IN THE SUPREME COURT OF THE STATE OF MONTANA
No. DA 22-0406

MONTANA TROUT UNLIMITED, MONTANA ENVIRONMENTAL INFORMATION CENTER, TROUT UNLIMITED, EARTHWORKS, AND AMERICAN RIVERS,

Plaintiffs / Appellees,

v.

MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY,

Defendant / Appellant,

and

TINTINA MONTANA INC.,

Defendant / Appellant,

and

STATE OF MONTANA, BY AND THROUGH THE OFFICE OF THE ATTORNEY GENERAL,

Intervenor-Defendant / Appellant,

and

MEAGHER COUNTY AND BROADWATER COUNTY

Intervenor-Defendant / Appellant,

MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY'S OPENING BRIEF

On Appeal from the Montana Fourteenth Judicial District Court, Meagher County, Cause No. DV-20-10, the Honorable Katherine M. Bidegaray Presiding

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LIST OF ABBREVIATIONS

ARD	Acid Rock Drainage
CTF	Cemented Tailings Facility
EIS	Environmental Impact Statement
ERM	Environmental Resources Management
DEQ	Montana Department of Environmental Quality
HCT	Humidity Cell Testing
HDPE	High-Density Polyethylene
IRP	Independent Review Panel
MEPA	Montana Environmental Policy Act
MMRA	Montana Metal Mine Reclamation Act
MPDES	Montana Pollutant Discharge Elimination System
MTU	Montana Trout Unlimited
MWQA	Montana Water Quality Act
ROD	Record of Decision
TWSP	Treated Water Storage Pond
UIG	Underground Infiltration Gallery
WTP	Water Treatment Plant

ISSUES PRESENTED FOR REVIEW

1. Did Defendant/Appellant Montana Department of Environmental Quality ("DEQ") satisfy the requirements of the Montana Metal Mine Reclamation Act ("MMRA") and Montana Environmental Policy Act ("MEPA") when it found that Defendant/Appellant Tintina Montana, Inc's. ("Tintina") tailings facility was safe and stable?

2. Did Tintina's Independent Review Panel ("IRP") process satisfy the requirements of the MMRA?

3. Did DEQ satisfy MEPA by rationally evaluating the environmental impact of the mine's total nitrogen discharges into Sheep Creek?

4. Did DEQ satisfy MEPA when it considered and dismissed alternatives to the proposed action?

STATEMENT OF THE CASE

I. Permit application and approval.

The Black Butte Copper Project ("Project") is located 15 miles north of White Sulphur Springs and is designed to mine copper through underground mining methods, process the copper-enriched rock on site into salable copper concentrate, and ship the concentrate for sale. AR045749–51. The project is located on 1,888 acres of privately owned land that is leased to Tintina. AR045749. The project will only, however, cause surface disturbances to 311

acres. *Id*. Construction, operation, and reclamation at the project will take place over 19 years with closure and monitoring occurring after those 19 years. *Id*.

Tintina filed its initial application for the Project on December 15, 2015, seeking DEQ's issuance of an operating permit under the MMRA (§ 82-4-301 to -390, MCA). AR048253–053079. Before DEQ finally approved Tintina's application in April of 2020, AR086412–80, the agency sent Tintina three separate letters informing the company its first three applications were deficient, AR086481–604. Accordingly, it took five years and four applications before DEQ approved Tintina's proposed project. Highlighting the depth and breadth of this review, the administrative record for this appeal is 87,527 pages long.

When DEQ determined that Tintina's application was complete under the MMRA, AR086605–24, it also informed Tintina that its application would be still subject to environmental review MEPA and that Tintina would have to acquire other permits like a Montana Pollutant Discharge Elimination System ("MPDES") permit governed by the Montana Water Quality Act, AR086605–06.

On August 15, 2017, DEQ issued a press release notifying the public that MEPA review would begin and on September 18, 2017, issued a second press release informing the public that review had begun under MEPA. AR045751. Beginning on October 2 until November 16, 2017, DEQ established a public comment scoping period to identify, among other things, "the issues related to the

proposed action that are likely to involve significant impacts and that will be analyzed in depth in the [Environmental Impact Statement ("EIS").]" ARM 17.4.615(1). During this scoping period, DEQ held public meetings in Great Falls, White Sulphur Springs, Helena, and Livingston. AR045751. The public was able to provide both written and oral comment on the scope of the MEPA analysis. *Id*.

Based off the scoping report DEQ generated from this process, *id.*, the agency issued its draft EIS on March 11, 2019, AR047477–8252. The public comment period on the draft EIS was from March 11 to May 10, 2019. AR045751. DEQ again held public meetings in Great Falls, White Sulphur Springs, Helena, and Livingston on the draft EIS. *Id*. DEQ, additionally, held two online webinars on the draft EIS to receive additional public comment. *Id*. In February of 2020, DEQ issued its final EIS for the project, AR045728, which included responses to public comments DEQ had received on the draft EIS, AR046215–529.

Simultaneous to the MEPA process described above, DEQ received an MPDES permit application from Tintina on December 11, 2017. AR086428. After that application was twice determined to be deficient, DEQ declared Tintina's MPDES permit application complete on May 25, 2018. *Id*. Public comment on the MPDES permit application was held from March 29 until May 28, 2019. *Id*. DEQ issued Tintina's MPDES permit on April 9, 2020. AR086442–80.

On the same day, DEQ issued the record of decision ("ROD") approving issuance of an operating permit for the Project under the MMRA. AR086412–39.

II. District court proceedings.

On June 4, 2020, Plaintiffs/Appellees Montana Trout Unlimited, *et al.* ("MTU") filed their complaint alleging that DEQ's issuance of Tintina's operating permit violated the MMRA and MEPA. Doc. 1. MTU did not, however, challenge DEQ's issuance of Tintina's MPDES permit.

On December 16, 2020, MTU filed its motion for summary judgment and memorandum in support. Docs. 29–30. On February 12, 2021, DEQ, Tintina, and Meagher and Broadwater Counties filed cross-motions for summary judgment and briefs in support. Docs. 35–40.[1] MTU filed its combined response and reply brief on March 9, 2021. Doc. 52. DEQ, Tintina, and Meagher and Broadwater Counties each individually filed their combined response and reply briefs on May 27, 2021. Docs. 65, 67–68.

On July 16, 2021, the district court held oral argument on the parties' motions for summary judgment. Doc. 71. On October 8, 2021, the parties filed proposed orders on the merits. On April 8, 2022, the district court issued its merits

[1] The State of Montana, through the Attorney General's Office, also filed a brief in in opposition to MTU's motion for summary judgment, Doc. 49, but its involvement in this case has been mooted by the district court avoiding the constitutional issue, Doc. 74 at 36–37.

order granting MTU's motion for summary judgment and denying DEQ's, Tintina's, and Meagher and Broadwater Counties' motions for summary judgment. Doc. 74 at 47. The district court's merits order is nearly identical to MTU's proposed order. *Compare* Doc. 74 *with* Tintina's Opening Br. App. at 1–47.

Consistent with the scheduling order, Doc. 28, ¶4(f), the district court's merits order directed the parties to file briefs on the issue of remedy, Doc. 74 at 47. After the parties filed their initial briefs on remedy, Docs. 81–82, they agreed to a joint stipulation in which Tintina could continue phase 1 of its mining operation but was precluded from advancing to phase 2,[2] Doc. 85. The district court approved this joint stipulation on July 1, 2022, Doc. 86, and issued its final judgment on the same day, Doc. 87. DEQ filed a notice of judgment on July 14, 2022. Doc. 89.

This appeal followed.

[2] Prior to conducting phase 2 activities, Tintina must obtain a beneficial use permit and change authorizations from the Department of Natural Resources and Conservations, submit a bond to DEQ, and submit a detailed final design consistent with agency modified alternative. AR086427.

STATEMENT OF THE FACTS

I. Tailings management at the Project.

Approximately 12.9 million tons of tailings—a fine-grained waste product from the Project's mill[3]—would be produced over the life of the Project. AR045753. The tailings would be thickened and sent to a paste plant where cement combined with slag or fly ash would be added to the tailings as a binder. *Id*.; *see also* AR070615 (further describing these binder materials). The resulting product, called cemented paste tailings, would be pumped in pipes to one of two locations: (1) the underground mine as backfill, where it will essentially function as a bulkhead or (2) to a Cemented Tailings Facility ("CTF") where it will be stored on the surface within two high-density polyethylene ("HDPE") liners, seepage collection systems, and an engineered rockfill embankment. *Id*. Approximately 55% of the cemented tailings paste produced by the Project would be stored in the CTF, with the remaining 45% used as backfill within the underground mine. *Id*.

