September 3, 2024

Commissioner Walter Raybon
Commissioner's Office
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Commander Sturgeon
U.S. Army Corps of Engineers (Corps)
Savannah District, Coastal Branch
Attention: Mrs. Sarah Wise, Lead Biologist
100 West Oglethorpe Avenue, Savannah, Georgia 31401
Permit Number: SAS-2015-00235
sarah.e.wise@usace.army.mil

Re: NEW INFORMATION - Supplement to Second Comment Letter on the Proposed Bryan and Bulloch Counties' Groundwater Withdrawal Permits for the HYUNDAI MEGA-SITE, Which Fails to Consider Any Adverse Environmental Impacts, Including Additional Dewatering of the Ogeechee and Savannah Rivers, Georgia's Coastal Marshes, the Okefenokee Swamp/Okefenokee National Wildlife Refuge (ONWR), and the Destruction of Critical Habitat for the Federally Endangered Sturgeon and Red-cockaded Woodpecker, and other Endangered and Threatened Species Associated with Those Ecosystems

Dear Commissioner Raybon and Commander Sturgeon:

On 8/19/24, I submitted my second comment letter, including Attachments A through O, regarding the two, 6-page "DRAFT PERMITS" to allow Bryan and Bulloch Counties to drill 2 new wells each in Bulloch County to supply **6.6 MILLION GALLONS PER DAY (MGD)** of groundwater for the proposed **HYUNDAI MEGA-SITE** in Bryan County. On 8/23/24, **3 days after GDNR/EPD's deadline for the second comments on those 2 proposed "DRAFT PERMITS," Commander Sturgeon, Corps Savannah District, released NEW INFORMATION regarding those 2 proposed "DRAFT PERMITS" and the proposed HYUNDAI MEGA-SITE. This NEW INFORMATION has triggered this Supplement to my Second Comment Letter on the Proposed Bryan and Bulloch Counties' Groundwater Withdrawal Permits for the HYUNDAI MEGA-SITE.**

Copies to Senator Jon Ossoff, Shannon Estenoz (USDOI Assistant Secretary for Fish and Wildlife and Parks)**, David Bernhart** (Assistant Regional Administrator NOAA National Marine Fisheries Service), **Mark Risse** (Director of UGA Marine Extension and Georgia Sea Grant), and **Ramona McGee** and **Elizabeth Rasheed** (Attorneys for SELC)

I am including a copy of this supplement to my second comment letter to the people referenced above so they will be advised of the **NEW INFORMATION** regarding the proposed additional dewatering of the **Okefenokee Swamp/Okefenokee National Wildlife Refuge**, **Savannah National Wildlife Refuge, Pinckney National Wildlife Refuge, Fort Stewart**, and rivers and coastal marshes in that range that will occur if GDNR/EPD issues the 2 proposed permits for groundwater withdrawals of **6.6. MPG**. That additional dewatering would result in additional loss of critical habitat of the federally listed **shortnose sturgeon** and South Atlantic Distinct Population Segment (DPS) of **Atlantic sturgeon**, and increase threats to habitat of the **endangered red-cockaded woodpecker**, jeopardizing the management and conservation of the clusters of he **endangered red-cockaded woodpecker** at those locations.

My Background and Expertise

I am a Hydroecologist with a multidisciplinary doctoral degree from the University of Georgia (UGA) in Hydrology, Ecology, and Forest Pathology. My graduate level courses in Hydrology focused on groundwater flow in karst aquifers worldwide, but particularly throughout the regional, karst Floridan aquifer system. My Master of Sciences degree is from Florida State University (FSU), with research on fresh, brackish, and saline coastal riverine ecosystems. I have approximately 50 years of professional experience and research in the adverse environmental impacts of anthropogenic groundwater alterations throughout the regional, karst Floridan aquifer system, including from groundwater withdrawals and mining.

My experience and research occurred throughout the extent of the regional Floridan aquifer system, including throughout the **Okefenokee Swamp/ONWR**, submarine groundwater discharge from the regional, karst Floridan aquifer system and regional karst aquifer in other countries, and for regulatory agencies in the State of Florida and Region IV of

US Environmental Protection Agency (USEPA). The Floridan aquifer system underlies the entire Southeastern Coastal Plain Ecoregion. That ecoregion includes, but is not limited to, the entire coastal plain of Georgia and the entire State of Florida. I also have authored and co-authored more than 50 peer-reviewed publications related to adverse environmental impacts of anthropogenic groundwater alterations, including from groundwater withdrawals and mining, throughout the extent of the Floridan aquifer system. This second comment letter and referenced attachments are provided as part of my formal comments on the two alleged "DRAFT PERMITS" referenced above and below, for **6.6. MPG** of groundwater withdrawals, from 4 proposed new wells to be constructed in the Floridan aquifer, for the proposed **HYUNDAI MEGA-SITE**.

