



June 6, 2024

Submitted via electronic mail to DEQ.PUBLICNOTICES@LA.GOV

**Louisiana Department of Environmental Quality
Public Participation Group
P.O. Box 4313
Baton Rouge, LA 70821-4313**

RE: *Ammended* Comments on Altaco Gramercy, LLC / Atlantic Alumina – Gramercy Operations Bauxite Processing, Products and Power Areas
Proposed Part 70 Air Operating Permit Renewal and Modification
AI # 1388
Permit No. 2453-V14
Activity No. PER20220002

Dear Public Participation Group:

Sierra Club, Inclusive Louisiana, and The Descendants Project submit the following comments to the Louisiana Department of Environmental Quality (“LDEQ”) in response to the Public Notice provided on April 30, 2024 (“Notice”), inviting the public to comment on the Proposed Part 70 Air Operating Permit Renewal and Modification No. 2453-V14 for the Bauxite Processing, Products, and Powers Area (“Proposed Permit”)¹ for the Atalco Gramercy LLC, Atlantic Alumina – Gramercy Operations alumina refinery located at 1111 Airline Highway, Suite 3370, Gramercy, St. James and St. John Parishes (“Atlantic Alumina” or “Refinery”).

Sierra Club, Inclusive Louisiana, and The Descendants Project have serious concerns about the Proposed Permit. Specifically, **the Proposed Permit fails to adequately protect public health, particularly with regard to the allowable levels of emissions of fine particulate matter and mercury.** Further, the Proposed Permit fails to provide monitoring requirements that would assure compliance with the permit’s requirements. Additionally, before making a final determination on the Proposed Permit, **LDEQ must fully consider the Proposed Permit’s environmental justice impacts to the surrounding community and conduct a full and fair public trust analysis to ensure that environmental impacts are minimized.** The Sierra Club, Inclusive Louisiana, and The Descendants Project detail these and other concerns further below.

¹ Altaco Gramercy, LLC / Atlantic Alumina – Gramercy Operations Bauxite Processing, Products and Power Areas Proposed Part 70 Air Operating Permit Renewal and Modification (April 30, 2024), <https://edms.deq.louisiana.gov/app/doc/view?doc=14258958>.

Accordingly, Sierra Club, Inclusive Louisiana, and The Descendants Project object to the Proposed Permit as written and request that LDEQ address these concerns in a revised permit to be re-issued for further public comment. Sierra Club, Inclusive Louisiana, and The Descendants Project also request that LDEQ hold a public hearing to allow for additional public comment on this Proposed Permit.

BACKGROUND

I. Refinery History

Atalco Gramercy LLC (“Atalco”) owns and operates an alumina refinery near Gramercy, Louisiana. The Refinery produces alumina from bauxite ore, which contains mercury. This alumina is then transported to smelters for further refining into aluminum. The Refinery produces approximately 1.2 million tons of alumina per year.

The impact from the Refinery on the surrounding community is undeniable. The entire area surrounding the Refinery is stained red from the bauxite and red mud residue involved in the refining process. Layers of the Refinery’s red dust covers roads and buildings. It is blown into surrounding neighborhoods, onto their cars, onto their homes, into their gardens and pools, and into their lungs.

Not only does the rust-colored dust present an annoyance, it also presents a risk to public health. Of significant concern to the surrounding community are the threats caused by fine particulate matter (PM_{2.5}) and mercury emissions. These substances are known to cause serious health problems and are emitted at very high levels from the Refinery.

The community surrounding the Refinery is a historic community already overburdened by other industry sources of pollution. Community groups and area residents have long advocated against the large amounts of emissions coming from the Refinery,² which LDEQ would allow to continue (and increase in part) under the terms of the Proposed Permit.

II. Community Groups

The Sierra Club’s Statement of Purpose is to explore, enjoy and protect the wild and beautiful places of the Earth; to practice and promote the responsible use of the Earth’s ecosystems and resources; to educate and enlist people to protect and restore the quality of the natural and human environment; and to use all lawful means to carry out these objectives. The Sierra Club’s Delta Chapter, based in New Orleans, has an active local membership that advocates for environmental protection that among other things, sponsors campaigns to remove Mercury from the environment and to protect the state’s scenic rivers.

The Descendants Project was founded to preserve and protect the health, land, and lives of the Black descendant communities in Louisiana’s River Parishes. One such community is historic Wallace, located across the Mississippi River from the Refinery in St. John Parish.

Inclusive Louisiana is dedicated to protective residents of St. James Parish and neighboring parishes from environmental harm caused by industrial pollution.

² See Public Hearing Transcript for Proposed Part 70 Air Operating Permit No. 2453-V16 (June 6, 2017), <https://edms.deq.louisiana.gov/app/doc/view?doc=10711457>.

COMMENTS TO THE PROPOSED PERMIT

I. The Proposed Permit Fails to Protect against Impacts to Human Health and the Environment from Fine Particulate Matter (PM_{2.5}).

PM₁₀ pollutants are inhalable particles, with diameters that are generally 10 micrometers and smaller. PM_{2.5} pollutants are fine inhalable particles, also known as soot, with diameters that are generally 2.5 micrometers and smaller.³

Particulate matter contains microscopic solids or liquid droplets that are so small that they can be inhaled and cause serious health problems. Some particles less than 10 micrometers in diameter can get deep into your lungs and some may even get into your bloodstream. *Of these, particles less than 2.5 micrometers in diameter, also known as fine particles or PM_{2.5}, pose the greatest risk to health.*⁴

Health effects from exposure to small particulates include: “premature death in people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, increased respiratory symptoms, such as irritation of the airways, coughing or difficulty breathing.”⁵ “People with heart or lung diseases, children, and older adults are the most likely to be affected by particle pollution exposure.”⁶

The Proposed Permit allows Atalco to emit 408.18 tons per year of PM_{2.5}, which is 1.12 tons per year of PM_{2.5} more than what the current permit allows.⁷ This is an enormous amount of PM_{2.5}.⁸ Area residents have long complained about the particulates (red dust from the bauxite and other particles).⁹ And LDEQ has allowed this high PM_{2.5} limit without ever requiring Atalco (or any of its predecessors) to show compliance with the NAAQS for PM_{2.5}, which are set at 35 micrograms per cubic meter (µg/m³) for a 24-hour average and 9 µg/m³ for the annual average.¹⁰ U.S. Environmental Protection Agency (“EPA”) recently finalized stronger health-based NAAQS for the annual average PM_{2.5} from a level of 12 µg/m³ to 9 µg/m³, which became effective on May

³ U.S. EPA. Particulate Matter (PM) Pollution: Particulate Matter (PM) Basics, <https://www.epa.gov/pm-pollution/particulate-matter-pm-basics> (last visited June 4, 2024).

⁴ *Id.* (emphasis added).

⁵ U.S. EPA. Particulate Matter (PM) Pollution: Health and Environmental Effects of Particulate Matter (PM), <https://www.epa.gov/pm-pollution/health-and-environmental-effects-particulate-matter-pm> (bullet points removed, commas added) (last visited June 4, 2024).

⁶ *Id.*

⁷ Altaco Gramercy, LLC / Atlantic Alumina – Gramercy Operations Bauxite Processing, Products and Power Areas Proposed Part 70 Air Operating Permit Renewal and Modification, at 1 (April 30, 2024), <https://edms.deq.louisiana.gov/app/doc/view?doc=14258958>.

⁸ According to LDEQ’s ERIC Database, only five facilities in the state reported that they emitted more than 408.18 tons per year of PM_{2.5} in 2022. <https://deq.louisiana.gov/page/eric-public-reports> (Annual Certified Emissions Data 2015-present).

⁹ See most recent “Incident Reports” documenting complaints, EDMS No. 13163686, 13168608, 13168610, 13227338; 13384395; 13783164; 13918010, 13939501, 14212597, 14212603, 4285852; and 14296271.

¹⁰ U.S. EPA, <https://www.epa.gov/criteria-air-pollutants/naaqs-table>.

6, 2024.¹¹ But LDEQ records show that Atlaco never showed compliance with the former less stringent PM_{2.5} standard of 12 ug/m³ either.¹² Instead, LDEQ processed Atlaco's application having only outdated modeling and analysis on file for the Refinery's PM₁₀ emissions, not for the more harmful PM_{2.5}.¹³

Steven Klafka, P.E., BCEE, of Wingra Engineering, conducted modeling and evaluated the Refinery's PM_{2.5} emissions and found serious predicted exceedances of the 24-hour average NAAQS of 35 µg/m³ and the annual average NAAQS of 9 µg/m³.¹⁴ The Klafka Report shows PM_{2.5} NAAQS exceedances throughout several communities in the area, including Gramercy, Lutchter, Wallace, Mt. Airy, and Garyville.¹⁵ The modeling also shows predicted NAAQS exceedances incorporating offsite sources and background¹⁶ AND also without any offsite source emissions or background (i.e., Atalco's modeled emissions only).¹⁷ In sum, the modeling shows there are serious NAAQS compliance issues.

LDEQ must not issue the Proposed Permit unless or until Atalco is able to significantly lower its PM_{2.5} emissions and show that its emissions do not cause or contribute to NAAQS violations. LDEQ must require the same for compliance with the NO₂ 1-hour NAAQS, which was established in 2010 and for which neither Atalco nor any of its predecessors has ever shown compliance.¹⁸

II. The Proposed Permit's Mercury Emission Limits Fail to Protect Human Health and the Environment.

The Refinery extracts alumina from bauxite using the Bayer process. The bauxite used at the Refinery contains mercury. As a result of Refinery operations, mercury has been emitted at levels that have impacted the air, water, and sediments in areas close to the Refinery, thereby causing injury and threat of injury to human health and the environment.

¹¹ The U.S. Environmental Protection Agency ("EPA") recently finalized stronger health-based NAAQS for PM_{2.5} from a level of 12 micrograms per cubic meter (ug/m³) to 9 ug/m³, which became effective on May 6, 2024. But whether the old standard of 12 ug/m³ or the new standard of 9 ug/m³, the modeling predicts violations of both standards—by a tremendous amount.

¹² See Application for Renewal and Revision, Part 70 Permit No. 2453-V13, Atalco Gramercy, LLC – Atlantic Alumina, Vol. 1 (Mar. 3, 2022), Application Form, Item 18, LDEQ EDMS Database, Doc ID 13178670, pdf. p. 22 of 469, <https://edms.deq.louisiana.gov/app/doc/view?doc=13178670>.

¹³ *Id.* LDEQ records show that modeling was only performed for coarse particulate matter ("PM₁₀") as summarized in a report dated September 14, 2009, by RTP Environmental Associates, *Air Dispersion Modeling Report in Support of Renewal and Revision of Permit No. 2387-V0 Agency Interest No. 1388* ("2009 RTP Report"), ¹³LDEQ EDMS Database, Doc ID, 6052701, <https://edms.deq.louisiana.gov/app/doc/view?doc=6052701>.

¹⁴ See Exhibit 1, Attachment B, Stephen Klafka, Atalco Gramercy LLC - Atlantic Alumina Evaluation of Compliance with NAAQS for PM_{2.5}, Wingra Engineering (June 3, 2024) ("Klafka Report"). Also being provided to with these comments to accompany the Klafka Report are supporting files for the AERMOD analysis.

¹⁵ *Id.* at Figures 1-13.

¹⁶ *Id.* at Figures 1-6, 8-12.

¹⁷ *Id.* at Figures 7 & 13.

¹⁸ See *id.* at 4.