A. Backfill tailings.

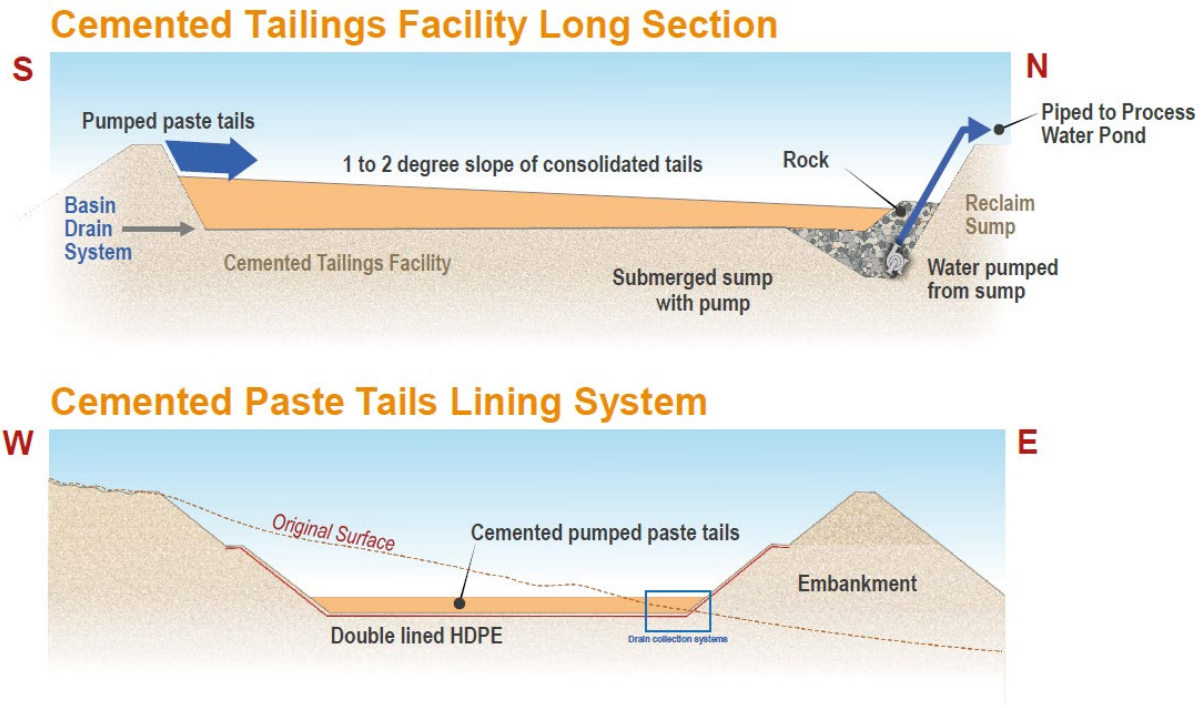
The backfill tailings will replace previously mined out voids in underground tunnels. AR070552. The backfill tailings will be contained within walls of sprayed

[3] The grinding mills will progressively reduce the size of crushed copper-enriched rock. AR045752. "The finely crushed copper-enriched rock would then enter a flotation circuit where copper would be separated from non-copper bearing rock [i.e, tailings] through chemical and physical processes." *Id*.

concrete which will act as a "retaining wall against which to pump and confine backfill." *Id*. In essence, the backfill tailings will be poured in large blocks like laying a foundation for a house or any other structure. AR045803 ("The cemented paste tailings backfill would be confined by a shotcrete bulkhead."). Because backfill cemented tailings will undergo greater compressive strain than the surface cemented tailings, Tintina will use 4% cement and binder within the backfill cemented tailings. AR085788 ("The paste backfill needs to develop the required compressive strength for safe ground support.").

B. Surface tailings.

Tintina proposes to place 0.5–2% binder with the tailings into the CTF. The CTF combines at least four separate levels of protection to ensure that tailings will not escape the facility: (1) cementation of thickened paste tailings; (2) containment within two impermeable HDPE liners; (3) surrounded by an engineered embankment; and (4) with three different seepage pumping systems that will remove excess water from the CTF. The following is a schematic of the CTF.



AR001377. These four individual safety features of the CTF are discussed in greater detail below.

1. Cemented tailings.

The tailings stored in the CTF will be thickened into a paste and cemented with 0.5–2% binder like cement, slag, or fly ash. AR045949. The cemented tailings will then be pumped into the facility in thin lifts with the upper surface of these lifts being exposed for 7 to 30 days—with the average range being 7 to 15 days—before a new lift is deposited over the top. AR070782. "Cemented tailings would be deposited from several deposition locations around the CTF such that a uniform, sloping tailings beach would form." AR046237. The cemented tailings will be at a

1–2° slope towards the pumping equipment to allow internal drainage of excess water that enters the CTF. AR045949; AR045988.

To ensure that the cemented paste tailings will properly travel through the pump system and spread out into thin layers, Tintina needs to limit the amount of binder in the mixture. AR046240 ("if too much cement and binder were added, it would not be possible to pump the tailings through a pipeline."). Additionally, the amount of binder added—to adjust the pumpability of the surface cemented tailings—will rely on several external factors including "ambient outdoor temperatures with air conditions of ambient humidity, and occasional rain/snowfall[,]" AR085789, and "varying ore and tailings characteristics[.]" AR046572.

Like concrete, the strength of the cemented tailings will increase over time. For instance, "after placement" the "cemented tailings are stable [and] non-flowable." AR045949; *see also* AR045796 ("Once [the cemented tailings] *sets*, it [will] be a non-flowable mass.") (emphasis added). Even when the cemented tailings are moist—which is partly by design to prevent dust emissions—the cement additions will render it a non-flowable mass. AR045839; AR046691. As drying and "setting" continue, the cemented tailings will become a "low-strength solid when consolidated." AR045949. At the end of this drying and consolidation

cycle (*i.e.*, "final set"), the cemented tailings will "behave mechanically as a rock formation rather than a substantially saturated soil mass." AR046574.

Unlike the backfill cemented tailings, the surface cemented tailings are intended to achieve a different structural goal and will not be required to withstand the weight of overlaying earth tunnels in an underground mine:

> The cemented paste tailings placed in the surface Cemented Tailings Facility is spread in thin layers on the surface and *is not required to achieve compressive strength for support*. The addition of binder (0.5% - 2.0%, by weight) for cemented paste tailings is intended to ultimately change the pumpable paste into a dry, consolidated material.

AR085788 (emphasis added).

Near closure of the CTF, Tintina will add cemented tailings with 4% binder in the final layers for additional strength to allow heavy equipment access to complete reclamation. AR046241. Once all the surface tailings have been added to the CTF, Tintina will cover the CTF with an HDPE geomembrane. AR045793. The HDPE geomembrane will then be covered with 5.2 feet of non-reactive fill material. *Id*.

2. Two HDPE liners.

The cemented tailings would be contained above two impermeable high-density polyethylene ("HDPE") liners beneath the facility. AR045785. The CTF's liner system includes foundation drains within the earth beneath the two HDPE liners and a complex sandwich of geotextiles and internal seepage geonet material

between the HDPE liners. AR001377–78. A series of protective rock layers will be placed above and below the HDPE liners, prior to placement of cemented paste tailings. AR046581. As discussed above, an additional HDPE liner will be added to the top of the CTF once all the surface cemented tailings are added to the facility. AR045793.

3. Embankment structure.

The tailings and rock placed above the two HDPE liners would be contained within a highly engineered embankment structure made of rock, which is essentially a structurally sound basin. AR046811. The embankment for the CTF "will be constructed on bedrock (a mixture of fresh and weathered), and is not expected to deform, creep or displace during an earthquake event" and "is constructed of free draining rock fill that is not considered susceptible to liquefaction." AR046844. This embankment in conjunction with the two HDPE liners—without the additional safety measure of adding cement and binder to the thickened paste tailings—would be sufficient to safely manage and contain tailings. AR046233; AR046235; AR046838; AR046846; AR047396; AR046581; AR047407; AR070660; AR085310.

4. Pump systems.

The CTF has three different pump systems that will capture and remove excess water from the tailings and remove it to a separate water facility, from

which it will either be reused or treated. AR045785–86. A capture pump located above the surface of the liners within a rock drain inside the CTF (the main "basin drain system") will remove any excess water that collects within the CTF. AR045786. Another seepage pump located between the two HDPE liners underneath the cemented tailings will remove any water that might (although improbably) escape through the first liner before it reaches the second liner. AR045796. Finally, gravity foundation drains located in the ground under the second liner will capture any ambient groundwater (preventing upward pressure against the liner) and any remaining seepage water that was (again improbably) missed by either of the two liners or the two preceding pumps. AR001377–78.

C. Testing of the cemented tailings.

In preparing its application, Tintina conducted several tests on tailings with and without binder to determine the appropriate percentage of binder to propose to DEQ. AR085693–781. Specifically, Tintina examined tailings in even intervals of 0%, 2%, and 4% binder with various total solid content of tailings, which were prepared from rock core samples extracted during exploration drilling activities at the proposed mine site. AR085768 (providing the results for the 0% binder); AR085771–72 (providing the test results for 2% and 4% binder). Because these tests used tailings prepared on the bench-scale from rock obtained by the 205

boreholes authorized under Tintina's exploration license, AR070428, the material available for all physical and chemical testing procedures was limited, AR085768.