1. The 8/23/24 NEW INFORMATION Letter by the Corps Notifying Applicants of the Reevaluation of the Corps' Permit for the HYUNDAI MEGA-SITE Due to the Failure of the JDA/GDED Applicants to State in the Corps Permit Application that Permits Would be Required from GDNR/EPD for 4 New Groundwater Wells

The 8/23/24 letter from Commander Sturgeon, Corps Savannah District, was a formal **notice of the Reevaluation (Reevaluation Notice)** for the **HYNDAI MEGA-SITE Permit** and is included and incorporated herein as **Attachment A-S**. That **Reevaluation Notice** was sent to applicants Hugh "Trip" Tollison, Savannah Harbor-Interstate 16 Corridor Joint Development Authority (JDA), and Pat Wilson, Commissioner, Georgia Department of Economic Development (GDED). The second paragraph of that 3-page **Reevaluation Notice** confirms that despite the fact that the JDA and GDED applicants were aware that permits would be required from GDNR/EPD for **6.6 MGD** of groundwater for the proposed **HYUNDAI MEGA-SITE** in Bryan County, that information was not included in that permit application to the Corps Savannah District. Following is a copy of that second paragraph from the **Corps' Reevaluation Notice** (emphasis added):

> "During our evaluation, and in accordance with 404(b)(1) regulations found at 40 Code of Federal Regulations (CFR) 230.50, **we determined** that the project would result in negligible impacts on municipal and private water supplies, and **that no water withdrawal permits would be required from the Georgia Department of Natural Resources, Environmental Protection Division (Georgia EPD). This determination was made in reliance on the information you provided during our review of your application.** However, **in July 2024, the Georgia EPD Watershed Protection Branch released four draft groundwater withdrawal permits for Bryan County and Bulloch County (Georgia EPD permit Nos. 016-0013 and 016-0014) associated with this project**. According to Georgia EPD, **Bulloch County has submitted an application for two Floridan aquifer wells sited in Bulloch County,** asking for up to 3.125 million gallons per day (mgd) on an annual average and **Bryan County has also submitted an application for two Floridan aquifer wells sited in Bulloch County,** asking for up to 3.500 mgd on an annual average. **Further, Georgia EPD anticipates a drawdown of the aquifer in response to the above water withdrawals.**"

2. The 8/23/24 NEW INFORMATION Letter by the Corps Notifying Applicants of the Reevaluation of the Corps' Permit for the HYUNDAI MEGA-SITE Referenced Federal Regulations Allowing Reevaluation of Corps Permits

The Corps' 3-page **Reevaluation Notice** of the federal permit (SAS-2015-00235) for the proposed **HYUNDAI MEGA-SITE** also provided an example of federal regulations that allow the Corps to reevaluate the validity of permits issued by the Corps. That example of federal regulations was included as the following, third paragraph, of that **Reevaluation Notice** (emphasis added):

> "Our regulations stipulate that this office may reevaluate a permit decision at any time the circumstances warrant (33 CFR 325.7(a)). **Circumstances that could require reevaluation include, but are not limited to**, (1) failure to comply with the terms and conditions of a permit; **(2) information submitted in support of a permit application proves to have been false, incomplete, or inaccurate and/or (3) significant new information surfaces which this office did not consider in reaching the original public interest decision** (33 CFR Part 325, Appendix A)."

3. The 8/23/24 NEW INFORMATION Letter by the Corps Notifying Applicants of the Reevaluation of the Corps' Permit for the HYUNDAI MEGA-SITE Referenced Not Only Adverse Impacts of Those Proposed New Groundwater Withdrawals on Municipal and Private Water Supplies, but Also on Any Drainage of Aquatic Resources and All Related Models and Data

The Corps' 3-page **Reevaluation Notice** of the federal permit (SAS-2015-00235) for the proposed **HYUNDAI MEGA-SITE** also **referenced not only adverse impacts of those proposed new groundwater withdrawals on municipal and private water supplie**s, but **also on any drainage of aquatic resources**. Those references were included

in the final paragraph of that **Reevaluation Notice**, with the **requirement that the assessment of all of those adverse impacts include the related models and data regarding adverse impacts** from the proposed 4 new wells and groundwater withdrawals. Following is a copy of that final paragraph (emphasis added):

> "Based on the release of the Georgia EPD draft permits, the Corps has determined that **new information has surfaced regarding the effects the project may have on municipal and private water supplies**, and that reevaluation of our permit decision regarding our effects determination for water supply is warranted. To aid in our reevaluation, please **provide an assessment of effects the project may have on municipal and private water supplies, including whether the anticipated drawdown of the Floridan aquifer would result in any drainage of aquatic resources.** This **assessment should include any groundwater and surface water modeling/data** that has been collected regarding this issue. Please note, should the Corps determine that the project would result in additional impacts to aquatic resources, the Corps may modify the permit to include special conditions to compensate for these impacts pursuant to 33 CFR 325.7(b)."

4. This NEW INFORMATION Reevaluation Notice of the Corps Permit, for the Proposed HYUNDAI MEGA-SITE, Provided as a Supplement to my Second Comment Letter, Should be Considered by GDNR/EPD as Part of the Second Comments on the Alleged 2 "Draft Permits" for the 4 Proposed New Wells to Provide Groundwater for the Proposed HYUNDAI MEGA-SITE

4.1 The Permit Applications Submitted to GDNR/EDP by Bryan and Bulloch Counties for 4 Proposed New Wells for the Proposed HYUNDAI MEGA-SITE Were Premature Because the Permit Application Submitted to the Corps by JDA and GDED was Incomplete and Failed to Identify the Source of Water for the Proposed HYUNDAI MEGA-SITE

