EARTHJUSTICE
BECAUSE THE EARTH NEEDS A GOOD LAWYER

July 30, 2025

Via email & Regulatory Request System

Damon Morse, Project Manager
Regulatory Division
U.S. Army Corps of Engineers
New Orleans District
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Re: Air Products Blue Energy LLC Clean Water Action Section 404 Permit Application No. MVN-2011-03218-EDM

Dear Mr. Morse:

Lake Maurepas Preservation Society,[1] RISE St. James,[2] Concerned Citizens of St. John, Inc.,[3] Healthy Gulf,[4] Earthworks,[5] and Sierra Club[6] (collectively, "Commenters") respectfully

[1] Lake Maurepas Preservation Society is a nonprofit environmental conservation organization comprised of people who seek to preserve Lake Maurepas and the Maurepas Swamp and protect these natural resources from harmful impacts associated with industrial development.

[2] RISE St. James is a faith-based environmental and social justice organization fighting to protect the air, land, water, and the bodies of the people in St. James Parish from harmful industrial pollution. RISE St. James' members advocate for racial, social, and environmental justice.

[3] Concerned Citizens of St. John, Inc. ("CCSJ") is a non-profit organization based in St. John the Baptist Parish, Louisiana whose primary mission is to advocate for the health and safety of all citizens by working to hold government officials and industry accountable for the quality of our air, water, and soil. CCSJ works to collect all facts about our environment and share that information with the citizens of St. John Parish. CCSJ also works to aggressively advocate for the safety and future of the children. And, most importantly, CCSJ works to promote renewable energy, infrastructure, other investments to create jobs, reduce pollution, curb climate impacts, and create a more resilient local economy benefitting all St. John residents.

[4] Healthy Gulf was founded in 1994 and has more than 25,000 members and supporters in all five Gulf states committed to uniting and empowering people to protect and restore the natural resources of the Gulf Region. Healthy Gulf's purpose is to collaborate with and serve communities who love the Gulf of Mexico by providing research, communications and coalition-building tools needed to reverse the long-pattern of over exploitation of the Gulf's natural resources. Healthy Gulf has members throughout the Gulf states, including Louisiana.

[5] Earthworks is a nonprofit organization dedicated to protecting communities and the environment from the impacts of oil, gas, mining, and petrochemical development while seeking sustainable solutions. For more than 25 years, Earthworks has worked to advance policy reforms, safeguard land and public health, and improve corporate practices. Its team works with local communities, partner organizations, public agencies, and elected officials to advance these goals nationwide, including in Louisiana. Earthworks has 212 supporters living in Louisiana, including in Ascension Parish.

[6] Sierra Club is one of the oldest and largest national nonprofit environmental organizations in the country, with approximately 3.5 million members and supporters dedicated to exploring, enjoying, and protecting the wild places and resources of the earth; practicing and promoting the responsible use of the Earth's ecosystems and resources; educating and enlisting humanity to protect and restore the quality of the natural and human environment; and using

submit these comments objecting to Air Products Blue Energy LLC's ("Air Products") application no. MVN-2011-03218-EDM ("Application") for a Clean Water Act Section 404 (33 U.S.C. § 1344) permit and Rivers and Harbors Act of 1899 Section 10 (33 U.S.C. §403) permit pending review by the New Orleans District of the U.S. Army Corps of Engineers ("Corps"). Additionally, Commenters rely on, adopt and incorporate in full the reports prepared by Honora Buras,[7] Dr. Varun Paul,[8] and Jonathan Shefftz.[9]

SUMMARY

Commenters oppose the proposed project and urge the Corps to deny the Application in accordance with 40 C.F.R. 230.12(a)(3) because: *(1)* the proposed project fails to comply with the Clean Water Act Section 404(b)(1) Guidelines under 40 C.F.R. 230 and *(2)* issuance of a Section 404 permit for the proposed project would be contrary to the public interest under 33 C.F.R. 320.4 and therefore must be denied under 33 C.F.R. 323.6.

The proposed project would violate the 404(b)(1) Guidelines because it would cause or contribute to significant degradation of the unique and sensitive ecosystem. The proposed project would result in long-term, significant impacts to commercial and recreational uses of Lake Maurepas. The installation of 19 industrial platforms in an area of such rare scenic beauty is an affront to lake users who treasure the majestic and unmarred nature of the lake. The proposed project would also result in significant loss to the Maurepas Swamp, a "special aquatic site" dominated by cypress-tupelo that is both valuable habitat and a critical line of defense against storm surge. In fact, the area is so important, the federal government and the state are spending hundreds of millions of dollars to restore and protect this important ecosystem. Furthermore, risking this sensitive ecosystem to an industrial accident—the impacts of which have not been studied or evaluated—is unacceptable.

The 404(b)(1) Guidelines prohibit the issuance of a permit where a less environmentally damaging practicable alternative for the proposed discharge exists. One obvious and less damaging alternative to the project as proposed would be to eliminate the carbon dioxide pipeline and sequestration facility components entirely and tie into an existing carbon dioxide pipeline and sequestration facility that is readily available but not even mentioned in the Application. This partial no-build option would spare this sensitive ecosystem devastating impacts and degradation. But even with the partial no-build option, the Corps must carefully evaluate and weigh the impacts of the proposed hydrogen and ammonia production facility and marine terminal in Ascension Parish. While the CCS no-build option would eliminate the proposal to construct a potentially dangerous carbon dioxide pipeline within a half mile of the

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all lawful means to carry out these objectives. One of Sierra Club's priority national goals is promoting and improving air quality.

[7] Honora Buras, *Potential impacts to Maurepas Swamp and Lake Maurepas from proposed Air Products CO_2 Pipeline and Injection Wells*, July 23, 2025 ("Buras Report"), Attach. B to Affidavit of Honora Buras, Ex. 1.

[8] Varun Paul, *Lake Maurepas Dredging Project*, July 28, 2025 ("Paul Report"), Attach. B to Affidavit of Varun Paul, PhD, Ex. 2.

[9] Jonathan Shefftz, *Memorandum to Healthy Gulf, providing review of Air Products' Louisiana Public Trust Doctrine*, April 15, 2025 ("Shefftz Report"), Ex. 3.

Sorrento Primary School and neighboring subdivisions, the Corps must still evaluate the potential impacts associated with worst-case scenario industrial failures related to ammonia storage/loading and the hydrogen pipeline, among other impacts expressed in detail below.

Under the Guidelines, the project must not cause or contribute to significant degradation to the aquatic ecosystem. Air Products, however, proposes to construct a carbon dioxide pipeline, carving a new path of almost 40 miles primarily through the Maurepas Swamp Wildlife Management Area, permanently impacting over 200 acres of wetlands. The pipeline would transport highly pressurized carbon dioxide waste from the company's proposed hydrogen/ammonia production facility across multiple parishes and into a proposed carbon sequestration facility in Lake Maurepas for injection deep beneath the lake. The carbon sequestration system would consist of 19 platforms that would house injection or monitoring wells, along with other infrastructure, in significant portions of the lake. This system would also include a 20-mile underground network of more pipelines and cables buried beneath the lake bottom. Air Products chose the lake for its sequestration site and pipeline route through the swamp before conducting a proper alternatives analysis and failed to provide its basis for relying solely on special aquatic sites for each of its proposed alternatives.

Additionally, Air Products' chosen pipeline route will interfere with and potentially undermine major state and Corps projects, including the River Reintroduction into Maurepas Swamp Project (MSP) (diversion project to restore and protect the health and productivity of the swamps south of Lake Maurepas by reintroducing sediment- and nutrient-laden water from the Mississippi River) and the West Shore Lake Pontchartrain (WSLP) levee project (intended to achieve 100-year storm surge risk reduction for several parishes). The dredging required for the massive carbon sequestration facility in Lake Maurepas would resuspend sediment recently found to be highly contaminated with heavy metals and other toxins. Moreover, the proposed project would significantly interfere with the aesthetic, recreational, and economic values of the lake. In fact, it is not clear whether dredging would violate a state dredging ban for the lake.

Air Products admits that one of the screening criteria for choosing a sequestration site was the low concentration of oil and gas wells. And ironically because the lake has had very limited industrial activity—making it one of the few natural resources in south Louisiana that are nearly unspoiled—Air Products wants to claim it for its carbon sequestration facility and spoil this remaining special place that is a treasure for Louisianans and tourists.

On top of choosing our valuable lake for its carbon waste project and dredging through an important wetland forest the state is trying to save, Air Products' minimization measures do not meaningfully lessen the enormous blow the proposed project would cause to this ecosystem. And many of the company's purported minimization efforts are false or misleading at best. For example, Air Products claims that its sequestration facility will be in remote areas of the lake, but the 19 platforms would be installed in areas the public uses and enjoys. And in trying to describe their minimization efforts, Air Products acknowledges that the boaters—one of the primary users of the lake—would be the ones impacted, while also falsely claiming that it is only boaters whose views would be impacted by the heavy industrial infrastructure.

Furthermore, the detrimental impacts of the project far outweigh the public benefits the Corps must balance in its Public Interest Review. The impacts to the environment and local community are significant, while the benefits are uncertain to materialize. As to the project's benefits, Air Products has not demonstrated that the nation's energy needs will be served by the proposed project dubbed the Louisiana Clean Energy Complex ("LCEC"), much less the energy needs of the state. Air Products has not shown it would be able to comply with relevant market standards for either low carbon hydrogen or clean hydrogen. Further, market forecasts regarding the demand for both blue hydrogen and ammonia are uncertain. Air Products' Application acknowledges that no "significant public benefit will result" from the proposed project, and many of the claimed benefits, such as "removing from the atmosphere significant quantities of CO_2 that would otherwise be emitted" are questionable at best and cannot be verified without additional information which the Application does not include.

The detrimental impacts, on the other hand, are far more certain. Concerning natural resources, Air Products' project will interfere with the public's access to large swaths of Lake Maurepas—treasured for its pristine state and recreational opportunities. The integrity of the lake itself would also be at risk from potential industrial accidents. And there are anticipated risks to communities (including schools)—posed by the proximity of the carbon dioxide pipeline, as well as known risks associated with the production of ammonia and hydrogen. And the impacts on the ongoing restoration and flood control projects in the area will inure to the detriment of every resident in all of the parishes hosting Air Products' sprawling facilities.

The balancing of all these factors (and more discussed below) against Air Product's proposed project favors denial of the permit. The proposed project does not serve the public interest.

If the Corps continues to review the Application instead of denying it outright, the agency must prepare a comprehensive Environmental Impact Statement ("EIS") under Section 102(2)(C) of the National Environmental Policy Act ("NEPA"), 42 U.S.C. 4332(2)(C), because authorization of the Section 10 and Section 404 permits sought by Air Products constitutes a "major federal action" that is likely to significantly affect the environment for the reasons discussed and substantiated below. The combined impacts of the proposed project on the MSP and WSLP alone should trigger the preparation of the more extensive EIS. When considered in tandem with the range of probable adverse impacts from the project, it is clear that the proposed activities will significantly affect the quality of the natural and human environment in the project area. Air Products has already committed to the preparation of an EIS, which the Corps should require, particularly given the shortcomings of the Application.

Commenters seek a public hearing on the Application because input from the public (including members of the groups here) is essential to the Corps' decision-making process as explained in detail below.

BACKGROUND

Air Products Blue Energy LLC, a subsidiary of Pennsylvania-based Air Products & Chemicals, Inc., is seeking a Clean Water Act Section 404 permit for a massive fossil fuels project that will impact areas of Ascension, St. James, St. John the Baptist, Tangipahoa, and Livingston parishes as shown in the map below (Figure 1). Air Products plans to construct a new facility along the Mississippi River that would produce up to 178 cubic feet of hydrogen per day near an elementary school and residences in the Burnside-Darrow-Sorrento area of Ascension Parish. The hydrogen is called "blue hydrogen," a term used for hydrogen produced from natural gas that employs carbon capture and storage. Here, Air Products plans to capture carbon dioxide waste gas generated at its hydrogen plant and transport it 38 miles through a new pipeline for injection deep beneath Lake Maurepas, in a process known as carbon capture and storage ("CCS"). Air Products hopes to sell some of the so-called blue hydrogen at a premium to Gulf Coast facilities through its existing pipeline network, although it lacks offtake agreements for the anticipated product. The rest of the blue hydrogen would be used to manufacture up to 8,814.89 tons per day of ammonia at a chemical plant that would also be built at the site.[10] The ammonia would be stored onsite, compressed, and loaded onto large ocean-going carriers for global shipment (likely to Asian countries).

The proposed new carbon dioxide ("CO_2") pipeline would run very close to Sorrento Primary School and neighboring subdivisions, through the Maurepas Swamp, including the protected Wildlife Management Area ("WMA"), near communities in St. John Parish, and then to a sprawling carbon sequestration system, complete with a network of additional pipelines and cables that would connect to 19 platforms spread throughout picturesque Lake Maurepas.[11] The new pipeline would require the acquisition and construction of rights-of-way ("ROW") through protected natural areas and will result in the permanent destruction of hundreds of acres of wetlands, damaging areas intended for flood protection and a major swamp restoration project.

[10] LDEQ Air Permit Briefing Sheet, Air Products, AI No. 233211, EDMS Doc. ID 14423657, pdf. p. 12, https://edms.deq.louisiana.gov/app/doc/view?doc=14423657.
[11] Air Products has applied for but has not been granted permits for the associated carbon storage wells under the lake.

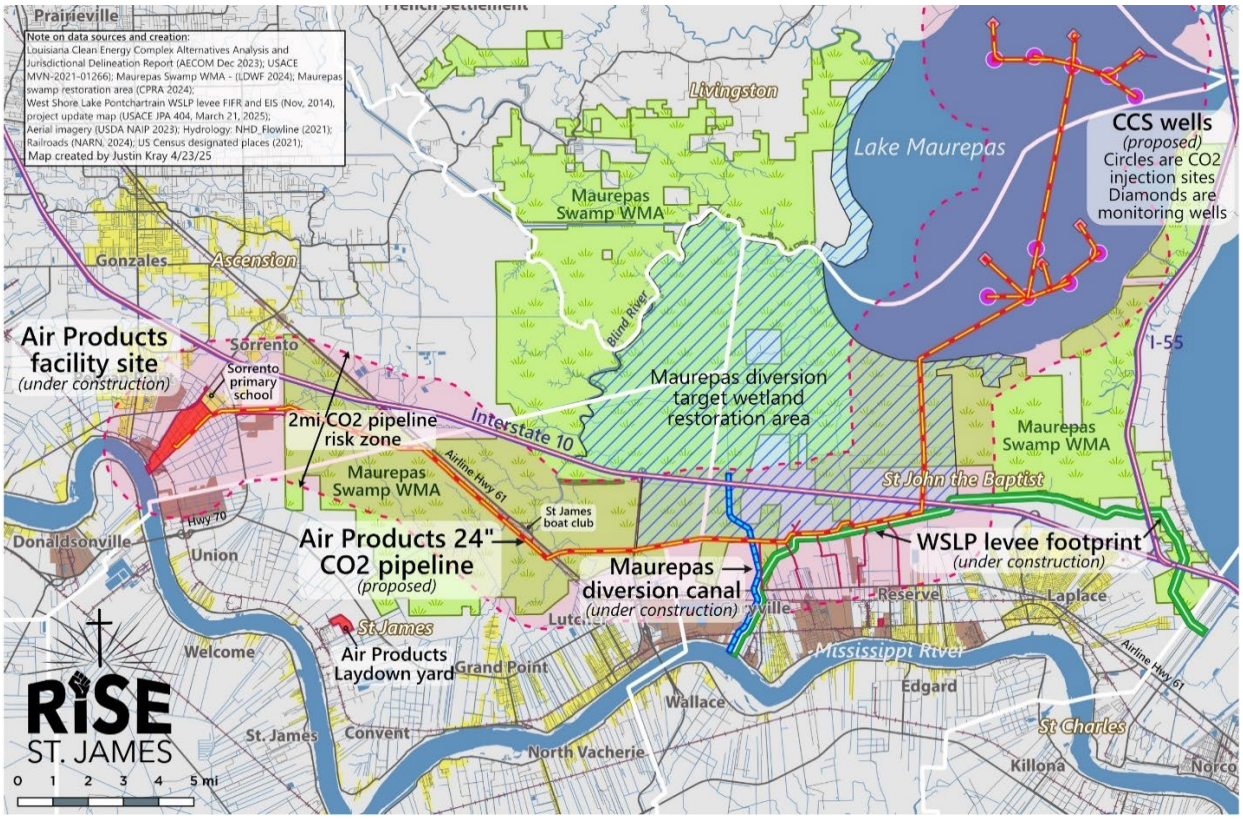

Figure 1 - Full Project Map (Created by Justin Kray)

Although Air Products recently announced plans to sell off major components of its proposed project and said it has halted new spending, the company is aggressively pursuing a Clean Water Act permit before the Corps, and a Louisiana Coastal Use Permit through the Department of Energy and Natural Resources, Office of Coastal Management ("OCM"). Air Products is presumably pushing to secure these permits so that it can attract buyers to take over the construction and operation of various facility components such as the ammonia plant, marine terminal, carbon dioxide pipeline, and carbon sequestration facility—keeping only the blue hydrogen manufacturing facility. As Commenters expressed in their June 11, 2025, letter to the Corps, the agency should suspend its review of the Application due to the speculative nature of the project and waste of public resources.

REQUEST FOR PUBLIC HEARING

Commenters request a public hearing on the Application so that their members and other affected community members can provide information that will assist the Corps in its decision-making process on this highly contested proposed project that has generated considerable public interest as documented in testimony offered by people who poured into hearing rooms at the Louisiana State Legislature to voice their concerns and by the numerous articles that have

covered the public opposition, as well as through the already numerous comments submitted in response to the dual public notices by OCM and the Corps.[12]

The Clean Water Act provides that the Corps may only issue a Section 404 permit "after notice and opportunity for public hearings . . . ." 33 U.S.C. § 1344(a). Indeed, the U.S. Supreme Court has noted that "the legislative history of the [Clean Water Act] indicates a strong congressional desire that the public have input in decisions concerning the elimination of water pollution." *Costle v. Pac. Legal Found*., 445 U.S. 198, 215 (1980). Additionally, the Corps' own regulations mandate: "Requests for a public hearing . . . shall be granted, unless the district engineer determines that the issues raised are insubstantial or there is otherwise no valid interest to be served by a hearing." 33 C.F.R. § 327.4(b). And "[i]n case of doubt, a public hearing shall be held." *Id.* at (c).

A public hearing would provide an opportunity for Commenters' members and other affected individuals, organizations, and experts to formally voice their concerns, provide relevant information, and ask questions regarding the potential impacts of the project. The Corps' Public Interest Review evaluates proposed projects based on various factors, including the following (non-exhaustive) factors: conservation, economics, aesthetics, environmental concerns, wetlands, and the needs and welfare of the people. A public hearing would be essential for a thorough and transparent evaluation of these factors in the context of the proposed project and its impacts on Lake Maurepas, the Maurepas Swamp, and the surrounding communities.

More specifically, a public hearing would allow the Commenters and the community to voice their concerns regarding the project's impact on recreational fishing, swimming, boating, and other activities on the lake, ensuring that the Corps has a comprehensive understanding of the proposed project's potential effects on the public's use and enjoyment of the resource. For instance, the public can present information regarding the economic value of the lake for recreation, tourism, and related activities. This information can inform the Corps' assessment of the project's economic impact and ensure that the needs of the local economy are adequately considered in the decision-making process. The public can also provide information on their use and enjoyment of the lake, including information about areas of the lake used for boating, fishing, kayaking, enjoying nature, observing wildlife, and photographing natural wonders. They can provide information on how the proposed project would interfere with these uses. Commercial fishers can provide information about their use and dependence on the lake for their livelihoods and how the proposed project would interfere with their businesses. Local business owners who thrive off recreational boating and commercial fishing can detail how the proposed project would harm their businesses due to the reduction and restrictions on these current uses of Lake Maurepas. And people who own homes along Lake Maurepas and the rivers that feed into the lake can testify about how the proposed project could negatively impact their home values.

[12] Articles Illustrating Public Opposition to Air Products' Proposed Project (Louisiana Clean Energy Complex), Ex. 4; *See also* Excerpts of Testimonies from Louisiana House of Representatives Hearings re. Lake Maurepas & CCS-related House Bills (May 2, 2023 & Apr. 4, 2024) ("LA HR Hearing Testimonies"), Ex. 4.B; *See also* Excerpts of Submitted Written Comments to OCM in Opposition of Air Products' Lake Maurepas CCS Project (July 2025) ("Public Comments to OCM"), Ex. 4.C.

In sum, a public hearing should be held so that Commenters, members of the public, and residents of nearby communities can provide input that is essential to the Corps' decision-making.

DETAILED COMMENTS

I. THE PROPOSED PROJECT DOES NOT MEET CLEAN WATER ACT REQUIREMENTS.

The Corps has a fundamental responsibility to protect the nation's aquatic resources in its role of reviewing applications for a Clean Water Act Section 404 permit. Accordingly, the Corps cannot issue a Section 404 permit if the proposed activity fails to comply with the relevant guidelines and criteria, or if it is determined to be contrary to the public interest. As demonstrated below, the proposed project both fails to comply with the guidelines and is contrary to the public interest.

A. The Corps must deny the Application because the proposed project does not meet the requirements set forth in the Clean Water Act Section 404(b)(1) Guidelines.

The Corps cannot issue a Section 404 or Section 10 permit unless the proposed project meets the requirements set forth in the Clean Water Act Section 404(b)(1) Guidelines.

The purpose of the 404(b)(1) Guidelines "is to restore and maintain the chemical, physical, and biological integrity of waters of the United States through the control of discharges of dredged or fill material." 40 C.F.R. § 230.1(a). "Fundamental to these Guidelines is the precept that dredged or fill material should not be discharged into the aquatic ecosystem, unless it can be demonstrated that such a discharge will not have an unacceptable adverse impact either individually or in combination with known and/or probable impacts of other activities affecting the ecosystems of concern." 40 C.F.R. § 230.1(c). The terms *aquatic environment* and *aquatic ecosystem* mean waters of the United States, including wetlands, that serve as habitat for interrelated and interacting communities and populations of plants and animals. 40 C.F.R. § 230.3(b). Special aquatic sites "are geographic areas, large or small, possessing special ecological characteristics of productivity, habitat, wildlife protection, or other important and easily disrupted ecological values." 40 C.F.R. § 230.3(m). These areas "are generally recognized as significantly influencing or positively contributing to the general overall environmental health or vitality of the entire ecosystem of a region." *Id.* The special aquatic sites at issue here are (1) sanctuaries and refuges and (2) wetlands. *See id.* (referencing art E).

All Section 230.10 requirements must be met. The rigor of the analysis must be commensurate with the magnitude of the impacts. Here, the impacts of the proposed dredged and fill would be immense to wetlands (including those within the Maurepas Wildlife Management Area) and the Lake Maurepas ecosystem. There are also risks of industrial failure associated with a carbon dioxide pipeline rupture.

1. 40 C.F.R. § 230.10(a): There is a practicable alternative to the proposed discharge that would have less adverse effect on the aquatic ecosystem and does not have other significant adverse environmental consequences.

The fundamental precept of the 404(b)(1) Guidelines, which are binding regulations, is that discharges of dredged or fill material into waters of the United States, including wetlands, should not occur unless it can be demonstrated that such discharges, either individually or cumulatively, will not result in unacceptable adverse effects on the aquatic ecosystem. The Corps is required to evaluate alternatives under the Clean Water Act Section 404 (b)(1) Guidelines to determine the "least environmentally damaging practicable alternative" or "LEDPA." The Corps makes the final determination on the LEDPA. Compensatory mitigation is not considered during the LEDPA determination.

The Section 404(b) Guidelines explain that "the degradation or destruction of special aquatic sites, such as filling operations in wetlands, is considered to be among the most severe environmental impacts." 40 C.F.R. § 230.1. For that reason, the Section 404(b)(1) Guidelines explain "no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem ...." 40 C.F.R. § 230.10(a). Moreover, the Guidelines establish a strong presumption that there are practicable alternatives to the discharge of fill to jurisdictional waters if the activity to be permitted is not "water dependent," that is, if it "does not require access or proximity to or siting within" a wetland "to fulfill its basic purpose. 40 C.F.R. § 230.10(a)(3). "[W]here 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." *Id.* Air Products' carbon dioxide pipeline and sequestration facilities are not water-dependent; there are carbon dioxide projects that do not involve wetlands and lake beds, and such projects can be sited away from wetlands or other water bodies. Therefore, the Air Products proposal falls under the legal presumption that practicable alternatives to the proposed activity are available that do not involve a special aquatic site.[13] Unless Air Products clearly demonstrates that a practicable alternative does not exist, the Corps is supposed to deny a permit that impacts a special aquatic site.

Air Products has failed to demonstrate that there is no reasonable alternative to locating the carbon dioxide pipeline in the Maurepas Swamp or severely disturbing Lake Maurepas for its proposed carbon sequestration facility. The Corps must deny Air Products' permit for this reason.

[13] Preparing An Alternative Analysis Under Section 404 of the Clean Water Act, Fort Worth District – Regulatory Division (Nov. 2014) https://www.swf.usace.army.mil/Portals/47/docs/regulatory/Handouts/Preparing_An_Alternatives_%20Analysis.FINAL.pdf.

a. Project purpose and need is essential to determining the LEDPA.

The applicant's project purpose and need are essential elements in establishing the least environmentally damaging practicable alternative for the project. The Corps public notice provides that the basic project purpose is "industrial infrastructure", and the overall project purpose is "[t]o produce ammonia and hydrogen and to inject the carbon dioxide byproduct into underground wells."[14] Air Products described the project purpose in the "Louisiana Public Trust Doctrine Analysis," as part of its Application, stating: "This report [meaning the Louisiana Public Trust Doctrine Analysis] is intended to comply with the Louisiana Public Trust Doctrine and the United States (U.S.) Army Corps of Engineers (USACE) requirements to consider impacts and alternatives under the National Environmental Policy Act (NEPA), the Clean Water Act (CWA), and their implementing regulations, as applicable." [15] According to the Application, Section 1.2, Project Purpose and Need, Air Products states that "The low-carbon hydrogen and ammonia produced by the [Louisiana Clean Energy Complex, or "LCEC"] would be used for industrial processes, mobility, and other applications. Typical processes for the production of hydrogen and ammonia produce greenhouse gas emissions due to the levels of carbon released during production. The LCEC would produce needed hydrogen and ammonia without releasing most of its carbon dioxide to the air, thus avoiding potential contributions to climate change. As a greenfield project, the LCEC will also be a new customer for Louisiana natural gas producers, introducing new purchasing into a market that saw declining consumption in 2024."[16] In short: Air Products proposes to (1) produce hydrogen and ammonia, (2) without contributing to greenhouse gas emissions, and (3) consume natural gas. Other related purposes include creating jobs in Louisiana.

The production of hydrogen and ammonia without contributing to greenhouse gas emissions can be accomplished in several ways that are not water dependent nor environmentally damaging; for example, the primary facility component can be constructed without adversely impacting wetlands and the carbon-capture elements can be moved on site to non-wetlands areas, built and linked into pre-existing infrastructure, or out-sourced entirely. Such alternatives can accomplish Air Products' stated purpose and goals of creating clean hydrogen and ammonia products (and using Louisiana natural gas and creating onsite jobs) without also damaging the local wetland environment. To the extent that Air Products fails to consider adequate alternatives that align with its own stated project needs and purpose, its application should be denied.

At no point does Air Products claim its purpose or need is to enter the CCS market, construct sequestration facilities and/or store captured carbon dioxide. This is a reasonable omission, given that Air Products is a well-established hydrogen and ammonia producer and not a CCS company. However, it is telling that this Application assumes throughout that Air Products' purpose and need are met by Air Products *itself* constructing and operating a complex

[14] U.S. Army Corps of Engineers, Public Notice, New Orleans District Permit Application No. MVN-2011-03218-EDM (Air Products Blue Energy, LLC), p. 2, June 30, 2025, https://usace.contentdm.oclc.org/utils/getfile/collection/p16021coll15/id/10016.
[15] Joint Permit Application ("JPA"), Attach. 2-02a La. Public Trust Doctrine Analysis, Section 1.1, Mar. 14, 2025, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15114536.
[16] JPA, Attach. 2-02a La. Public Trust Doctrine Analysis, Section 3.2, p. 1, Mar. 14, 2025, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15114536.

and large CCS pipeline and sequestration facility. Other applications by chemical companies assert that carbon emissions will be captured and handled by third-party companies, presumably with existing infrastructure and expertise – two key things Air Products lacks in this area.[17] Note that Air Products *could* seek to build expertise and infrastructure in CCUS in Louisiana, but it has not made that part of its own stated purpose and need for *this* project.[18] And, indeed, Air Products recently announced that it wants no part of the CCS component of its proposed project.[19]

i. Alternatives Analysis Does Not Reflect Purpose and Need of Proposed Project

The basic project purpose, per Air Products' application, is to produce hydrogen and ammonia without contributing to greenhouse gas emissions. This purpose does not require access to, or proximity to, or siting within, a special aquatic site to fulfill its basic project purpose, and therefore is not a water dependent activity. Consistent with the Clean Water Act 404(b)(1) Guidelines at 40 C.F.R. § 230.10(a)(3), if the proposed activity is not water dependent, practicable alternatives not involving special aquatic sites are presumed to be available unless the applicant clearly demonstrates otherwise.

Air Products' "no action" and alternatives analysis presuppose that the carbon sequestration facility is a necessary part of the project and cannot be eliminated from consideration; there are alternative locations for the facility, and alternative means of getting carbon dioxide to the facility, but the sequestration facility itself is not eliminated from consideration.[20] However, the actual goal of the project is stated by Air Products to be "to reduce

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[17] *See, e.g.,* U.S. Army Corps of Engineers, Public Notice, Permit Application No.: MVN-2022-00623-EDM (St. Charles Clean Fuels) (pp. 7–10, noting intent to capture carbon emissions onsite and transport to third party), Dec. 25, 2023, https://www.mvn.usace.army.mil/Portals/56/docs/regulatory/publicnotices/2022_00623_PNALL_122523_2.pdf?ver=ESAOK7FimoUsbu8Rgb6Idg%3d%3d; CCUS Map, Pecan Island CCUS, (website describing partnership where CF Industries will capture carbon at its hydrogen facility in Donaldsonville, Enlink will transport it to Vermillion Parish, and Exxon will store it at the Pecan Island CCUS facility), https://ccusmap.com/markers/project-detail/pecan-island-ccs; U.S. Army Corps of Engineers, Public Notice, Permit Application No.: MVN-2023-000900-CQ (Denbury Gulf Coast Pipelines, LLC application to construct spur to connect to Clean Hydrogen Works (CHW) Ascension Clean Energy Project in Donaldsonville), June 3, 2024, https://www.mvn.usace.army.mil/Portals/56/docs/regulatory/publicnotices/2023_000900_PN%20ALL_06032024.pdf?ver=o4OX_XEqRruGu3H1TTJc3w%3d%3d.

[18] The Public Notice posted by the Corps states that the purpose of the project is to "produce ammonia and hydrogen and to inject the carbon dioxide byproduct into underground wells." This is not how Air Products describes its project purpose. Regardless, the Public Notice does not suggest that Air Products build and operate the carbon dioxide injection wells and infrastructure, only that such carbon dioxide storage occur. Again, this purpose can be met without any involvement by Air Products in the development, construction and operation of the pipeline and CCS facility.

[19] *See* Commenters' Letter to the Corps, June 11, 2025 (citing and attaching as Ex. 1, Q2 2025 Air Products Earnings Conference Call, May 1, 2025, Tr. ("Q2 2025 Air Products Tr."), at pdf. p. 7–8, 15 (Eduardo Meunezis, CEO, Air Products), https://uk.investing.com/news/transcripts/earnings-call-transcript-air-products-q2-2025-misses-eps-forecast-shares-dip-93CH-4060016), Ex. 5.

[20] JPA, Attach. 2-02a La. Public Trust Doctrine Analysis, Section 3.2, at 43–44; 52–53, Mar. 14, 2025, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15114536.

the carbon footprint of the entire lifecycle of these products."[21] An obvious means to achieve carbon capture and sequestration while avoiding the significant negative impacts of the pipeline and Lake Maurepas sequestration facility would be to construct a spur pipeline to the existing Exxon-Denbury Green Line carbon dioxide pipeline. Linking to an existing carbon dioxide pipeline would spare the environmental damage that would necessarily result from construction of the pipeline and sequestration facility, while maintaining the reduction in carbon capture. Construction of such a spur line is possible; in St. James Parish, the Nucor Steel facility is currently attempting to acquire permits to construct such a spur to connect to the Green Line in Ascension Parish,[22] as is Clean Hydrogen Works Ascension Clean Energy Project.[23] Air Products' failure to meaningfully conduct this analysis is clear in its Public Trust Doctrine alternatives analysis in which it states that "Based on all available public information, we were unable to identify an existing CO_2 pipeline system in the LCEC vicinity."[24] That is not true. The Exxon-Denbury Green Line is a few miles away from the facility, in the same parish.[25] The Corps must be provided with the details of this option in order to conduct a competent analysis instead of Air Products' false statement that no existing pipeline exists.

Moreover, the five considered alternative locations for the carbon sequestration facilities are all uniformly in and under water: Alternative 1 ("Cypress") is in the Maurepas Swamp WMA; Alternative 2 ("Lake Maurepas") is the chosen alternative under the lake; Alternative 3 "Lac des Allemands" is under another nearby lake; Alternative 4, "Lake Pontchartrain," is under the lake hydrologically connected to Lake Maurepas, and Alternative 5, "French Settlement/Amite River," is in the Vicknair Bayou wetlands along the Amite River. As stated above, the Air Products' pipeline and sequestration projects fall under the legal presumption that practicable alternatives to the proposed activity are available that do not involve a special aquatic site.[26] Yet the only alternatives suggested by Air Products are in special aquatic sites, without any explanation by Air Products as to why it only reviewed wetlands and lakes. Unless the

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[21] *Id.* at p. 43.

[22] *See* St. James Parish Land Use Application, Low Carbon Logistics CCS Transport LLC, starting at p. 14 of: https://www.stjamesla.com/AgendaCenter/ViewFile/Agenda/_04282025-565 (Excerpted and attached hereto as Ex. 6.

[23] U.S. Army Corps of Engineers, Public Notice, Permit Application No.: MVN-2023-000900-CQ (Denbury Gulf Coast Pipelines, LLC, June 3, 2024,https://www.mvn.usace.army.mil/Portals/56/docs/regulatory/publicnotices/2023_000900_PN%20ALL_06032024.pdf?ver=o4OX_XEqRruGu3H1TTJc3w%3d%3d

[24] JPA, Attach. 2-02a La. Public Trust Doctrine Analysis, Section 3.2, p. 47, Mar. 14, 2025, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15114536.

[25] The Exxon website includes a map of the pipeline here: https://corporate.exxonmobil.com/sustainability-and-reports/advancing-climate-solutions/growing-low-carbon-solutions#Leadingnow. Information about this pipeline is widely available. *See* Terry L. Jones, "Public outcry against carbon capture in Louisiana growing," Jan. 2, 2024, available at https://www.wwno.org/coastal-desk/2024-01-02/public-outcry-against-carbon-capture-in-louisiana-growing; Santiago Canel Soria and Hope Pagan-Ramos, "USGC eyes CCS expansion in heavy industry, but faces hurdles with permits, delays," Dec. 23, 2024, S&P Global, https://www.spglobal.com/commodity-insights/en/news-research/latest-news/energy-transition/122324-usgc-eyes-ccs-expansion-in-heavy-industry-but-faces-hurdles-with-permits-delays.

[2626] Preparing An Alternative Analysis Under Section 404 of the Clean Water Act, Fort Worth District – Regulatory Division (Nov. 2014) https://www.swf.usace.army.mil/Portals/47/docs/regulatory/Handouts/Preparing_An_Alternatives_%20Analysis.FINAL.pdf.

applicant clearly demonstrates that a practicable alternative does not exist, the Corps is supposed to deny a permit that impacts a special aquatic site. Here, Air Products did not demonstrate that non-aquatic alternatives exist, limiting its analysis to other water-dependent sites. Air Products did not complete a true alternatives analysis, giving no information as to why it looked only at special aquatic sites that are disfavored by the Corps. Air Products must either explain why it eliminated non-aquatic sites from its consideration, or include non-water-dependent sites in its analysis.

b. Pipeline route alternatives do not reflect the purpose and need of the Proposed Project.

Once Air Products determined its preferred facility location and carbon sequestration site, it then evaluated four different potential pipeline routes.[27] The Public Trust Analysis section on pipeline route selection regarding Pipeline Alternative Route 1 in Section 3.3.6, states:

> Air Products rejected Route 1 based on feedback from federal and state resource agencies regarding impacts to the WMA and the Maurepas Swamp "Benefit Area." LDWF indicated that it could not provide regulatory approval for a new pipeline corridor in the WMA, nor would it approve any corridor that would fragment the WMA. In addition, CPRA and USACE indicated that construction across the Benefit Area could not reduce the published anticipated benefits to be generated by the Maurepas Diversion.[28]

Similarly, in Section 3.3.7, in its reasoning for rejecting Route 2 Air Products states,

> USACE and CPRA indicated that they would not approve construction in the Benefit Area if it would result in a reduction in anticipated benefit from the Maurepas Diversion project.[29]

Route 3 is similarly described. Yet despite these concerns, Air Products selected the Preferred Route, a similar path to 1, 2, and 3 that would parallel the existing ROW but which would still lead to the creation of a new, denuded ROW pathway that would fragment the WMA, particularly through its north-south corridor into the lake, and which would reduce the anticipated benefits from the Maurepas Diversion project: "the Preferred Route would be adjacent to existing corridors for 62% of the total onshore length. It would require approximately 3 miles of new pipeline corridor within the Maurepas Swamp WMA."[30]

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[27] Air Products did review non-pipeline-to-CCS-facility transportation alternatives like trucking and rail of the compressed carbon dioxide following capture, but it failed to consider a short pipeline or transportation alternative to an existing CCS pipeline or other third-party option. *See* JPA, Attach. 2-02a La. Public Trust Doctrine Analysis, Section 3.2.4, p. 45–6, Mar. 14, 2025, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15114545.
[28] *See* JPA, Attach. 2-02b La. Public Trust Doctrine Analysis, Section 3.3.6, at 98, Mar. 14, 2025, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15114545.
[29] *Id.* at 99.
[30] *Id*. at 100.

Like the similar proposed aquatic carbon sequestration sites, the various proposed pipelines are extremely similar: All routes studied would add new corridors or widen existing corridors, further fragmenting the wetlands.[31] Any of the routes would permanently remove hundreds of acres of swamp forested wetlands, directly reducing the benefits of the Maurepas Diversion project. Under Air Products' own reasoning that the diversion will benefit a much larger area and provides important ecosystem benefits, none of the studied routes are acceptable and should never have been considered as viable alternatives.[32] Its own evaluation indicates that the pipeline construction will permanently remove over 300 acres of high to medium-high quality swamp forest (a scarcity in the region), most of it on conservation lands and within the WMA.