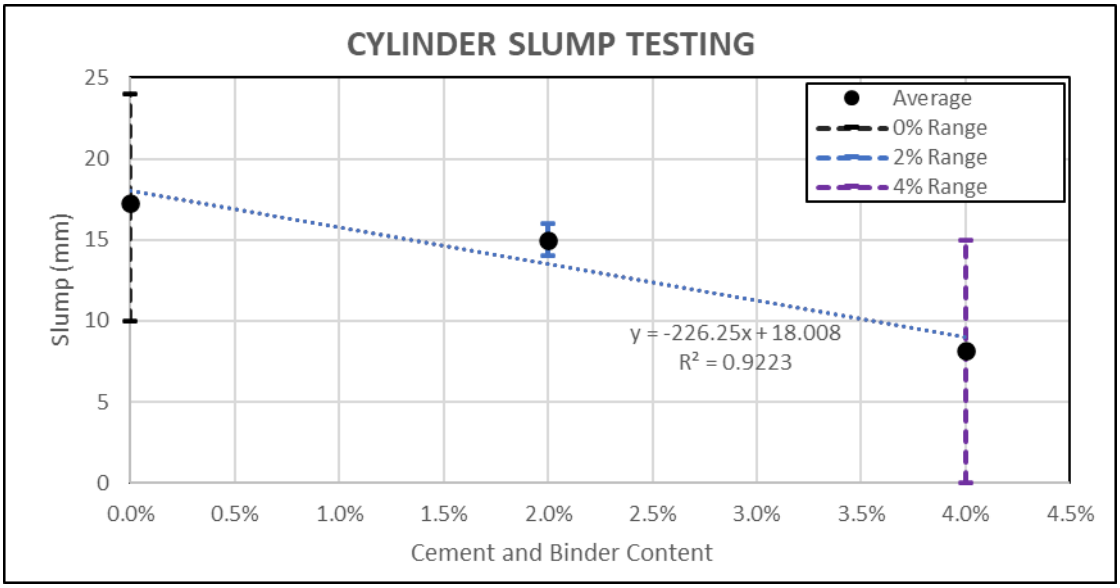
Tintina conducted slump tests with cylinders of various tailings mixtures, but the tests were conducted directly after mixing the paste samples, without allowing time for drying or setting. AR085768–72; AR085775–81 (providing photographs of these tests). These tests reveal a general trend of increasing initial strength (*i.e.*, lower slump values) with increasing cement content, prior to exhibiting the full effects of setting or cementation. *Id*. However, the tests also indicate the importance of the total solid content of the tailings. *Id*. For instance, the results below show that some of the tailings mixed with 2% and 4% binder had greater slump values than tailings with no binder but higher total solid content.

Binder (%)	Solid Content (Cw)	Cylinder Slump (mm)
0	84%	10
	83%	15
	83%	20
	82%	24
2	80%	14
	80%	16
4	82%	0
	82%	6
	81%	10
	80%	10
	79%	15

Id.

When these results are plotted in a graph, it becomes even more apparent that the addition of cement and binder reduces the extent of initial slumping in

cylinder tests. It also shows that tailings with higher total solid content may perform just as well, if not better, than tailings with low total solid content and higher binder percentage.



Id.

With this understanding, a technical memorandum that DEQ obtained from Environmental Resources Management ("ERM"), DEQ's third-party consultant hired to assist in conducting the environmental review, concluded that operational flexibility in the permitted binder amount (ranging 0.5–2%) would allow for the best outcomes in surface cemented tailings "which may vary depending on ore characteristics." AR046572. Tintina will continue to monitor the appropriate amount of binder added to the paste tailings which ERM acknowledges is a "prudent practice for all long-term engineering and construction." *Id*.

In addition to the slump testing described above, Tintina also conducted Humidity Cell Tests ("HCT") to determine if "the cemented paste tailings could potentially oxidize [when] exposed to air and water and release acid." AR046615; AR073575. Tailings material—with and without binder—was "placed in a column and aerated with alternating cycles of humid and dry air, followed by weekly flushing with a relatively large volume of water[.]" AR073575; AR073612; AR073616. After this initial step of the HCT test was completed, "[t]he column [was] allowed to drain and the cycle [was] repeated weekly[.]" AR073575.

Both tailings with and without binder "produced acid quickly during the aggressive weathering conditions of the [HCT.]" AR046239. DEQ noted that these tests did not reflect true conditions of the CTF because the test cylinders do not reflect the flat, thin layers that would occur within the CTF, AR045803; AR046240; AR046260, and that "the rate of weathering in a humidity cell is recognized to be significantly greater than in the field[,]" AR045980. DEQ also noted that adding additional cement to the tailings was not intended to neutralize the formation of acid. AR046239. Instead, Tintina will prevent oxidation and acid formation through limiting the rate of oxygen and water infiltration, by greatly reducing the permeability of surface cemented tailings ("on the order of 10^{-9} meters per second"), *id.*, and adding additional layers of new cemented tailings "within 7 to 30 days, before extensive oxidation and degradation could occur[,]" AR046241.

In the context of oxidation and acid formation, the final EIS concluded that "cement and binder contents proposed for … the surface CTF (0.5 to 2 percent) … are sufficient to achieve necessary strength and comply with water quality protection requirements" and "[i]ncreasing the cement and binder content in the paste tailings in either location would not provide additional environmental benefits[.]" AR046240.

II. Nitrogen discharge into the Sheep Creek alluvial aquifer.

Water from underground mining operations and surface run-off—if it is not sent to a Process Water Pond to be recycled for use at the project—will be sent to a Water Treatment Plant ("WTP"). AR045785–86. Water sent to the WTP will be treated through, among other things, reverse osmosis to remove contaminants. AR045790. Once water at the WTP has satisfied discharge requirements, it will either be reused at the project or sent to the alluvial underground infiltration gallery ("UIG"). *Id*. The UIG is located adjacent to Sheep Creek. *Id*. Because the receiving groundwater of the UIG is assumed to be hydrologically connected to the surface water of Sheep Creek,[4] the treated water from the WTP (*i.e.*, effluent) is required to comply with water quality standards set for this stream. AR045961. At issue in

[4] DEQ anticipates that Tintina's discharge of treated water may also impact Coon Creek. AR045961. Both streams are subject to the same nondegradation limit for total nitrogen, AR045963, so DEQ in this brief refers to Sheep Creek as a catchall for these surface waters, which is consistent with the district court's discussion of this subject, Doc. 74 at 39.

this case is the nondegradation limit for total nitrogen which has been established at a level to ensure any change to the water quality of Sheep Creek is nonsignificant. AR086686–87; AR045908.

Treated water sent to the UIG will be diluted with ambient groundwater, which has a flow rate of 200 gallons per minute. AR045883. Adding the treated water to the ambient groundwater will reduce the overall concentrations of total nitrogen in the combined water. AR045963. After being discharged into the UIG, total nitrogen will undergo "attenuation," which is a known and widely accepted process that occurs within shallow groundwater in contact with the roots of grasses and riparian vegetation. AR086684; *see also* AR046378 ("it is well established that total nitrogen is rapidly taken up or denitrified to harmless nitrogen gas by microbes."). It may take several months for water discharged into the UIG to reach Sheep Creek, but this result is both intended and desired because a slow rate of groundwater migration allows additional time for attenuation to occur. AR046414.

Because Tintina requested an MPDES permit for a new discharge into Sheep Creek, AR086686, it must satisfy the calculated nondegradation limit for total nitrogen, which is 0.09 mg/L[5], AR045908. This nondegradation limit is only in

[5] Pursuant to ARM 17.30.715(1)(f), the nondegradation limit for total nitrogen is calculated by taking the 25th percentile of the background in-stream total nitrogen, which is 0.06 mg/L, AR86689, and adding the relevant nonsignficance

place from July 1 until September 30. *Id*. Tintina's average total nitrogen discharge for the water treated in the WTP is expected to be 0.32 mg/L. AR046631. If water treated by the WTP does not comply with the 0.09 mg/L nondegradation limit for total nitrogen in place between July 1 and September 30, treated water would be stored in the Treated Water Storage Pond ("TWSP"). AR045786. During the rest of the year (*i.e.*, October 1 through June 30), water stored in the TWSP would be mixed with other treated water from the WTP and discharged through the UIG system. AR045789.

Notably, there is no numeric water quality standard in place for total nitrogen between October 1 and June 30. AR045908; AR086695. Tintina, hypothetically, could have disposed of its treated water directly into the surface waters of Sheep Creek during those months and retained the treated water in the TWSP from July until September if the water treated by the WTP did not satisfy the nondegradation limit of 0.09 mg/L. AR045907–08 (prior to discharge into the UIG, DEQ and Tintina expect the water treated at the WTP will meet applicable discharge standards except total nitrogen). Tintina instead chose to implement the UIG to provide additional environmental protections. AR045790; AR046451.

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nondegradation criteria, which is 10% of the standard or 0.03 mg/L, Department Circular DEQ-12A at 3, https://deq.mt.gov/files/Water/WQPB/Standards/PDF/NutrientRules/CircularDEQ12A_July2014_FINAL.pdf (providing the total nitrogen numeric nutrient standard for the Middle Rockies ecoregion) (*i.e.*, 0.03 + 0.06 = 0.09).

While exceedance of the nondegradation limit for total nitrogen is not expected for Sheep Creek, DEQ is "requiring operational monitoring to verify that surface waters are being protected." AR046362.

STANDARD OF REVIEW

A district court's grant or denial of summary judgment, and related conclusions of law, are reviewed *de novo* for correctness. *Bitterrooters for Planning, Inc. v. Mont. DEQ*, 2017 MT 222, ¶15, 388 Mont. 453, 401 P.3d 712 ("*Bitterrooters*"). Under MEPA, this Court inquires "whether the decision was based on a consideration of the relevant factors and whether there has been a clear error of judgment." *Clark Fork Coal. v. Mont. DEQ*, 2008 MT 407, ¶21, 347 Mont. 197, 197 P.3d 482 (quotation marks omitted). Accordingly, this Court "looks closely" at agency decisions to determine whether the agency has taken a "hard look" by fulfilling its obligation to "make an adequate compilation of relevant information, to analyze it reasonably, and to consider all pertinent data." *Id.*, ¶47.

