HERMOSA

Water Monitoring Results Update

BRIGHTER
FUTURES,
TOGETHER

PERMITS FOR WATER TREATMENT PLANT

Permit	Purpose	Antimony Permit Limits	Sample Method
Arizona Pollutant Discharge Elimination System (AZPDES)	Regulates the quality of surface water discharge from point sources.	491 parts per billion (monthly avg) 986 parts per billion (daily limit)	**8-hour composite sample**: multiple samples over a continuous 8-hour period averaged.
Aquifer Protection permit (APP)	Regulates quality of discharge for groundwater / aquifers.	4.8 parts per billion (alert level) 6.0 parts per billion (discharge limit)	**Grab sample**: single water sample collected at one specific time and location, providing a snapshot of the water's condition at that exact moment.

- 6.0 ppb is equal to 0.000006%
- AZPDES limit is an assessment level established to determine if pollutant has reasonable potential to be in discharge & if enforceable numeric limits need to be established.

TIMELINE

- **Late 2024:** observed increasing antimony levels (higher than baseline water quality) in 1 of 7 wells on site that feed the water treatment plant – naturally occurring groundwater
- **Feb 2025:** Shut down of the one well with increasing antimony levels through Sept 2025
    - **Feb-Aug**: Planning for solution to increase antimony removal in the water treatment plant (Avg 2.6ppb)
    - **Aug**: Solution to increase antimony treatment in the water treatment plant fully implemented
    - **Sept**: Well turned back on – monthly APP sample was 2.6 ppb
- **Nov 26:** Lab sends monthly compliance sampling results for both permits results. AZPDES (8-hr composite) = 5.73 ppb & APP result (grab sample) = 6.23 ppb, both collected on the same day
    - Immediately asked lab to retest APP sample as it was more than double the previous month's result & one sample was below the limit while one was slightly above the limit even though they were sampled on the same day
    - Multiple other samples / tests in October and early November were below the discharge limit
    - Two higher antimony wells were shut off and have remained off
- **Nov 29:** Reported 6.23 ppb APP lab result on ADEQ's online portal
- **Dec 3:** Retest results confirmed the APP sample was slightly above the 6.0 ppb discharge limit
- **Dec 4:** Confirmed the retest results with ADEQ
- **Dec 24:** Monthly antimony results for both permits were below discharge limit at 4.73 ppb and 4.57 ppb
- **Q1 2026:** Second phase of additional antimony treatment added to the plant

ADEQ SPOKESWOMAN ALMA SUAREZ:

"A permit exceedance is a regulatory trigger that requires investigation and corrective action, but it doesn’t by itself quantify a health risk."

"The discharge to Harshaw Creek was significantly below the applicable surface water quality standards, which are established to protect human and wildlife interactions with the creek."

EXPERT TOXICOLOGY ANALYSIS

- APP discharge limit (6.0) = US EPA's drinking water standard for antimony developed based on risk if someone drank 2 liters of the water every day for their entire life.
- Recent statements that there is antimony in drinking water & increasing antimony is creating a health risk.
- Do not believe a single grab sample on a single day could create a drinking water or health risk.
- In December, an international environmental & risk sciences consulting firm, Gradient, analyzed all discharge water quality information to assess human health risk.
- Lead expert engaged is a toxicologist with >25 years experience in human health risk assessment with PhD from MIT & post-doctoral work at Harvard School of Public Health.
- Important observations & conclusion by external expert analysis:
  - *Average antimony concentrations are most appropriate measurements for making comparisons to antimony drinking water standards because these standards were **developed from a long-term chronic toxicity study** to be **protective of long-term chronic exposures in humans.***
  - *Using a single sample to compare to standards derived to reflect long-term exposures would not be appropriate because a single sample provides only a snapshot of a specific time & location and does not reflect long-term exposure.*
  - Avg concentration of antimony in discharge water was 3.2 ppb from 22 samples collected in 2025.
  - Avg concentration of antimony in Harshaw Creek surface water was 2.5 ppb across 6 locations & 16 samples in 2025.
  - *Average antimony concentrations in discharge water & Harshaw Creek surface water are below the antimony drinking water standards, and, therefore, do not pose a risk to human health.*

FACTS TO ADDRESS RECENT STATEMENTS (1/2)

- South32's water treatment plant design is unique and has deficiencies to treat these metals.
  - The plant uses chemical precipitation through sand ballasted clarifiers to remove metals – this is the most common treatment technology for metals because it is effective and it is not unique at all.
  - Maximum antimony concentrations in the baseline water quality for plant design were 4 ppb.
  - The plant design is adaptable to achieve required treatment levels – not just for antimony / metals.
  - As planned, we manage variable water quality coming into the plant – naturally occurring groundwater
  - The plant and treatment process can be and have been adjusted to achieve higher removal rates of antimony.
  - There are multiple technologies to remove antimony and plant designs must be tailored to the input water chemistry at a site – this is never one sizes fits all.
  - External, expert process engineers design these systems - internal process engineering experts on staff too
  - These experts have effective solutions that we are implementing for our setting with this water chemistry
- When discharge / flow rates from the plant increase antimony concentrations.
  - The discharge limits & monitoring results are concentrations not total antimony.
  - Increasing concentrations are related to certain natural sources that have higher relative concentrations of antimony not volume of water through the plant.

FACTS TO ADDRESS RECENT STATEMENTS (2/2)

- Antimony levels are increasing in regional wells & Harshaw Creek and are above the drinking water standard.
  - Well sampling data downstream from the site utilized by the US Forest Service (USFS) in the Environmental Impact Statement (EIS) indicates antimony levels consistently less than 2 ppb (1/3 of the drinking water standard).
  - Well monitoring data has been included in the EIS. We are working with USFS and have committed to a water quality monitoring and mitigation plan that will be available for public review when the FEIS is published in March
  - Surface water monitoring data from Harshaw Creek downstream of the site utilized by USFS in EIS shows 1-3 ppb antimony concentrations consistently and more recent results have not increased.
  - **USFS analysis in the Draft EIS was that discharge is not expected to produce metals loading that could result in exceedance of Aquifer Quality Standards**, including analysis of mobilization of Harshaw Creek sediments.
  - The full 968-page report is always publicly available on the Forest Service website.
- There is a risk to cattle grazing or livestock from antimony levels or bioaccumulation in the Patagonia Mountains.
  - There is no established antimony standard for agricultural livestock watering in Arizona or other states.
  - ADEQ has set limits protective of aquatic organisms and wildlife in effluent dependent water for acute (short term) & chronic (long term) exposures at 1,000 & 600 ppb respectively.
  - The highest level in the South32 discharge was nearly 100 times lower than the chronic limit.

Questions: **askhermosa@south32.net**