The alternatives analysis did not consider avoiding the WMA and these beneficial project areas and protected lands at all.[33] Had Air Products made avoidance of the WMA and beneficial project area into a screening consideration, the alternatives analysis for the pipeline route would have been meaningful. The preferred route actually crosses the baseline reference area for indirect impacts described in the mitigation project benefit monitoring and adaptive management plans.[34] As explained in depth by retired Coastal Protection and Restoration Authority ("CPRA") Senior Coastal Resources Scientist, Honora Buras,

> This reasoning [supporting the preferred route over the other routes] is faulty in that the preferred route still crosses the overall benefit area of the (Maurepas Swamp Project, or "MSP"), . . . just not the area closest to the diversion outfall north of I-10, where direct benefits are being used for compensatory mitigation of the WSLP levee. It does, however, cross the area south of I-10 that will be used as a reference area for indirect impacts from the project, especially any impacts from the diversion channel, and will be monitored to assist in evaluating the success of the MSP for mitigation and the adaptive management of operations. There will also be lateral discharge valves in this area to provide flow from the diversion as needed. Removing the forest and/or changing the hydrology by excavation of the pipeline canal will directly impact the ability to adaptively manage the diversion project.[35]

This is a problem with all of the proposed routes; because no alternative outside of the WMA was considered, all of the pipeline alternatives will violate the limitations set forth by the relevant state agencies. The Preferred Route is as problematic as the others in this regard.

As set forth in the attached Expert Report of Honora Buras,

> [A]lternatives that did not require the use of Lake Maurepas or the Maurepas Swamp were ruled out for things such as zoning concerns or wetland impacts, but

[31] Buras Report at 30, Ex. 1.
[32] *Id*.
[33] *Id.*
[34] *See* Buras Report at 34, Ex. 1.
[35] *See* Buras Report at 28, Ex. 1.

> for some inexplicable reason, [Air Products] considered the impacts of [its preferred location for the] pipeline and sequestration facilities to forested wetlands of the Maurepas Swamp acceptable and totally ignored the impacts to (co-located, already funded flood-control) projects and the protected lands in their decision process." . . . No sites outside of the Lower Mississippi River corridor were considered. Sites that did not require lengthy pipelines across sensitive habitats were not considered. Sites where CCS could be developed on or adjacent to facility boundaries were not considered. Furthermore, Air Products' analysis did not weigh or consider the value of avoiding protected conservation areas like the Maurepas Swamp WMA and ongoing flood control and restoration projects, which "should have been a major screening consideration that removed all of these routes from further consideration in the first round of alternative development and screening."[36]

Air Products' alternatives analysis is flawed because there are practicable alternatives that would avoid the discharge that should be considered, including a non-aquatic sequestration site and the pipeline spur to existing infrastructure/no facility alternatives discussed above. The analysis is also flawed because the same limitations that made Pipeline Routes 1, 2, and 3 unacceptable are also violated by the Preferred Route, i.e., building new ROW corridors and fragmenting the Maurepas Swamp with the all-new route to the lake. This makes Air Products' selection of its preferred site and pipeline route arbitrary and capricious without either better analysis or a non-WMA-based route alternative for comparison. Four largely identical routes are insufficient; alternatives avoiding the WMA altogether should have been considered.

2. 40 C.F.R. § 230.10(b): The discharge of dredged or fill material from the proposed project is prohibited due to the restrictions regarding state water quality standards, toxic effluent standards, and endangered/threatened species.

a. State Water Quality Standards

The discharge of dredged or fill material is prohibited if it "[c]auses or contributes, after consideration of disposal site dilution and dispersion, to violations of any applicable State water quality standard." 40 C.F.R. § 230.10(b)(1).

As discussed in Section 1.A.3.a.ii.a regarding Guideline 230.10(c), Air Products' dredging activities in Lake Maurepas would result in the resuspension of contaminated bottom sediments that will result in the release of toxic substances into the water column. Louisiana's water quality standards for toxic substances are set forth in LAC 33:IX.1113(B)(5), which provides:

> [Toxic substances] [s]hall not be present in quantities that alone or in combination will be toxic to plant or animal life. Concentrations of persistent toxic substances for which no numerical criteria are given in the Standards shall not exceed the 96–hour LC50/100 (one one-hundredth of the 96–hour LC50).

[36] *Id.*

> Persistent toxic substances are defined herein as refractory substances subject to very limited or no biodegradation and/or detoxification and subject to food chain bioaccumulation; they include but are not limited to pesticides, PCB's and heavy metals that are designated by EPA as priority pollutants. Concentrations of non-persistent, biodegradable toxic substances for which no numerical criteria are given in the standards, shall not exceed the 96–hour LC50/10 (one-tenth of the 96–hour LC50).

To grant a water quality certification, Louisiana Department of Environmental Quality ("LDEQ") must verify that the proposed activity complies with applicable water quality standards. Thus, the LDEQ must verify that the Corps' proposed dredging activity complies with the water quality standards set forth in LAC 33:IX.1113(B)(5). But here there is insufficient information to fully assess the potential for the dredge and fill activities in Lake Maurepas to relocate toxic substances and impact the water quality standards. Without this information, LDEQ will be unable to perform a competent analysis required for a water quality certification.

Also as discussed, Air Products' dredging activities in Lake Maurepas would increase turbidity. LAC 33:IX:1113(B)(9) provides:

> Turbidity other than that of natural origin shall not cause substantial visual contrast with the natural appearance of the waters of the state or impair any designated water use. Turbidity shall not significantly exceed background; background is defined as the natural condition of the water.

LAC 33:IX:1113(B)(9)(a). LDEQ has established the "maximum turbidity levels, expressed as nephelometric turbidity units (NTU)" of 50 NTU for estuarine lakes such as Lake Maurepas. LAC 33:IX:1113(B)(9)(b)(ii).

These are just two of the water quality standards the state must address. There are many more and it is likely that the Application and supporting materials also fail to provide sufficient information for the state's review of those standards.

For these reasons, the Application and supporting materials lack sufficient information to demonstrate that the discharge of dredged or fill material in Lake Maurepas will not cause or contribute to violations of state water quality standards.[37]

b. Toxic Effluent Standards

The discharge of dredged or fill material is prohibited if it "[v]iolates any applicable toxic effluent standard or prohibition under section 307 of the Act." 40 C.F.R. § 230.10(b)(2).

[37] *See Matter of W. Pearl River Nav. Project*, 94-2260 (La. App. 1 Cir. 6/23/95); 657 So. 2d 640, 642, *writ denied*, 95-2049 (La. 11/17/95); 663 So. 2d 720 (reversing LDEQ decision to issue a water quality certification for a dredging project where record failed to provide sufficient evidence).

According to a Southeastern Louisiana University ("SELU") [38] study, the sediments in Lake Maurepas contain significant levels of heavy metals and other toxic pollutants.[39] Dredging in such areas presents a substantial risk of resuspending these contaminants and releasing them into the water column, potentially exceeding the applicable water quality standards and harming aquatic life and human health. Section 307 of the Clean Water Act prohibits the discharge of pollutants, including toxic pollutants like heavy metals, that violate applicable effluent standards. The resuspension of contaminated sediments could lead to exceedances of these standards during the dredging and filling process in violation of the prohibition of discharges that violate toxic effluent standards under Section 307 of the Clean Water Act.

Likewise, as discussed in Buras' report, "[t]he dredging and propwashing proposed by Air Products through Lake Maurepas waterbottoms for the network of pipelines and injection and monitoring wells will stir up large amounts of bottom sediments, harming benthic organisms, fish and shellfish, manatees, and submerged aquatic vegetation."[40] Mercury is a known specific concern in this area: In April 2024, three Louisiana state departments (Health, Environmental Quality, and Wildlife and Fisheries) issued a fish consumption advisory for Lake Maurepas in Livingston and St. John the Baptist parishes where "unacceptable levels of mercury" have been detected in several species of fish.[41, 42] Air Products' dredging and propwashing activities can resuspend mercury or other harmful substances into the lake as discussed in more detail below.

c. Endangered/Threatened Species

The discharge of dredged or fill material is prohibited if it:

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

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[38] SELU announced in 2022 that "right now we are contracted for three-year [Lake Maurepas] monitoring project." SELU, Lake Maurepas Monitoring Project,video at minute 2:00, https://www.southeastern.edu/college-of-science-and-technology/center-for-environmental-research/lakemaurepas/. It appears this contract has been fulfilled with the publication of their *Phase III: Lake Maurepas Monitoring Annual Report Year 2* (2024) study (covering the three-year period 2023, 2024, and 2025, with 2022 being the baseline (or zero year)). *See id.* at Project Reports tab, https://www.southeastern.edu/college-of-science-and-technology/center-for-environmental-research/lakemaurepas/reports/. This monitoring project was funded by Air Products and there is no evidence that Air Products has funded additional work for future monitoring.

[39] *See* Kyle Piller et al., *Phase III: Lake Maurepas Monitoring Annual Report Year 2* (2024), at 93, 95, 136, https://www.southeastern.edu/wp-content/uploads/lake-maurepas/lake-maurepas-monitoring-report-year.pdf, Ex. 7.

[40] Buras Report at 50, Ex. 1.

[41] LDH, LDEQ, LDW, Fish Consumption Advisory for Lake Maurepas, April 17, 2024, https://ldh.la.gov/assets/oph/Center-EH/envepi/fishadvisory/Documents/Lake_Maurepas_2024.pdf, Ex. 8.

[42] Appendix H of the WSLP Supplemental Environmental Impact Statement noted that, as of 2020, many of the rivers that feed into Lake Maurepas, including the Blind River, Amite River, Tickfaw River, and Natalbany River, are impaired for fish and wildlife propagation due to elevated mercury levels from atmospheric deposition." *See* Buras Report at 50, Ex. 1 (citing Appendix H of the Supplemental Environmental Impact Statement, West Shore Lake Pontchartrain Hurricane and Storm Damage Risk Reduction Study, p. 18 of the Adaptive Management Study, *available at* https://www.mvn.usace.army.mil/Portals/56/docs/environmental/RPEDS/WSLP%20SEIS%20Appendix%20H%20-%20Final.pdf).

> 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.

40 C.F.R. § 230.10(b)(3). The Guidelines further explain that in determining whether a proposed discharge will cause or contribute to significant degradation of waters of the U.S., the Corps must also consider potential impacts on threatened and endangered species from the discharge, including direct killing of the species and the facilitation of incompatible activities. *See* 40 C.F.R. § 230.30(b)(1)&(3); 40 C.F.R. § 230.10(c). Further, the Corps must not narrow its analysis of threatened and endangered species to only those threatened and endangered species listed under the Endangered Species Act of 1973. The Corps' must consider impacts to "[l]istings of threatened and endangered species as well as critical habitats [that] are maintained by some individual States and" other federal agencies. 40 C.F.R. § 230.30(a).[43]

> Additional considerations required by the Guidelines include:
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> impairment or destruction of habitat to which these species are limited. Elements of the aquatic habitat which are particularly crucial to the continued survival of some threatened or endangered species include adequate good quality water, spawning and maturation areas, nesting areas, protective cover, adequate and reliable food supply, and resting areas for migratory species. Each of these elements can be adversely affected by changes in either the normal water conditions for clarity, chemical content, nutrient balance, dissolved oxygen, pH, temperature, salinity, current patterns, circulation and fluctuation, or the physical removal of habitat[.]

40 C.F.R. § 230.30(b)(2).

Here, the proposed project has potential to cause numerous adverse impacts to threatened and endangered species in the area, from the resuspension of heavy metals as discussed below, increased salinity, and direct removal of physical habitat. Air Products proposes to dredge hundreds of acres of swamp and lake habitat, including 320 acres cypress-tupelo wetlands the majority of which are in the WMA.[44] In Lake Maurepas alone, Air Products proposes to

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[43] The Guidelines define endangered species as "a plant or animal in danger of extinction throughout all or a significant portion of its range" and explain that "[a] threatened species is one in danger of becoming an endangered species in the foreseeable future throughout all or a significant portion of its range." *Id*. at § 230.30(a). Moreover, the Corps' duty extends beyond protection of species listed under the Endangered Species Act of 1973, to consideration of impacts to "[l]istings of threatened and endangered species as well as critical habitats [that] are maintained by some individual States and" other federal agencies. *Id*.

[44] *See* JPA, Attach. 2-06 Wetland and Other Waters Impact Tables, Excavation and Fill Table, at 2, Mar. 14, 2025, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15114564. (Adding up the values for "Cypress-Tupelo").

excavate 209,510.89 cubic yards of material over 28.66 acres.[45] Such impacts could jeopardize the continued existence of threatened and endangered species in the area.[46]

The hydrological impacts of the proposed project need careful review—especially regarding any changes that might make it harder for bald cypress and tupelo to germinate and for *any* impacts to the overall benefits of the river reintroduction project.[47] By their own admission, Air Products notes that the cypress and cypress-tupelo swamps are vulnerable, that "[t]he long-term survival and sustainability of these swamp forests is unknown due to large-scale changes in hydrologic regimes that prevent natural regeneration following logging or mortality[,]" and that "[t]hese areas provide important ecosystem functions including maintenance of water quality, productive habitat for fish and wildlife species, and regulation of flooding and stream recharge."[48] The company further notes that these habitats surround Lake Maurepas, and that one in particular is located directly south of Lake Maurepas.[49] Louisiana Department of Wildlife and Fisheries ("LDWF") recommends "preventing negative alterations to natural hydrology that would affect survival and reproduction of bald cypress (*Taxodium distichum*) and tupelo (*Nyssa* spp.)" because, "[s]eeds of both species do not germinate underwater, and young seedlings cannot survive extended submergence; bald cypress and tupelo rely on water level fluctuations for seedling recruitment[.]"[50] In fact, of the 2000 seedlings that SELU planted, 80 percent died.[51] Given the scale of habitat destruction and challenges for regeneration, the hydrological impacts from the Project must be reviewed to determine the full scope of impacts on the River Reintroduction into Maurepas Swamp project, also called the Maurepas Swamp Project, which aims to improve the success of seedlings.[52]

Additional studies and surveys are required to determine the extent of adverse impacts from the project on threatened and endangered species, and to avoid impacts that jeopardize these species continued existence in the area before this project can be approved. As Air Products has acknowledged, there are at least eleven federal and state listed species that "have

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[45] *See* JPA, Attach. 2-05 Excavation and Fill Table, at 2, Mar. 14, 2025, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15114564. (adding up the values from the excavated materials of sequestration sites north and south)

[46] For example, *See* D. Dickerson, et al., *Dredging impacts on sea turtles in the southeastern USA: A historical review of protection,* USACE ERDC (2004), https://seaturtles.el.erdc.dren.mil/docs/2004WODCON-Dickerson.pdf; *See also* S. W. Abadie & Michael A. Poirrier, *Environmental Atlas of Lake Pontchartrain*, USGS (2002), https://pubs.usgs.gov/of/2002/of02-206/env-issues/clam-abundance.html, "studies on the benthic community in Lake Pontchartrain conducted in the 1950's, 70's and 80's appeared to show a downward trend in the abundance of large (> 20 mm), sexually mature, *Rangia cuneata* with time […]. Only since the cessation of shell dredging in 1990 have the effects of over fifty years of dredging been realized."

[47] *See* Section I.B.1.f for a discussion of Air Products' inadequate Hydrologic Modification Impact Analysis and Section I.A.2.b. on the river reintroduction project.

[48] *See* JPA, Attach. 2-10 Threatened and Endangered Species Habitat Assessment, at pdf p. 21, Mar. 14, 2025, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15114589.

[49] *Id*. at pdf p. 21.

[50] *Id*. at pdf p. 22.

[51] Kyle Piller et al., *Phase III: Lake Maurepas Monitoring Annual Report Year 2* (2024), at 81, https://www.southeastern.edu/wp-content/uploads/lake-maurepas/lake-maurepas-monitoring-report-year.pdf, Ex. 7.

[52] *See* Delaney Dryfoos, *Maurepas Swamp's upcoming reintroduction to the Mississippi River*, The Lens, December 3, 2024, https://thelensnola.org/2024/12/03/maurepas-swamps-upcoming-reintroduction-to-the-mississippi-river/, Ex. 9.

the potential to occur, or have historically occurred, within the five parishes that overlap the Project Area."[53] Air Products has conceded that the proposed project could adversely affect several species, including state-listed species, such as the Tricolored Bat, Long-tailed Weasel, Eastern Spotted Skunk, Gulf Sturgeon, Monarch Butterfly, and the Alligator Snapping Turtle.[54] Yet, without additional analysis or explanation, the Corps' public notice indicates that only the tricolored bat may be affected by the project.

For the Tricolored Bat, Air Products notes the species "has potential to occur within the Project Area" and if present "may be adversely affected by the loss of suitable habitat."[55] For the long-tailed weasel and the eastern spotted skunk which are listed as restricted harvest species in Louisiana, Air Products states, "[t]hese species have the potential to occur within the Project Area, and, if present, be adversely affected through loss of habitat and habitat fragmentation or destruction of den sites."[56] On migratory birds, Air Products notes that, "[m]igratory bird flyways, stopover habitats, wintering areas, nesting colonies, and breeding areas occur within and/or adjacent to the Project Area," and that "[t]he extensive woodland and wetland habitat found throughout the Project Area may also provide potential breeding habitat."[57] Though Air Products dismisses the likely presence of gopher tortoise in the Project Area, the company recognizes that, "this species could be adversely impacted by construction and activities, including grading, clearing, and excavation."[58] For the monarch butterfly, Air Products explains that the "species is currently proposed for listing" and that "[t]here is potential impact to this species through the loss of habitat throughout the entire Project Area."[59] They also note that the alligator snapping turtle, which is federally proposed as a threatened species, has been observed in the three rivers that discharge into Lake Maurepas and that the surrounding swamp ecosystem is ideal habitat for this species.[60]

The Application provides:

> Clearing and grading would remove trees, shrubs, brush, roots, stumps, and large rocks from the construction work area and would level the ROW surface to allow operation of construction equipment. Mature trees and merchantable timber would be felled, removed from the construction ROW, and staged at an offsite location. Vegetation would generally be cut or scraped flush with the surface of the ground, leaving rootstock in place where possible.[61]

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[53] *See* JPA, Attach. 2-10 Threatened and Endangered Species Habitat Assessment, at pdf p. 9, Mar. 14, 2025, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15114589.
[54] *Id*. at pdf p. 10–16.
[55] *Id*. at pdf p. 18.
[56] *Id*. at pdf p. 18.
[57] *Id*. at pdf p. 19.
[58] *Id*. at pdf p. 19.
[59] *Id*. at pdf p. 19–20.
[60] *Id*. at pdf p. 20.
[61] *See* JPA, Attach. 2-02a La. Public Trust Doctrine Analysis, 21, Mar. 14, 2025, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15114536.

Further, in its response to OCM's Request for Information on October 16, 2024, Air Products notes that chipping of felled trees at HDD crossings would be permitted.[62] Wood chipping is one of the loudest tree-related activities,[63] which can disturb and harm wildlife.[64]

Notably, both the Public Notice and Air Products' ESA analysis omit any mention of the recent Air Products-funded SELU study, which found Gulf Sturgeon within Lake Maurepas in 2024. That study further explained that due to the lack of additional efforts to sample for Gulf Sturgeon, "little is known about their populations or potential breeding in Lake Maurepas and its rivers (Tickfaw, Amite, and Blind)."[65] Similarly, in its discussion of the West Indian Manatee, Air Products conceded that "suitable [manatee] habitat is present in the Project Area within the banks of the Mississippi River, the Blind River, and Lake Maurepas." Yet, Air Products concluded that the Project would likely not adversely affect the West Indian Manatees because the "species has rarely been observed in the Project area[.]"[66] But elsewhere in its application, Air Products states, "[a]ccording to LDWF, this species has known occurrences within the Blind River, east of Lake Maurepas; the Reserve Relief Canal, south of Lake Maurepas; Pass Manchac; and along the western shoreline of Lake Pontchartrain." Air Products' conclusory statement is insufficient to establish that the discharge will not jeopardize West Indian Manatees which have been sighted in nearby (and hydrologically-connected) Lake Pontchartrain.[67]

Although the Bald Eagle has been removed from threatened/endangered list, it remains protected under the Migratory Birds Treaty Act, the Bald Golden Eagle Protection Act, and the state of Louisiana.[68] Many bald eagles were observed near the planned CO_2 pipeline route (Figure 2), according to Air Products' own application,[69] which states "approximately 50 bald eagle nests have been located within the vicinity of the Project Area [including] two active nests, and one secondary/alternative nest directly observed during field surveys. […] Further, birdwatchers in the Project area have reported sightings of bald eagles and many species of

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[62] Air Products, Response to Office of Coastal Management Request for Information Received October 16th, 2024, at pdf p. 4, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15194930.
[63] Jennifer MckEvitt, *How Wood Chippers Work*, ForestryEquipmentGuide.com, Mar. 11, 2019, https://www.forestryequipmentguide.com/article/44160-how-wood-chippers-work.
[64] Annebelle C. M. Kok et al., *How Chronic Anthropogenic Noise Can Affect Wildlife Communities*, 11 Front. Ecol. Evol. (2023), https://www.frontiersin.org/articles/10.3389/fevo.2023.1130075/full.
[65] Kyle Piller et al., *Phase III: Lake Maurepas Monitoring Annual Report Year 2* (2024), at 18–19 https://www.southeastern.edu/wp-content/uploads/lake-maurepas/lake-maurepas-monitoring-report-year.pdf, Ex. 7.
[66] *See* JPA, Attach. 2-10 Threatened and Endangered Species Habitat Assessment, at pdf p.11, Mar. 14, 2025, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15114589.
[67]; Willie Swett, *'Running Against the Clock.' Rescuers Search for a Manatee in Lake Pontchartrain*, The Advocate, Jan. 4, 2025 https://www.nola.com/news/northshore/manatee-lake-pontchartrain-mandeville/article_f3b03ada-ca26-11ef-9ea9-23bac4946ea6.html; Louisiana Department of Wildlife and Fisheries, *LDWF Cautions Boaters in South Louisiana to be Aware of West Indian Manatees* (Aug. 23, 2018), https://www.wlf.louisiana.gov/news/ldwf-cautions-boaters-in-south-louisiana-to-be-aware-of-west-indian-manatees, "West Indian manatees do not live in Louisiana year round. They are a transient species in Louisiana and native to Florida. They periodically travel along the northern Gulf Coast from Florida during the summer months toward Alabama, Mississippi, Louisiana and Texas and may spend some time during the summer in Louisiana."
[68] *See* JPA, Attach. 2-10 Threatened and Endangered Species Habitat Assessment, at pdf p. 41, Mar. 14, 2025, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15114589.
[69] *Id*. at 26–28.

migratory birds.[70] According to LDWF, all bald eagle nests, whether active, inactive, or seemingly abandoned, should be protected, and no large trees should be removed. None of the identified nests are within a 700-foot buffer around the Project Area."[71] Regardless, Air Products must plan to ensure that these nests will not be disturbed during construction and operation activities, particularly during breeding and nesting seasons.[72]

[70] *See* eBird, Houmas House Plantation, Ascension, LA Species Observation List, https://ebird.org/hotspot/L4017993/bird-list, Ex. 9.B.

[71] *See* JPA, Attach. 2-10 Threatened and Endangered Species Habitat Assessment, at pdf p. 21, Mar. 14, 2025, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15114589.

[72] The Bald and Golden Eagle Protection Act (BGEPA, as amended [16 U.S.C. 668 et seq.]) prohibits any form of possession or take of bald or golden eagles (*Haliaeetus leucocephalus* and *Aquila chrysaetos*, respectively), including any part, nest, or egg, unless allowed by permit. The BGEPA defines "take" as "to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb." "Disturb'' means "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior." In addition to immediate impacts, this definition also covers effects that result from human-induced alterations initiated around a previously used nest site during a time when eagles are not present, if, upon the eagle's return, such alterations agitate or bother an eagle to a degree that interferes with or interrupts normal breeding, feeding, or sheltering habits, and causes injury, death, or nest abandonment (USFWS 2007).

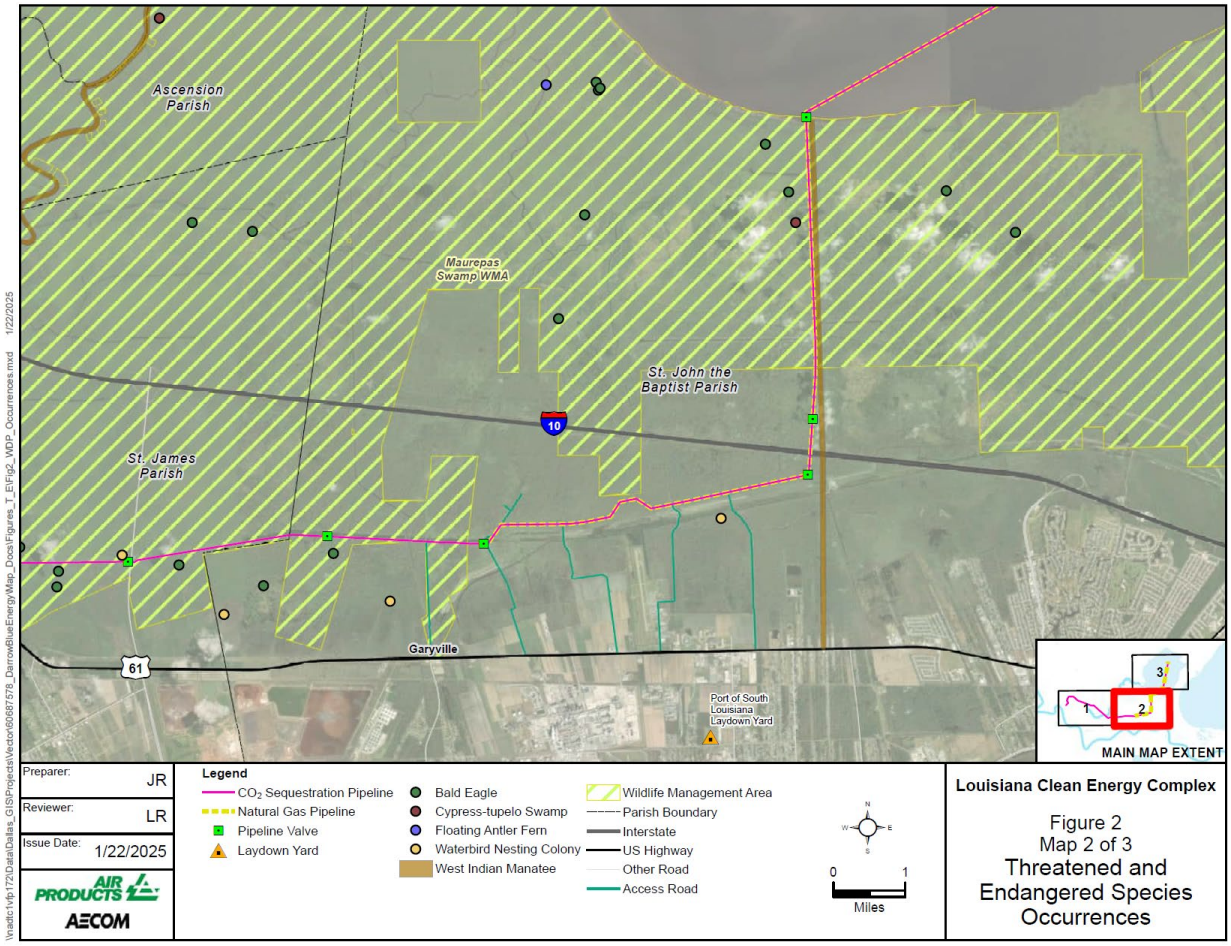

Figure 2 - One of three maps in Air Products' application showing the location occurrents of threatened and endangered species in the vicinity of their planned project footprint. The green filled circles abound in the Maurepas WMA and several are quite close to the proposed CO_2 *pipeline route (pink).*[73]

Likewise, area residents, including Commenters, have seen occupied osprey nests around the mouth of the Reserve Canal into Lake Maurepas where the Mainline Valve platform will be constructed. Multiple nesting groups of ospreys have been observed on the site, yet the Air Products' application does not mention ospreys or their nests. Osprey nests are also protected by the federal Migratory Bird Act and their omission from the Threatened and Endangered Species Habitat Assessment is an error.[74] More importantly, the distance from osprey nests to construction sites must be included and addressed in all construction plans, particularly given the presence of nesting osprey pairs near planned construction.

[73] *See* JPA, Attach. 2-10 Threatened and Endangered Species Habitat Assessment, at pdf p. 31, Mar. 14, 2025, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15114589.
[74] *See* Migratory Bird Treaty Act of 1918 (16 U.S.C. 703-71); 50 C.F.R. Part 10.13 (MBTA species list).

Figure 3 - Osprey Nest observed on Lake Maurepas near mouth of Reserve Canal on July 20, 2025 (credit: Scott Eustis).

Figure 4 - Osprey pair observed on Lake Maurepas near mouth of Reserve Canal, July 20, 2025 (credit: Scott Eustis).

Air Products' Application and the Corps' public notice failed to demonstrate that the proposed discharge will not jeopardize threatened and endangered species, and the record contains insufficient information for the Corps to satisfy its duty to consider additional impacts to threatened and endangered species from the discharge.

3. 40 C.F.R. § 230.10(c): The proposed project causes or contributes to significant degradation to the aquatic ecosystem.

With a limited exception not applicable here, the Guidelines command that "no discharge of dredge or fill material shall be permitted which will cause or contribute to significant degradation of the waters of the United States." 40 C.F.R. § 230.10(c).

Air Products is already contributing to degradation of the waters of Lake Maurepas through its drilling of the test well presaging the drilling of its larger Class VI wells. On April 22, 2024, Air Products reported an on-going sheen event to the National Response Center and Louisiana State Police Hazmat Hotline around their deep well injection/carbon sequestration test well pad on Lake Maurepas. According to an LDEQ report from the incident, sporadic sheens were observed over several months at the site. Air Products told LDEQ that the event was most likely due to "Synthetic B" drilling mud escaping and falling onto the well pad at the bottom of the lake.[75]

Synthetic B is a drilling fluid additive that here is being used to drill/excavate wells, and the provided safety data sheets indicate that chemicals included are hexadecane, hexadec-1-ene, alkenes C15-18, and octadecene, although the exact composition percentages are withheld as "trade secret,"[76] and very little information is provided as to the health and safety characteristics of this material.[77] Generalized protective measures are provided in case of accidental release, and environmental precautions include "[s]hould not be released into the environment."[78]

Given this past incident for Air Products' first foray into Lake Maurepas, it is incumbent upon the Corps to evaluate the potential risks Air Products' future plans on the lake and its surroundings.

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[75] LDEQ Complaint Oil Sheen Sighting in St. John the Baptist Parish, AI No. 242237, EDMS Doc. ID 14788482, at pdf p. 1–2, April 22, 2024, https://edms.deq.louisiana.gov/app/doc/view?doc=14788482 ("In January of 2025 after sporadic sheening was still consistent at the carbon sequestration well pad location, Air Products hired [a spill response contractor] to remove the drilling mud from the well pad [which] recovered approximately 7.48 bbls of drilling mud and drilling fluids. […] Air Products [reported] that on 4/22/2024, [mud/fluid overfilled] the pollution pan, eventually causing 5 bbls of mud/fluids to flow out […] at the bottom of the lake bed onto their well pad.").
[76] *Id*. at 4.
[77] *Id*. at 3–12, where for example "No data available" and "No information available" is listed under multiple categories for toxicological data on p. 9.
[78] *Id*. at 5.

a. The proposed project will cause or contribute to significant degradation of Lake Maurepas.

i. The Lake

Lake Maurepas on its own and as part of the Lake Pontchartrain Basin is an important and sensitive ecosystem, which provides numerous ecosystem services to the entire region. It is roughly a 93-square mile shallow, brackish, tidal estuarine lake with an average depth of 7 feet and maximum depth of 12 feet.[79] Pass Manchac connects Lake Maurepas to Lake Pontchartrain. Lake Maurepas is fed by the Tickfaw, Blind, and Amite rivers.[80] The lake is primarily surrounded by the Maurepas Swamp WMA along the south and western edges, one of the largest forested wetlands in the nation dominated by bald cypress and water tupelo trees (typically referred to as cypress-tupelo swamp).[81]

Lake Maurepas is an estuary for crabs, shrimp, and catfish. It is home to Rangia clams, a keystone species due to their vital role in the ecosystem, acting as a food source for fish, crabs, and birds, and contributing to the health of the lake's bottom.[82] They are crucial filter feeders, improving water quality by removing suspended sediments and plankton. A healthy clam population can significantly impact water clarity, benefiting submerged aquatic vegetation and subsequently waterfowl and fisheries populations. Lake Maurepas is also critical for blue crabs that migrate to Lake Maurepas in the autumn to mate and hibernate before migrating back to Lake Pontchartrain in the spring.[83]

Lake Maurepas is cherished for its unspoiled beauty.[84] It is a vital resource for recreational activities like fishing, boating, kayak tours, wildlife observation (birders and naturalists), and photography.[85] The lake sustains commercial fishing, seafood retailers,

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[79] U.S. Army Corps of Engineers, New Orleans District, Clam Shell Dredging in Lakes Pontchartrain and Maurepas, Louisiana, AD-A225 138, Vol. 1, Final EIS, Nov. 1987 ("Corps 1987 Final EIS"), at EIS-31, https://apps.dtic.mil/sti/tr/pdf/ADA225138.pdf, Ex. 10.

[80] *Id.*

[81] Louisiana Coastal Protection and Restoration Authority, *Maurepas Swamp Fact Sheet*, https://coastal.la.gov/wp-content/uploads/2023/04/Maurepas-Swamp-Final-Full-Fact-Sheet.pdf.

[82] USGS, Environmental Atlas of the Lake Pontchartrain Basin, https://pubs.usgs.gov/of/2002/of02-206/env-issues/clam-abundance.html.

[83] Lara Nicholson, *Crabbers pull traps from Lake Maurepas ahead of carbon capture project: 'I'm holding out'*, The Advocate, Nov 10, 2022, https://www.theadvocate.com/baton_rouge/news/environment/air-products-carbon-capture-project-worries-local-fishers/article_9910dcca-5ed4-11ed-934b-a7fa3cbdc68f.html (based on interview with Lake Maurepas commercial fishers), Ex. 11.

[84] LA HR Hearing Testimonies, Ex. 4.B; Public Comments to OCM, Ex. 4.C.
See Exhibit 4.C, *en globo* (examples of comments submitted to LDENR from local residents attesting to their use of and love for the area and opposing the Air Products CUP application); *see id*. (Comment by Dean Coates, "I am Councilman Dean Coates, representing approximately 160,000 voters in Livingston Parish. Along with many other voters and residents, I have been opposing CCS in Lake Maurepas since learning of this idea. The residents are very concerned about the environmental impacts on our fisheries, recreational boaters, and the safe navigation of the waterways. . . .").

[85] *See* Public Comments to OCM, Ex. 4.C, (Comment by Michael Plauche, "the lakebed, a vital nursery for shrimp, crabs, and oysters that our families have depended on for generations. Past environmental damage, like the 1983-84

restaurants, bars, marine businesses, ecotourism, and even the Tickfaw 200, the state's largest power boat charity run.[86] It is an important recreational and tourism hub.[87] Visitors travel to the area to enjoy regional cuisine and the rural setting. Many people have built homes and camps in the area to enjoy the scenic beauty of Lake Maurepas.[88] Many people call the lake home, some tracing the local lineage back over 100 years. People who live in the subdivisions along the Tickfaw, Blind, and other rivers have easy access to the lake by boat, and large groups of boaters routinely gather to swim and recreate on the lake. (See Figure 5).

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shell dredging, and recent test well operations causing silt, algae blooms, and deformed crabs, have already reduced our catches and restricted access to our fishing grounds due to security measures . . . ;" Comment by John V. Hoover, "I have been in the blue crab fishery for over 35 years. I have serious concerns the proposed Air Products CCS project in Lake Maurepas will have lasting negative impacts on Lake Maurepas and the blue crab fishery. The location of these wells and pipelines are in the middle of the blue crab fishing grounds that I have fished for many years. Blue crabs migrate to Lake Maurepas to feed, breed and grow. Blue crabs migrate to these particular grounds in Lake Maurepas because they hold Rangia clam beds which provide a food source that attract fish and blue crabs. Losing access to these productive crabbing grounds will have negative impacts to the blue crab fishery and all fisherman who use them. . ."); *see also* Louisiana Birding, Maurepas Swamp Wildlife Management Area - St. James Boat Club, *available at* https://www.birdinglouisiana.com/point-of-interest/maurepas-swamp-wildlife-management-area-st-james-boat-club.

[86] Caroline Grueskin, *Boaters from around the country race from bar to bar in 'poker run' fundraiser for Tickfaw 200*, The Advocate, May 5, 2018, https://www.theadvocate.com/boaters-from-around-the-country-race-from-bar-to-bar-in-poker-run-fundraiser-for/article_a5e2b108-515a-11e8-b7fc-8b23fca5c5f8.html, Ex. 12. *See also* W. Peter Sawyer, *"Pontchartrain and Maurepas: Sailing the estuarine lakes of Louisiana,"* Small Boats Monthly, June 2023, available at https://smallboatsmonthly.com/article/pontchartrain-and-maurepas/.

[87] James Finn, *"Their camps blown away by Hurricane Ida, Lake Maurepas residents weigh rebuilding; 'This is life',"* The Advocate, Sept. 14, 2021, available at https://www.theadvocate.com/baton_rouge/news/environment/their-camps-blown-away-by-hurricane-ida-lake-maurepas-residents-weigh-rebuilding-this-is-life/article_e11207ec-14cf-11ec-94ec-f78e654f424f.html; *see also* Louisiana House Committee on Natural Resources and the Environment, April 4, 2024, HB 440, available at https://house.louisiana.gov/H_Video/VideoArchivePlayer?v=house/2024/apr/0404_24_NR (Testimony of Randy Goff, Livingston Parish president, 00:27:21 - 00:27:25 (testifying about the lake attracting visitors to his parish) 00:37:16 (testifying about living on the lake)).

[88] LA HR Hearing Testimonies, Ex. 4.B.; See also, Public Comments to OCM, Ex. 4.C.
See Exhibit 4.C, *supra*, Comment of Lacie Peek, ("I'm raising 4 children who have enjoyed this lake their entire lives. Will it still be safe to take them? . . ."); Comment of Eileen McKeown, ("a concerned citizen with property located about a mile from Lake Maurepas on the Tickfaw River. Our family and friends, along with the Livingston and Tangipahoa Parish communities, have enjoyed this beautiful area for decades."); *see also* Louisiana House Committee on Natural Resources and the Environment, April 4, 2024, HB 440, available at https://house.louisiana.gov/H_Video/VideoArchivePlayer?v=house/2024/apr/0404_24_NR (Testimony of Mindy Starkey 00:43:53 - 00:44:03 (testifying about building camp on Lake Maurepas); Testimony of Arthur McKinnon 0037:16 (testifying about living on the lake)).

