Paul Still's Responses to DEP Responses

Comments and Request for a Public Meeting Regarding the Draft IWW Permit for the Florida Mine - Trail Ridge

(a) The commenter's name, address, and telephone number; the applicant's name and address; the Department permit file number; and the county in which the project is proposed;

Commenter

Paul Still
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Applicant

The Chemours Company FC LLC
Florida Mine - Trail Ridge
PO Box 753
Starke, Florida 32091-0753

File Number FL0000051 015 IW3S

Bradford and Clay Counties

(b) A statement of how and when notice of the Department's action or proposed action was received

Paul Still received an email dated 5/27/2023 with the Notice of the Draft Permit.

(c) A statement of the facts the Department should consider in making the final decision;

The page numbers above the indented and italicized quoted sections are from the Draft Permit or the Fact Sheet. The bold headings represent a general area of the fact(s) that should be addressed in the Departments final decision.

1. Florida Mine-Trail Ridge area

Draft Permit page 1

> *Facility Description:*
> *The Florida Mine–Trail Ridge boundary is located in the lower St. Johns River basin and the Santa Fe River basin, which drains to the Suwannee River. The Florida Mine– Trail Ridge is an existing dry mill which processes and separates the heavy mineral sands concentrate (i.e. ore deposit) from North Maxville and Maxville mining operation. The mineral sand products include ilmenite, zircon, and staurolite.*

The above wording is misleading. The Florida Mine–Trail Ridge boundary encompasses much more than the dry mill. A map with the boundary can be found in Fact Sheet on page 3 of 28.

The wording also fails to acknowledge the addition of industrial wastewater from Trail Ridge South Mine that is included in this Draft Permit. The Trail Ridge South Mine needs to be added to the two mines listed.

The wording fails to acknowledge that the IWW Treatment system treats stormwater from mined areas that have not met the requirements used by DEP to designate that a mined area has been reclaimed.

DEP Reponses: Please see Appendix A for the Chemours Trail Ridge boundary which includes entire Chemours – Trail Ridge. This section provides a description of the Chemours – Trail Ridge location. The wastewater treatment system, which includes stormwater and wastewater from the Chemours Trail Ridge South, is described in the **Wastewater Treatment Section**.

Mr. Paul Still's follow-up comment: Appendix A does not show the drainage ditch that carries high humate water from CR 225 south of Lawtey and the current area that flows to the pumps that lift the water to that drainage ditch.

***DEP Responses: Figures** 1 & 2 of the Fact Sheet has included the drainage ditch. The Appendix A has also been updated to include the drainage ditch.*

2. Use of ferric chloride, ferric sulfate and barium sulfate

Draft Permit pages 1 & 2

> *WASTEWATER TREATMENT:*
>
> *This wastewater treatment system provides acidification with ferric chloride, sulfuric acid, aluminum sulfate, or ferric sulfate to a pH between 3.0 and 3.5 standard units for flocculation of colloidal material followed by settling in a series of diked ponds, neutralization with hydrated lime to a pH between 6.0 to 8.5, and additional settling with final discharge to Alligator Creek. Upon Department approval, polymer addition may be*

provided after neutralization for aluminum reduction prior to final discharge to Alligator Creek at D-001, which flows west in Bradford County. Storm water and rainfall from an active reclamation area is also collected and treated as described above. The treatment train consists of the addition of barium chloride to the wastewater at the location where ferric chloride, aluminum sulfate, or ferric sulfate is added (prior to the humate settling ponds).

Given the history of this facility's exceedance of the maximum daily discharge limit of 1 mg/L for iron and the May, 2023, reported maximum daily level of 1mg/L for iron it would seem reasonable to remove ferric chloride and ferric sulfate from the list above. Adding iron when iron levels are still near or above the 1 mg/L limit could result in iron levels above the 1mg/L limit.

Is barium chloride always added to the wastewater? If not, wording should be changed to barium chloride "can be" added.

DEP Response: Chemours has the option to use ferric chloride, sulfuric acid, aluminum sulfate, or ferric sulfate to provide acidification for flocculation of colloidal material. Currently, alum (aluminum sulfate) is the primary additive in the treatment process and was introduced into the Trail Ridge Ferric No. 2 location in Oct. 2016. Alum has been the primary additive in the treatment process at Ferric No. 1 since June 2017 as discussed in the December 19, 2017 Status Report.

As discussed above, Chemours has been permitted to use ferric chloride or ferric sulfate as an option should they not be able to secure aluminum sulfate as referenced in their June 2017 permit renewal.

Barium (Ba^{2+}), such as $BaCl_2$ solution is not always used in the wastewater treatment; however, Chemours is permitted to use Barium when needed.

Mr. Paul Still's follow-up comment: The potential for exceedance of the 1mg/L iron still exists for Trailridge discharges. Allowing iron salts as a treatment option should be removed from the permit.

DEP Responses: *A Consent Order (OGC File No. 23-1066), which regards iron exceedance, has been executed.*

Please note that alum (e.g. aluminum sulfate) has been used as a primary approved flocculant/coagulant in the treatment process at the Chemours Trail Ridge since 2016 up to the current time. Different flocculants, such as ferric chloride or ferric sulfate, are to be used as an alternative/additional option should Chemours not be able to secure alum sulfate.

Regardless of chemicals that are utilized for flocculation or coagulations in the wastewater treatment, the final treated effluent is required to comply with the Florida water quality standards and permitted limitations.

3. Location of the intake pump for D-002 discharges and the impacts on water quality associated with flow from D-002 through areas mined in the early 1950s that have not been reclaimed require a new sampling location for D-002 discharges

Draft Permit page 2

> *A portion of the effluent is directed to the Southwest Quadrant Pond. The existing recycle line from D-001 was tapped and a pipeline was constructed to route approximately 400 gallons per minute (gpm) of the treated wastewater to an existing ditch, which then discharges into the Southwest Quadrant Pond (location D-002) with eventual discharge into Blue Pond, which is the portion of Alligator Creek that flows south in Clay County. This rerouting of final effluent is the result of an effort by The Keystone Stakeholders to help improve lake water levels in the Keystone Heights area.*

Draft Permit page 5

> *2. Effluent samples shall be taken at the monitoring site locations listed in Permit Condition I.A.1. and as described below:*

Monitoring Site	Description of Monitoring Site
FLW–1	Quantity of the final treated industrial wastewater discharge at the Outfall D-001 to Alligator Creek.
FLW–2	Quantity of the final treated industrial wastewater discharge at the Outfall D-002 to the Blue Pond.
EFF–1	Nearest accessible point after final treatment but prior to actual discharge to the surface water from the Outfall D–001 or D–002

Fact Sheet page 11

> *Sampling is conducted for the effluent discharge for The Outfall Group D-001. The same discharge can be directed to the Outfall Monitoring Group D-002; Therefore, sampling for D-001 represents the discharge for D-002. (i.e. The water quality of the effluent discharge from the Outfall D-002 to the Blue Pond is the same as the water quality of the effluent from the Outfall D-001 to Alligator Creek.)*

The wording *"with eventual discharge into Blue Pond"* is neither clear nor precise. Is the travel time days, weeks, or months? What is the flow path to Blue Pond?

The use of the word "*portion*" in the phrase "*which is the portion of Alligator Creek which flows south in Clay County."* is misleading because it makes it appear that the Alligator Creek that receives the discharges from D-001 and the Alligator Creek that receives the D-002 discharge are the same creek. The Alligator Creek that receives water from D- 001 flows to the Santa Fe River in the SRWMD while the Alligator Creek referenced for D-002 flows to the St

Johns River and is in the SJRWMD. The two creeks have no physical connection. There is a third Alligator Creek that flows from Lawtey to the New River that also has no physical connection.

Satellite imagery seems to show the pumps for the recycle line are upstream of D- 001and may be taking in water that is not the same quality as the water sampled at D- 001.Data is needed to support the claim, "*The water quality of the effluent discharge from the Outfall D-002 to the Blue Pond is the same as the water quality of the effluent from the Outfall D-001 to Alligator Creek."*

It is also important to note that the Southwest Quadrant Pond was created by mining activities in the early 1950s. It is reported that Camp Blanding used the site for receiving artillery fire and contains unexploded shells. The Southwest Quadrant Pond also received water discharged by DuPont and Chemours via D-002 that exceeded the 1mg/L limit for discharge to surface water. The human created changes to the flow path of the water currently discharged at D-002 could add pollutants.

The addition for iron, radium, substances that could cause Whole Effluent Toxicity and regulated materials leached from military ordinance could increase the levels of these materials in water entering Blue Pond.

The D-002 sampling point should be moved to the end of the pipe discharging water to Blue Pond.

No reasonable assurance was provided that Chemours discharges via D-001 represent the actual levels of parameters discharged at D-002 and thus that these parameters will not be exceeded.

DEP Response: The review for redirecting a portion of the effluent to the Southwest Quadrant Pond was conducted and approved in May 2005, which was at the time of the original agreement with the Keystone Stakeholders Committee to send water to Keystone Heights area. The existing recycle line from the Outfall D-001 was tapped and a pipeline was constructed to route approximately 400 gallon per minute of the wastewater to an existing ditch which then discharges into the Southwest Quadrant Pond with eventual discharge into Blue Pond. As mentioned, this rerouting of final effluent is part of an effort of the Keystone Stakeholders Committee to help improve lake water levels in the Keystone Heights area.

Please find attached a substantial permit revision which was issued on May 4, 2005. Pursuant to the permit revision, the Permittee conducted routine monitoring for the water qualities of the effluent at the sample point EFF-1 (i.e. a nearest accessible point after final treatment but prior to actual discharge to the surface water from the Outfall D–001 to Alligator Creek) and the sample point EFF-2 (i.e., at the discharge point into the unnamed ditch which discharges into the Southwest Quadrant Pont). The permit revision also indicated that, upon completion of six months of sampling at monitoring locations EFF-1 and EFF-2, if there was a statistically non-significant difference in the suspended solids and iron levels in the effluent, monitoring of the water qualities of effluent discharge from D-002 might not be required. With the permit renewal application submitted in March 2009, data was provided to illustrate that there was no significant difference and with issuance of the permit no additional monitoring other than flow was required at the Outfall D-002.

Mr. Paul Still's follow-up comment: *The above fails to address the concern that the flow of water through the old mined area could impact Blue Pond water quality by the addition of substances that would cause the water entering Blue Pond to meet regulatory standards.*

DEP Response: *Chemours has monitored the water quality before discharging from Outfall D-002, and due to the high elevation of the trip mines (i.e. "the old mined area"), water discharging from the Outfall D-002, would not flow through the old mined area. The water discharging from the Outfall D-002 should mostly flow through a drainage ditch running along the side of the Treat Road to the Blue Pond (Please see Figures 1 and 2 below).*

In addition, FDEP and SJRWMD have monitored the water quality of the pond (please see Figure 3 for the monitoring location) and attached Appendix D for the analytical sample results.

Figure 1:

