According to Twin Pines, the first phase of the proposed mine (approximately 1,268 mined acres on 2,414 acres of land) would directly impact at least 587 acres of wetlands and 4,658 linear feet of stream.[80] As described above, Twin Pines intends to excavate streams and wetlands to a depth of up to seventy feet, leaving the pit to fill with groundwater. They will then stockpile the excavated material "nearby," use centrifuges to separate the heavy minerals, dump the stockpiled tailings back into the mining pit, contour the fill, and replace the topsoil.

Twin Pines dismisses the bulk of these impacts by claiming that "return[ing] [the mined areas] to preconstruction contours and elevations" makes the impacts "temporary." But there is no five-second rule with biogeochemical functions. As discussed in Section IV(F) and the attached expert reports, we have serious concerns about whether Twin Pines could recreate wetlands and streams from scratch, particularly when the subsoil structure is sand that has been completely removed and then homogenized.[81] There is a very real risk that the sand, homogenized spoils produced in the mining process may be too permeable to ever support wetlands and streams.[82] Moreover, even if mined wetlands are "returned to preconstruction contours" within 30 to 90 days, their physical, biological, and chemical functions would not return so quickly.[83] It would likely take decades for habitat to return and perhaps longer for biogeochemical cycling to return to pre-mining conditions, especially if topsoil is not sorted by hydrogeomorphic (HGM) type when stockpiled.[84]

[80] Permit Application at 19.
[81] Rheinhardt Report at 2–3.
[82] *Id*.
[83] *Id.* at 3.
[84] *Id*.