The **NEW INFORMATION** provided in this **Supplement** to my **Second Comment Letter,** regarding the proposed groundwater withdrawals for the alleged "DRAFT PERMITS" for Bryan and Bulloch Counties' groundwater withdrawals for the **HYUNDAI MEGA-SITE,** should be considered as part of my **Second Comment Letter** by both GDNR/EPD and the Corps for the following reasons:

a) the GDNDR/EPD's public comment periods for the **alleged "DRAFT PERMITS"** for Bryan and Bulloch Counties' groundwater withdrawals for the **HYUNDAI MEGA-SITE** were premature, because those **alleged "DRAFT PERMITS"** include none of the relevant information to support the proposed issuance of those **"DRAFT PERMITS**;"

b) the Corps' **permit SAS-2015-00235** for the proposed **HYUNDAI MEGA-SITE** was issued prematurely, without any consideration by the Corps of the direct, indirect, or cumulative adverse impacts of the source of water for that proposed **HYUNDAI MEGA-SITE**;

c) the Corps' **reevaluation of permit SAS-2015-00235** for the proposed **HYUNDAI MEGA-SITE, without preparing a comprehensive Environmental Impact Statement (EIS) to consider all of the direct, indirect, or cumulative adverse impacts of the source of water,** in addition to all of the impacts to the wetlands would be tantamount to "segmenting" the permit and **violates Appendix B to Part 325—NEPA Implementation Procedures for the Regulatory Program**;

d) the Corps' **reevaluation of permit SAS-2015-00235** for the proposed **HYUNDAI MEGA-SITE, without "requiring the use of reliable data and resources" – including "models" - for the evaluating the adverse impacts of the proposed source of water and all of the wetlands, violates Appendix B to Part 325—NEPA Implementation Procedures for the Regulatory Program**; and

e) the **groundwater "model" used by GDNR/EPD** to evaluate the proposed 6.6 MGD groundwater withdrawals from the proposed 4 new wells for the proposed **HYUNDAI MEGA-SITE,** although not identified or included in the alleged "DRAFT PERMITS," is **NOT** a **reliable model based on** "**reliable data and resources," because it:**

i) fails to include an analysis of the cumulative adverse impacts from all of the other groundwater withdrawals in the region;

ii) predicts an "impact area" of only a 5-mile radius centered around the proposed 4 new wells;

iii) fails to consider preferential flow through karst conduits that occur throughout the entire extent of the regional, karst, Floridan aquifer system;

iv) assumes no cumulative vertical flow through the "thick, clayey" lower permeability layers above and below the Floridan aquifer, in response to pumping, when that vertical flow is known to occur throughout the

entire extent of the regional, karst, Floridan aquifer system, resulting in the dewatering of "aquatic sites;"

v) assumes no cumulative horizontal flow through the county-line boundaries of Bulloch County, in response to pumping, that will increase saltwater intrusion in Bulloch, Bryan, and Effingham Counties, and other coastal counties and barrier islands, and will increase the decline of Georgia's coastal marshes;

vi) assumes no cumulative dewatering of "aquatic sites," including wetlands and streams;

vii) assumes no cumulative "taking" of federally listed marine/aquatic species (e.g., shortnose sturgeon and South Atlantic Distinct Population Segment (DPS) of Atlantic sturgeon)**, or the irreversible destruction of designated habitat for those species; and**

viii) assumes no cumulative "taking" of federally listed upland species by the cumulative dewatering of the surficial aquifer, is known to occur in response to groundwater withdrawals throughout the entire extent of the regional, karst, Floridan aquifer system, resulting in the premature decline and death of longleaf pine trees and other native species of pine trees that are required for the survival and recovery of the federally endangered red-cockaded woodpeckers.

4.2 Those unreliable model assumptions are supported by statements included in GDNR/EPD's 2 alleged "DRAFT PERMITS" for those 4 new groundwater wells, regarding the impacts of those groundwater withdrawals "defined by a circle with a 5-mile radius from the center point"

Neither of those 2 alleged "DRAFT PERMITS" provided copies of supporting documents or even stated if the **5-mile radius, presumed by GDNR/EPD to be the limit of "Any Potential Significant Impacts to Existing Floridan Aquifer Wells," included the impacts of pumping from all 4 of the proposed new wells, or only the impacts of pumping from the 2 proposed new wells** addressed in each of those 2 alleged "DRAFT PERMITS." The exact language providing that information was included under the title of "ADDRESSING SHORT TERM IMPACTS," within the following "SPECIAL CONDITIONS" on page 4 of the alleged "DRAFT PERMITS" for Bryan County and for Bulloch County, respectively (emphasis added):

6) SPECIAL CONDITIONS

a) The EPD has produced the 'Coastal Georgia Water & Wastewater Permitting Plan for **Managing Salt Water Intrusion' (the Plan).** The Plan has identified an array of water conservation, efficiency, and reuse requirements for public and private water providers. The permit holder is required to fully implement and otherwise comply with ALL appropriate requirements identified in the Plan.

b) The permit holder will cooperate with the Georgia EPD in the coordination of its water withdrawal requirements associated with this Groundwater Withdrawal Permit and the following additional Water Withdrawal Permit(s):

• 015-0007

ADDRESSING SHORT TERM IMPACTS:

c) The permittee must create a joint Bulloch County and Bryan County municipal managed fund, which may include contributions from other entities, **to address any potential significant impacts to existing Floridan aquifer wells in an area defined by a circle with a 5-mile radius from the center point at the I-16 and Highway 119 interchange.**

6) SPECIAL CONDITIONS

a) The EPD has produced the 'Coastal Georgia Water & Wastewater Permitting Plan for **Managing Salt Water Intrusion' (the Plan)**. The Plan has identified an array of water conservation, efficiency, and reuse requirements for public and private water providers. The permit holder is required to fully implement and otherwise comply with ALL appropriate requirements identified in the Plan.