Figure 5 - Gathering on Lake Maurepas near Tickfaw River (submitted as part of public comment to LDENR on CUP application by James & Eileen McKeown, July 17, 2025, available at https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15249398).

ii. Proposed construction and infrastructure

Air Products seeks to construct a massive carbon capture sequestration facility in and across Lake Maurepas.[89] The company proposes to build a 24-inch pipeline that would carry pressurized carbon dioxide from its proposed plant in Ascension Parish to multiple wells for injection and storage deep beneath Lake Maurepas. Nineteen platforms with wellheads or other infrastructure would be spread throughout the lake, connecting to a network of pipelines and cables buried under the lake bottom as shown in Figure 6.[90]

[89] *See* JPA, Attach. 1-4 Sequestration Facilities Design, at 1–3, Mar. 14, 2025, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15114552.
[90] *Id*.

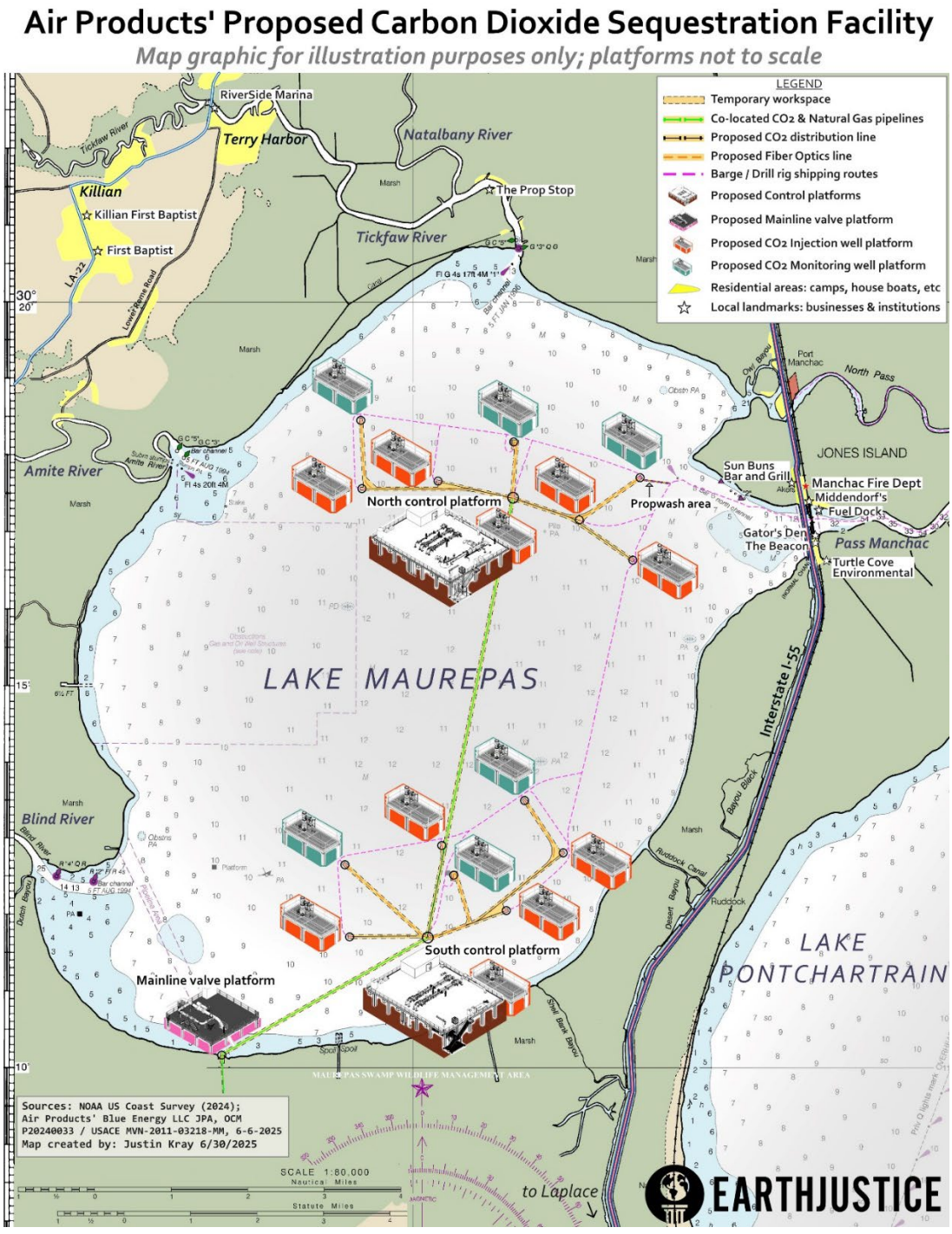

Figure 6 - Map created by Justin Kray

The proposed 24-inch carbon dioxide pipeline, along with a co-located gas pipeline, would enter Lake Maurepas from a main valve platform (45 x 45 feet) at the south shore and run under the lake bottom for 10 miles, to two large 100 x 75 feet control platforms that would tower

19 feet above the lake surface.[91] More pipelines would be buried below the lake bottom to distribute carbon dioxide from the control platforms to 10 separate injection wells for storage deep beneath the lake.[92] The injection wells would sit on dedicated platforms.[93] Additionally, fiber optic cables would span from the control platforms to six more platforms that would house other wells to monitor the carbon dioxide plume deep beneath the lake bottom.[94] The injection and monitoring well platforms would be 20 x 8.5 feet, and stand 8 feet above the water surface.[95]

Air Products estimates that "[i]nstallation of the injection and monitoring wells" would take up to 18 months, including "equipment access and staging from Port Manchac […] via North Pass and Pass Manchac. The individual well locations would be prepared using propwash and/or mechanical excavation, followed by placement of a rock shell pad to stabilize the drilling rig. The wells would extend approximately 9,000 feet beneath the bottom of Lake Maurepas."[96] A drill barge would be used at the injection well platforms.[97]

The injection well platforms and monitoring well platforms (16 in total) would each have a 265 x 70-foot rock pad (18,550 square feet) on the lakebed.[98, 99] Nearly 29,000 cubic yards of lake bottom would be excavated for the rock pads and about 77,000 cubic yards of limestone would be dumped into the lake to form the rock pads.[100] Concrete pile foundations would be driven to applicable depths.[101] Prefabricated decks and equipment would be brought to the

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[91] JPA, Attach. 1-2-1g Proposed CO_2 Pipeline Alignment, Sheets 30-33, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15194899; JPA, Attach. 1-2-1h Proposed CO_2 Pipeline Alignment, Sheets 34-40, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15194893; JPA, Attach. 1-3 Pipeline Construction Details, Sheets 34-37, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15194900.
[92] JPA, Attach. 2-02a La. Public Trust Doctrine Analysis, Section 1.5.3 & Table 1-2, Mar. 14, 2025, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15114536.
[93] *See* JPA, Attach. 1-4 Sequestration Facilities Design, at 1–3, Mar. 14, 2025, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15114552.
[94] JPA, Attach. 2-02a La. Public Trust Doctrine Analysis, Section 1.5.3 & Table 1-2, Mar. 14, 2025, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15114536; *See* JPA, Attach. 1-4 Sequestration Facilities Design, at 1–3, Mar. 14, 2025, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15114552.
[95] JPA, Attach. 1-3 Pipeline Construction Details, Sheet 33, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15194900.
[96] JPA, Attach. 2-02a La. Public Trust Doctrine Analysis, Section 1.6.2, Mar. 14, 2025, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15114536.
[97] *See* JPA, Attach. 1-4 Sequestration Facilities Design, at 1–3, Mar. 14, 2025, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15114552.
[98] JPA, Attach. 1-4 Sequestration Facilities Design, Typical Diesel Power Drill Barge & Pile Cluster, Sheet 5, Jan. 16, 2023, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15114552.
[99] JPA, Attach. 1-4 Sequestration Facilities Design, Typical Layout for Wheelwashing & Rock Pad, Sheet 4, Feb. 4, 2025, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15114552.
[100] JPA, Attach. 2-5 Excavation and Fill Table, at 2, Mar. 14, 2025, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15114564.
[101] JPA, Attach. 2-02a La. Public Trust Doctrine Analysis, Section 1.5.3, Mar. 14, 2025, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15114536.

platform sites and installed, "using any necessary barges or vessels for delivery and installation."[102] "The sites would be . . . *fenced*."[103]

Following installation of the platforms and primary facilities, associated equipment, piping, and electrical systems would be installed.[104] Air Products does not provide an estimated timeline for all of this work, which includes dredging the trenches for laying pipelines and cables, but it did say that construction of the pipeline system in the Maurepas Swamp WMA would take "nine to twelve months."[105] A lay barge with a 300-foot workspace would be equipped with high-pressure jets to excavate the lake bottom to carve trenches 6 feet deep and 4 feet wide to lay pipelines and fiber optic cables.[106] Over 180,000 cubic yards of lake sediment would be excavated and dispersed into the water before settling back to the lake floor. Air Products explains: "The proposed construction methodology involves the use of a jet sled surrounded by an interconnected turbidity curtain, attached by a tow line to the stern of the lay barge."[107]

Air Products says that a turbidity curtain *may be utilized* to help confine the sediment to the trenched areas, but very fine sediments could be transported far from the excavation area before eventually settling back to the lake bottom. A few studies have examined the effectiveness of turbidity curtains at containing contaminated fine suspended sediment in sensitive environments like Lake Maurepas. In fact, it has been reported that "[s]ilt curtains or screens can be effective in containing floating debris but not always in containing contamination. Soluble contaminants, particularly heavy metals, can flow through, around or under the curtain."[108] The Corps must evaluate the effectiveness of turbidity curtains to prevent the resuspension and re-solubilization of contaminants known to be present.

A second barge also with a 300-foot workspace may be used for mechanical trenching where obstructions such as stumps and roots exist.[109] It is not clear how much dredging would be done by the jetting technique and how much be done by mechanical dredging, or when and how the turbidity curtain would be deployed. The conditions of the lake bottom with regard to the presence of roots and stumps are unknown.

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[102] *Id*.
[103] *Id*.
[104] *Id*.
[105] *Id*. at 41.
[106] *Id*. at 18; JPA, Attach 1-3 Pipeline Construction Details, Sheets 30-32, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15194900.
[107] JPA, Attach. 2-02a La. Public Trust Doctrine Analysis, Section 1.5.2, at 18, Mar. 14, 2025, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15114536.
[108] N. R. Francingues & D. W. Thompson, Control of Resuspended Sediments in Dredging Projects, Western Dredging Association, 243, 248 (2006), https://www.westerndredging.org/phocadownload/ConferencePresentations/2006_SanDiego/WEDA-Conference-26/2%20-%20Francingues%20-%20Control%20of%20Resuspended%20Sediments%20in%20Dredging%20Projects.pdf.
[109] JPA, Attach. 2-02a La. Public Trust Doctrine Analysis, at 18, Mar. 14, 2025, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15114536; JPA, Attach 1-3 Pipeline Construction Details, Sheets 32, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15194900.

As stated above, Air Products would fence off its lake facilities, to some unknown extent. Its carbon storage agreement with the state provides: "Subject to the provisions of La. R.S. 30: 127(G), AP is permitted to enclose (including by way of fencing) and protect the Injection well site portions of the Facilities or other portions of the surface Facilities as may be required by applicable Sequestration Protocols."[110] While La. R.S. 30:127.G requires the lessee of state lands to allow public access to public waterways, the statute also gives the state the authority to restrict access to public waterways if it is determined that "a danger to the public welfare exists." Explicit fencing requirements are not detailed in the state's carbon capture and storage regulations, but the strong emphasis on security and safety suggests robust site security. It is not clear therefore how much of the lake could be permanently made off-limits to the public in order to accommodate this private company**.** Will commercial and recreational fishers/boaters be permitted to use the lake? If so, what areas of the lake will be off-limits to the public? This must be resolved and made public before any decision on the Application is made, and there must be an opportunity for the public to comment once the public's use and access restrictions are known.

iii. Significant adverse effects of proposed project on the lake

a) 40 C.F.R. 230.10(c)(1)-(3)

The discharge of dredged and fill material for the proposed project may cause or contribute to significant degradation of Lake Maurepas because the discharge of pollutants would result in significantly adverse effects on (1) human health or welfare, including but not limited to effects on plankton, fish, shellfish, and/or wildlife; (2) life stages of aquatic life and other wildlife dependent on aquatic ecosystems, including the transfer, concentration, and spread of pollutants or their byproducts outside of the disposal site through biological, physical, and chemical processes; and/or (3) aquatic ecosystem diversity, productivity, and stability, including loss habitat and ability to assimilate nutrients or purify water.

The Application is deficient. It does not provide the information necessary for the Corps to fully evaluate the effects of the proposed project on aquatic life in Lake Maurepas, the aquatic ecosystem, and human health. The Application does not provide a competent and supported assessment of the impacts of resuspension of sediment, the size of the sediment plume, the length of time it will take for the sediment to resettle, or the specific effect of the sediment on aquatic life, characterization of the areas subject to jet plow or mechanical dredge, or the duration of dredging and other construction activities. However, the resuspension and settlement of sediments (especially fine sediments) would likely have a significant adverse effect on aquatic life in Lake Maurepas and on the aquatic ecosystem.

For instance, the Corps issued an EIS on issues of "Clam Shell Dredging in Lakes Pontchartrain and Maurepas, Louisiana," in 1987. And while the focus was on dredging for clams, *dredging is dredging,* and this report concludes that the effects of dredging would significantly harm the environment – specifically the lake bottom environment in Lake Maurepas. The Corps said:

[110] DWF-AP Carbon-Dioxide Storage Agreement, Section 5.3, at 14, Oct. 22, 2021, Ex. 13.

> It is well documented that shell dredging causes a temporary, localized increase in turbidity and levels of total suspended solids in the immediate vicinity of the operating dredge(s). Due to the size of Lake Pontchartrain, in addition to the fact that salinity levels in the lake are usually conducive to flocculation (formation of compound masses of particles) and rapid settling of suspended sediments, this localized and temporary turbidity is generally not considered significant. *Turbidity impacts in Lake Maurepas, however, are much more severe.* Lake Maurepas is only about one-sixth the size of Lake Pontchartrain. It also has more limited tidal exchange, very low salinities (nearly fresh), and averages only about 7 feet in depth. These factors, combined with possible differences in sediment composition and distribution, cause *turbidity levels as a result of shell dredging to remain excessively high for long periods of time*.[111]

Indeed, the Corps stressed that "studies have shown that shell dredging in Lake Maurepas causes lakewide, persistent elevated levels of turbidity. Impacts of turbidity on phytoplankton production in that lake would be significant and much more severe than in Lake Pontchartrain."[112] As a result, shell dredging was banned in Lake Maurepas by the LDEQ in 1984, given that dredging cannot occur without violating the state water quality standards.[113] "In 1984, DEQ closed Lake Maurepas to shell dredging due to unacceptable water quality impacts."[114] The Corps said that this was "[d]ue to the low salinities, limited tidal exchange, and sediment composition in Lake Maurepas, excessive turbidities have been shown to result from shell dredging in that lake."[115]

The Corps went on to explain:

> Shell dredging has been prohibited in Lake Maurepas since 1984 when it was concluded by the DEQ that sustained higher than normal levels (above State standards) of turbidity and suspended sediment were directly attributable to the dredging activity. Aerial surveillance of the lake during May and June 1983 had revealed persistent, lakewide extreme turbidity levels. Lake Maurepas continued to be monitored in subsequent months to determine recovery time to normal conditions and to develop a data base of seasonal variations of turbidity and other water quality parameters.
>
> . . . .
>
> The reasons given by DEQ for the distinct differences between water quality effects in the two lakes were: the relatively smaller size and depth of Lake

[111] Army Corps of Engineers, "Clam Shell Dredging in Lakes Pontchartrain and Maurepas," 1987 Final EIS, S-3, at pdf p. 5, https://apps.dtic.mil/sti/tr/pdf/ADA225138.pdf (emphasis added), Ex. 10.
[112] *Id.* at S-5, EIS-68-69.
[113] Id. at EIS-2, Ex. 10.
[114] *Id.* at EIS-12.
[115] *Id.* at EIS-12.

> Maurepas; fresh or very low salinity levels in Lake Maurepas; and likely differences in sediment characteristics and deposition patterns in the lakes. Although the data and analyses were not so thorough as to be completely conclusive regarding the specific causes for higher Lake Maurepas turbidity, it appears that shell dredging operations are primarily responsible.[116]

In a 1982 Environmental Assessment, the Corps said that "[t]he most significant impact of shell dredging *occurs during the dredging process whereby benthic organisms are disrupted by the dredging or smothered by the discharge*."[117] The Corps also explained that shell dredging disrupts the benthos in the direct path of the dredge and that some benthic organisms outside the dredged areas may be affected by the discharge because of the mud flowing outside of the dredged area which can suffocate the benthic life even outside of the direct impact area.[118]

Furthermore, studies on the benthic community in Lake Pontchartrain "show a downward trend" in the abundance of larger Rangia clams after shell dredging began, even though "[o]nly portions of the Lake were open to shell dredging and only 1% of the total area of the Lake was affected at any given time…"[119]

This ban on dredging the lake bottoms is still in force today. No alternation in techniques or circumstances have occurred since this ban to require a reversal. With this ban in place, Air Products must not receive a permit that would allow it to conduct dredging in Lake Maurepas.

1) Contaminated sediment

Dredging the lake bottom will cause resuspension of heavy metals and other contaminants held in the sediments. Resuspension of heavy metals from dredging could increase the risk of adverse impacts to threatened and endangered species throughout the proposed project area. Dr. Varun Paul's attached report provides his review and opinions regarding the dredging contaminated sediments in Lake Maurepas.[120]

In April 2024, three Louisiana state departments (Health, Environmental Quality, and Wildlife and Fisheries) issued a fish consumption advisory for Lake Maurepas in Livingston and St. John the Baptist parishes where "unacceptable levels of mercury" have been detected in several species of fish.[121] According to the advisory, women of childbearing age and children younger than seven years should not eat more than three meals per month of several types of fish

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[116] *Id.* at Appendix C, C-85; *see also id.* at EIS-55 (providing substantially the same).
[117] *State ex rel. Guste v. Lee*, 635 F. Supp. 1107, 1120–21 (E.D. La. 1986) (quoting 1984 EA at 5) (emphasis added); *see also* DEQ 1983 memo referenced in *Guste*, EDMS 11468140, https://edms.deq.louisiana.gov/app/doc/view?doc=11468140, Ex. 13.B.
[118] *Id.* (quoting 1984 EA at 6–7).
[119] S. W. Abadie & Michael A. Poirrier, *Environmental Atlas of Lake Pontchartrain*, USGS (2002), https://pubs.usgs.gov/of/2002/of02-206/env-issues/clam-abundance.html.
[120] Paul Report, Ex. 2.
[121] LDH, LDEQ, LDW, Fish Consumption Advisory for Lake Maurepas, April 17, 2024, https://ldh.la.gov/assets/oph/Center-EH/envepi/fishadvisory/Documents/Lake_Maurepas_2024.pdf, Ex. 8.

found in the lake including bigmouth buffalo, bowfin (choupique, grinnel), flathead catfish and yellow bass from Lake Maurepas.[122] The advisory provides that the same groups of people should not eat more than two meals per month of black crappie (sac-a-lait), freshwater drum (gaspergou), largemouth bass and warmouth from the lake.[123] This advisory remains in force.

Another recent study by SELU found "alarmingly high" levels of toxic metals and other contaminants in Lake Maurepas.[124] The study found that arsenic, lead, total nitrogen, total phosphorus, chemical oxygen demand levels in the lake "exceeded safety thresholds."[125] Arsenic levels were measured at 420% above the safe limit for lakes and 6,300% above the EPA's drinking water threshold.[126] Similarly, lead and cadmium were detected at levels averaging orders of magnitude above safe limits. Both arsenic and lead exceeded the numerical criteria for metals for aquatic life protection for both acute and chronic thresholds (Table 1 and Figure 8).[127] Concentrations of nickel, copper, and manganese were also observed above their respective safety thresholds. And while mercury did not exceed water safety criteria during this period of sampling, mud samples showed high concentrations of mercury and varied widely throughout the sampling period (Figure 7).[128]

The heavy metals that were identified in SELU's study, (e.g., arsenic, lead, mercury), are known to bioaccumulate in aquatic organisms, including fish, and can cause a host of physiological problems, that can then harm consumers of those fish.[129] Other contaminants found in SELU's study such as perfluorinated compounds (e.g., PFOS) can also cause health harms for fish consumers[130] and represent particular public health risk for subsistence fishing communities, and other regular consumers of freshwater fish.[131] Thus, resuspension of these heavy metals from the extensive dredging required for the proposed project jeopardizes not only fish and other aquatic animals, but also the species which eat them, including humans.

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[122] *Id.*
[123] *Id.*
[124] Thilini Gunawardhana, et al., *Spatial Pattern Assessment and Prediction of Water and Sedimentary Mud Quality Changes in Lake Maurepas*, 11 Environments 268 (2024) https://www.mdpi.com/2076-3298/11/12/268#app1-environments-11-00268, https://www.mdpi.com/2076-3298/11/12/268#app1-environments-11-00268, Ex. 14.
[125] *See id*. at 26.
[126] Wesley Muller, *Scientists Find 'Alarming' Levels of Toxic Metals, Pollution in Lake Maurepas*, Louisiana Illuminator, Jun. 19, 2025, https://lailluminator.com/2025/06/19/scientists-find-alarming-levels-of-toxic-metals-pollution-in-lake-maurepas/.
[127] Kyle Piller et al., *Phase III: Lake Maurepas Monitoring Annual Report Year 2* (2024), at 38–39, https://www.southeastern.edu/wp-content/uploads/lake-maurepas/lake-maurepas-monitoring-report-year.pdf. Ex. 7.
[128] *Id*. at 13.
[129] Kyle Piller et al., *Phase III: Lake Maurepas Monitoring Annual Report Year 2* (2024), at 135, https://www.southeastern.edu/wp-content/uploads/lake-maurepas/lake-maurepas-monitoring-report-year.pdf., Ex. 7.
[130] Nadia Barbo et al., *Locally Caught Freshwater Fish across the United States Are Likely a Significant Source of Exposure to PFOS and Other Perfluorinated Compounds*, 220 Environmental Research 115165 (2023), https://linkinghub.elsevier.com/retrieve/pii/S0013935122024926, (explaining that exposure assessment suggests that a single serving of freshwater fish per year with the median level of PFAS as detected by the U.S. EPA monitoring programs translates into a significant increase of PFOS levels in blood serum. The exposure to chemical pollutants in freshwater fish across the United States is a case of environmental injustice that especially affects communities that depend on fishing for sustenance and for traditional cultural practices. Identifying and reducing sources of PFAS exposure is an urgent public health priority.).
[131] *Id*. at 8.

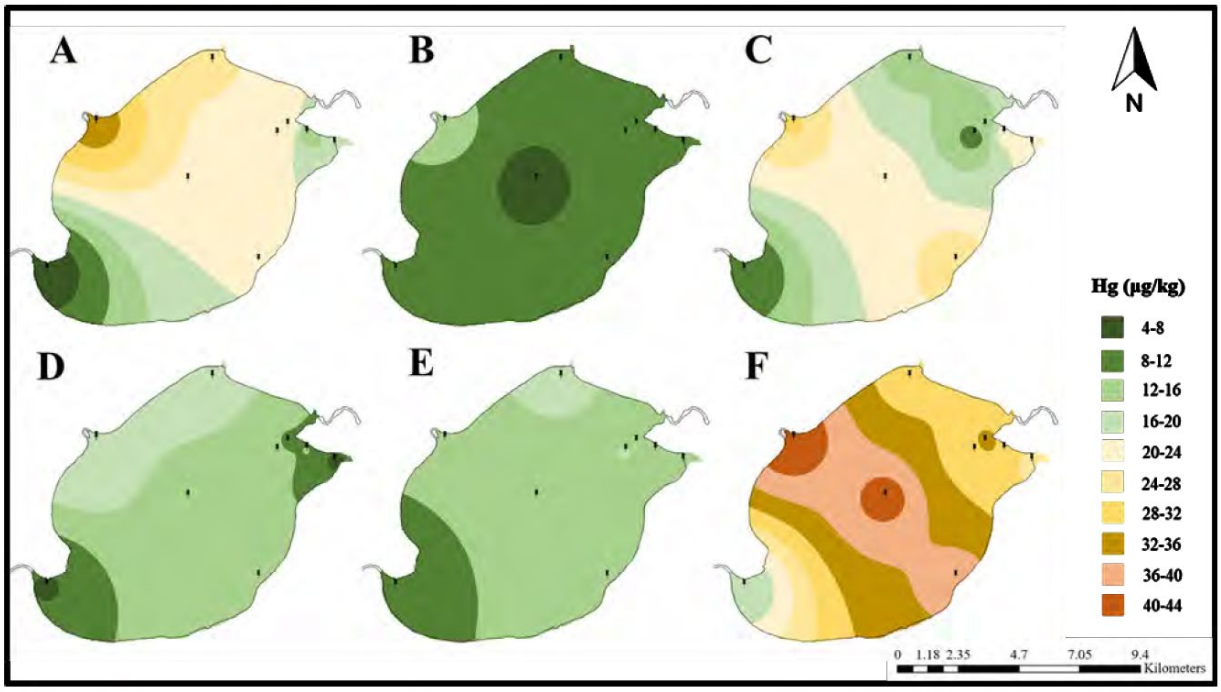

*Figure 7 - Interpolation of mercury concentrations based on sedimentary sampling from June to November 2023, (**A**) June, (**B**) July, (**C**) August, (**D**) September, (**E**) October, (**F**) November.*[132]

Table 1 - Comparison of SELU study results for arsenic and lead with LAC numeric criteria.

Water quality parameter	Study result[133] (mg/L)	Numeric criteria[134] (mg/L)
Arsenic	0.26 ± 0.17	Acute: 0.069 Chronic: 0.036
Lead	0.23 ± 0.002	Acute: 0.209 Chronic: 0.00808

[132] Kyle Piller et al., *Phase III: Lake Maurepas Monitoring Annual Report Year 2* (2024), at 149, https://www.southeastern.edu/wp-content/uploads/lake-maurepas/lake-maurepas-monitoring-report-year.pdf., Ex. 7.
[133] Thilini Gunawardhana et al., *Spatial Pattern Assessment and Prediction of Water and Sedimentary Mud Quality Changes in Lake Maurepas*, 11 Environments 268 (2024), at 1, https://www.mdpi.com/2076-3298/11/12/268. Ex. 14.
[134] LAC 33:IX.1113(B)(5) at Table 1A at 57 "Arsenic" and "Lead" converted ug/L to mg/L, https://deq.louisiana.gov/assets/docs/Legal_Affairs/33v09-201605-Water-Quality.pdf.

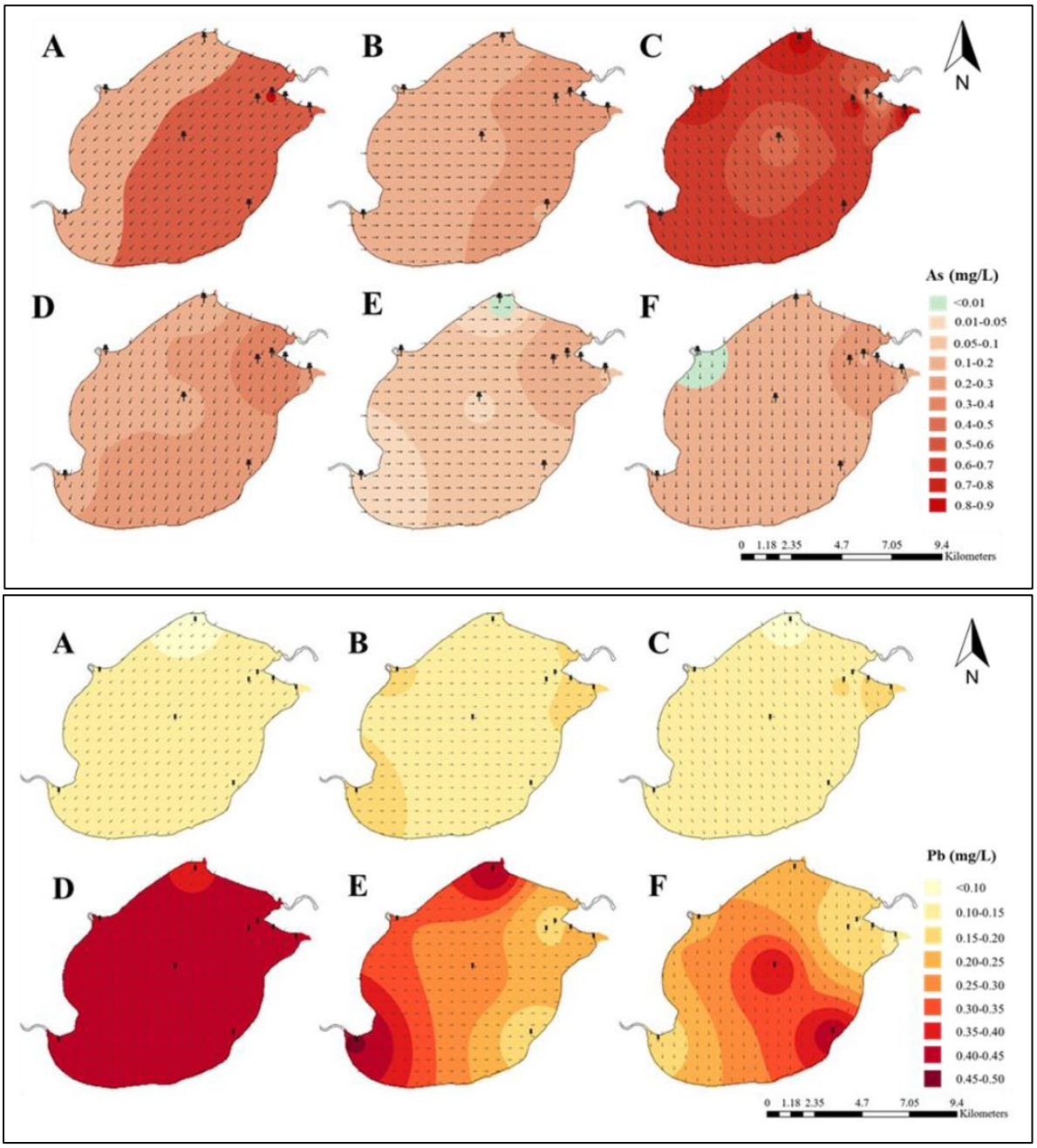

*Figure 8 - Interpolation of arsenic (top) and lead (bottom) concentrations based on surface water sampling from June to November 2023, (**A**) June, (**B**) July, (**C**) August, (**D**) September, (**E**) October, (**F**) November.*[135] *These figures show exceedances of arsenic concentrations for both acute (above 0.069 mg/L) and chronic (above 0.36 mg/L) thresholds, as well as of lead concentration for both acute(above 0.209 mg/L) and chronic thresholds (above 0.00808 mg/L).*[136]

[135] Thilini Gunawardhana et al., *Spatial Pattern Assessment and Prediction of Water and Sedimentary Mud Quality Changes in Lake Maurepas*, 11 Environments 268 (2024), at 11–12, https://www.mdpi.com/2076-3298/11/12/268. Ex. 14.

[136] LAC 33:IX.1113(B)(5) at Table 1A at 57 "Arsenic" and "Lead" converted ug/L to mg/L, https://deq.louisiana.gov/assets/docs/Legal_Affairs/33v09-201605-Water-Quality.pdf.

As Figures 7 and 8, above, demonstrate, the concentrations of arsenic and lead in the water column and mercury in surface mud samples vary seasonally over the course of a year. Given that dredging for the construction of the injection and monitoring wells is estimated to take up to 18 months, with additional time to dredge trenches for the pipelines and cables, this seasonal variation is significant: the highest concentrations of these contaminants will be encountered by Air Products' construction at some point in the process, making it important that the company ensure it does not disturb these contaminants.

A comprehensive review on the effects of sediment dredging on freshwater systems[137] found that, "the dredging of contaminated sediments is a harmful activity for the environment largely due to the contaminant's resuspension and bio-uptake."[138] This review also summarized the following:

> [T]he effects on certain aquatic organisms can be catastrophic due to the increased water turbidity caused by dredging, which interferes with the predation and respiration of some aquatic fauna (Aldridge 2000) and the photosynthesis of submerged vegetation and algae (Freedman et al. 2013). Dredging can also cause macrophyte beds and invertebrates habitats to be destroyed and fish lost, as sediments are removed (Freedman et al. 2013). Additionally, dredging disturbance could significantly change the composition and structure of sediment communities. Given the ecological relevance, changes in overall community trophic and functional structure can eventually affect the entire biological chain (Coates et al. 2015). Such impacts can take decades to recover (Haynes and Makarewicz 1982; Boyd et al. 2005; Waye-Barker et al. 2015), and even when abundance, biomass, and species numbers recover, the original composition, structure, and ecosystem may have been disrupted (Barrio-Froján et al. 2008, Barrio-Froján et al. 2011), and such impacts are long-term (Szymelfenig et al. 2006).[139]

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[137] Jiale Yan & Fang Li, *Effects of Sediment Dredging on Freshwater System: A Comprehensive Review*, 30 Environ. Sci. Pollut. Res. 119612 (2023), https://link.springer.com/article/10.1007/s11356-023-30851-8.

[138] Similar studies have found harmful effects from dredging and resuspending sediments in saltwater and estuarine systems. A study that investigated that environmental impact of heavy metals from dredged and resuspended sediments on phytoplankton and bacteria in Singapore in 2004 found that dredging contaminated sediments can have a large negative impact on estuarine aquatic organisms. S. Nayar, et al., *Environmental Impact of Heavy Metals from Dredged and Resuspended Sediments on Phytoplankton and Bacteria Assessed in in Situ Mesocosms*, 59 Ecotoxicology and Environmental Safety 349 (2004), https://linkinghub.elsevier.com/retrieve/pii/S0147651303001623. Another study from 2019, in Rio de Janeiro at the Sepetiba Bay at the mouth of the São Francisco Channel, found an increase in the concentration of metals after resuspension from dredging. Alexandre Rafael De Freitas et al., *Increase in the Bioavailability of Trace Metals after Sediment Resuspension*, 1 SN Appl. Sci. (2019), http://link.springer.com/10.1007/s42452-019-1276-8.

[139] *Id*. at 119617.

A recent study on the bioaccumulation of heavy metals in fish[140] explained,

> Once heavy metals enter the aquatic systems, they are dissolved in the water and easily accumulate in the different parts of aquatic living organisms, including fish, and subsequently enter into consumers of these contaminated fish.. . . Aquatic organisms, including fish, can be contaminated with heavy metals sourced from both the water as well as sediments of the aquatic ecosystems . . . The uncontrolled use and accumulation of these metals have become an important issue of health concern as most do not have the ability to break down into nontoxic states and, hence, have destructive effects on human health as well as aquatic organisms. Heavy metal contamination negatively affects the growth and reproductive activity of fish by lowering their gonadosomatic index (GSI), fecundity, fertilization, and hatching rate. Moreover, the toxicity of heavy metals disrupts the normal growth and progress of fish embryos and larvae. Although various metals are essential for living organisms, most are very dangerous, even in a very small amount. Moreover, some of the metals, namely arsenic (As), cadmium (Cd), copper (Cu), chromium (Cr), lead (Pb), mercury (Hg), nickel (Ni), selenium (Se), zinc (Zn), etc., are not only highly toxic but also result in carcinogenicity and mutagenicity.[141]

Another comprehensive review of the impact of heavy metal bioaccumulation in fish that details the pathways of harm to fish organs from several metals[142] states:

> [Heavy metals] are persistent, nonbiodegradable compounds that can accumulate in sediments, have long half-lives in the environment, and can bioaccumulate and biomagnify in living tissues alongside the food chain, leading to toxic effects in each trophic source. […][…] Fish take up heavy metals through the gills, gastrointestinal tract (GIT), or skin. Blood is perfused into different organs, including the liver, kidneys, gills, brain, and muscles, where it accumulates and causes severe damage.[143]

In sum, dredging and disposal of dredged sediment material will release contaminants into the environment and adversely impact aquatic life and ecosystem health. It may also violate the current dredging ban. Some of the contaminants in the Lake are known carcinogens and toxins and are present above available environmental protection criteria. Elevated levels of heavy metals in the water column and sediments can be acutely and chronically toxic to aquatic organisms, affecting their survival, reproduction, and overall ecosystem health. Dredging of contaminated sediments is also a risk to human health. The accumulation of heavy metals in the food chain, through bioaccumulation in fish and shellfish, poses a potential risk to human health

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[140] Farhan Jamil Emon et al., *Bioaccumulation and Bioremediation of Heavy Metals in Fishes—A Review*, 11 Toxics 510 (2023), https://www.mdpi.com/2305-6304/11/6/510.
[141] *Id*. at 2.
[142] Eman Zahran et al., *The Impact of Heavy Metal Pollution: Bioaccumulation, Oxidative Stress, and Histopathological Alterations in Fish across Diverse Habitats*, 33 Aquaculture Int (2025), https://link.springer.com/10.1007/s10499-025-02045-1.
[143] *Id*. at 2.

through consumption. A full risk assessment must be conducted to evaluate the potential effects of the contaminants on public health, Lake Maurepas, and the Lake Pontchartrain basin ecosystem. The Corps and the state should both also consider whether dredging at all in the Lake will violate the dredging ban in place since the 1980s.

2). CO_2 harm

The Corps must also consider the harm carbon dioxide could cause the lake. A pipeline rupture in the lake could lead to the release of large volumes of high-pressure carbon dioxide in the lake, and depending on the magnitude of the rupture, could be detrimental to aquatic organisms and anyone fishing or recreating in the area. A major carbon dioxide release from an injection well (for example, a well blowout) could be devastating and even life-threatening. Some oil and gas wells drilled in the past have been abandoned and are not properly plugged. The existence of abandoned wells in Lake Maurepas (Figure 9) raises concerns that injected carbon dioxide and possibly brine could potentially leak back to the surface through these old wells.[144] A study conducted by Dr. Robert Rossi and Dr. Dominic DiGiulio, a former EPA researcher who worked on the original Class VI rule guidance over a decade ago, warns that:

> Supercritical carbon dioxide (CO_2) injected into geologic formations via Class VI injection wells may migrate via abandoned wells, which can serve as vertical conduits that may rapidly transport injected brine and CO_2. Leakages of brine into surface or ground waters may limit the usefulness of waters for human consumption, and an expression of CO_2 leakage at the land surface would pose an asphyxiation hazard near buildings including residences.[145]

[144] Robert J Rossi & Dominic C DiGiulio, *Documenting Known Abandoned Wells in Proximity to Potential Carbon Storage Formations in Louisiana* (2023), https://environmentalintegrity.org/wp-content/uploads/2024/03/Rossi-and-DiGiulio_Final-with-ES.pdf, Ex. 15.
[145] *Id*. at 2.

