of how air, water quality, land and biodiversity are managed in Alberta. EPEA supports the protection, enhancement and wise use of the environment by designating activities for which authorizations are required under the Act. The Act has both authorization and compliance components that support drought response.

4.2 Regulatory Tools – Authorizations

Authorization Introduction

This section of the plan focuses on authorizations under the *Water Act* to support drought response. It is recognized that there may be other authorizations under other pieces of provincial legislation that may be important to address the far-reaching impacts of drought, including the EPEA and *Public Lands Act*. In general, *Water Act* authorizations are legal instruments of the legislation that contain terms and conditions

for the authorized diversion of water or approval for carrying out activities in or near waterbodies.

The authorization activities under the *Water Act* that support drought response include the issuance of new authorizations or the amendment of existing authorizations. Examples of authorization types pertinent to drought management include:

- approved water shortage response plans;
- temporary diversion licences (TDL);
- short-term (temporary) water licence transfers;
- agreements to assign water; and,
- approvals for work in or around water.

Under authorization scenarios, the party impacted by drought plays the role of initiating the formal regulatory process via an application to the department. EPA plays the role of the statutory decision maker with respect to the application, as well as a regulatory assurance verification role with respect to the authorization holder's compliance with requirements of their authorizations.

EPA can support authorized parties/members of the public throughout the authorization process, but the applicant must submit a complete application to the department which can be considered for an approval decision. EPA applies an enhanced level of pre-application support and implements expedited authorization processes to actively assist those impacted by drought. The AER provides a similar role for oil, gas and coal exploration and development projects.

Approved Water Shortage Response Plans

Some water licences within the SSRB contain terms and conditions requiring the licensee to develop and follow an approved water shortage response plan. The plan is submitted with the licence application and forms part of the final licence.

Applicability in Drought Response

Instream flow restrictions are common within water licences issued within the SSRB. The requirement for a licensee to comply with an approved water shortage plan is a proactive regulatory mechanism to ensure that licensees have adequate plans in place should flow restrictions within their licence obligate them to cease licence diversions. In some cases, approved plans align with regional or provincial response plan escalation criteria.

Use in Drought Response

Licensees with approved water shortage response plans are obligated to implement the plan during drought conditions. EPA will conduct compliance verification activities with respect to licensee compliance to approved water shortage response plans in alignment with operational drought response objectives.

4.3 Temporary Diversion Licences (Sections 62 – 65 of the *Water Act*)

A TDL grants a temporary authorization for the diversion of water from a surface or groundwater source. TDLs are issued for a short-term (one year or less) and may be issued for a variety of purposes. TDLs can be issued in a relatively rapid fashion, and TDL approval decisions are not subject to notice or appeal provisions under the Act. TDLs can also be issued within basins that are closed to new permanent allocations of surface water, such as the SSRB. However, TDLs do not receive a priority number and are often subject to water management thresholds, which means they are one of the first types of authorized diversions that must cease when EPA administers a priority, or when water management thresholds are not met.

Applicability in Drought Response

TDLs can be considered to temporarily authorize diversions of water from alternative sources for either existing or new licensees. In some cases, TDLs can also be used as a 'bridging authorization' to allow for temporary water use while a more permanent or appropriate water source is authorized.

Use in Drought Response

EPA will utilize TDLs as one of the regulatory tools to support drought response. EPA will provide enhanced support to licensees who require a TDL to access alternative water supplies. EPA has developed a temporary livestock watering program to provide this support to agricultural producers.

4.4 Water Licence Transfers (Section 81 of the *Water Act*)

A water transfer is a transfer of all or part of licensed water allocation from an existing licence to another licensee or new water user. A licence transfer can be made either permanently or for a short term

(temporary), and results in the issuance of a new licence with the same terms, conditions, and priority number as the licence the allocation was transferred from (i.e., the allocation, priority, and conditions transfer).

A temporary transfer involves a time-bound amendment of the licence being transferred (by the transferer), and a new short-term licence being issued to the transferee. All transfer applications are subject to a 30-day public notice under the *Water Act*. Within the SSRB, Water Licence Transfers are the primary means for acquiring new surface water licences or increased allocations to existing licences.