Figure 2

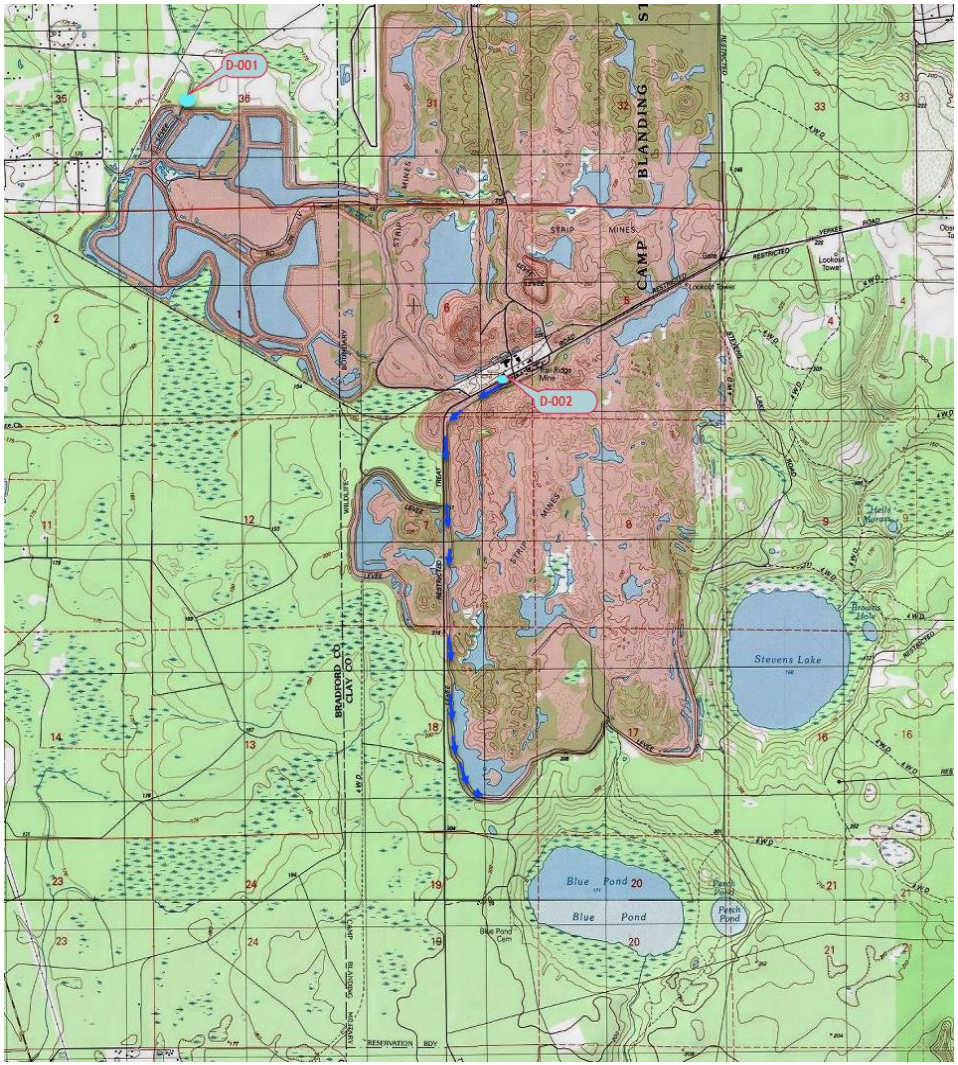
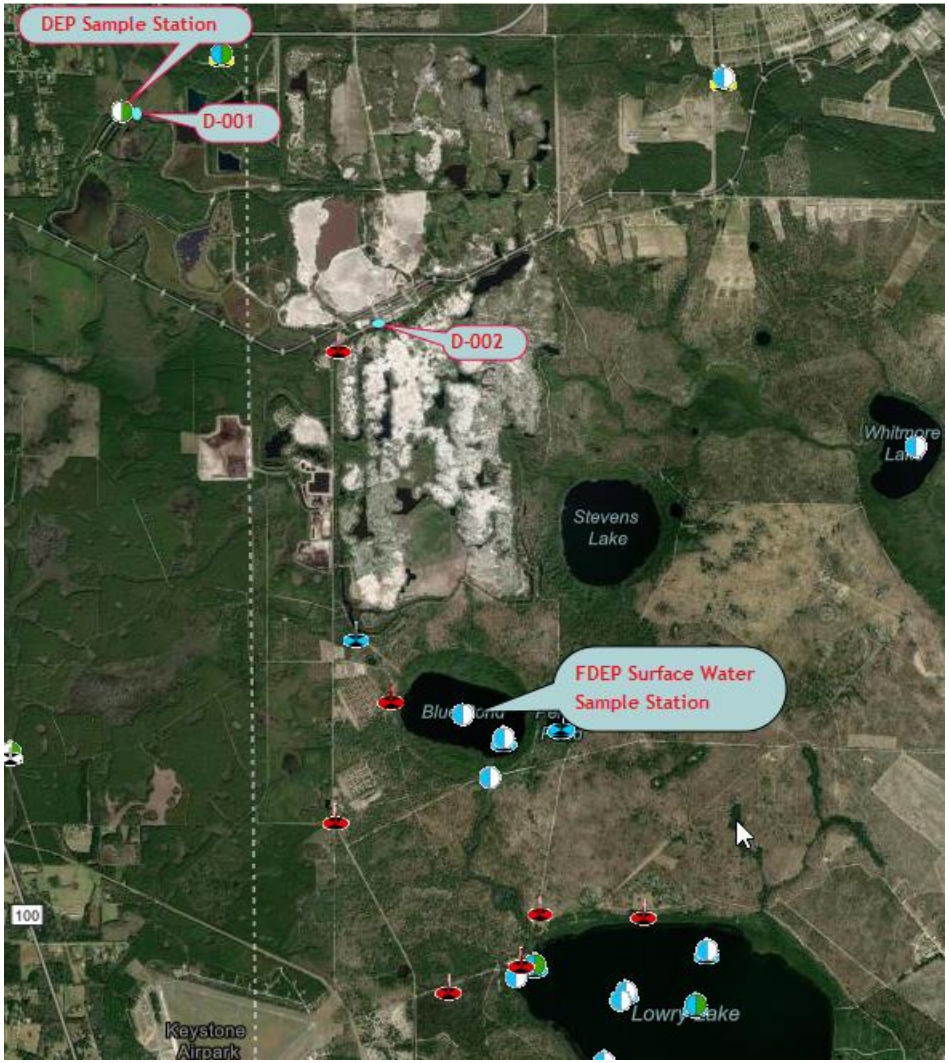


Figure 3



Receiving industrial wastewater from the Trail Ridge South Mine

Draft Permit page 2

> *The permittee is authorized to receive approximately 3.0 MGD maximum daily flow from Chemours Trail Ridge South for auxiliary treatment and discharging through the Outfall D–002 to the Southwest Quadrant Lake/ Blue Pond to Lake Brooklyn, as needed, on a temporary basis.*

Draft Permit page 13

> *B. Surface Water Discharges (Outfall D–002) (Temporary)*
>
> *1. During the period beginning on the issuance date and lasting through the expiration date of this permit, the permittee is authorized temporary to receive water from Trail Ridge South for auxiliary treatment at Trail Ridge. The final treated effluent is discharged from the Outfall D-002 to Blue Pond (WBID 2509N). Such discharge shall be limited and monitored by the permittee as specified below and reported in accordance with Permit Condition I.C.3.:*

The words "*approximately 3.0 MGD"* and "t*emporary*" are vague and misleading. What is considered "*approximately 3.0 MGD"?* A discharge that is permitted for 5 years does not appear to be "t*emporary*".

The draft permit language fails to identify the point where water will be withdrawn from the Trail Ridge South IWW treatment system to be pumped to the facility covered by this Draft Permit.

The Draft Permit language fails to identify what auxiliary treatment will occur at the treatment system covered by this Draft Permit.

The Draft Permit fails to state how the 3 MGD will be pumped to the D-002 outfall.

Draft Permit page 14

> *4. Transferring of the wastewater from Chemours-Trail Ridge South to Chemours-Trail Ridge for auxiliary treatment and discharging from Outfall D-002 to Blue Pond is authorized only for emergency conditions. At least 48 hours prior to transferring of water from Trail Ridge South to Trail Ridge for auxiliary treatment, the Permittee, Chemours, shall notify the Northeast District office. The notification shall include the estimated length of time needed for auxiliary treatment. [BPJ] [62-620.320(6)]*

The meaning of [BPJ] in not clear.

It is not clear what emergency conditions would allow for this option. The option should not be used simply to avoid installing the required infrastructure at Trail Ridge South Mine to avoid emergency conditions.

No reasonable assurance was provided that Chemours discharges would not exceed the levels listed in the Draft Permit if Trail Ridge South industrial wastewater is added to the Florida Mine-Trail Ridge system.

DEP Response: Emergency conditions would be defined on a case-by-case basis.

Please note that Chemours – Trail Ridge South is authorized to convey its wastewater to Chemours – Trail Ridge only during emergency situations to allow Chemours time to repair and/or replace any failed components.

If this were to occur, the wastewater from Chemours Trail Ridge South will be treated at Chemours Trail Ridge before discharging through Outfall D-002 to the Southwest Quadrant Lake to Blue Pond. Discharge from Chemours Trail Ridge South shall be monitored and required to comply with the permit requirements. Please see Appendix B for a process diagram.

Additionally, the flow permit limits at D-001 and D-002 have not changed with this permit renewal.

Mr. Paul Still's follow-up comment: "Emergency conditions would be defined on a case-by-case basis." *is still vague. Chemours has the option to shut down operations as they did on January 31, 2024, when there was an offsite release of process water. The risk posed by the potential addition of water from Trailridge South process water with radium levels above the 5piC/L limit creates to great of a risk for residents of Stake whose property would be impacted during flooding events.*

DEP Response: *The water that discharges from the Outfall D-001 is required to comply with the Water Quality Limit of 5 piC/L for Radium 226+228. The historical data including the latest sample result which was collected in December 2023 shows that the total Radium 226+228 was below the WQS of 5.0 piC/L for the parameter. The new permit will increase the sample frequency for Radium 226+228 from an annual (1/year) basis to quarterly (1/quarter or 4/year) basis. Increasing monitoring frequency will help better characterize the effluent quality and help to detect events of noncompliance.*

5. Radium levels in wastewater from the Trail Ridge South Mine

A clarification of the Trail Ridge South Mine water transfer details noted in item 5 is critical because on May 17. 2023, Chemours verbally reported to DEP that a water sample taken on April 19, 2023, from Trail Ridge South IWW facility contained 9.3 piC/L of radium 226+228 which is above the permit limit of 5 piC/L of radium 226+228. Chemours also reported it was adding barium to treat the radium 226+228.

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> *(h) Radium 226 + Radium 228*
>
> *The permittee is required to monitor for Radium 226 + Radium 228. Results of the five years monitoring show average, mode, median, 95th percentile, and maximum concentrations of the parameter in the effluent samples were 2.54 pCi/L, 2.70 pCi/L, 2.70*

pCi/L, 2.97 pCi/L and 3.00 pCi/L, respectively. Data indicates that the effluent has been in compliance with the permit limit of 5.0 pCi/L for the parameter. The permittee shall continue monitor for Radium 226 + Radium 228.

(The spelling of Radium should be corrected.)

Adding water from Trail Ridge South that has higher radium 226+228 levels is not addressed in the Draft Permit Fact Sheet.

The presence of radium 226+228 in excess of the discharge limit may require weekly sampling to avoid discharging radium 226+228 in excess of the permit limit.

The Starke Alligator Creek flows through the Starke Golf Course and residential neighborhoods which increases the chances of human contact with discharged radium 226+228.

It should also be noted that adding barium does not destroy the radium 226+228. It allows the radium to settle out of the water but the radium/barium complex remains in the sludge in the settling ponds. During major rain events the barium bound radium 226+228 can be moved out of the treatment system as a suspended solid.

No reasonable assurance was provided that the Chemours discharges would not exceed the radium 226+228 limit if Trail Ridge South industrial wastewater is added to the Florida Mine-Trail Ridge system.

DEP Response: The typographical error of the word "radium" has been corrected.

In response to your concerns, sample frequency for the total radium 226+228 is proposed to change from "Annually" to "Bi-Monthly".

History of data analytics for the Total Radium 226+228 monitored at Trail Ridge and Trail Ridges South are listed below:

Total Radium 226+228			
Monitored at Trail Ridge		Monitored at Trail Ridge South	
Date	Results (pCi/L)	Date	Results (pCi/L)
12/31/2022	2.9	06/30/2023	9.3
12/31/2021	2.7	03/31/2023	No discharge
12/31/2020	2.8	12/31/2022	4.3
12/31/2019	3	–	–
12/31/2018	2.7	–	–
12/31/2017	1.7	–	–
12/31/2016	2	–	–

- Estimate concentration of total radium 226+228 discharging in the ***worst-case scenario***:

For Trail Ridge: Flow = 30.0 MGD (Average Flow)
Total Radium 226+228 = 2.9 pCi/L (Max value)

For the Trail Ridge South: Flow = 3.0 MGD (Maximum Flow)
Total Radium 226+228 = 9.3 pCi/L (Max value)

In the Combined Discharge:

$$\text{Radium 226 + 228} = \frac{\left(30.0\ MGD \times 2.9\ \frac{pCi}{L}\right) + (3.0\ MGD \times 9.3 \frac{pCi}{L})}{(30.0\ MGD + 3.0\ MGD)} = 3.48\ \frac{pCi}{L} < 5.0 \frac{pCi}{L}$$

It is important to note that the effluent discharging from Trail Ridge is required to comply with both the groundwater and surface water quality criteria.

Mr. Paul Still's follow-up comment: *What is the source of "* Flow = 30.0 MGD (Average Flow)*"? The annual average flow in the December 2023 DMR was 3.8 MGD. If 3.8 MGD is used in the equation above the 5 pCi/L limit would be exceeded.*

DEP Response: *The calculation demonstrates the worst-case scenario. The water that discharges from the Outfall D-001, is required to comply with the Water Quality Limit of 5 piC/L for Radium 226+228.*

The December 2023 sample result shows that the Radium 226+228 was 3 piC/L which was below the WQS. As discussed above, the new permit will increase the sample frequency of the parameter, which would help to confirm the water quality of the discharge.

6. The need to reduce permitted flows

Draft Permit page 2.

REUSE OR DISPOSAL:

Surface Water Discharge D-001:

An existing 40.0 MGD maximum daily flow permitted capacity discharge at the Outfall D-001 (a Class III fresh water, WBID 3606); the water then flows to Alligator Creek (a Class III fresh water, WBID 3589C). The point of discharge is located approximately at latitude 29° 55' 25" N, longitude 82° 03' 43" W.

The Applicant has failed to establish that the Alligator Creek Canal has the capacity to receive "*40.0 MGD maximum daily flow"* without flooding homes, apartments, and infrastructure. The current permit application must be examined in the light of the following:

1. Flooding upstream of the 301 Bridge over Alligator Creek from Hurricane Irma in September 2017 and other major rain events.
2. Sediment accumulation in the Alligator Creek Canal
3. Changes to the Alligator Creek Canal installed by the Suwannee River Water Management District as part of the Edwards Bottomlands Project which is approximately 150 yards downstream of the 301 Bridge over Alligator Creek in Starke. The information included in the Fact Sheet for this Draft Permit indicates DEP may not have been fully informed about critical issues associated with the impacts of the Chemours discharges.

Fact Sheet page 9 of 28

> *Prior to the development of the City of Starke, Alligator Creek was a small, intermittent stream, which received seepage and overland flow from the area's mixed pine and hardwood forests. Over many decades, Alligator Creek was dredged several times prior to environmental regulation to improve the drainage within the City of Starke. These dredging events have caused hydrologic impacts to the floodplain wetlands and destabilized the stream in many locations causing continued erosion and water quality problems. Stream restoration is needed to improve wetland functions within the Alligator Creek floodplain and protect this system from continued erosion and degradation, but the funding of such a restoration has been cost prohibitive. In order to improve hydrologic conditions within the floodplain and reduce some of the sediment load from going to Lake Rowell down Alligator Creek, Suwannee River Water Management District (SRWMD) in cooperation with the Florida Fish & Wildlife Conservation Commission (FWC) and the City of Starke, plan to conduct a floodplain restoration project which will re-establish the flow connection from the portion of the altered creek to a 47-acre floodplain parcel known as the Edwards Bottomlands. The restoration project will improve water quality, fish and wildlife habitat and the hydrology within the altered wetlands. SRWMD is also evaluating the potential acquisition of a 14-acre tract of historic floodplain, adjacent to the 47 acre parcel, as part of this project.*

The above statement has several errors and should be revised.