As LDEQ agrees, there are various adverse health impacts associated with exposure to excessive levels of mercury.¹⁹ Mercury is an extremely potent human toxin that affects brain functioning and causes birth defects.²⁰ When people consume mercury-contaminated fish they risk exposure to harmful levels of methylmercury.²¹ Pregnant women, fetuses, and infants are particularly susceptible to harm. EPA has found that “[s]erious developmental and adult effects in humans, primarily damage to the nervous system, have been associated with exposures to mercury.”²² Further, “[b]ecause the developing fetus may be the most sensitive to the effects from methylmercury, women of child-bearing age are regarded as the population of greatest interest.”²³

Methylmercury has “been shown to be a developmental toxicant, causing subtle to severe neurological effects at very low levels of exposure, especially to fetuses and young children.”²⁴ During outbreaks of methylmercury poisonings, mothers with no symptoms of nervous system damage gave birth to infants with severe disabilities, showing that the developing fetal nervous system is more vulnerable to methylmercury than is an adult's nervous system.²⁵ The most common way people are exposed to any form of mercury is by eating fish containing methylmercury.²⁶

Confirming that high mercury levels in fish endanger human health, a study of mercury levels in the hair of recreational anglers in Louisiana showed that 40% of them were consuming more mercury levels than is considered safe and 13% had mercury levels that are high enough to cause heart attacks.²⁷ The study confirmed that the majority of this mercury came from the consumption of recreationally caught fish.²⁸ In addition to the harm it causes humans, mercury in the environment endangers “a variety of different species.”²⁹ For example, “[c]onsumption of prey with elevated levels of mercury can cause adverse effects on growth, development, reproduction, metabolism and behavior in birds.”³⁰ EPA explained in a report to Congress that “[a]dverse effects of mercury on fish, birds and mammals include death, reduced reproductive success, impaired growth and development, and behavioral abnormalities.”³¹ Moreover, “[m]ethylmercury continues to accumulate in fish as they age.”³²

¹⁹ LDEQ, Public Comments Response Summary, Gramercy Holdings I, LLC Noranda Alumina, at 5 (Sept. 8, 2017), <https://edms.deq.louisiana.gov/app/doc/view?doc=10788725>.

²⁰ See Stephan Bose-O'Reilly, *Mercury Exposure and Children's Health*, Current Problems in Pediatric and Adolescent Health Care (Sept. 2010), available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3096006/>.

²¹ *Id.*

²² 66 Fed. Reg. 22,927, 22,928 (May 7, 2001).

²³ *Id.*

²⁴ 68 Fed. Reg. 4481, 4482 (Jan. 29, 2003).

²⁵ Stephan Bose-O'Reilly, *supra* note 20.

²⁶ *Id.*

²⁷ Lincoln et al, Fish Consumption and Mercury Exposure Among Louisiana Anglers, *Environ Health Perspect.* 119(2): 245–251 (Feb. 2011), available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3040613/pdf/ehp-119-245.pdf>.

²⁸ *Id.*

²⁹ 72 Fed. Reg. 37346, 37368 (July 9, 2007).

³⁰ *Id.*

³¹ *Id.*

³² 66 Fed. Reg. 1344, 1348 (Jan. 8, 2001).

Indeed, mercury “in its methylated form is the only metal known to biomagnify in successive levels of the aquatic food chain.”³³ To “biomagnify” is to “progressively build up in successive trophic levels because it bioaccumulates in the bodies of organisms lower in the food chain.”³⁴ “Unlike many other elements, methylmercury does not break down over time.”³⁵

The Refinery has been emitting mercury since it began operations in 1959, but the emissions were not reported until 2014 after Noranda, the then-owner of the Refinery, announced that it had discovered liquid mercury in a production unit.³⁶ In 2015, LDEQ required the facility to conduct mercury monitoring and reporting and develop a plan to limit releases. Noranda’s subsequent studies estimated that its mercury emissions were approximately 1,209 lbs. per year at actual production levels and 1,378 lbs. per year using permitted levels of operation.³⁷ Mercury emissions at the Refinery were not permitted by the LDEQ until 2017. Thus, from approximately 1959 until 2017, the Refinery was emitting mercury at high levels without a permit.

The impacts from the Refinery’s mercury emissions have been observed in the environment, particularly in the Blind River. The Blind River is listed as an “impaired waterway” with a fish consumption advisory due to mercury contamination.³⁸ The State has assigned a Total Maximum Daily Load (“TMDL”) to mercury to help reduce its concentration in the river.³⁹ The suspected source of impairment is “atmospheric deposition-toxics,”⁴⁰ and reporting from the facility itself shows that its mercury emissions reach the area wetlands and the Blind River.⁴¹ It is therefore clear that mercury from the Refinery has contributed and continues to contribute to the high levels of mercury in the area.

Mercury pollution in the Blind River has also caused the State of Louisiana to advise the public to limit its consumption of fish caught in the Blind River. The State of Louisiana most recently issued a fish consumption advisory from the Blind River in 2021 due to excess levels of mercury in bowfin and other fish species.⁴²

In the 2017 renewal to the Refinery’s air permit, LDEQ set an interim limit for mercury emissions at 1,500 lbs. per year. This was a high amount of mercury to be emitted, but the Refinery

³³ 53 Fed. Reg. 41356, 41371 (Oct. 21, 1988).

³⁴ 72 Fed. Reg. 19590, 19625 (April 18, 2007).

³⁵ *Maine People's All. v. HoltraChem Mfg. Co., LLC*, No. 1:00-CV-00069-JAW, 2015 WL 5155573, at *21 (D. Me. Sept. 2, 2015).

³⁶ Noranda Alumina LLC, Mercury Mass Balance and Noranda Alumina Facility, at 33 of 1216 (May 31, 2016), EDMS No. 10215177, <https://edms.deq.louisiana.gov/app/doc/view?doc=10215177>.

³⁷ Noranda Alumina LLC, Mercury Mass Balance and Noranda Alumina Facility, at 8-9 (May 31, 2016), EDMS No. 10215177, <https://edms.deq.louisiana.gov/app/doc/view?doc=10215177>.

³⁸ 2022 Louisiana Water Quality Integrate Report, Appendix A, available at https://deq.louisiana.gov/assets/docs/Water/Integrated_Report/2022_Integrated_Report/22_IR1_App_A_Assessments_CORRECTED_FINAL_8-19-22.pdf.

³⁹ See Final TMDLs for Mercury in Selected Subsegments in the Lake Pontchartrain Basin, Louisiana (March 21, 2012), available at <https://attains.epa.gov/attains-public/api/documents/actions/LADEQWPD/41574/100926>.

⁴⁰ *Id.*

⁴¹ See RTP Environmental Assoc., Inc, Air Toxic Modeling Report, Figures 3-1, 3-2 (June 30, 2016), <https://edms.deq.louisiana.gov/app/doc/view?doc=10256635>.

⁴² Fish Consumption Advisory for Blind River (July 29, 2021), available at https://ldh.la.gov/assets/oph/Center-EH/drywall/fish_adv/Blind_R_july_21.pdf.

was expected to decrease mercury emissions over time. Specifically, the 2017 permit provided that within 3 years (2020), emissions would decrease to 1,350 lbs. per year, and within 5 years (2022), emissions would be lower than 1,200 lbs. per year.⁴³ However, in the 2024 Proposed Permit, LDEQ proposes to allow mercury emissions from the Refinery up to 1,210 lbs. per year. This is inconsistent with the commitments from LDEQ and the Refinery to continue to make efforts to reduce mercury emissions from the Refinery over time. LDEQ must lower the mercury emission limit to a number that is at least as low as the prior commitment made by the Refinery. This limit must also account for emissions from all areas at the site (all EPNs, including sources of fugitive emissions) as well as other areas at the site not included in the proposed permit (e.g., the Red Mud Management Area and the Cajunite Area).

The Refinery emitted mercury at uncontrolled levels for decades. In the 2017 permit, LDEQ finally set forth actions required of the Refinery to reduce emissions. LDEQ must remain steadfast in these efforts and require that the Refinery implement additional mitigation measures that will further reduce mercury emissions into the community. The Proposed Permit must include provisions that would ensure that the Refinery does not backtrack or slow its progress towards these goals.

Since 2017, the Refinery has known that it would be required to emit no more than 1,200 lbs. of mercury in 2022. Yet, it has been more than 5 years and pursuant to the most recent update from Atalco on its efforts to reduce mercury emissions, the company is *still* assessing technologies that it may consider utilizing at the Refinery.⁴⁴ The Proposed Permit must require that the Refinery implement additional mitigating measures to reduce mercury emissions throughout the site, such as, for example, containerized bauxite storage.

The 2022 update also states that Atalco was “looking at possible alternative bauxite to reduce the mercury input into the plant by 50%,” but no updates were provided on the status of those efforts.⁴⁵ LDEQ must require that Atalco utilize a source of bauxite that will reduce the mercury input into the Refinery and require in the permit that Atalco provide specific updates on the efficacy of those efforts.

Additionally, while the Proposed Permit addresses the PM₁₀ and PM_{2.5} associated with fugitive dust emissions from the Refinery, it fails to include an emission limit for mercury at these sources. “Fugitive dust” refers to “particulate matter that enters the atmosphere without first passing through a stack or duct designed to direct or control its flow.”⁴⁶ Fugitive dust has been linked to various issues including aggravated asthma, chronic bronchitis, emphysema, and chronic obstructive pulmonary disease.⁴⁷ Common sources of fugitive dust emissions include unenclosed storage piles, such as those found throughout the Refinery.⁴⁸ Despite including a comment stating “bauxite” in relation to fugitive sources at the Refinery, the Proposed Permit fails to include an

⁴³ LDEQ, Public Comments Response Summary, Gramercy Holdings I, LLC Noranda Alumina (Sept. 8, 2017), at 5, <https://edms.deq.louisiana.gov/app/doc/view?doc=10788725>.

⁴⁴ Atalco, 2023 Annual Feasibility Report, Investigation of Available Means of Further Reducing Mercury Emissions, at 7 (2023), <https://edms.deq.louisiana.gov/app/doc/view?doc=14177616>.

⁴⁵ *Id.*

⁴⁶ EPA, Fugitive Dust Control Measures and Best Practices (Jan. 2022), *available at* <https://www.epa.gov/system/files/documents/2022-02/fugitive-dust-control-best-practices.pdf>.

⁴⁷ *Id.*

⁴⁸ *Id.*

emission limit for mercury at these sources.⁴⁹ This includes FUG 0017 (Digestion Fugitives), which in 2017 Noranda confirmed to be a potential source of mercury emissions.⁵⁰ The Proposed Permit must account for these fugitive emissions.

III. The Proposed Permit must provide for fenceline monitoring to comply with applicable laws and to provide transparency and availability to the public.

The Proposed Permit does not comply with the requirement that the permit contain operational provisions, testing, and monitoring requirements that will assure compliance with the permit's requirements, including emissions limitations. LAC 33:III.517(H)(5)(b); 40 C.F.R. §§ 70.6(a)(1), (c)(1). Additionally, the permitting record fails to contain a sufficient "statement that sets forth the legal and factual basis for the draft permit conditions" justifying the failure to include fenceline monitoring. 40 C.F.R. § 70.7(a)(5).

Fenceline monitoring for PM₁₀ and PM_{2.5} should be required, and monitors must be installed in the surrounding community to track emissions that impact the residents of St. John and St. James Parishes, including Wallace, Mt. Airy, and Gramercy. Furthermore, when monitors show exceedances, systems must be in place to immediately notify the impacted community. The monitoring data is of little use if it is collected by the source and reported to LDEQ a year later and never shared with the impacted communities.

IV. The Proposed Permit must provide monitoring to accurately determine compliance with NAAQS.

In addition to fenceline monitoring, LDEQ must install more air monitors in St. James Parish and St. John Parish so that it may accurately determine whether or not NAAQS violations are occurring. St. James Parish and St. John Parish are designated as "Unclassifiable" for the NAAQS. Clean Air Act §§ 160-169, 42 U.S.C. §§ 7470-7479. An area may be designated as "unclassifiable" if the area cannot be classified on the basis of available information as meeting or not meeting the NAAQS. 42 U.S.C. § 7407(d)(1)(A)(iii). Unclassifiable areas are generally treated as if they were attainment areas. See 42 U.S.C. § 7471.