Applicability to Drought Response

Short-term transfers are the most practical transfer authorization available to support drought response within the SSRB. These are advantageous when an existing licensee is prevented from diverting their licenced allocation due to insufficient water supply and/or limiting conditions of their licence (i.e., instream flow restrictions, timing restrictions, junior priority). Acquiring a short-term transfer from a licence holder with more flexible licence conditions can help mitigate the impact during drought.

Use in Drought Response

EPA supports the use of short-term transfers as one of the regulatory tools available for drought response and will implement an expedited process to support short-term transfer applicants. A TDL may be used as a bridging authorization until the short-term transfer authorization process is completed.

4.5 Agreements to Assign Water (Section 33 of the *Water Act*)

An assignment of water is an agreement between two parties each holding a licence or registration to assign all or part of the assignor's licence to the assignee for any duration. The assigned allocation retains the priority number specified in the assigning licence but must be diverted under the existing terms and conditions of the licence or registration it is being assigned to. This means if an assignee's water licence has terms and conditions restricting diversions (i.e., flow or timing restrictions), those restrictions remain in effect and may prohibit the use of any assigned water.

The *Water Act* specifies how agreements are made and carried out. EPA does not formally approve these

agreements, and they are not subject to the notice or appeal provisions of the *Water Act*. EPA may revoke an agreement where the assignment causes or may cause impacts to other water users or the aquatic environment.

Applicability in Drought Response

Assignments are of little utility in the SSRB. Most licences in the basin contain conditions that restrict diversion to mitigate low flow needs (i.e., flow or timing restrictions). These restrictions are often the primary reason for an existing licensee to seek an alternative source of water. Assignments do not remove these restrictions from the assignee's requirements, so they are not effective at providing an alternative source of water in times of water shortage. Agreements to assign water may have greater applicability in Alberta's Northern Basins during drought conditions.

Use in Drought Response

EPA supports Agreements to Assign Water under Section 33 of the *Water Act* as one of the regulatory tools to mitigate drought conditions. In the circumstances where assignments are a viable consideration, close attention must be given to the requirements for the agreement set out in the *Water Act*.

4.6 Water Licence Amendments (Section 54 of the *Water Act*)

The terms and conditions of water licences may be amended on the initiative of either EPA or more commonly through an application to EPA by the licensee. The *Water Act* specifies that, on application by the licensee, amendments to licences can include changing or adding diversion rates, changing the timing of diversion, and adding or changing points of water diversion or use. Most types of water licence amendment decisions are subject to the applicable notice and appeal provisions of the *Water Act*.

Applicability to Drought Response

Water licence amendments can be used to make changes in the terms and conditions of an existing water licence to facilitate new or enhanced access to water supplies.

Examples of amendments that support drought response include:

- changing or adding a new point of diversion where a river channel has moved away from the original point of diversion due to low or changing water levels;
- changing the purpose of a licence to allow for expanded use of an existing water licence allocation; or
- adding a storage reservoir to the works of an existing licence to enable use of stored water at times when water levels are low.

Use in Drought Response

EPA supports water licence amendments as one of the regulatory tools to mitigate drought conditions through an expedited amendment process under the *Water Act*.

4.7 Water Act Approvals (Section 36 of the *Water Act*)

Water Act approvals are time-bound authorizations to conduct activities in or near waterbodies, including but not limited to lakes, rivers and wetlands. Activities requiring an approval are numerous and varied. They include, but are not limited to, construction activities that disturb ground and vegetation on land or in a water body in such a way that may result in impacts to water flow, cause siltation or potentially impact the aquatic environment.

Applicability in Drought Response

Water Act approvals can be used as a regulatory support tool to authorize continued access to water. Examples of activities that may be approved to support drought response include but are not limited to the following:

- construction or alteration of a water diversion intake in or near a river;
- excavating a channel within a river to direct water toward an existing water diversion point; or,
- construction of a water storage reservoir within a drainage or water body to enable use of stored water at times when water levels are low.

Use in Drought Response

EPA supports approvals as one of the regulatory tools to mitigate drought conditions by implementing an expedited approval process under the *Water Act*.