ADDRESSING SHORT TERM IMPACTS:

b) The permittee must create a joint Bulloch County and Bryan County municipal managed fund, which may include contributions from other entities, **to address any potential significant impacts to existing Floridan aquifer wells in an area defined verbally in the 2 alleged "DRAFT PERMITS" as having an area of impact (to wells) that is a 5-mile radius from the center point at the I-16 and Highway 119 interchange.**

4.3 Those unreliable model assumptions also are supported by statements in the "EPD RESPONSES" to the first GDNR/EDP "DRAFT PERMITS," which included only "stand alone" draft "SPECIAL CONDITIONS," without ANY "reliable data and resources"

The 15-page GDNR/EPD "**Response to Comments on the Draft Special Conditions**" was included as **Attachment N** of my second comment letter. The following, relevant excerpts from those responses provide additional examples of evidence that the groundwater model being used by the GDNR/EPD to

review the proposed 2 alleged "DRAFT PERMITS" for the proposed 4 new groundwater wells to provide water to the proposed **HYUNDAI MEGA-SITE is NOT based on "reliable data and resources," and specifically why a comprehensive EIS, NEPA compliance, and an alternatives analysis is required by the Corps' for the proposed HYUNDAI MEGA-SITE application** (emphasis added):

(page 1)

"The geographic area within the **5-mile radius** of the highway interchange roughly corresponds to a hydrologic model's simulated 10-foot drawdown contour, meaning that entities with Floridan wells within that designated area could potentially experience an impact of 10 feet or more of Floridan drawdown at their wells, not to exceed 19 feet at full permit production capacity. The 5-mile radius fully captures the entire area of 10-foot drawdown. This area is therefore the focus of potential impacts and associated mitigation measures."

(page 2)

"See the response to the last comment. Simulated impacts beyond the 5-mile radius are not considered to be significant and simulated impacts within the **5-mile radius** are not considered substantial, particularly in light of common well construction practices. EPD chose to be very conservative in setting the threshold for potential mitigation."

"The circle with a **5-mile radius** from the intersection roughly captures where EPD's modeling indicates the area where an impact of 10 feet or more (but no greater than 19 feet) drawdown in groundwater level may occur. The modeling simulated drawdown that may be caused by all four of the proposed wells operating simultaneously and the resulting simulated drawdown contours reflect anticipated conditions as all wells are expected to operate simultaneously. Therefore, the drawdown contours and the related radii are not associated with any individual well."

(page 3)

"As shown by the simulation results, impacts to the Floridan Aquifer in the vicinity of the four proposed wells are in the form of water level drawdowns not likely to exceed 19 feet. In this region, plants are not using Floridan aquifer water unless irrigated by Floridan aquifer water. Therefore, **EPD is not anticipating effects to plants, including trees, from the Floridan aquifer withdrawal."**

(pages 3-4)

"First, **EPD does not have the authority under these groundwater withdrawal permits to require a third party to cooperate in providing a surface water or other alternate water source solution, and that cooperation will certainly be necessary**... Nevertheless, **the alternative water source could successfully replace the groundwater withdrawals** before the 25-year deadline."

(page 4)

"The **Savannah River has been considered as a potential alternative source.** The permittees may consider any non-Floridan aquifer water, including groundwater, surface water, and reuse water, as an alternative source of water."

(page 4)

"A simulated drawdown of 19 feet is at the center of the cone of depression and would take place in the midst of the four proposed wells at full permit capacity. EPD's simulation also shows a potential drawdown of 15 feet at one well owned by a third party in the vicinity. EPD considers a drawdown of 30 feet as a conservative metric, so 19 feet drawdown is a permittable drawdown amount."

(page 4)

"**Saltwater intrusion into the Floridan aquifer in Bryan and Bulloch County isn't a concern because the saltwater is entering the Floridan aquifer off the northern shore of Hilton Head Island**. Should pumping conditions lead to additional pressure on the aquifer, chlorides entering the Floridan aquifer will follow the groundwater gradient of the Floridan aquifer toward the City of Savannah and the cone of depression there. **This is not a fast process; current modeling indicates it would take more than 100 years for chlorides to reach the cone of depression below the City of Savannah**. At that point in time, chlorides would then be captured in the wells that are causing the cone of depression and would not travel beyond the cone of depression below Savannah."

(page 4)
"**Theoretically, desalination can also be an alternative solution**."

(page 4)
"The **wells subject to this permit are in the Coastal Green Zone**. A farm water use permit in the Coastal Green Zone is possible but the proposed well must also meet all other relevant requirements for approval."

(pages 5-6)
"**EPD's technical assessment indicates limited impact on the Floridan Aquifer** (19 feet of drawdown at the center of the cone of depression, reduced to roughly 10 feet of drawdown 5 miles from the center, and further reduced beyond 5 miles from the center) and its users. As explained above, this level of drawdown is not unreasonable."

(page 6)
"The Floridan Aquifer will not go dry, but **there is a potential for individual homeowners with wells that have well pumps set close to the top of the groundwater level in the Floridan aquifer to have the groundwater level drop below those well pumps.**"

(page 6)
"**EPD does not see the potential for depletion of the Floridan Aquifer due to the proposed withdrawals**."

(page 6)
"**EPD has received comments from stakeholders within the farming community, will respond to these comments, and will continue to engage stakeholders and listen to their concerns**."

(page 6)
"**The Floridan Aquifer is overlain by a confining unit. It does not have a hydraulic connection with the Savannah River, the Ogeechee River, or the Okefenokee National Wildlife Refuge**. **There is not the prospect of dewatering the Ogeechee River, the Savannah River, or the Okefenokee National Wildlife Refuge. Species that use those surface water bodies as their habitat are not affected by water use from the Floridan Aquifer.**"

(page 7)
"**EPD permits are not subject to NEPA review. EPD does not rely on NEPA documents in reviewing these water withdrawal applications**. Instead, EPD conducts its own independent state regulatory review."