There are currently no monitors for particulate matter within St. John Parish, and thus, monitoring is wholly inadequate to ensure compliance with these standards. EPA has recommended that LDEQ improve the LDEQ monitoring network to determine whether or not violations of NAAQS are occurring throughout the State, including adding additional monitoring in the areas of modeled violations of the primary annual PM_{2.5} standard in the Mississippi River Corridor.⁵¹ While a new monitor has been installed in St. James Parish, that monitor is over 10 miles from the Refinery and cannot provide information on the PM_{2.5} or other pollutants for people who live in communities near the Refinery. LDEQ's failure to provide a monitoring station in this area is greatly concerning, especially in light of the enormous PM_{2.5} emissions from the Refinery,

⁴⁹ See Altaco Gramercy, LLC / Atlantic Alumina – Gramercy Operations Bauxite Processing, Products and Power Areas Proposed Part 70 Air Operating Permit Renewal and Modification, at 33 (April 30, 2024) ("Inventories"), <https://edms.deq.louisiana.gov/app/doc/view?doc=14258958>.

⁵⁰ Noranda Alumina LLC, Mercury Mass Balance and Noranda Alumina Facility, at 13 of 1216 (May 31, 2016), EDMS No. 10215177, <https://edms.deq.louisiana.gov/app/doc/view?doc=10215177>.

⁵¹ Letter from David Garcia, Director, Air and Radiation Division, Region 6, US EPA, to Jason Meyers, Administrator, Air Planning and Assessment Division, LDEQ 2 (Jan. 24, 2024). <https://edms.deq.louisiana.gov/app/doc/view?doc=14230094>.

the modeled exceedances shown in the Klafka Report, and the need to show the area’s air quality in light of EPA’s lower annual PM_{2.5} NAAQS of 9.0 ug/m³ and the evidence supporting the need for the lower standard to protect human health.⁵²

V. The LDEQ must consider environmental justice in this permitting process.

LDEQ, as an agency that accepts federal funding, must consider environmental justice under Title VI of the Civil Rights Act of 1964, which states that “no person shall, on the ground of race, color, national origin, sex, age or disability be excluded in participation in, be denied the benefits of, or be subjected to discrimination under any program or activity.”⁵³ As a result, LDEQ has an obligation to ensure the fair treatment of communities that have been environmentally impacted by sources of pollution. Environmental justice also requires the fair treatment of these communities in the development and implementation of agency programs and activities, including those related to the Proposed Permit and the applicable requirements it includes.

Under Administrator Michael Regan, EPA has made clear that environmental justice is a top priority and to that end, has considered environmental justice issues when issuing orders in Title V matters.⁵⁴ Other state regulating agencies have considered environmental justice in permitting decisions and similarly responded, as LDEQ must do here in connection with this Proposed Permit.⁵⁵

The Refinery is located in the Mississippi River Corridor. This area of the Mississippi River Corridor was originally named Plantation Country—an area where enslaved Africans were forced to do manual labor. The beginning and end of each plantation was marked by a sharp treeline, and these treelines still exist today. While the plantations are gone, industrial polluters now take their place. This approximately 100-mile stretch of River has now been termed “Cancer Alley” due to the overwhelming carcinogenic pollutants that affect the surrounding parishes.⁵⁶

The history that created Cancer Alley is important to understand the contours of the multi-faceted regulatory problem that exists at this 3,200 acre alumina refinery. Much of Cancer Alley is rural and made of unincorporated communities without local governance—instead, the parish

⁵² Reconsideration of the National Ambient Air Quality Standards for Particulate Matter, 89 Fed. Reg. 16,202, 16,202 (Mar. 6, 2024), <https://www.govinfo.gov/content/pkg/FR-2023-01-27/pdf/2023-00269.pdf>.

⁵³ 42 U.S.C. § 2000d.

⁵⁴ EPA News Release, citing “Administrator Michael Regan, Remarks for White House Environmental Justice Advisory Council (WHEJAC) First Public Meeting, As Prepared for Delivery,” <https://www.epa.gov/speeches/administrator-michael-regan-remarks-white-house-environmental-justice-advisorycouncil> (March 30, 2021).

⁵⁵ See, e.g., State of Oregon Press Release, DEQ Enforcement Finds Owens-Brockway \$1 Million and Requires Facility to Control Pollution, (June 3, 2021) <https://www.oregon.gov/newsroom/pages/NewsDetail.aspx?newsid=63325>; Southern Environmental Law Center Press Release, “Bluestone Coke shuts down, providing relief for surrounding communities,” (Dec. 7, 2021), <https://www.southernenvironment.org/news/bluestone-coke-shuts-down-providingrelief-for-surrounding-communities/>.

⁵⁶ See Kimberly A. Terrell and Gianna St. Julien, *Toxic Air Pollution is Linked to Higher Cancer Rates among Impoverished Communities in Louisiana*, 2022 Environ. Res. Letter. 17 014033 (Jan. 13, 2022), available at <https://law.tulane.edu/sites/default/files/u1286/LTR%20Cancer%20Rates%20v%20Pollution-Related%20Risk%202021-6-21%20rev.%202021-6-23.pdf>.

where the community is located has jurisdiction.⁵⁷ And so the local parish makes decisions on behalf of the communities. These unincorporated communities were created when slavery ended. Groups of free Black and African people formed “companies” and were able to purchase strips of land at the edges of the plantations.⁵⁸ These companies created smaller Black communities between the plantations.⁵⁹

This region accounts for 25% of the nation’s petrochemical production including: 130 plants, refineries, landfills and factories.⁶⁰ Overall the communities in Cancer Alley are made up of 40% Black residents, but some communities are made up more than 90% Black residents.⁶¹ These statistics make clear that these communities are disproportionately affected by industrial pollution.

According to the EPA EJScreen, an environmental justice mapping and screening tool, the air toxics cancer risks is in the 95th to 100th percentile in the area between Baton Rouge and New Orleans, where the Refinery is located.

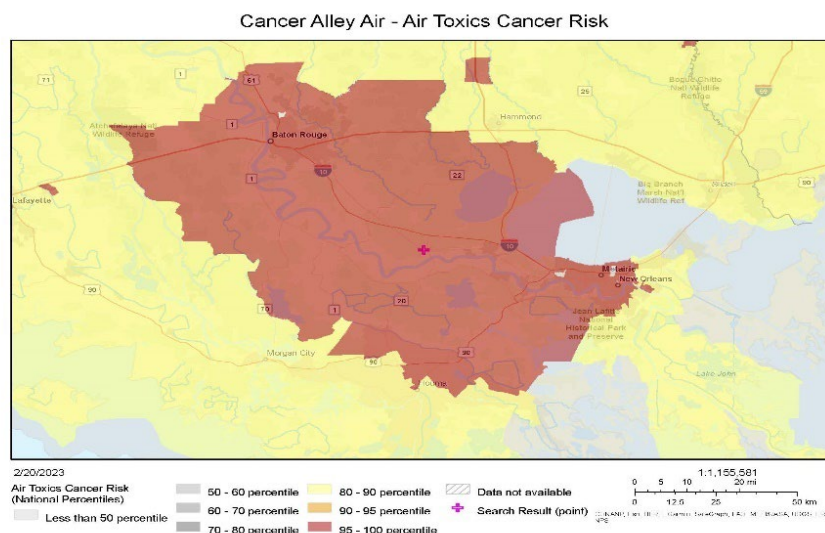


Figure 1: EPA EJScreen of Air Toxics Cancer Risk in Cancer Alley

⁵⁷ Julia Mizutani, *In the Backyard of Segregated Neighborhoods: An Environmental Justice Case Study of Louisiana*, 31 GEO. ENV. L. REV. 363, 373 (2019), available at <https://www.law.georgetown.edu/environmental-law-review/wp-content/uploads/sites/18/2019/04/GT-GELR190004.pdf>.

⁵⁸ *Id.*

⁵⁹ *Id.*

⁶⁰ Wesley, James, Churong Jia and Satish Kedia. *Uneven Magnitude in Cancer Risks from Air Toxics*. International Journal of Environmental Research and Public Health. (Dec. 2012), available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3546767/>.

⁶¹ Bridgett Cecilia McCoy, *Critical Infrastructure Environmental Racism, and Protest: A Case Study in Cancer Alley, Louisiana*, Columbia Human Rights Law Review, Issue 53.2 (2022), available at <https://hrlr.law.columbia.edu/hrlr/critical-infrastructure-environmental-racism-and-protest-a-case-study-in-cancer-alley-louisiana/>

EPA data further confirms that there is a high percentage of people of color within a four-mile radius of the Refinery.

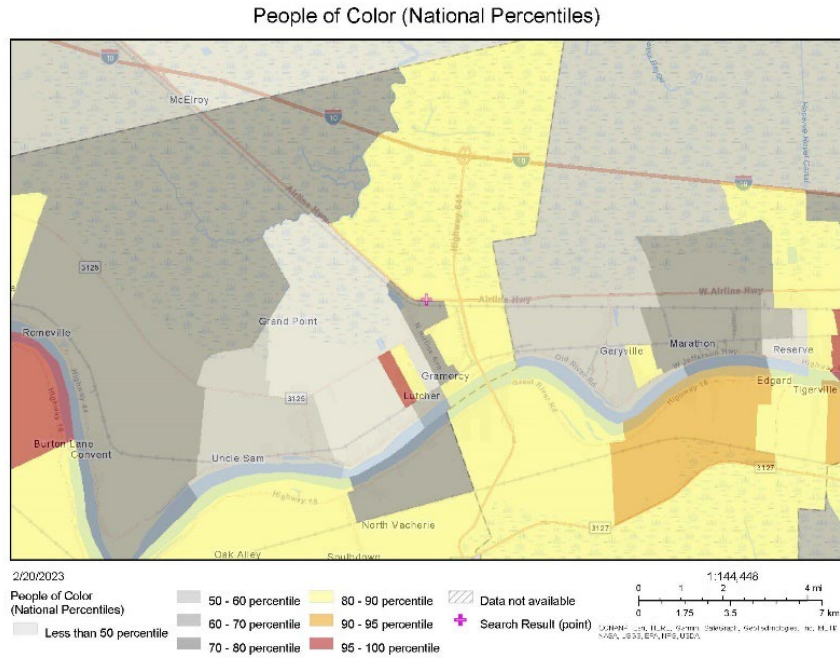


Figure 2: EPA EJScreen – Percentages of People of Color within a 4 mile Radius of the Aluminum Refinery

And finally, in those same areas that show a high air toxics cancer risks and a high percentage of people of color, EPA data shows that a high proportion of health disparities.

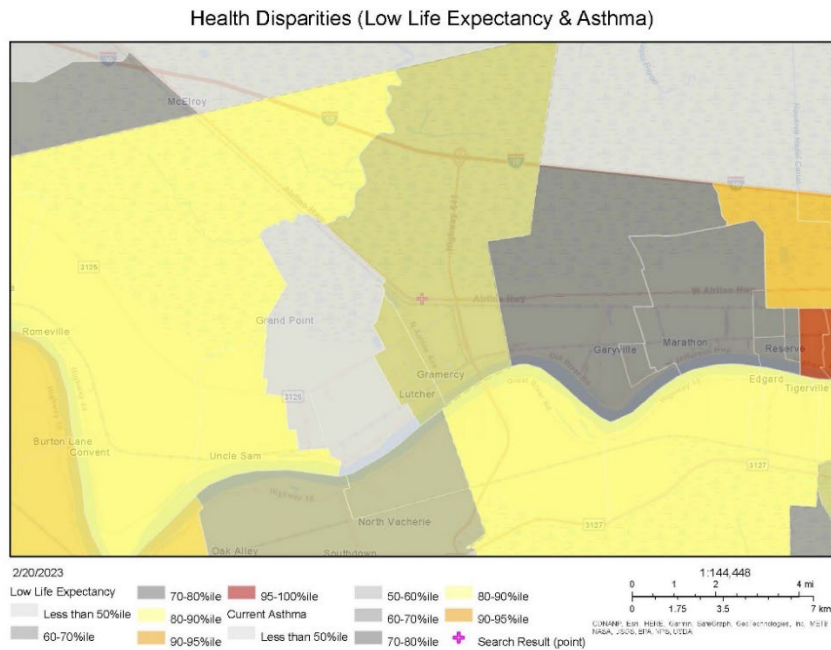


Figure 3: EPA EJScreen – Health Disparities (Low Life Expectancy & Asthma)

LDEQ must conduct a thorough environmental justice analysis as part of its public trust analysis before issuing a final decision on the Proposed Permit.