4.8 Regulatory Tools – Compliance Activities

Compliance Actions Introduction

EPA's compliance approach is founded on the three primary pillars of education, prevention, and where necessary, enforcement. The AER provides a similar role for oil, gas and coal exploration and development projects in Alberta. Wherever possible, EPA implements approaches to ensure voluntary compliance with authorizations and the general provisions of the *Water Act* and EPEA. EPA may undertake proactive inspection and support activities related to licenced water use to verify compliance and ensure protection of the aquatic environment. There are circumstances where compliance actions utilizing written orders are required to appropriately manage a non-compliance, to support the formal administration of the priority right to divert water under the *Water Act*, or to prevent or correct adverse effects on the environment, natural resources, human health, property, or public safety. Orders are typically directive in nature and may legally compel the order recipient to undertake specific actions. Examples of orders pertinent to drought management include:

- proactive licence inspections under the *Water Act*;
- water management orders under the *Water Act*;
- environmental and emergency environmental protection orders under EPEA; and
- enforcement orders under both Acts.

4.9 Proactive Licence Inspections under the *Water Act*

Water Licence Inspections (Part 10, Division 1 of the *Water Act*)

EPA may undertake water licence inspections in response to a complaint or contravention being brought to the attention of EPA, or proactively to confirm authorization conditions are being met by the licenced water user.

Applicability to Drought Response

Water licences have an array of conditions such as specified maximum volumes, specified rates of withdrawal, water management thresholds and water use timing restrictions. At all times, and particularly in times of drought, it is critical that water licence holders understand and comply with their licence conditions. Both proactive and reactive licence inspections provide

the opportunity for EPA to provide information, educate licensees with respect to their licence obligations and to correct non-compliance. Proactive inspection programs are also a valuable tool for identifying licensees within high-risk basins who may require EPA assistance in obtaining alternative water supplies.

Use in Drought Response

EPA will implement water licence inspections, including proactive inspection programs, as a regulatory verification activity to educate licensees, identify water users who require EPA support, and to ensure *Water Act* compliance.

4.10 Orders under the *Water Act* and EPEA

Water Management Orders (Part 7, Division 2 of the *Water Act*)

The *Water Act* sets out the specific circumstances under which water management orders may be considered, and the specific terms that orders may contain. Where the requisite legislative requirements to issue a water management order are met, orders may be issued to a wide variety of persons, authorized parties, landowners, household users and other unregulated water users.

Orders may contain terms requiring the submission of specific information and reporting, the requirement to conduct or cease certain actions, and the specific provisions under which the requirements of the order must be carried out. Order decisions are subject to the appeal provisions of the Act, and there are potential enforcement consequences for failing to comply with order conditions.

Applicability to Drought Response

Water management orders may be used to direct actions related to drought-related water management issues and are also the regulatory backstop to priority administration process under the *Water Act*. In this context, where voluntary compliance by junior licensees cannot be achieved in the administration of priority, and the requisite legislative requirements to issue a water management order are met, orders can be used by EPA to remedy the priority call. A key element of these orders is the requirement for junior licensees to either cease diversions or conduct diversions in a specific way to satisfy the priority call.

Use in Drought Response

EPA will implement an expedited approach where water management orders have been identified as the appropriate regulatory tool to address a priority call or other matters related to the drought response.

Environmental Protection and Emergency Environmental Protection Orders (Parts 5, 6, 7, 8, and 9 of EPEA)

Sections within Parts 5, 6, 7, 8 and 9 of the *EPEA* set out the specific circumstances under which both environmental protection orders and emergency environmental protection orders may be considered, and the specific terms they may contain. Where the requisite legislative requirements to issue either of these order types are met, the Act further sets out to whom and under what terms an order may be issued. Both types of orders can be issued to authorization holders or to other responsible parties under the general provisions on the Act.

The objectives of environmental protection orders are focused on preventing the potential or continued occurrence of environmental impacts or broader adverse effects. Emergency environmental protection orders are rarely required and are only considered for the most serious of issues that pose an elevated risk of immediate and significant adverse effects. With some exception for Emergency Environmental Protection Orders, order decisions are subject to the appeal provisions of the Act.

Applicability to Drought Response

Environmental and emergency environmental protection orders under EPEA may also be considered to address environmental issues related to drought. Environmental issues might include things like water quality concerns related to regulated releases of wastewater to waterbodies with reduced assimilative capacity or impacts to the operations of municipal drinking water systems due to low water levels. In some cases, standard environmental protection orders could be utilized to manage preventive remedial activities to avoid or mitigate the environmental issue. Emergency Environmental Protection Orders will be considered for the most serious and urgent environmental issues, should they arise.

