

# HYDROLOGIC DROUGHT RESPONSE PLAN: Village of Vanguard



# Hydrologic Drought Response Plan: Vanguard

## INTRODUCTION

Pre-season and regional drought information is provided by the Water Security Agency (WSA) in two main reports – the Conditions at Freeze-Up Report and the Spring Runoff Outlook. The Conditions at Freeze-Up Report provides information on the precipitation and current moisture conditions during the late fall/early winter. Information on precipitation and conditions leading into freeze-up provide valuable information for this plan. The report can provide a suggestion of potential above or below normal runoff conditions for the spring; however, more accurate information regarding spring runoff is provided in the Spring Runoff Outlook report. The Spring Runoff Outlook report is issued in early February or March each year. Spring runoff depends on the moisture conditions leading into winter, snowpack water content and how quickly the snow melts. The report provides information on the potential of runoff in the province by watershed, which provides an important outlook for moisture conditions going into the growing season. For example, looking at the Hydrological Drought Map for the Old Wives Lake Watershed is an important regional preparedness step. The Conditions at Freeze-Up Report and Spring Runoff Outlook report can be found here: <https://wsask.ca/recreation-environment/provincial-forecast/>

The Hydrologic Drought Response Plan has been developed for those who rely on the Village of Vanguard for their water supply. A Drought Response Committee (DRC) has been established to deal with any current or future drought conditions, and the DRC will adhere to the Drought Response Plan. The committee includes a coordinator, elected officials, the Town Administrator/Chief Administrative Officer (CAO), and town employees. The Village of Vanguard Hydrologic Drought Response Plan describes the monitoring required to determine drought levels, the specific actions that the Village will take to reduce impacts of the drought, and who will be responsible for completing identified actions. The plan also outlines the provincial agencies who will provide support to Vanguard during emergency situations.

The Village of Vanguard Drought Response Plan is living document, that should be reviewed every four years, and updated as needed with any changes to Town Administration and Council.



## LOCAL INDICATORS

Vanguard uses groundwater wells as their water source. These wells are influenced by Notukeu Creek, which is located close to Vanguard. Two observation wells are used to determine if the pump well is influencing water levels in the surrounding aquifer. The pump well is the well that produces the Village's water. Continuously monitoring each well is important to ensure the stability of groundwater supplies in the wider aquifer. Since 2008, water levels in the wells have been recorded by the Village (apart from 2010) and reported to WSA.

Based on the information available, the water levels of the wells are very consistent, and do not appear to change throughout the drier months when the creek has a lower flow rate. While the available data indicates that the water supply is at low risk to hydrological drought, information for 2000-2004, which were significant drought years, is not available. Continuing to monitor the well levels will ensure that Vanguard is informed about the stability of their water supply. Using the data

provided, water levels in the pump well have been used to create a three-stage drought indicator for Vanguard (See Table 1).

## DROUGHT RESPONSE PLAN

Table 2 specifies the actions that each DRC committee member should take at the various levels of drought, ensuring that the appropriate response is implemented as the severity of the drought escalates. Additionally, the roles and responsibilities of the DRC are outlined in Table 3, providing a comprehensive breakdown of each member's roles and responsibilities throughout a drought response by level. To further guide the committee, Table 4 highlights a range of potential water conservation actions that can be considered during a drought, offering practical solutions for managing limited water resources. Table 5 details monitoring activities that will be conducted, allowing the committee to track drought conditions in real-time and adjust the response as necessary.