"MEPA is essentially procedural." *Mont. Wildlife Fed'n v. Mont. Bd. of Oil & Gas Conservation*, 2012 MT 128, ¶32, 365 Mont. 232, 280 P.3d 877 (quotation marks omitted). "The Court's focus is on the administrative decision-making process rather than the decision itself." *Clark Fork Coal.*, ¶ 47; *see also Mont. Wildlife Fed'n*, ¶ 51 ("Our role is not to say whether the Court would have granted the permits in this instance. Rather, we must determine if the [agency] was

sufficiently thorough and discerning in its decision-making process to meet applicable MEPA requirements.")(citation omitted); *North Fork Preservation Ass'n v. Mont. Dep't of State Lands*, 238 Mont. 451, 465, 778 P.2d 862, 871 (1989) ("We cannot substitute our judgment for that of the Department by determining whether its decision was 'correct.'").

This Court has acknowledged courts are not "comprised of hydrologists, geologists, or engineers" and often DEQ's decision making "requires significant technical and scientific expertise beyond the grasp of the Court." *MEIC v. Mont. DEQ*, 2019 MT 213, ¶20, 397 Mont. 161, 451 P.3d 493. In general, agency decisions implicating "substantial agency expertise" are afforded "great deference." *Id.* ¶20 (citations omitted).

In addition to satisfying its MEPA obligations, in approving Tintina's operating permit under the MMRA, DEQ must determine that the applicant's "plan detailing the design, operation, and monitoring of impounding structures, including but not limited to tailings impoundments and water reservoirs, [is] sufficient to ensure that the structures are *safe and stable*." Section 82-4-335(4)(l), MCA (emphasis added).

SUMMARY OF THE ARGUMENT

This Project is the most sophisticated and protective hard rock mine ever proposed in Montana.[6] Tintina accomplishes this through several layers of redundant measures designed to prevent environmental harm. But because the Project has several layers of protection, MTU has additional avenues to challenge DEQ's approval of the Project.

For instance, Tintina could have forgone adding cement to the surface tailings and only relied on traditional storage of tailings within the embankment and liners, which are themselves sufficient to render the tailings facility safe and stable. AR046233; AR046235; AR046838; AR046846; AR047396; AR046581; AR047407; AR070660; AR085310. MTU tacitly concedes this by noting that surface cemented tailings are a "new concept" comparison to "traditional, non-cemented tailings[,]" Doc. 30 at 15–16, and not challenging the design of the embankment or the HDPE liners in its petition for judicial review. But had Tintina omitted the protective measure of cementing the tailings, the Project would have been marginally less protective and would not have used "the best-available environmental controls" with "the greatest potential for a 'zero-failure' facility[,]" AR040812, exceeding the requirement that DEQ find the CTF is "safe and

[6]Johnathan Hettinger, *DEQ Approves Black Butte Copper Mine near Smith River*, Montana Free Press (Apr. 10, 2020), https://montanafreepress.org/2020/04/10/deq-approves-black-butte-copper-project-near-smith-river/.

stable[,]" § 82-4-335(4)(l), MCA. Tintina and DEQ, therefore, made the optimally protective choice to dispose cemented paste tailings within the CTF.

Likewise, Tintina could have discharged treated water directly into the surface waters of Sheep Creek in the months of October through June because there is no numeric standard for total nitrogen for this period of the year, AR045908; AR086695, and ceased this practice from July 1 until September 30, storing the treated water in the TWSP during this period, AR045907–08 (treated water discharged from the WTP is not expected to exceed any relevant standard except the seasonal total nitrogen standard). This approach would have eliminated MTU's MEPA challenge regarding total nitrogen and the migration of treated water from the UIG to the surface waters of Sheep Creek. Doc. 74 at 37–42. Instead, Tintina opted to use the UIG that—through attenuation and other measures—further reduces the amount of total nitrogen that enters the surface waters of Sheep Creek. AR045790.

In invalidating DEQ's approval of Tintina's application, the district court repeatedly demonstrates why courts should not substitute their judgment for that of agencies in evaluating agency decisions under MEPA. *Clark Fork Coal.*, ¶47. In the context of the surface cemented tailings, the district court improperly confuses the critical difference between the time cement takes to set versus fully dry or cure. Doc. 74 at 16–19. The district court also disregards the difference between backfill

and surface cemented tailings, which have very different purposes and strength requirements. *Id.* at 24, 45–46. The district court, additionally, asserted that cylinders with 2% binder in the HCT test "disaggregate after only 28 days[,]" Doc. 74 at 20, when the portion of the record invoked by the district court says nothing about 28 days or any period of time in which disaggregation occurs, AR046240; AR46330.

The district court, additionally, fails to account for the flexibility in binder content—between 0.5–2%—that is necessary to effectively distribute and deposit the surface cemented tailings within the CTF. This operational procedure is dependent on a whole host of factors like varying weather, ore, and tailings characteristics. AR085789; AR046572. The weighing of these competing interests to justify flexibility in the percentage of tailings binder is the province of DEQ—not the district court. *Park Cty. Envtl. Council v. Mont. DEQ*, 2020 MT 303, ¶43, 402 Mont. 168, 477 P.3d 288 ("The process of assigning *relative weights to conflicting data* for predictive purposes is essentially a technical exercise requiring agency expertise that should be afforded substantial deference.")(emphasis added) ("*Park County*"); *see also* AR046331 (MTU's expert conceding that in approving the binder amount, DEQ "balance[ed] … opposing issues").

As these examples demonstrate, for every issue raised by MTU in this litigation, DEQ adequately addressed the issue, often explaining why additional

information collecting was not necessary. Rather than accepting these well-reasoned explanations, the district court substituted its judgment for DEQ and refused to afford DEQ any deference on highly technical issues, in violation of MEPA's procedural limits. This Court should, therefore, reverse the district court and affirm DEQ's decision approving Tintina's application.

ARGUMENT

I. DEQ satisfied the requirements of the MMRA and MEPA when it found Tintina's tailings facility was safe and stable.

A. The district court's analysis ignores that the embankment and HDPE liners, without cemented tailings, are sufficient to avoid environmental harm.

As discussed above, the CTF uses four levels of protection to ensure tailings remain within the CTF: (1) cementation of thickened paste tailings; (2) containment within two impermeable HDPE liners; (3) surrounded by an embankment; and (4) with three different seepage pumping systems that will remove excess water from the CTF. The embankment and HDPE liners together would be sufficient to satisfy the safe and stable requirement under the MMRA. AR046233; AR046838; AR046846; AR047396 AR046581, AR047407, AR070660; AR085310. MTU implicitly makes this point by arguing that surface cemented tailings are a "new concept" compared to "traditional, non-cemented tailings[,]" Doc. 30 at 15–16, suggesting that tailings can be safely and securely stored without adding binder, *see also* AR070178–79 (describing other tailings

disposal methods, without the inclusion of binder, that Tintina considered in preparing its application).

MTU, notably, only challenges one of the CTF's four safety features: the cemented tailings. The district court, despite the other protections, found this challenge adequate to defeat Tintina's permit stating, "Tintina identified non-flowability as 'the principle design criteria' for the tailings disposed in Tintina's proposed facility." Doc. 74 at 14 (quoting AR070614). This mischaracterizes this portion of Tintina's application, which discusses cemented paste and its characteristics. AR070614. Tintina's application then goes on to state "[n]o requirement for unconfined compressive strength ... was established, since the material is fully contained and laterally supported in the depositional environment. The principal design criteria was for this material to be non-flowable once deposited." *Id*.

This section of the Tintina's application, accordingly, cuts sharply against the district court's analysis because it unsurprisingly states the cement and binder addition is the principal consideration in making the tailings themselves non-flowable. It does not, however, state anything about cemented tailings as being essential or indispensable in the *total design* of the CTF or that the CTF would be ineffective without adding binder to the paste.

The remainder of the district court's analysis on this point similarly reads DEQ's analysis out of context. Doc. 74 at 14–15. For instance, the district court points out, in response to concerns regarding failure scenarios and catastrophic events, DEQ stated "[i]n the very unlikely event of [1] *a breach of the CTF embankment* and [2] *tearing of the liner system* the tailings may slump in place, but will not flow out to the downstream receiving environment." AR046235 (bracketed numbers added for clarity). Thus, there were two improbable and conjunctive predicates to DEQ's analysis on this point: (1) the embankment failing and (2) the liner failing.[7] MTU has not challenged DEQ's assertion the embankment and liners are sufficient to prevent environmental harm. MTU is, accordingly, precluded from questioning DEQ analysis that the embankment and liners are independently capable of preventing environmental harm. Doc. 52 at 3 (MTU stating its "argument does not address the embankment at all" and "the structural strength of the impoundment ... is not questioned").

At bottom, the district court's analysis on this point confuses the difference between necessity and sufficiency. The cemented tailings are individually *sufficient* to prevent environmental harm, but they are not individually *necessary* to prevent environmental harm. Stated differently, it is not the case that *if and only if* the tailings are cemented, then the tailings facility is safe and stable. Because all

[7] The district court's analysis on this point ignores the HDPE liners. Doc. 74 at 14.

the district court's analysis reads the record out of context and confuses sufficiency and necessity, this Court should find that the embankment and HDPE liners (without the cemented tailings) would render the CTF safe and stable.