VI. LDEQ Must Take into Consideration the Dangerous Working Conditions at the Refinery in Making a Final Permitting Decision.

In considering any social or economic benefits derived from job opportunities at the Refinery, LDEQ must consider the dangerous working conditions at the Refinery and the negative impacts to Refinery employees.⁶² Incidents of injuries to workers are common at the facility, including an incident in January of 2024 where five workers were burned by the release of a high pH caustic solution.⁶³ The Refinery has amassed hundreds of violations of the U.S. Mine Safety and Health Administration (MSHA) since January 2020, leading the MSHA to cite Atalco for its “high negligence or reckless disregard.”⁶⁴ Atalco cannot be lauded as a beneficial job provider while simultaneously failing to protect the health and safety of those that it employs.

VII. The LDEQ must conduct a public trustee analysis before making a permit decision.

LDEQ’s proposed action is an agency action that triggers its duty as a public trustee to conduct the required analysis. Indeed, the Louisiana Constitution prohibits LDEQ from issuing the permit without conducting its public trustee review.

The Louisiana Constitution imposes a duty on LDEQ to determine “before granting approval of proposed action affecting the environment, [] that adverse environmental impacts have been minimized or avoided as much as possible consistently with the public welfare.”⁶⁵ LDEQ is “the primary public trustee of natural resources and the environment,” and must “act with diligence, fairness and faithfulness to protect this particular public interest in the resources.”⁶⁶

When issuing permits, LDEQ must meet both technical regulatory requirements and its duty as “public trustee” under Article 9, § 1 of the 1974 Louisiana Constitution to protect the environment “insofar as possible and consistent with the health, safety, and welfare of the

⁶² Mitchell, David J., *Four Workers Injured at Louisiana Plant Cited Last Year for Pattern of Safety Violations*, The Advocate (Jan. 9, 2024), https://www.theadvocate.com/baton_rouge/news/business/four-workers-injured-at-louisiana-plant-with-safety-history/article_c86ce6de-ae5c-11ee-91d3-ef259de2e162.html.

⁶³ *Id.*

⁶⁴ Mitchell, David J., *106 Serious Safety Violations in a Year: Louisiana Plant Could have Workers Pulled Off Job*, The Advocate (July 12, 2023), https://www.theadvocate.com/baton_rouge/news/business/agency-cracks-down-on-st-james-plant-over-safety-problems/article_a6b4f64e-20c2-11ee-9159-4741e6c97aee.html; see also Mitchell, David J., *2 Years, 370 Safety Violations: Feds Cite Louisiana Plant for Caustic Spills, Other Damages*, The Advocate (Mar. 28, 2023), https://www.theadvocate.com/baton_rouge/news/gramercy-plant-has-had-370-safety-violations-since-mid-2021/article_24b0fda2-cd96-11ed-ac24-e3a42c8050ba.html.

⁶⁵ *Save Ourselves v. La. Envtl. Control Comm’n*, 452 So.2d 1152, 1158 (La. 1984).

⁶⁶ *Id.*

people.”⁶⁷ The Supreme Court interpreted Article 9, § 1 as requiring LDEQ “to determine that adverse environmental impacts have been minimized or avoided as much as possible consistently with the public welfare” “before granting approval of proposed action affecting the environment.”⁶⁸ To make this determination, the First Circuit mandates that LDEQ must issue a written permit decision that satisfactorily answers whether: (1) the potential and real adverse environmental effects of the proposed project have been avoided to the maximum extent possible; (2) a cost-benefit analysis of the environmental impact costs balanced against the social and economic benefits of the project demonstrate that the latter outweighs the former; and (3) there are no alternative projects or alternative sites or mitigating measures which would offer more protection to the environment than the proposed project without unduly curtailing non-environmental benefits to the extent applicable.⁶⁹

As the Supreme Court stressed, the agency’s “role as the representative of the public interest does not permit it to act as an umpire passively calling balls and strikes for adversaries appearing before it; the rights of the public must receive active and affirmative protection.”⁷⁰ Indeed, as public trustee, “the LDEQ is duty-bound to demonstrate that it has properly exercised the discretion vested in it by making basic findings supported by evidence and ultimate findings that flow rationally from the basic findings; and it must articulate a rational connection between the facts found and the order, or in this case, the permit issued.”⁷¹ “Only by detailing its reasoning does the DEQ uphold its position as public trustee and justify the discretion with which it is entrusted by constitutional and statutory authority in a contested environmental matter.”⁷² Where LDEQ’s decision “was reached procedurally, without individualized consideration and balancing of environmental factors conducted fairly and in good faith, it is the court’s responsibility to reverse.”⁷³

Here, LDEQ must consider the injury and threat of injury to human health, the environment, and the economic interests of the residents of the area in conducting a fair and good faith consideration of the environmental impact costs against the social and economic benefits. The environmental impacts from the Refinery are great and all must be considered by LDEQ in fulfillment of its duty under the public trust doctrine. LDEQ cannot escape its duty to manage resources for the benefit and use of the public by passing along environmental risks to the residents of the State.

CONCLUSION

For the foregoing reasons, LDEQ should deny the permit, require additional information from the applicant, and later, after full consideration of that information, issue a revised draft

⁶⁷ La. Const. Art. 9, § 1; *see also* La. R.S. 30:2014(A)(4) (“[LDEQ] shall consider and follow the will and intent of the Louisiana Constitution and Louisiana statutory law in making any determination relative to the granting or denying of permits.”).

⁶⁸ *Save Ourselves, Inc. v. Louisiana Env'tl. Control Comm'n*, 452 So. 2d 1152, 1157 (emphasis added).

⁶⁹ *In re General Permit for Discharges from Oil & Gas Exploration, Development, & Production Facilities*, 2010-1640, p. 4 (La. App. 1 Cir. 6/10/11) (emphasis added); 70 So. 3d 101, 104.

⁷⁰ *Save Ourselves*, 452 So. 2d at 1157 (emphasis added).

⁷¹ *In re General Permit*, 2010-1640, p. 4 (La. App. 1 Cir. 6/10/11); 70 So. 3d at 104 (emphasis added).

⁷² *In re: American Waste and Pollution Control Co.*, 93-3163 (La. 9/15/94); 642 So.2d 1258, 1266.

⁷³ *Save Ourselves*, 452 So. 2d at 1159.

permit that contains effective, stringent protections for the surrounding community in accordance with these comments.

Respectfully submitted this 6th day of June, 2024,

*On behalf of the Sierra Club, The Descendants Project, and
Inclusive Louisiana*

EARTHJUSTICE



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Attachments

Cc: with Attachments

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Jeffrey Robinson, Branch Chief, Air Permits, Monitoring & Grants, EPA Region 6

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David Garcia, P.E. Director, Air and Radiation Division, EPA Region 6 Garcia.David@epa.gov

LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY

Proposed Part 70 Air Operating Permit Renewal and Modification No. 2453-V14 for
Bauxite Processing, Products, and Power Areas at
Atalco Gramercy, LLC Atlantic Alumina – Gramercy Operations
1111 E. Airline Hwy, Gramercy, LA 70052
St. James Parish and St. John the Baptist Parish

AFFIDAVIT OF STEVEN KLAFKA

I, Steven Klafka, state:

1. I have personal knowledge of the statements made herein.
2. I am a licensed professional engineer (PE) and board certified environmental engineer (BCEE).
3. I am a consultant in the field of environmental engineering and air pollution control and compliance, and have approximately 44 years of experience in interpreting and implementing the 1970 Clean Air Act and subsequent amendments, including air dispersion modeling (ISCST3, AERMOD, and CALPUFF). I began as an environmental engineer for the Wisconsin Department of Natural Resources, responsible for reviewing air permit applications, and then have spent more than 35 years as a consultant specializing in air permitting work. I founded and have been President of my own consulting firm, Wingra Engineering since 1991.
4. Attachment A hereto is a true and accurate copy of my curriculum vitae.
5. I have been asked by attorneys at Earthjustice, on behalf of their clients, to express my expert opinions concerning emissions of air pollutants from Atalco Gramercy, LLC, Atlantic Alumina – Gramercy Operations (“Atalco”) alumina refinery located in St. James and St. John Parishes. In particular, I am providing opinions concerning air modeling showing whether the air surrounding the Atalco facility complies with the National Ambient Air Quality Standards (“NAAQS”) for fine particulate matter (“PM_{2.5}”).
6. To do this, I reviewed Atalco’s application for renewal and revision of Part 70 Air Operating Permit No. 2453-V13 for the facility’s Bauxite Processing, Products, and Power Areas, which the company filed with the Louisiana Department of Environmental Quality (“LDEQ”) on March 3, 2022. I also reviewed the RTP Environmental Associates report dated September 14, 2009, *Air Dispersion Modeling Report in Support of Renewal and Revision of Permit No. 2387-V0 Agency Interest No. 1388*. I also obtained the underlying air quality modeling files that Atalco submitted to LDEQ, and these are the files that I used to conduct further air dispersion modeling.

7. Through my education, training and experience, and using the relevant documents and modeling files described in paragraph 6, I have conducted air dispersion modeling using AERMOD and formed opinions regarding the emissions authorized in the Proposed Part 70 Air Operating Permit Renewal and Modification No. 2453-V14 for compliance with the NAAQS for PM_{2.5}.
8. Attachment B to this affidavit is a true and correct copy of my report explaining the methods I used and opinions I formed concerning this air dispersion modeling.

I hereby certify under penalties of perjury that the foregoing representations are true to the best of my knowledge.

Steven Klafka Date June 5, 2024
Steven Klafka

State of Wisconsin

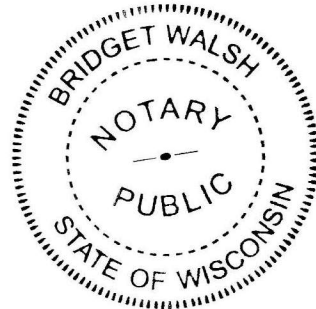
County of Dane

Sworn to and subscribed before me on June 5, 2024
Date

by Bridget Walsh
Notary Public (print)

Bridget Walsh
Signature of Notary Public

My commission expires April 3, 2028



CURRICULUM VITAE OF STEVEN KLAFKA, P.E., BCEE

Experience With Current Firm

President/Environmental Engineering Consultant Wingra Engineering, S.C., Madison, Wisconsin (1991 to Present)

- Conducts environmental engineering projects related to air pollution control, hazardous waste management, compliance with regulations, and environmental impact studies. Formed Wingra Engineering in 1991.
- Provides environmental and regulatory consulting services for a diverse range of clients including manufacturing plants, electrical utilities, environmental advocacy groups, law firms and individuals.
- Worked for a wide range of industrial operations including foundries, glass manufacture, painting, coating, mineral quarries, lime manufacturing, coal handling, chemical manufacture, and electrical utilities.
- Completed projects in numerous states including Wisconsin, Minnesota, Iowa, Illinois, Ohio, Virginia, North Carolina, Tennessee, Oklahoma, Texas, Colorado, California, Oregon, and Washington.
- Services provided to clients include preparation of permit applications; dispersion modeling; risk assessment; environmental impact analysis; regulatory training; expert witness services; compliance inspections and audits; reporting and recordkeeping development; testing programs; air pollution control system design and selection; and air quality monitoring systems.
- Significant projects include preparation of permit applications for major air pollution sources located near Class I national parks and wilderness areas; evaluation of cumulative air toxic risk from manufacturing plants; dispersion modeling analysis for over 200 coal-fired generating stations to determine compliance with air quality standards; and, expert witness services for litigation regarding air pollution control, dispersion modeling and emission control methods.

