

Background

Our coal mining operations at the Highvale Mine may affect water wells in the immediate vicinity due to drawdown of groundwater.

Drawdown occurs as the mine advances, resulting in dewatering of the major water-bearing formations above the pit floor. Impacts to these upper groundwater zones are inevitable in all strip-mining operations. As a result, groundwater supplies to local users may eventually be affected as the mine advances.

TransAlta is committed to replacing water supplies that are interrupted by our mining operations. We trust that this policy will assist you in notifying TransAlta of mine-related water supply issues that require resolution.

TransAlta Commitment

- Ensure there are no long-term effects to local water supplies due to mining activities; and
- Provide an alternative water supply that is of similar water quality and quantity while the supply concern is being investigated and resolved.

Groundwater Monitoring

TransAlta monitors and evaluates all the major hydrogeological formations, or groundwater-bearing zones, in advance of the mine. We monitor the impact the mine is having on groundwater using a network of monitoring wells called piezometers. These piezometers are located throughout the planned and reclaimed mining area as well as the adjacent area to measure changes to the groundwater flow that may be a result of our mine operations.

As required in our operating license, TransAlta reports to the Alberta Energy Regulator water level information from its piezometers. This information reflects groundwater changes in the various water-bearing formations (coal and above) in the area of our active mine operations.

In general, the effect mining will have to groundwater is greatest near the excavated mine pit. As a result, two different *zones of influence* to groundwater drawdown are identified:

Zone A – Located from the edge of the active mine pit to a distance of 2.4 km (1.5 miles), and north of the North Saskatchewan River. This zone represents an area where mining has likely had an effect on the groundwater.

Zone B – Located beyond 2.4 km (1.5 miles) of the active mine pit, and north of the North Saskatchewan River and Tomahawk Creek, and west of Wabamun Creek, and as per the groundwater diversion permit boundary limits identified in the TransAlta Water Act Approval No. 00079264. This zone represents an area where mining may or may not have had an effect on the groundwater.

TransAlta Accountability

For existing wells and other natural water sources

In **Zone A**, TransAlta will accept 100 per cent of the responsibility to replace the water supply. A water well examination will be conducted for wells in this zone per the *Water Supply Investigation Procedure*.

The exceptions for which TransAlta accepts no responsibility are maintenance, mechanical or electrical failure of equipment and/or unsustainable usage of the water supply.

TransAlta will provide a temporary replacement water supply as per the *Water Supply Investigation Procedure*.

If the loss and/or the damage to the water supply (including a well or any other natural water source) are not repairable after our investigation, TransAlta will work with the landowner to determine the best solution for replacing the water supply.

In **Zone B**, TransAlta will review the concern as per the procedures outlined in the *Water Supply Investigation Procedure* (this will include a water well examination and if necessary a water well investigation report).

TransAlta will accept 100 per cent of the responsibility to replace the water supply unless:

- a) mechanical or electrical failure of equipment and/or unsustainable usage of the water supply unrelated to TransAlta's works and undertakings become evident during the investigation, or
- b) accepted hydrogeological investigation by a groundwater consultant (selected pursuant to the Water Well Investigation Procedure) concludes that the well or any other natural water source being investigated could not possibly have been affected by TransAlta's works and undertakings.

TransAlta will provide a temporary replacement water supply as per the *Water Supply Investigation Procedure*.

If it is determined that TransAlta is not liable, TransAlta will meet with the landowner to explain the findings and recommend a solution. The well owner will be informed of his/her right to appeal to the Alberta Energy Regulator if he/she is not satisfied with the investigation and recommendation.

For new wells

Landowners planning to drill a new well should call us at 1-877-636-7822 before drilling to find out whether their planned well location is in an area or formation that is likely to be affected by mining activities.

If a well is in an area affected by our mining operations, we will pay for the costs of drilling deeper into a formation that would be unaffected by the mine. We would also pay for materials and extra equipment required to operate the well.