B. DEQ properly examined the surface cemented tailings as an additional design feature of the CTF.

Notwithstanding the district court's confusion regarding the sufficiency of the embankment and HDPE liners, the district court erred in its conclusion DEQ did not adequately examine the surface cemented tailings. Doc. 74 at 13–28. In particular, the district court found DEQ did not adequately address three issues: (1) whether the permitted binder percentages would set quickly enough to allow another layer to be added, *id*. at 16–19; (2) whether the permitted binder percentages would be adequate to prevent oxidation and acid formation, *id.* at 19–23; and (3) whether the permitted binder percentages would be sufficient to prevent liquefaction, *id.* at 23–25.

The record demonstrates MTU did not exhaust its administrative remedies to preserve the first and third issues for appeal (*i.e.*, set time and liquefaction). Even so, the record proves what DEQ concluded: Tintina's proposed method for managing surface cemented tailings is adequate to allow for necessary set time between layers and to prevent oxidation and liquefaction.

1. MTU did not preserve the issues of liquefaction and necessary time for cemented tailings to set.

MEPA requires any party challenging an agency decision to first raise that issue in the public comment period. Section 75-1-201(6)(a)(ii), MCA. MTU did not specifically raise either of these issues in the public comment period. AR046251–492. Nevertheless, the district court first excuses MTU's failure to exhaust administrative remedies by asserting the MMRA—unlike MEPA—has no requirement to exhaust administrative remedies. Doc. 74 at 25–26. But this assertion overlooks the nature of MTU's arguments on these issues that DEQ failed to adequately examine aspects of the cemented tailings (*i.e.*, MTU raised MEPA challenges to DEQ's decision-making). *Id.* at 19 (finding DEQ did not satisfy the "hard look" standard by not "meaningfully *evaluating* the important factor of the drying time of 0.5 percent content tailings."), 23 ("DEQ also failed to *examine* rationally the potential for tailings liquefaction") (emphasis added); Doc. 30 at 28 (MTU presenting its arguments in relation to the necessary time for cement tailings to set as violating MEPA).

Furthermore, by treating the MMRA and MEPA as separate bodies of law that can be invoked at MTU's convenience, the district court overlooks this Court's statement in *Park County*, that "MEPA's environmental review process is *complementary* to—rather than duplicative of—other environmental provisions[.]" ¶76 (emphasis added). MTU's arguments on these issues, therefore, cannot be

divorced from MEPA and its requirement to exhaust administrative remedies through public comment.

The district court additionally excuses MTU's failure to specifically raise these issues in the public comment period by finding it had raised these issues with DEQ with "enough clarity such that the decision maker understands the issues raised for the agency to use its expertise to resolve the claim, the claimant will have met this burden." Doc. 74 at 24 (quoting *Vote Solar v. Mont. PSC*, 2020 MT 213A, ¶48, 401 Mont. 85, 473 P.3d 963).

The district court provides two examples of MTU supposedly satisfying this requirement on the issue of the necessary time to set cemented tailings to render them a non-flowable mass. Doc. 74 at 27. The district court's first example is MTU providing the following comment:

> [O]ne or two weeks is not likely enough time for the 2% cement paste tails to *harden*. Thus adding new paste atop an *unhardened* layer will further extend the drying time of the underlayers. In that scenario, *acid generation* will likely outpace cement hardening, thus there will be even less buffering of *acid* by *cured* cement.

Id. (quoting AR016921) (emphasis added). This comment addresses how hardened or cured cement—which is different than set cement, *supra* Statement of Facts § I.B.1; *infra* Argument § 1.B.2—will buffer *acid generation* in the CTF, *see also* AR046573 (the final EIS explaining "[i]t is not expected that the addition of cement to tailings would completely buffer the acid-generating potential of the

tailings"). There's nothing in this comment that would alert DEQ of MTU's new argument that insufficient time will be permitted to allow the tailings to set into a non-flowable mass. The fact that the district court treated oxidation (which generates acid) and the time needed for cemented tailings to set into a non-flowable mass as two different issues in its final order demonstrates that they are in fact two different subjects. Doc. 74 at 16–23.

DEQ's response to this comment, which the district court neglects to cite to, makes no reference to cemented tailings forming a non-flowable mass when set. AR046481. Instead, responsive to MTU's comment, it discusses "the time required to *harden* the CTF layers[,]" *id*. (emphasis added), demonstrating that DEQ did not understand that MTU had raised concerns about the tailings setting into a non-flowable mass in this comment and MTU did not meet the exhaustion standard set forth in *Vote Solar*.

The district court provides a second example of a comment supposedly satisfying the *Vote Solar* standard, which provides a general proposition, reiterated in DEQ's draft EIS, that "[c]emented paste tailings research indicates that changing the type of binder ... and the binder content ... can have significant effects on the cemented paste's short-term strength and setting time, long-term strength, and resistance to internal expansion and fracturing." Doc. 74 at 27 (quoting AR046256). The remainder of the same comment fails to say anything about the

necessary time for cemented tailings to set so that it can become a non-flowable mass. AR046255–56. The comment is, rather, largely aimed at the issue of oxidation and MTU's suggestion that Tintina should use a higher concentration of binder content with the purpose to buffer acidity. *Id.* ("4% tailings will be more resistant to attack by acids in the mine waste than 2% tailings."). Again, as demonstrated by DEQ's response, nothing in this comment would suggest that DEQ understood MTU's comment to convey a concern that successive layering of cemented tailings will preclude them from forming a non-flowable mass. *Id*.

Regarding liquefaction, the district court doesn't provide an example of where MTU raised this issue in its comments. Doc. 74 at 27–28. The district court surmises that this topic would fit under the general umbrella of stability of the surface cemented tailings. *Id*. But the record is clear that liquefaction is only a concern in certain circumstances, AR046255; AR046372–73; AR046575, and was treated as a separate subject by the district court, Doc. 74 at 23–25. DEQ could not have, therefore, intuited MTU's concerns on this subject when MTU failed to even mention the word liquefaction in its comments. AR046251–492.

If this Court permits MTU's comments to satisfy the *Vote Solar* standard, it will nullify the purpose of the exhaustion doctrine, which "serves to provide administrative agencies an opportunity to utilize their expertise, correct any mistakes, and avoid unnecessary judicial intervention." *Vote Solar*, ¶48 (citation

omitted). DEQ's issuance of the final EIS and ROD is the last opportunity for DEQ to correct any errors or omissions prior to granting the permit and advancing to judicial review. *Park County*, ¶32 ("The critical point by which the required environmental review must have occurred is the *"go/no go" juncture*, beyond which lies an 'irretrievable commitment of resources' or 'successive steps set into irreversible motion.'")(emphasis added and citations omitted). Commentors—and soon-to-be plaintiffs—should, accordingly, be required to raise issues at this critical stage in the permitting process. To say otherwise would give commentors an unreasonable incentive to "hide the ball" in the public comment period before DEQ and raise new issues on appeal arguing DEQ failed to address them in the environmental review process.

The Court, accordingly, should find MTU failed to exhaust its administrative remedies on the issues on the set time for cemented surface tailings and liquefaction pursuant to § 75-1-201(6)(a)(ii), MCA.

2. Despite MTU's failure to raise this issue in public comment, DEQ adequately addressed the appropriate period between applying layers of cemented tailings to ensure they would become a stable, non-flowable mass.

As discussed above, the district court faulted DEQ for not adequately addressing the appropriate time Tintina would be permitted to add additional layers of cemented tailings to the CTF. Doc. 74 at 16–19. Notwithstanding MTU's failure to exhaust administrative remedies on this subject and the district court's failure to

account for the fact two other features of the CTF—the engineered embankment and liners—are sufficient to render the facility safe and stable, DEQ still adequately addressed this subject.

It is first important to clarify cement that has "set" is not the same as cement that has become completely dry (*i.e.*, cured or reached final set). The record demonstrates cemented tailings will set up—consuming some of the available water from the tailings—within "a matter of days." AR046417. "Once [the cemented tailings] *sets*, it [will] be a non-flowable mass.") AR045796 (emphasis added). This is why cement has to be transported in revolving trucks; the minute the cement is not flowing, the chemical reactions immediately cause it to start setting. Further proving the cemented tailings will be stable and non-flowable even if the tailings have not become completely dried, DEQ, in response to MTU's other comments about dust control, found even when the cement tailings would be moist, they "would be stabilized ... to provide a non-flowable mass." AR046691; AR045839.

MTU and the district court play fast and loose with these terms. For instance, the district court states "Tintina expects new layers of 2 percent cement-paste tailings to take 28 days to *set fully* at the facility ...." Doc. 74 at 18 (citing AR085773) (emphasis added). But Tintina's application actually states "[t]he 2% binder mix does not achieve *final set* until approximately 28 days age." AR085773

(emphasis added). Use of the phrase "final set" is a key modifier in this sentence that significantly changes the meaning of this portion of Tintina's application from how the district court represented it. AR046331 (DEQ explaining in reference to a study concerning oxidation, the cylinders had achieved "final set" rather than "set" as suggested by MTU's expert); *see also* Maturix, *What is concrete setting?* (last accessed Oct. 12, 2022), https://maturix.com/knowledge-center/what-is-concrete-setting/ ("Final setting time is the time at which the concrete mixture turns solid. At this point, the concrete mixture is able to hold a shape and trying to modify it will hurt its strength development.").