Use in Drought Response

EPA has a well-established existing process for the consideration and issuance of environmental protection

and Emergency Environmental Protection Orders under EPEA. EPA will implement this process where an order is determined to be the most appropriate regulatory tool.

Enforcement Orders (Part 10, Division 3 of the *Water Act*; Part 10 of EPEA)

The *Water Act* and EPEA both set out provisions for the issuance of enforcement orders. Enforcement orders are specifically related to contraventions of a piece of legislation, regulations, or terms and conditions on an authorization. The *Water Act* and the EPEA set out broad terms and conditions that can be contained in an enforcement order, up to and including the suspension or cancellation of an authorization. With some exceptions, enforcement orders are subject to the appeal provisions of the *Water Act* and EPEA.

Applicability to Drought Response

Enforcement orders under the *Water Act* and EPEA may be considered where voluntary compliance with authorized parties cannot be achieved, or actions to compel compliance by authorized parties is required to meet an operational drought management objective.

Use in Drought Response

EPA has a well-established process for the consideration and issuance of enforcement orders under the *Water Act* and EPEA. EPA will implement this process where an order is determined to be the most appropriate regulatory tool.

4.11 Administration Priority of Rights under the *Water Act*

Priority Administration (Part 3, Division 3 of the *Water Act*)

The order in which licensed water users may divert water in Alberta is governed under the *Water Act* via priority which is often referred to as the First in Time; First in Right (FITFIR) system of prior allocation. Each licence is given a priority number corresponding with the date the government received a complete application. A licence with an earlier priority number is a more senior licence than one with a later priority number considered a junior licence. Under FITFIR, the licensee with a senior water licence priority number has a priority right to divert their entire water allocation before a licensee with a junior water licence priority number.

Where there is a dispute with respect to the order in which water is to be diverted (i.e., a 'priority call'), the *Water Act* sets out the framework under which EPA may administer water licence priorities, including the issuance of water management orders as a remedy (see section 3.17). Priority administration is a fundamental regulatory mechanism by which senior licensees may access their allocation of water before junior licensees during a drought.

Applicability to Drought Response

EPA takes an active role in priority administration. Where junior licensees do not voluntarily comply with EPA's priority administration directions, EPA may issue water management orders compelling junior licensees to cease diversions until the senior licensee's priority is fulfilled. Priority calls do not occur on a regular basis and EPA has administered three in the past 10 years, all of which occurred in the SSRB during drought conditions.

Use in Drought Response

EPA will implement a standardized response protocol for the administration of priority calls that includes a written priority call administration procedure and a GIS-based priority tool. The priority call administration procedure is based on four distinct steps which include: 1. Receipt; 2. Assessment; 3. Validation; and 4. Administration. The validation and administration of a priority call requires a highly integrated approach between staff from EPA's Regulatory Assurance Division i.e., approvals and compliance) and Resource Stewardship Division (i.e., watershed science and water monitoring).

5.0 Water Emergency Declaration

5.1 Introduction

The *Water Act* recognizes that in extreme situations, Cabinet may need to intervene in the water management system. Section 107 of the *Water Act* enables Cabinet to, when satisfied that an emergency related to water exists or may exist, declare a water emergency in all or any part of Alberta. The emergency must be declared by an Order in Council and must specify the geographic area to which the emergency declaration applies. Cabinet may also indicate whether compensation, if any, will be provided to water licensees who incur direct losses because of a water emergency declaration order.

Section 107 of the *Water Act* identifies what a Director *may* or *shall not* do during a water emergency declaration, including actions related to:

- administering priority;
- water conservation holdbacks; and
- water management orders.

The Lieutenant Governor in Council (LGIC) also has additional powers in a water emergency declaration.

5.2 Administering Priority Calls Under an Emergency Declaration

Declaring a water emergency enables the government to intervene in the seniority licensing system to protect prioritized water uses in the area under an emergency declaration.