**Table 3. A description of the steps to take during the different stages of drought.**

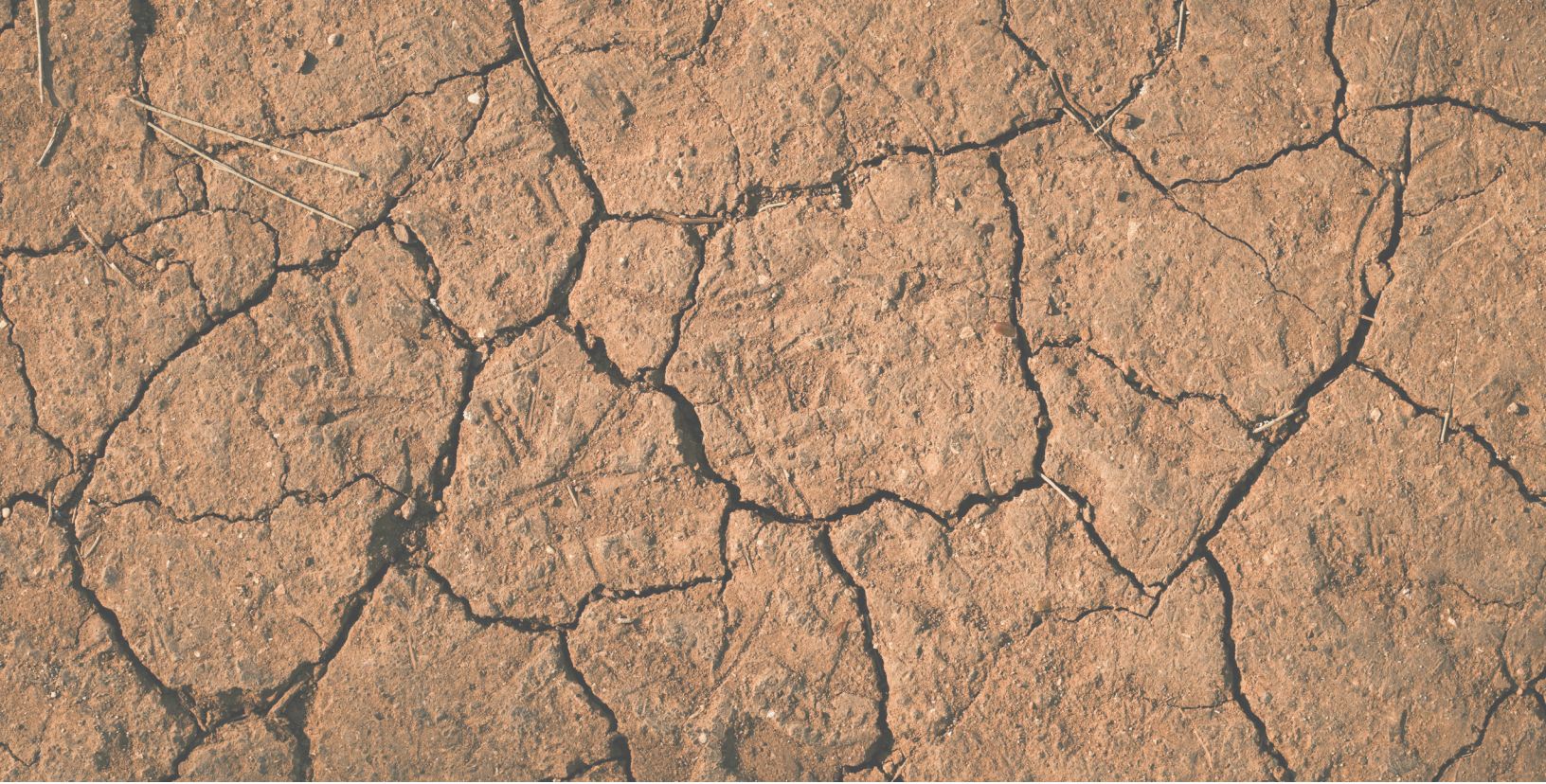
Drought Level & Description	Action Focus: Preparedness	Role Corresponding to Action
<p><b>Level 0</b> Conditions are average or wetter than average</p>	<p><b>1 - Monitor Drought Indicators</b> Monitor water levels within the wells to see how water levels compare to the drought indicators in Table 1.</p> <p><b>2 - Monitor Regional Drought Indicators</b> Check water levels in regional reservoirs.</p> <p><b>3 - Information Sharing</b> Share the current level and maintain communication strategy for when the drought threshold is reached.</p> <p><b>4 - Monitor Water Use</b> Is the water use within normal levels? If exceptionally high, evaluate the ability to supply water.</p> <p><b>5 - Promote Water Conservation</b> Encourage water conservation through educational materials.</p>	<p>1 - WTO</p> <p>2 - DRC Coordinator and CAO</p> <p>3 - CAO</p> <p>4 - WTO</p> <p>5 - DRC</p>
<p><b>Drought Level &amp; Description</b></p>	<p><b>Action Focus: Preparedness</b></p>	<p><b>Role Corresponding to Action</b></p>
<p><b>Level 1</b> The Drought Indicator data shows that drought conditions are now present</p>	<p><b>1 - Monitor Drought Indicators</b> Monitor water levels within the wells to see how water levels compare to the drought indicators in Table 1.</p> <p><b>2 - Drought Level Raised to 1</b> Check water levels in regional reservoirs.</p> <p><b>3 - Promote Voluntary Water Conservation</b> Encourage low water use. Limit to domestic use only. Shut off the tank load facility.