In this portion of the order, the district court wholly ignored DEQ's argument that "[i]n the Bulyanhulu gold mine in Tanzania, surface paste tailings *without* cement demonstrate sufficient geotechnical stability within a five-day cycle." Doc. 65 at 13 (citing AR040805). Despite the district court's failure to grapple with this portion of the record, at oral argument, counsel for MTU stated—without any citation to the record—the reason 0% binder worked at the Bulyanhulu gold mine in Tanzania is that mine "is an arid desert region, while the Black Butte Mine would operate in a cold, wet region." Hr'g Tr. at 146:22–25. This argument is in stark contrast with other comments on the Draft EIS from EarthJustice—the organization representing MTU in this litigation—that under the proposed cement

percentages, "warm and dry weather conditions" at the project will cause the cemented tailings to dry *too* quickly resulting in dust emissions. AR046251.

While MTU's statements on this point are seemingly contradictory and self-serving, there is a kernel of truth to them in that the project will be "subject to wide temperature fluctuation[.]" AR045824. Because Tintina can expect wide variations in the conditions—weather or otherwise—that will occur when applying cemented tailings, DEQ appropriately permitted Tintina to use "operational flexibility in cement content to allow optimizing performance in pumping and final behavior." AR045803. Indeed, the spreading of the surface cemented tailings within the CTF will rely on several factors including "ambient outdoor temperatures with air conditions of ambient humidity, and occasional rain/snowfall." AR085789.

The record is similarly clear that other factors like ore and tailings characteristics will also impact the spreading and strength of the surface cemented tailings. AR046572. In slump testing, some of the tailings with higher percentages of solid content with no binder performed better than tailings with 4% binder and lower solid content. *Compare* AR85768 (tailings with no binder and 85% solid content resulting in a 10 mm cylinder slump) *with* AR85772 (tailings with 4% binder and 79% solid content resulting in a 15 mm cylinder slump). [8] Binder

[8] Tailings with lower slump numbers are stronger than tailings with larger slump numbers. AR070575.

content is, therefore, not the end-all, be-all that MTU and the district court make it out to be because in some instances surface cemented tailings with 0.5% binder may perform better than tailings mixed with the 4% binder, which MTU insists is necessary.

Because the district court failed to account for the competing considerations that led DEQ to approve flexibility in Tintina's pumping and spreading of surface cemented tailings, it examined the issue of the setting of tailings in isolation, which is contrary to the requirements of MEPA. *Clark Fork Coal.*, ¶47 (under MEPA, agencies must "consider all pertinent data"). DEQ is, additionally, entitled to deference in balancing these competing interests that led it to the conclusion that flexible binder amount would be the best solution. *Park County*, ¶43 ("The process of assigning *relative weights to conflicting data* for predictive purposes is essentially a technical exercise requiring agency expertise that should be afforded substantial deference.")(emphasis added). MTU's expert conceded this very point when she stated Tintina and DEQ are "*balancing two opposing issues* creating a paste that is liquid enough to pump, and creating a material that will set up like

cement to slow tailings and waste rock oxidation and resulting acid generation." AR046331 (emphasis added).[9]

Other aspects of the district court's analysis fail to consider the full design of the CTF. For instance, the district court quotes a portion of an Enviromin[10] study stating "drying of deeper layers of paste tailings appears to have been inhibited by addition of a final cemented-paste layer." Doc. 74 at 18 (quoting AR040810). The district court again fails to properly contextualize this portion of the record. To begin with, this study is distinguishable from the present case because it considered deeper layers of tailings paste without any binder (whereas the CTF will have binder in all the layers). AR045983. The CTF, furthermore, also has a pump system that is explicitly designed to address this problem; any excess water associated with the surface cemented tailings will be forced by the weight and the slope of the tailings into the rockfill drain and then pumped to the process water pond. AR085789; AR046330; AR046331. Additionally, before putting the tailings into the CTF, the tailings will be "dewatered to approximately 79 percent solids" to

[9] As repeatedly stated in the record, the added binder is not intended to prevent acid formation and instead this problem is solved by ensuring the surface cemented tailings have sufficiently lower permeability. AR046239–41. Thus, while MTU's expert is correct that balancing of multiple factors needed to occur, she fails to precisely articulate the competing factors DEQ considered in approving the binder range of 0.5–2%. AR045803–04.

[10] Enviromin is a consultant Tintina hired to study several issues in preparing its application. AR073634; AR073546; AR04795–818.

create "ultra-thickened" paste tailings. AR046306. Thus, between the pump system and how the tailings are prepared for pumping into the CTF, DEQ and Tintina have addressed the concerns expressed in the Enviromin paper about deeper layers retaining moisture.

Finally, the district court faults DEQ for not supposedly considering other mines discussed in the Enviromin study that addressed the problem of adequate drying time for surface paste tailings by "applying paste in *thin lifts* to ensure each layer would dry sufficiently 'to provide required geotechnical stability.'" Doc. 74 at 19 (quoting AR040805) (emphasis added). This finding is contradicted by the final EIS, which states "[c]emented paste would be discharged into the facility in *thin lifts* with the upper surface of these lifts being exposed for up to 30 days (average range 7 to 15 days) before a new lift is deposited over the top." AR045951 (emphasis added). Thus, Tintina plans to implement the same process that made the surface storage of paste tailings successful at these other mines.

In sum, if this Court reaches this issue—notwithstanding MTU's failure to exhaust administrative remedies on this subject—this Court should reverse the district court and affirm DEQ because the district court's analysis (1) confuses the relevant terms; (2) ignores the comprehensive framework of the CTF that will ensure the surface cemented tailings remain a stable, non-flowable mass; and (3)

substitutes its judgment for that of the agency in weighing competing interests, violating MEPA.

3. Despite MTU's failure to raise this issue in its public comment, DEQ adequately addressed liquefaction in the surface cemented tailings.

The district court faulted DEQ for not addressing a portion of an Enviromin report stating, "the most likely mechanism for failure would be liquefaction of the *pasted tailings* as a result of seismic activity." Doc. 74 at 23 (quoting AR040802) (emphasis added). Like the district court's improper invocation of this Enviromin report on other subjects, this portion of the report is inapplicable because it concerns a site that has pasted tailings with no binder whereas, as discussed repeatedly above, Tintina's proposed surface tailings would include binder. AR045983.

The district court's analysis goes on to disregard arguments from DEQ and Tintina that minimum amounts of binder in backfill (*i.e.*, underground) tailings are not relevant to surface cemented tailings because "nothing in the record suggests that weight-bearing tailings are more susceptible to liquefaction[.]" Doc. 74 at 24. This is not true and defies common sense. Backfill cemented tailings placed in underground mine workings must withstand the forces of the overlying rock, AR045780, while remaining stable to allow safe access and mining in adjacent

areas of the underground mine, AR045803. By comparison, surface cemented tailings do not have to endure such great forces. AR085788.

The Enviromin report, additionally, states cemented backfill tailings require the material "to be both flowable AND have significant structural integrity[.]" AR040811; *see also* AR070401 (Tintina's application stating "structural strength is required of the backfill ... where resistance to liquefaction and liquid separation is necessary"). By comparison, for surface cement tailings, the Enviromin report states there are "[n]o specific *strength requirements* in surface disposal, so flow [is] more easily achieved[.]" AR040811 (emphasis added).

Instead of compressive strength, the permeability (*i.e.*, potential for water to enter or flow through material) of the surface cemented tailings is the number one consideration in preventing liquefaction. AR046372 (explaining by dewatering the paste tailings, the material will "have a *low permeability*, which … *precludes liquefaction* during earthquakes because there is not sufficient water stored between the tailings grains to allow the material to move as a fluid in response to sudden agitation.")(emphasis added). Even without cement binder, the permeability of the paste tailings is extremely low, AR046427, and is 10 times less permeable than bedrock at the project, *compare* AR046828 (stating the permeability of the tailings without binder is 8×10^{-8} m/s) *with* AR046825 (stating the permeability of the bedrock at the project is 4×10^{-7} m/s).

The district court's refusal to (1) adequately contextualize the Enviromin study and (2) distinguish between surface and backfill tailings regarding liquefaction are two additional examples of the district court substituting its judgment for that of the agency beyond the procedural scope of MEPA. DEQ, accordingly, requests that if this Court reaches the issue of liquefaction (notwithstanding MTU's failure to exhaust administrative remedies on the subject) that this Court reverse the district court and find DEQ adequately addressed the liquefaction issue under MEPA and the MMRA.

4. DEQ adequately addressed MTU's comments regarding oxidation and acid.

The district court claims DEQ did not adequately respond to MTU's concerns regarding "the potential that oxidation could undermine the stability of the tailings facility." Doc. 74 at 19. This conclusion is wrong for several reasons.

As a threshold matter, "the purpose of the cement and binders is not to delay or prevent [acid rock drainage ("ARD")] formation." AR046239. Rather, it is intended to provide structural strength and to change the physical properties of the solidified tailings to a stable, non-flowable material with low permeability. *Id*. Thus, the district court's supposition that the percentage of binder should have been explored further to prevent oxidation is belied by the record and the design of the CTF.

Even though the binder percentage was never intended to address this problem, DEQ still rationally analyzed concerns that the cemented paste tailings may be vulnerable to breakdown resulting from the acid generating minerals reacting with water and oxygen. As the final EIS states, "Elevated sulfide content in the tailings does not necessarily equate to extreme acid production. For the internal sulfides to oxidize and produce sulfate, the right physical and chemical conditions for oxidation are required; this is precluded if the material limits sufficient ingress of water and oxygen." *Id*. In other words, oxidation and acid formation is prevented if the cemented tailings have a sufficiently low permeability. AR046372 (stating low permeability "restricts the flow of water and movement of oxygen through the tailings").