Past Experience

Associate/Senior Environmental Engineer Dames & Moore Consultants, Madison, Wisconsin (1988-1991)

- Conducted environmental audits and analyses to verify compliance with local air pollution control regulations at manufacturing facilities throughout the U.S., as well as Canada, India, Singapore and Taiwan.
- Managed and developed multi-disciplinary environmental impact studies for a wide variety of projects including utility turbine generating stations, a biomedical waste disposal facility, and a flat glass manufacturing facility.

Environmental Engineer, Wisconsin Department of Natural Resources Bureau of Air Management, Madison, Wisconsin (1981-1988)

- Evaluated air pollution control permit applications for diverse range of air pollution sources. Duties included estimation of air pollution emissions, verification of compliance with applicable regulations and policies, and use of computer dispersion models to predict air quality impacts and determine health risks.
- Developed the air pollution control permit application forms used by the agency.
- Assisted in the development of the Wisconsin state policy for the control of hazardous air pollutant emissions.

Academic B.S., Mechanical Engineering, University of Wisconsin, Madison, Wisconsin (1980).

Background M.S., Civil & Environmental Engineering, University of Wisconsin (1994).

Professional Affiliations Air and Waste Management Association, Past Chair for Wisconsin Chapter
American Academy of Environmental Engineers

CURRICULUM VITAE OF STEVEN KLAFKA, P.E., BCEE

Registration Registered Professional Engineer
Wisconsin (#E-24305), Illinois (#062-045104) and North Carolina (PE #023787)

Professional Honors Certified by the American Academy of Environmental Engineers
Designated Board Certified Environmental Engineer (BCEE) in 2002.

Publications

"Recent Air Pollution Control and Permit Experience in the Lime Industry", Annual Meeting of the Air & Waste Management Association, Pittsburgh, Pennsylvania, 2007.

"Evaluation of Cumulative Risk from an Iron Foundry", Annual Meeting of the Air & Waste Management Association, New Orleans, Louisiana, 2006.

"The Challenge of Air Quality Permit Approval for a Glass Plant near Mount Rainier and Olympic National Parks", Annual Meeting of the Air & Waste Management Association, New Orleans, Louisiana, 2006.

"New Source MACT and Residual Risk at an Iron Foundry", Presented at the Annual Meeting of the Air & Waste Management Association, San Diego, California, 2003.

"Influence of Emission Estimates on a BACT Determination for Iron Foundry Core Making Operations", Annual Meeting of the Air & Waste Management Association, Baltimore, Maryland, 2002.

"Challenging a Title V Operation Permit with the Part 70(8) Petition Process: An Aluminum Foundry Case Study", Annual Meeting of the Air & Waste Management Association, Baltimore, Maryland, 2002.

"Evaluating Local Impacts of a Utility SCR Retrofit Project", Annual Meeting of the Air & Waste Management Association, Baltimore, Maryland, 2002.

"Using a Flexible Compliance Strategy to Issue a Title V Operation Permit", Annual Meeting of the Air & Waste Management Association, Baltimore, Maryland, 2002.

"Evaluation of Gas Turbine Air Quality Impacts from a Community Perspective", Electric Utilities Environmental Conference, Tucson, Arizona, January 2002.

"Recent New Source MACT Determinations and Air Quality Compliance Experience in the Iron Foundry Industry", Annual Meeting of the Air & Waste Management Association, Orlando, Florida, 2001.

"Complexities of Air Quality Permit Issuance for an Iron Foundry near Great Smoky Mountains National Park", Annual Meeting of the Air & Waste Management Association, Orlando, Florida, 2001.

"Air Quality Permit Issuance and Varying Interpretations of BACT in the Flat Glass Industry", Annual Meeting of the Air & Waste Management Association, Orlando, Florida, 2001.

"Evaluation of Gas Turbine Air Quality Impacts from a Community Perspective", Annual Meeting of the Air & Waste Management Association, Orlando, Florida, 2001.

"Benzene Emissions and Exposure - Targeting Sources for the Greatest Benefit", Annual Meeting of the Air & Waste Management Association, Orlando, Florida, 2001.

"Measurement of Organic Air Toxics at Iron Foundries", Annual Meeting of the Air & Waste Management Association, San Antonio, Texas, 1995.

"Air Toxics Emission from Two Wood and RDF-Fired Fluidized Bed Combustors", Annual Meeting of the Air & Waste Management Association, Cincinnati, Ohio, 1994.

"Recent Air Quality Compliance Experience at Wisconsin Gray and Ductile Iron Foundries", Annual Meeting of the Air & Waste Management Association, Cincinnati, Ohio, 1994.

"Composition of VOC Emissions from the Sycamore Landfill", Annual Meeting of the Air & Waste Management Association, Cincinnati, Ohio, 1994.

"Sulfur Dioxide Control in a Rotary Lime Kiln", Annual Meeting of the Air & Waste Management Association, Denver, Colorado, 1993.

"Air Toxics Control Alternatives for Iron Foundry Pouring, Cooling and Shakeout Operations", Annual Meeting of the Air & Waste Management Association, Kansas City, Missouri, 1992.

(10/23)

Atalco Gramercy LLC - Atlantic Alumina
Evaluation of Compliance with NAAQS for PM_{2.5}

June 3, 2024

Introduction and Background

The Louisiana Department of Environmental Quality, Office of Environmental Services (“LDEQ”) is accepting comments on a Proposed Part 70 Air Operating Permit Renewal and Modification No. 2453-V14 (“Proposed Permit”) for Atalco Gramercy LLC, Atlantic Alumina – Gramercy Operations (“Atlantic Alumina” or “facility”) for its Bauxite Processing, Products, and Power Areas. The facility is located in Gramercy at 1111 E. Airline Hwy, and the full plant site straddles St. James Parish and St. John the Baptist Parish. Other nearby communities include Mt. Airy, Garyville, Wallace, and Lutcher.

Earthjustice engaged Steven Klafka, P.E., BCEE, of Wingra Engineering to evaluate Atlantic Alumina’s compliance with the National Ambient Air Quality Standards (“NAAQS”) for PM_{2.5}.

On March 3, 2022, Atlantic Alumina applied for renewal and revision of its Part 70 Permit for its Bauxite Processing, Products, and Power Areas No. 2453-V13 (“Application”) for which LDEQ has now issued the Proposed Permit.¹ According to LDEQ records, neither Atlantic Alumina nor any of its predecessors have conducted any dispersion modeling for the facility’s emissions of fine particulate matter (“PM_{2.5}”). Instead, LDEQ records show that modeling was only performed for coarse particulate matter (“PM₁₀”) as summarized in a report dated September 14, 2009, by RTP Environmental Associates, *Air Dispersion Modeling Report in Support of Renewal and Revision of Permit No. 2387-V0 Agency Interest No. 1388* (“2009 RTP Report”).² LDEQ had requested that Gramercy Alumina LLC, the then-owner of the facility, conduct an air quality analysis of its total facility emissions of PM₁₀ for comparison to the NAAQS in support of its request for renewal and revision of their Part 70 operation permit (i.e., Permit No. 2387-V0). For the current Application, Atlantic Alumina did not update its analysis for PM₁₀, but instead summarized the results of the outdated PM₁₀ dispersion modeling from the 2009 RTP Report.³ Atlantic Alumina did not provide any analysis for PM_{2.5} to support its current Application⁴ even though PM_{2.5} is

¹ Application for Renewal and Revision, Part 70 Permit No. 2453-V13, Atalco Gramercy, LLC – Atlantic Alumina, Vol. 1 (Mar. 3, 2022), LDEQ EDMS Database, Doc ID 13178670, <https://edms.deq.louisiana.gov/app/doc/view?doc=13178670>; Application for Renewal and Revision, Part 70 Permit No. 2453-V13, Atalco Gramercy, LLC – Atlantic Alumina, Vol. 2 (Mar. 3, 2022), LDEQ EDMS Database, Doc ID 13179030, <https://edms.deq.louisiana.gov/app/doc/view?doc=13179030>.

² LDEQ EDMS Database, Doc ID, 6052701, <https://edms.deq.louisiana.gov/app/doc/view?doc=6052701>.

³ See Application for Renewal and Revision, Part 70 Permit No. 2453-V13, Atalco Gramercy, LLC – Atlantic Alumina, Vol. 1 (Mar. 3, 2022), Application Form, Item 18, LDEQ EDMS Database, Doc ID 13178670, pdf. p. 22 of 469, <https://edms.deq.louisiana.gov/app/doc/view?doc=13178670>.

⁴ See Application for Renewal and Revision, Part 70 Permit No. 2453-V13, Atalco Gramercy, LLC – Atlantic Alumina, Vol. 1 (Mar. 3, 2022), Application Form, Item 18, LDEQ EDMS Database, Doc ID 13178670, pdf. p. 22 of 469, <https://edms.deq.louisiana.gov/app/doc/view?doc=13178670>.

considered more harmful to human health than PM₁₀ and has more stringent standards.⁵ The NAAQS for PM₁₀ is set at 150 µg/m³ averaged over a 24-hour period, while the NAAQS for PM_{2.5} is set at 35 µg/m³ averaged over a 24-hour period, and 9 µg/m³ for an annual average.⁶

Wingra Engineering's Modeling Procedures

Wingra Engineering (Wingra) has updated the prior PM₁₀ modeling analysis in the 2009 RTP Report to evaluate Atlantic Alumina's PM_{2.5} emissions for NAAQS compliance using updated versions of the AERMOD modeling system and meteorological data for the 2018 to 2022 period.

The 2009 RTP Report used meteorological data from the New Orleans International Airport (NWS station 12916) and Upper Air data from Slidell, Louisiana (NWS station 53813) for the period from 2003 through 2007. The analysis included potential to emit ("PTE") or allowable emissions from on-site sources. It included off-site sources located within the Radius of Impact or ROI of 3 km plus 50 km of the Atlantic Alumina facility, though it is not clear if actual or allowable emissions were used. The analysis included approximately 136 on-site sources and 2,592 off-site sources. Point, area and volume source types were used. The 2009 analysis predicted that the highest 24-hour average off property modeled concentration of PM₁₀ was 128.28 µg/m³.

Wingra's updated modeling analysis for particulate emissions has been repeated with the following changes:

1. Rather than evaluate compliance with the lower and less protective NAAQS for PM₁₀, compliance is evaluated with the current and more protective NAAQS for PM_{2.5}.⁷ The 24-hour average NAAQS for PM_{2.5} is 35 µg/m³ and the annual average NAAQS is 9 µg/m³.
2. The predicted impacts of sources in the region were added to suitable background concentrations. These were based on the lowest monitored design values in Louisiana. For the 24-hour averaging period, the background is 16.0 µg/m³. This concentration is based on the design value for the 2019-21 period at the Kenner ambient monitoring station located in Jefferson Parish in New Orleans, Site #220511001, consistent with the location used in the 2009 report.
3. For the annual averaging period the design value is 7.1 µg/m³. This concentration is based on the design value for the 2019-21 period at the Vinton ambient monitoring station located in Calcasieu Parish in Lake Charles, Site #220190009, consistent with the location used in the 2009 report.
4. Off-site and on-site sources of PM_{2.5} and their stack parameters were obtained by downloading a more recent inventory of actual emissions (i.e., 2021 reporting year) from the LDEQ's ERIC database.⁸ This provided actual emissions and stack parameters for all sources within a 50 km radius around the center of the facility.