Section 107 affects priority administration in cases when an area is under a water emergency declaration order by clarifying that the:

- Director shall not administer priorities under section 32; and
- Inspector or Director shall not administer priority through a section 97(1)(a) water management order

5.3 Water Conservation Holdbacks

In non-emergency situations, under *Water Act* section 83(1), the Director can withhold up to 10 per cent of a water allocation under a licence that is being transferred (known as a water conservation holdback). A water conservation holdback is typically done to protect the aquatic environment or implement a WCO. The Approved Water Management Plan for the SSRB authorizes and recommends that Directors withhold up to 10 per cent of transfer allocations unless there is a compelling reason not to.

Water Conservation Holdbacks Under a Stage 5 condition or Emergency Declaration

If the Lieutenant Governor in Council declares an emergency under section 107 of the *Water Act*, or there is a declaration of a Stage 5 drought management level by EPA then subject to any specific or other circumstances of such a declaration or the provisions of the *Water Act*, the Director's actions to support designated uses in an area where the emergency is declared or a Stage 5 severity of drought is declared provides a compelling reason to not take a holdback. A finding of a compelling reason is supported for the duration of the declared emergency, until there is resolution of the temporary emergency circumstance, or the Stage 5 drought management response is concluded.

5.4 Water Management Orders

Water Management Orders

Section 107 specifies what the Director may and shall not do relating to issuing water management orders in an area under a water emergency declaration. Once Cabinet has declared a water emergency, and only in the area under the water emergency declaration, the Director:

- Shall not issue a water management order under section 97(1)(a).
- May issue water management orders under section 107(2.1)(a)(i) to any person:
 - suspending the operation of all or part of any approval, preliminary certificate, licence or registration;
 - suspending a diversion of water;
 - designating the purposes for which, and the volumes in which, water may be diverted or used; and/or
 - ordering or containing any of the measures or provisions referred to in section 99.
- May issue water management orders to one or more classes of licensees under section 107(2.1)(a)(ii) to do any or all of the following:
 - install water measurement equipment at one or more specified locations;
 - measure the rate of flow of a water body at one or more specified locations;
 - measure the water level of a water body at one or more specified locations;
 - stop diverting water; and
 - carry out specified monitoring or reporting.
- Further, section 107(2.1)(a)(ii) requires a licensee to comply with any or all of the following:
 - a specified flow rate, as measured at one or more specified locations, at which the diversion of water must stop;
 - a specified level of water, as measured at one or more specified locations, at which the diversion of water must stop;
 - a specified decrease in the volume of water that may be diverted;
 - a specified rate for the diversion of water; and/or
 - specified timing for the diversion of water.

5.5 Lieutenant Governor in Council (LGIC) Orders

Cabinet's responsibilities under section 107 are to make a water emergency declaration, specify the geographic area affected by the emergency declaration and determine if and how compensation would be paid to licensees affected by an emergency. Section 107 also provides additional powers in the area under a water emergency declaration, where Cabinet may issue an order to:

- designate the priority of water diversions or uses according to the purpose for which an authorization was given to divert or use water under the *Water Act*;
- authorize the Director to issue one or more licences to authorize a transfer — for a specified period of time, between major river basins in Alberta for the purposes of human health, raising animals or public safety needs without a special Act of the Legislature;
- exempt classes and types of applications under the *Water Act* from public notice requirements; and
- authorize the Minister to acquire or use personal property (*this does not apply to real property located in a national park or First Nation reserve*) and authorize entry into any building or land, or temporarily occupy any building or land, to prevent, combat or alleviate the effects of the emergency.
- Exempt classes and types of flood or drought control, management or mitigation measures from requiring a permit, licence, registration, approval, authorization, disposition, certificate, allocation, agreement or instruction authorized by the *Water Act*, *Public Lands Act*, *Historical Resources Act*, *Environmental Protection and Enhancement Act* or other provincial Acts as deemed necessary.

5.6 Appeals to the Environmental Appeals Board

Section 115(2) of the *Water Act* clarifies that the following are not appealable to the Environmental Appeals Board.

- A decision to exempt temporary licence transfers from water conservation holdbacks during a declared water emergency; and
- Water management orders issued under section 107 during a declared water emergency.

Additionally, if Cabinet issues an enabling order, the following are not appealable:

- A decision to issue a licence authorizing a transfer of water between major river basins for human health, raising animals or public safety needs during a declared water emergency; and
- A decision to exempt specified classes and types of applications from public notice requirements during a declared water emergency.