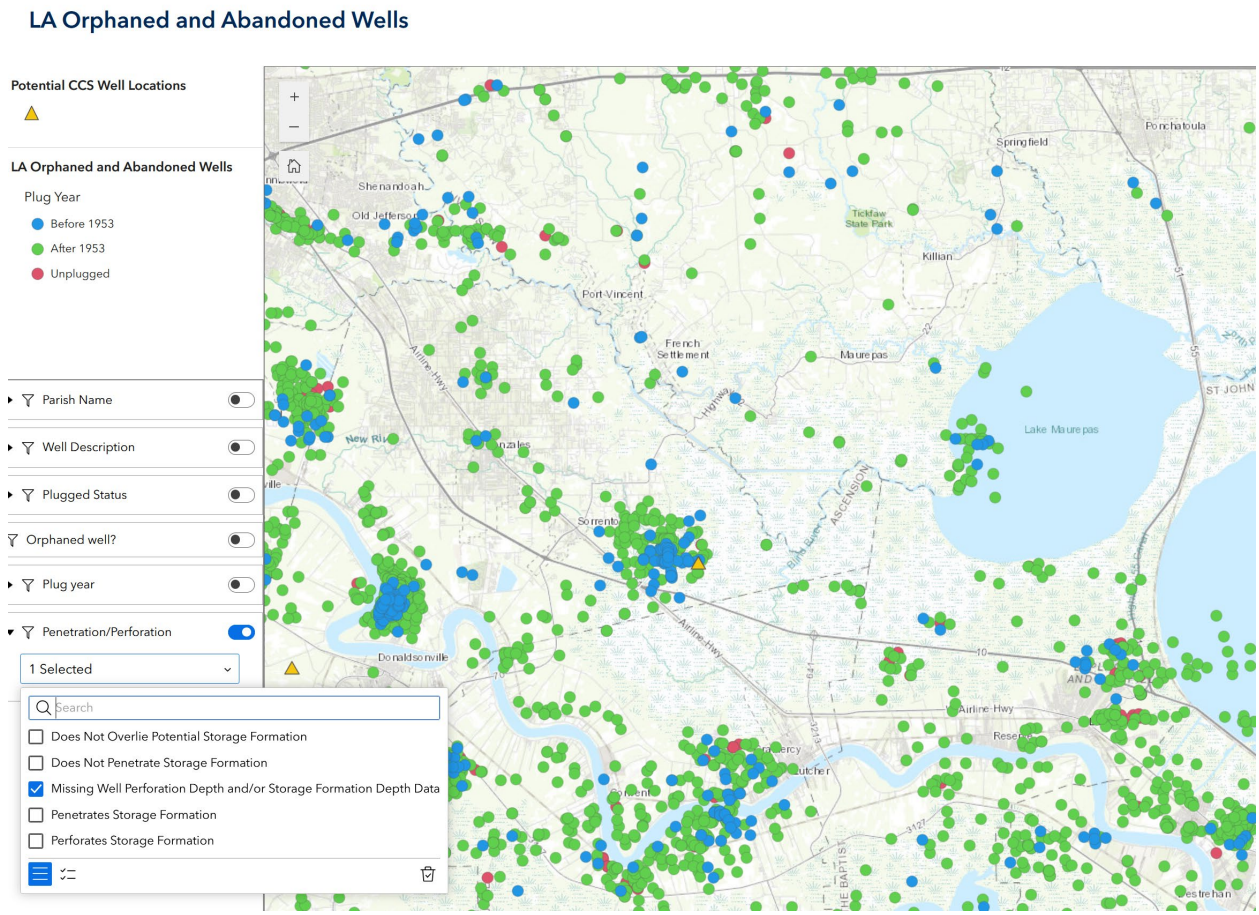

Figure 9 - Screenshot of Louisiana abandoned wells showing many legacy wells in the Air Products proposed project area, which are missing well perforation depth and/or storage formation depth data.[146]

There is ample research and scientific consensus on the negative impacts of acidification of water bodies from excess carbon dioxide intake, such as loss of biodiversity and decline in numbers of fish and other aquatic organisms.[147] There are little to no studies on the impact of a CO_2 pipeline and or sequestration facility in a freshwater lake, particularly in the cases of slow leakage over time and pipeline rupture or well blowout resulting in large volumes of CO_2 release. An EIS is necessary for the required analysis of these risks.

[146] Environmental Integrity Project, *Carbon Capture, Use, and Sequestration,* "Web map: Louisiana abandoned wells," https://environmentalintegrity.org/carboncaptureuseandstorage/, accessed July 27, 2025.
[147] *See e.g.,* Theresa Carey, *Excess Carbon Is Making Freshwater Lakes More Acidic -- at Triple the Rate of Oceans*, PBS News, Jan. 12, 2018, https://www.pbs.org/newshour/science/fossil-fuels-are-making-freshwater-lakes-more-acidic-at-triple-the-rate-of-oceans. *See also*, NOAA, *Ocean Acidification | National Oceanic and Atmospheric Administration*, (Feb. 25, 2025), https://www.noaa.gov/education/resource-collections/ocean-coasts/ocean-acidification.

b) 40 C.F.R. 230.10(c)(4) (adverse effects on recreational, aesthetic, and economic values)

The discharge of dredged and fill material for the proposed project will also cause or contribute to degradation of Lake Maurepas because the discharge of pollutants would result in significantly adverse effects on recreational, aesthetic, and economic values of the lake.

Again, the Application is deficient. It does not provide the information necessary for the Corps to fully evaluate the effects of the proposed project on recreational, aesthetic, and economic values of Lake Maurepas. However, there is evidence outside of the Application that shows the proposed project would result in significantly adverse effects on the recreational, aesthetic, and economic values of Lake Maurepas.

Air Products admits that one of the screening criteria for choosing a sequestration site was the low concentration of oil and gas wells.[148] And now because the lake has had very limited industrial activity, which is why it is one of the natural resources in south Louisiana that is prized for its nearly pristine state, Air Products wants to claim it for its carbon sequestration facility and mar this special place that is a treasure for Louisianans and tourists.

Turtle Cove scientists lead educational tours across the lake into the swamp from the landbridge to Blind River and the Amite River. Access to the swamp is often from boats launched at the land bridge. Numerous ecotour operators and kayak/canoe paddle tours utilize the lake and surrounding waterways.[149] All of these uses will be adversely impacted by moving industrial infrastructure into this environment.

The proposed construction activities and permanent structures in Lake Maurepas would greatly interfere with navigation and enjoyment of the lake. Air Products claims that the wells would be in remote areas of the lake away from primary channels, but boaters and others use all areas of the lake.[150] Further, the Reserve Canal is one of the primary boat launching locations and access points, and will be extremely close to the last leg of pipeline into the lake as well as the Mainline Valve Platform. Permanent surface and subsurface infrastructure such as the well platforms would create significant navigational obstructions and safety hazards.

Lake Maurepas commercial fishers "worry for the safety of the recreational boaters and vacationers they've operated alongside for decades" if the carbon sequestration facility is built and the platforms with injection wells are scattered throughout the lake.[151] A fisher explains that "'[w]ithout the sophisticated tracking technology a commercial fisher's boat may have, the only indicator boaters will have that a well is nearby at night will be a light'" which he explains

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[148] *See* JPA, Attach. 2-02a La. Public Trust Doctrine Analysis, at 49, Mar. 14, 2025, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15114536.
[149] *See* Buras Report at 51, Ex. 1.
[150] LA HR Hearing Testimonies, Ex. 4.B; Public Comments to OCM, Ex. 4.C.
[151] Lara Nicholson, *Crabbers pull traps from Lake Maurepas ahead of carbon capture project: 'I'm holding out'*, The Advocate, Nov 10, 2022, https://www.theadvocate.com/baton_rouge/news/environment/air-products-carbon-capture-project-worries-local-fishers/article_9910dcca-5ed4-11ed-934b-a7fa3cbdc68f.html (based on interview with Lake Maurepas commercial fishers), Ex. 11.

"'could fizzle out or get covered by debris, leaving boaters unaware that a giant metal structure could be right in front of them.'"[152] He further explained that if a boater comes along "'either at night or early in the morning and doesn't see this platform sitting in the lake, . . . [y]ou're going to have a fatality or multiple fatalities out there.'"[153]

Air Products' lease with the state allows it to enclose its carbon dioxide injection well sites and other portions of the facility "as may be required by applicable Sequestration Protocols." And as set forth above, it is not known how much of the lake could be declared permanently off-limits to the public. While Louisiana statute (La. R.S. 30:127.G) requires the lessee of state lands to allow public access to public waterways, the statute also gives the state the authority to restrict access to public waterways if it is determined that "a danger to the public welfare exists." The Corps must determine how much of the lake will be off-limits to the public in order to conduct a proper review. The Corps cannot defer this to the state as this information is critical to the 404 permit review.

1). Aesthetics

During construction, large barges, excavation equipment, drilling rigs, among other large equipment operating in the lake would alter the visual characteristics of the area. There is no limit to the number of barges and other equipment that may be on that lake at any given time. There is also no limitation on the hours of operation. Lighting would impact sunset and nighttime views. The construction activity would degrade the view across the lake. As the Corps recognized years ago, "[i]mpacts to esthetic values in Lake Maurepas could be significant due to lakewide elevated levels of turbidity caused by shell dredging."[154] The same could be significant here too because as discussed in Section I.A.3.a.iii.a, the dredging in Lake Maurepas would increase turbidity for long periods of time.

Air Products admits that the platforms, wellheads, and other lake infrastructure would be visible to lake users but claims "these features would have limited visibility to the public due to their remote locations." But in fact, platforms and wellheads would not be in remote areas of the lake and would be visible for miles, spoiling views—including from Highway 51 and I-55 especially from the highway bridges across Pass Manchac where there are extraordinary unobstructed views of the entire lake as shown in Figure 10, with a similar view in Figure 11. The proposed North Control Platform and associated injection and monitoring platforms would be directly between the highway bridges and the lake. Indeed, views of the lake from the popular Middendorf's Restaurant and Lake Maurepas Sunset Park in Manchac, among other places, would also be marred with Air Products' platforms, wellheads, and other infrastructure.

[152] *Id.* (quoting Lake Maurepas commercial fisher).
[153] *Id.* (quoting Lake Maurepas commercial fisher).
[154] Corps 1987 Final EIS, at EIS-121.

Figure 10 – Google Earth street view of Lake Maurepas from the Manchac Swamp Bridge on I 55.

Figure 11 – Arial view from above near Port Manchac looking west across Lake Maurepas[155]

[155] Photo by Ed Fountain, *How Hydrogen, the Fuel of the Future, Got Bogged Down in the Bayou,* Wall Street Journal, June 7, 2025, https://www.wsj.com/business/energy-oil/how-hydrogen-the-fuel-of-the-future-got-bogged-down-in-the-bayou-36131eb6?gaa_at=eafs&gaa_n=ASWzDAj_Brsf-eH2HHQwQWh_QR3Px6zb_ObZSx2dTl1o6SqMOeyr5uSzx_JW&gaa_ts=6882aad4&gaa_sig=GaiVG5EeNyae8HJ83DItn1jm1H58ooaKgszCWySYPtNTaMOzzaxld4FvQ7bpPJEPfyblARr00mISqFNV_2VA3g%3D%3D, Ex. 16.

Air Products' proposed carbon sequestration facility would forever blight the serene beauty and magic of Lake Maurepas as captured by professional photographers in Figures 10 – 12. The facility would permanently scar this sacred place.

Figure 12 – Famous Lone Cypress in Lake Maurepas[156]

2) Economics

The proposed project would negatively affect businesses that thrive off the current uses of the lake and area home values.

Construction would stir up and resuspend heavy metals and other contaminants in the sediment, which could impact water quality and harm Rangia clams, crabs, fish, and other aquatic life. And fishers and crabbers who have worked on Lake Maurepas for decades fear the project will negatively impact the local economy.[157]

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[156] *Id.*

[157] Lara Nicholson, *Crabbers pull traps from Lake Maurepas ahead of carbon capture project: 'I'm holding out'*, The Advocate, Nov 10, 2022, https://www.theadvocate.com/baton_rouge/news/environment/air-products-carbon-capture-project-worries-local-fishers/article_9910dcca-5ed4-11ed-934b-a7fa3cbdc68f.html (based on interview with Lake Maurepas commercial fishers), Ex. 11.

During the shell dredging permit matter, the Corps acknowledged "growing concern over the effects shell dredging may have on other activities in the lakes, including commercial and recreational fishing."[158] At the time, the Corps obtained data on the value of the fishing industry, stating:

> In 1985, commercial landings of finfish and shellfish from the Lakes Maurepas, Pontchartrain, and Borgne area were valued at about $7.4 million. The gross value of the blue crab catch, which has been the major commercial fishery in Lake Pontchartrain, accounted for $946,000. These figures, however, may not reflect the full significance that the demand for seafood has on the local economy. Since the lakes are located near heavily urbanized areas, much of the harvested seafood is sold directly to consumers and is not statistically recorded. The recreational harvest of seafood is not included in landings data. Additionally, many finfish and shellfish species that utilize the lakes as a nursery area are eventually harvested in other areas such as Chandeleur and Mississippi Sounds.[159]

The Corps concluded that "[i]n Lake Maurepas, where it has been shown that shell dredging causes lakewide, persistent elevated levels of turbidity, impacts to fishery resources as a result of turbidity *could be significant*."[160] Here, the Application and supporting materials provides no information on commercial or recreational fishing. The Corps must obtain this economic data before making any determination on the Application.

Further, the construction and infrastructure throughout the lake would reduce the appeal of living along the lake or in the many subdivisions established along the rivers, which provide easy access to the lake. Property values in these communities could plummet if the lake is no longer a haven for boaters,[161] and the rental of homes and camps along Blind River and other nearby areas will also suffer.[162]

b. The proposed pipeline project will cause or contribute to significant degradation of the Maurepas Swamp.

Air Products' plan is to create a 38-mile long 24-inch pipeline that would transport the CO_2 waste from the planned production facility in Ascension Parish to a sprawling carbon sequestration facility with injection wells in Lake Maurepas. The pipeline would cross multiple parishes from Ascension Parish, through the Maurepas Swamp in St. James and St. John the Baptist parishes, before entering Lake Maurepas where the CO_2 waste emissions would be injected deep beneath the lake for sequestration. The lake is at the intersection of St. John the Baptist, Tangipahoa, and Livingston parishes. In addition to the CO_2 pipeline, the company plans

[158] Corps 1987 Final EIS, S-8-9, Ex. 10.
[159] Corps 1987 Final EIS, S-8-9, Ex. 10.
[160] *Id.* at EIS, S-6 (emphasis added), Ex. 10.
[161] LA HR Hearing Testimonies, Ex. 4.B; Public Comments to OCM, Ex. 4.C.
[162] *See* Exhibit 16.B, Screenshot of Airbnb listings for Blind River, LA (showing over 400 available vacation rental properties in the area).

to build a 4-inch fossil gas (i.e., natural gas) pipeline to provide power to the CO_2 injection wells in the lake.

According to the JPA Public Trust Analysis, the CO_2 pipeline would cross an existing utility corridor about 2 miles east of the facility, then would parallel utility easements for 9 miles until crossing Airline Highway (US 61) after which it would parallel Airline Highway for nearly 5 miles before paralleling existing utility corridors for another 7 miles, and then parallel the West Shore Lake Pontchartrain ("WSLP") levee project for nearly 4 miles before turning due north. The final leg of the pipeline will run parallel to the Reserve Relief Canal into the lake (Figure 1).[163] The pipeline construction workspace would maintain a 110-foot width in wetland areas, and a 50-foot permanent easement space that would be cleared of trees. None of the existing utility corridors will be used; instead, this will be a new right of way along its path, extending existing cleared areas or creating entirely new cleared areas.

i. Significant degradation to Swamp Flora

According to the Biological Investigation Report conducted by OCM in October 2024, the route through the swamp consists of baldcypress (50%), water tupelo (25%), and swamp red maple (10%) with 75% canopy closure and 25% scrub shrub/midstory cover.[164]

Multiple state agencies have already recognized the significant degradation that will be caused by Air Products' planning project, particularly with regard to the pipeline and sequestration facilities' footprint in the Maurepas Swamp WMA and Lake Maurepas. As noted by the Office of State Lands, "As currently proposed, the project may permanently impact 235.21 acres swamp (PFO2/1F), 10.04 acres fresh marsh (PEM1F), 12.32 acres water bottom (L1UBV), 0.70 acres water bottom (R2UBHx), 0.33 acres upland forest (UF8), 0.61 acres upland developed (UU), and 0.19 acres upland range (UR). Additionally, the project may temporarily impact 8.68 acres fresh marsh (PEM1F), 0.07 acres scrub shrub (PSS1F), 91.71 acres water bottom (L1UBV), 1.95 acres water bottom (R2UBHx), 119.84 acres upland agriculture (UA), 46.31 acres upland developed (UU), and 13.93 acres upland range (UR)."[165]

Likewise, the Office of Coastal Management has noted that the proposed project "is anticipated to have permanent impacts to forested wetland habitat within the conservation servitudes required as compensatory mitigation under P20051063 and P20111148 and to the cypress plantings required under P20141416. The applicant is advised to consider alternative routes or methodology to avoid impacts to the mitigation projects referenced or provide written documentation that the holder(s) of the conservation servitudes have granted the necessary

[163] *See* JPA, Attach. 2-02a La. Public Trust Doctrine Analysis, at 13, Mar. 14, 2025, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15114536.
[164] Heintz, J., Biological Investigation Report for Coastal Use Permit No. P20240033, Air Products Blue Energy LLC, Louisiana Department of Energy and Natural Resources/Office of Coastal Management, Oct. 2, 2024, at 4, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15129226., Ex. 17.
[165] *Id.*

approval to allow for the proposed activities."[166] This is a serious problem, set forth in more detail in the following section: the specific area that Air Products proposes to run its carbon dioxide pipeline through is a protected wildlife management area that is also the site of numerous overlapping restoration and beneficial projects funded by the state of Louisiana that benefit the public and take priority over this private company's ambition. Air Products' failure to appropriately evaluate the impact of its disruption on these ongoing projects should be considered a project-terminating omission.

Another omission: as the Office of State Lands points out above, most of the dredging operations undertaken to construct the pipeline will be conducted on swamp, fresh marsh, and water bottoms. Air Products proposes using a variety of pipeline construction techniques (conventional trenching, horizontal directional drilling, push-lay, etc.) along the route depending on the type of terrain (upland, railroad, water crossing, wetland, etc.).[167] In swamp areas, such as much of the Maurepas Swamp and corresponding to nearly half of the pipeline route, the company would cut trees and shrubs that would be over the trench line and install sediment barriers during this vegetation clearing.[168] Air Products' illustrations of its construction methods for the pipeline assumes that construction will occur on forested wetlands.[169] However, much of the construction will occur in swamp and require dewatering and other more destructive steps. Previous pipeline construction projects in the Maurepas Swamp have resulted in spoil banks and roads being constructed through the swamp that cause further hydrological impediments.[170] As noted in the expert report of Buras, the project application materials lack "[f]ull, detailed description of exact construction techniques that will be used in the entire footprint of the pipeline, especially in wetlands or inundated areas. The descriptions provided appear to be more general templates and not necessarily based on actual conditions."[171] For example, Air Products does not address how it will ensure minimal spoil bank creation after construction in wetlands.[172] It is also unclear how unconsolidated soils will be handled and whether any spoil banks will remain. Also, "[i]t appears that much of the area will end up as a canal, since no external fill will be brought in. The depth of that canal post-construction is not provided."[173]

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[166] JPA Comments (2025), Air Products Blue Energy LLC Joint Permit Application "View Comments" page, Comment by Sharon Pecquet, 07/08/2025 11:57:54, at https://sonlite.dnr.state.la.us/ords/f?p=129:560:105913579165900::::P560_CUP_NUM:P20240033, Ex. 18.
[167] *See* JPA, Attach. 2-02a La. Public Trust Doctrine Analysis, at 15–23, Mar. 14, 2025, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15114536.
[168] *See* JPA, Attach. 2-02a La. Public Trust Doctrine Analysis, at 17, Mar. 14, 2025, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15114536.
[169] *See* Buras Report at 3, Ex. 1 – reviewing JPA, Attach. 2-02a La. Public Trust Doctrine Analysis, at 14 (Figure 1-5), Mar. 14, 2025, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15114536; *see also* 1-3_Pipeline_Construction_Typical_Details_rev_20250604.pdf *available at* https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15194900 (providing construction diagrams labeled "Forested Wetlands" at 2–3.)
[170] *See* Buras Report at 5, Ex. 1.
[171] *Id.* at iv.
[172] Air Products asserts that topsoil will be returned to the trench after the pipe is placed, to its original horizon, but the process described presupposes conventional trenching techniques, which will not be used within the WMA. *See* JPA, Attach. 2-02a La. Public Trust Doctrine Analysis, at 21, Mar. 14, 2025, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15114536.
[173] *See* Buras Report at iv, Ex. 1.

ii. Significant degradation to Concurrent Restoration Projects

The State of Louisiana, the Corps, and numerous agencies and nonprofit organizations have proposed and implemented numerous projects and programs totaling investments of hundreds of millions of dollars over the past several decades to restore, conserve and protect the swamp for current and future generations. They also have also expended billions of dollars on flood protection for the communities that historically were protected by the attenuating effects of an intact landscape that provided multiple lines of defense.[174] The attached report of Honora Buras details the overlapping and synergistic projects near the proposed Air Products CO_2 pipeline corridor and sequestration infrastructure in the swamp and Lake Maurepas (*see* Figure 1) that will be impacted.

a) Coastal Forest Conservation Initiative (CFCI)

Several tracts of forested land in the Maurepas Swamp were acquired through the Coastal Forest Conservation Initiative ("CFCI"), a program developed and implemented by CPRA in response to the increasing threats of conversion of coastal forests to marsh, open water or other uses. The purpose of the CFCI program was to address the need to conserve critical coastal forest habitat for benefits that will accrue to the State and its citizens; including the protection of homes, businesses, and critical energy infrastructure from wind, wave, flooding, and storm surge damage associated with coastal storm events, and the protection and restoration of rare or declining habitats.[175] All acquired properties were to be governed by a Conservation Management Plan ("CMP"), which includes language regarding how any future land use activities must adhere to the accepted conservation servitude or fee title acquisition terms. This language restricted any removal of trees from the protected forest for any purpose other than to improve forest health, including new roads, buildings, parking areas, or clearings for any purpose. The largest tract and first to be acquired was fee title acquisition of the M.C. Davis tract, also known as the Blind River property, containing 29,630 acres of the Maurepas Swamp, facilitated by the Conservation Fund and ultimately acquired in partnership with the Louisiana Wildlife and Fisheries Foundation for $6.5 million dollars and incorporated into the Maurepas Swamp WMA.[176] Per Buras, "this parcel was a much sought after acquisition because it united the East and West sections of the existing WMA."[177] (See Figure 12.B.)

[174] *See* Buras Report at 8, (citing Conner et al., 2012) Ex. 1.
[175] *See* Buras Report at 11, Ex. 1.
[176] *Id*. at 13.
[177] *Id.*

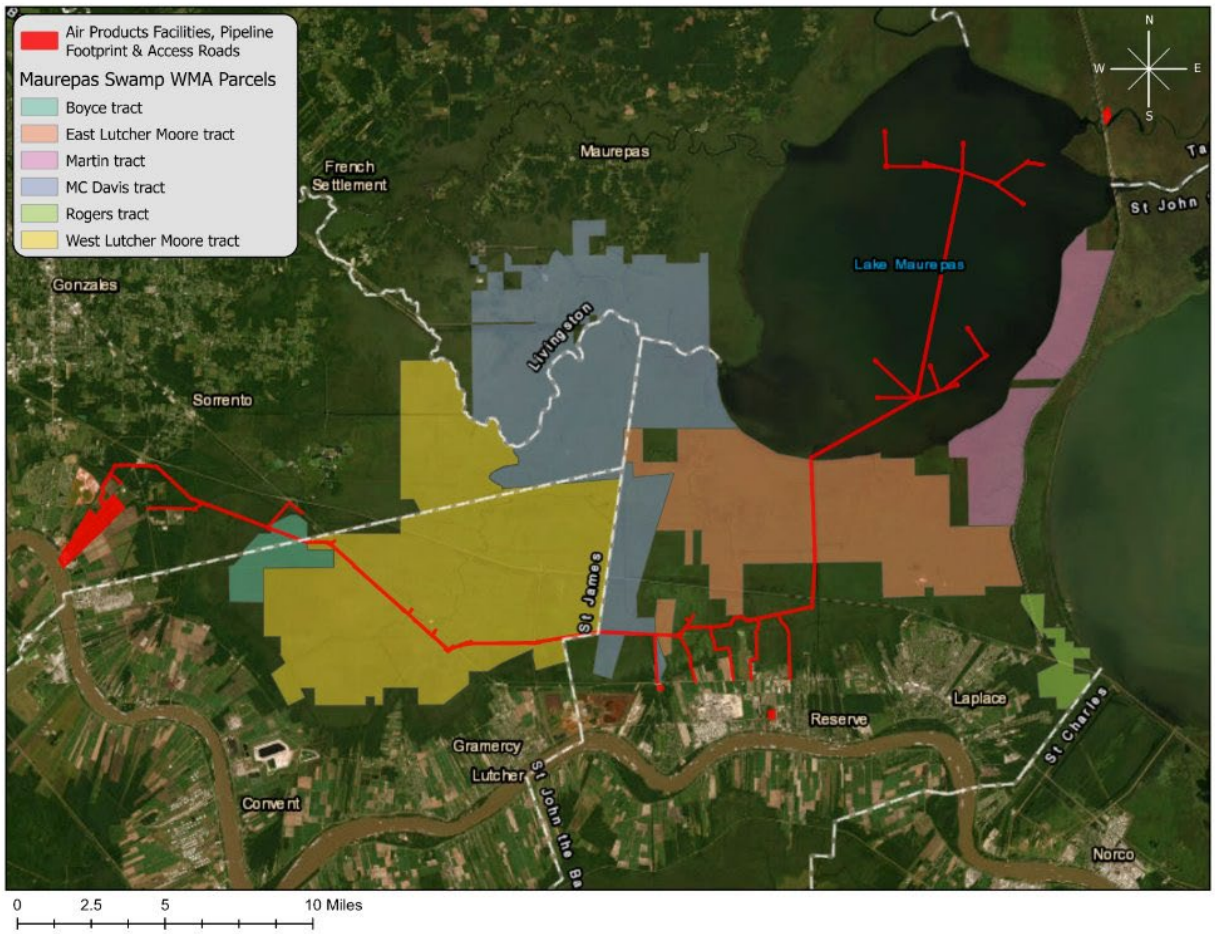

Figure 12.B - Tracts in Maurepas Swamp WMA and proposed Air Products pipeline route intersecting same.

CPRA has budgeted funds for ongoing stewardship and monitoring of activities on acquired lands to ensure adherence to the terms of the purchase agreements and Conservation Management Plans. Any clearing of forests for any purpose was to be compensated for by mitigation of the impacts elsewhere on that tract or by providing equivalent benefits within the contiguous boundary of adjacent forests.[178]

b) River Reintroduction into Maurepas Swamp Project (MSP)

The proposed CO_2 pipeline by Air Products would cross the Maurepas Swamp Project ("MSP") diversion canal and the project's targeted restoration benefit area within the Maurepas Swamp (red outline in Figure 13, below). The pipeline corridor and its construction could potentially interfere with the project's intended purpose. Below is a description of the MSP.

[178] *Id.*

Figure 13 - Map of the Maurepas Swamp Project (purple and yellow lines), its intended benefit area (red outline), the West Shore Lake Pontchartrain levee project (purple and green lines), and its planned mitigation area within the Maurepas Swamp Project's benefit area (orange polygon). Note that the purple line corresponds to integrated Maurepas Swamp Project conveyance channel and the levee project (CPRA 2023).

The River Reintroduction into Maurepas Swamp project, also called the MSP, has been included in Louisiana's coastal restoration plans since the beginning of the State's coastal restoration program, starting with the Louisiana Coastal Restoration Plan of 1993.[179] This project has received funding from a variety of sources - including the Coastal Wetlands Planning, Protection, and Restoration Act ("CWPPRA"), Louisiana State-only surplus funds, the Gulf Environmental Benefit Fund via the National Fish and Wildlife Foundation, and RESTORE Act (with penalties from the BP Oil Spill) - over the last 25 years for planning, engineering, and design, and construction. Over $500 million in funding for this project has been obtained.[180]

The goal of the MSP is to reduce or minimize future loss of coastal forest habitat in the project area through the introduction of Mississippi River water. The project is needed to convey fresh water, nutrients, and sediments to restore the health and essential functions of the swamp.[181] The project area of influence is approximately 45,000 acres, including closed forest canopy, transitional forest, and degraded forest (open canopy/marsh) habitat types or condition

[179] *See* Buras Report at 15 (citing Buras et al, 2018), Ex. 1. The project was also included in the Louisiana Coast 2050 Report (1998) and the Mississippi River Sediment, Nutrient and Freshwater Reintroduction Study (1999). *See id.*
[180] *See* Buras Report at 15–16, Ex. 1.
[181] CPRA, "Maurepas Swamp" Fact Sheet, *available at* https://coastal.la.gov/wp-content/uploads/2023/04/Maurepas-Swamp-Final-Full-Fact-Sheet.pdf; *see also* Louisiana Coastal Wetlands Conservation and Restoration Task Force, "River Reintroduction into Maurepas Swamp (PO-29)", July 2025, *available at* https://www.lacoast.gov/reports/gpfs/PO-29.pdf.

classes. The project objectives are to establish a hydrologic regime consistent with swamp forest sustainability that will introduce flowing oxygenated water; ameliorate salinity intrusion; facilitate nutrient uptake and retention; increase forest health and structural integrity; and increase rates of soil surface elevation gain to offset subsidence. If these objectives are achieved, swamp habitat structure, function, and resilience will increase, and conversion to non-forested habitats will be reduced.[182]

The MSP is a freshwater reintroduction (diversion) that will be operated at a 2,000 cubic feet per second to send Mississippi River water into the swamp to optimize benefits to swamp habitats. It includes three groups of features: the conveyance channel, embankment features, and weirs (Figure 14). The conveyance channel would be located on the East Bank of the Mississippi River in St. John the Baptist Parish, immediately west of Garyville, Louisiana. The project primarily consists of an intake channel from the Mississippi River, an automated gate structure in the Mississippi River levee, a sedimentation basin (within the conveyance channel); and a 5.5-mile-long open conveyance channel, along with many other design elements.[183]

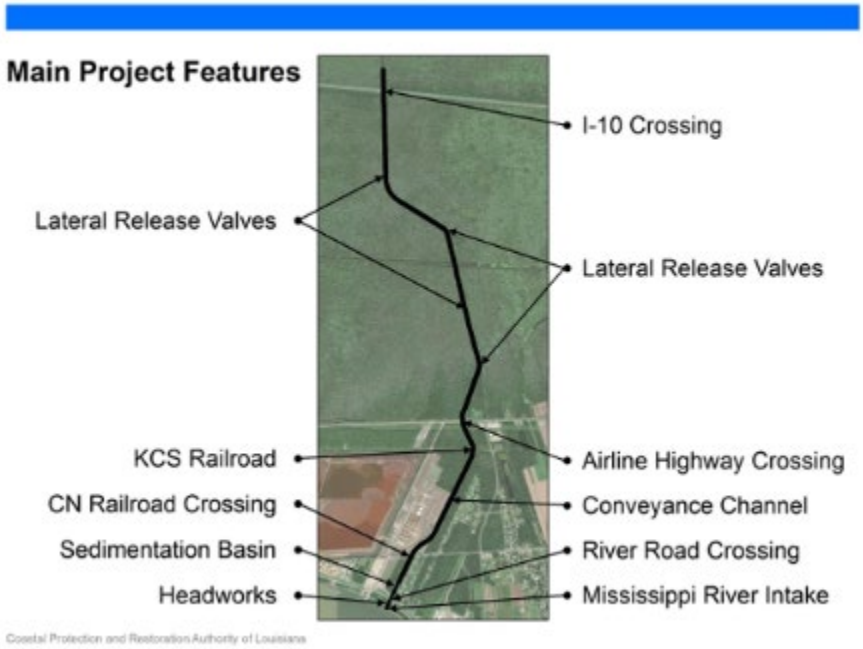

Figure 14 - The River Reintroduction into Maurepas Swamp project features.

Air Products' planned pipeline route will interfere with the MSP, causing the destruction of wetlands directly in the benefit area of the Maurepas River Project. The pipeline route crosses the overall benefit area of the Maurepas River Project (blue hashed lines in Figure 15, below). Although it avoids the direct benefit area for another project (the WSLP levee, described below), it does cross the area south of I-10 that will be used as a reference area for indirect impacts from the project, and which is to be monitored to assist in evaluating the success of the MSP for mitigation and the adaptive management of operations (Figure 15). There will also be lateral

[182] *See* Buras Report at 15, Ex. 1.
[183] *Id*. at 16.

discharge valves in this area to provide flow from the diversion as needed.[184] Removing the forest and changing the area hydrology by excavating a pipeline canal across or near the benefit area, with its monitoring stations and discharge valves, will directly impact the state's ability to adaptively manage the MSP diversion project.[185]

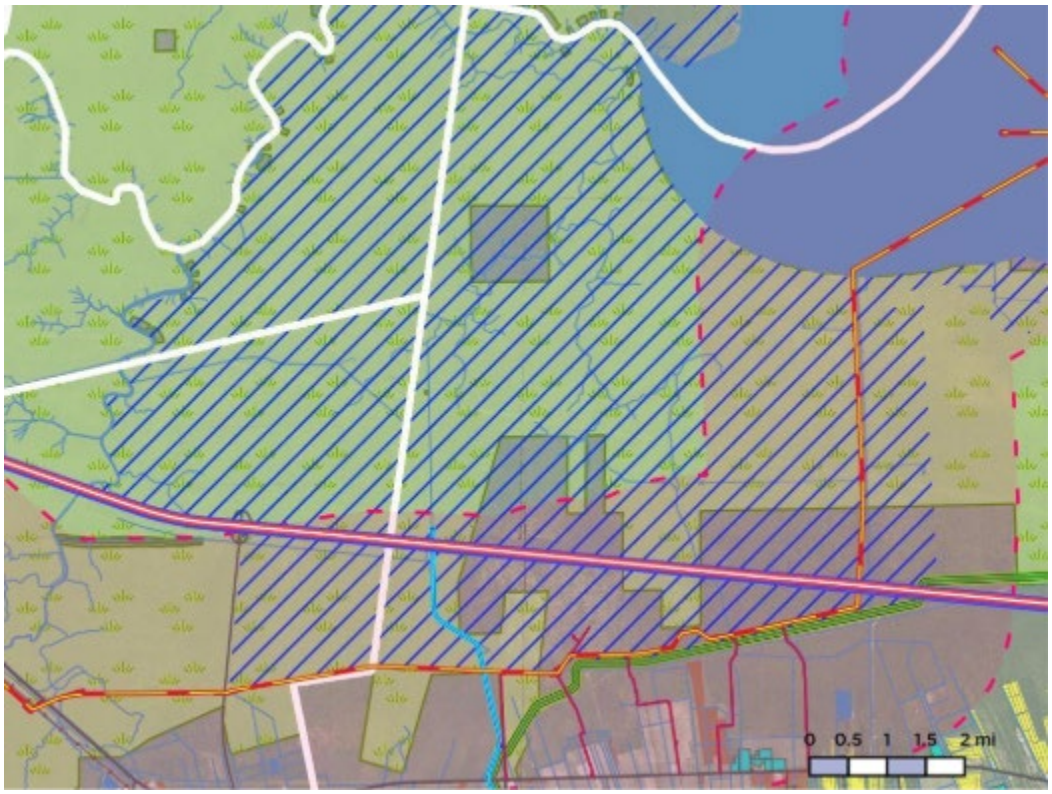

Figure 15 - Close-up map of the section of the proposed CO_2 *pipeline route (orange and red line) through the Maurepas Swamp Project benefit area (blue hashed lines). I-10 is shown as the thick pink line. The MSP diversion channel is shown as light blue line, and the WSLP levee is shown as a green line.*[186]

c) West Shore Lake Pontchartrain levee project (WSLP)

The proposed CO_2 pipeline by Air Products would parallel about 4 miles of the West Shore Lake Pontchartrain Hurricane and Storm Damage Risk Reduction ("WSLP") levee project (Figure 16), which could potentially impact its intended purpose.

[184] *Id*. at 28.
[185] *Id*.
[186] *See* Buras Report at 30 (citing May by Justin Kray 02/04/2025), Ex. 1.