Alligator Creek itself was never dredged. Around 1914 a drainage canal system was dug east of Starke in the floodplain of Alligator Creek and in some parts outside of the Alligator Creek floodplain. When the canal that runs from Starke to Lake Rowell was dug is not known but was likely dug before the drainage work done around 1914.

Maintenance dredging of parts of the Alligator Creek Canal have been done.

Observations made from 1998 to the present would indicate the banks of Alligator Creek Canal were stable except when large trees on the canal banks fell into the canal.

Based on the accumulation of sediment at the Laura Street bridge after the sediment was removed in late 2012 early 2013 significant sediment loading appears to be coming from areas upstream of Laura Street which could include discharges from
DuPont/Chemours during significant flow events.

Observations made at the Edwards Bottomlands Project site indicate that erosion from the site is also occurring.

The Edwards Bottomlands Project has been constructed by the SRWMD using wetland mitigation funding from FDOT. The 14-acre tract referenced in the Fact Sheet has been purchased and is part of the Edwards Bottomlands Project. The Edwards Bottomlands
Project design included creating 4 ox bows to replace sections of the original straight canal. The ox bows decrease the in-channel flow capacity of the original straight canal. The plan also added a secondary channel to help offset this reduced flow. The secondary channel has been colonized by invasive and other plants that reduce the flow in the secondary channel. A pipe line that carries Starke's treated wastewater to its spray field also restricts flows. There appears to have been no flow measurements done to determine the current capacity of the Alligator Creek canal and floodplain upstream of the treated wastewater pipeline.

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Alligator Creek has a contributing drainage area of 19.4 square miles. Low-flow frequency of the creek is following: $_{7}Q_{2} = 3.2\ ft^3/s$, $_{7}Q_{10} = 0.3\ ft^3/s$, $_{30}Q_{2} = 8.0\ ft^3/s$; $_{30}Q_{10}$

= 1.1 ft3/s. There is a SRWMD and USGS stage station at Alligator Creek below US 301

in Starke, ***Station ID:*** *02320734 (reference document: USGS Drainage Areas of Selected Surface water sites in Florida, Report 81-482, 1981). The contribution to the watershed for Alligator Creek (waterbody ID # 3598c) was reviewed for a 25 year-24 hour rainfall event and a 100 year 24 hour rainfall event and considered the discharge from the Trailridge (sic) mine outfall, D-001. The Chemours TrailRidge (sic) mine percent contribution ranged from 0% at no outfall discharge to 2.30 % for the 79.20 MGD during Hurricane Irma (September 2017). During Hurricane Irma (September 2017) the rainfall was well beyond the 100-year storm event and thus the Chemours discharge as a percentage of total would be even less than 2.30 %.*

(Correct spelling of Trail Ridge.)

The gage referenced by the words "*There is a SRWMD and USGS stage station at Alligator Creek below US 301 in Starke."* was moved upstream of the US 301 bridge.

Discharge from D-001		Flow from Outfall D-001 as Percentage of Total Flow	
MGD	Volume	Storm Event 24-hr/25-yr = 7.75 in 3.49×10^8 gallons Stormwater	Storm Event 24-hr/100 yr = 10.0 in 4.51×10^8 gallons Stormwater
0.0	0.0	0.00 %	0.00 %
20.0	2.67×10^6	0.76 %	0.59 %
30.0	4.01×10^6	1.13 %	0.88 %
40.0	5.35×10^6	1.51 %	1.17 %
50.0	7.39×10^6	2.07 %	1.61 %
70.0	9.35×10^6	2.61 %	2.03 %
80.0	10.68×10^6	2.96 %	2.30 %

Data is needed to support the claim "*During Hurricane Irma (September 2017) the rainfall was well beyond the 100-year storm event".*

It is important to distinguish the difference between using MGD as a flow rate and using MGD as a measure of *maximum daily flow*. A flow rate can be for any period of time and could go up and down during any 24-hour period. The 79.2 flow reported by Chemours was a flow rate and not a 24-hour maximum daily flow.

There appears to be an error in the data in the above Table, caused by the failure to acknowledge where flooding occurs in Starke. During Irma flooding in homes and apartments along Alligator Creek occurred upstream of the US 301 bridge over Alligator Creek. Other major rain events have also caused flooding of homes upstream of the US 301 bridge over Alligator Creek. The drainage area for the flooded homes and apartments would be lower than the 19.4 square miles used to calculate the percentages in the above Table. As you move upstream the drainage area decreases. To understand the impacts of the discharges from D-001 the information presented in a Table should include estimates of the percentage of flow from each flooded area along Alligator Creek using the drainage area for Alligator Creek upstream from the flooded homes and apartments. This would require calculations for at least Orangewood Apartments, Waters Street, Bradford Court, and Country Club Estates. The homes flooded in Country Club Estates would have the smallest drainage area and thus the highest percentage of total flow from D-001.

It is also important to note that during Irma there were likely discharges from Chemours that bypassed D-001. An image of the flume structure at D-001 during a DEP site inspection shows erosion at the structure which may indicate flows were topping the road and thus not being measured. The same DEP inspection has images of an overflow pipe in the Pond L dam that would carry water to the borrow pit system below and outside of the pond dams. The flow out of the borrow pit system moves to a railroad ditch and under the tracks through a culvert and over the railroad tracks during high flows to the North Florida Land Trust (NFLT) property to the south of the railroad. The water flows west and then north

through 4 culverts to a drainage system that carries it to Alligator Creek between Bradford Court and Country Club estates. This flow is not measured. This flow has been observed during other rain events and should be addressed with respect to water quality and water flows in this draft permit.

One issue that needs to be considered is that canal capacity can be significantly decreased during major rain and wind events by trees falling across canals and trapping both trash and vegetative debris. Post Irma evaluation of the Alligator Creek Canal just downstream of the US 301 bridge revealed such a blockage that was made worse by debris trapped on the chain link fences on both sides of the Alligator Creek Canal. The blockage was partially removed when the force of the water pushed over the chain link fence on the south side of the Alligator Creek Canal. This provided a new flow path allowing higher flows and reducing flood levels in a few hours.

While flooding and flow are not referenced directly in the permitting process, flooding and flows have major implication associated with the mass of discharged material10000000000s. When the concentration of the element of concern is the same in high and low flows, more of the element is released to the environment during high than would occur at low flows. During low flows the element of concern would likely be retained in channel. If high flows cause flooding the area of exposure to the element of concern increases.
The element of most concern is radium 226+228. In the case of discharges from D-001 flooding could put radium 226+228 into homes and apartments.

Without knowing the capacity of the Alligator Creek Canal, the following actions should be taken:

1. The discharge limit for the Chemours IWW permit should be reduced to no more than 30 MGD.
2. Chemours should be required to evaluate its settling pond system to determine if the ponds have sufficient capacity to meet the 40 MGD limit in the Draft Permit.
3. The exterior dams of the Chemours pond system should be evaluated to make sure they can contain the required volume without failing.

While flooding is not directly addressed in the rules related to the Draft Permit, flooding must be considered because flooding would expose people to regulated materials in the water discharged by Chemours. It should be noted that iron levels can be higher during flooding events.

If Trail Ridge South water is added to the Florida Mine-Trail Ridge facility Radium 226+228 could be an element of concern.

Chemours has failed to provide reasonable assurance that its discharges will not cause downstream flooding of homes, apartments, yards, playgrounds, and streets that would create a possible exposure to materials in its discharged water.

DEP Response: The stormwater management system at Chemours Trail Ridge was designed based on the Water Management Districts stormwater guidebooks. Currently, the Department has no rule basis or guideline to request a wastewater treatment system to be designed with a hurricane rainfall event.

Permitted discharge capacity of 40.0 MGD maximum daily flow through the Outfall D-001 (a Class III fresh water, WBID 3606) has been granted since June 2010 permit issuance. This permit renewal does not propose to increase in discharge capacity.

Rainfall events and antecedent conditions drive daily maximum flows and annual average flows. When intense rainfall events saturate the ground, they produce higher rates of run-off and reduce storage in treatment ponds. During these conditions, the treatment rate must be maintained to preserve the safety surge capacity of the ponds from being filled. Based on historical data during previous wet periods (i.e.100-year, 24-hour storm rain event) that resulted in the discharge rates, the treatment system has proven to handle the flow rates, meet water quality standards, and not cause downstream flooding.

Mining at Trail Ridge has ceased, but reclamation and operations at the dry mill are continuing. Chemours is actively working to reclaim mined lands so that runoff can be returned to the natural watershed and removed from the water treatment system. Due to the historical location of the treatment system ponds and stormwater conveyance ditches, runoff from much of the reclaimed land cannot be returned to natural watersheds until the entire area has been reclaimed and stormwater conveyance ditches have been removed. The majority of the land between the water treatment pond system to the south and the active reclamation further to the north has been reclaimed - but the connection between these two areas continues to collect stormwater via a stormwater conveyance ditch that connects the two areas.

Alligator Creek, which is approximately 6.5 miles long, 20 feet average wide, and from 6 inches to 18 inches deep, is basically a drainage ditch that flows into Lake Rowell. The drainage area is approximately 19 square miles. City of Starke area receives 51 inches of rain on average per year. The 25-year, 24hour storm event is 7.7 inches rainfall; and 10-year, 24-hour storm event is 10.0 inches rainfall. Alligator Creek can handle the runoff water and amount of water discharge from the Outfall D-001 of Chemours Trail Ridge without flooding issues. However, during hurricane events, stormwater water is unpredictable; for example, during Hurricane Irma, the City received 12.4 inches of rain in a short period time. The SRWMD's Hydrologic Data Services team has gathered periodic flow information on Alligator Creek, as well as high water information after significant rainfall or drought events. Since 2015, flows in Alligator Creek have ranged from 0.53 cubic feet per second (cfs) (June 11, 2015) to 860 cfs (September 12, 2017) after Hurricane Irma. The creek also went dry on May 09, 2017 with only puddles visible**.** Therefore, it can conclude that the flooding which occurred in September 2017, was caused by Hurricane Irma.

Calculations

- **Alligator Creek:**
  - Flow in the Creek: $Q = A * V$

    Where: Q = Flow rate (cubic feet per second (cfs))

    A = Cross Section Area of the Creek (square feet (ft^2))

    V = velocity of the water flow (feet per second (fps)
  - Drainage area = 19 mi^2
  - Low-flow Frequency: 2Q7 = 3.2 cfs; 7Q10 = 0.3 cfs ; 2Q30 = 8.0 cfs ; 10Q30 = 1.1 cfs
  - Maximum Flow Recorded: Q = 860 cfs (September 12, 2017 – Hurricane Irma)

Mr. Paul Still's follow-up comment: *What information did DEP use to support the claim "*Based on historical data during previous wet periods (i.e.100-year, 24-hour storm rain event) that resulted in the discharge rates, the treatment system has proven to handle the flow rates, meet water quality standards, and not cause downstream flooding.*"?*

***DEP Response**: Department staff used water balance calculations as discussed above and reviewed the USGS monitoring data (water elevation level in the creek from 11/13/2012 to 07/29/2024) at USGS Station 02320734 (Alligator Creek at Starke Florida), approximate at latitude 29° 56′ 10′′ N and longitude 82° 06′ 45′′ W.*

http://www.mysuwanneeriver.org/realtime/river-levels.php

http://www.mysuwanneeriver.org/realtime/river-30-day.php?id=02320734

And Station 02320732 (Alligator Creek at Starke Florida), approximate at latitude 29° 56′ 10.86792′′ N and longitude 82° 06′ 42.37844′′ W.

https://waterdata.usgs.gov/monitoring-location/02320732/#period=P1Y&showMedian=true

https://pubs.usgs.gov/wri/1993/4165/report.pdf

Mr. Paul Still's follow-up comment: *What information did DEP use to support the claim* "The stormwater management system at Chemours Trail Ridge was designed based on the Water Management Districts stormwater guidebooks."?

***DEP Response**: The stormwater management system was reviewed and approved in the previous permit cycles in accordance with the Applicants Handbook Volume II*

Mr. Paul Still's follow-up comment: *The current Alligator Creek canal channel was significantly altered by the SRWMD Edwards Bottomlands Project. The current Alligator Creek canal channel may not have the same capacity as it had when the 2010 permit was issued with the 40 MGD limit.*

***DEP Response**: Suwannee River Basin 2024 SWIM Plan, Project ID 0036, implements flood plain restoration on Edwards Bottomlands and Alligator Creek to re-establish flow in previously altered creek and improve nutrient attenuation.*

Mr. Paul Still's follow-up comment: *What is DEP's estimate of the flow of Alligator Creek at bank full conditions at 301, SR 100, Laura Street, SR230, Bradford Court, and NE 17th Ave?*

***DEP Response**: Department staff have not completed flow calculations at 301, SR 100, Laura Street, SR230, Bradford Court, and NE 17th Ave.*

Mr. Paul Still's follow-up comment: *What information did DEP use in making the following statement "*Alligator Creek, which is approximately 6.5 miles long, 20 feet average wide, and from 6 inches to 18 inches deep, is basically a drainage ditch that flows into Lake Rowell.*"?*

Where is the Alligator Creek channel only 18 inches deep?

DEP Response: *Information on Alligator Creek was obtained from the Suwannee Water Management District, USGS, Alligator Creek Preserve, Florida Paddle Notes, Department Sampling Inspection Report.*

https://www.floridapaddlenotes.com/alligator-creek/

https://www.floridapaddlenotes.com/alligator-creek/#:~:text=Between%20the%20cypress%20trees%20along,DuPont%20mined%20heavily%20for%20Titanium.