⁵ U.S. EPA, <https://www.epa.gov/pm-pollution/particulate-matter-pm-basics>.

⁶ U.S. EPA, <https://www.epa.gov/criteria-air-pollutants/naqs-table>.

⁷ U.S. EPA, <https://www.epa.gov/criteria-air-pollutants/naqs-table>.

⁸ LDEQ, <https://www.deq.louisiana.gov/page/eric-public-reports>.

5. Actual emissions from on-site sources of PM_{2.5} were compared with the allowable emissions proposed in the Application.⁹ Wingra used the higher emission rates of the two for the updated analysis. There were 116 on-site sources identified from this analysis.
6. Off-site sources were modeled using their actual emissions from the 2021 inventory. There were 2,286 off-sites sources identified from this analysis.
7. The receptor grid was updated to include 100-meter spacing out to 5 km, 500-meter spacing out to 10 km, and 1,000-meter spacing out to 50 km. No receptors were placed on the facility property.

Modeling Results for PM_{2.5}

Table 1 summarizes Wingra’s modeling results for PM_{2.5}. Exceedances of both the 24-hour and annual average NAAQS were predicted. The highest concentrations were predicted to occur on the northeastern boundary of the Atlantic Alumina’s property.

Table 1 - Comparison of PM_{2.5} Modeling Results with NAAQS

Averaging Period	NAAQS Format	Maximum Impact (µg/m ³)	Background (µg/m ³)	Total Concentration (µg/m ³)	PM2.5 NAAQS (µg/m ³)	Standard Exceeded?
24-hour	5-Yr Average 8th High Day	4,673.1	16.0	4,689.1	35	Yes
Annual	5-Yr Average Year	714.6	7.1	721.7	9	Yes

Figure 1 shows the 24-hour average PM_{2.5} results for the entire modeling domain extending 50 km from Atlantic Alumina. Predicted exceedances of the 24-hour average NAAQS for PM_{2.5} of 35 µg/m³ surround the Atlantic Alumina facility. There are 5 additional areas of exceedances within the region farther away from the facility.

Figure 2 shows a close-up of the concentrations which exceed the 24-hour average NAAQS of 35 µg/m³ around the facility. The greatest width of predicted NAAQS exceedances around the facility is 14.7 km.

The blue cross hatches in Figures 1 and 2 represent point sources and dotted red lines are boundaries of area sources. Color-coded concentration contours or isopleths are used to identify areas where exceedances of the NAAQS are predicted to occur. All colored areas represent predicted NAAQS exceedances when the background concentration of 16.0 µg/m³ is included. The red area represents the lowest concentration contour, which begins at 19.0 µg/m³ so that when combined with the background,

⁹ See Application for Renewal and Revision, Part 70 Permit No. 2453-V13, Atalco Gramercy, LLC – Atlantic Alumina, Vol. 1 (Mar. 3, 2022), Emission Inventory Questionnaire for Air Pollutants, LDEQ EDMS Database, Doc ID 13178670, pdf. pp. 300-469, <https://edms.deq.louisiana.gov/app/doc/view?doc=13178670>; *Id.* at Vol. 2, Air Emission Calc. Sheets, LDEQ EDMS Database, Doc ID 13179030, <https://edms.deq.louisiana.gov/app/doc/view?doc=13179030>.

the total concentration matches the NAAQS of $35 \mu\text{g}/\text{m}^3$. The orange area begins at $40 \mu\text{g}/\text{m}^3$ so that when combined with the background concentration the total is $56.0 \mu\text{g}/\text{m}^3$. The yellow area (the highest concentration contour) begins at $60 \mu\text{g}/\text{m}^3$ so when combined with the background concentration the total is $76.0 \mu\text{g}/\text{m}^3$, or more than two times the NAAQS.

Figure 3 presents the predicted 24-hour average $\text{PM}_{2.5}$ impacts overlaid on aerial photographs from Google Earth satellite images to better illustrate the populated communities around the facility that are exposed to the elevated 24-hour average $\text{PM}_{2.5}$ concentrations. These communities include Gramercy, Lutcher, Wallace, Mt. Airy, and Garyville. Figure 3 uses color-coded contour lines instead of colored areas representing the starting concentration for the areas inside the lines.

Figures 4-6 provide a close-up view of the 24-hour average $\text{PM}_{2.5}$ impacts for each of these communities.

Figure 7 shows 24-hour average $\text{PM}_{2.5}$ modeling results for Atlantic Alumina's emissions only, without any offsite sources or background emissions.

Figure 8 shows the annual average $\text{PM}_{2.5}$ results for the entire modeling domain extending 50 km from Atlantic Alumina. Figure 8 shows predicted exceedances of the annual average for $\text{PM}_{2.5}$ of $9 \mu\text{g}/\text{m}^3$ surrounding the Atlantic Alumina facility, with at least 10 additional areas of exceedances within the region farther away from the facility.

Figure 9 shows a close-up of the concentrations which exceed the annual average NAAQS of $9 \mu\text{g}/\text{m}^3$ around the Atlantic Alumina facility. The greatest width of predicted NAAQS exceedances around the facility is 6.5 km.

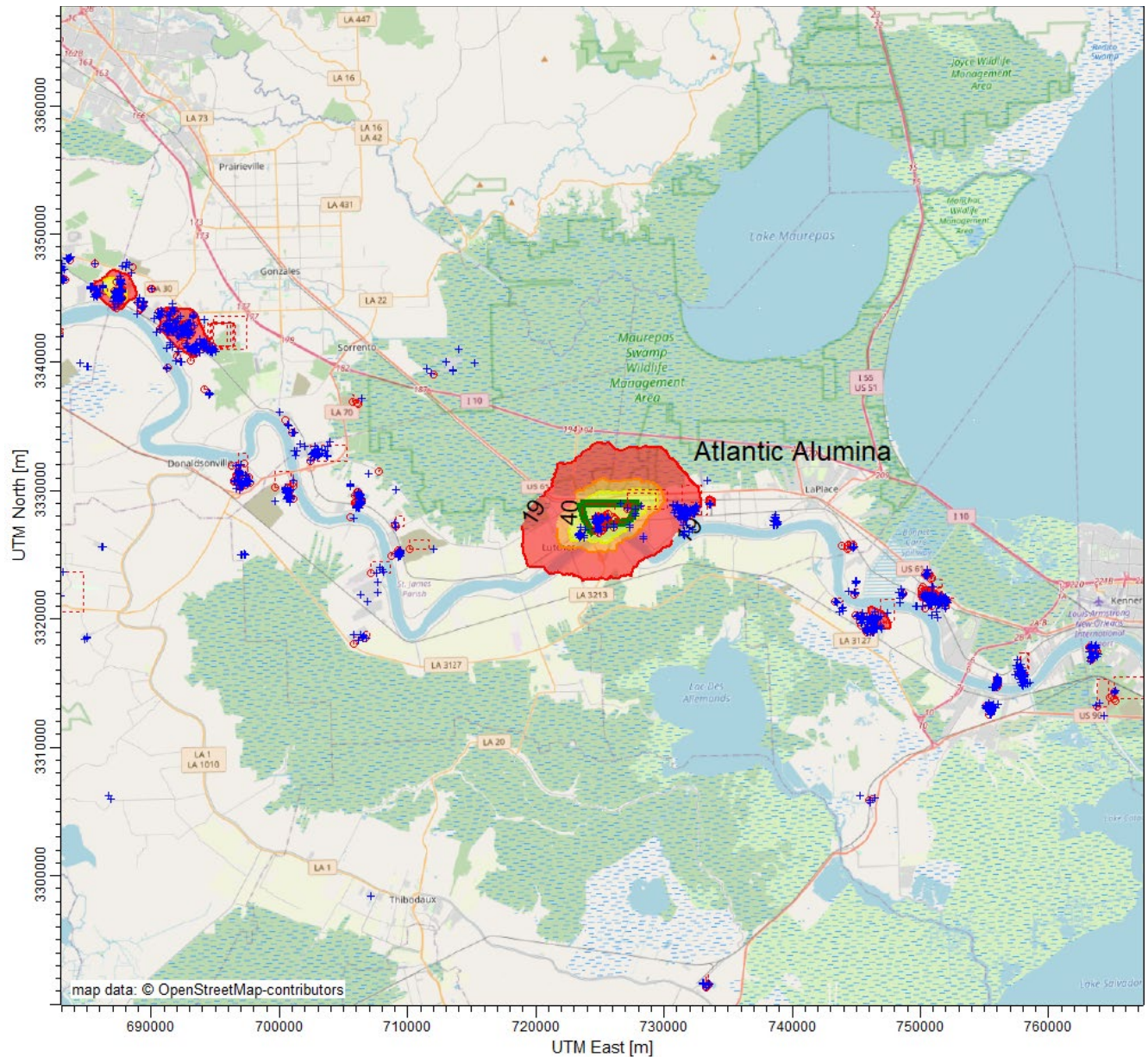
The blue cross hatches in Figures 8 and 9 represent point sources and dotted red lines are boundaries of area sources. Color-coded concentration contours or isopleths are used to identify areas where exceedances of the NAAQS are predicted to occur. All colored contour areas represent predicted NAAQS exceedances when the background concentration of $7.1 \mu\text{g}/\text{m}^3$ is included. The red area represents the lowest concentration contour, which begins at $1.9 \mu\text{g}/\text{m}^3$ so that when combined with the background, the total concentration matches the current annual average NAAQS of $9 \mu\text{g}/\text{m}^3$. The yellow area represents the highest concentration contour, which begins at $10 \mu\text{g}/\text{m}^3$, so that when combined with the background, the total concentration is $17.1 \mu\text{g}/\text{m}^3$.

The orange isopleth of $4.9 \mu\text{g}/\text{m}^3$ in Figures 8 and 9 has been included to illustrate the area which exceeds the former NAAQS of $12 \mu\text{g}/\text{m}^3$.

Figures 10-12 presents the predicted annual average $\text{PM}_{2.5}$ impacts overlaid on close-up aerial photographs from Google Earth satellite images to better illustrate the elevated annual average $\text{PM}_{2.5}$ concentrations in Gramercy, Lutcher, Wallace, Mt. Airy, and Garyville using color-coded contour lines instead of colored areas representing the starting concentration for the areas inside the lines.

Figure 13 shows the annual average $\text{PM}_{2.5}$ modeling results for Atlantic Alumina's emissions only, without any offsite sources or background emissions.