(page 10)
"Based on results from modeling, **EPD does not anticipate unreasonable adverse impacts on existing wells**."

(page 10)
"**EPD encourages permittees to consider reclaiming or recycling water**; these permits include reuse as a possible alternate water source to the groundwater withdrawals."

(page 11)
"The **source of the proposed groundwater withdrawal is the Floridan Aquifer, which is several hundred feet below land surface and is overlain by a confining unit**. The drawdown assessed (up to 19 feet) would not cause dewatering in any portion of the Floridan Aquifer simply because the water levels before and after the withdrawal would both be higher than the confining unit. **There is no reason to think that the lowered water level in the Floridan Aquifer (still above the top of it) would cause the formation of sinkholes within the aquifer itself or in the layer of material above the confining unit.**"

(page 11)
"**Because of the lack of a hydraulic connection between the Floridan Aquifer and the surface water bodies, a withdrawal from the Floridan Aquifer does not have any implications on the referenced species**

that utilize such surface water bodies as habitats. Despite that, EPD is in communication with the USFWS and is planning to hold technical discussions with USFWS to better understand their concerns."

(page 11)
"Within the 24 coastal counties, **Chatham County and the southern half of Effingham Cunty are in the Red Zone, Bryan and Liberty Counties are in the Yellow Zone**, and the others are in the Green Zone. **This delineation has been determined based on the level of impact on saltwater encroachment from pumping water from the Floridan Aquifer in these counties**, the **Red Zone being where the greatest impact on saltwater encroachment would be anticipated** and the Green Zone being where less impact on saltwater encroachment would be anticipated."

(page 12)
"**EPD permits cannot require an action from an entity who is not a permittee**."

(page 12)
"Because **the source of water is the Floridan Aquifer, which has a confining unit on top of it, there is no baseflow provided by the aquifer to surface water bodies**. **There is no recharge to the Floridan Aquifer in the studied area either.** If the commenter meant to speak of the connection between surface water bodies and the surficial aquifer and wetlands, then this is again within the regulatory review by the Army under the 404 permit application process."

(page 13)
"**EPD's regulatory review is independent from the NEPA process**."

(page 13)
"**Bryan County's existing groundwater withdrawal permit has a monthly average withdrawal limit of 1.600 million gallons per day ("MGD") and an annual average withdrawal limit of 1.600 MGD. Bulloch County does not currently have a withdrawal permit**."

(page 14)
"**EPD has assessed the potential impact on the Floridan Aquifer at the locations of the proposed wells** and beyond. Modeling shows potential impacts on water levels at 19 feet at the center of the wells but less than that away from the wells. This level of drawdown is not considered as unreasonable."

(page 15)
"**To the extent interactions between groundwater and surface water exist because of hydraulic connections, federal laws such as the Clean Water Act and the Endangered Species Act may apply, such as where necessary to protect aquatic resources in those surface water bodies.** However, with respect to proposed wells in the Bryan/Bulloch applications, there are no hydraulic connections and therefore no surface water implications. Furthermore, NEPA only applies to actions taken by the federal government, not by the State of Georgia."

4.4 Extensive scientific documentation of "reliable data and resources" was provided in my 42-page second comment letter, refuting GDNR/EPD's erroneous presumption that groundwater wells screened in the Floridan Aquifer will not result in "induced recharge" from all overlying and underlying layers of the Floridan aquifer system – including the surficial aquifer and associated surface waters

4.4.1 All of the excerpts from Subsection 4.3, above, from page numbers that are highlighted in yellow, specifically were refuted in my second comment with **scientific documentation of "reliable data and resources" provided in my 42-page second comment letter**. The **"reliable data and resources"** from my second comment letter included, but was not limited to the following Figures:
Figure 1 from Kincaid et al. (2012, Figure 8)
Figure 4 from the USGS publication by Barlow (2003, Figure 19)
Figure 6 from the USGS publication by Barlow (2003, Figure 34)
Figure 8 from the USFWS Okefenokee NWR in Folkston (July 2021)

4.4.2 The extensive scientific documentation of **"reliable data and resources" provided in my 42-page second comment letter**, dated 8/19/24, specifically addressed the gross failure of the USGS to provide accurate and **"reliable data and resources"** regarding the **"travel time"** or speed, known as "velocity," at which preferential flow of groundwater occurs through karst conduits throughout the entire extent of the regional, karst Floridan aquifer system. As a specific example of the grave errors provided by the USGS as **"data and resources"** for **NON-KARST** groundwater models in used in the Floridan aquifer system, **Subsection 4.3.4, on page 24 of my second comment letter included** the following paragraphs (emphasis in original):

> "As just one example of how unrealistic USGS data regarding groundwater flow in the Floridan aquifer system can be, Brian Katz, a USGS Research Hydrologist at the time, attempted to "age-date" the ground water discharging into Wakulla Spring, to determine the travel time of groundwater in that area. That was happening at about the time that the "Florida Department of Environmental Protection" was considering the proposed "state-of-the-art" approach for land application of the City of Tallahassee's municipal sewage effluent by spraying that nutrient-laden liquid on open pasture in Leon County, Florida, up-gradient (north) of Wakulla Spring, in adjacent Wakulla County, Florida. **The "age-date" – as a "travel time" – that Brian Katz came up with was 40 YEARS,** suggesting that I and most of the people involved with that project would have died from old age before that municipal sewage effluent completed its journey across the county line, to Wakulla Spring – magically stripped of the entire nutrient load.
>
> Needless to say, Dr. Todd Kincaid and his business partner at the time, Dr. Timothy Hazlett, both of whom had extensive experience with groundwater flow in karst aquifers, were more than skeptical of that extremely long, slow implied flow time. Please refer back to the inserted copy of Table 10 and **Figure 1** (both from Kincaid et al., 2012, also included as **Attachment E**) in **Subsection 3.3** to see the actual flow time and velocity in Table 10, and the locations of the tracer injection site at Bird Sink, the "Wastewater Spray Field," and Wakulla Spring. The results of that tracer research revealed that the travel time for twice the straight-line distance **(23.2 miles)** of the "Wastewater Spray Field" to Wakulla Spring was **52.11 DAYS**, long before any of us died of old age. The **groundwater flow velocity from the injection site of the tracers at Bird Sink to Wakulla Spring was 2,350.51 feet/day or approximately 0.5 mile/day**. According to Kincaid, USGS did not attempt to justify how that magnitude of error occurred (Todd Kincaid, pers.com. 8/24)."