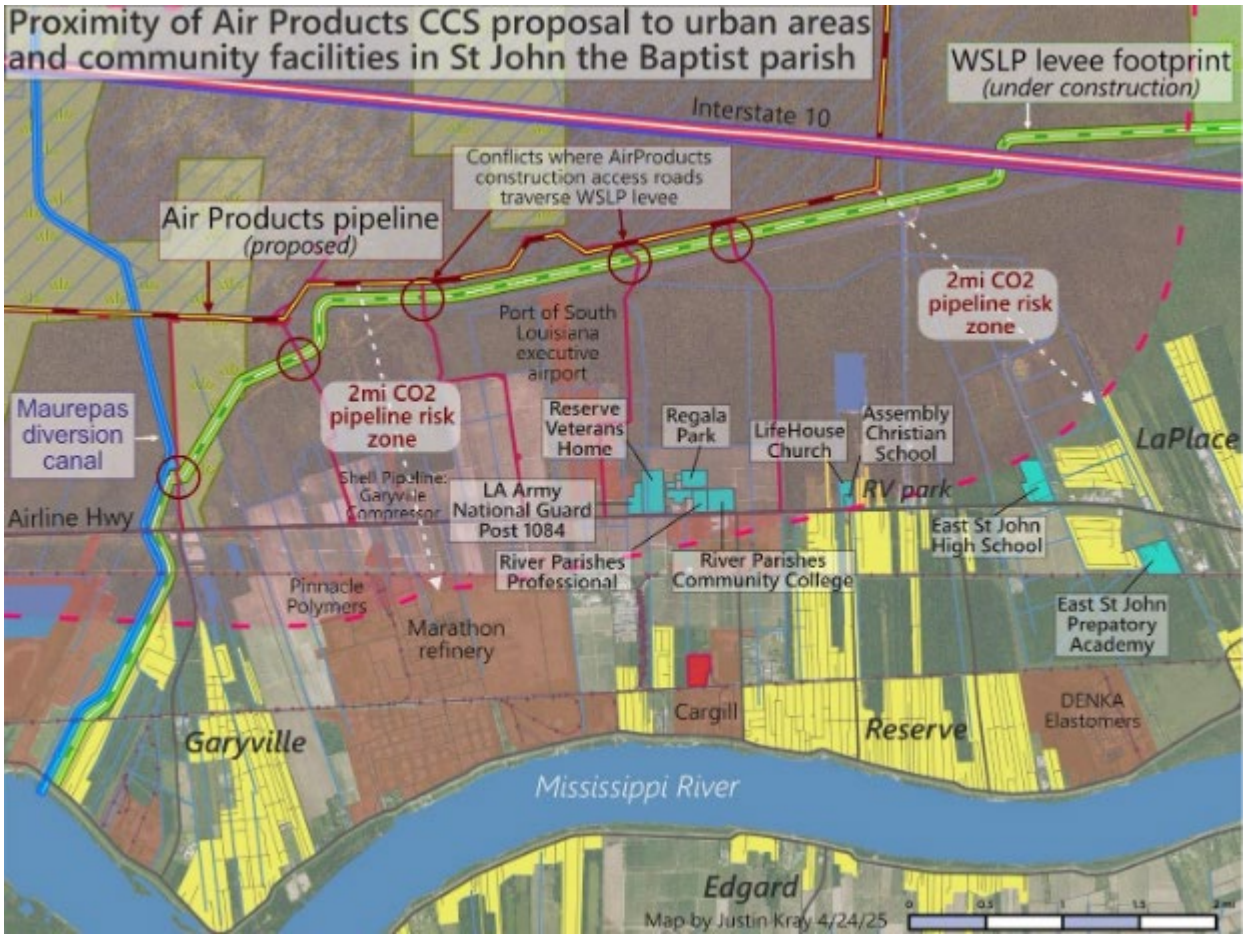

Figure 16 - Close-up map of the section of the proposed CO_2 *pipeline route (yellow and red dashed line) that cuts across the Maurepas Diversion canal (blue line) and that closely parallels part of the WSLP (green line). The* CO_2 *pipeline's temporary access roads are shown as thin magenta lines that cut across the WSLP.*

The WSLP project, which is already under construction by the Corps, will provide risk reduction measures to address tropical/hurricane storm surge events in St. Charles, St. John the Baptist and St. James parishes in southeast Louisiana.[187] This is an area that has flooded during storms and hurricanes, stranding residents and shutting down industry along the Mississippi River. The WSLP project's purpose is to reduce the risk of flood damage caused by hurricane and tropical storm surges.[188]

The project is currently under construction, with ongoing coordination between the Corps and CPRA to design and build the project's integrated western end alignment with the Maurepas Swamp Project and is scheduled to be completed in 2029.[189]

[187] Army Corps of Engineers, "West Shore Lake Pontchartrain," available at https://www.mvn.usace.army.mil/About/Projects/West-Shore-Lake-Pontchartrain/.
[188] *Id.; see also* Buras Report at 20, Ex. 1.
[189] *See* Buras Report at 21, Ex. 1.

A roughly 9,000-acre portion of the 45,000-acre targeted wetland restoration benefit area of the Maurepas Swamp Project is set to be used as mitigation for the swamp habitat impacted by construction of the WSLP Project.[190] The Corps has indicated, in a Record of Decision as well as other documents, that the Maurepas Swamp Project's mitigation area will provide compensation for the swamp habitat impacts from WSLP; the impacts from the Maurepas Swamp Project's construction and the WSLP impacts will be satisfied by the primary, secondary, and tertiary benefit areas of the Maurepas Swamp Project.[191] The swamp areas of the Maurepas Swamp Project are doing double duty: mitigating the Project's construction impacts and mitigating the WSLP – making it imperative that the benefit areas are fully able to mitigate those impacts.

There are also more direct issues where the WSLP's planned levee intersects with this proposed CO_2 pipeline. The levee and proposed pipeline run quite close to each other at several points and the temporary access roads planned for the pipeline cross the levee in several locations. [192] Several miles of the CO_2 pipeline will be installed at the flood side of the levee's toe.[193] The access roads could interfere with the drainage pathways built into with the levee's design, and the destruction of trees and wetlands along the levee base necessary to accommodate the pipeline construction will likely expose the levee to greater risk of damage or overtopping during storms.[194]

Further emphasizing the value of the Maurepas Swamp and the Lake Maurepas area are the other numerous projects focused on this area, described in the attached Buras report,[195] and illustrated in Figure 17, below:

[190] *Id*.
[191] *Id*. at 24.
[192] *Id*. at 45.
[193] *Id*. at 64.
[194] *Id*. at 45.
[195] *Id*. at 25–27.

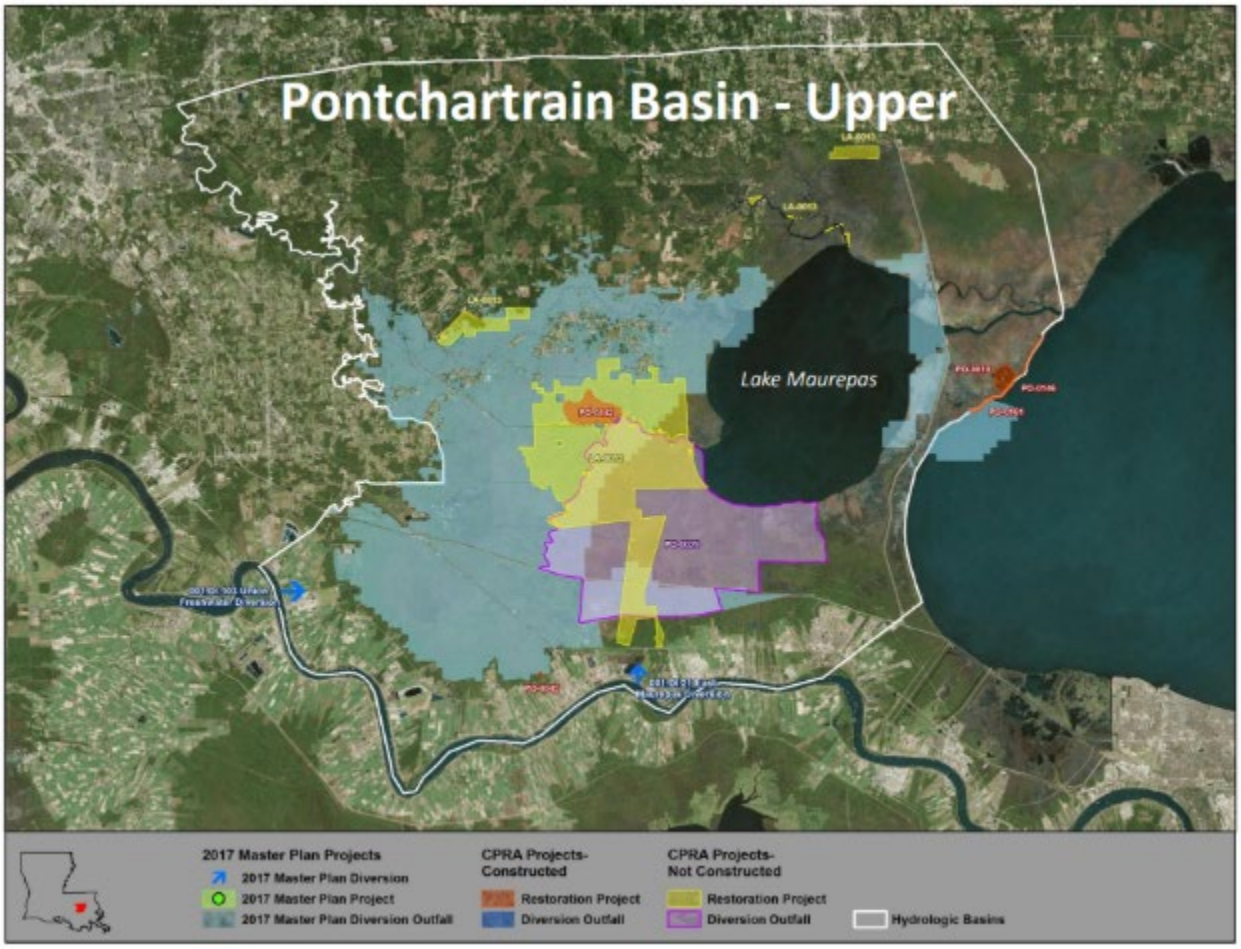

Figure 17 - Map illustrating the numerous overlapping beneficial projects around Lake Maurepas in the Maurepas Swamp, including the CFCI properties, the MSP, other restoration projects and other proposed diversions in the 2017 Master Plan.[196]

d) Overall Degradation of Concurrent Projects

Air Products' pipeline route will interfere with the success of all of these described projects – projects that state and federal agencies, with the support of Louisiana taxpayers, have spent millions of dollars researching, planning, modeling and building. These projects are intended to benefit the local population from flood and storm impacts while also protecting important natural areas. Air Products' pipeline construction will add new corridors and widen existing corridors, further fragmenting the forest and swamp. The pipeline route is planned to run parallel to some existing corridors but outside their existing footprint, meaning construction will create new cleared corridors along with the loss of trees and intact areas. The pipeline construction will directly impact the Maurepas Swamp, the WMA, the indirect impact area of the MSP used as baseline and to inform adaptive management, and the larger benefit area of the MSP project.

[196] *Id*. at 29.

The swamp bathymetry is very shallow and minor changes in topography anywhere in the swamp can interrupt or redirect the flow and interfere with desired outcomes.[197] Depending on the final contours of the pipeline canal and how construction activities are conducted, the pipeline corridor could create hydrologic barriers causing impoundment which in turn lead to stagnation and forest decline.[198] Should a saltwater intrusion event from a storm occur in the area, saline waters could remain trapped and cause forest decline or death. The pipeline canal also may redirect flow – meaning it may allow saline water from the lake to enter the swamp, especially during high tides and storm events or droughts.[199]

The MSP has been carefully designed based on comprehensive hydrologic and hydraulic modeling to maintain a certain level of shallow and relatively slow flow (sheet flow) through the swamp to allow sufficient residence time for nutrient uptake by the trees, which in turn stimulates forest productivity. This sheet flow also allows for fine sediments and nutrients to be removed from the water column before the water reaches Blind River or Lake Maurepas.[200] The WSLP project has also been carefully designed and modeled to ensure that the project's flood control and protection goals are met. Both of these projects will be disrupted when this pipeline and right-of-way are constructed right on top of them.

The pipeline route will also clear forested wetlands – a permanent loss to the area's ecosystem health. According to the State Office of Conservation Management, "OCM considers all clearing of forested wetlands as a permanent impact."[201] Fragmentation of the forest, whether adjacent to existing openings or a new noncontiguous clearing, "further harms the integrity, function and resilience of the forest habitat."[202] Forest canopy will be permanently removed along the entire pipeline corridor, much of it in areas that are currently unfragmented.

Given the direct impacts this pipeline route will have on the ongoing and funded restoration projects, the pipeline route selected should never have been considered as a viable choice.

4. 40 C.F.R. § 230.10(d): Potential impacts have not been minimized.

The Clean Water Act regulations also provide that "no discharge of dredged or fill material shall be permitted unless appropriate and practicable steps have been taken which will minimize potential adverse impact sediments of the discharge on the aquatic ecosystem." 40 C.F.R. § 230.10(d). Nevertheless, Air Products' proposed minimizing measures would not be sufficient to achieve compliance with the 404(b)(1) Guidelines.

For instance, the company says that it has tried to limit the visual impact of its proposed project on Lake Maurepas by containing the 16 injection and monitoring wells and associated

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[197] *Id*.
[198] *Id*. at 37.
[199] *Id*.
[200] *Id*. at 38.
[201] Heintz, J., Biological Investigation Report for Coastal Use Permit No. P20240033, Air Products Blue Energy LLC, Louisiana Department of Energy and Natural Resources/Office of Coastal Management, Oct. 2, 2024, at 4, *available at* https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15129226., Ex. 17.
[202] *See* Buras Report at 41, Ex. 1.

platforms in 17 sites.[203] The installation of 17 industrial structures that span out over two substantial areas of the lake will mar the scenic beauty of the resource and harm the experience of all users. The company asserts that "[o]nce completed, Air Products' presence on Lake Maurepas will only represent around 0.0008% of the entire surface of the lake." [204] But the visual impact is far greater than the footprint. The industrialization of the scenic area will be visible for miles regardless of the actual footprint. For instance, a billboard on a scenic river may have a small on-the-ground footprint but the visual impact is far larger and fundamentally degrades the user experience. Would not the installation of 17 billboards significantly impact the atmosphere of the lake? Imagine now that the billboards are noisy and dangerous industrial units. Would that make them less aesthetically harmful? Therefore, the applicants' assessment of visual impacts is fundamentally flawed, disingenuous, and an insult to the many who love and cherish the lake. Many love the Grand Canyon. Would we put billboards there?

The company also says that it will locate the underwater pipelines next to one another in parallel routes of two or three channels and use a mud curtain and other practices during dredging to reduce sediment dispersion. Even so, dredging the new pipeline trenches would cover the lake bottom with a 6-inch layer of spoil mud that would spread out 300 feet. Air Products provides no information about the percentage of the sediment the curtain would contain within this 300-foot area, and what percent would escape—especially the fine sediment that cannot be contained. What is the expected sediment plume? How long will it take for all of the sediment to resettle? How will adding a layer of 6 inches of spoil mud spread out for 300 feet for over 20 miles of lakebottom trenching affect water quality, the benthic zone, organisms that live in the benthic zone—including the Rangia Clam? What testing would be done to determine the concentration and bioavailability of contaminants present? Furthermore, any suggestion that the SELU monitoring program will minimize harm is false. First, the three-year project has ended or ends later this year (see n. 38, *supra*.) And if the monitoring program is continued (though there is no evidence to suggest it will receive further funding to continue), it means that data will be collected but it is anyone's guess whether the state or federal government would review the data and ever take action to lessen impacts revealed by the data.

Furthermore, Air Products said that it would use mechanical dredging for areas with roots, stumps, or other obstructions. What sediment plume would be expected for this method of dredging, and would a mud curtain be used? The Corps must answer those questions. Furthermore, regarding contaminants, would the sediment be tested for all areas that would be dredged or otherwise disturbed? And where the sediment is contaminated (as is the case according to the SELU study), would the Corps require the removal of such sediment for disposal in an approved landfill or other facility? Would the Corps require dewatering of the contaminated sediments and treatment of the contaminated water before it is discharged back into the lake?

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[203] David Mitchell, *New Battle over Lake Maurepas Carbon Capture Plan Ahead. This Banned Activity Could Play a Role.*, The Advocate, Jul. 21, 2025, https://www.theadvocate.com/baton_rouge/news/environment/louisiana-carbon-capture-lake-maurepas-environment-climate-emissions/article_c2f14fe5-f257-4fa9-8e94-6c8fe06b4286.html.
[204] *Id.*

In addition, Air Products' pipeline dredging and construction plan are not designed to minimize the degradation of the swamp area. As previously described above, Air Products plans to construct the pipelines through the wetlands by trenching, cutting trees and shrubs that would be over the trench line and installing sediment barriers during this vegetation clearing.[205] However, Air Products' construction plan is unclear as to whether it will prioritize spoil bank management in swamp environments. This is worth questioning because prior pipeline construction projects in the Maurepas Swamp have left behind spoil banks and roads running throughout the area that in turn cause further hydrological impediments.[206] As noted in the Buras Report, the project application materials lack "[f]ull, detailed description of exact construction techniques that will be used in the entire footprint of the pipeline, especially in wetlands or inundated areas. The descriptions provided appear to be more general templates and not necessarily based on actual conditions. For example, it is unclear how unconsolidated soils will be handled and whether any spoil banks will remain." The Air Products' description of pipeline sequencing presupposes conventional trenching with segregation of topsoil and subsoils – despite also admitting that conventional trenching and soil segregation will be impossible in much of the Maurepas Swamp environment.[207] Although Air Products claims that it will restore the area to its previous condition and elevation, that is not realistic and rarely accomplished in wetlands due to the unconsolidated and organic nature of the soils and difficulty of working in these environments.[208]

a. The Planned Mitigation Plan Will Not Minimize These Adverse Impacts

According to Attachment 2-7 to Public Trust Doctrine Analysis, which describes the Permittee Responsible Mitigation ("PRM") Plan, Air Products proposes to mitigate for the wetlands losses it will cause in the WMA by hydrologically improving another tract of land. That proposed PRM rehabilitation project is on property adjacent to the Joyce WMA, which is located on the northshore of Lake Maurepas rather than in the Maurepas Swamp WMA. (Figure 18) It is not even in the same watershed as defined and thus would not be hydrologically connected to the impacted area except in extreme flood events.[209] Given this distance and disconnection, preservation of this tract is not equivalent to preservation of the type of high-quality swamp forest that will be permanently lost in the impacted areas of the Maurepas Swamp WMA. "Mature, healthy, intact forest provides different benefits than newly created fragments imbedded in an area of highly degraded swamp."[210]

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[205] *See* JPA, Attach. 2-02a La. Public Trust Doctrine Analysis, at 15–23, Mar. 14, 2025, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15114536.
[206] *See* Buras Report at 37, Ex. 1.
[207] *See* JPA, Attach. 2-02a La. Public Trust Doctrine Analysis, at 16–23, Mar. 14, 2025, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15114536.
[208] *See* Buras Report at 37, Ex. 1.
[209] *Id*. at 53.
[210] *Id.*

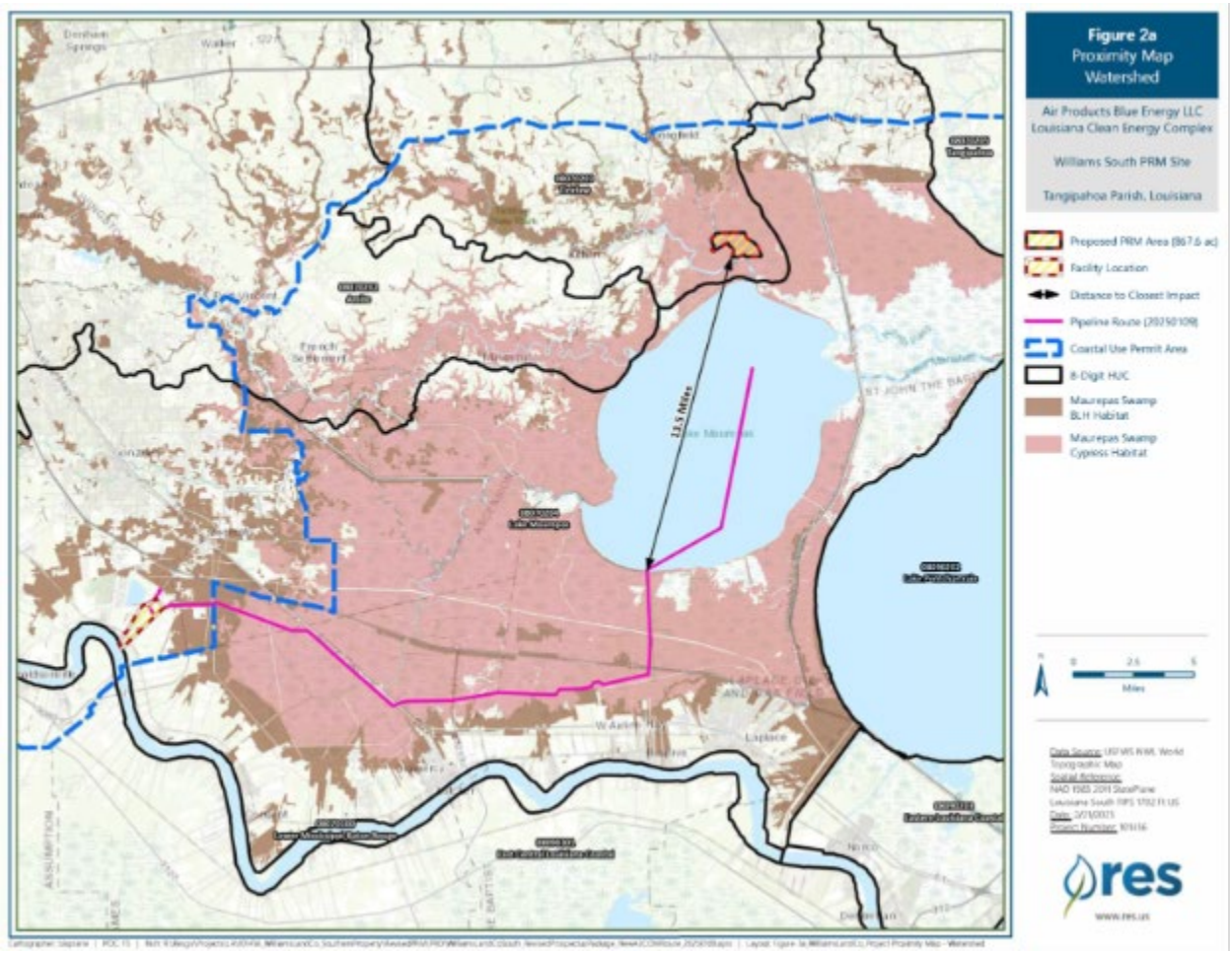

Figure 18 - Map of proposed mitigation area for the Air Products proposed CO_2 pipeline.

Furthermore, the CFCI Conservation Management Plan requires that compensatory mitigation for any forest removal activities must occur on the MC Davis property itself or on a tract contiguous with the adjacent protected property – which this proposed site is not.[211] And, as noted earlier in LDWF's comment on mitigation requirements for the WSLP levee's impacts, "Any impacts occurring on LDWF owned and managed property shall only be mitigated on LDWF owned and managed property. In this case, impacts occurring in the Maurepas Swamp WMA, shall be mitigated on the WMA." [212]

5. The Corps must find that the proposed project does not meet the Guidelines as per 40 C.F.R. 230.12.

Upon review of all relevant Guidelines and in accordance with 40 C.F.R. § 230.12(a)(3), the Corps must find that the proposed project fails to comply with the 404(b)(1) Guidelines because:

[211] *See* Buras Report at 52, Ex. 1.
[212] *Id.*

- There is a practicable alternative to the proposed discharge that would have less adverse effect on the aquatic ecosystem and does not have other significant adverse environmental consequences;
- The proposed discharge will result in significant degradation of the aquatic ecosystem under § 230.10(b) or (c);
- The proposed discharge does not include all appropriate and practicable measures to minimize potential harm to the aquatic ecosystem; and
- There does not exist sufficient information to make a reasonable judgment as to whether the proposed discharge will comply with these Guidelines.

II. THE CORPS MUST DENY THE APPLICATION BECAUSE THE PROPOSED PROJECT IS NOT IN THE PUBLIC INTEREST.

The Corps' public interest review serves as a safeguard to ensure that projects impacting the nation's waters receive careful scrutiny and are permitted only if they serve a genuine public need and do not pose unacceptable risks to the environment or the welfare of the people. If a project is deemed to be contrary to the public interest after considering all relevant factors, the Corps must deny the permit. Indeed, the Corps acts as a steward of the public interest, weighing the potential benefits of a project against its potential harm to various aspects of the environment and the community. If the negative impacts outweigh the positive ones, the Corps must deny the permit.

Pursuant to the regulations governing the Corps' public interest review, the "decision whether to issue a permit will be based upon an evaluation of the probable impacts, including cumulative impacts, of the proposed activity and its intended use on the public interest." 33 C.F.R. § 320.4(a)(1). The public interest review requires the Corps to evaluate "[t]he benefits which reasonably may be expected to accrue from the proposal must be balanced against its reasonable foreseeable detriments." *Id.* The regulations mandate that the Corps consider "[a]ll factors which may be relevant to the proposal" including "the cumulative effects" of such factors. The Corps must weigh each of the factors "by its importance and relevance to the particular proposal." 33 C.F.R. § 320.4(a)(3). The Corps must deny the permit if issuance would be contrary to the public interest. 33 C.F.R. § 323.6.

A. Relevant Factors

Most of the factors listed in the regulations are relevant to the proposed project. They include: conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, recreation, water quality, energy needs, safety, and, in general, the needs and welfare of the people. 33 C.F.R. § 320.4(a)(1). Each of these factors weighs in favor of denying the permit, as will be shown below.

Commenters address the reasonably foreseeable detrimental effects the proposed project would have on conservation, aesthetics, wetlands, fish and wildlife values, recreation, and water

quality elsewhere in this comment letter, which they incorporate here by reference. Regarding the other public interest factors not already addressed, Commenters offer the following:

1. Energy Needs & Climate

The consideration of energy needs weighs against issuance of Air Products' requested permit and approval of the proposed project. 33 C.F.R. § 320.4(a)(1). The purported energy benefits of the proposed project are speculative—as is the entire project considering Air Products has paused all new spending, seeks to sell most components, and will not go forward with even the hydrogen plant if it cannot secure offtake agreements.[213]

Similar to the unsubstantiated energy needs, Air Products touts the benefits that its project will have for the climate, stating that the proposed project will support Louisiana's and the country's climate goals and moderate the most severe impacts of ongoing climate change. Air Products even claims that the proposed project is fully consistent with the Louisiana Climate Action Plan without providing details on how this is so.[214] However, as shown below, Air Products' proposed project will likely result in net carbon emissions and greater carbon intensity across the lifecycle basis of the project—which is in direct contradiction to Air Products' representation that the proposed project will not contribute to climate change. In other words, there will be no environmental benefit vis-à-vis the climate. In fact, there will likely be an environmental detriment to the climate. 33. C.F.R. § 320.4(p). The consideration of this general environmental concern weighs against the public interest and issuance of the permit. 33 C.F.R. § 320.4(a)(1).

Air Products asserts that its CCS plan will result in climate benefits by avoiding CO_2 emissions.[215] Air Products also claims that its CCS plan avoids environmental impact costs.[216] But all the CO_2 that Air Products would capture is from its own project. A company cannot claim a benefit for capturing the CO_2 it would itself newly generate. Further, the amount of CO_2 Air Products claims it will capture (approximately 95%)[217] is speculative. In fact, there are no commercial-scale fossil gas hydrogen plants in the world that have been shown to capture the CO_2 they create.[218] Additionally, it takes energy to capture, transport, and store CO_2 and each of

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[213] *See* Commenters' Letter to the Corps, June 11, 2025 (citing and attaching as Ex. 1, Q2 2025 Air Products Earnings Conference Call, May 1, 2025, Tr. ("Q2 2025 Air Products Tr."), at pdf p. 7–8, 15 (Eduardo Meunezis, CEO, Air Products), https://uk.investing.com/news/transcripts/earnings-call-transcript-air-products-q2-2025-misses-eps-forecast-shares-dip-93CH-4060016), Ex. 5.

[214] *See* JPA, Attach. 2-02a La. Public Trust Doctrine Analysis, at 103, Mar. 14, 2025, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15114536.

[215] *See* JPA, Attach. 2-02a La. Public Trust Doctrine Analysis, at 3, Mar. 14, 2025, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15114536, stating, "[u]sing hydrogen in this fashion would contribute to lower emissions of CO_2..."

[216] *See* JPA, Attach. 2-02a La. Public Trust Doctrine Analysis, Section 2.1, at 31–33, Section 3.0, Mar. 14, 2025, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15114536.

[217] *See* JPA, Attach. 2-02a La. Public Trust Doctrine Analysis, Section 1.5.1.1, Mar. 14, 2025, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15114536,"[a]pproximately 95% of the CO_2 generated at the Facility would be captured, compressed, and transported..."

[218] *See also* Anika Juhn & David Schlissel, *Blue Hydrogen's Carbon Capture Boondoggl*e, at pdf p. 7, INSTITUTE FOR ENERGY ECONOMICS AND FINANCIAL ANALYSIS (March 2025), Ex. 23.

these processes result in CO_2 emissions.[219] The amount of CO_2 released into the atmosphere associated with the energy needed to conduct CCS must be subtracted from any amount of CO_2 captured to determine the net amount of CO_2 released to the atmosphere. Furthermore, Air Products does not have the required Class VI injection wells permits for its CCS plan and may never secure them. And even if it does secure permits, it may walk away from its plans to capture carbon because neither the air permit nor any other permit requires Air Products to capture any carbon.[220] In fact, the air permit imposes no limits on CO_2 emissions.[221]

Additionally, analysis conducted by the Institute for Energy Economic and Financial Analysis ("IEEFA"), indicates that the underlying assumptions used in the government recommended model ("GREET") to calculate greenhouse gas emissions (i.e., carbon intensity) of a blue hydrogen project are "overly optimistic and unproven."[222] Using more realistic and conservative assumptions about the effectiveness of carbon capture, methane and hydrogen leakage rates, and impact on climate, IEEFA initially found that the carbon intensity of blue hydrogen could be "more than three times as much as the DOE's clean hydrogen standard".[223] This first IEEFA report also showed that the U.S. Government is significantly underestimating the carbon intensity of hydrogen production from fossil fuels on global warming by ignoring the 20-year Global Warming Potential ("GWP") and focusing solely on the 100-year GWP as well as by making unreasonable assumptions regarding (1) methane emissions and hydrogen leakage, (2) downstream emissions, (3) carbon capture rates (Figure 19). Specifically, the 20-year GWP of methane is more than 80 times that of CO_2 while its 100-GWP is much lower.[224] This kind of assumption leads to faulty conclusions about the need for blue hydrogen to combat climate risk.

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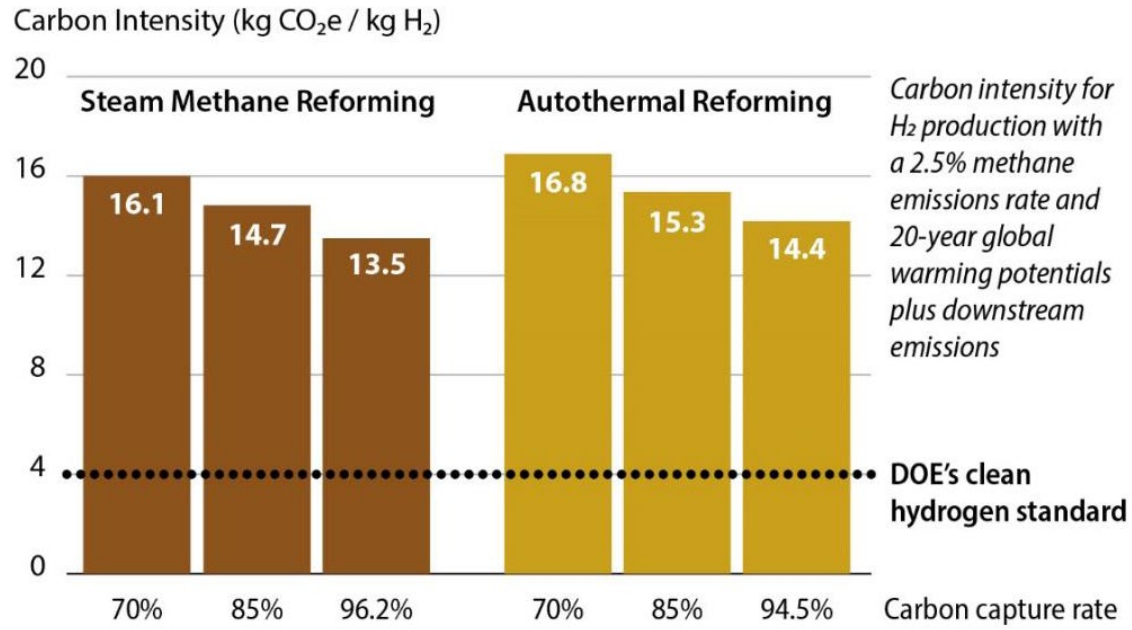
[219] *Id*.
[220] *See* Air Products Air Permit, June 6, 2025, https://edms.deq.louisiana.gov/app/doc/view?doc=14810730
[221] *Id.*
[222] *See* David Schlissel & Anika Juhn, *Blue Hydrogen: Not Clean, Not Low Carbon, Not a Solution*, IEEFA, at 4, (Sept. 12, 2023), https://ieefa.org/resources/blue-hydrogen-not-clean-not-low-carbon-not-solution, Ex. 22.
[223] *Id.* at 6.
[224] *Id.* at 4.



Source: DOE GREET model, IEEFA analysis.

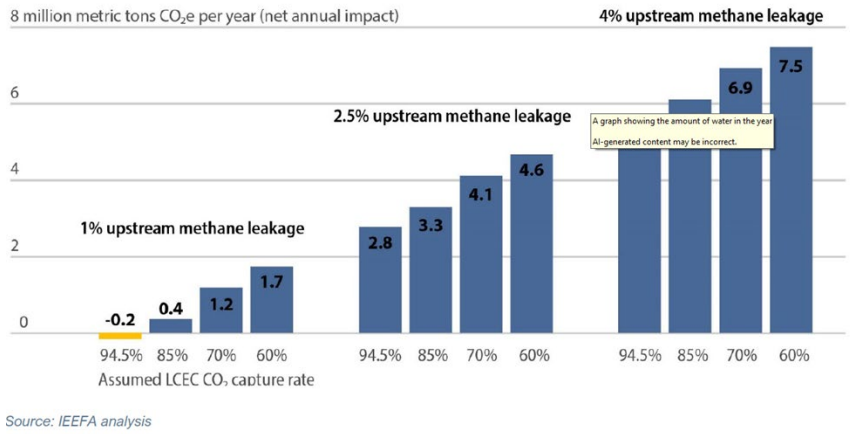
Figure 19 - Plot showing that the carbon intensity of blue hydrogen, whether by steam methane reforming (SMR) or by autothermal reforming (ATR), is more than three times the DOE's clean hydrogen standard (black dotted line) when using the 20-year GWP and other more reasonable assumptions about methane emissions, hydrogen leakage, downstream emissions, and carbon capture rates.[225]

A more recent study by IEEFA on Air Products' proposed project, *Blue Hydrogen's Carbon Capture Boondoggle*, builds off its previous analysis and shows higher carbon intensities than previously found. The study demonstrates just how faulty Air Products' underlying assumptions are. Specifically, the study found that: "The [proposed] project would likely capture between 33% and 52% of carbon (well-to-gate), depending on the level of upstream methane emissions. This is based on the project sponsor's assumption of a 95% CO_2 capture rate at the facility."[226]

The advertised capture rate is unrealistic because it takes into account only a single stack at the facility's methane reformer. Under a realistic scenario (which entails using lower carbon capture rates and higher projected emissions from upstream methane leakage, the operation of carbon capture equipment, and the required compression and transport of the produced hydrogen), the [proposed] project would result in a net increase of 7.5 million metric tons of carbon dioxide equivalent (CO_2e) per year. *See* Figure 20 below. Even under a best-case scenario, with very high carbon capture rates and minimal emissions from all other sources, the

[225] *Id*. at 6.
[226] Anika Juhn & David Schlissel, *Blue Hydrogen's Carbon Capture Boondoggle*, Institute for Energy Economics and Financial Analysis, March 2025, at 4, Ex. 23.

[proposed] project would result in a net reduction of just 200,000 metric tons of CO_2e per year—roughly equivalent to just 5% of a typical coal plant's emissions per year.[227]

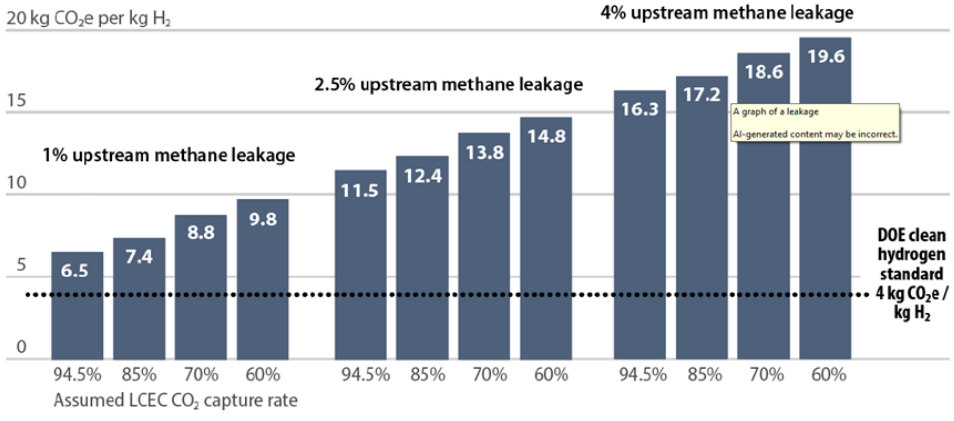


Source: IEEFA analysis

Figure 20 - Net Life Cycle Annual Emissions, Blue Hydrogen's Carbon Capture Boondoggle, p. 12, Ex. 23.

The Blue Hydrogen Carbon Capture Boondoggle study also shows that *well to gate* carbon intensity on a life cycle basis is likely to be much higher than the U.S. Department of Energy ("DOE") *clean* hydrogen standard, which is set at 4 kg CO_{2e}/kg H_2. Specifically, IEEFA's study shows that under more realistic carbon capture rates (ranging from as high as 94.5% to as low as 60%), double digit intensities are expected which are multiple times higher than the clean standard established by the DOE. *See* Figure 21 below.

Figure 2: Well-to-Gate Carbon Intensity Will Exceed DOE Clean Hydrogen Standard



Source: IEEFA analysis

Figure 21 - Well to Gate Carbon Intensity, Blue Hydrogen's Carbon Capture Boondoggle, pg. 11.