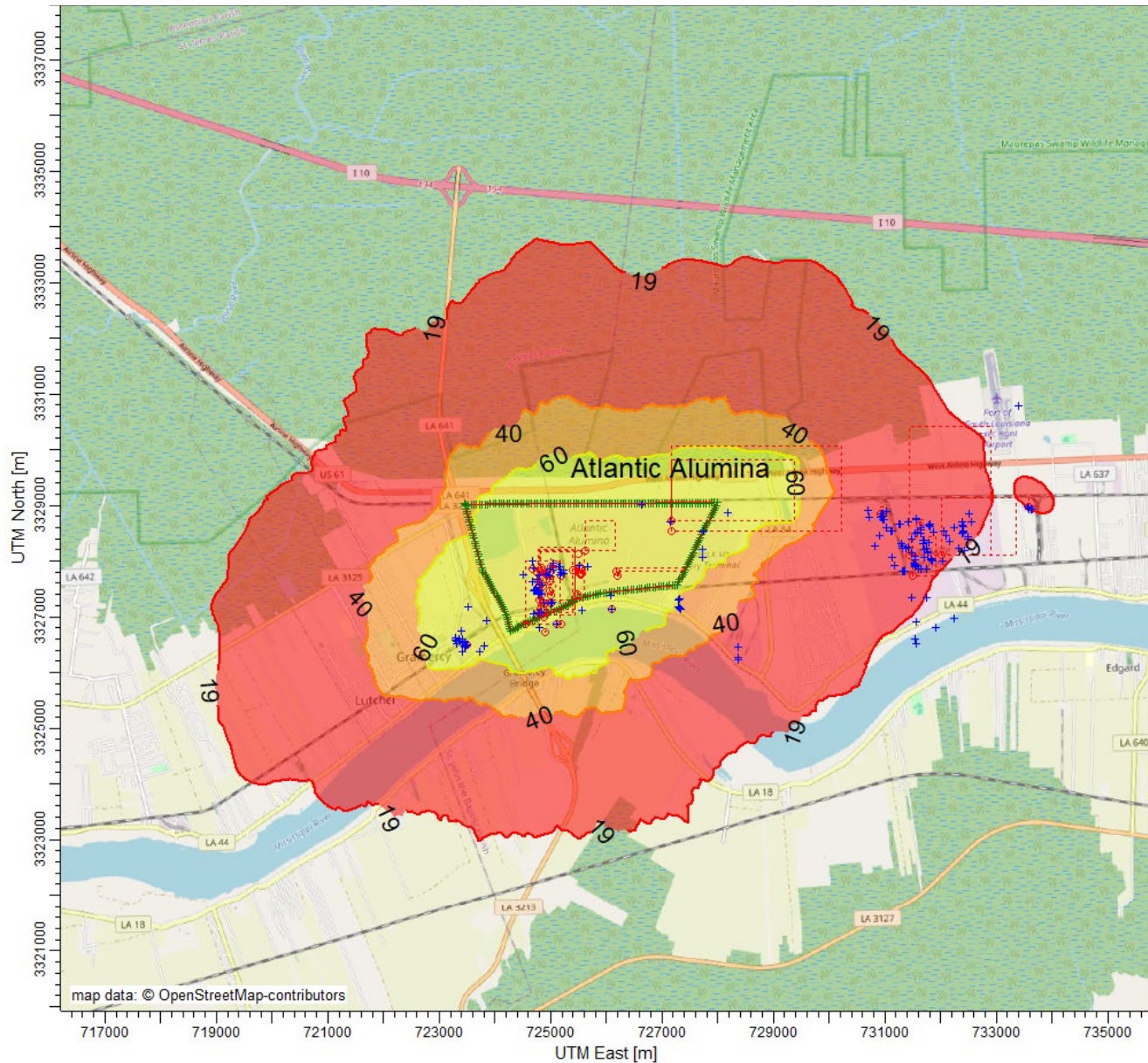
To remedy the predicted exceedances, the impact of each emission source needs to be determined and Atlantic Alumina must make improvements to lower the impacts.



Maximum PM_{2.5} Concentrations (ug per cubic meter) - Colored areas exceed NAAQS



Figure 1: 24-HOUR AVERAGE PM_{2.5} Modeling Results for Entire Modeling Domain.



Maximum PM_{2.5} Concentrations (ug per cubic meter) - Colored areas exceed NAAQS



Figure 2: 24-HOUR AVERAGE PM_{2.5} Modeling Results Near Atlantic Alumina.

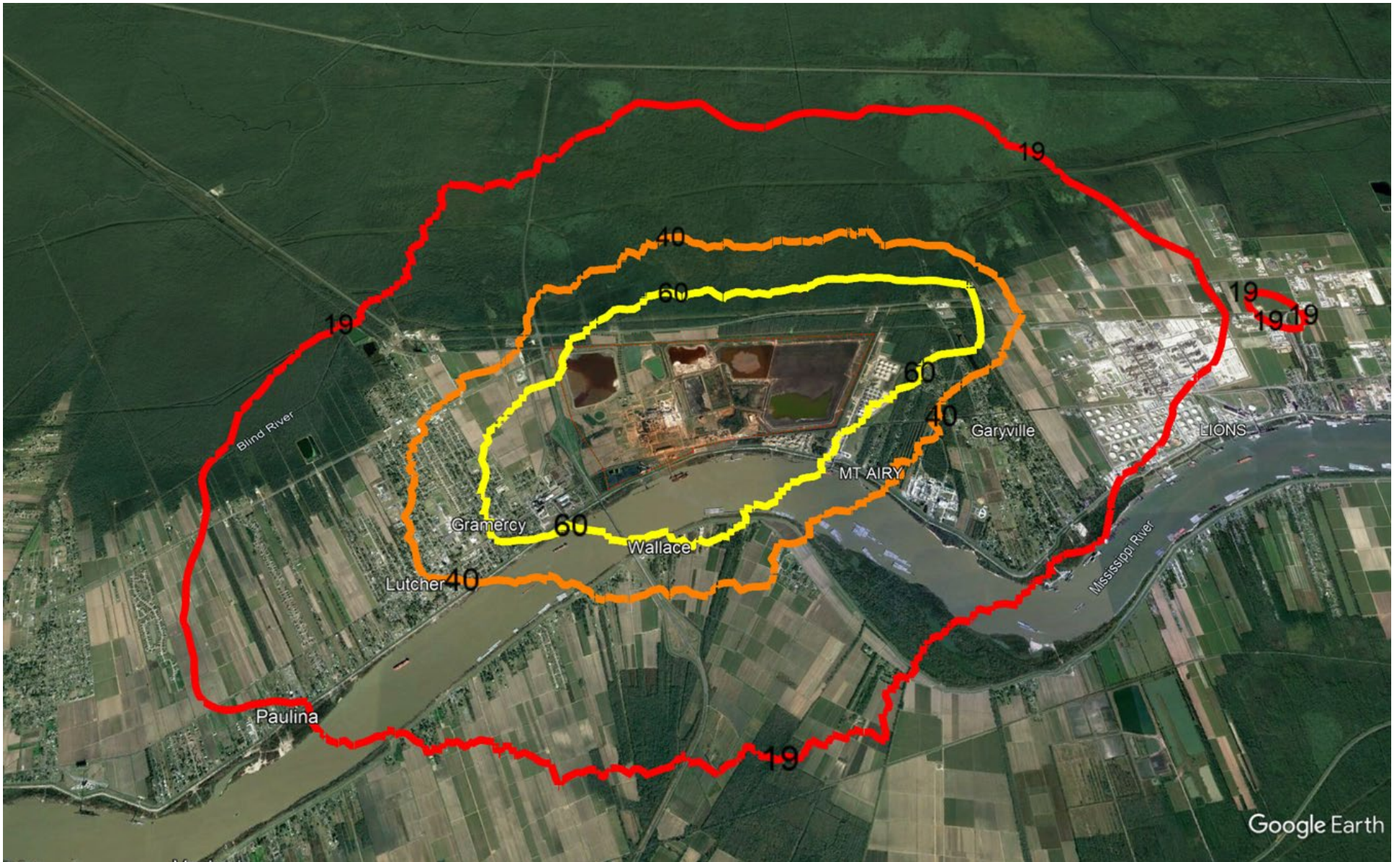


Figure 3: 24-HOUR AVERAGE PM_{2.5} Modeling Results over Google Satellite Image Showing Atlantic Alumina and Surrounding Area.