</p> <p><b>4 - Monitor Water Use</b> Is the water use within normal levels? If exceptionally high, evaluate the ability to supply water. Promptly delivered to Town Administration and Mayor.</p> <p><b>5 - Monitor Fire Preparedness</b> Monitor fire water supplies and grass fire risk. Discuss mutual fire aid with neighbouring communities. Implement fire bans.</p>	<p>1 - WTO</p> <p>2 - DRC Coordinator and CAO</p> <p>3 - DRC Coordinator and CAO</p> <p>4 - WTO/Village Office</p> <p>5 - Fire Officials</p>
<p><b>Drought Level &amp; Description</b></p>	<p><b>Action Focus: Preparedness</b></p>	<p><b>Role Corresponding to Action</b></p>
<p><b>Level 2</b> Conditions are exceptionally dry and adverse socio-economic and ecosystem impact are almost certain</p>	<p><b>1 - Continue Monitoring</b> Monitor water levels within the wells to see how water levels compare to the drought indicators in Table 1.</p> <p><b>2 - Drought Level Raised to 2</b> Community declares severe drought.</p> <p><b>3 - Water Conservation &amp; Restrictions</b> Encourage low water use. Implement odd-even watering days. Close tank-load water facility.</p> <p><b>4 - Monitor Water Use</b> Is the water use within normal levels? If exceptionally high, evaluate the ability to supply water. Promptly delivered to Town Administration and Mayor.</p> <p><b>5 - Monitor Fire Preparedness</b> Monitor fire water supplies and grass fire risk. Implement fire bans.</p>	<p>1 - WTO</p> <p>2 - DRC Coordinator and CAO</p> <p>3 - DRC Coordinator and CAO</p> <p>4 - WTO</p> <p>5 - Fire Officials</p>

