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Water Protection Program
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Via email: publicnoticenpdes@dnr.mo.gov

ATTN: NPDES Operating Permits/Permit Comments

RE: Draft Missouri State Operating Permit No. MO-0140953 (Wentworth Storage Tank, Denali Water Solutions LLC)

Dear Mr. O'Rourke and others with the Water Protection Program,

On behalf of the Moniteau County Neighbors Alliance ("MCNA") and Missouri Coalition for the Environment ("MCE"), the Interdisciplinary Environmental Clinic ("IEC") at Washington University School of Law submits these comments on the draft Missouri state operating permit no. MO-0140953 for the proposed storage tank located at HWY J, Wentworth, MO 64873 (36.992314, -94.103834) (hereafter, "Storage Tank").

After reviewing the draft permit, and Denali's long history of noncompliance, we are left with many unanswered questions and concerns that generally fall under three categories: tank construction, land application/discharge, and monitoring. Given this history, and the many questions posed by the draft permit, we believe that the permit application should be denied. At a minimum, we believe that MDNR should address the concerns below and ensure the health and safety of the people who live near the Denali Storage Tank.

Tank Construction

We have several questions about the Storage Tank's construction that the draft permit fails to answer. Without answers to these questions, we cannot reasonably gauge the Storage Tank's integrity. Doubts about the Storage Tank's integrity raise concerns about the likelihood of malfunction. If the Storage Tank malfunctions, contaminated waste is liable to spread into public land and waters, which will then need to be remediated at great expense. As MDNR knows, the now-shuttered Denali facility on the same site near Wentworth had many issues over the years, and the neighbors of the proposed Storage Tank do not want to see a repeat of the past. MDNR is in a position to mitigate these risks.

To ensure that the proposed Storage Tank is up to the task, MDNR must clarify the following issues:

Denali's Facility Description does not align with their schematics.

We are concerned about inconsistencies between how the Facility Description (see Part I. Facility Information on page 1) and the graphical schematic ("Well Water Solutions," Appendix A of Denali's attachments) describe the liners and containment layers. The Facility Description and Schematic describe the following layers:

	Facility Description Text	Schematic Image
Top layer	Primary liner (in contact with waste)	40-mil primary containment liner
↑	Secondary containment liner	16-oz geo mid layer
	30-mil reinforced containment liner	40-mil secondary containment liner
	10-oz nonwoven geotextile fabric	16-oz geo bottom layer
Bottom layer	Synthetic lined tertiary containment	Containment liner

Clearly, there are discrepancies between the two descriptions, which makes it impossible to know the Storage Tank's actual construction.

Furthermore, these descriptions suggest that there is no permanent floor to the Storage Tank. Rather, the base seems to be entirely made up of layers of liners sitting on the ground. Does this mean that the tank's walls will simply rest on top of the liners? We are concerned that this setup risks puncturing the liners.

MDNR should ensure that Denali's plans concerning the Storage Tank's liners and base, including the materials used to construct the base and how the base connects with/intersects with the tank's walls as well as the ground below, are sufficient to prevent leakage and seepage across the surface or in the groundwater. Additionally, MDNR should require Denali to provide information on the lifespan of the liners. If they need to be replaced on a regular schedule, that should be tracked and enforced.

In the event of a catastrophic failure, will the 2-ft overflow berm around the perimeter of the Storage Tank be sufficient to hold all the material from the tank and prevent it from reaching nearby land or waters of the state?

Denali states that "[i]n the event of a catastrophic failure – where both liners and the metal tank walls collapse – residual material will be contained in the tertiary containment." But it is unclear whether what Denali refers to as the tertiary containment system is sufficient to contain the waste in the event of such a failure.

This isn't simply a question of volume, though it is important to clarify that the volume of the tertiary containment area far surpasses the Storage Tank's capacity; we are also concerned about the permeability of the tertiary containment system. Even if the tertiary containment area is large enough to hold the waste, it may not be up to the task of containing it if it is permeable, fragile, or poorly maintained. Thus, we are skeptical that a 2-ft berm lined with a single liner will be resilient in the face of tank failure.

What is the actual setback distance?

The permit notes that "[t]he storage structure meets the setback distance set in 644.051.8(2)." According to MO Rev Stat § 644.051.8(2)(a), a facility with a capacity between 500,000 to 5 million gallons must have a setback distance of 1,000 feet between the basin and any public building or occupied residence. So, while we might assume that there is at least a 1,000 ft. setback, Denali should specify the exact setback distance between the Storage Tank and the nearest public building or occupied residence so that we can ensure compliance.

What is the Storage Tank's actual capacity?