[227] *Id.*

Real world examples demonstrate that many of Air Products' claims regarding CCS's ability to combat climate risk by reducing emissions are baseless. A major test case involving LNG gas development demonstrated that the efficacy of large-scale CCS is uncertain at best. The test case turned out to be a "shocking failure" in July 2021 when Chevron acknowledged that its self-described "world's biggest [CCS] project" had failed to achieve its capture goals.[228] More specifically, so-called "blue hydrogen" produced from natural gas does not result in the purported benefits. In Norway, "Shell's Norwegian unit won't pursue a project that would have used natural gas from its Nyhamna processing facility to make blue hydrogen due to a lack of demand."[229] Despite being promoted as low-emission, a seminal 2021 study, "*How green is blue hydrogen?*", revealed that "blue hydrogen" has high greenhouse gas emissions due to fugitive methane emissions, making it even more carbon-intensive than burning natural gas or coal.[230] Co-author of that study, Robert Howarth, Professor of Ecology and Environmental Biology at Cornell University, said: "'Blue' hydrogen is a marketing scam, pure and simple. The facts do not back up industry hype."[231] Professor Howarth explained: "The best any plant has done for net CO_2 capture is 25% to 30%, and that's before the very potent methane [leaks]. The 90% capture rate the industry claims is pure nonsense."[232]

In 2022, the authors of *How green is blue hydrogen?* published another article concluding "unequivocally" that "[t]here is no room for blue hydrogen in a decarbonized energy future."[233] In their study, Howarth and Jacobson conclude, "blue hydrogen is best viewed as a distraction, something that may delay needed action to truly decarbonize the global energy economy, in the same way that has been described for shale gas as a bridge fuel and for carbon capture and storage in general."[234] Furthermore, according to a recent report by Oil Change International, "[a]round 45% of [financial awards from 2008 to 2010 in several global north countries] was spent on projects that are not operational today. Further, currently operating projects are failing to deliver genuine emissions reductions. This is due to either poor performance, the project contributing to continued or increased fossil fuel extraction […], or both."[235]

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[228] Adam Morton, *'A shocking failure': Chevron criticised for missing carbon capture target at WA gas project*, THE GUARDIAN (July 19, 2021), https://www.theguardian.com/environment/2021/jul/20/a-shocking-failure-chevron-criticised-for-missing-carbon-capture-target-at-wa-gas-project., Ex. 24.
[229] Bloomberg, *E&E News: Shell Follows Equinor in Shelving Norway 'Blue' Hydrogen Project*, E&E News | ENERGYWIRE (Sep. 25, 2024), https://subscriber.politicopro.com/article/eenews/2024/09/25/shell-follows-equinor-in-shelving-norway-blue-hydrogen-project-00180767, Ex. 20.
[230] Robert W. Howarth & Mark Z. Jacobson, *"How green is blue hydrogen?"* ENERGY SCIENCE & ENGINEERING 9.10 (2021): at 11–12, https://scijournals.onlinelibrary.wiley.com/doi/full/10.1002/ese3.956, Ex. 25.
[231] Nina Lakhani, *Costly Climate 'Solutions' Look like More Pollution in Louisiana's 'Cancer Alley,'* THE GUARDIAN (Jul. 29, 2024), https://www.theguardian.com/environment/article/2024/jul/29/carbon-capture-pollution-louisiana-cancer-alley, Ex. 26.
[232] *Id.*
[233] Robert W. Howarth & Mark Z. Jacobson. *"Reply to comment on 'How green is blue hydrogen?'"* ENERGY SCIENCE & ENGINEERING 10.7 (2022) 1955–1960, https://onlinelibrary.wiley.com/doi/abs/10.1002/ese3.1154, Ex. 25a.
[234] *Id.* Robert W. Howarth & Mark Z. Jacobson. "How green is blue hydrogen?" ENERGY SCIENCE & ENGINEERING 9.10 (2021) 1–12, https://scijournals.onlinelibrary.wiley.com/doi/full/10.1002/ese3.956, Ex. 25.
[235] Lorne Stockman, et al., *Funding Failure: Carbon Capture and Fossil Hydrogen Subsidies Exposed*, OCI, at 6, (Aug. 29, 2024), https://priceofoil.org/content/uploads/2024/08/OCI_funding_failure_FINAL_8-27-24.pdf. Ex. 27.

A Stanford study found that CCS "captured the equivalent of only 10-11 percent of the emissions they produced, averaged over 20 years."[236] When the Stanford study examined the "social cost of carbon capture – including air pollution, potential health problems, economic costs and overall contributions to climate change," it ultimately "concluded that those are always similar to or higher than operating a fossil fuel plant without carbon capture and higher than not capturing carbon from the air at all."[237] Another report emphasized:

> [T]here are co-pollutant impacts associated with the extraction, production, transport, and storage of coal and natural gas used to power the CCS process […] Second, there will always be an energy penalty or parasitic load due to the energy required to power a carbon capture facility, which will result in increased co-pollutant emissions at the site of combustion compared to a facility without carbon capture.[238]

Regarding blue ammonia, Air Products states that low-carbon ammonia will play a critical role in combating climate change and reducing greenhouse gas emissions. This statement is, however, misleading, because fossil fuels are and will continue to remain the backbone of ammonia production. Ammonia can be just as harmful, if not worse, than conventional shipping fuels that ammonia is meant to replace.[239] Currently, nearly all ammonia is derived from fossil fuels, relying heavily on them both as a feedstock and as an energy source during production.[240] Methane leakage is also a major issue in ammonia production, but also in the upstream fossil fuel extraction process, which is necessary for the production of ammonia. Methane has 84 times the warming potential of CO_2 over twenty years, severely undercutting Air Products' claims that ammonia will minimize climate risk.[241] If that ammonia were to be used as a fuel in maritime applications, its combustion could release nitrous oxide, which is 273 times more potent than CO_2 in terms of global warming potential.[242]

Air Products' claims about the proposed project meeting existing energy needs is unsubstantiated. 33 C.F.R. § 320.4(a)(1). Further, Air Products claims that its proposed project will not contribute to climate change and that it will be necessary to combat climate change are not only unsubstantiated but easily dismissed. It is extremely likely that Air Products' proposed

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[236] Taylor Kubota, *Stanford Study casts Doubt on Carbon Capture,* STANFORD NEWS (Oct. 25, 2019), https://news.stanford.edu/2019/10/25/study-casts-doubt-carbon-capture/, Ex. 28, and Mark Z. Jacobson, *The Health and Climate Impacts of Carbon Capture and Direct Air Capture*, 12 ENERGY & ENVIRON. SCI. 3567 (2019), http://xlink.rsc.org/?DOI=C9EE02709B. Ex. 29.
[237] *Id*.
[238] *See* Dr. Yukyan Lam, et. al., *Environmental Justice Concerns with Carbon Capture and Hydrogen Co-Firing in the Power Sector*, NJEJA (July 17, 2024), at 14 https://njeja.org/ccs-and-ej/. Ex. 30.
[239] Taylor Hodge and Lindset Jurca Durland, *The False Promise of Blue Ammonia for Shipping and Beyond*, Center for International Environmental Law, April 8, 2025, at 1, https://www.ciel.org/the-false-promise-of-blue-ammonia-for-shipping-and-beyond/, Ex. 31.
[240] *Id.* at 2.
[241] IEA, *Methane and climate change – Methane Tracker 2021 – Analysis*, https://www.iea.org/reports/methane-tracker-2021/methane-and-climate-change.
[242] Taylor Hodge and Lindset Jurca Durland, *The False Promise of Blue Ammonia for Shipping and Beyond*, Center for International Environmental Law, April 8, 2025, at. 3–4, https://www.ciel.org/the-false-promise-of-blue-ammonia-for-shipping-and-beyond/, Ex. 31.

project will in fact prolong reliance on fossil fuels and exacerbate climate change.[243] Thus, the environmental benefit that Air Products claims is simply nonexistent, and there will likely be an environmental detriment. 33 C.F.R. § 320.4(q). Consideration of the general environmental concern around climate change weighs the proposed project against the public interest. 33 C.F.R. § 320.4(a)(1).

a. Economics

Air Products fails to provide any support for the purported economic benefits of the proposed project, including its claims regarding helping the state of Louisiana to reach its economic competitiveness goals, the creation of local jobs, and responsible use of public funds via tax incentives. Indeed, Air Products did not even provide an economic analysis of the proposed project. Thus, the assumption that is normally made "that appropriate economic evaluations have been completed, the proposal is economically viable, and is needed in the market place" is not warranted. 33 C.F.R. § 320.4(q). As shown below, the consideration of the economics factor weighs against the public interest and, therefore, against issuing the permit. 33 C.F.R. § 320.4(a)(1).

IEEFA's *Blue Hydrogen's Carbon Capture Boondoggle* report showed that only a single scenario results in a net emissions reduction.[244] Under this scenario, taxpayers would pay roughly $2,600 per metric ton of CO_2 avoided.[245] Air Products would receive the same 45Q credits for capturing and storing CO_2 even if there is no net CO_2e avoided.[246] Despite these deficiencies and its failure to demonstrate meaningful carbon reductions, Air Products itself can nevertheless benefit from generous federal tax credits under 45Q regardless of the project's net emissions impact. The 45Q tax credits are based solely on the number of tons of CO_2 stored per year. For 45Q tax credit purposes, it does not matter if the project generates more CO_2e emissions than it captures. In fact, the proposed project would allow Air Products to claim up to $440 million per year and a total of $6.3 billion over a 12-year period.[247] No demonstration of net emissions reduction is required to access the credit.[248] Air Products should not be allowed to avail itself of these tax credits while simultaneously increasing its net emissions. Indeed, there will not be tax benefits for the local community. 33 C.F.R. § 320.4(q). The economic considerations in this instance weigh against approval of the proposed project. 33 C.F.R. § 320.4(a)(1).

Further, Air Products has not justified that it can market its product domestically as clean hydrogen because of carbon intensities (*See* Supra A.1.a, *See also* previous figure). Because the U.S. has not set a *low* carbon hydrogen standard like it has for *clean* hydrogen, Air Products might attempt to market hydrogen or ammonia domestically as *low* carbon. This marketing would not, however, be successful in international markets. The EU market sets its low-carbon

[243] *See* Anika Juhn & David Schlissel, *Blue Hydrogen: Not Clean, Not Low Carbon, Not a Solution*, IEEFA, at 6, (Sept. 12, 2023), https://ieefa.org/resources/blue-hydrogen-not-clean-not-low-carbon-not-solution, Ex. 22.
[244] Anika Juhn & David Schlissel, *Blue Hydrogen's Carbon Capture Boondoggle*, Institute for Energy Economics and Financial Analysis, March 2025, at 14, Ex. 23.
[245] *Id.*
[246] *Id.*
[247] *Id.* at 3.
[248] *Id.* at 4–5.

standard at 3.38 kg CO_{2e}/kg H_2 while Japan sets its low-carbon standard at 3.4 kg CO_{2e}/kg H_2.[249] Air Products would not be able to meet the standards of either of these markets. This, combined with slowing markets and project cancellations due to factors like cost escalation, insufficient market maturity, and the lack of binding offtake agreements, speaks to the lack of an economic justification for the proposed project.[250] Air Products announced earlier this year on an earnings results teleconference that it has already cancelled three projects across the country while also noting that four others are underperforming.[251] These projects are a mixture of blue and green hydrogen projects.[252] Thus, Air Products cannot justify that its product will satisfy market needs.

Regarding ammonia, Air Products has also failed to substantiate a need in the market. In *The Uncertain Ammonia Industry, Present & Future*, the Ohio River Valley Institute provides an overview of the projected growth of ammonia demand from four different institutions. The projected demands from three institutions (the International Energy Agency, the International Renewable Energy Association, and the Institute for Sustainable Process Technology) vary considerably—from 355 million metric tons on the conservative end to 1085 million metric tons on the high end.[253] *See* Figure 22 Below.

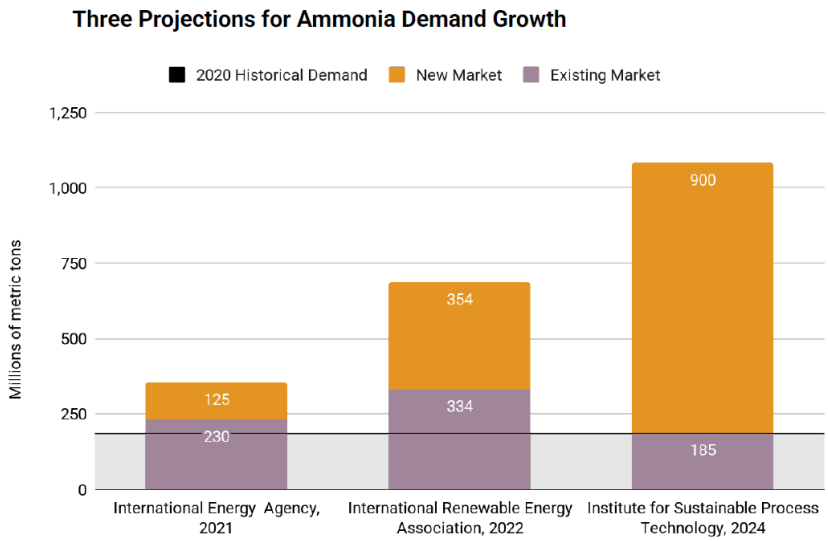

Figure 22 - Three Projections for Ammonia Demand Growth from The Uncertain Ammonia Industry, Present & Future – pg. 15, Ex 34.

[249] *Id.* at 11.
[250] Murray Douglas, *Hydrogen market developments,* Wood Mackenzie, 2024 at 2–3. Ex. 32.
[251] *See* Air Products Fiscal Second Quarter 2025 Earnings Results Teleconference, May 1, 2025, slide 6, Ex. 33, also available at https://investors.airproducts.com/static-files/a9d41252-e3ce-4042-ab37-aa758adc57a4; *see also* Reuters, *Air Products to exit three US projects*, Feb. 25, 2025, https://www.reuters.com/markets/commodities/air-products-exit-three-us-projects-2025-02-24/.
[252] *Id.*
[253] Zane Gustafson, et al., *The Uncertain Ammonia Industry, Present & Future*, Ohio River Valley Institute, March 3, 2025, at 14–15, https://ohiorivervalleyinstitute.org/the-uncertain-ammonia-industry-present-future/, Ex. 34.

The fact that there is a such a difference in projected demands—by just over a factor of three—speaks to the lack of certainty in the market. Tellingly, CF Industries (the largest ammonia producer in the world) is much more cautious, stating that:

> The market for green and low-carbon (blue) ammonia may be slow to develop, may not develop to the size expected or may not develop at all. Moreover, we may not be successful in the development and implementation of our green and low-carbon ammonia projects in a timely or economic manner, or at all, due to a number of factors, many of which are beyond our control… We believe the demand for green and low-carbon ammonia could take several years to materialize and then ten or more years to fully develop and mature, and we cannot be certain that this market or the market for green and low-carbon hydrogen will grow to the size or at the rate we expect or at all.[254]

The Ohio River Valley Institute report concludes that there is currently no market for ammonia-as-fuel and that global ammonia consumption may never increase beyond the existing markets for fertilizers, plastics, and explosives.[255] This is in direct opposition to Air Products' statements that ammonia is needed in the market to combat climate change and/or reduce greenhouse gas emissions. Beyond the conventional ammonia applications, its proponents state that there are potential clean energy applications. However, each of these applications is in emerging markets with demand forecasts that are highly uncertain. Further, the technology for these alleged clean energy applications is still in development.[256] One of these supposed applications—use for power generation by co-firing ammonia in combination with gas or coal power—would need to increase to over 60% to reduce emissions intensity below what could be achieved by burning only coal while capturing 90% of the carbon dioxide emissions. Additionally, while co-firing ammonia with coal may reduce the emissions of the coal plant, it could also extend the life of that coal plant.[257] Another supposed clean energy application would be for hydrogen transportation. However, this would likely be inefficient from an energy perspective because it takes about 10 MWh to produce 1 metric ton of ammonia, which carries about 5 MWh of energy. The final energy output is decreased as compared to the energy input of producing and transporting the fuel. It is highly speculative to conclude that the energy output would justify the much higher energy input.[258] Thus, Air Products has not justified that there is a need in the marketplace for ammonia. 33 C.F.R. § 320.4(q). Consideration of this factor weighs against the public interest and, therefore, against the issuance of Air Products' requested permit. 33 C.F.R. § 320.4(a)(1).

Finally, Air Products also touts the supposed benefit to the local economy, including job creation and high paying jobs. However, the claims Air Products makes in the application are vague, casting doubt on the supposed economic benefits. For example, the Public Trust Analysis,

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[254] *Id.* at 15 (quoting CF Industries 2023 Annual Report).

[255] *Id.* at 15.
[256] *Id.* at 17.
[257] *Id.* at 17.
[258] *Id.* at 17.

Section 3.6.1 states there will be a creation of more than 2,000 construction jobs over the course of 4 years, and 170 permanent jobs with an average salary of $93,000.[259] However, the accuracy of these calculations cannot be verified since the calculations were not provided in the application.[260] Regarding the construction jobs, it is unclear whether these will be local jobs and whether they will be drawn from other local industries. It is entirely possible that the construction jobs may draw workers away from other local projects, which would not result in any net increase in jobs. Thus, there are no facts provided to conclude that these construction jobs will have any benefits for the local economy.[261] Air Products' claim about 170 permanent jobs is also vague, as it is unclear whether these will be onsite at the facility or at Air Products' headquarters in Pennsylvania. Thus, it cannot be assumed that these permanent jobs will benefit the state of Louisiana much less the local economy.[262] Finally, Air Products' claim regarding the average salary is missing information that would be needed to understand whether these salaries will benefit the local economy. Specifically, no median salary or wage rate is given. Without this information it is impossible to draw any conclusions about what the *typical* employee will earn. This is because the average salary that Air Products provides might very well be skewed by a handful of high-paying management or executive level salaries.[263] Thus, Air Products has not justified that there will be any benefit or "improvements in the local economic base" in terms of increased or steady employment. 33 C.F.R. § 320.4(q). This factor weighs against the public interest and against the issuance of Air Products' requested permit. 33 C.F.R. § 320.4(a)(1).

The Corps cannot give unjustifiable, greater weight to the permit's purported economic benefits —while ignoring adverse impacts— when those purported economic benefits have no basis. *Hough v. Marsh*, 557 F. Supp. 74, 86 (D. Mass. 1982) (striking down public interest review that looked one-sidedly at economic benefits but ignored adverse impacts). This environmental detriment must be taken into account when assessing the public interest. 33. C.F.R. § 320.4(q). The high potential for environmental detriment combined with unsubstantiated economic need, undoubtedly weighs against the public interest and against issuance of Air Products requested permit. 33 C.F.R. § 320.4(a)(1).

b. Safety

Consideration of safety weighs against the public interest and, therefore, against issuance of Air Products' requested authorization. 33 C.F.R. § 320.4(a)(1). Below are three maps showing the proximity of Air Products' proposed facility to schools, churches, subdivisions, and other community gathering areas in Ascension Parish (Figure 23), St. James Parish (Figure 24) and St. John Parish (Figure 25). Air Products' Application merely states that it will have a chemical accident prevention and minimization program.[264] But that is insufficient for this permit

[259] *See* JPA, Attach. 2-02b La. Public Trust Doctrine Analysis, Section 3.6.1, at 102–104, Mar. 14, 2025, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15114545.
[260] Jonathan Shefftz, Memorandum to Healthy Gulf, providing review of Air Products' Louisiana Public Trust Doctrine, April 15, 2025 ("Shefftz Report"), at 2–3, Ex. 3.
[261] *Id.* at 5.
[262] Shefftz Report at 4.
[263] Shefftz Report at 4–5.
[264] JPA, Attach. 2-02a La. Public Trust Doctrine Analysis, at 37, Mar. 14, 2025, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15114536.

proceeding, both for the Corps' Public Interest Review and to meet NEPA requirements. The Corps must consider and analyze the safety risks associated with the proposed project and how best to protect nearby communities from the hazard of chemical releases and pipeline failures. The Corps must analyze the risk of chemical releases in storms, follow FEMA standards concerning chemical facilities in floodplains, produce a detailed site elevation study, evaluate the accelerating threat of severe storms (especially due to climate change), and adopt measures designed to mitigate the risk of storm-induced releases.

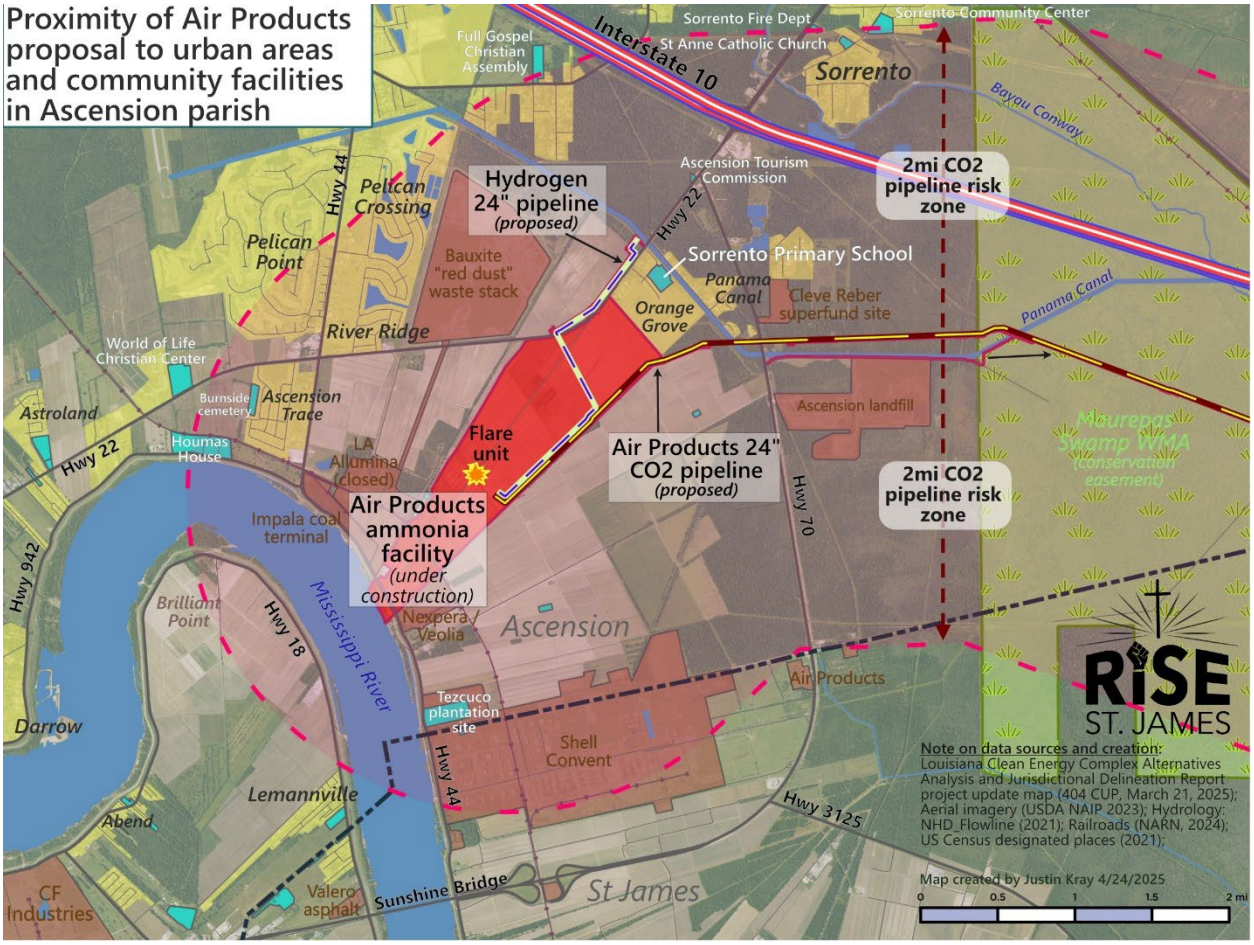

Figure 23 – Air Products' Proposed Facility – Ascension Parish (Created by Justin Kray)

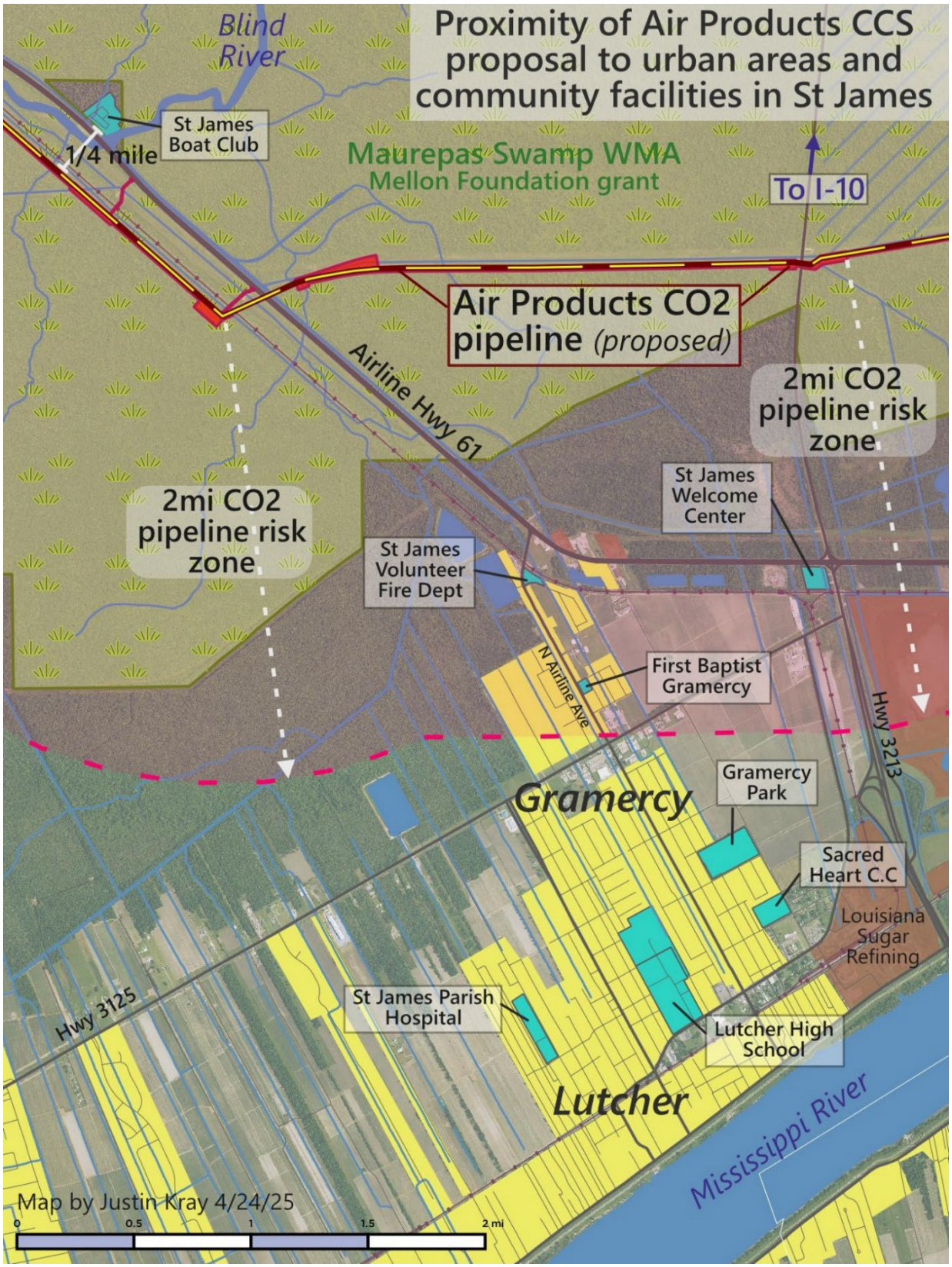

Figure 24 - Air Products' Proposed Facility – St. James Parish (Created by Justin Kray)

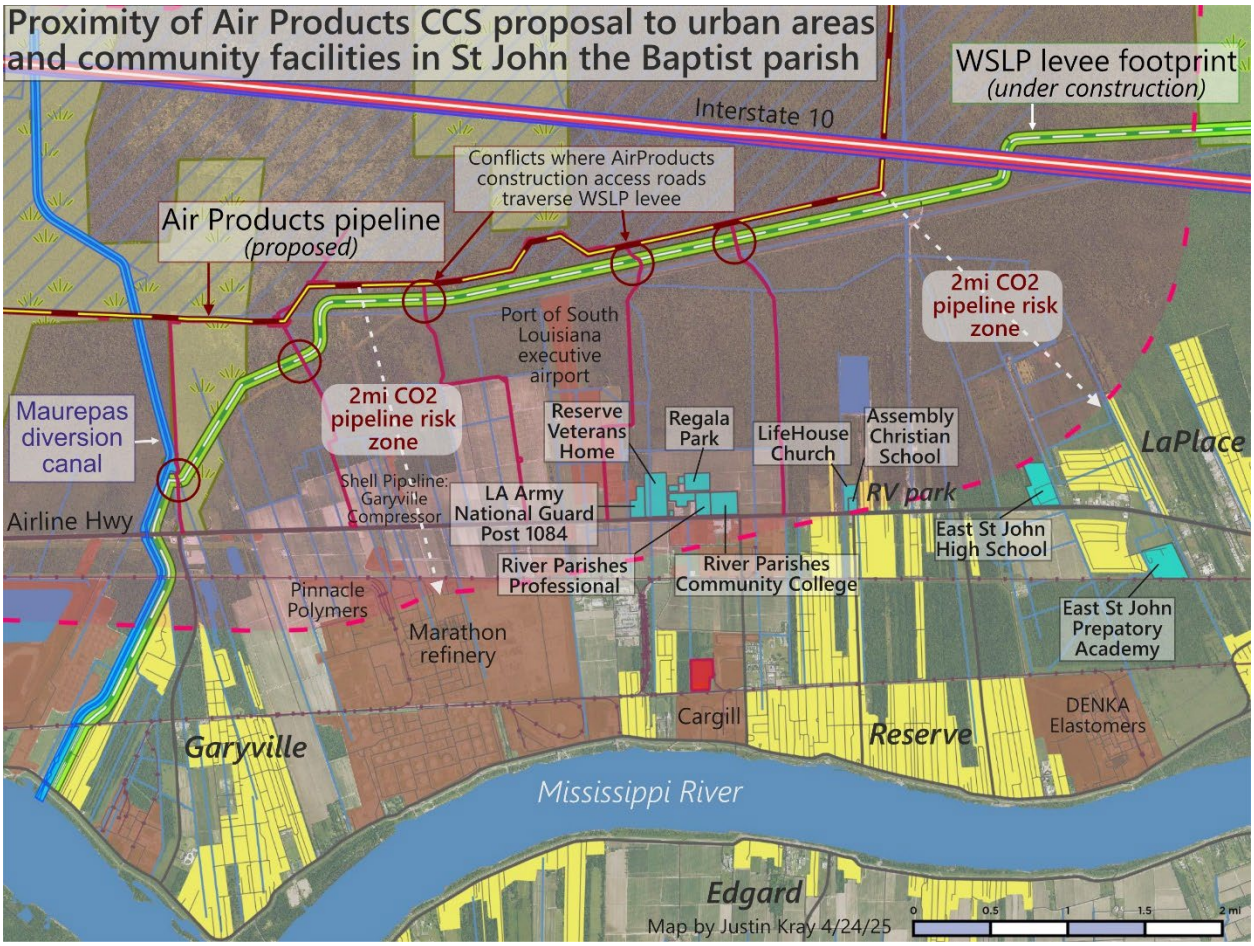

Figure 25 - Air Products' Proposed Facility – St. John Parish (Created by Justin Kray)

i. Carbon Dioxide Pipeline

The Corps should deny the Application as contrary to the public interest because the proposed carbon dioxide pipeline will pose significant public health risks, threaten public safety, and the needs and welfare of the people. These reasonably foreseeable detriments outweigh the proposed project's alleged benefits. The Corps cannot shift its responsibility to weigh these risks to any other agency or the parish government. Indeed, carbon capture sequestration is central to the purpose of the proposed project,[265] and the risks associated with transporting the carbon dioxide must be evaluated by the Army Corps under the Public Interest Review and NEPA. Moreover, the public notice does not "include sufficient information to give a clear understanding of the nature and magnitude of the risks to generate meaningful comment, and lacks available information which may assist interested parties in evaluating the likely impact of the proposed activity, if any, on factors affecting the public interest. 33 C.F.R. § 325.3(a)(13).

[265] *See* Corps Public Notice Overall Purpose (produce hydrogen and inject the CO_2 byproduct into underground wells); JPA, Attach. 2-02a La. Public Trust Doctrine Analysis, Section 1.2, at 1–3, Mar. 14, 2025, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15114536.

Carbon dioxide has a narrow definition within the federal regulations, only encompassing carbon dioxide transported as a supercritical fluid consisting of over 90 percent carbon dioxide molecules.[266] PHMSA currently has no regulations applicable to pipelines transporting carbon dioxide as a gas, liquid, or in a supercritical state at concentrations of carbon dioxide less than 90 percent, "rendering any pipeline moving CO_2 in any other state or with less than 90% purity entirely unregulated by the federal pipeline safety agency."[267] However, PHMSA's recently proposed rule mandates the regulation of carbon dioxide in all phases and would require "all carbon dioxide pipelines to establish a monitoring and mitigation program to address corrosion-affecting constituents in the product stream[.]"[268] It is not possible to determine from Air Products' Application whether the carbon dioxide pipeline it proposes to build would be subject to federal regulations.

As shown in Figure 23, the carbon dioxide pipeline would run approximately half a mile from Sorrento Primary School, with homes in the Orange Grove subdivision even closer. Figure 24 shows the carbon dioxide pipeline runs within a quarter mile of the St. James Boat Club and Airline Highway. Figure 24 also shows that the St. James Welcome Center, St. James Fire Department, and First Baptist Gramercy Church are all within the "2-mile Carbon Dioxide Pipeline Risk Zone."[269] Figure 25 shows that the Reserve Veterans Home, Regala Park, Life House Church, Assembly Christian School—along with major industrial sources such as Pinnacle Polymers and Marathon Refiner—are all within the "2-mile Carbon Dioxide Pipeline Risk Zone."

The 2-mile Carbon Dioxide Pipeline Risk Zone is based on the Pipeline and Hazardous Materials Safety Administration ("PHMSA") proposed rule that would require "operators of all carbon dioxide pipelines to establish emergency planning zones extending two miles on either side of their pipelines that will inform operators' efforts in ensuring members of the public have adequate emergency response information[.]"[270] While the rule has not been finalized, the Corps should consider the new requirements in its public interest analysis, as PHSMA has explained, "the proposed rule is important to protect public safety and the environment as the mileage of pipelines transporting carbon dioxide (in different phases and product stream compositions) increases nationwide."[271] The proposed requirements include mandatory population density surveys, detailed emergency response plans, and identification and dissemination of "specific precautions members of the public can take in the event of an emergency."[272] Yet, Air Products has failed to provide population density studies along its route, or any modeling or other studies

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[266] *Id.*; 49 C.F.R. § 195.2 (definition of CO_2).
[267] *See* Pipeline Safety Trust, *CO_2 Pipelines – Dangerous and Under Regulated*, Mar. 30, 2022, https://pstrust.org/wp-content/uploads/2022/03/CO2-Pipeline-Backgrounder-Final.pdf.
[268] Pipeline and Hazardous Materials Safety Administration, Notice of Proposed Rulemaking Docket No. PHMSA-2022-0125, at 11 (Jan. 10, 2025), https://www.phmsa.dot.gov/sites/phmsa.dot.gov/files/2025-01/PHMSA%20Notice%20of%20Proposed%20Rulemaking%20for%20CO2%20Pipelines%20-%202137-AF60.pdf.
[269] *See id.* at 11 (proposing requirement that would impose additional emergency planning standards on pipeline operators to "establish emergency planning zones extending two miles on either side of their pipelines that will inform operators' efforts in ensuring members of the public have adequate emergency response information[.]").
[270] *Id*. at 11.
[271] *Id.* at 9.
[272] *Id.* at 103.

showing what could happen should there be a rupture of the pipeline near any of these places. The Corps must require these measures from Air Products here, to ensure that the public and the Corps have sufficient information to evaluate the likely impacts of the proposed project on factors affecting the public interest, particularly in light of the potentially lethal consequences of CO_2 pipeline rupture. *See* 33 C.F.R. § 325.3(a)(13).

Carbon dioxide "is odorless, colorless, doesn't burn, is heavier than air, and is an asphyxiant and intoxicant," making releases dangerous and difficult to detect.[273] "[C]arbon dioxide may not disperse quickly because it is heavier than air."[274] Exposure to high concentrations of carbon dioxide can lead to a number of health problems (Table 1) which can be exacerbated for vulnerable groups such as pregnant women and seniors, as well as for individuals with pre-existing conditions such as asthma or cardiovascular disorders.[275] The amount of time exposed to high or even moderate concentrations of carbon dioxide can greatly increase the risk of loss of consciousness or death. "Differences in carbon dioxide concentration between different lethality levels and exposure times are relatively small"; in other words, a small increase in concentration and/or exposure time can significantly increase the risk of death.[276] In 1986, a volcanic lake, Lake Nyos, in northwest Cameroon, released between 300,000 and 1.6 million metric tons of carbon dioxide at around 60 miles per hour swiftly killing 1,746 people and 3,500 livestock within a 16 mile radius of the lake.[277] Though not a pipeline rupture, this natural incident illustrates the fast and devastating impacts of a carbon dioxide release at high concentration.

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[273] Richard B. Kuprewicz, *Accufacts' Perspectives on the State of Federal Carbon Dioxide Transmission Pipeline Safety Regulations as It Relates to Carbon Capture, Utilization, and Sequestration within the U.S.*, ACCUFACTS Inc. (Mar. 23, 2022), at 8, https://pstrust.org/wp-content/uploads/2022/03/3-23-22-Final-Accufacts-CO2-Pipeline-Report2.pdf, Ex. 35.
[274] *Id.* at 10.
[275] Paul Blackburn, *Is Your Goose Cooked? The Potential Health Impacts of CO_2 Pipeline Ruptures*, PIPELINE FIGHTERS CLUB (Sep. 25, 2024), https://pipelinefighters.org/news/is-your-goose-cooked-the-potential-health-impacts-of-co2-pipeline-ruptures/.
[276] *See* Dr. Peter Harper, *Assessment of the Major Hazard Potential of Carbon Dioxide*, HEALTH AND SAFETY EXECUTIVE (June 2011), at 3, https://www.hse.gov.uk/carboncapture/assets/docs/major-hazard-potential-carbon-dioxide.pdf.
[277] Bec Crew, *This Small Lake in Africa Once Killed 1,700 People Overnight, And We Still Don't Know Why*, SCIENCEALERT (April 7, 2017), https://www.sciencealert.com/how-this-small-lake-in-africa-once-killed-1-700-people-overnight-and-we-still-don-t-know-why (last visited Sep 26, 2024).