That **"travel time" –** determined by the **USGS Research Hydrologist** – was **inaccurate by approximately 40 years minus 52 days** – which **IS NOT "reliable data and resources!"** The following example, from page 4 of the "EPD RESPONSES," included as **Attachment N** of my second comment letter, referenced a similar "**data and resources" as a "travel time" – or "velocity"** for "chlorides entering the Floridan aquifer" and resulting in **saltwater intrusion** from the coast – in response to groundwater withdrawals (emphasis added):

> "**Saltwater intrusion into the Floridan aquifer in Bryan and Bulloch County isn't a concern because the saltwater is entering the Floridan aquifer off the northern shore of Hilton Head Island**. Should pumping conditions lead to additional pressure on the aquifer, chlorides entering the Floridan aquifer will follow the groundwater gradient of the Floridan aquifer toward the City of Savannah and the cone of depression there. **This is not a fast process; current modeling indicates it would take more than 100 years for chlorides to reach the cone of depression below the City of Savannah**. At that point in time, chlorides would then be captured in the wells that are causing the cone of depression and would not travel beyond the cone of depression below Savannah."

This example alone proves that the **groundwater flow models being used GDNR/EPD for wells permitted within the regional, karst Floridan aquifer system** are **NOT based on "reliable data and resources"** and, therefore, are **NOT "reliable models."** In fact, that statement from the "EPD RESPONSES" illustrates the extreme ignorance of **GDNR/EPD regarding "saltwater intrusion" in regional, karst Floridan aquifer in response to pumping**, including the following facts:

a) the source of saltwater intrusion into Georgia's coastal counties is **NOT** restricted to "**entering the Floridan aquifer off the northern shore of Hilton Head Island" [NOTE: "Hilton Head Island" IS IN SOUTH CAROLINA];**

b) saltwater intrusion into Georgia's coastal counties **enters the Floridan aquifer system throughout the entire submarine portion of that aquifer system along Georgia's coast;**

c) saltwater intrusion moves rapidly – **DAYS/MONTHS (NOT 100 YEARS) – through ALL preferential flowpaths (e.g., fractures and other karst conduits) in response to groundwater withdrawals, like those proposed for the proposed HYUNDAI MEGA-SITE;** and

d) saltwater intrusion moving rapidly, **through preferential flowpaths, like fractures and other karst conduits** underlying Bulloch County, will **NOT** be pulled out of those **preferential flowpaths to "**follow the groundwater gradient of the Floridan aquifer toward the City of Savannah."

4.4.3 The only type of "desalination" that would prevent all of the adverse impacts from the proposed NEW groundwater withdrawals for the proposed HYUNDAI MEGA-SITE that were described in my previous two comment letters is "open-ocean desalination"

Refer again to **Figure 6,** from the USGS publication by Barlow (2003, Figure 34), that was included in my second comment letter dated 8/19/24. That figure shows "induced recharge" occurring in all layers of the Floridan aquifer in response to groundwater withdrawals associated with fractures. Fractures are known to occur throughout the entire extent of the regional, karst Floridan aquifer system, particularly in association with streams, including the **Ogeechee River and all of the tributaries to that river.**

That means if the proposed **4 NEW WELLS** for the **proposed HYUNDAI MEGA-SITE** were relocated into a lower, brackish or saline layer of the Floridan aquifer system (e.g., the lower Floridan aquifer), or another underlying brackish or saline layer to withdraw that water for "**desalination**" (or existing wells in those brackish/saline layers) were to be used for the **proposed HYUNDAI MEGA-SITE –** groundwater withdrawals from those also would result in all of the same "induced recharges" referenced previously and shown in **Figure 6** from my second comment letter.

In that case, the "induced recharge" would occur by **fresh ground water and surface water being pulled vertically downward into the brackish/saline layer, were the pumping wells were located.** Therefore, the following statement from page 4 of the "EPD RESPONSES," referenced in Subsection 4.3 above, only applies to **"open-ocean desalination" as an "alternative solution:"**

"**Theoretically, desalination can also be an alternative solution**."

4.4.4 Reclaimed water from the City of Savannah is the only other realistic "alternative" water supply for the proposed HYUNDAI MEGA-SITE that would not result in all of the adverse impacts described in my first and second comment letters

The "EPD RESPONSES" referenced in Subsection 4.3 above, made numerous references to "**a potential alternative source**" of water for the proposed **HYUNDAI MEGA-SITE**. Following is one of those references from page 4 of the "EPD RESPONSES," included as **Attachment N** in my second comment letter (emphasis added):

"The **Savannah River has been considered as a potential alternative source.** The permittees may consider any non-Floridan aquifer water, including groundwater, surface water, and reuse water, as an alternative source of water."