The tank is described as a 905,688-gallon storage tank with a storage capacity of 828,994 gallons when accounting for the required freeboard space. However, one of the schematics indicates a 1.24 MG capacity. We are unclear as to what "1.24 MG" refers to (millions of gallons?). In any case, it contradicts the 828,994-gallon capacity and should be clarified.

How does the tank and its components, especially the windscreen and floating shield, perform against extreme weather events such as heavy snow or wind?

Given that this is an "inclement weather storage facility," details around its resilience in the face of inclement weather are conspicuously absent. If the Storage Tank were to catastrophically fail, it could be due to acute stress from extreme weather (e.g., a tornado). Denali – and ideally, a professional engineer – should be required to comment on this and explain how their Storage Tank fares in the face of extreme conditions. If MDNR cannot be confident that the Storage Tank will resist extreme weather events, it should not approve the permit.

Are these questions beyond MDNR's authority?

If MDNR cannot address any of the questions above, we request that MDNR provide a justification. For instance, if a question is beyond MDNR's authority when a licensed engineer signs off on the structure, please indicate that.

Land Application and Discharge

Overall, we are concerned with seemingly contradictory language concerning land application and discharge. The permit should unambiguously state that non-permitted land application and discharge is prohibited. We request that MDNR revise the permit's language around land application and discharge for consistency and clarity. Below, we discuss some specific questions and concerns.

Is land application, discharge, and waste transport allowed?

Page 1 of the permit describes the facility as a "no-discharge facility" wherein "land application is prohibited" and "discharge is prohibited."[1] Furthermore, Denali does not have a permit to

[1] see "Facility Description"

land apply food processing waste due to their historical noncompliance.[2] Finally, Form A, Box 8, Item H asks: "Is any wastewater or stormwater transferred off site for processing at another facility?" Denali responds "No."

In other words:
The language above strongly suggests that the stored waste **will not be discharged, land applied, or transferred off-site.**

Despite these clear prohibitions, the Fact Sheet states: "This facility consists of a storage tank to provide inclement weather storage for materials licensed for **land application**. **When land application occurs**, which is covered under other Missouri State Operating Permits, **residuals will be transferred from the storage tank to authorized land application sites** via sealed tanker trucks."[3] Similar language can be found on Form C, Box 1.3. Additionally, the Municipal Separate Storm Sewer Systems (MS4) section states that "**this permit allows discharge into waters of the state**."

In other words:
Contrary to page 1, the language above strongly suggests that the stored waste **can be discharged, land applied, or transferred off-site.**

These contradictions beg the question: what will happen to the materials stored in the tank? While the fate of stored waste might normally be beyond the scope of this type of permit, we believe it is incumbent upon MDNR to clarify what happens to waste that is removed from the tank. Denali itself states that it will not be land applied or transferred off site for processing. The current language suggests that MDNR itself is not clear about what exactly Denali plans to do with its waste. Without a clear plan to ensure that the waste is not released into the environment, a permit like this should not be issued.

What is the fate of waste that is removed to maintain operating levels?

We have similar concerns about the fate of the excess waste that will be removed to maintain appropriate operating levels. The permit states that "[d]uring normal and dry weather conditions, the liquid level in the storage structure shall be maintained below the upper operating level, so adequate storage capacity is available for use during adverse and wet weather periods. The liquid level in the storage structure must be lowered on a routine schedule based on the design storage period."[4]

What happens with the excess waste that is removed as part of this process? MDNR must ensure that Denali follows proper disposal practices and require those to be stated in the permit. As above, failure to articulate a clear plan of action opens the door for misuse.

If discharge and land application are not allowed, how does rainwater drainage factor in?

[2] https://dnr.mo.gov/water/business-industry-other-entities/sites-interest/denali-water-solutions.
[3] See "Part I. Facility Information"
[4] See "C. Special Conditions (continued)", pg. 3

The Facility Description states that "[r]ainwater that collects on the floating liner will be pumped off and discharged on to the ground after visual verification that the water is not contaminated." First, this seems at odds with the no-discharge classification; while this technically does not constitute discharge from a point source into a water of the United States, this is not what a no-discharge facility should be doing. Second, even if this practice is allowed by best practices under a stormwater prevention plan, visual verification of contamination is insufficient as many common contaminants are not visible to the naked eye. If this is a no-discharge facility, then pumping contaminated water onto the ground violates the permit.

How will MDNR decide if the permit should be revoked?

The permit "may be revoked for cause if the facility cannot maintain the tank as no-discharge."[5] How will MDNR determine when the facility has reached the point of failure? In other words, what determines whether the facility is no longer no-discharge? Will a certain number and/or severity of violations meet the threshold for non-compliance? Or will any single violation suffice?