Mr. Paul Still's follow-up comment: What is the channel width at just downstream of NE 17th Ave and at Bradford Court? DEP failed to respond to

DEP Response: *We do not have specific information of the channel width of the Alligator Creek at just downstream of NE 17th Avenue and at Bradford Court. Please see above response regarding resources for information on characteristics of Alligator Creek.*

"2. Chemours should be required to evaluate its settling pond system to determine if the ponds have sufficient capacity to meet the 40 MGD limit in the Draft Permit.

3. The exterior dams of the Chemours pond system should be evaluated to make sure they can contain the required volume without failing."

- **Expanded Calculations**

Discharge from D-001		Flow from Outfall D-001 as % of Total Flow (2.59 square miles of drainage area of Chemours – Trail Ridge)		Flow from Outfall D-001 as % of Total Flow (19 square miles of drainage area of the whole Alligator Creek)		
MGD	Volume (gallon/day)	Storm Event 24-hr/25-yr = 7.75 in 3.49×10^8 gallons Stormwater	Storm Event 24-hr/100 yr = 10.0 in 4.51×10^8 gallons Stormwater	Storm Event 24-hr/25-yr = 7.75 in 2.26×10^9 gallons Stormwater	Storm Event 24-hr/100 yr = 10.0 in 3.30×10^9 gallons Stormwater	Storm Event Hurricane Irma = 12.4 in 4.09×10^9 gallons Stormwater
0.0	0.0	0.00 %	0.00 %	0.00 %	0.00 %	0.00 %
20.0	2.67×10^6	0.76 %	0.59 %	0.12%	0.08%	0.07%
30.0	4.01×10^6	1.13 %	0.88 %	0.18%	0.12%	0.10%
40.0	5.35×10^6	1.51 %	1.17 %	0.24%	0.16%	0.13%
50.0	7.39×10^6	2.07 %	1.61 %	0.33%	0.22%	0.18%
70.0	9.35×10^6	2.61 %	2.03 %	0.41%	0.28%	0.23%
80.0	10.68×10^6	2.96 %	2.30 %	0.47%	0.34%	0.26%

During Hurricane Irma Trail Ridge received 559.24 million gallons of water.

Please note, the above calculations do not show significant effects of the 40 MGD of water discharge compare to 30 MGD water discharge to the overall stormwater.

Mr. Paul Still's follow-up comment: *The above table and conclusions are not valid because they only represent the percentage of flow at Lake Rowell. As you move upstream the percentage of flow from Chemours would increase. Calculations should be done for the segments of Alligator Creek upstream from the following 301, SR 100, Laura Street, SR230, Bradford Court, and NE 17th Ave.*

DEP Response: *The calculations included stormwater runoff from 2.59 square miles of drainage area of Chemours – Trail Ridge and with different discharging capacity from the Outfall D-001.*

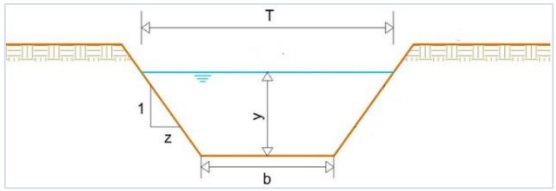
Additional calculations*: Estimate water level of the creek when increasing the flow rate.*

- *Mining Manning equation for open channel flow:* $Q = \frac{CA}{n} R^{\frac{2}{3}} S^{\frac{1}{2}}$

Where:

Q	=	*Flow rate (m^3/s, MGD or cfs)*
C	=	*Conversion unit (C = 1.0 for SI unit, C = 1.49 for English unit*
A	=	*Cross-sectional area of flow (m^2 or ft^2)*
n	=	*The Manning roughness coefficient*
R	=	*The hydraulic radius (meter or feet)* ($R = \frac{A}{P}$)
P	=	*The wetted perimeter of the cross-sectional area of flow (m or ft)*
S	=	*The bottom slope of the channel (m/m or ft/ft)*

- *Assume that the Alligator is a trapezoid channel:*



Then

Bottom Width (b) = $\frac{2\sqrt{3}}{3}y$

Top Width (T) = $\frac{4\sqrt{3}}{3}y$

$$\textit{Area (A)} = \sqrt{3}y^2$$

$$\textit{Wetted Perimeter (p)} = 2\sqrt{3}y$$

$$\textit{Hydraulic Radius (R)} = \frac{y}{s}$$

- *Comparation of the water in the creek when the flow rate of the effluent discharge is changing from 30 MGD to 40 MGD*

Q_1 = *30.0 MGD, and* y_1 *is corresponding water level in the creek.*

Q_2 = *40.0 MGD, and* y_2 *is corresponding water level in the creek.*

Apply Manning equation for open channel flow:

$$\frac{Q_2}{Q_1} = \frac{(\frac{C}{n}\, A_2\, \sqrt[3]{R_2^2}\sqrt{S}\,)}{(\frac{C}{n}\, A_1\, \sqrt[3]{R_1^2}\,\sqrt{S})}$$

$$\frac{40.0\ MGD}{30.0\ MGD} = \frac{(A_2\, \sqrt[3]{R_2^2})}{(A_1\, \sqrt[3]{R_1^2}}$$

$$\frac{4}{3} = \frac{\sqrt{3}\, y_2^2\, (\sqrt[3]{(2\sqrt{3}y_2)^2})}{\sqrt{3}\, y_1^2\, (\sqrt[3]{(2\sqrt{3}y_1)^2})}$$

$$\frac{4}{3} = \frac{y_2^2\, (\sqrt[3]{(y_2)^2})}{y_1^2\, (\sqrt[3]{(y_1)^2})}$$

$$\frac{4}{3} = \frac{\sqrt[7]{y_2^2}}{\sqrt[7]{y_1^2}}$$

$$\frac{y_2}{y_1} = 1.085$$

$$y_2 = 1.085 y_1$$

- *The above calculations indicate that the water level of the creek may increase 8.5% when the flow rate of the discharge increases from 30.0 MGD to 40.0 MGD.*

7. Additional sampling schedule for iron and radium 226+228

Draft permit page 9

Surface Water Discharges (Outfall D–001)

1. During the period beginning on the issuance date and lasting through the expiration date of this permit, the permittee is authorized to discharge process wastewater and stormwater from Outfalls D-001 or D-002. Such discharge shall be limited and monitored by the permittee as specified below and reported in accordance with Permit Condition I.C.3.:

			Effluent Limitations		Monitoring Requirements			
Parameter	**Units**	**Max/Min**	**Limit**	**Statistical Basis**	**Frequency of Analysis**	**Sample Type**	**Monitoring Site**	**Notes**
Flow, From Outfall D-001	MGD	Max	40.0	Daily Maximum	Continuous	Recording Flow Meter with Totalizer	FLW–1	See I. A. 3
		Max	Report	Monthly Average				
		Max	Report	Annual Average				
Flow, From Outfall D-002	Mgal	Max	Report	Monthly Total	Continuous	Recording Flow Meter with Totalizer	FLW–2	
pH	s.u.	Min	6.0	Daily Minimum	Continuous	Meter	EFF–1	See I. A. 4
		Max	8.5	Daily Maximum				
Solids, Total Suspended	mg/L	Max	20.0	Monthly Average	Weekly	24-hr FPC	EFF–1	
		Max	30.0	Daily Maximum				
Iron, Total Recoverable	mg/L	Max	1.0	Daily Maximum	Weekly	24-hr FPC	EFF–1	
Radium 226 + Radium 228, Total	pCi/L	Max	5.0	Daily Maximum	Annually	24-hr FPC	EFF–1	
Zinc, Total Recoverable	mg/L	Max	See I.A.5	Daily Maximum	Annually	Grab	EFF–1	See I.A.5
Nickel, Total Recoverable	mg/L	Max	See I.A.5	Daily Maximum	Annually	Grab	EFF–1	See I.A.5
Hardness	mg/L	Max	Report	Daily Maximum	Annually	Grab	EFF–1	See I.A.5
Chronic Whole Effluent Toxicity, 7-day IC25	percent	Min	100	Single Sample	Semi-annual	Grab	EFF–1	See I.A.7

The Administrative Order associated with the expired IWW Permit had the provision "When the previous 24-hour flow proportional composite sample for which results have been obtained is above 0.8 mg/L, 24-hour flow proportional composite sampling will be undertaken every third day until results indicate the level is below 0.8 mg/L." That provision should be added to the language of the Draft Permit.

Based on the exceedance of the radium 226+228 limit noted on page 4 of this Comments document the radium 226+228 Frequency of Analysis should be increased from Annually to Weekly if Trail Ridge South industrial wastewater is pumped to the Florida Mine-Trail Ridge treatment system.

DEP Response: There is no rule basis to include the above condition in the draft permit.

The effluent/water discharging through the Outfall D-001 into Alligator Creek or through the Outfall D-002 into the Southwest Quadrant Pond is required to meet the water quality criterion of 1.0 mg/L for iron (total recoverable) or obtain the Department approved regulatory relief (i.e., mixing zone, variance, etc.,).

DMR data show that the effluent has complied with the water quality standard for radium 226 and radium 228 as shown below:

Date	Results	Limit	Unit	Statistical Basis
12/31/2022	2.9	5	pCi/L	DD - Daily Maximum
12/31/2021	2.7	5	pCi/L	DD - Daily Maximum
12/31/2020	2.8	5	pCi/L	DD - Daily Maximum
12/31/2019	3	5	pCi/L	DD - Daily Maximum
12/31/2018	2.7	5	pCi/L	DD - Daily Maximum
12/31/2017	1.7	5	pCi/L	DD - Daily Maximum
12/31/2016	2	5	pCi/L	DD - Daily Maximum

Please see previous response referring to increased frequency of analysis.
Mr. Paul Still's follow-up comment: *What is the basis for this claim, "*There is no rule basis to include the above condition in the draft permit."?
The 1mg/l iron limit was exceeded in June and July 2023.
As noted above if the correct average flow is used Radium limits would also be exceeded.

DEP Response: *If the proposed permit is issued, sample frequency for the total Radium 226+228 will be increased from an annually to quarterly basis.*

Please find attached excel spreadsheets which include water quality of Alligator Creek, Lake Rowell and Lake Sampson. Additional information on the water qualities of these waterbodies could be provided upon request.

- **8. Delete or edit *B. Surface Water Discharges (Outfall D–002) (Temporary)***

Draft Permit page 12

> *B. Surface Water Discharges (Outfall D–002) (Temporary)*
>
> *1. During the period beginning on the issuance date and lasting through the expiration date of this permit, the permittee is authorized temporary to receive water from Trail Ridge South for auxiliary treatment at Trail Ridge. The final treated effluent is discharged from the Outfall D-002 to Blue Pond (WBID 2509N). Such discharge shall be limited and monitored by the permittee as specified below and reported in accordance with Permit Condition I.C.3.:*

There would appear to be no method to isolate the 3 MGD of wastewater from the Trail Ridge South Mine from other water in the Florida Mine-Trail Ridge treatment system.

Water from the Trail Ridge South Mine should be monitored either at the point it is withdrawn or the point it enters the Florida Mine-Trail Ridge IWW. *B. Surface WaterDischarges (Outfall D–002) (Temporary)* could be written to make it apply to the water from the Trail Ridge South Mine.

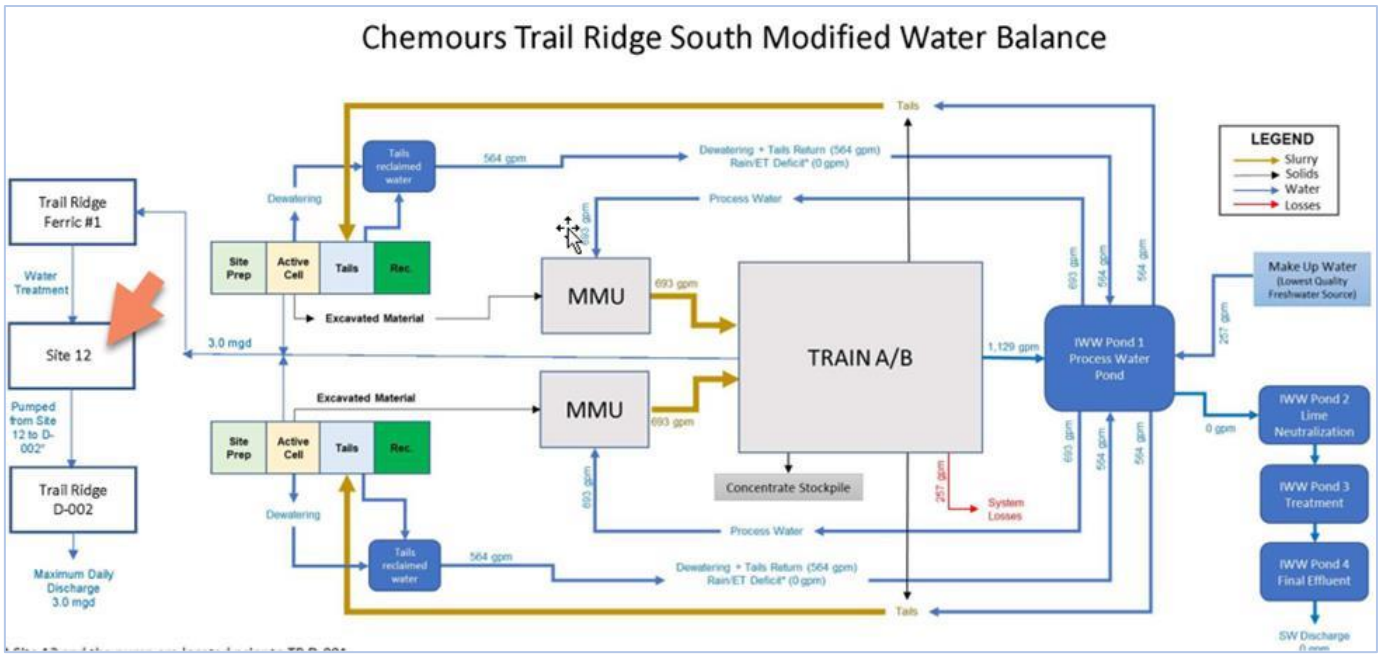
If B.1. is deleted all of B. would also be deleted.