5.7 Water Use Priorities in an Area Affected by a Water Emergency Declaration

Cabinet has identified the following water uses to be prioritized in an area affected by an emergency declaration. The approved water use priorities provide guidance to the designated Director when considering issuing a section 107 water management order. Examples provided are illustrative, not exhaustive, of possible uses within each category of water use.

First, human health and public safety (e.g., drinking water; water for health care facilities; water to maintain adequate pressure in municipal distribution and wastewater collection systems) must be prioritized above all other uses.

Second, the following uses will be prioritized as equally important in an area affected by an emergency declaration:

- critical infrastructure (e.g., power plant operations essential to maintain core service levels and electricity grid stability; emergency services such as maintaining fire flow pressure within municipalities);
- critical environmental needs (e.g., prevent loss of a species at risk or associated critical habitat; flow to dilute wastewater releases); and
- livestock welfare (e.g., livestock watering; disease prevention and containment).

Declaration of a water emergency will be situated around priority uses as outlined in the table below.

Table 2: Emergency priority uses

Human health and public safety		
<ul style="list-style-type: none"> • Drinking Water • Potable Water for cleaning, bathing and cooking • Water for health care facilities • Maintaining adequate pressure in municipal distribution and wastewater collection systems 		
Critical Infrastructure	Critical Environmental Needs	Livestock Welfare
<ul style="list-style-type: none"> • Power plant operations essential to maintain core service levels and electricity grid stability. • Emergency services (e.g., maintaining fire flow pressure within municipalities). 	<ul style="list-style-type: none"> • Prevent the loss of a species at risk or associated critical habitat. • Flow to dilute wastewater releases. 	<ul style="list-style-type: none"> • Livestock watering. • Disease prevention and containment.

Under section 107 Cabinet may, by order, designate the priority of diversions or uses of water according to the purpose for which a person is authorized to divert or use water under this Act. Water uses prioritized by a separate Cabinet order may deviate from the above guidance. If Cabinet makes such an order, it should be consulted for guidance on water use priorities in an area affected by an emergency declaration.

5.8 Triggers for Declaring a Water Emergency

Triggers identify when conditions are such that it warrants government intervention to ensure water is available for prioritized uses. The triggers are responsive to local conditions and needs for water availability and use in a particular area. They leave flexibility for Cabinet to decide when to declare a water emergency, informed by evidence and risk.

Cabinet may choose to declare a water emergency under section 107 of the *Water Act* if one or more of the following triggers are activated in an area.

- existing measures under the *Water Act* cannot meet the prioritized uses.
 - When all tools under the *Water Act* have failed, a water emergency declaration is the last resort, and enables government to intervene for the benefit of getting water to the essential uses;
- there is increasing distress amongst local authorities (e.g., city, town, municipal district, Indigenous communities, Special Areas) in an area. For example, local authorities have declared a state of local emergency or implemented mandatory water conservation measures; and
- the water management system is overwhelmed and the number of requests for water cannot be addressed.

5.9 Implementation Considerations

The Director may inform their statutory decision(s) related to section 107 water management orders using the information available, which may include but is not limited to:

- environmental indicators;
- situational reports;
- observed conditions and inspection assessments;
- scientific and technical analysis and advice; and
- monitoring and modeling data.

The Director may consider the efficiency of requiring a class of licensees to comply with the same requirements notwithstanding the licensees' respective licence terms and conditions.

Decisions and actions to implement 107 must be consistent with the direction provided by the Lieutenant Governor in Council through an Order in Council.



6.0 Post-Incident Assessment

A Post Incident Assessment (PIA) will be initiated in follow-up to any response where DEOC has been activated. The DEOC Incident Commander will initiate a PIA after the emergency response phase has ended, or after key response initiatives. The intent of the PIA is to evaluate the effectiveness of the EPA response and inform the continuous improvement of approaches, procedures and plans.

PIAs can be scoped based on the scale of the preceding events and will be inclusive of all groups of people involved in and impacted by the emergency to promote information sharing and community-based learning. The PIA results will be shared to enable people to make informed choices and incorporate findings into their own response measures. The DEOC will be responsible for ensuring actions identified during the PIA are acted upon.

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