The district court resists the final EIS's discussion of permeability by citing to the Enviromin report for the proposition that "'cemented tailings may develop 'preferential oxidation paths and persistent desiccation cracking,' which could allow oxygen to penetrate below the tailings surface and can be exacerbated by layering cemented tailings over wet tailings." Doc. 74 at 21 (quoting AR40808); *see also id.* at 23 (stating the same). Like much of its analysis in this case, the district court omits a critical component of Enviromin's analysis stating "[t]he authors observed that *the pH did not drop* despite the development of preferential oxidation paths and persistent desiccation cracking." AR40808 (emphasis added).

In other words, the study makes clear acid did not form in the tailings because of desiccation cracking. The technical memorandum commissioned by DEQ also reflects the thrust of this study by asserting "[n]ot all cracking is deleterious, as some reaction products simply fill the cracks, retaining hydrologic and even structural integrity." AR046575.[11]

The district court also makes much of the HCT testing Tintina conducted on cylinders with 0%, 2%, and 4% binder combined with tailings. Doc. 74 at 19–21. To state the obvious, the surface cemented tailings will neither be in the shape of a cylinder, nor will they be unconfined. In comparison to the cemented surface tailings, a cylinder has significantly greater surface area, AR045980, "expos[ing] additional reactive surface area, overestimating the reaction and acid production potential of the cemented tailings[,]" AR 046326. Additionally, as the district court acknowledged, "the chemical lab test was 'extremely aggressive' as compared to the weathering conditions expected at Tintina's facility[.]" Doc. 74 at 20. Nevertheless, it decided these studies rendered DEQ's decision-making arbitrary and in violation of MEPA.

Because these tests don't reflect an apples-to-apples comparison to how the cemented tailings will function in real life, DEQ was required to interpret and

[11] This desiccation problem will also be addressed by applying successive layers of cemented tailings which will prevent the formation of cracks in the first place. AR046575.

contextualize their meaning. DEQ did just that in its final EIS. AR0459080; AR046239–41; AR046260; AR04326–27; AR046330–31; AR046337 ("HCT testing time is not equivalent to real time."); AR046420–21. Despite the technical and scientific understanding required to interpret these results, the district court refused to afford DEQ any deference on the subject and instead arrived at its own interpretation of the data.

As an example of how the district court arriving at its own conclusions was in error, the district court asserted that cylinders with 2% binder "disaggregate after only 28 days." Doc. 74 at 20 (citing AR046240–41; AR046330). The portion of the record the district court cites states that "test cylinders … eventually disaggregated" but says nothing about this happening within 28 days. AR046240; *see also* AR46330 (MTU's expert stating "[t]he time it will take for cement to disaggregate under field conditions[12] is not known"). The record states that HCT tests on cylinders with 2% binder occurred for 28 *weeks*—not 28 *days*. AR073618. However, nothing in the record—at least the portion invoked by the district court—states that disaggregation will occur in 28 days.

The district court also faults DEQ and Tintina for not conducting HCT tests on 0.5%, the minimum binder percentage approved for the CTF. Doc. 74 at 20. To

[12] The reason this information is unknown is because "it is highly unlikely that the rate of disaggregation observed in the field would approach that observed in the laboratory test[.]" AR045988.

begin with, Tintina conducted HCT tests in even intervals of 0%, 2%, and 4% binder with the tailings. AR045977. Tintina, additionally, did not have an unlimited quantity of tailings to test—and, therefore, could not have conducted tests for every permutation of the approved binder amount—because Tintina was only licensed to conduct limited exploration activities, from which the tested materials were obtained. AR070428; AR085768.

This Court has rejected similar attempts to require DEQ to gather more information when the relevant facts did not support further inquiry. In *Park County*, environmental plaintiffs complained DEQ should have been required to gather additional samples—in addition to already collected data from the Duval Boreholes—because the water in an unsampled area allegedly indicated "somewhat less benign water chemistry and evidence of geological materials with the potential to cause acid rock drainage in the area." 2020 MT 303, ¶38. DEQ rejected the need to conduct additional sampling because the data from the Duval Boreholes "was more predictive of groundwater conditions in the proposed exploration area than those sites" in the unsampled area. *Id.*, ¶41. This Court accepted DEQ's decision to limit the applicant's sampling to the Duval Boreholes because the agency "provided legitimate scientific reasons for its decision" and the "District Court erred in substituting its judgment for that of the agency." *Id.*, ¶43.

Here, DEQ did exactly this in responding to comments that additional HCT testing should be conducted on tailings with 0.5% binder. AR046330–31. DEQ first explained these HCT tests "would not be representative of expected field conditions" because, among other things, "the rate of weathering in a HCT is recognized to be greater than in the field[.]" *Id*. DEQ also noted that adding additional cement to the tailings was not intended to neutralize the formation of acid. AR046239. DEQ also identified other aspects of the CTF management methods that would prevent oxidation and acid formation like the low permeability of the surface cemented tailings and the placement of successive lifts. *Id*.; AR045803.

DEQ, accordingly, took a hard look at the issue of oxidation and acid formation. DEQ, however, declined to find additional information gathering would be helpful and did so by providing legitimate scientific reasons. By insisting DEQ gather more information and rejecting DEQ's own explanations for why additional studies were not required, the district court substituted its own judgment for the agency beyond the "limited" court review permitted under MEPA. *Clark Fork Coalition*, ¶47.

II. Tintina's Independent Review Panel ("IRP") process satisfied the requirements of the MMRA.

DEQ incorporates by reference Tintina's arguments on this subject. DEQ does, additionally, respond to the district court's contention the agency did not

satisfy its obligations to ensure Tintina's application was complete and compliant under the MMRA. Doc. 74 at 29, 32–33 (quoting § 83-4-337(1)(e), MCA). The record demonstrates DEQ did make this complete and compliant determination regarding the IRP process.

Emails in the record indicate that DEQ determined all the necessary information had been submitted, albeit piecemeal, to the IRP prior to its issuance of the July 28, 2017, letter. AR087514–16. On August 11, 2017, a DEQ staffer sent an email to Tintina explaining that while all the information required by § 82-4-376(2), MCA had been provided through different documents, there was no singular design document containing all the information required by this statute. AR087520. Tintina provided that singular tailings design document dated September 12, 2017. AR04687–47476. On September 18, 2017, the same DEQ staffer stated they had "finished reviewing the tailing impoundment Design Document that Tintina delivered on 9/14/17, and I did not see any major deficiencies." AR087527. The staffer went on to elaborate, "[a]lthough much of that information was initially included in the Mine Operating Permit Application and related appendices, this new Design Document combines all of the information required under MCA 82-4-376." *Id*. This decision making regarding the information provided to the IRP is reflected in the ROD. AR086430.

Thus, the emails in the record, in addition to the ROD, indicate all of the information had been submitted, albeit piecemeal, to the IRP prior to its issuance of its July 28, 2017 letter, AR087514–16, satisfying DEQ's obligation to determine Tintina's application was complete and compliant under the MMRA.

III. DEQ satisfied MEPA by rationally evaluating the environmental impact of Tintina's total nitrogen discharges into the Sheep Creek alluvium.

The district court faulted DEQ for not considering that treated water discharged into the UIG may take several months to reach the surface waters of Sheep Creek and thus, if water is discharged in June, the treated water reaching the surface water of Sheep Creek sometime later might violate the 0.09 mg/L nondegradation limit for total nitrogen in place in July through September. Doc. 74 at 38–39. This is wrong for several reasons.

To begin with, MTU has not challenged Tintina's MPDES permit. MTU is, accordingly, not able to claim DEQ's approval of the permit will *actually* result in any violations of the relevant MPDES standards. Instead, MTU's argument on this point is limited to MEPA in which it claims DEQ failed to adequately analyze migration of water from the UIG to the surface waters of Sheep Creek. Because there is no numeric standard for total nitrogen in place for Sheep Creek in October through June, Tintina could have eliminated this MEPA issue by simply discharging treated water straight into the surface water of Sheep Creek between October and June and retaining the treated water in the TWSP when the

nondegradation limit is in place in July through September. AR045907–08 (treated water discharged from the WTP is not expected to exceed any relevant standard except total nitrogen). Tintina, however, adopted the more environmentally protective approach of first discharging treated water into groundwater via the UIG, which both DEQ and this Court should support.

The record is, furthermore, clear DEQ did respond to MTU's comments on delayed migration of treated water from the UIG to the surface water of Sheep Creek, potentially violating the total nitrogen nondegradation limit in effect from July until September. AR046378. DEQ explained treated water would be subject to attenuation, meaning plants and microbes would absorb total nitrogen in the alluvial groundwater on its way to the surface waters of Sheep Creek, where total nitrogen levels would be further diluted. *Id*. DEQ also explained delayed migration of treated water from the UIG to the surface waters of Sheep Creek is a feature and not a bug because slow infiltration of treated water through the alluvium allows more time for attenuation to occur. AR046414.[13] DEQ, therefore, examined this issue raised in comments and provided an explanation as to why these concerns were without merit.

[13] Alternatively, if treated water doesn't take much time to migrate from the UIG to the surface waters of Sheep Creek, this scenario eliminates the entire premise of MTU's MEPA challenge on this point. Doc. 74 at 40.