DEP Response: Trail Ridge South has an approved outfall at D-001 to Double Run tributary**.** This is the preferred discharge outfall, as transfer to Trail Ridge requires active pumping.

In the event of an emergency, as defined above, the wastewater from Chemours Trail Ridge South can be sent to Trail Ridge Ferric No. 1 treatment system. The water can be combined with other water being treated from the reclamation area and/or mill area. Water from Ferric No. 1 travels through the various ponds prior to entering the lime treatment area where it is mixed with water from Trail Ridge Ferric No. 2. Water is treated with lime and then flows through the lime neutralization ponds. At the end of the lime neutralization pond are pumps that pump the treated water to the mill for reuse or for discharge to D-002. Please see Appendix B and Appendix C.

Mr. Paul Still's follow-up comment: The DEP response is misleading in that it implies the Trailridge South water can be keep separate from other water in the treatment system and that the only discharge point is the D-002 Trialridge location.

***DEP Response:** Water is pumped from the Trail Ridge South process pond to the Trail Ridge Ferric #1 treatment system. Water is/can be combined with other water being treated from the reclamation area and/or mill area. Water from Ferric #1 travels through the various ponds prior to entering the lime treatment area where it is mixed with water from TR Ferric #2 (water from reclamation area and mill area). Water is treated with lime and flows through the lime neutralization ponds. At the end of the lime neutralization pond are pumps that pump the treated water to the mill for reuse or for discharge to D002. Remaining water, which is not pumped, flows to the discharge pond.*



9. Need to clarify sludge management requirement

II. SLUDGE MANAGEMENT REQUIREMENTS

1. The method of disposal for humate sludge generated by the treatment of industrial wastewater by this facility is land application after drying, compacting, and covering with soil as part of the land reclamation process. [62-620.320(6)]

2. Humate sludge or other sludge not suitable for land application shall be disposed of in a solid waste management facility permitted by the Department in accordance with the requirements of Chapter 62-701, F.A.C.

Leaving humate sludges in the settling ponds as DuPont did and Chemours may be continuing to do does not appear to be an option in the permit. Leaving the iron humate sludge in place has likely contributed to the high iron content of the groundwater around the settling ponds.

The inactive ponds fill with water and the iron sludges become rehydrated and can release iron. There are images from the 2018 DEP inspections that show the humate smoldering after a fire and areas where the humate was burned leaving iron oxide on the surface.

Another major concern is the potential for sludge flows should any of the exterior dams of the settling ponds fail during or after a major rain event.

The iron humate sludges need to be removed from the settling ponds to restore their holding capacity and prevent further leaching of iron to ground and surface water. Specific sludge management requirements should be added to the Draft Permit.

Chemours has failed to meet the requirements of 62-620.320(6) for sludge management in its inactive settling ponds.

DEP Response: There are management procedures in place for the handling of humate sludge collected from the treatment ponds.

Please note that sludge production has significantly decreased since the active dredging ceased at Trail Ridge in 2007. The method of disposal for humate sludge generated from the treatment of industrial wastewater is to dry the first 2 – 3 feet and then cap in place by mixing with old tailings. Humate sludge or other sludge not suitable for land application is to be tested and disposed in a solids waste landfill permitted by DEP in accordance with the requirements of Chapter 62-701, FAC.

Please find a copy of their Best Management Practices Plan (BMP), which includes the Humate Sludge Management.

Mr. Paul Still's follow-up comment: *How has DEP verified that DuPount (Chemours) has and is using Best Management Practices for its humate sludges?*

DEP Response: *In accordance with Section 304(e) and 402(a)(2) of the Clean Water Act (CWA) as amended, 33 U.S.C. §§ 1251 et seq., and the Pollution Prevention Act of 1990, 42 U.S.C. §§ 13101 13109, the permittee must develop and implement a plan for utilizing practices incorporating pollution prevention*

measures. References to be considered in developing the plan are, "Criteria and Standards for Best Management Practices Authorized Under Section 304(e) of the Act," found at 40 CFR 122.44 Subpart K. Please see Permit Condition VII. for criteria requirements of a best management practices/stormwater pollution prevention plans.

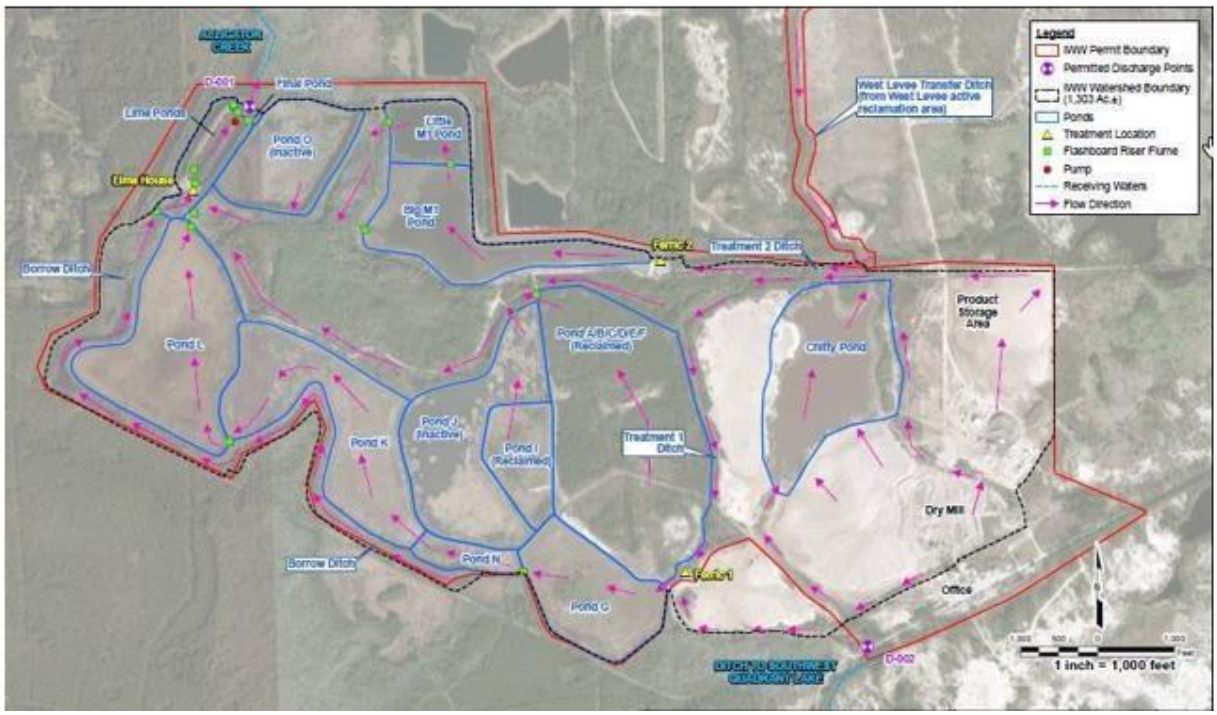
*Mr. Paul Still's follow-up comment: What data is DEP using to support the claim that "*sludge production has significantly decreased since the active dredging ceased at Trail Ridge in 2007.*"?*

DEP Response: *Sludge production information is available in the facility records.*

10. Offsite discharges from Borrow Ditch

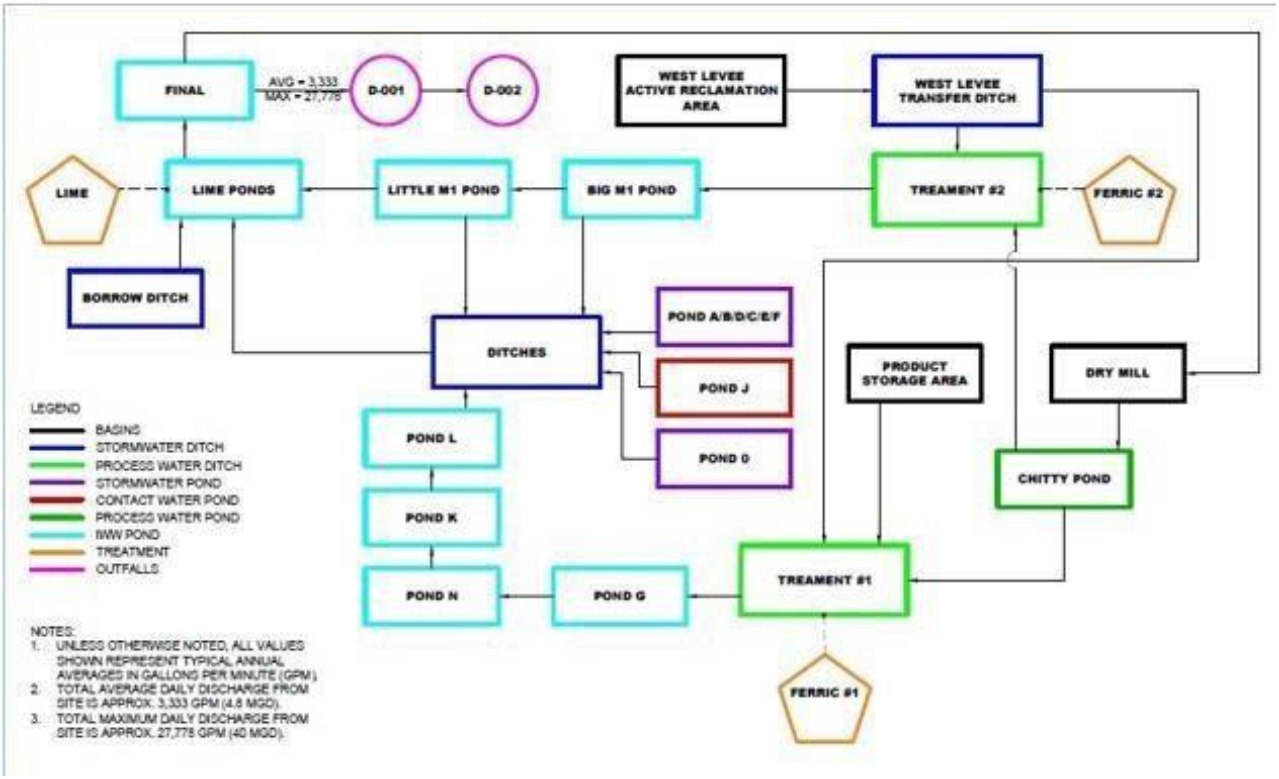
Fact Sheet page 4 of 28

Figure 2: Water Balance Map:



The IWW Permit Boundary in red should be expanded to the Chemours Bradford County property lines on the west and south of the ponds. The current location of the pump (red dot) needs to be verified.

Figure 3: Process Flow Diagram



The Process Flow Diagram does not show offsite flows from the Borrow Ditch (dark blue box upper left) to the south west under and over the railroad tracks and onto adjacent property owned by the NFLT. The flow of water with high iron content from the eastern part of the Borrow Ditch appears to be impacting wetlands on the NFLT property to the south of the Chemours and railroad properties. After water flows from the central portion of the Borrow Pit it flows over and under the railroad onto the NFLT property. It then flows west and then north to pass under the railroad and enter a drainage system that flows to Alligator Creek between Bradford Court and Country Club Estates. At times the water flowing offsite has had levels of iron that exceeded the 1 mg/L limit for iron levels. Samples of water from the drainage feature that carries water to Alligator Creek also have had iron levels above the 1 mg/L limit.

The discharges from the Borrow Ditch were included as part of Consent Order OGC 18- 1240 filed by DEP on 2/7/2019 and referenced on pages 18 & 19 of this Comments document.

Chemours provided a letter 11/1/2019 from Jerry Owen to satisfy the requirement that:

> "f) Within ninety (90) of the effective date of this Order, Respondent shall have a qualified third-party professional engineer provide the following:
>
> 1) an evaluation of the borrow pit treatment system at the toe of the Trailridge treatment ponds for places along the railroad tracks where

water has the potential to flow out of the permit boundary and/or bypass the NPDES outfall;" The Owen letter stated:

> "As ordered under item 6(f)1 of the referenced consent order, on November 6, 2018, I oversaw the evaluation of the borrow pits at the toe of the Trail Ridge treatment ponds for places along the railroad tracks where water has the potential to flow out of the permit boundary and/or bypass the National Pollutant Discharge Elimination System (NPDES) outfall."

It should be noted that the Owen site visit was on November 6, 2018, and was 3 months before the Consent Order was signed on 2/7/2019.

The Owen letter further states:

> "Staff from The Chemours Company FC, LLC, Kleinfelder, Inc., and Water and Air Research, Inc. aided in the evaluation. Site reconnaissance identified nine (9) culverts at eight (8) locations along the railroad track. Four (4) of the culverted locations had visible flow and passed under the railroad tracks and discharge off-site during times of high water (Railroad 6, 5, 2/3 and 1). Locations Railroad 7 and 8 are within the ditch that runs parallel to the railroad track at internal road crossings. Location Railroad 4 is also located in the ditch on the north side of the railroad track and water was observed flowing northwest. Location Railroad 9 (farthest west) had visible flow into the borrow pits from offsite."

The Owen letter lacks critical details including:

1. images of the culverts,
2. the size of the culverts,
3. the condition of the culverts (i.e. plugged, free flowing, partially blocked),
4. the GPS location of the culverts,
5. surface elevation data to show locations where flow would go from the Borrow Ditch area to the railroad ditch.

The Owen report failed to identify:

1. several culverts to the west of Culvert 9 that are critical in evaluating the offsite impacts of the discharges from the Borrow Ditch,
2. the area where water flows out of the Borrow Ditch into the railroad ditch west of Culvert 9,
3. the location where water flows over the railroad,
4. the location where a culvert carries water under the railroad and onto NFLT property.