Table 2 - Summary of health effects from exposure to high carbon dioxide concentrations.[278]

EPA Table B-1. Acute Health Effects of High Concentrations of Carbon Dioxide		
Carbon Dioxide Concentration (Percent)	**Time**	**Effects**
17 – 30%	Within 1 minute	Loss of controlled and purposeful activity, unconsciousness, convulsions, coma, death
>10 – 15%	1 minute to several minutes	Dizziness, drowsiness, severe muscle twitching, unconsciousness
7 – 10%	Few minutes	Unconsciousness, near unconsciousness
	1.5 minutes to 1 hour	Headache, increased heart rate, shortness of breath, dizziness, sweating, rapid breathing
6%	1 – 2 minutes	Hearing and visual disturbances
	≤ 16 minutes	Headache, dyspnea (shortness of breath)
	Several hours	Tremors
4 – 5%	Within a few minutes	Headache, dizziness, increased blood pressure, uncomfortable dyspnea (shortness of breath)
3%	1 hour	Mild headache, sweating, and dyspnea (shortness of breath) at rest
2%	Several hours	Headache, dyspnea (shortness of breath) upon mild exertion

Carbon dioxide levels in ambient air typically range from 300 to 400 parts per million (ppm; 0.03% to 0.04%).[279] According to Table 2 above, starting at around 20,000 ppm or 2 percent (and perhaps lower for vulnerable individuals) effects may include headaches and shortness of breath, and for each percent increase, and with exposures of just a few minutes, the severity of headaches, heart rate, blood pressure, dizziness, and confusion increase substantially.[280] Exposure to carbon dioxide concentration above 8 percent for a few minutes can lead to loss of consciousness and possibly death.[281] After the rupture of a large-diameter carbon dioxide pipeline [as might happen with Air Products' proposed 24-inch pipeline], carbon dioxide concentrations within approximately 1,000 feet or more of the rupture, depending on pipeline diameter and length, may rise to very dangerous levels in less than 5 minutes.[282] "Even a mile or more away, depending on pipeline diameter, wind direction, etc., CO_2 concentrations may rise to dangerous levels in less than 15 minutes."[283]

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[278] EPA, Appendix B–Part I: Acute Health Effects of Carbon Dioxide (June 2015), https://www.epa.gov/sites/default/files/2015-06/documents/CO2appendixb.pdf.
[279] USDA, FSIS ESHG, *Carbon Dioxide Health Hazard Information Sheet*, (2020), https://www.fsis.usda.gov/sites/default/files/media_file/2020-08/Carbon-Dioxide.pdf.
[280] *Id*.
[281] *Id*.
[282] Paul Blackburn, *Is Your Goose Cooked? The Potential Health Impacts of CO_2 Pipeline Ruptures*, PIPELINE FIGHTERS HUB (Sep. 25, 2024), https://pipelinefighters.org/news/is-your-goose-cooked-the-potential-health-impacts-of-co2-pipeline-ruptures/.
[283] *Id.*, *see also* John Abraham, *CFD Simulation Models and Diffusion Models for Predicting Carbon Dioxide Plumes Following Tank and Pipeline Ruptures—Laboratory Test and a Real-World Case Study*, 17 Energies 1079 (2024), https://www.mdpi.com/1996-1073/17/5/1079, Ex. 40.B.

There have been recent carbon dioxide pipeline failures. For instance, in April 2024, "an estimated 2,548 barrels of carbon dioxide (CO_2) leaked from [an] Exxon pipeline" in Louisiana.[284] And in 2020, a carbon dioxide pipeline ruptured in Satartia, Mississippi, releasing 31,000 barrels of carbon dioxide.[285] Within minutes, dozens of residents collapsed in their homes and vehicles. And barely 10 minutes after the carbon dioxide pipeline ruptured, a seizure was reported from the incident.[286] Additionally, cars stalled, including emergency vehicles trying to reach the scene. Forty-five residents of the area required hospital treatment after the failure and 200 people were forced to evacuate from their homes.[287] In fact, the Satartia pipeline leak resulted in road closures two miles away.[288] Moreover, third-party air monitoring from the night of the pipeline failure showed that "potent clouds of CO_2 can sometimes hang in the air for hours."[289]

In addition to the far-reaching scope of impacts, the Satartia pipeline failure also appears to have caused long-term impacts on public health in the area. Three years after the incident, many locals report ongoing health problems they believe are linked to the accident.[290] For instance, one resident who spent over an hour unconscious in a CO_2 filled vehicle still reports headaches, muscle tremors, and difficulty concentrating.[291] A local doctor reported that his patients "show some increased frequency and severity of their asthmatic exacerbations."[292] These widespread and long-term impacts to human health associated with the Satartia CO_2 release underscore the potential risks to public welfare from Air Products' proposed carbon dioxide pipeline and supporting infrastructure.

PHMSA conducted an accident investigation into the Satartia release, which explained that the pipeline owner/operator had "underestimat[ed] the potential affected areas that could be impacted by a release in its CO_2 dispersion model."[293] As a result, local emergency responders were not adequately prepared to respond to the incident. Moreover, local emergency responders claimed they were not notified of the release until they reached out to the company more than 40

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[284] Nina Lakhani, *'Wake-up call': pipeline leak exposes carbon capture safety gaps, advocates say*, THE GUARDIAN (Apr. 19, 2024), https://www.theguardian.com/us-news/2024/apr/19/exxon-pipeline-leak-carbon-capture-safety-gaps.
[285] Dan Zegart, *Gassing Satartia: Carbon Dioxide Pipeline Linked To Mass Poisoning,* HUFFPOST (Aug. 26, 2021), https://www.huffpost.com/entry/gassing-satartia-mississippi-co2-pipeline_n_60ddea9fe4b0ddef8b0ddc8f.
[286] *See* Wesley Mathews, *Failure Investigation Report - Denbury Gulf Coast Pipeline, LLC - Pipeline Rupture / Natural Force Damage*, PHMSA (May 26, 2022), at pdf p. 6 https://www.phmsa.dot.gov/sites/phmsa.dot.gov/files/2022-05/Failure%20Investigation%20Report%20-%20Denbury%20Gulf%20Coast%20Pipeline.pdf., Ex. 36.
[287] *Id* at pdf p. 7, 24, & 40.
[288] Donnelle Eller, *A carbon dioxide pipeline burst in Mississippi. Here's what happened next*, DES MOINES REGISTER (Sept. 11, 2022), https://www.desmoinesregister.com/story/money/agriculture/2022/09/11/here-minute-details-2020-mississippi-co-2-pipeline-leak-rupture-denbury-gulf-coast/8015510001/.
[289] Julia Simon, *The U.S. is expanding CO2 pipelines. One poisoned town wants you to know its story*, NPR (Sept. 25, 2023), https://www.npr.org/2023/05/21/1172679786/carbon-capture-carbon-dioxide-pipeline, Ex. 37.
[290] *See id.*
[291] *Id.*
[292] *Id.*
[293] Wesley Mathews, *Failure Investigation Report - Denbury Gulf Coast Pipeline, LLC - Pipeline Rupture / Natural Force Damage*, PHMSA (May 26, 2022), at pdf p. 3, https://www.phmsa.dot.gov/sites/phmsa.dot.gov/files/2022-05/Failure%20Investigation%20Report%20-%20Denbury%20Gulf%20Coast%20Pipeline.pdf. Ex. 36.

minutes after the rupture occurred, despite the company's assertion that it was immediately aware of the rupture occurring.[294] The Satartia incident report and statements from survivors underscore how the lack of adequate emergency planning and response created an unreasonable risk to public health and safety.

Like the CO_2 pipeline in Satartia, Air Products' CO_2 pipeline may pose significant public health risks and threaten public safety. For example, in commenting on the project, some Louisianans who recreate in and around Lake Maurepas expressed that a CO_2 pipeline or well blowout in the lake could cause boat engines to stall, thwarting evacuation and emergency response efforts.[295] One commenter explained "[w]hen it comes to emergency response out there[,] I don't see how it's going to be possible."[296] To serve the needs and welfare of the people, the Corps must ensure that such risks are avoided through the requirement of additional risk assessment and mitigation measures. The JPA also lacks critical information necessary to evaluate potential pipeline rupture risk and plan for emergency responses. This information includes, but is not limited to, CO_2 stream flow rate, temperature, and pressure, CO_2 stream purity and potential impurity gases and their concentrations,[297] leak detection and mainline valve response time. Further, the JPA lacks information on how possible impurities in the CO_2 stream will be limited and controlled.

The Corps must also consider risk of corrosion or leakage along the 38-mile length of pipeline.[298] The likely risk from corrosion is underscored by PHMSA's recently proposed rule, which requires "all carbon dioxide pipelines to establish a monitoring and mitigation program to address corrosion-affecting constituents in the product stream[.]"[299] When transported via pipeline, carbon dioxide is often in a supercritical state. However, research shows that "[a] CO_2 pipeline carrying a supercritical state fluid can be more prone to pipe running ductile fractures than hazardous liquid hydrocarbons pipelines or natural gas pipelines."[300] These ductile fractures can "unzip" the pipeline, resulting in "extreme rupture forces [that] throw tons of pipe, pipe

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[294] Julia Simon, *The U.S. is expanding CO2 pipelines. One poisoned town wants you to know its story*, NPR (Sept. 25, 2023), https://www.npr.org/2023/05/21/1172679786/carbon-capture-carbon-dioxide-pipeline, Ex. 37.

[296] *Id.* at 5.

[297] Air Products' claim that it will conduct CO_2 stream analysis fails to ensure that the purity of its CO_2 stream is sufficient to avoid corrosion and associated public health and safety risks. *See* Corps Public Notice; JPA, Attach. 2-02a La. Public Trust Doctrine Analysis, Section 3.1, at 43, Mar. 14, 2025, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15114536.

[298] *See* Dr. Steven Jansto, *Risks and Potential Impacts from Carbon Steel Pipelines in Louisiana Transporting and Processing Variable Produced Gases such as Carbon Dioxide (CO2), Hydrogen (H2), Methane (CH4)* (Oct. 9, 2022) (delineating risks to CO_2 pipeline integrity from "corrosion, hydrate formation, hydrogen embrittlement and propensity to fast running ductile and brittle fractures in CO_2 pipelines and associated processing equipment."), Ex. 38.

[299] Pipeline and Hazardous Materials Safety Administration, Notice of Proposed Rulemaking Docket No. PHMSA-2022-0125, at 11 (Jan. 10, 2025), https://www.phmsa.dot.gov/sites/phmsa.dot.gov/files/2025-01/PHMSA%20Notice%20of%20Proposed%20Rulemaking%20for%20CO2%20Pipelines%20-%202137-AF60.pdf

[300] Kenneth Clarkson, CO_2 *Pipelines – Dangerous and Under-Regulated*, Pipeline Safety Trust (2022), at 3, https://pstrust.org/wp-content/uploads/2022/03/CO2-Pipeline-Backgrounder-Final.pdf. Ex. 39.

shrapnel, and ground covering, generating large craters along the failed pipeline."[301] Yet such risks were not contemplated in Air Products' Application.

Notably here, pipelines sited in coastal Louisiana face unique risks, as "Coastal Louisiana has a per-mile incident or 'leak' rate 5.92 times the rate for the nation."[302] The overall incident rate illustrates "an increasing lack of integrity as proximity to the ocean increases."[303] In light of the particular risks from siting this carbon dioxide pipeline within Louisiana's coastal zone, the Corps must require Air Products to provide additional information analyzing risks to pipeline integrity from subsidence and sea level rise and require plans to monitor and mitigate the risk of pipeline damage or rupture resulting from these foreseeable phenomena.

Air Products must also be required to disclose the temperature along the pipeline, expected operating pressure of the pipeline, the flow rate, and the specific phase of CO_2 transported through the pipeline and at compressor stations. Without this information, the impacts of the proposed project on factors affecting the public interest cannot be fully assessed. This missing information is critical to understanding the proposed project's impacts on public safety and health, in part because the "phase a specific CO_2 liquid pipeline segment is in (liquid or supercritical) at the time of a pipeline rupture can have a significant impact on rupture release dynamics, the tonnage of pipeline inventory that will be vented even after mainline valves are closed, and associated attempts to model possible rupture impact zones and attempts at establishing realistic safety buffer zones."[304] Thus, the Corps must require Air Products to furnish this missing information because it is critical to evaluating the likely impact of the proposed project on factors affecting the public interest, including the extent of impacts to public health and safety from CO_2 pipeline ruptures. *See* 33 C.F.R. § 325.3(a)(13).

Air Products states that "in most locations," the carbon dioxide pipeline would be buried three to five feet.[305] Air Products says nothing definitive about how deep the several-mile pipeline segment that runs by the school and residences will be. Air Products also states that it "would install cathodic protection equipment along the pipelines to prevent the corrosion of metal surfaces over time," but clarifies that "[c]onstruction and operation of cathodic protection beds would occur within the construction rights-of-way and permanent easements."[306] Air Products says nothing about the installation of cathodic protection equipment along the pipeline in areas that are not within the construction rights-of-way or within permanent easements such as

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[301] Richard B. Kuprewicz, *Accufacts' Perspectives on the State of Federal Carbon Dioxide Transmission Pipeline Safety Regulations as It Relates to Carbon Capture, Utilization, and Sequestration within the U.S.*, PIPELINE SAFETY TRUST (March 30, 2022), at 7, https://pstrust.org/wp-content/uploads/2022/03/3-23-22-Final-Accufacts-CO2-Pipeline-Report2.pdf. Ex. 35.
[302] Eustis, Oil and Gas Pipeline Integrity in Texas and Louisiana, 2010-2020, https://healthygulf.org/wp-content/uploads/2022/01/Oil-and-Gas-Pipeline-Integrity-in-Texas-and-Louisiana-2010-2020-1.pdf.
[303] *Id*.
[304] Richard B. Kuprewicz, Observations concerning Kern County's Draft Environmental Impact Report ("DEIR") on the TerraVault I Carbon Capture and Storage Project ("Project"), at 3 (Feb. 26, 2024) Ex. 40.A.
[305] JPA, Attach. 2-02a La. Public Trust Doctrine Analysis, at 13, Mar. 14, 2025, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15114536.
[306] *Id.* at 12.

the segment that would be on its own site close to Sorrento Primary School. Furthermore, it is unclear whether these safety measures would be effective or even required by permit conditions.

Air Products has also failed to provide for pipeline set-back distances, which establish minimum distances between pipelines and structures to mitigate harm to people and infrastructure. This omission is particularly glaring in light of the proposed project's proximity to important infrastructure, residential areas, and an elementary school. The Corps should incorporate set-back distances for the CO_2 pipeline and any associated infrastructure that incorporates "the local topography, the tonnage, and rate of release from a transmission pipeline rupture, and realistic times to close mainline valves, which do not stop the CO_2 release out of a rupture even when such valves are closed, given the tonnage of inventory in the pipeline and its phase. CO_2 transmission pipeline ruptures can release remarkably high tons of heavier than air CO_2 that can spread many miles in the wrong topography."[307] As currently proposed, without sufficient safeguards such as set-backs, the proposed project is contrary to the public interest. The Corps must establish appropriate set-back distances to mitigate harm to the public from potential CO_2 pipeline ruptures and releases.

The Corps must also require Air Products to conduct an accidental release study to determine the safety distances for this pipeline and to determine the risk associated with the proposed Plant. Modeling approaches for risk assessment and mitigation must match the needs at each phase of the proposed project from construction to operation.[308] The Satartia rupture underscored the need for emergency planning based on the best available science. In that case, "the Town of Satartia was not identified as a high consequence area in the pipeline operator's integrity management program and the air dispersion model was unfit for the 24-inch pipeline."[309] Due in part to the "unfit" modeling, emergency responders in Satartia were not prepared to respond when the release occurred. In contrast, Air Products claims it will "maintain a liaison with the appropriate fire, police, and public officials as part of each of its emergency operating procedures."[310] However, without modeling to determine the full scope of potential impacts, the public and the Corps cannot ensure that that the proposed project does not pose an unacceptable risk to the environment or the welfare of the people.

The Corps must also evaluate detection measures for pipeline rupture and emergency response times in its public interest review so that these factors are considered as part of the impacts analysis prior to any decision. The Corps must identify the lack of infrastructure and

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[307] Richard B. Kuprewicz, Evaluation of Kern County Response to Comments and Final Recirculated Environmental Impact Report on the TerraVault I Carbon Capture and Storage Project, Accufacts Inc., at 5 (Oct. 15, 2024) Ex. 40.
[308] John Abraham, *CFD Simulation Models and Diffusion Models for Predicting Carbon Dioxide Plumes Following Tank and Pipeline Ruptures—Laboratory Test and a Real-World Case Study*, 17 Energies 1079 (2024) (emphasizing importance of Computational Fluid Dynamic modeling "during the routing of a pipeline at critical locations where pipelines are close to high-consequence zones. The completion of such calculations will help improve routing to maintain safe distances between the pipeline and inhabited regions.") https://www.mdpi.com/1996-1073/17/5/1079 Ex. 40.B.
[309] *See* Richard B. Kuprewicz, Observations concerning Kern County's Draft Environmental Impact Report ("DEIR") on the TerraVault I Carbon Capture and Storage Project ("Project"), at 3 (Feb. 26, 2024) Ex. 40.A.
[310] JPA, Attach. 2-02a La. Public Trust Doctrine Analysis, Section 3.2, at 26, Mar. 14, 2025, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15114536.

services required for adequate emergency response, including coordination with local emergency response personnel. Local governments are often ill-equipped and under-resourced to prepare for and respond to a pipeline rupture emergency.[311] As PHMSA has proposed, the Corps should require Air Products to "provide training to emergency responders that addresses threats specific to carbon dioxide releases and provide equipment to local first responders for use during an emergency on a carbon dioxide pipeline."[312]

The Corps is required to consider reasonably foreseeable potential impacts, including those that can have catastrophic consequences. In commenting on a comparable CO_2 pipeline and sequestration project, the Environmental Protection Agency has recommended measures to mitigate impacts to public health, including:

- Pipeline rupture early detection measures and explicit emergency response time commitments;[313] and
- Introduction of chemical odorants to the CO_2 to help alert communities to the presence of a leak.[314]

Further, PHMSA has proposed additional measures to "protect public safety and the environment[,]"[315] including to:

- Require all operators of carbon dioxide pipelines "to establish emergency planning zones extending two miles on either side of their pipelines that will inform operators' efforts in ensuring members of the public have adequate emergency response information[.]"[316]
- Require "vapor dispersion analyses" when determining whether pipelines could affect high consequence areas, such as populated areas, drinking water sources, and unusually sensitive ecological areas.[317] All conditions which are present throughout Air Products' proposed project area.
- Require installation, operation, and maintenance of fixed vapor detection and alarm systems.[318]

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[311] *See* Kari Lydersen, *Small pipeline, big risks: Carbon capture project sparks concern in rural Illinois*, Canary Media (Apr. 4, 2024) https://www.canarymedia.com/articles/enn/small-pipeline-big-risks-carbon-capture-project-sparks-concern-in-rural-illinois, Ex. 41.
[312] *See* Pipeline and Hazardous Materials Safety Administration, Notice of Proposed Rulemaking Docket No. PHMSA-2022-0125, at 10 (Jan. 10, 2025), https://www.phmsa.dot.gov/sites/phmsa.dot.gov/files/2025-01/PHMSA%20Notice%20of%20Proposed%20Rulemaking%20for%20CO2%20Pipelines%20-%202137-AF60.pdf.
[313] EPA, EPA Comments re. Snowy River CO_2 Sequestration EA (May 17, 2024), Ex. 42.
[314] *Id.*
[315] *See* Pipeline and Hazardous Materials Safety Administration, Notice of Proposed Rulemaking Docket No. PHMSA-2022-0125, at 9 (Jan. 10, 2025), https://www.phmsa.dot.gov/sites/phmsa.dot.gov/files/2025-01/PHMSA%20Notice%20of%20Proposed%20Rulemaking%20for%20CO2%20Pipelines%20-%202137-AF60.pdf.
[316] *Id.* at 11.
[317] *Id.* at 13.
[318] *Id.* at 11.

- Increase requirements for operators to communicate with the public in case of emergencies.[319]
- Require enhanced fracture control and arrest.[320]
  - Require "operators to have a program to identify and take appropriate actions concerning geologic hazards and reduced depth of cover on their pipelines[.][321]
  - Add depth cover requirements for agricultural areas.[322]

It is imperative for the Corps to assess all risks and mitigating measures associated with the siting of the proposed carbon dioxide pipeline in determining whether the proposed project is in the public interest. The above measures outlined by EPA and PHMSA, including additional risk assessment and mitigation are especially important to incorporate here given the proximity of the carbon dioxide pipeline to residential communities and the elementary school and the potentially widespread and lethal impacts of carbon dioxide pipeline rupture. The Corps must require Air Products to implement the above measures, or to explain why these measures were not required in light of the unacceptable risk to the environment and the welfare of the people from potential pipeline rupture and lack of the inadequate risk mitigation, emergency response planning, and preparedness in Air Products' application materials.

ii. Platforms, Wells, and other Infrastructure in Lake Maurepas

The safety risks and navigational hazards associated with constructing 19 platforms, injection wells, and other infrastructure throughout Lake Maurepas are significant, and potentially deadly. First, the proposed project will interfere with navigation throughout Lake Maurepas as discussed in Sections I.A.3.a. This impact to "the public's right of navigation on the water surface" weighs against issuance of the permit. 33 C.F.R. § 320.4(g)(3); *see also* 33 C.F.R. § 320.4(a)(1). Because the proposed project is likely to create undue interference with access to, and use of, navigable waters, the authorization that Air Products seeks must be denied. 33 C.F.R. § 320.4(g)(3).

Next, regarding safety and hazard risks posed by other elements of the proposed project, the EPA has explained that review of project impacts should include "an assessment of potential environmental and health impacts associated with the Project's construction, operations, and a potential pipeline rupture or equipment failure."[323] The same should be required here. Moreover, any Public Interest review conducted by the Corp must evaluate the probable impacts of the proposed activity and its intended use on the public interest. *See* 33 C.F.R. § 320.4(a)(1).

[319] *Id.* at 1.
[320] *Id.* at 10.
[321] *Id.*
[322] *Id* at 109–113.
[323] EPA, EPA Comments re. Snowy River CO_2 Sequestration EA, at 3 (May 17, 2024), Ex. 42.

Notably, Air Products' Application lacks modeling to predict potential scope of impacts from injection well blowout at any of the several proposed CO_2 injection wells. However, CO_2 injection wells are subject to numerous risks, including from corrosion and "natural or induced seismicity on wellbores. After a well is permanently plugged and abandoned, natural or induced seismicity can damage wellbores.[324] Without modeling to estimate the potential scope of impacts from well blowout, the Corps has not met its burden to ensure that the public notice contains sufficient information to assist in "evaluating the likely impact of the proposed activity, if any, on factors affecting the public interest." 33 C.F.R. § 325.3(a)(13).

In addition, Air Products asserts that in the lake and swamp area there are "no significant faults, no salt domes, and few proximate legacy oil and gas wells," yet their own Figure 3-2 in the same document clearly shows many documented faults, legacy wells, and the Vacherie salt dome in the area.[325] Additional historic sources have documented several known fault lines that cross the swamp, Lake Maurepas, and the pipeline route as well, which Buras details in the attached report.[326]

Buras further notes that "In addition to the existing possibility of fault movement, it is conceivable that since withdrawing subsurface liquids and reduced subsurface pore pressure can lead to fault reactivation, CO_2 injection and associated increased pore pressure could similarly reactivate any of these known (and possibly unknown) faults."[327] Reactivation of these faults could result in "subsidence, stream realignment, saltwater intrusion, and sudden land loss as has been noted elsewhere on the coast[,]" seismic activity and subsidence could in turn damage levees and floodwalls, and "[t]he potential for reactivation of known and unknown faults in the area and their surface expression should be further explored and ruled out prior to approving the proposed project."[328]

Air Products proposes to build up to 10 CO_2 injection wells in Lake Maurepas to inject approximately 5.5 million metric tons per year of CO_2 ("MTPY") expected to be captured at and transported from the hydrogen/ammonia production facility in Ascension Parish.[329] Meanwhile, Hackberry Sequestration has applied for only one Class VI CO_2 injection well permit to inject up to 2 MTPY CO_2.[330] To minimize potential adverse impacts, especially in an environment as sensitive as Lake Maurepas, the Corps should review in an EIS whether so many wells are necessary to inject the expected volume of CO_2 waste emissions. Nowhere in the Application does Air Products justify such a large number of wells. In simple math, if one Class VI well can

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[324] Excerpts of Comments on the Final Recirculated Environmental Impact Report for Carbon TerraVault I, at pdf p. 10 (Oct. 16, 2024), Ex. 40.C.
[325] *See* JPA, Attach. 2-02b La. Public Trust Doctrine Analysis, at 102, Mar. 14, 2025, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15114545.
[326] Buras Report at 59–63, Ex. 1.
[327] Buras Report at 62, Ex. 1.
[328] *Id*.
[329] *See* JPA, Attach. 2-02a La. Public Trust Doctrine Analysis, at 27 and 52, Mar. 14, 2025, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15114536.
[330] Hackberry Carbon Sequestration, LLC public notice at the Louisiana Department of Energy and Natural Resources Injection & Mining Division, Application No. 45026, at 3, Apr. 3, 2025, https://us-east-1.storage.xata.sh/m70jvtvrus910on96ltam9qgnbo27d64.

handle 2 MTPY CO_2, then to inject about 5.5 MTPY CO_2, three Class VI wells might suffice, for example. Any additional well can multiply the risk for serious negative impacts due to well corrosion.

A recently published comprehensive literature review on corrosion and degradation associated with geological CO_2 injection and sequestration stated that:

> The steel casing used for CO_2 geological storage is usually stabilized with cement. After CO_2 injection, the wellbore is sealed with a cement plug. During long-term underground service, both the steel and the cement may experience corrosion and degradation, resulting in loss of integrity of the storage system and leakage of the stored CO_2.[331]

The review explains that many factors can cause corrosion and degradation, such as, but not limited to the following,

- Geochemical interactions with the CO_2 storage destination's sedimentary rock, which can cause the formation of an acidic environment that could erode host rock minerals and the well's cement casing, and corrode the well's steel casing.[332]
- Microorganism activity, such as sulfate reducing bacteria, can cause and accelerate metallic corrosion in CO_2 storage environments, leading to pitting and premature stress cracking of steel components.[333]
- The presence of water can produce carbonic acid and is a major factor in steel corrosion.[334]
- Galvanic corrosion can occur when different metals are in contact with a fluid that connects them electrically.[335]
- The presence of hydrogen sulfide can increase the risk of stress corrosion cracking ("SCC") on steel casings.[336]
- The presence of impurity gases (e.g., SO_2, NO_x, O_2, and N_2) in the CO_2 stream can change the CO_2 phase state (making it more or less gaseous/liquid and changing the temperature), which can affect corrosion rates.[337]

[331] Xin Fan, et al., *Corrosion and Material Degradation in Geological* CO_2 *Storage: A Critical Review*, 48 Engineering 41 (2025), at 46, https://www.sciencedirect.com/science/article/pii/S2095809925001742.
[332] *Id*. at 45.
[333] *Id*. at 45–46
[334] *Id*. at 46 and 49.
[335] *Id*. at 47.
[336] *Id*. at 43.
[337] *Id*. at 49.

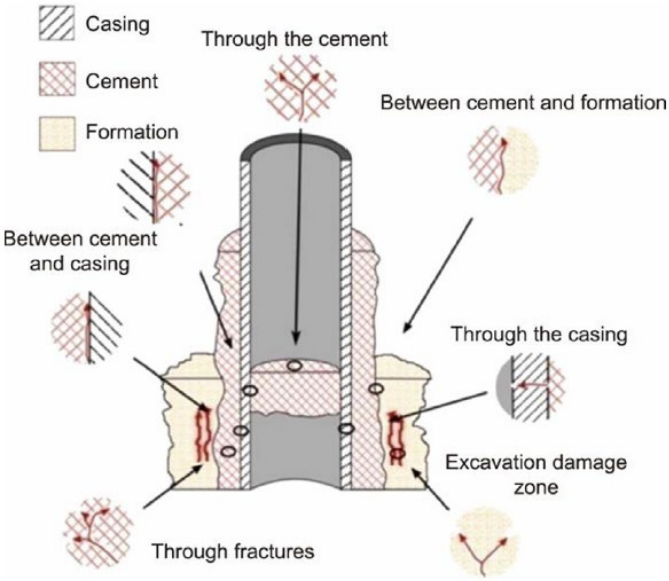

Figure 26 - Diagram of potential pathways of CO_2 *leakage from corrosion and cement degradation.*[338]

The resulting impacts from well corrosion and degradation are summarized in a 2023 review on geomechanical risks from CO_2 well injection. These are illustrated in Figure 27 and include: drinking water contamination, fault reactivation, well integrity loss, caprock failure, pore pressure buildup, and induced seismicity.[339]

[338] *Id*. at 46.
[339] Youngsoo Song et al., *Geomechanical Challenges during Geological* CO_2 *Storage: A Review*, 456 Chemical Engineering Journal 140968 (2023), https://linkinghub.elsevier.com/retrieve/pii/S138589472206449X.

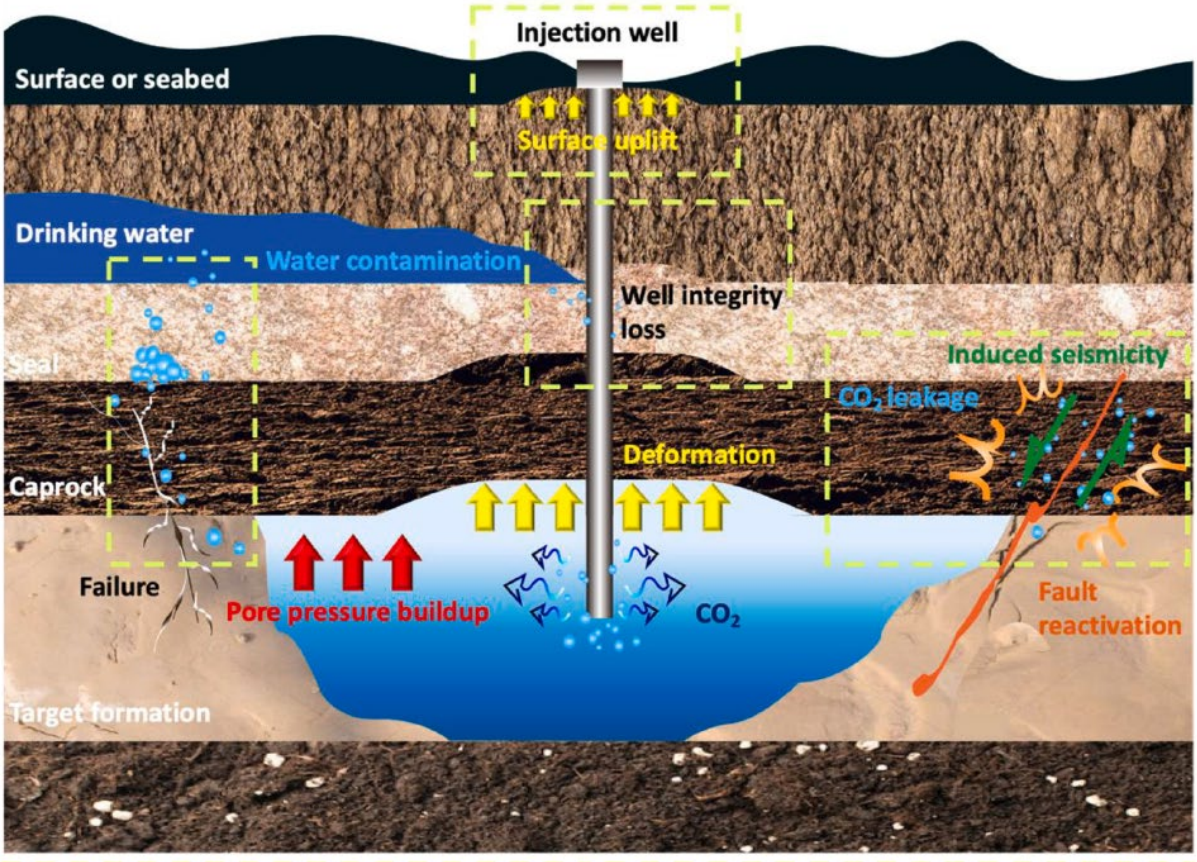

Figure 27 - Diagram of potential geomechanical risks from CO_2 *well injection.*[340]

While Air Products only loosely describes its plans on Class VI well design and monitoring in the Application,[341] the currently available Class VI application documents for the south site injection wells are heavily redacted[342] and therefore not adequately reviewable by the public. The Corps should require these documents to provide the public with "sufficient information to give a clear understanding of the nature and magnitude of the activity[.]" 33 C.F.R. § 325.3(a)(13). Furthermore, this review should also be included in an EIS, especially for so many wells – and particularly where the applicant fails to note the many geologic issues such as known faults in its application materials.[343]

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[340] *Id*. at 3.
[341] *See* JPA, Attach. 2-02a La. Public Trust Doctrine Analysis, at 41–43, Mar. 14, 2025, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15114536.
[342] Air Products Blue Energy, LLC, UIC Class VI Applications to the Louisiana Department of Energy and Natural Resources, Jul. 12, 2024, https://sonlite.dnr.state.la.us/ords/r/sonris/ucmsearch/findalldocumentsresults?p22_query=1%3D1%20and%20UPPER%28xOperatorCode%29%20%3D%20%27A10206%27%20and%20UPPER%28xParishCode%29%20%3D%20%2748%27&p22_doctype=UIC%20CLASS%20VI%20APPLICATIONS&p22_showcol=&cs=1omqNKD9O7J1H55NhwaNJb2j_VJpLJqdt9y7UOWIYwhHFz3eEhe6iinFDnyDIXPJ8SwTkpHNSNPjNFBFPLHlLvA.
[343] *See* discussion of faults, *supra*, and at Buras Report at 59–63, Ex. 1.

Leakage and blowout from Air Products' CO_2 storage wells pose significant threats to public health and safety. Blowouts "can occur in a matter of seconds" after pressure containment is lost.[344] After loss of pressure containment, CO_2 converts from a supercritical state to a vapor, this conversion is accompanied by significant expansive cooling as the vapor "continues to expand with decreasing confining pressure as it moves up the wellbore. Flow velocities increase accordingly."[345] As a result, any "mud or other fluid in the well can be quickly expelled leaving little hydrostatic pressure to resist reservoir influx[.]"[346] This phenomenon was illustrated in 1982 in Sheep Mountain, Colorado, where after a CO_2 well blowout caused a leakage rate estimated to be 13,000 metric tons CO_2 per day, and "chunks of dry ice occasionally ejected hundreds of feet into the air."[347]

In 2015, the Aliso Canyon natural gas storage well blowout released over 100,000 tons of natural gas, which is generally lighter than air in contrast to CO_2 which is heavier than air and so displaces oxygen.[348] While the Aliso Canyon failure involved natural gas storage, the implications are relevant here, as it demonstrated the risk of large high pressure underground storage reservoirs. The Aliso Canyon blowout also emphasized the need for new injection well projects to incorporate adequate well blowout prevention design "to prevent release of massive quantities of heavier than air CO_2 from the underground reservoirs should an injection well experience a blowout."[349] In addition to impacts from blowouts, CO_2 injection wells can "adversely impact water resources (e.g., springs, baseflow to nearby streams, and USDWs) through the vertical migration of CO_2 enriched brines and mobilized trace metals between aquifers of variable depths."[350]

Even without the potentially catastrophic impacts from blowout, the projects' purpose of permanent CO_2 storage is undermined by leakages of CO_2 from wellbores, which "is widely considered to be one of the most significant leakage pathways for geologic storage of CO_2[.]"[351] Air Products must be required to disclose not only its leakage rate, but also the means of monitoring and quantifying leakage from its CO_2 storage wells. Such leakage would likely outweigh any supposed environmental benefits claimed by Air Products, as a "leakage rate of less than 1% to the atmosphere over 1,000 years is necessary for geological storage of CO_2 to achieve the same climate benefits as renewable energy sources[.]"[352]

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[344] Richard B. Kuprewicz, Evaluation of Kern County Response to Comments and Final Recirculated Environmental Impact Report on the TerraVault I Carbon Capture and Storage Project, Accufacts Inc. (Oct. 15, 2024) Ex. 40.
[345] Excerpts of Comments on the Final Recirculated Environmental Impact Report for Carbon TerraVault I, at pdf p. 5-6 (Oct. 16, 2024), Ex. 40.C.
[346] *Id.*
[347] *Id.*
[348] *See* Richard B. Kuprewicz, Evaluation of Kern County Response to Comments and Final Recirculated Environmental Impact Report on the TerraVault I Carbon Capture and Storage Project, Accufacts Inc. (Oct. 15, 2024) Ex. 40.
[349] *See id.*
[350] EPA, EPA Comments re. Snowy River CO_2 Sequestration EA (May 17, 2024), at p. 3.
[351] Excerpts of Comments on the Final Recirculated Environmental Impact Report for Carbon TerraVault I, at pdf p. 4, (Oct. 16, 2024), Ex. 40.C.
[352] *Id.* at pdf p. 8. Additionally, without a specified leakage rate, Air Products claims of producing low-carbon products to meet local and national energy needs cannot be verified. *See* JPA, Attach. 2-02a La. Public Trust

Air Products must address the health and environmental impacts associated with an injection well blowout and migration of CO_2 on water resources.

iii. Hydrogen Pipeline

Hydrogen production creates safety hazards given the highly explosive nature of gas. A catastrophic event at an Air Products' facility illustrates the hazards associated with hydrogen. In 2019, a major uncontrolled release of high-pressure hydrogen occurred at the Air Products facility in Santa Clara, California causing a fire and explosion that "shook buildings and residents at least five miles away." Air Products has failed to provide information to the public that shows the worst-case scenario should there be a serious hydrogen accident at its proposed facility. As shown in the Ascension Parish map above (Figure 23), a pipeline transporting compressed hydrogen would run within less than a ¼ mile from Sorrento Primary School, and even closer to residences. Sorrento Primary School would be sandwiched between a hydrogen pipeline and a carbon dioxide pipeline.

iv. Ammonia Storage & Transfer

Ammonia accidents are a serious concern, especially given the proximity of Air Products' proposed plant in relation to residences and the Sorrento Primary School. In fact, an ammonia gas leak in December 2022 at the CF Industries complex in Ascension Parish led to the evacuation of all students and staff at Donaldsonville Primary School and blocked off the two primary entrance highways to the city from the southeast.[353] According to research of EPA Response Management Plan ("RMP") records, there are three anhydrous ammonia facilities in the area that were built a long time ago: CF Industries Donaldsonville (built 1968) in Ascension Parish, Dyno Nobel (built 1953) in Jefferson Parish, and PCS Nitrogen (built 1967) also in Ascension.[354] Each facility stores about 60 million pounds (or 30,000 tons) of ammonia onsite in any one of their ammonia tanks.[355] The RMPs for these plants all show that the worst-case chemical release is a plume of liquid ammonia vaporizing into a toxic cloud with a hazard perimeter of 2.8 miles.[356]

Air Products must provide information regarding the worst-case chemical release scenario for the proposed plant so the Corps can analyze the information as part of its Public

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Doctrine Analysis, Section 1.2, at 1, Mar. 14, 2025, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15114536.

[353] David J. Mitchell, *Ammonia leak at CF Industries prompts school evacuation, highway closures in Donaldsonville*, THE ADVOCATE (Dec. 1, 2022), https://www.theadvocate.com/baton_rouge/news/environment/leak-at-cf-industries-prompts-school-evacuation-in-ascension/article_9af7dcb0-7184-11ed-a302-a71daf745577.html, Ex. 43.