The district court rejects DEQ's invocation of this basic scientific process by quoting a portion of a memorandum in one of Tintina's applications[14] stating "[n]itrate *can* be In-situ converted by bacterial action, but requires seeding and careful management to facilitate conversion[.]" Doc. 74 at 41 (quoting AR032794) (emphasis in original). The district court again reads this portion of the record out of context. Prior to the language quoted by the district court, this memorandum states:

> Organic and inorganic nitrogen species are not considered to be persistent under most ambient environmental conditions. *Nitrogen follows a first order decay equation due to biological assimilation*. Ammonia can be reduced in groundwater systems given the proper conditions; ammonia is converted to nitrate which is persistent in groundwater systems. Nitrate can be in-situ converted by bacterial action, but requires seeding and careful management to facilitate conversion.

AR032794 (emphasis added).

As this passage suggests, nitrogen exists in multiple forms with different toxicity and water quality standards. As noted in the second sentence, all these forms of nitrogen rapidly attenuate in the environment. The part highlighted by the district court must be read together with the preceding sentences on ammonia—a more problematic form of nitrogen—and nitrate, a less harmful form of nitrogen.

[14] The is language comes from a memorandum prepared by Hydrometrics, Inc. to support Tintina's request to implement a mixing zone to discharge treated water, AR032776, which the department did not grant, AR045869.

In the above passage, distinguishing the types of nitrogen is crucial to understanding this portion of the record because this memorandum is summarizing the nitrogen chemistry to conclude nitrate—not ammonia—is an expected form of nitrogen in the ground water. AR032794. The nitrate will be used by plants and bacteria through its own natural attenuation process. *Id*.

What's more, this isn't MTU's[15] first time confusing nitrate and total nitrogen. In response to a comment by MTU, DEQ responded "[t]he commenter switches back and forth between nitrate and total nitrogen in the comment. Nitrate has a year-round standard, so DEQ assumes the commenter meant total nitrogen instead of nitrate in this comment." AR046413–14. In reference to the same comment switching back and forth between nitrate and total nitrogen,[16] DEQ went on to say "[b]oth of those sources/responses provide references to scientific publications focused on natural attenuation of *nitrate*. ... it is well established that *total nitrogen* is rapidly taken up or denitrified to harmless nitrogen gas by microbes." AR046378 (emphasis added). DEQ, therefore, intended to delineate between total nitrogen and nitrate in its analyses.

[15] Recall, the district court adopted MTU's proposed order nearly verbatim. *Compare* Tintina's Opening Br. App. at 1–47 *with* Doc. 74.
[16] *See* AR046413 and AR001010, which are the "sources/responses" DEQ cites in proving this response.

MTU has not raised a MEPA challenge to DEQ's analysis of nitrate. And as discussed above, nitrate has a year-round standard, so DEQ's discussion of nitrate is irrelevant to MTU's MEPA challenge focusing on the nondegradation limit in place for total nitrogen between July 1 and September 30. Doc. 74 at 37–42. The district court's continued failure to properly contextualize language from the record demonstrates why courts should not substitute their judgment for agencies in MEPA challenges.

DEQ, therefore, requests this Court find DEQ adequately explained why—through attenuation rapidly absorbing total nitrogen—treated water migrating from the UIG to the surface waters of Sheep Creek will not result in a violation of the nondegradation limit in place between July 1 through September 30.

IV. DEQ satisfied MEPA when it appropriately considered and dismissed alternatives to the proposed action.

A. DEQ rationally dismissed a depyritization alternative.

When Tintina was preparing its proposal for the disposal of tailings, it commissioned a working group of 18 scientists and engineers to evaluate tailings storage methods. AR070176. This working group considered several criteria and factors in evaluating six tailings storage methods, including two methods that would have removed pyrite from the tailings. AR070178–79. Among the six methods considered, the two methods that proposed removing pyrite were ranked dead last. AR070180.

DEQ further considered these depyritization alternatives by requesting ERM to write a technical memorandum on the subject. AR046587–95. While ERM's memorandum identified some theoretical environmental benefits from depyritization, there were several competing environmental concerns. *Id*. On the benefits side, the portion of tailings without pyrite would have lower content of potentially acid forming material. AR046590. The obvious downside of this depyritization method, however, is that the removed pyrite must go somewhere and the resulting material with the higher pyrite concentration will have "a much higher potential for acid generation compared to the original tailings material." *Id*.

Beyond the fact depyritization creates highly concentrated and reactive sulfides, the ERM memorandum noted this method would create storage and disposal problems. AR046594. For instance, the technical memorandum noted the process of removing pyrite would require additional acid for processing material for the mill, compared to not removing the pyrite. *Id*. Despite these downsides, the memorandum "recommended that more consideration be given to technical feasibility and the pros/cons of the various tailings management alternatives rather than cost feasibility." AR046595. In particular, the memorandum noted "it is not clear how much more underground volume would be needed to dispose of the concentrated pyrite fraction if the tailings were subject to pyrite removal." *Id*.

In the final EIS, DEQ did exactly that. In addition to considering the problems with depyritization identified by the ERM memorandum, DEQ provided further analysis on underground storage of concentrated pyrite tailings:

> Only about 45 percent of the total tailings could be physically placed underground as backfill. Pyrite concentrate may not be feasible to convert into a paste that would set up and provide adequate ground support in the underground backfill. Full pyrite separation and backfill of sulfide tailings underground may thus require mining a significant amount of un-mineralized rock in order to provide room for its storage underground, thereby generating additional amounts of waste rock (perhaps as much as 7.6 million tons) to be disposed of on the surface.

AR046219. DEQ went on to explain concentrated pyrite stored as backfill could be more reactive resulting in more acid formation and even spontaneous combustion and management methods to avoid these outcomes "may not be technically feasible." *Id*.

The district court faults DEQ for not heeding the advice of the ERM memorandum to further explore this subject. Doc. 74 at 44. But that simply isn't true. DEQ provided analysis on the very issue that ERM had identified as needing additional analysis: underground storage of concentrated pyrite. *Compare* AR046595 *with* AR046219.

DEQ, therefore, requests this Court affirm DEQ on this issue because the district court's findings ignore the additional analysis DEQ provided on this subject in response to the ERM memorandum.

B. DEQ rationally dismissed the alternative to increasing the binder content in the surface cemented tailings.

The district court faults DEQ for dismissing an alternative that would have required Tintina to use 4% binder in its surface cemented tailings. Doc. 74 at 45–46. For context, Tintina will use 4% binder in its backfill cemented tailings which must withstand the forces of overlaying rock within an underground mine. AR045803. Nothing in the record suggests 4% binder would be either necessary or beneficial in surface cemented tailings, which do not have to endure such great forces. AR085788 ("the surface Cemented Tailings Facility … is not required to achieve compressive strength for support.").

Additionally, as explained above, the range of 0.5–2% binder is necessary to provide Tintina adequate flexibility to pump and spread cemented tailings to form a stable and non-flowable mass within the CTF. AR085789. As MTU's own divergent arguments tacitly acknowledge, the CTF will experience a wide range of climatic conditions. *Compare* AR046251 (EarthJustice, MTU's counsel, commenting the tailings will dry too quickly because the CTF is in a warm and dry climate) *with* Hr'g Tr. at 146:22–25 (MTU's counsel arguing the tailings will dry too slowly because the CTF is in a cold and wet climate); *see also* AR045824 (stating the project will be "subject to wide temperature fluctuation"). In the same vein, the appropriate amount of binder added to the tailings will depend on ore and tailings characteristics. AR046572. Indeed, as previously indicated, slump tests

demonstrated that some tailings with more solid content and 0% binder performed better than tailings with less solid content with 4% binder. *Compare* AR85768 *with* AR85772. To further optimize outcomes in pumping and spreading cemented tailings into the CTF, Tintina will also conduct additional testing to determine the ideal amount of binder content for varying circumstances. AR046572.

This Court has already noted the impracticality of "requiring DEQ to put itself in the shoes of each applicant to … determine whether a proposed project will actually be feasible[.]" *Park County*, ¶50. Here, it would be impossible for DEQ—without knowing the day-to-day conditions at the facility—to determine if a prescriptive and narrow range of cement binder or time between adding additional cemented tailings layers will render the CTF any more safe or secure. Thus, DEQ acted appropriately in allowing Tintina to have "operational flexibility in cement content to allow optimizing performance in pumping and final behavior." AR045803; *see also* AR046331 (MTU's expert conceding that in approving the binder amount, DEQ "balance[ed] … opposing issues").

DEQ, accordingly, requests this Court find it appropriately dismissed an alternative that would have required Tintina adopt a prescriptive binder amount of 4% and would have required DEQ to take over operational responsibility of the CTF contrary to the flexibility necessary to properly pump and spread cemented tailings at the facility.

CONCLUSION

For the reasons provided above, DEQ requests this Court reverse the district court's merits order, Doc. 74, and affirm DEQ's grant of Tintina's permit for the Project under the MMRA and MEPA.

Respectfully submitted this 2nd day of November, 2022.

/s/ Jeremiah Langston
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CERTIFICATE OF COMPLIANCE

Pursuant to Rule 11 of the Montana Rules of Appellate Procedure and this Court's October 26, 2022, order permitting DEQ to file an opening brief in this case no longer than 12,500 words, I certify that this principal brief is printed with a proportionately spaced Times New Roman text typeface of 14 points; is double-spaced except for footnotes and for quoted and indented material; and the word count calculated by Microsoft Word for Windows is 12,479 words, excluding table of contents, table of citations, certificate of service, certificate of compliance, or any appendix containing statutes, rules, regulations, and other pertinent matters.

/s/ Jeremiah Langston
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APPENDIX

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