Questionable Monitoring Practices

Lack of groundwater monitoring

The permit states that "this facility is not required to monitor groundwater for the Water Protection Program under this permit"[6] Why would groundwater monitoring not be required for a tank that does not appear to have a permanent bottom/base constructed of concrete or metal? Fibrous/rubber liners are known to rupture, causing land application materials to seep into the groundwater. Again, the lifespan of the liners is a question that needs to be addressed to assist DNR in determining if this structure can be maintained as a " No-discharge Facility". Groundwater monitoring would be a tool to determine if the facility is maintaining the "No-discharge" requirement. MCNA and MCE believe that groundwater monitoring should be required for any structure that relies primarily on fibrous/rubber liners to contain the land application materials from seeping into groundwater.

There have been problems with in-ground lagoons that use a liner. When MDNR declared in 2024 that Denali's existing lagoons would have to be drained and closed, we learned that the liners had failed. There was no groundwater monitoring, so the community didn't know if their water had been contaminated or if all the material had been contained in the earthen basin. MDNR is risking a similar outcome here if Denali is allowed to operate without groundwater monitoring.

Relatedly, a hydrogeologic evaluation should be conducted for any facility storing industrial food processing wastes in Southwest Missouri. As evidenced by recent CAFO permitting processes, Missouri Geologic Survey has determined that much of this area is susceptible to

[5] See "C. Special Conditions", pg. 2
[6] See "Groundwater Monitoring", pg. 8

groundwater contamination if there is a breach in a manure containment structure. Areas with karst, losing streams, sinkholes etc. should be fully investigated as a part of the pre-construction planning. It does not appear that they have been.

Inspection practices are inadequate

The secondary containment section once again assumes good faith on behalf of the operators. It sounds like the plan is for Denali to do an inspection, leak check, and debris removal before every rain event, but this seems unlikely. If this is not the plan, then what is? How will Denali ensure they are prepared to absorb the impacts of an inclement weather event? The permit states that "the department is establishing a permit requirement for **visual inspection frequency commiserate (sic)with the potential for contamination"**. In other words, it is a judgement call left up to Denali – a company with a history of poor judgement. Why is MDNR assuming that Denali will be proactive, when all evidence suggests the opposite – they will ignore problems, allow things to get out of hand, and move when the state finally puts its foot down and says, "enough is enough." MDNR can preempt this by disallowing this permit or, at the very least, imposing stricter, science-based monitoring requirements.

In the section 7.0 Methods for Assessing Leaks, Denali claims that water samples will be drawn monthly or when an alarm is triggered. The inspector "shall evaluate the color and smell of the sample to make a determination if there is reason to believe a breach of the primary liner has occurred." This is clearly unscientific – many of the pollutants of concern are not detectable by sight or smell -- and does not inspire confidence. This is especially true since the permit appears to indicate that Denali themselves are responsible for such inspections.[7] MDNR should require 3rd party inspectors and make that clear in the permit. Additionally, MDNR should impose stricter guidance around leak inspections; sight and smell allow too much room for interpretation or bad-faith inspections.

Leak detection hardware is poorly devised

Denali states that, for the purpose of leak detection and response, a leak detector will be installed near the edge of the tank, just above the bottom, between the primary and secondary liners. According to Denali, the sensor will detect liquid "should **significant amounts of liquid leak into or accumulates (sic) within this zone**." This will trigger an alarm that will have "the ability to utilize a wireless connection, **likely via a cellular connection**."

This description is woefully inadequate and leaves us questioning whether Denali will be equipped to detect and respond to a leak. First, why only one leak detector? For a container this size, it seems obvious that there should be multiple detectors in locations around the edge of the tank as well as between the liners. This would ensure that leaks would be detected in a timely manner at the source of the leak. Additionally, redundancy is essential to ensure that any malfunction with one detector is compensated for by backups. Second, the phrase "significant amounts" does not clarify how sensitive the leak detectors will be. How much waste has to leak from containment before the detectors activate? Coupled this with the fact that Denali appears to propose only one detector, and it may be the case that massive volumes

[7] See "C. Special Conditions", Item 2(a), pg. 3

of leakage will be required to trigger a distant detector. Finally, the fact that Denali seems uncertain about how their remote alarm system will function gives us little reason to trust their ability to follow through with a responsive system. Denali should be required to specify the detectors and alarms that will be in place and how exactly they will function, as they are the first line of defense against a catastrophic failure. Absent those details, MDNR should not approve this permit.

Miscellaneous Concerns

Inconsistent use of "this permit does not cover" language.