The Owen letter does not seem to meet the requirement in the Consent Order which states:

> "1) an evaluation of the borrow pit treatment system at the toe of the Trailridge treatment ponds for places along the railroad tracks where water

has the potential to flow out of the permit boundary and/or bypass the NPDES outfall;"

The Owen does clearly document that water flows offsite from the Borrow Ditch onto railroad property.

If Trail Ridge South industrial wastewater is transferred to the Florida Mine -Trail Ridge facility, unmonitored discharges from the Borrow Ditch of Radium 226+228 would be an added concern.

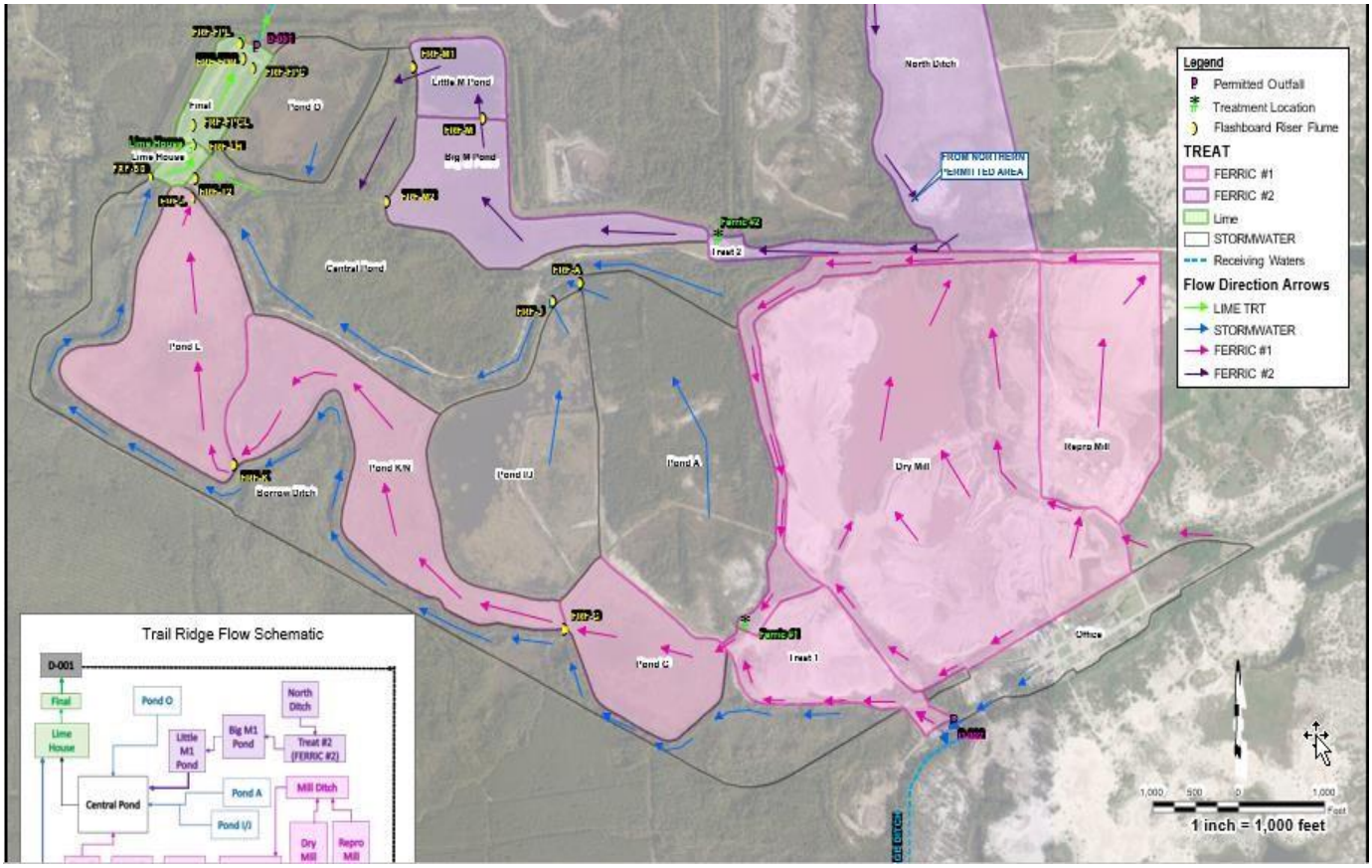
Actions to address the discharges from the Borrow Pit system need to be made a part of the Draft Permit.

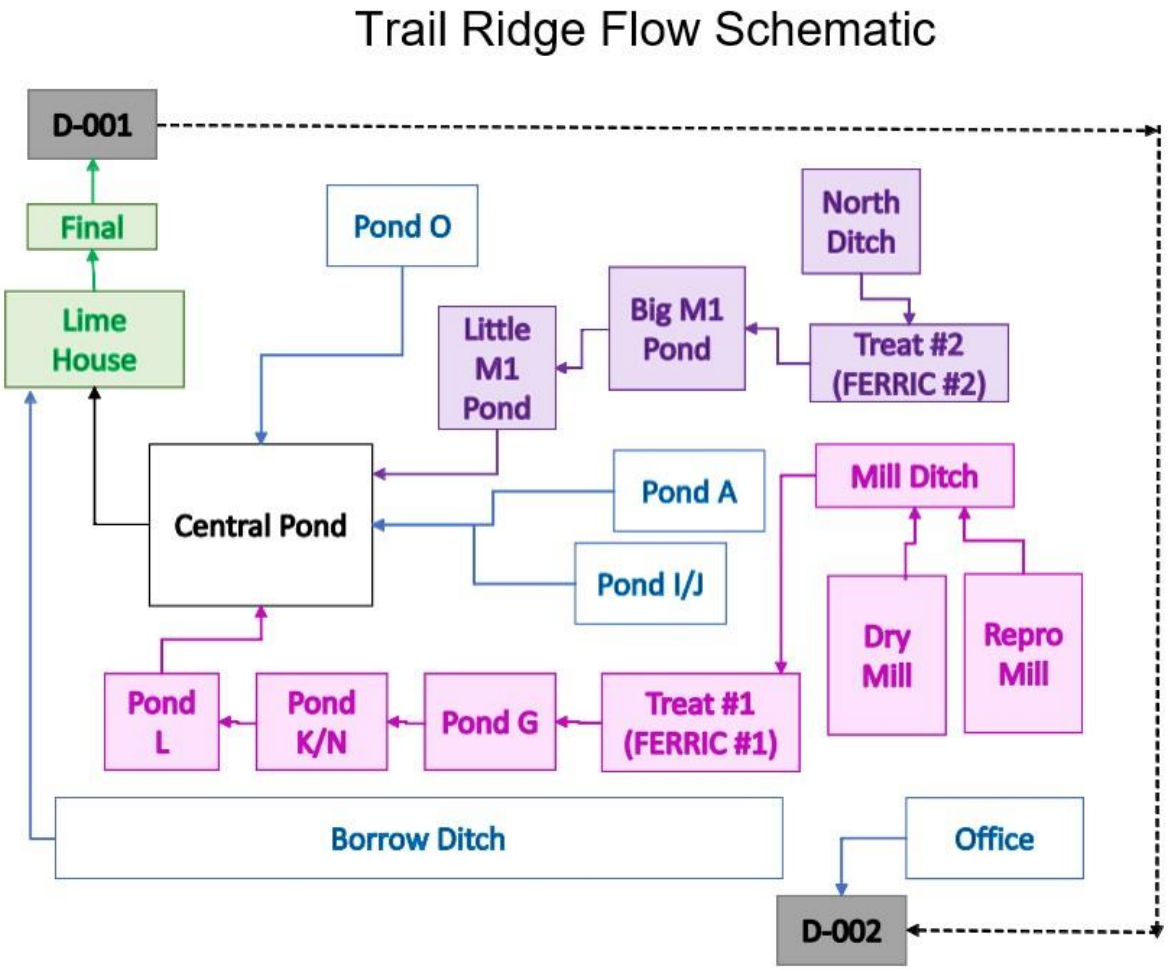
Chemours has failed to provide reasonable assurance that it is not discharging industrial wastewater offsite from the Borrow Ditch to the railroad and NFLT properties that then flows through neighborhoods to Alligator Creek upstream of Bradford Court.

DEP Response:

Responding to Consent Oder (OGC File No. 18-1240, dated January 2, 2020), Chemours/Kleinfelder conducted a Plan of Study of Active Wastewater Treatment Pond Seepage Evaluation Trail Ridge and a Pond Seepage Evaluation was submitted. Based on the results of Kleinfelder's treatment pond seepage evaluation conducted between August 2020 and July 2021, dye introduced into the toe/borrow ditch manifested only temporarily with the toe/borrow ditch and did not migrate to downgradient groundwater or surface waters; no Rhodamine Water Tracer (RWT) dye tracing was detected in the adjacent offsite flow way ditch or in groundwater of the exterior berm walls downgradient from the insertion point.

Please find updated the Water Balance and Process Flow Diagram, which will include in the Fact Sheet:


Legend
Permitted Outfall
Treatment Location
Flashboard Riser Plume
TREAT
FERRIC #1
FERRIC #2
Lime
STORMWATER
Receiving Waters
Flow Direction Arrows
LIME TRT
STORMWATER
FERRIC #1
FERRIC #2
North Ditch
Little M Pond
Big M Pond
Pond D
Central Pond
Pond L
Pond K/N
Pond I/J
Pond A
Dry Mill
Repro Mill
Office
Pond C
Borrow Ditch
Treat 1
Treat 2
1 inch = 1,000 feet
Trail Ridge Flow Schematic
D-001
Final
Lime House
Pond O
Little M1 Pond
Big M1 Pond
North Ditch
Treat #2 (FERRIC #2)
Central Pond
Pond A
Mill Ditch
Pond I/J
Dry Mill
Repro Mill



In the above the black dotted line from D-001 to D-002 should start after "Final" not D-001.

Response: *While the Department agrees with the above statement, the schematic shown above does not depict a significant change in water quality. Schematics in Appendix B depict the flow of the effluent.*

Mr. Paul Still's follow-up comment: *The above fails to show the overflow pipe that allows flow from Pond L to flow into the Barrow Ditch. Has Chemours permanently blocked any water from flowing through the overflow pipe?*

DEP Response: *There is no flow from Pond L to the Borrow Ditch.*

Mr. Paul Still's follow-up comment: *The above fails to show the flow out of the Borrow Ditch over and under the rail line. That flow is not monitored for quality or volume and enters Alligator Creek downstream of NE 17th Ave and upstream of Bradford Court.*

DEP Response: *Please see the Pond Seepage Evaluation for additional information.*

11. Change the reference to Maxville Mine to Florida Mine-Trail Ridge in the Fact Sheet on page 15 and verify that the information in this section is for the Florida Mine-Trail Ridge

Fact Sheet page 15

> *i. Technology – Based Effluent Limits (TBELs)*
>
> *State of Florida imposes a requirement to provide all know available and reasonable methods of treatment.*
>
> *The effluent limits for Chemours – Maxville Mine are based on Best Conventional Pollutant Control Technology (BCT), Best Available Technology Economically Achievable (BAT), Best Practicable Control Technology Currently Available (BPT), and on New Source Performance Standards (NSPS) as developed by EPA.*
>
> *The Chemours – Maxville Mine generates wastewater from the production class identified in 40 CFR Part 440 – ORE MINERAL MINING AND PROCESSING POINT SOURCE CATEGORY, Subpart E (§§440.50-440.55) – Titanium Ore Subcategory.*

Most inspections in the table on pages 15 & 16 indicate out-of-compliance. If these inspections are for Florida Mine Trail Ridge, facility compliance should be considered in evaluating if Chemours has provided reasonable assurance it can meet the discharge standards in the Draft Permit.

Response: The typographical error has been corrected.

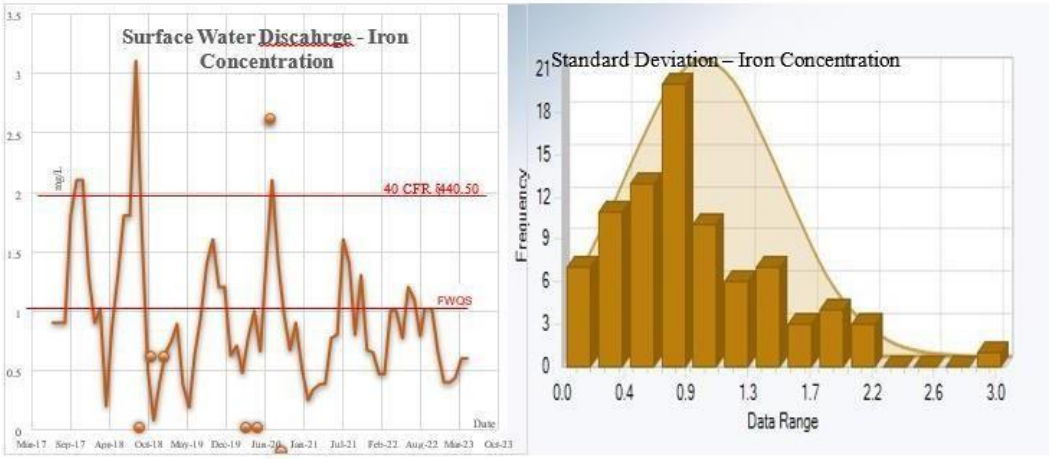
12. The DEP discussion of iron levels in discharged water fails to address all the Chemours available data on iron levels in water discharged at D-001

Fact Sheet page 16

> *(f) Iron:*
>
> *The technology-based effluent limitations (40 CFR Part 440, Subpart E (§§440.50-440.55)) recommends effluent limit of 2.0 mg/L (maximum single sample) and 1.0 mg/L (30 days average) for iron. Whereas, the Florida Water Quality Criteria, Chapter 62-302.530(38), FAC. has been required the discharge with the maximum limit of 1.0 mg/L for iron. Monitoring for iron with the limit of 1.0 mg/L (single sample), which is the most stringent, is required in the permit.*

The Permittee has monitored for concentration of iron in the effluent prior to discharge for the last five years of the permit cycle. The analytical sample results (in mg/L) for iron were summarized below:

# Ob.	Mean	Geomean	Stand Dev	CV	75th Per	80th Per	95th Per	99th Per	Max
85	0.93	0.76	0.54	0.58	1.20	1.40	1.66	2.26	3.10



data shows that 31.76 % samples/observations having iron concentration exceeded the Florida WQS of 1.0 mg/L but below 2.0 mg/L, which is a daily maximum iron concentration allowable based on EPA – TBEL (40 CFR Part 440 – Ore Mineral Mining And Processing Point Source Category, Subpart E (§§440.50-440.55)); Monitoring data shows also that 4.70 % (i.e. 4 out of 85) samples/observations have iron concentration exceeded 2.0 mg/L. Chemours shall continue to monitor for iron and require to demonstrate that the discharge would the Department regulations of iron.