WATER SUPPLY INVESTIGATION PROCEDURE

1. Concerns are received by TransAlta by telephone and later confirmed by letter and/or e-mail.
2. TransAlta immediately initiates and covers the cost of an investigation and supplies an alternate water supply within 24 hours after the initial call, if required, and will continue to do so until the problem is rectified.
3. A well examination will initially take place at the location of the well or water source. If the well or water source is within the Highvale Mine Defined Area as defined in the Keephills Power Project Steering Committee (KPPSC) Terms of Reference, the landowner will be advised that he / she may contact a Committee On Keephills Environment (COKE) director for assistance. The landowner will be able to choose an approved water well contractor for the examination providing the water well contractor is a member of ISNetworld (ISN).
4. The well examination visit will include the water well contractor and TransAlta's Technical Specialist. If the landowner agrees, a member of the Community Relations team will also be present. The well examination visit may include, but not be limited to, the following activities:
 - a. interview the landowner to establish the concerns with the well and to identify past, present and future uses of the well
 - b. collect well data from the landowner completing a Water Well Concern form
 - c. review the driller report on the well (if available)
 - d. review TransAlta's inventory data
 - e. review pertinent piezometer data
 - f. review any pertinent mining activity data, if applicable
 - g. measure water levels in the well manually and/or with a data logger per agreed to well-testing methodology
 - h. collect a water sample, if required
 - i. conduct a pumping test
 - j. inspect the water system to ensure it is functioning properly
 - k. provide a copy of the well examination report to the landowner within five business days. This information will be documented and stored in TransAlta's Stakeholder database.
5. For Zone B, or if deemed necessary a more thorough investigation report is to be prepared by a groundwater consultant, who is a member of the Association of Professional Engineers and Geoscientists of Alberta (APEGA). The groundwater consultant will have credentials that will allow him or her to reach a scientifically-based conclusion regarding whether the well or any other natural water source being investigated could not possibly have been affected by the approval holder's works and undertakings. For wells that require an investigation report by a groundwater consultant the landowner will be encouraged to participate in the choosing of a consultant as per the *Approved List of Groundwater Consultants* (Schedule A) appended to this procedure. To ensure this process is not delayed and to minimize impacts to the affected landowner a consultant will be chosen within five days. During the five day period, the landowner is welcome to propose a qualified groundwater consultant who meets the requirements set out in section 3 of Schedule A. Alternatively, TransAlta will provide the

landowner with two qualified consultants to choose from, as per Schedule "A". If the landowner does not provide TransAlta with a response within this five day time period, TransAlta reserves the right to appoint a consultant to complete the work.

6. An investigation report will be prepared by a groundwater consultant, and this report will include, but not be limited to, the following:
 - a. location plan showing topography, well location, piezometer locations, and the location of the cross-section
 - b. hydrogeological cross-section through wells and piezometers showing relationships between piezometers and wells and the areas of mine disturbance
 - c. piezometer hydrographs
 - d. the report shall be structured as follows:
 - Introduction
 - History – provides background information; including baseline data if available for the water source obtained by both TransAlta and landowner service provider
 - Hydrogeology – a review of the hydrogeological data collected, recharge area
 - Discussion on Findings
 - Conclusions and Recommendations – will determine if the well or any other natural water source being investigated could not possibly have been affected by the approval holder's works and undertakings
7. A meeting will be arranged with the concerned well owner to explain the findings and recommended solution. The well owner will be informed of his/her right to appeal to the Alberta Energy Regulator if he/she is not satisfied with the investigation and recommendation. The Alberta Energy Regulator will receive a copy of all well concerns and will review TransAlta's report, if requested by the well owner, to ensure TransAlta is adhering to the conditions of its Water Diversion Permit. All investigations will be completed and submitted to the Alberta Energy Regulator within 30 business days.
8. The well owner will be asked if he/she wants the Committee on Keephills Environment (COKE) to be informed of the investigation (providing the well or water source under investigation is located within the Highvale Mine Defined Area as defined in the Keephills Power Project Steering Committee (KPPSC) Terms of Reference) and if he/she wants a copy of the investigation forwarded to the Committee on Keephills Environment. A copy of the report and data collected will be left with the well owner.

APPROVED LIST OF GROUNDWATER CONSULTANTS

1. Klohn Krippen Berger
Calgary, Alberta
2. WorleyParsons
Edmonton, Alberta
3. Such other suitably qualified groundwater consultant who is a member of APEGA and within an organization certified by ISNetworld.