The permit states that "[while] historic permits have listed numerous statements such as "This permit does not cover…" those statements have been removed."[8] Yet we found instances of this exact statement (or similar statements) throughout the permit:

- This permit does not authorize storage, discharge, or land application of domestic wastewater, domestic biosolids, full animal carcasses or animal manure wastewater" (Special Conditions Item 8, pg. 4)
- "This permit does not cover land disturbance activities" (Special Conditions Item 9, pg. 4)
- This permit does not contain a SOC"

Inconsistencies like this make it difficult to trust that the permit has been thoroughly vetted. We ask MDNR to clarify the significance of such statements, whether they have actually been removed, and to make their use (or non-use) consistent throughout the permit.

"Good Housekeeping Practices" give too much leeway to Denali

The permit contains a section on "Good Housekeeping Practices." Although this is standard for industrial storm water permits, we believe that these requirements defer far too much to Denali. If Denali was a good faith operator, these kind of standard operating procedures would make sense. Instead, we are dealing with a bad actor with a documented history of malfeasance. The Good Housekeeping Practices as described here afford too much leeway, which gives Denali room to do the bare minimum – or worse, less than – while claiming they are complying. Given Denali's history, MDNR should make an exception by imposing much stricter, clearly enforceable standards around Good Housekeeping and Best Management Practices.

The freeboard measurement reporting is confusingly worded

According to the permit, the "freeboard is measured to the nearest inch and is reported in tenths of feet." This does not make sense. As shown in the table below, converting between

[8] See "Exclusions", pg. 6

10ths of feet and inches is not intuitive and makes it basically impossible to report a measure 3" or 9", since neither of those values readily convert to "tenths of feet."[9]

10ths of Feet	Equivalent Inches	Nearest Inch
1/10th	1.2"	1"
2/10ths	2.4"	2"
3/10ths	3.6"	4"
4/10ths	4.8"	5"
5/10ths	6.0"	6"
6/10ths	7.2"	7"
7/10ths	8.4"	8"
8/10ths	9.6"	10"
9/10ths	10.8"	10"
10/10ths	12"	12"

Requiring the freeboard to be measured to the nearest inch but reported in tenths of feet is needlessly complicated; MDNR can just require Denali to measure and report to the nearest half-inch, eighth-inch, or any other subdivision of an inch. For example, if the actual freeboard height is 9.3" and MDNR requires measures to the nearest half-inch, Denali would report 9.5". We suggest striking the existing language and replacing it with something along the lines of: "The freeboard is measured and reported to the nearest half-inch."

Concluding Remarks

Setting aside the specific concerns outlined above, it is important to consider the context in which this Storage Tank is being proposed. Here in Missouri, Denali Water Solutions LLC has a long history of mishandling waste, exploiting regulatory loopholes, and putting the wellbeing of the public at risk. Over the past four years, Denali has been hit with almost $750,000 in fines due to violations of federal and state Clean Water laws and misapplication of food processing waste across multiple states.[10] Denali has failed time and time again to meet its requirements under the law, let alone operate in good faith.

Why would MDNR – after numerous legislative battles responding to Denali's misdeeds in Missouri – elect to engage Denali on a new project with many of the same pitfalls as past

[9] If the freeboard was 9", is Denali supposed to report it as "0.75 feet"? This is technically reporting *hundredths* of feet, so as per the instructions, Denali would have to report "0.8 feet," even though that is equal to 9.6 inches, which is 10 inches if rounded to the nearest inch. This is all very confusing and could be made much more straightforward.

[10] Arizona and CA, clean water act violation: $610,000 in fines(https://www.epa.gov/newsreleases/denali-water-solutions-llc-pay-610k-alleged-illegal-sewage-sludge-application)
Alabama: $111,300 in fines (https://www.wvtm13.com/article/company-ordered-to-shut-down-operations-after-odor-complaints/35801829) (https://www.al.com/news/2023/04/sludge-farm-operator-agrees-to-pay-alabama-76800-to-settle-alleged-waste-violations.html)
https://www.al.com/news/2021/08/alabama-fines-arkansas-company-34500-for-spraying-stinking-sludge.html
Missouri: $21,665 in fines (https://missouriindependent.com/2024/02/29/missouri-house-bill-takes-aim-at-cesspool-of-meatpacking-sludge/)

failures? At this point, the burden of proof rests so heavily on Denali to demonstrate that they will not violate the law or otherwise harm Missourians, that even a satisfactory permit (which this is not) would struggle to overcome Denali's established history of bad behavior. Simply put, Denali has poisoned the well so badly we cannot in good conscience endorse any permit to which Denali is attached.

If Missouri wants to pursue waste reuse, it should engage with entities that have a track record of responsible, lawful action. Denali has proven it is not up to the task. Thus, MCNA and MCE emphatically reject this and any similar proposals from Denali and strongly encourage MDNR to do the same.

Sincerely,

/s/ Elizabeth Hubertz

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