(Correct spelling of Discharge in the graph on the left.)

There appears to be points on the graph Surface Water Discharge – Iron Concentrations that are not associated with the lines on the graph.

The graph shows iron concentration tends to increase after May. The May data should be added to the graph as should the June data when it becomes available.

The expired IWW permit had a Variance that raised the iron discharge level to 2 mg/L. This should be noted in the text and on the graph on the left.

The Administrative Order associated with the expired IWW Permit had the provision “When the previous 24-hour flow proportional composite sample for which results have been obtained is above 0.8 mg/L, 24-hour flow proportional composite sampling will be undertaken every third day until results indicate the level is below 0.8 mg/L.” The iron data presented in the Fact Sheet does not appear to contain the results from the extra sampling reported by Chemours in the AO 185 NE-Status Report. The data from the 2021 AO 185 NE-Status Report is copied on the next page. All the iron level data collected by Chemours should be included in the graph of Surface Water Discharge - Iron Concentration.

By using flows and all the Chemours iron level data it should be possible to calculate the amount of iron discharged via D-002 into the Southwest Quadrant Pond on or around any date. Knowing the mass of iron added to the Southwest Quadrant Pond is important in determining the potential impact of that iron on Blue Pond and other downstream lakes in Clay County.

The data indicates that replacing iron salts with alum has reduced the levels of iron in the Chemours discharges. The level of 1mg/L of iron in water sampled in May, 2023, strongly indicates that the legacy iron in the settling ponds will have to be addressed by Chemours in order to meet the 1mg/L limit during the summer months.

Addressing the legacy iron in the settling ponds should also help reduce the mass of iron moving into groundwater.

A plan for the closing of inactive settling pond could be developed that would reduce the risk of exterior dam failure.
Chemours Florida Mine-Trail Ridge 2021 AO 185 NE-Status Report

Weekly Sampling 2021 (DMR)

Date	FE (mg/L)
6-Jan	0.20
13-Jan	0.24
20-Jan	0.17
27-Jan	0.25
3-Feb	0.28
10-Feb	0.34
17-Feb	0.31
24-Feb	0.24
3-Mar	0.38
10-Mar	0.26
17-Mar	0.20 U
24-Mar	0.21
31-Mar	0.20 U
7-Apr	0.20 U
14-Apr	0.30
21-Apr	0.32
29-Apr	0.39
5-May	0.65
12-May	0.77
19-May	1.2
26-May	No Flow
2-Jun	No Flow
9-Jun	0.78
16-Jun	0.59
23-Jun	0.20 U
30-Jun	0.84
7-Jul	1.0
14-Jul	1.2
21-Jul	1.4
28-Jul	1.2
4-Aug	0.99
11-Aug	0.97
18-Aug	0.95
25-Aug	1.4
1-Sep	0.83
8-Sep	0.70
15-Sep	0.70
22-Sep	0.84
29-Sep	0.82
6-Oct	0.63
13-Oct	0.47
20-Oct	1.1

Date	FE (mg/L)
27-Oct	0.63
3-Nov	0.46
10-Nov	0.28
17-Nov	0.38
23-Nov	0.33
1-Dec	0.20 U
8-Dec	0.20 U
15-Dec	0.20 U
22-Dec	0.65
29-Dec	0.25

Supplemental Sampling 2021

Date	FE (mg/L)
21-Jul	1.40
24-Jul	1.60
27-Jul	1.40
2-Aug	1.3
3-Aug	0.90
4-Aug	0.99
6-Aug	1.1
7-Aug	1.2
8-Aug	1.1
9-Aug	1.1
10-Aug	1.0
11-Aug	0.97
12-Aug	1.5
13-Aug	1.1
14-Aug	1.0
15-Aug	0.97
16-Aug	1.0
17-Aug	0.99
18-Aug	0.95
19-Aug	0.95
20-Aug	0.92
21-Aug	1.0
22-Aug	0.88
23-Aug	0.72
24-Aug	1.4
25-Aug	1.4
26-Aug	1.5
27-Aug	1.4
28-Aug	1.2
29-Aug	0.90
30-Aug	0.78
31-Aug	0.80
4-Sep	0.58
5-Sep	0.63
6-Sep	0.65
8-Sep	0.70
4-Oct	0.62
5-Oct	0.59
6-Oct	0.63
7-Oct	0.83
8-Oct	1.2
9-Oct	0.72

Date	FE (mg/L)
12-Oct	0.73
13-Oct	0.47
14-Oct	0.86
17-Oct	0.98
18-Oct	1.1
19-Oct	1.3
20-Oct	1.1
21-Oct	0.68
22-Oct	0.59
23-Oct	0.51
24-Oct	0.50
25-Oct	0.50
26-Oct	0.48
27-Oct	0.63
28-Oct	0.54
29-Oct	0.57
30-Oct	0.63
31-Oct	0.57
1-Nov	0.67
2-Nov	0.51
3-Nov	0.46
10-Nov	0.28
17-Nov	0.38
23-Nov	0.33

When all the iron discharge data is evaluated, Chemours has failed to provide assurance that the Chemours discharges would not exceed the 1mg/L limit for iron.

DEP Response: Since the expiration of the administrative order (AO 185 NE), which accompanied the past permit, the facility has reported iron exceedances at their D-001 outfall.

Currently, Department compliance staff are working to resolve the exceedances through compliance and/or enforcement activities, which could include a consent agreement or issuance of an iron variance.

13. Effluent toxicity testing

Fact Sheet page 20 of 28

> *In order to provide reasonable assurance that the discharge will not adversely affect the designated use of the receiving water, whole effluent toxicity testing is required. In accordance with requirement of Rule 62-620.620(3)(b), FAC, the facility is required to conduct chronic definitive tests starting with 100% effluent using a minimum of five dilution concentrations.*
>
> Fact Sheet 8 of 28
>
> *Compliance Biomonitoring Inspection (CBI):*
>
> *Sample of the chronic whole effluent toxicity test were performed May 18 through May 25, 2021.*
>
> *EPA 821-R-02-013, method 1000: The 25% Inhibition Concentration (IC25) for growth in the Pimephales promelas bioassay was > 100% effluent. The No Observed Effluent Concentration (NOEC) for survival and growth was 100% effluent.*
>
> *EPA 821-R-02-013, method 1002.0: The no observed effluent concentration (NOEC) for C. dubia. Was 50% which may suggest low levels of toxicity in the effluent. There was an effect on the reproduction of the C. dubia organisms, but did not exceed the IC25 threshold.*

The toxicity monitoring results found in the Fact Sheet on pages 18 & 19 show that some of the samples were toxic to the test organisms.

No assurance was provided that the Chemours discharges would not fail toxicity tests.

DEP Response:

Per the permit requirement, when the toxicity test results do not meet the limits, additional follow-up tests are required. Please reference Condition 1.A.7 of the June 2017 permit.

The toxicity tests results showed that the effluent sample collected on March or May 2021 were below permit requirements. Chemours conducted additional follow-up tests on June 2021, July 2021; test results showed that:

- The 25% Inhibition Concentration (IC25) for growth in the Pimephales promelas bioassay was > 100% effluent. The No Observed Effluent Concentration (NOEC) for survival and growth was 100% effluent.
- The 25% Inhibition Concentration (IC25) for growth in the Ceriodaphnia dubia bioassay was > 100% effluent. The No Observed Effluent Concentration (NOEC) for survival and growth was 100% effluent.

Conclusion: Reasonable assurance has been provided.

If the permit allows Chemours to use iron salts the claim that " Conclusion: Reasonable assurance has been provided***." may not be supported.***

DEP Response: *Consent Order (OGC File No. 23-1066) would address the concerns.*

How many times have samples failed the toxicity test since 2017?

DEP Responses: Please see the Fact Sheet (Item 3.a.iv(2) for this information. Also, please note that if the proposed permit is issued, Chemours will be required to conduct effluent toxicity testing quarterly, instead of annually*.*

14. DEP has failed to address Chemours past violations

Fact Sheet page 6

2. BACKGROUND INFORMATION – FILE REVIEW Chemours – Maxville Mine

i. Facility History:

Mining and ore processing at the Chemours – Trail Ridge began in the early 1990s. There are active mining and reclamation activities ongoing at the site. The mine site is located on the drainage basin divide between the St. Johns River Basin and Santa Fe Basin. The site is located in Clay and Bradford counties. Several management and storage of surface waters permits were issued for portions of the mine site over the years; these permits were consolidated and incorporated into later permit authorizations.

ii. Facility Compliance History: The facility historical record of the last five years of the permit cycle is listed in the Table below:

The information provided appears to be for the Chemours -Maxville Mine not the Florida Mine-Trail Ridge.

The compliance history for the Florida Mine-Trail Ridge is a significant concern.

The expired permit had a variance and an Administrative Order. The Chemours response to the requirements of the Administrative Order should be addressed in the Fact Sheet.

Fact Sheet page 23 of 28

10. ADMINISTRATIVE ORDERS (AO) AND CONSENT ORDERS (CO)

This permit is not accompanied by an AO and has a consent order, 03-0390 with the Department. The CO amendment was prepared and replaced by order 16-1402 was reviewed by OGC and executed. Interim monitoring DMRs will be effective beginning April 2017.

The Fact Sheet fails to address the 2019 Chemours Consent Order OGC 18-1240 filed by DEP on 2/7/2019 that states on page 3

> "4. Based on information in the Department's files and Department and EPA inspections conducted at the Facilities during 2017 and 2018 (the "Inspections"), the Department issued a Warning Letter to Respondent on March 23, 2018. The Warning Letter set out a listing of possible violations of Florida Statutes and Florida Administrative Code provisions and requested that Respondent address each matter raised. Respondent met with the Department on May 24, 2018 and, on May 31, 2018, provided a written response to the Warning Letter. Subsequent to that time, the Department and Respondent have been in discussions over actions that could be taken by Respondent to address the matters raised in the Warning Letter and the Department has again visited different locations at the Facilities pertinent to the matters under discussion. In light of the Inspections, subsequent visits, and matters in the Department's files, and taking into consideration information provided by the Respondent in its response to the Warning Letter, the Department finds the following violations of Department rules have occurred, as more specifically set forth in paragraphs a) and b) below: Rules 62-4.160(6) and 62-620.610(7), failure to properly operate and maintain the facility; 62-330.020(2)(a), impacting wetlands without a permit;" Page 9 of the Consent Order states:
>
> f) Within ninety (90) of the effective date of this Order, Respondent shall have a qualified third-party professional engineer provide the following:
>
> > 1) an evaluation of the borrow pit treatment system at the toe of the Trailridge treatment ponds for places along the railroad tracks where water has the potential to flow out of the permit boundary and/or bypass the NPDES outfall;

As noted on page 15 of this Comments document Chemours may not have met the requirement in f)1). Draft Permit page 24 of 28

DEP Response: The iron exceedances will be addressed as noted in our previous response. Consent Order 18-1240 was closed Aug. 7, 2023.

Based on your comments, the fact sheet will be updated to exclude reference of the Consent 16-1402.

15. Correct Public Comments dates

13. PROPOSED SCHEDULE FOR PERMIT ISSUANCE

Draft Permit and Public Notice to Applicant and EPA	*June 27, 2023*
Public Comment Period	*Beginning: June 27, 2023* *Ending: July 27, 2023*

The dates for Public Comment should be corrected to account for the newspaper publication on July 6, 2023.

DEP Response: The proposed schedule will be revised when the final permit is issued.

(d) A statement of which rules or statutes require reversal or modification of the Department's action or proposed action.

Items 1., 12., and 16. Are offered to improve clarity of the Draft Permit.

16. Change the reference to Maxville Mine to Florida Mine-Trail Ridge in the Fact Sheet on page 15 and verify that the information in this section is for the Florida Mine-Trail Ridge.

DEP Response: Typographical error in the fact sheet has been corrected.

17. Correct Public Comments dates

The remaining items address the applicant's failure to meet the requirements of 62- 620.320 Standards for Issuing or Denying Permits.

62-620.320 Standards for Issuing or Denying Permits.

(1) A permit shall be issued only if the applicant affirmatively provides the Department with reasonable assurance, based on a preliminary design report, plans, test results, installation of pollution control equipment, or other information, that the construction, modification, or operation of the wastewater facility or activity will not discharge or cause pollution in contravention of chapter 403, F.S., and applicable Department rules.

DEP Response: The above statement is true. Please see Response to your comment #15 for clarification.

(e) A request that a public meeting be scheduled, including a statement of the nature of the issues proposed to be raised at the meeting

This is a request for a public meeting to allow for a discussion of the items included in this document. The public meeting should also allow other members of the community to make comments.