**Table 4. A list of potential water conservation.**

Promote water conservation around the home.	Water in the evening or early morning to minimize evaporation.	Increase the fee for tank-load water and close during severe drought.
Implement “odd-even” watering days.	Promote xeriscaping and the use of drought-tolerant plants.	Restrict water for non-essential users during severe drought (e.g. car wash, arena, spray park).
Institute regular public messaging regarding the ongoing situation (newspaper, radio, social media, etc.).	Promote citizen involvement in water conservation practices and competitions (e.g. street-based water conservation competition).	Restrict outdoor watering to one day per week.

**Table 5. Drought indicator monitoring schedule.**

January	February	March
1 – Monitor, record and report well levels to Village 2 – Monitor water usage to determine if it is within the range of expected volumes	1 – Monitor, record and report well levels to Village 2 – Monitor water usage to determine if it is within the range of expected volumes	1 – Monitor, record and report well levels to Village 2 – Monitor water usage to determine if it is within the range of expected volumes
April	May	June
1 – Monitor, record and report well levels to Village 2 – Look at the Spring Runoff Drought Outlook for the year 3 – Monitor water usage to determine if it is within the range of expected volumes	1 – Monitor, record and report well levels to Village 2 – Monitor water usage to determine if it is within the range of expected volumes	1 – Monitor, record and report well levels to Village 2 – Monitor water usage to determine if it is within the range of expected volumes
July	August	September
1 – Monitor, record and report well levels to Village 2 – Monitor water usage to determine if it is within the range of expected volumes	1 – Monitor, record and report well levels to Village 2 - Monitor water usage to determine if it is within the range of expected volumes	1– Monitor, record and report well levels to Village 2 – Monitor water usage to determine if it is within the range of expected volumes
October	November	December
1 – Monitor, record and report well levels to Village 2 – Monitor water usage to determine if it is within the range of expected volumes	1 – Monitor, record and report well levels to Village 2 – Look at conditions in the Freeze-Up Report to judge drought conditions for next year 3 – Monitor water usage to determine if it is within the range of expected volumes	1 – Monitor, record and report well levels to Village 2 – Monitor water usage to determine if it is within the range of expected volumes



## PROCESS FOR DECLARING DROUGHT

When drought conditions are detected, the DRC convenes to declare the appropriate drought level based on the current situation. Conditions should be assessed every two months. If the drought conditions become more severe, the level is raised; if conditions improve, the level is lowered, and eventually, it may be removed. However, substantial improvement must be demonstrated before reducing or removing the drought level to ensure that it does not negatively impact the community's resilience to future drought conditions.

During any phase of drought, the WSA and the SPSA are important resources to provide increased support to the Village of Vanguard. If the drought reaches a severity level beyond

Vanguard's ability to manage, a State of Emergency may be declared, necessitating consultation with provincial agencies involved in the response.

For emergency situations, Table 6 provides a current list of emergency contacts to ensure efficient communication. Additionally, Table 7 includes valuable drought preparedness resources to help the DRC stay informed and proactive in managing any current or future drought conditions. Together, these tables establish a structured and coordinated framework for responding to drought conditions effectively.

**Table 6. A list of emergency contacts to use for efficient communication.**

Contact Name	Role	Phone No.
SPSA - Saskatchewan Emergency Planning 24 Hour Line  Contact: Mark Symon (ESO)	Support for community in an emergency, guidance for declaring a state of emergency, and agency responsible for provincial disaster assistance program <a href="https://www.saskpublicsafety.ca/communities/emergency-declaration-and-management-planning">https://www.saskpublicsafety.ca/communities/emergency-declaration-and-management-planning</a> .	P: 1 - 800 - 667 - 9660  P: 306 - 235 -1804 - Internal Duty Desk, Western Response Area  P: 911 - Dispatch directly (second choice)
WSA and Sewage Works Upset Reporting Line (24/7)	Respond to infrastructure failures and loss of supply.	P: 1 - 844 - 536 - 9494
WSA- Environmental Project Officer (EPO)  Contact: David Fehler (EPO)	Check water quality, helping communities manage the safety of their water supply. WSA liaises directly with the Saskatchewan Health Authority for public safety and public facilities.	P: 306 - 630 - 3683

**Table 7. A list of resources for drought preparedness schedule.**

Resource	Website Link
WSA – Conditions at Freeze-Up and Spring Runoff Report	<a href="https://wsask.ca/recreation-environment/provincial-forecast/">https://wsask.ca/recreation-environment/provincial-forecast/</a>
WSA – Current Reservoir Conditions (Admiral Reservoir)	<a href="https://wsask.ca/infrastructure/">https://wsask.ca/infrastructure/</a> [under construction]
WSA – Stream and Reservoir Conditions for the Old Wives Lake Watershed (current flow in Notukeu Creek)	<a href="https://wsask.ca/recreation-environment/lakes-and-rivers-overview/stream-flows-and-lake-levels/old-wives-lake-watershed/">https://wsask.ca/recreation-environment/lakes-and-rivers-overview/stream-flows-and-lake-levels/old-wives-lake-watershed/</a> [ O 5 J B O O 1 ]
Canadian Drought Monitor	<a href="https://www.agriculture.canada.ca/en/agricultural-production/weather/canadian-drought-monitor">https://www.agriculture.canada.ca/en/agricultural-production/weather/canadian-drought-monitor</a>

