Yellowstone Club Wastewater Spill - March 2016

On Thursday, March 3, 2016, a storage pond spill was reported to local and state agencies.

The reclaimed water was leaking from a storage pond and unrestricted flow proceeded down the hillside into Second Yellow Mule Creek and then to the South Fork of the West Fork of the Gallatin River. The flow stopped at 4 a.m. on Monday, March 7, 2016.

The source of the break was an outlet pipe that flows to the Yellowstone Club golf course for irrigation of the turf grass in summer months. In the winter this is an effluent storage pond. Most of the effluent comes from the Big Sky Sewer District, with a small portion coming from the waste water treatment facility used at Yellowstone Club. There was an estimated discharge of 35 million gallons.

DEQ's Mike Suplee taking water quality samples right below the pond.

DEQ Response and Water Quality Monitoring

The spill was of highly treated reclaimed water and it did not threaten human health. DEQ's concerns centered on high turbidity and sediments. Prolonged high sediment levels can be dangerous to fish.

DEQ led the response in close coordination with local authorities and other state agencies.

DEQ began monitoring water quality in the spill affected area on March 5, 2016, and collected samples until March 12, 2016. DEQ released three reports.

The first report focused on human health parameters of concern: Escherichia coli (E. coli), and nitrate + nitrite (NO3 + NO2). No human health water quality standards were exceeded at any of DEQ's ten sampling sites.

The second report was done in coordination with Montana FWP and focused on the effects on aquatic life. An acute exceedance of Montana's ammonia standards was documented in Second Yellow Mule Creek on March 5th.

Turbidity exceeded Montana's standards at all tributary sites for the entire study period (March 5th-12th), while in the mainstem Gallatin River turbidity exceeded the standard until March 9th. Concentrations were as high as 4,560 mg/L in the affected tributaries early on in the spill and, based on those concentrations, some degree of fish mortality was to be expected. On March 10th five dead westslope cutthroat trout were found in the South Fork West Fork Gallatin River downstream from the Second Yellow Mule Creek confluence.

The third report focused on pharmaceuticals. DEQ sampled and analyzed for 46 pharmaceutical chemicals and breakdown products. Of these, 18 were detected in the water spilling directly from the pond, while 11 were detected in the tributaries. There are no federal

water quality criteria for pharmaceuticals, nor does Montana have any adopted pharmaceutical water quality standards. However, Minnesota has several pharmaceutical water quality standards and a number of screening values, all for human health, and these were compared to concentrations DEQ measured during the spill. None of Minnesota's values were exceeded; therefore, human health effects from any individual chemical tested in this study are unlikely.

Pond Failure Report and Enforcement Action

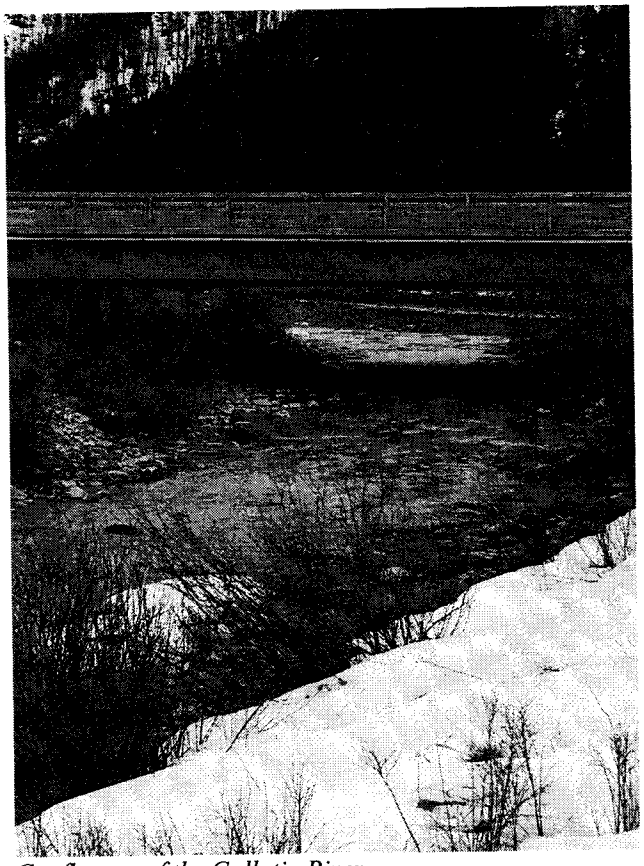
DEQ and Yellowstone Mountain Club believe ice forming around the standpipe screen, and then the water level rising and pulling the standpipe out of place, caused the failure in the pond. DEQ reviewed and approved formal plans for a remedy of this issue and the pond is now operational.

Fixing the failure problem focused on pressure injecting grout to seal the annular space around the casement pipe, filling the entire volume of the casement pipe with concrete, and concrete reinforcement at both ends of the casement pipe.

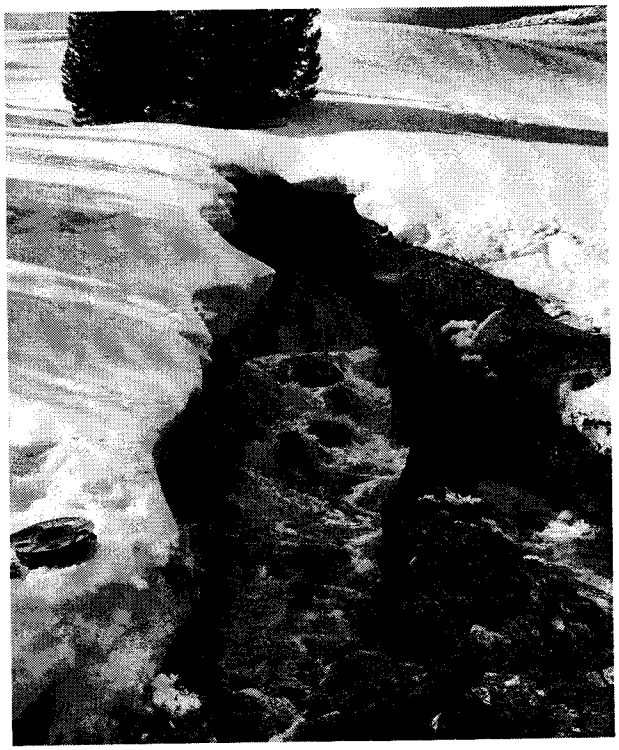
DEQ issued a violation letter to Yellowstone Mountain Club in April. The violations include discharging without a permit and causing pollution specific to sediment and ammonia. This is one of the first steps of the enforcement action.

All information related to the spill can be found on our website including: water quality reports, the failure report, engineering plans and specifications, and enforcement act documents.

http://deq.mt.gov/Water/WPB/mpdes/Gallatin-BigSkyWastewaterSpill



Confluence of the Gallatin River



Spill site