[354] Sara Sneath, *'Ticking Time Bombs': Residents Kept In The Dark About Risks To La.'s Chemical Plants During Storms*, WWNO - NEW ORLEANS PUBLIC RADIO, (Dec. 7, 2020), https://www.wwno.org/coastal-desk/2020-12-07/ticking-time-bombs-residents-kept-in-the-dark-about-risks-to-la-s-chemical-plants-during-storms, Ex. 44. The data from the RMPs compiled in the report is linked at the bottom of the table in the article.

[355] *Id.*

[356] *Id.*

Interest Review and NEPA requirements, which must be done prior to issuing any permit. The Corps must have this information so that it can weigh the potential and real adverse environmental effects in its required cost-benefit analysis.

c. General Environmental Concerns (traffic, noise, light)

There is no analysis of the traffic impacts to Hwy 22 or Hwy 44, especially during construction. Air Products says 2,000 construction workers will work on the project which will take several years to complete. Yet there is no mention of how this will impact traffic aside from a vague reference to the work being done in phases. However, Air Products then says that multiple activities may take place concurrently at different areas of the site. Air Products also claims a traffic study has been initiated but fails to provide any support. Special consideration must be given to evacuation routes—whether for hurricanes or catastrophic events at this or other plants in the area. With the area receiving 2,000 workers, the roads will be clogged with cars, shuttles, and vans. Additionally, there will be dump trucks and other heavy construction vehicles that could create bottlenecks, creating potentially life-threatening delays.

Air Products claims noise will be similar to ambient background noise but provides no support. The Corps cannot carry out its public trust review without a noise study.

Air Products provides no information about light and how it will impact area residents.

d. Floodplain Considerations (includes Flood Hazards/ Floodplain Values)

The Corps must consider the impacts the proposed project would have on flooding hazards and on the value of existing floodplains. *See* 33 C.F.R. § 320.4(a)(1). Commenters incorporate by reference to discussions about floodplain impacts discussed elsewhere in the comment. As shown below, Air Products has not provided enough information to ensure that possible alterations to the floodplain will not result in significant degradation of the floodplain values and functions. 33 C.F.R. § 320.4(l)(2). Further, if the Corps were to approve the Application, Air Products has not demonstrated how it has avoided in both "long and short term significant adverse impacts associated with the occupancy and modification of floodplains..." 33 C.F.R. § 320.4(l)(2).

The Louisiana Office of Coastal Management ("OCM") requires a Hydrologic Modification Impact Analysis ("HMIA") to outline and ultimately minimize impacts from proposed uses that modify existing hydrologic conditions.[357] OCM staff determined that a Level 3 HMIA is necessary for the proposed project, citing the inclusion of pipeline, access roads, laydown yards, and permittee responsible mitigation plan ("PRM") elements.[358] A Level 2 HMIA (Intermediate Modification) is required for projects that a) involve 6" or more of fill, b)

[357] OCM Hydrologic Modification Impact Analysis ("HMIA") Guide, at pdf p. 1; https://www.dnr.louisiana.gov/assets/OCM/permits/NAJ/HMIA_guide_r1_02_27_15.pdf.
[358] OCM Request for Information Letter re. P20240033 CUP Application, at 3 (Oct. 16, 2024) https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=14946654, Ex. 45.

involve the installation of more than 4,400 sq. ft. of impervious surface, c) involve one or more acres being developed, d) include the construction of small subdivisions, e) include the construction of small marinas, f) feature the installation of major new pipelines or utilities, or g) the creation of PRMs.[359] A Level 3 HMIA is required for modifications that "involve larger quantities and water and affect larger areas than Level 2 modifications."[360] These include: a) permittee responsible mitigation plans that include significant alteration to existing hydrology, b) new elevated roads without access channels, c) ports, d) medium and large subdivisions, and e) medium and large marinas.[361]

The PRM associated with this proposed project may have documentation consistent with a more rigorous HMIA approaching that of a required Level 3. However, the pipeline, access roads, and laydown yard elements of the project do not include the necessary documentation for a Level 3 HMIA. Moreover, the proposed project applicant does not supply all of the necessary documentation when reminded of this lack of information, instead pointing to a Storm Water Pollution Prevention Plan for the project elements and the PRM.[362] As indicated in HMIA guidelines, this documentation is part of a necessary HMIA but is only a small part of the required information that touches on both hydrology and water quality. [363]

Further still, Air Products suggests that a Level 1 HMIA (Minimal Modification) is sufficient, citing acreage of fill for the permanent access road alone.[364] This number may be lower than the 1 acre cutoff for a Level 1, but this does not account for temporary access roads, which total 47.93 acres.[365] HMIA guidelines do not specify an exemption for temporary access roads or laydown yards. Rather, HMIA guidelines spell explicitly state that Level 3 modifications "also may have varying short- and long-term impacts on the immediate region."[366] Moreover, the Level 3 HMIA explicitly applies to "new elevated roads,"[367] which are clearly present in this project in both temporary and permanent forms.

Regarding short-term impacts, it is not even clear that even these temporary impacts will not be triggered again in the future given the potential overlap with the River Reintroduction into Maurepas Swamp project and the liability of the applicant to accommodate that future work.

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[359] OCM HMIA Guide, at pdf p. 4;
https://www.dnr.louisiana.gov/assets/OCM/permits/NAJ/HMIA_guide_r1_02_27_15.pdf.
[360] OCM HMIA Guide, at pdf p. 5;
https://www.dnr.louisiana.gov/assets/OCM/permits/NAJ/HMIA_guide_r1_02_27_15.pdf.
[361] *Id.*
[362] AECOM's Response to OCM's Oct 2024 RFI re. P20240033 CUP Application, at 5 (June 4, 2025)
https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15194930, Ex. 46.
[363] OCM HMIA Guide, at pdf p. 6;
https://www.dnr.louisiana.gov/assets/OCM/permits/NAJ/HMIA_guide_r1_02_27_15.pdf.
[364] AECOM's Response to OCM's Oct 2024 RFI re. P20240033 CUP Application, at 6 (June 4, 2025) (0.33 acres: Attachment 1-2-4, page 1) https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15194930.
[365] *See* JPA, Attach. 1-2-4a Access Road Maps, at 1, Mar. 14, 2025,
https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15114530.
[366] OCM HMIA Guide, at pdf. p. 5
https://www.dnr.louisiana.gov/assets/OCM/permits/NAJ/HMIA_guide_r1_02_27_15.pdf.
[367] *Id.*

Further still, the project clearly features a "new marine facility," which clearly aligns with the "ports" and/or "medium and large marinas" elements requiring a Level 3 HMIA.[368] In any case, the footprint of the proposed project far exceeds both the threshold of 4,400 sq ft of impervious surface and the threshold of 1 acre of development for even a Level 2 HMIA.[369]

Very obviously, a new pipeline project typically includes a new pipeline, which is an element explicitly identified as needing at least a Level 2 HMIA.[370] The proposed pipeline involves several miles of new pipeline in addition to major infrastructure construction at each end. This is clearly a complex project in a sensitive area.

In the biological investigation report, it is clearly stated that the proposed project site is "essentially unaltered and the natural regime produces temporarily flooded, seasonally flooded, or semi-permanent flooded conditions."[371] In other words, existing conditions represent generally unmodified hydrologic conditions, and any impact at all from this project will result in hydrological modification.

Given the agency determination that a Level 3 HMIA is required and that the proposed project very clearly exceeds the impact of those appropriate for a Level 1 HMIA and instead very clearly aligns with the criteria of a Level 3 HMIA, it is apparent that a full Level 3 HMIA is required for this project. Because the adequate and appropriate HMIA has not been submitted, it is not yet possible to accurately assess the true impacts of the proposed project. Given this critical shortcoming, the permitting process should not proceed until it is possible to fully evaluate the likelihood of adverse impacts.

e. *Historic Properties*

The Corps must consider "the effect which the proposed structure or activity may have on values such as those associated with historic properties, . . . archeological resources. . . and such other areas as may be established under federal or state law for similar or related purposes." 33 C.F.R. § 320.4(e).

Air Products' site for its planned blue hydrogen and ammonia facility is a 700+ acre archaeological site in Ascension Parish, known as the Orange Grove Plantation (Site 16AN89). As such, it warrants careful review. Originally settled by the Houma and Bayou Goula tribes, Air Products' site became a large sugar plantation known as Orange Grove that was worked by hundreds of enslaved people from the early 1800s through the Civil War.[372] Just before the Civil War, census records show Orange Grove Plantation owner John Burnside enslaved 753 people at

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[368] *Id.*
[369] *Id.* at 4.
[370] *Id.* at 5.
[371] LDENR, Office of Coastal Management, *Air Products Blue Energy LLC Biological Investigation Report for CUP P20240033*, at 5, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15129226.
[372] Nathanael Heller, M.A., R.P.A., et al., *Phase I Cultural Resources Investigation of Proposed OxyChem Geismar to Convent Pipeline Project in St. James and Ascension Parishes, Louisiana*, Goodwin & Assoc., (March 2024), Redacted (hereinafter "Goodwin Report") at 46–66, Ex. 47.

Orange Grove and his other contiguous plantations.[373] Indeed, Burnside was one of the largest holders of enslaved people in U.S. history.[374] The Orange Grove Plantation continued operations after slavery was abolished until the early 1900s.[375] The site remained agricultural land planted in sugar cane until Air Products purchased the land for its proposed facility and began to construct.[376]

The former survey on which Air Products mainly relies is a Phase I cultural resources investigation conducted in 2012-2013 by SURA Inc. for a different project that was abandoned.[377] This preliminary investigation identified "[f]our cultural resources locations" at Air Products' site (i.e., Site 16AN89) associated with the Orange Grove Plantation, which it designated as Location 1 (spice store), Location 2 (big house and enslaved/tenant houses), Location 3 (sugar mills/blacksmith shop/farming operations), and Location 4 (Orange Grove Cemetery).[378] SURA concluded that Locations 1-3 "could qualify for the [National Register of Historic Places]" and recommended they be avoided.[379] Regarding the cemetery, SURA said that "[i]t is almost certain the persons interred in the cemetery were the owners of Orange Grove Plantation and their managerial employees and relatives," and recommended a 100-foot buffer.[380] SURA also pointed out that "no slave/tenant cemetery ha[d] been identified . . . at Orange Grove Plantation."[381] While no reports have indicated where the enslaved who died at Orange Grove would have been buried,[382] it would stand to reason there would be a cemetery on the property similar to the unmarked burial discovered at the adjacent Monroe Planation site that holds the remains of up to one-thousand people.[383]

A recent archeological investigation that covers a portion of Air Products' site found a new area with cultural resources that the decade-old SURA investigation missed.[384, 385] Goodwin

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[373] *Id.* at 60.
[374] *Id.* at 179; Thomas Scott, *9 of the Biggest Slave Owners in American History*, ATLANTIC BLACK STAR, (Dec. 23, 2014), https://atlantablackstar.com/2014/12/23/9-of-the-biggest-slave-owners-in-american-history/3/.
[375] Goodwin Report at 59, Table 3.2, Ex. 47.
[376] *Id.* at 64–65.
[377] Shuman, K. Malcolm, et al., *Phase One Cultural Resources Survey Of 673.9 Acres (272.67 Hectares) Proposed for Industrial Use, Burnside, Ascension Parish, Louisiana*, SURA Inc., (April 2014), (report no. 22-4026 discussing investigations conducted in 2012-2013 by SURA, Inc. for Impala Warehousing, LLC Darrow, LA) (hereinafter "SURA Report" or "Shuman 2014"), Ex. 48.
[378] *Id.* at 51–162.
[379] *Id.* at 163–164.
[380] *Id.* at 158, 164.
[381] *Id.* at 164.
[382] RISE retained a historian who performed research about the Orange Grove Plantation and published a report, which RISE released to the public. RISE is also engaged in ongoing outreach to descendants of people who were enslaved and buried at the Orange Grove Plantation or connected to the site in other ways. Katy Shannon, *Report on the Orange Grove Plantation & Cemetery*, April 19, 2024 https://static1.squarespace.com/static/5eed506b38da704895463871/t/66296f99b445971413581d07/1713991586001/Final+Draft+K.Shannon.Orange+Grove+Report_4_19-2024_Redacted+%281%29.pdf., Ex. 49.
[383] Goodwin Report, Fig. 1.2, p. 6; Table 4.4. at 81 (noting a where "a sign indicates an unmarked African American cemetery that dates to the 1820s, with 'as many as a thousand' interments"), Ex. 47.
[384] Goodwin Report at 74 (discussing SURA survey), Ex. 47.
[385] Goodwin also re-investigated another area for a different segment of its pipeline and again two historic artifacts where SURA had recorded no cultural resources. Goodwin Report at 167–168, Ex. 47.

& Associates, Inc. conducted a Phase I cultural resources investigation in 2023-2024 for an OxyChem pipeline project that would run through part of Air Products' site that SURA had previously surveyed.[386] Goodwin re-surveyed the swath of Air Products' site planned for the pipeline project because it was not within one of the "locations [that] had been examined previously using current survey standards."[387] In fact, SURA did not indicate which if any standards it followed for its survey,[388] while Goodwin detailed the standards and methodology it had applied.[389] In its survey, Goodwin found "a dense surface scatter"[390] of artifacts "associated with the historic occupation of the Orange Grove Plantation."[391, 392] OxyChem then modified its project design[393] to avoid any adverse impact to Site 16AN89 for its pipeline project, recognizing that "undisturbed deposits and/or cultural features may exist below the plowzone."[394] Meanwhile, Air Products proposes to construct carbon dioxide and hydrogen pipelines, a facility access road, and laydown yards within and immediately adjacent to this documented area.[395]

It is important to highlight that Goodwin only re-investigated a relatively small area of Air Products' site and found a significant new area of cultural resources, begging the question as to what other cultural resources could be found throughout the entirety of the site using current survey standards. Indeed, Air Products' reliance on the old SURA report is careless as

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[386] Goodwin Report at 75, 148, and Figures 6.30 and 6.31 (at 155–56), Ex. 47.
[387] Goodwin Report at 138 (emphasis added), Ex. 47.
[388] *See* SURA Report at 1 (describing survey methodology as simply "consist[ing] of map research and shovel testing at high probability (HP) intervals").
[389] The Goodwin investigation was guided by a Scope of Work developed in consultation with Louisiana's State Historic Preservation Office, which details the procedures and standards followed. Goodwin Report at 1, Appendix 1 (Scope of Work); *see also id.* at Ch. V, Research Design and Methodology, at 83–86 (explaining that known archeological sites such as Air Products' site "were characterized as having a high probability for containing cultural resources and were investigated by intensive pedestrian survey and shovel testing at high probability intervals"), Ex. 47.
[390] Goodwin Report at 152, Ex. 47.
[391] Goodwin Report at 166, Ex. 47.
[392] Because "the large artifact scatter . . . was situated just east of Locations 2 and 3 of Site 16AN89 as recorded by [SURA] . . . [it] was designated as Location 2/3 Extension of Site 16AN89." Goodwin Report at 166, Ex. 47; *see also id.* at 152–153 (citing SURA Report) (Figures 6.1 [Sheets 19, 20], 6.22, 6.25; Table 6.2); *id.* at 154 (explaining that the "newly-identified locus (Figures 6.30, 6.31) . . . measured 225 m (738.2 ft) in length and 60 m (196.9 ft) in width, and encompassed about 1.35 ha (3.34 ac) of area").
[393] Goodwin Report at 166–67, Ex. 47 (explaining that pipeline will be installed by horizontal directional drilling ("HDD"), access road will be reduced to 10 meters and covered with protective matting). These measures were employed after "an attempt was made to reroute around the artifact scatter by extending the project ROW further east to and avoid impacting the site," but testing in the new area "produced surface finds of historic artifacts." *Id.* at 152.
[394] *Id.* at 166. "[T]he portion of Site 16AN89 identified within the Project ROW have not been evaluated and assessed applying the NRHP Criteria for Evaluation (36 CFR 60.4 [a-d]) and those areas will be avoided during construction." *Id.* at 9.
[395] *See* Air Products JPA, 2-02a Louisiana Public Trust Doctrine Analysis, Jan. 12, 2024, Figure 1-3, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=14673773 (Facility Site Plan); 1-2-1a Proposed CO_2 Pipeline Alignment, Aug. 6, 2024, Sheets 1-3, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=14869711; 1-2-1b Proposed CO_2 Pipeline Alignment, Aug. 6, 2024, Sheet 4, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=14869719; 1-2-2 Proposed H2 Pipeline, Aug. 6, 2024, Sheets 1-3, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=14869715; 1-1a Facility Site Permit Drawings, Aug. 6, 2024, Sheets A-1 through A-7, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=14869734.

Goodwin's findings strongly suggest that there are more artifacts in the footprint of works where Air Products is either already constructing or plans to construct. The fact that Air Products did not identify the dense cluster of surface artifacts on its own initiative, or a result of its own discoveries is alarming especially since Air Products' ground disturbance could impact other undiscovered artifacts. Indeed, Air Products' reliance on the SURA report to assess cultural resources calls into question the sufficiency of the former investigation.

Air Products has deployed heavy earthmoving equipment throughout its site to clear, grub, and grade.[396] The company to intends to remove "approximately 600,000 cubic yards" of soil and "placement of engineered fill material."[397] These significant ground-altering activities put the cultural resources at risk. The Corps must require Air Products to cease construction activities until a full archeological investigation of the site has been completed that meets current standards so that the agency can adequately consider the effect the proposed project would have on cultural resources at Air Products' site as required under 33 C.F.R. § 320.4(e), and meet its obligations under the National Historic Preservation Act discussed below.

2. Balancing

The public interest review requires the Corps to evaluate "[t]he benefits which reasonably may be expected to accrue from the proposal must be balanced against its reasonable foreseeable detriments." 33 C.F.R. § 320.4(a)(1). The regulations mandate that the Corps consider "[a]ll factors which may be relevant to the proposal" including "the cumulative effects" of such factors. *Id.* The Corps must consider the permanence of the impacts on public use. 33 C.F.R. § 320.4(a)(2). The Corps must weigh each of the factors "by its importance and relevance to the particular proposal." 33 C.F.R. § 320.4(a)(3). The Corps must deny the permit if issuance would be contrary to the public interest. 33 C.F.R. § 323.6.

The speculative nature of the proposed project demonstrates the lack of need. Critically, it is not clear whether the state would allow continued commercial fishing, boating, or any recreational use of Lake Maurepas given its broad authority over restricting public access around carbon facilities. And if continued public use of the lake is allowed, what restrictions would be in place? And despite these grave detrimental impacts, Air Products has offered the most meager and frankly insulting actions such as donations to stock redfish in the lake, which akin to buying a bushel of apples after cutting down the orchard. There are no meaningful measures Air Products could take to compensate the public and commercial fishers for the proposed project which restricts, mars, and harms this ecologically sensitive and cherished natural resource. Moreover, the detrimental effects of the proposed project would be permanent or long-lasting at best. If the project is built, Air Products intends to operate it for 25 years (or until the pore space capacity is reached which could be longer) and it has no plan to remove the infrastructure and

[396] Air Products Letter to LDEQ, May 7, 2024, AI 233211, EDMS Doc. ID 14280981, https://edms.deq.louisiana.gov/app/doc/view?doc=14280981 (requesting Letter of No Objection from LDEQ to proceed with site preparation activities prior to receiving air permit); LDEQ letter to Air Products, June 6, 2024, AI 233211, EDMS Doc. ID 14334508, https://edms.deq.louisiana.gov/app/doc/view?doc=14334508 (providing that Air Products may conduct activities prior to receiving an air permit).
[397] Air Products letter to LDEQ, Dec. 19, 2024, AI 233211, EDMS Doc. ID 14590863, https://edms.deq.louisiana.gov/app/doc/view?doc=14590863.

restore the harmed resources. And as with other pipeline channels, the erosion and saltwater intrusion would increase over time.

Furthermore, Air Products alternatives analysis indicates that the company only considered limited environmental impact costs and alleged social and economic benefits of the proposed project, arbitrarily excluding adverse significant social and economic impacts.[398] Moreover, many environmental impact costs, such as those from a potential carbon dioxide pipeline rupture or blowout and lost ecological benefits from wetlands destruction, significant impact to Lake Maurepas, and other negative impacts discussed throughout these comments, were omitted from Air Products cost-benefit analysis entirely.[399] These omissions are particularly glaring giving the massive interference with the current uses and aesthetic harm to the lake and potentially widespread and lethal impacts that can result from the rupture or blowout of CO_2 infrastructure.

Here, Air Products application materials acknowledge that no "significant public benefit will result" from the proposed project.[400] Additionally, many of the claimed benefits, such as "removing from the atmosphere significant quantities of CO_2 that would otherwise be emitted" cannot be verified without additional information, which is missing from the Application, such as Air Products leakage rate. Some leakage is unavoidable, and a "leakage rate of less than 1% to the atmosphere over 1,000 years is necessary for geological storage of CO_2 to achieve the same climate benefits as renewable energy sources[.]"[401]Air Products' cost-benefit analysis relies on its conclusion that implementation of CO_2 sequestration "significantly reduces the environmental footprint of the Facility"[402] yet, without requiring disclosure of the predicted leakage rate, this conclusion cannot be verified.

For these reasons expressed here and throughout the letter along with those expressed in the Shefftz Report,[403] the purported benefits of the proposed project do not outweigh its detrimental effects. The proposed project does not serve the welfare of the communities in the project area and is contrary to the public interest.

III. NATIONAL HISTORIC PRESERVATION ACT

Commenters incorporate by reference their discussion above in Section II.A.1.e regarding Air Products' proposed hydrogen and ammonia facility, which is planned for construction on a significant archaeological site known as Orange Grove Plantation (Site 16AN89). The potential impacts of the proposed project on the cultural resources/archeological features from the Orange

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[398] *See* JPA, Attach. 2-02b La. Public Trust Doctrine Analysis, at 43 and 102–104, Mar. 14, 2025, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15114545.
[399] *See id.* at 102–104.
[400] *See* Basic Findings and Guideline Conformance Checklist re CUP # P20240033, at pdf p. 2 (July 2, 2025), https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15229370.
[401] Excerpts of Comments on the Final Recirculated Environmental Impact Report for Carbon TerraVault I, at pdf p. 8 (Oct. 16, 2024), Ex. 40.C.
[402] *See* JPA, Attach. 2-02b La. Public Trust Doctrine Analysis, at 104, Mar. 14, 2025, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=15114545.
[403] Shefftz Report, Ex. 3.

Grove Plantation and associated burials of people enslaved at the former plantation site necessitates a rigorous and ethical approach to National Historic Preservation Act compliance. Commenters urge the Corps to prioritize the protection of these significant cultural resources and ensure that the voices and concerns of descendant communities are heard and addressed throughout the Section 106 process.

The Application does not sufficiently identify or assess the potential presence of historic properties, especially those related to the enslaved community at the former sugar plantation. This includes possible archaeological resources, structures, and especially unmarked graves. The proposed project carries a significant risk of causing unavoidable adverse effects, such as the disturbance or destruction of burial grounds, artifacts, and the broader historical context of the plantation and its associated enslaved community, without proper identification and evaluation of these historic properties.

The Corps must require a comprehensive archaeological survey of the entire Area of Potential Effect ("APE") that meets current standards is crucial to accurately identify and evaluate all historic artifacts and other culturally significant features that may be impacted by development, including potential burial sites. The Corps should mandate that the survey be conducted by qualified professionals with expertise in African American burial practices and employ methods appropriate for detecting subtle features associated with burials of enslaved people who died at Orange Grove.

The Corp must actively identify and engage with descendant communities as consulting parties in the Section 106 process. This consultation should respect their cultural affiliation and involve them in all decision-making processes, including the development of archaeological work plans, data recovery strategies, and mitigation measures. RISE St. James has a pending request to participate as a consulting party, which the Corps should grant.

The Corps must consider alternatives that avoid or minimize adverse effects on the identified historic properties, including potential relocation or redesign of project components to protect sensitive areas, particularly burial grounds.

The Corps, in consultation with descendant communities and the State Historic Preservation Officer ("SHPO"), must ensure that appropriate mitigation measures are developed and implemented if adverse effects cannot be avoided. Mitigation measures may include archaeological data recovery, historic documentation, preservation in place, or other methods to preserve or interpret the historical significance of the site.

The Clean Water Act Section 404 permit must not be issued for the reasons expressed throughout these comments, but in any event, must not be issued until all Section 106 requirements have been fully met. This includes the identification and evaluation of historic properties, consultation with descendant communities and the SHPO, and the development and implementation of satisfactory mitigation measures.

IV. ENDANGERED SPECIES ACT

Commenters address the reasonably foreseeable detrimental effects the proposed project would have on wetlands, fish and wildlife values, water quality, and endangered species elsewhere in this letter (primarily in Section I.A.2.c.), which they incorporate here by reference. The Corps must also consider the proposed project's "probable impacts, including cumulative impacts" on threatened and endangered species in its public interest review. *See* 33 C.R.F. § 320.4.

V. NATIONAL ENVIRONMENTAL POLICY ACT ("NEPA")

NEPA requires review of federal actions "significantly affecting the quality of the human environment" including a detailed statement on environmental impacts, unavoidable adverse environmental effects, project alternatives, short-term uses vs long-term productivity, and any irreversible and irretrievable commitment of resources. 43 U.S.C. § 4332(2)(C). The Corps must "prepare an Environmental Impact Statement '[i]f any 'significant' environmental impacts might result from the proposed agency action.'" *Standing Rock Sioux Tribe v. U.S. Army Corps of Engineers*, 440 F. Supp. 3d 1, 13 (D.D.C. Mar. 5, 2020) (citing *Grand Canyon Trust v. FAA*, 290 F.3d 339, 340 (D.C. Cir. 2002)). "In order to determine whether its actions may result in 'significant' environmental impacts — and therefore whether it must prepare an EIS — an agency must examine both the 'context' and the 'intensity' of the action." *Standing Rock Sioux Tribe v. U.S. Army Corps of Engineers*, 471 F. Supp. 3d 71, 76 (D.D.C. July 6, 2020). The issuance of a Clean Water Act Section 404 permit or Section 10 permit for the proposed project would significantly affect the environment for the reasons expressed throughout this letter. For that reason, the Corps must prepare an independent environmental impact statement ("EIS") that discusses all of the proposed project's impacts prior to any decision on whether to issue such permits.

NEPA requires federal agencies to prepare an EIS when reviewing federal actions significantly affecting the quality of the natural and human environment. *See* 39 C.F.R. § 775. The Corps must evaluate not only the direct and indirect impacts on the human environment the project will cause, but also the cumulative effects of past, present, and reasonably foreseeable future activities in the area to determine whether the project is sufficiently major to trigger the preparation of an EIS. The combined impacts of this project on the MSP, WSLP and other flood control and restoration projects alone triggers the preparation of the more extensive EIS, and when considered in tandem with the range of probable adverse impacts, illustrates how the proposed activities will significantly affect the quality of the natural and human environment in the project area. Furthermore, the dredging and resuspension of sediment in Lake Maurepas warrants a dedicated study as discussed above, especially in light of the heavy metals and other contaminants that would be released from the sediment. Additionally, a comprehensive analysis of the impacts to the local economy due to the interference with current uses and aesthetic appeal of the lake as expressed above is required.

In the Public Notice, the Corps has noted that it is waiting to review public comments in order to prepare either the Environmental Assessment or Environmental Impact Statement.

However, Air Products has already stated that it will undertake an EIS in a public meeting on October 17, 2022.[404] The Corps should ensure Air Products honors this public commitment and require the preparation of a complete EIS.

A. Impacts

NEPA requires that the Corps consider direct, cumulative, secondary and indirect impacts of the proposed activity, as well as alternatives and efforts to avoid, minimize, and mitigate adverse impacts.[405] Because the project will cause and contribute to significant degradation of the wetlands, the Corps cannot grant the permit.

The scope of the NEPA impacts analysis is broad, including not only environmental effects to the physical, chemical and biological characteristics of the aquatic ecosystem but additionally the aesthetic, historic, cultural, economic and social effects of the proposed activity.[406] NEPA requires the Corps to not only consider all reasonably foreseeable direct and indirect effects of the activity to the aquatic ecosystem and the environment outside the aquatic ecosystem, but the cumulative effects of past, present and reasonably foreseeable future activities in the area as well. The identification and evaluation of all reasonably foreseeable impacts, and cumulative impacts, bears on the avoidance, minimization and mitigation assessment for the project.

Commenters have previously laid out in great detail the direct, cumulative, secondary and indirect impacts of the project on the Maurepas WMA and on Lake Maurepas, all of which are applicable here. For instance, Commenters have discussed in detail the impacts from the pipeline through the protected wildlife management area that is also the site of numerous overlapping restoration and beneficial projects funded by the state of Louisiana that benefit the public and should take priority over this project. Commenters have also raised both the direct and indirect impacts that include risks from the CO2 pipeline both in the community and within the swamp and lake, the risks that the platforms and infrastructure pose to lake navigation, the impacts on historic properties in the area, and so on. The construction of the pipeline and platforms through the lake would likely result in significant impacts from dredging and resuspending contaminated sediment known to be in the lake. The proposed project would significantly interference with current uses of the lake as a heaven for recreational enjoyment, sightseeing, boating, fishing (commercial and recreational), etc.—forever marring this sacred place. And, significantly, there are little to no studies on the impact of a CO_2 pipeline and or sequestration facility in a

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[404] Scott Eustis, *HG at Air Products Oct. 17th, 2022, Commitment to EIS by Air Products*, YouTube (Nov. 4. 2022) https://www.youtube.com/watch?v=a9Xhzfv4S9g.

[405] Cumulative impacts are "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." 40 C.F.R. § 1508.7. Indirect impacts as those "which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems." 40 C.F.R. § 1508.8.

[406] 40 C.F.R. §§ 230.10-11, 1508.8.

freshwater lake, particularly in the cases of slow leakage over time and pipeline rupture or well blowout resulting in large volumes of CO_2 release. An EIS is necessary for the required analysis of these risks and impacts.

B. Alternatives Analysis.

Commenters address Air Products' flawed alternatives analysis above in Section I.A.1 and those comments apply equally to the alternatives analysis requirement under NEPA. As analyzed in detail above, Air Products' alternatives analysis is flawed because there are practicable alternatives that would avoid the discharge that should be considered, including a non-aquatic sequestration site and the pipeline spur to existing infrastructure/no facility alternatives discussed above. The analysis is also flawed because the same limitations that made Pipeline Routes 1, 2, and 3 unacceptable are also violated by the Preferred Route, i.e., building new ROW corridors and fragmenting the Maurepas Swamp with the all-new route to the lake. This makes Air Products' selection of its preferred site and pipeline route arbitrary and capricious without either better analysis or a non-WMA-based route alternative for comparison.

As each of the proposed alternative pipeline routes and sequestration facility location would result in the permanent loss of hundreds of acres of wetlands, the alternatives analysis must be performed properly, considering real possibilities outside of the wetlands corridor Air Products insists upon – as Commenters have illustrated above in detail.

C. Mitigation.

Similarly, Air Products' mitigation proposal falls short of regulatory requirements and calls for a complete analysis via an EIS. Mitigation is required for resource losses that are identifiable, reasonably likely to occur, and important to the human or aquatic environment. Air Products proposes to mitigate for the wetlands losses it will cause in the WMA by hydrologically improving another tract of land on the Northshore of Lake Maurepas rather than in the Maurepas Swamp WMA. Given this distance and disconnection, preservation of this tract is not equivalent to preservation of the type of high-quality swamp forest that will be permanently lost in the impacted areas of the Maurepas Swamp WMA. Also, the controlling conservation easements in the WMA call for mitigation in the contiguous property, nullifying Air Products' choice. Commenters have established that the mitigation is inadequate.

Air Products has not met the avoidance, minimization and mitigation requirements under NEPA and the CWA. Commenters reiterate and re-urge that the Corps direct Air Products to prepare a complete EIS for further public review.

CONCLUSION

For the foregoing reasons, the Corps must deny Air Products' Application. Commenters reserve the right to rely on comments submitted by others.

Respectfully submitted by,

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*Please email chuebler@earthjustice.org for a copy of any/all exhibits 1–49**
**Note that there are no exhibits 19 or 21.

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1	Honora Buras, *Potential impacts to Maurepas Swamp and Lake Maurepas from proposed Air Products* CO_2 *Pipeline and Injection Wells*, July 23, 2025
2	Varun Paul, *Lake Maurepas Dredging Project*, July 28, 2025
3	Jonathan Shefftz, *Memorandum to Healthy Gulf, providing review of Air Products' Louisiana Public Trust Doctrine*, April 15, 2025
4	Articles Illustrating Public Opposition to Air Products' Proposed Project (Louisiana Clean Energy Complex)
4.B	Excerpts of Testimonies from Louisiana House of Representatives Hearings re. Lake Maurepas & CCS-related House Bills (May 2, 2023 & Apr. 4, 2024)
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5	Commenters' Letter to the Corps, June 11, 2025
6	St. James Parish Land Use Application, Low Carbon Logistics CCS Transport LLC
7	Kyle Piller et al., *Phase III: Lake Maurepas Monitoring Annual Report Year 2* (2024)
8	LDH, LDEQ, LDW, Fish Consumption Advisory for Lake Maurepas, April 17, 2024
9	Delaney Dryfoos, *Maurepas Swamp's upcoming reintroduction to the Mississippi River*, The Lens, December 3, 2024
9.B	eBird, Houmas House Plantation, Ascension, LA Species Observation List
10	U.S. Army Corps of Engineers, New Orleans District, Clam Shell Dredging in Lakes Pontchartrain and Maurepas, Louisiana, AD-A225 138, Vol. 1, Final EIS, Nov. 1987
11	Lara Nicholson, *Crabbers pull traps from Lake Maurepas ahead of carbon capture project: 'I'm holding out'*, The Advocate, Nov 10, 2022
12	Caroline Grueskin, *Boaters from around the country race from bar to bar in 'poker run' fundraiser for Tickfaw 200*, The Advocate, May 5, 2018
13	DWF-AP Carbon-Dioxide Storage Agreement, Section 5.3, Oct. 22, 2021
13.B	DEQ 1983 Memo, EDMS Doc. ID 11468140
14	Thilini Gunawardhana, et al., *Spatial Pattern Assessment and Prediction of Water and Sedimentary Mud Quality Changes in Lake Maurepas*, 11 Environments 268 (2024)
15	Robert J Rossi & Dominic C DiGiulio, *Documenting Known Abandoned Wells in Proximity to Potential Carbon Storage Formations in Louisiana* (2023)
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16.B	Screenshot of AirBnb listings for Blind River, LA
17	Heintz, J., Biological Investigation Report for Coastal Use Permit No. P20240033, Air Products Blue Energy LLC, Louisiana Department of Energy and Natural Resources/Office of Coastal Management, Oct. 2, 2024

18	JPA Comments (2025), Air Products Blue Energy LLC Joint Permit Application "View Comments" page, Comment by Sharon Pecquet, 07/08/2025
20	Bloomberg, *E&E News: Shell Follows Equinor in Shelving Norway 'Blue' Hydrogen Project*, E&E News | ENERGYWIRE (Sep. 25, 2024)
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23	Anika Juhn & David Schlissel, *Blue Hydrogen's Carbon Capture Boondongl*e, INSTITUTE FOR ENERGY ECONOMICS AND FINANCIAL ANALYSIS (March 2025)
24	Adam Morton, *'A shocking failure': Chevron criticised for missing carbon capture target at WA gas project*, THE GUARDIAN (July 19, 2021)
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25.A	Robert W. Howarth & Mark Z. Jacobson. "Reply to comment on 'How green is blue hydrogen?'" ENERGY SCIENCE & ENGINEERING 10.7 (2022) 1955–1960
26	Nina Lakhani, *Costly Climate 'Solutions' Look like More Pollution in Louisiana's 'Cancer Alley,'* THE GUARDIAN (Jul. 29, 2024)
27	Lorne Stockman, et al., *Funding Failure: Carbon Capture and Fossil Hydrogen Subsidies Exposed*, OCI (Aug. 29, 2024)
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29	Mark Z. Jacobson, *The Health and Climate Impacts of Carbon Capture and Direct Air Capture*, 12 ENERGY & ENVIRON. SCI. 3567 (2019)
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35	Richard B. Kuprewicz, *Accufacts' Perspectives on the State of Federal Carbon Dioxide Transmission Pipeline Safety Regulations as It Relates to Carbon Capture, Utilization, and Sequestration within the U.S.*, ACCUFACTS Inc. (Mar. 23, 2022)
36	Wesley Mathews, *Failure Investigation Report - Denbury Gulf Coast Pipeline, LLC - Pipeline Rupture / Natural Force Damage*, PHMSA (May 26, 2022)
37	Julia Simon, *The U.S. is expanding CO2 pipelines. One poisoned town wants you to know its story*, NPR (Sept. 25, 2023)
38	Dr. Steven Jansto, Risks and Potential Impacts from Carbon Steel Pipelines in Louisiana Transporting and Processing Variable Produced Gases such as Carbon Dioxide (CO2), Hydrogen (H2), Methane (CH4) (Oct. 9, 2022)

39	Kenneth Clarkson, CO_2 *Pipelines – Dangerous and Under-Regulated*, Pipeline Safety Trust (2022)
40	Richard B. Kuprewicz, Evaluation of Kern County Response to Comments and Final Recirculated Environmental Impact Report on the TerraVault I Carbon Capture and Storage Project, Accufacts Inc. (Oct. 15, 2024)
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40.C	Excerpts of Comments on the Final Recirculated Environmental Impact report for Carbon TerraVault I (Oct. 16, 2024)
41	Kari Lydersen, *Small pipeline, big risks: Carbon capture project sparks concern in rural Illinois,* Canary Media (Apr. 4, 2024)
42	EPA, EPA Comments re. Snowy River CO_2 Sequestration EA (May 17, 2024)
43	David J. Mitchell, *Ammonia leak at CF Industries prompts school evacuation, highway closures in Donaldsonville*, THE ADVOCATE (Dec. 1, 2022)
44	Sara Sneath, *'Ticking Time Bombs': Residents Kept In The Dark About Risks To La.'s Chemical Plants During Storms*, WWNO - NEW ORLEANS PUBLIC RADIO (Dec. 7, 2020),
45	OCM Request for Information Letter re. P20240033 CUP Application (Oct. 16, 2024)
46	AECOM's Response to OCM's Oct 2024 RFI re. P20240033 CUP Application (June 4, 2025)
47	Nathanael Heller, M.A., R.P.A., et al., *Phase I Cultural Resources Investigation of Proposed OxyChem Geismar to Convent Pipeline Project in St. James and Ascension Parishes, Louisiana*, Goodwin & Assoc., (March 2024)
48	Shuman, K. Malcolm, et al., *Phase One Cultural Resources Survey Of 673.9 Acres (272.67 Hectares) Proposed for Industrial Use, Burnside, Ascension Parish, Louisiana*, SURA Inc., (April 2014)
49	Katy Shannon, *Report on the Orange Grove Plantation & Cemetery*, April 19, 2024