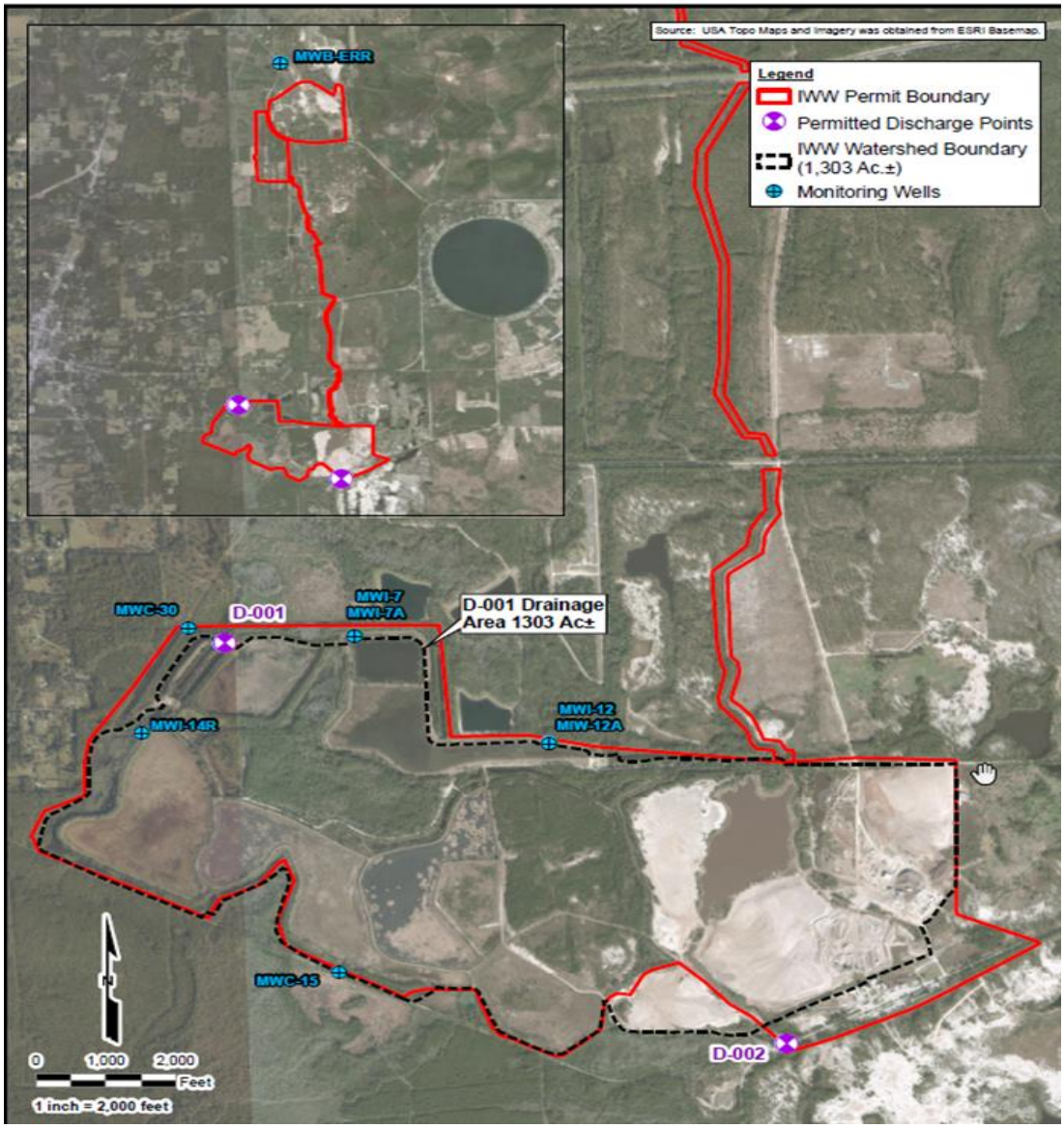
Response: A meeting will be scheduled.

All comments have been addressed above.

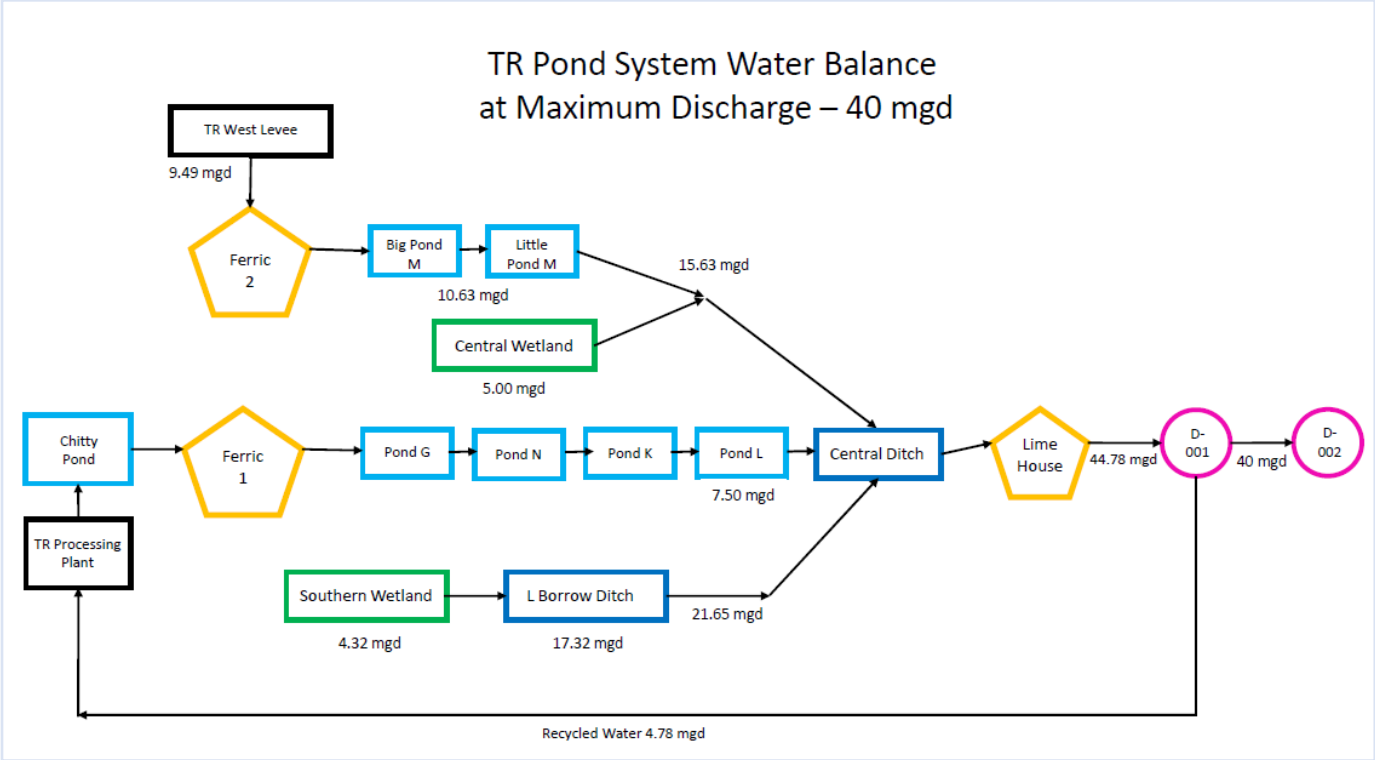
1. Use of ferric chloride, ferric sulfate, and barium chloride
2. Location of the intake pump for D-002 discharges and the impacts on water quality associated with flow from D-002 through areas mined in the early 1950s that have not been reclaimed require a new sampling location for D-002 discharges.
3. Receiving industrial wastewater from the Trail Ridge South Mine
4. Radium levels in wastewater from the Trail Ridge South Mine
5. The need to reduce permitted flows
6. Additional sampling schedule for iron and radium
7. Delete or edit *B. Surface Water Discharges (Outfall D–002) (Temporary)*
8. Need to clarify sludge management requirement
9. Offsite discharges from Borrow Ditch
10. The DEP discussion of iron levels in discharged water fails to address all the Chemours available data on iron levels in water discharged at D-001.
11. Effluent toxicity testing
12. DEP has failed to address Chemours past violations

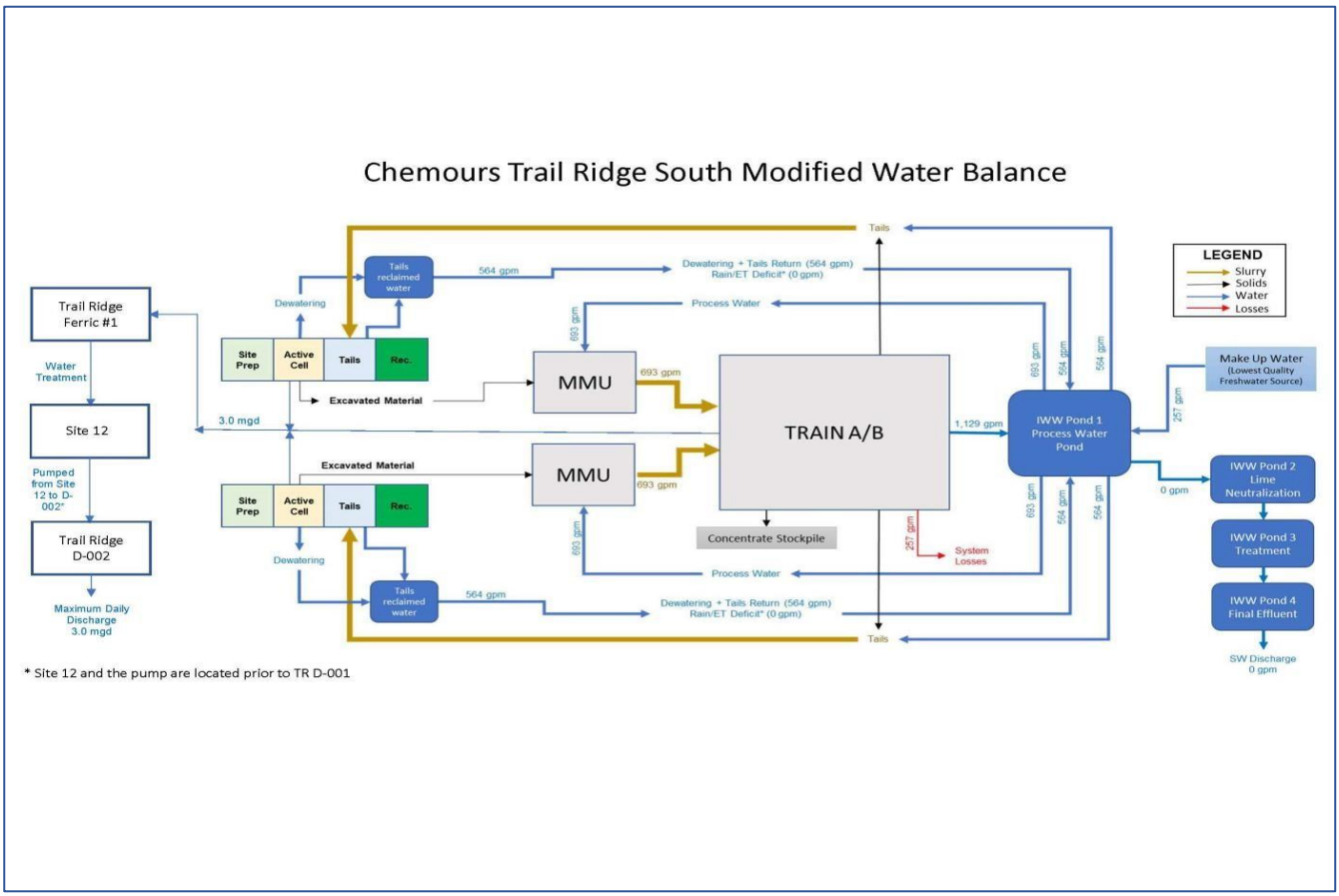
Paul Still /s/ 7/25/2023

Appendix A:


Source: USA Topo Maps and Imagery was obtained from ESRI Basemap
Legend
IWW Permit Boundary
Permitted Discharge Points
IWW Watershed Boundary (1,303 Ac.±)
Monitoring Wells
MWB-ERR
MWC-30
D-001
MWI-7
MWI-7A
D-001 Drainage Area 1303 Ac±
MWI-14R
MWI-12
MW-12A
MWC-15
D-002
0
1,000
2,000
Feet
1 inch = 2,000 feet

Appendix B:


TR Pond System Water Balance
at Maximum Discharge – 40 mgd
TR West Levee
9.49 mgd
Ferric 2
Big Pond M
Little Pond M
10.63 mgd
15.63 mgd
Central Wetland
5.00 mgd
Chitty Pond
Ferric 1
Pond G
Pond N
Pond K
Pond L
7.50 mgd
Central Ditch
Lime House
44.78 mgd
D-001
40 mgd
D-002
TR Processing Plant
Southern Wetland
4.32 mgd
L Borrow Ditch
17.32 mgd
21.65 mgd
Recycled Water 4.78 mgd


Chemours Trail Ridge South Modified Water Balance
Trail Ridge Ferric #1
Water Treatment
Site 12
Pumped from Site 12 to D-002*
Trail Ridge D-002
Maximum Daily Discharge 3.0 mgd
3.0 mgd
Dewatering
Tails reclaimed water
564 gpm
Dewatering + Tails Return (564 gpm)
Rain/ET Deficit* (0 gpm)
Process Water
693 gpm
Site Prep
Active Cell
Tails
Rec.
Excavated Material
MMU
TRAIN A/B
Concentrate Stockpile
System Losses
257 gpm
1,129 gpm
IWW Pond 1 Process Water Pond
Make Up Water (Lowest Quality Freshwater Source)
IWW Pond 2 Lime Neutralization
0 gpm
IWW Pond 3 Treatment
IWW Pond 4 Final Effluent
SW Discharge 0 gpm
LEGEND
Slurry
Solids
Water
Losses
* Site 12 and the pump are located prior to TR D-001