Based on **"reliable data and resources,"** the only 2 alternatives that will **NOT** result in all of the adverse impacts referenced in my preceding two comment letters, including to all of the existing wells in Bulloch County and all of the far-reaching adverse environmental impacts, are **"open-ocean desalination"** and "**reclaimed water from the City of Savannah.**

4.4.5 No "permit conditions" are capable of preventing any of the adverse impacts referenced in my preceding two comment letters, including to all of the existing wells in Bulloch County and all of the far-reaching adverse environmental impacts

All of the **"reliable data and resources"** confirm that the **GDNR/EPD is using groundwater models that are not capable of simulating groundwater flow in response to groundwater withdrawals in any of the 71 Georgia counties** that are within the extent of the regional, karst Floridan aquifer system. Those counties were shown and a list provided in Section 4 of my second comment letter on the proposed **HYUNDAI MEGA-SITE**. Despite those facts, the "**EPD RESPONSES**," included as **Attachment N** in my second comment letter, clearly imply that Georgia laws include **NO PROVISION** for GDNR/EPD to deny any permit application – only to apply "**certain conditions**" to rubber-stamped permits. For example, the following statement occurs on page 6 of "**EPD RESPONSES**:"

"There is no legal basis for denying these permit applications provided that certain conditions are included consistent with Georgia requirements."

Consequently, none of Georgia's "plans" for managing "saltwater intrusion" or for "protecting" Georgia's coastal marshes have any meaning at all. In fact, if state groundwater permits cannot be denied and GDNR/EPD continues using groundwater models and providing responses to public comments that are **not based on "reliable data and resources,"** Georgia simply should **save the taxpayers money by replacing all of the GDNR/EPD staff who rubber stamp those groundwater permit applications** in those 71 counties with **vending machines that dispense groundwater permits**, with random permit conditions.

4.4.6 The "EPD RESPONSES" also suggest that all of the residential wells in Bulloch County would be at risk to the adverse impacts of the proposed 4 NEW WELLS to supply groundwater to the proposed HYUNDAI MEGA-SITE

The following statement on page 13 of the "**EPD RESPONSES**," included as **Attachment N** in my second comment letter, suggests that ALL of the residential water supply in Bulloch County is provided by **residential wells pumping from the Floridan aquifer (**emphasis added):

"**Bryan County's existing groundwater withdrawal permit has a monthly average withdrawal limit of 1.600 million gallons per day ("MGD") and an annual average withdrawal limit of 1.600 MGD. Bulloch County does not currently have a withdrawal permit**."

If that is the case, then **ALL OF THE RESIDENTIAL WATER SUPPLY IN BULLOCH COUNTY would be threatened by the proposed 4 NEW WELLS to supply groundwater to the proposed HYUNDAI MEGA-SITE.**

5. Examples of the National Environmental Policy Act (NEPA) and other federal laws that apply to the Corps' reevaluation of the permit for the proposed HYUNDAI MEGA-SITE

5.1 Wetlands are "Special Aquatic Sites" Under Federal Law

Subpart E of Part 240 of **"Title 40 – Protection of Environment" identifies "wetlands" as "Special Aquatic Sites."** A copy of the relevant 4-page part of **"Title 40 – Protection of Environment"** is incorporated herein by reference, as **Attachment B-S.**

5.2 Restrictions on Discharge

Subpart E of Part 240 of **"Title 40 – Protection of Environment" also restricts discharges, including to "Special Aquatic Sites."** A copy of the relevant 3-page part of **"Title 40 – Protection of Environment" that addresses Restrictions on Discharge** is incorporated herein by reference, as **Attachment C-S for this Supplement to my Second Comment Letter on the Proposed Bryan and Bulloch Counties' Groundwater Withdrawal Permits for the HYUNDAI MEGA-SITE.** It is important to note that the proposed **HYUNDAI MEGA-SITE does NOT meet the definition of a** "**water dependent**" activity in **"Title 40 – Protection of Environment."** Following are examples of those restrictions (emphasis added):

"(a)(3) **Where the activity associated with a discharge which is proposed for a special aquatic site** (as defined in subpart E) **does not require access or proximity to or siting within the special aquatic site in question to fulfill its basic purpose** (i.e., is not "water dependent"), **practicable alternatives that do not involve special aquatic sites are presumed to be available, unless clearly demonstrated otherwise**. **In addition, where a discharge is proposed for a special aquatic site, all practicable alternatives to the proposed discharge which do not involve a discharge into a special aquatic site are presumed to have less adverse impact on the aquatic ecosystem, unless clearly demonstrated otherwise.**"

"(b) **No discharge of dredged or fill material shall be permitted if it**:
(1) Causes or contributes, after consideration of disposal site dilution and dispersion, to violations of any applicable State water quality standard;
(2) Violates any applicable toxic eduent standard or prohibition under section 307 of the Act;
(3) Jeopardizes the continued existence of species listed as endangered or threatened under the Endangered Species Act of 1973, as amended, or results in likelihood of the destruction or adverse modification of a habitat which is determined by the Secretary of Interior or Commerce, as appropriate, to be a critical habitat under the Endangered Species Act of 1973,
as amended. If an exemption has been granted by the Endangered Species Committee, the terms of such exemption shall apply in lieu of this subparagraph;
(4) Violates any requirement imposed by the Secretary of Commerce to protect any marine sanctuary designated under title III of the Marine Protection, Research, and Sanctuaries Act of 1972."

"(d) **Except as provided under section 404(b)(2), no discharge of dredged or fill material shall be permitted unless appropriate and practicable steps have been taken which will minimize potential adverse impacts of the discharge on the aquatic ecosystem**. Subpart H identifies such possible steps."

5.3 Appendix B to Part 325 describes the NEPA Implementation Procedures for the Regulatory Program

Appendix B to Part 32 "NEPA Implementation Procedures for the Regulatory Program" describes the **procedures that the Corps** and other federal regulatory agencies **must follow for compliance with NEPA provisions.** A copy of the relevant 9-page part of **"Appendix B to Part 325"** is incorporated herein by reference, as **Attachment D-S for this Supplement to my Second Comment Letter on the Proposed Bryan and Bulloch Counties' Groundwater Withdrawal Permits for the HYUNDAI MEGA-SITE.**

5.4 National Environmental Policy Act Implementing Regulations Revisions Phase 2

The NEPA Implementing Regulations Revisions Phase 2, that became effective on 7/1/24, also apply to the Corps' reevaluation of the proposed HYUNDAI MEGA-SITE. A copy of that 442-page document is incorporated herein by reference, as **Attachment E-S for this Supplement to my Second Comment Letter on the Proposed Bryan and Bulloch Counties' Groundwater Withdrawal Permits for the HYUNDAI MEGA-SITE.** Following are specific **e**xamples of those NEPA provisions from **Attachment B-S** that apply to the **Corps' reevaluation of the permit for the proposed HYUNDAI MEGA-SITE** (emphasis added):

(pdf page 5)

"On June 3, 2023, President Biden signed into law the Fiscal Responsibility Act of 2023, which included amendments to NEPA. Specifically, it amended section 102(2)(C) and added sections 102(2)(D) through (F) and sections 106 through 111. 42 U.S.C. 4332(2)(C)-(D) (https://www.govinfo.gov/link/uscode/42/4332), 4336-4336e (https://www.govinfo.gov/link/uscode/42/4336). The amendments codify longstanding principles drawn from CEQ's NEPA regulations, decades of agency practice, and case law interpreting the NEPA regulations, and provide additional direction to improve the efficiency and effectiveness of the NEPA process consistent with NEPA's purposes. Section 102(2)(C) provides that **EISs should include discussion of reasonably foreseeable environmental effects of the proposed action, reasonably foreseeable adverse environmental effects that cannot be avoided, and a reasonable range of alternatives to the proposed action**; section 102(2)(D) requires Federal agencies to ensure the professional integrity of the discussion and analysis in an environmental document; **section 102(2)(E) requires use of reliable data and resources when carrying out NEPA**; and section 102(2)(F) requires agencies to study, develop, and describe technically and economically feasible alternatives. 42 U.S.C. 4332(2)(C)-(F) (https://www.govinfo.gov/link/uscode/42/4332)."

(pdf page 189)

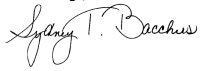
"As noted in section II.H.4, **this change incorporates the language of section 102(2)(E) of NEPA and is consistent with section 102(2)(D) of NEPA. 42 U.S.C. 4332(2)(D)-(E)** (https://www.govinfo.gov/link/uscode/42/4332)."

(pdf page 247)

"The final rule uses the combined phrase **'reliable data and resources'** as one example to directly track the provision in section 102(2)(E) of NEPA, 42 U.S.C. 4332(2)(E) (https://www.govinfo.gov/link/uscode/42/4332), with **'models' being another example**."

CONCLUSIONS: THE TWO ALLEGED "DRAFT PERMITS" FOR THE PROPOSED HYUNDAI MEGA-SITE ARE PREMATURE AND NULL AND VOID, BECAUSE: A) THE GDNR/EPD GROUNDWATER MODELS HAVE NOT USED "RELIABLE DATA AND RESOURCES" THAT ACCOUNT FOR EXTENSIVE PREFERENTIAL FLOW THROUGHOUT THE ENTIRE EXTENT OF THE FLORIDAN AQUIFER SYSTEM, B) THE CORPS' REEVALUATION OF THE PROPOSED HYUNDAI MEGA-SITE PERMIT REQUIRES COMPLIANCES WITH FEDERAL LAWS AND NEPA, WHICH WILL REQUIRE A COMPREHENSIVE EIS BY THE CORPS, AND C) THE CORPS IS REQUIRED TO RELY ON MODELS BASED ON "RELIABLE DATA AND RESOURCES."

Sincerely,



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Attachments:
A-S. 8/23/24 HYNDAI MEGA-SITE Permit reevaluation letter from Commander Ronald J. Sturgeon, PE, Corps Savannah District to applicants Hugh "Trip" Tollison, Savannah Harbor-Interstate 16 Corridor Joint Development Authority and Pat Wilson, Commissioner, Georgia Department of Economic Development
https://www.ogeecheeriverkeeper.org/wp-content/uploads/2024/08/23-AUG-2024_Reevaluation-Letter.pdf

B-S. Special Aquatic Sites eCFR // 40 CFR Part 230 Subpart E -- Potential Impacts on Special Aquatic Sites
https://www.ecfr.gov/current/title-40/chapter-I/subchapter-H/part-230/subpart-E

C-S. Restrictions on Discharge
https://www.ecfr.gov/current/title-40/chapter-I/subchapter-H/part-230/subpart-B/section-230.10

D-S **Appendix B to Part 325—NEPA Implementation Procedures for the Regulatory Program**
https://www.ecfr.gov/current/title-33/chapter-II/part-325/appendix-Appendix%20B%20to%20Part%20325

E-S 5/1/24 National Environmental Policy Act Implementing Regulations Revisions Phase 2
https://www.federalregister.gov/documents/2024/05/01/2024-08792/national-environmental-policy-act-implementing-regulations-revisions-phase-2