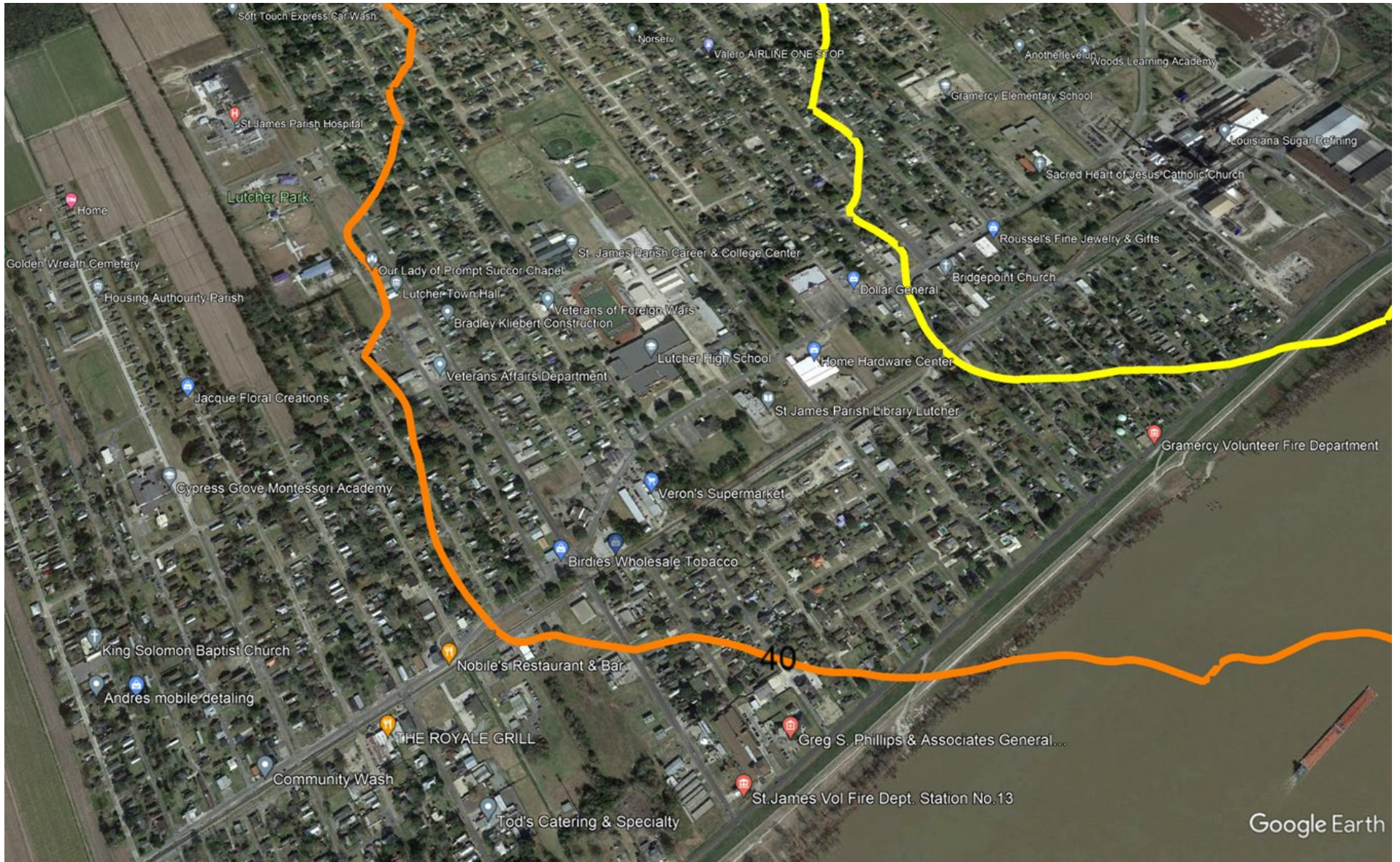


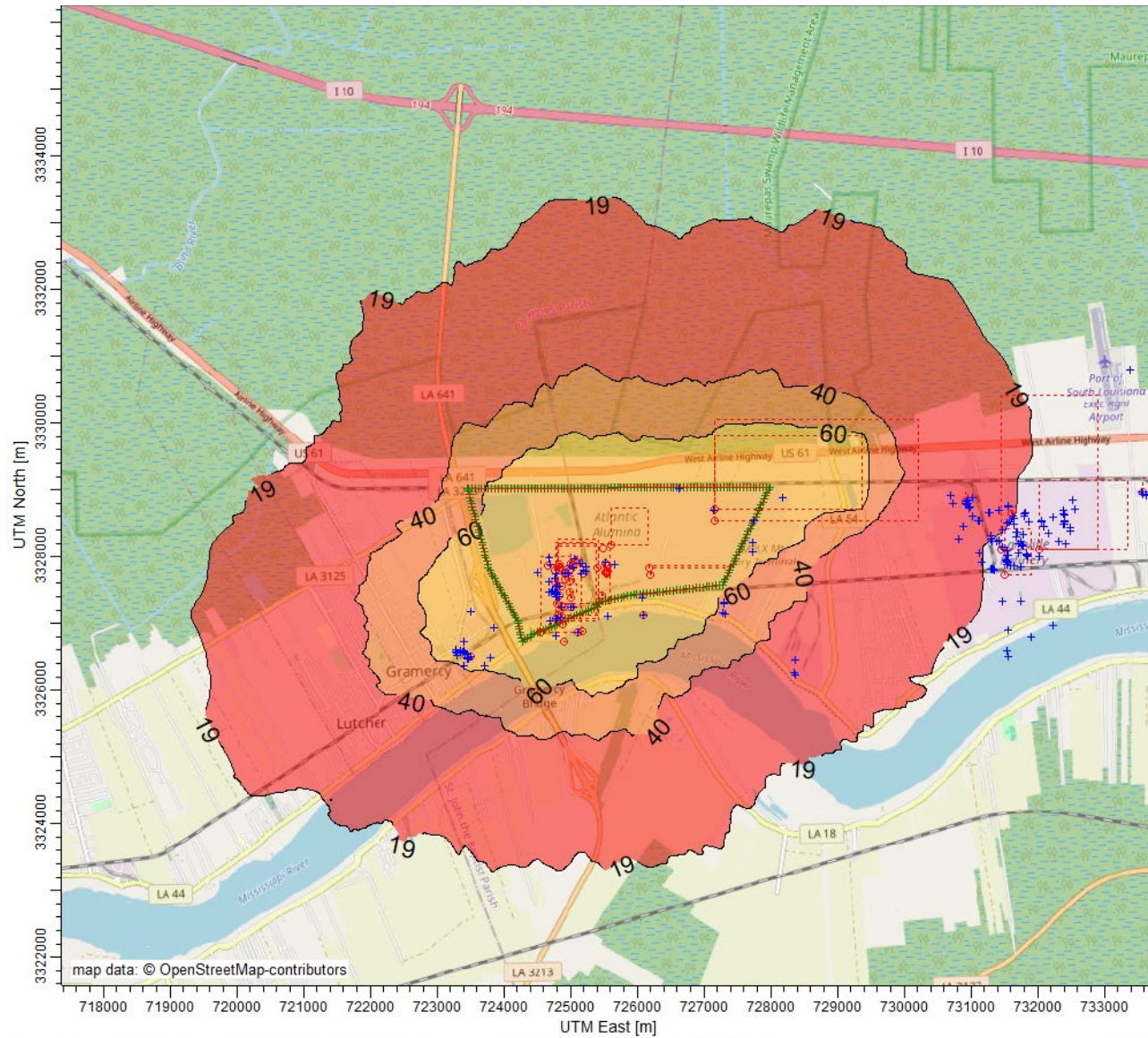
Figure 4: 24-HOUR AVERAGE PM_{2.5} Modeling Results over Google Satellite Image Showing Close-up of Gramercy and Lusher.



Figure 5: 24-HOUR AVERAGE PM_{2.5} Modeling Results over Google Satellite Image Showing Close-up of Mt. Airy and Garyville.



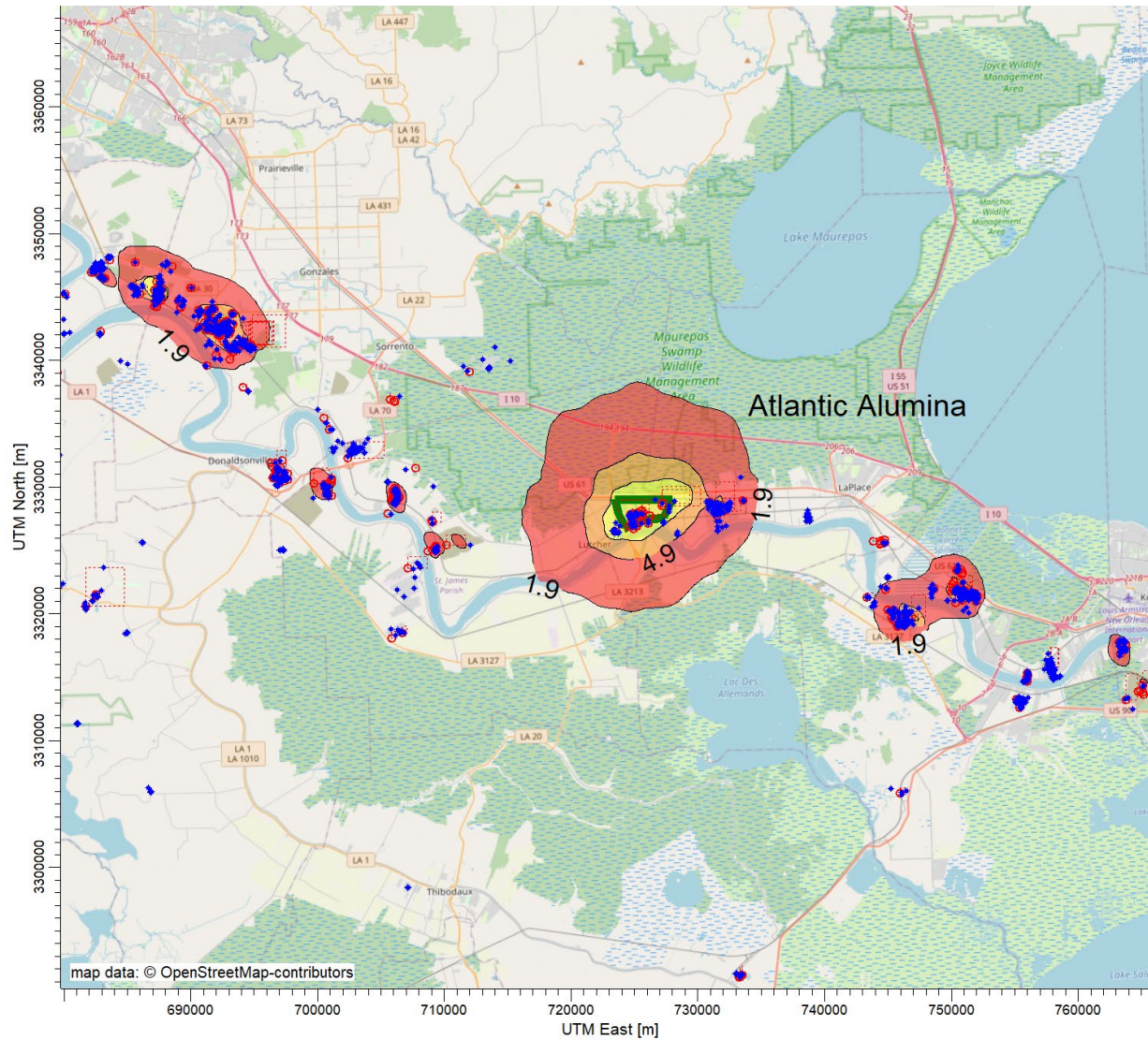
Figure 6: 24-HOUR AVERAGE PM_{2.5} Modeling Results over Google Satellite Image Showing Close-up of Wallace.



PLOT FILE OF 8TH-HIGHEST MAX DAILY 24-HR VALUES AVERAGED OVER 5 YEARS FOR SOURCE GROUP: ATLANTIC
 Max: 4673 [ug/m³] at (727753.57, 3328554.24) ug/m³

19 40 60

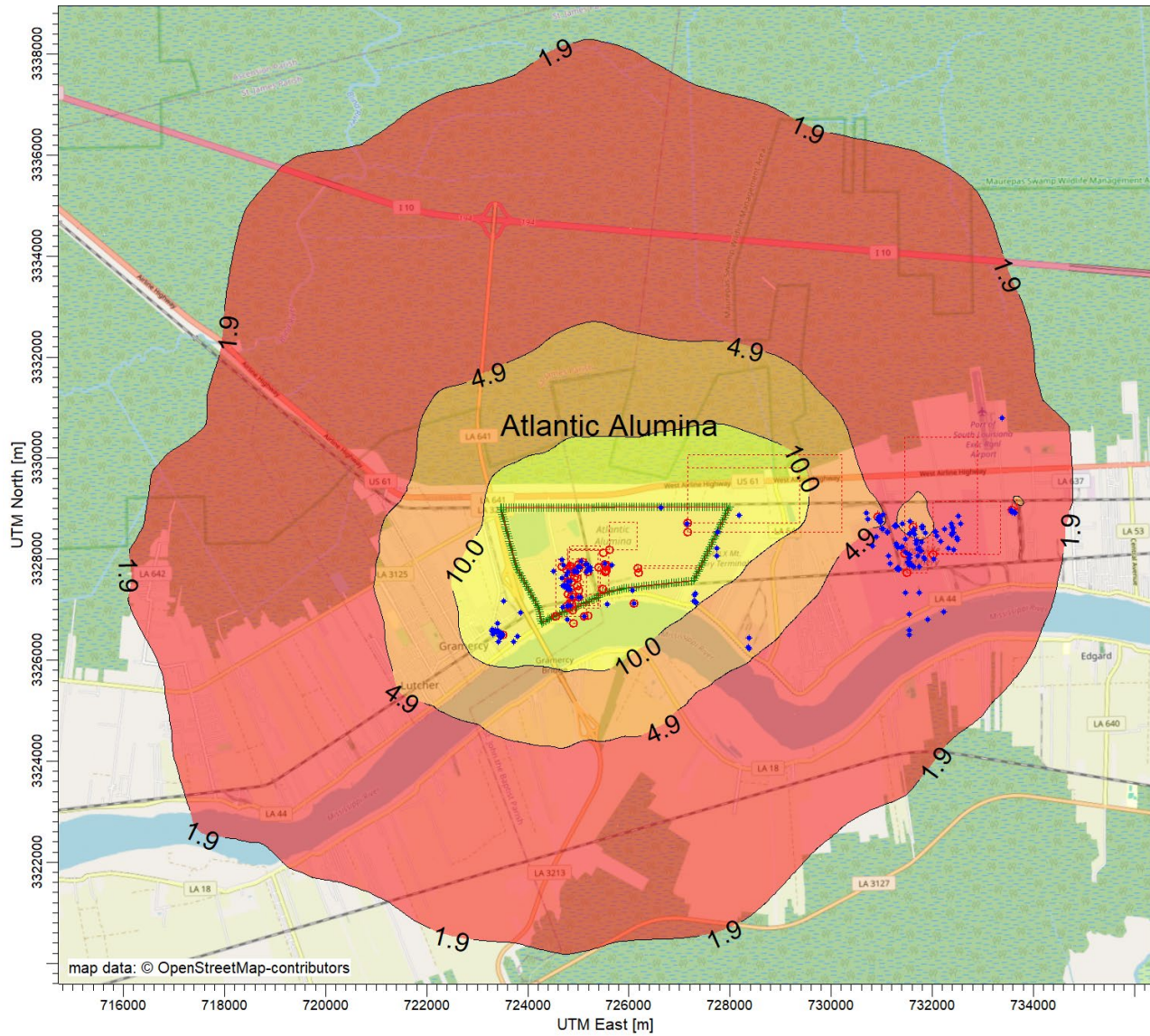
Figure 7: 24-HOUR AVERAGE PM_{2.5} Modeling Results of Atlantic Alumina Emissions ONLY – No Offsite Sources or Background Emissions Included.



Maximum PM_{2.5} Concentrations (ug per cubic meter) - All colored areas exceed NAAQS



Figure 8: ANNUAL AVERAGE PM_{2.5} Modeling Results for Entire Modeling Domain.



Maximum PM_{2.5} Concentrations (ug per cubic meter) - All colored areas exceed NAAQS



Figure 9: ANNUAL AVERAGE PM_{2.5} Modeling Results at Atlantic Alumina and Surrounding Area.

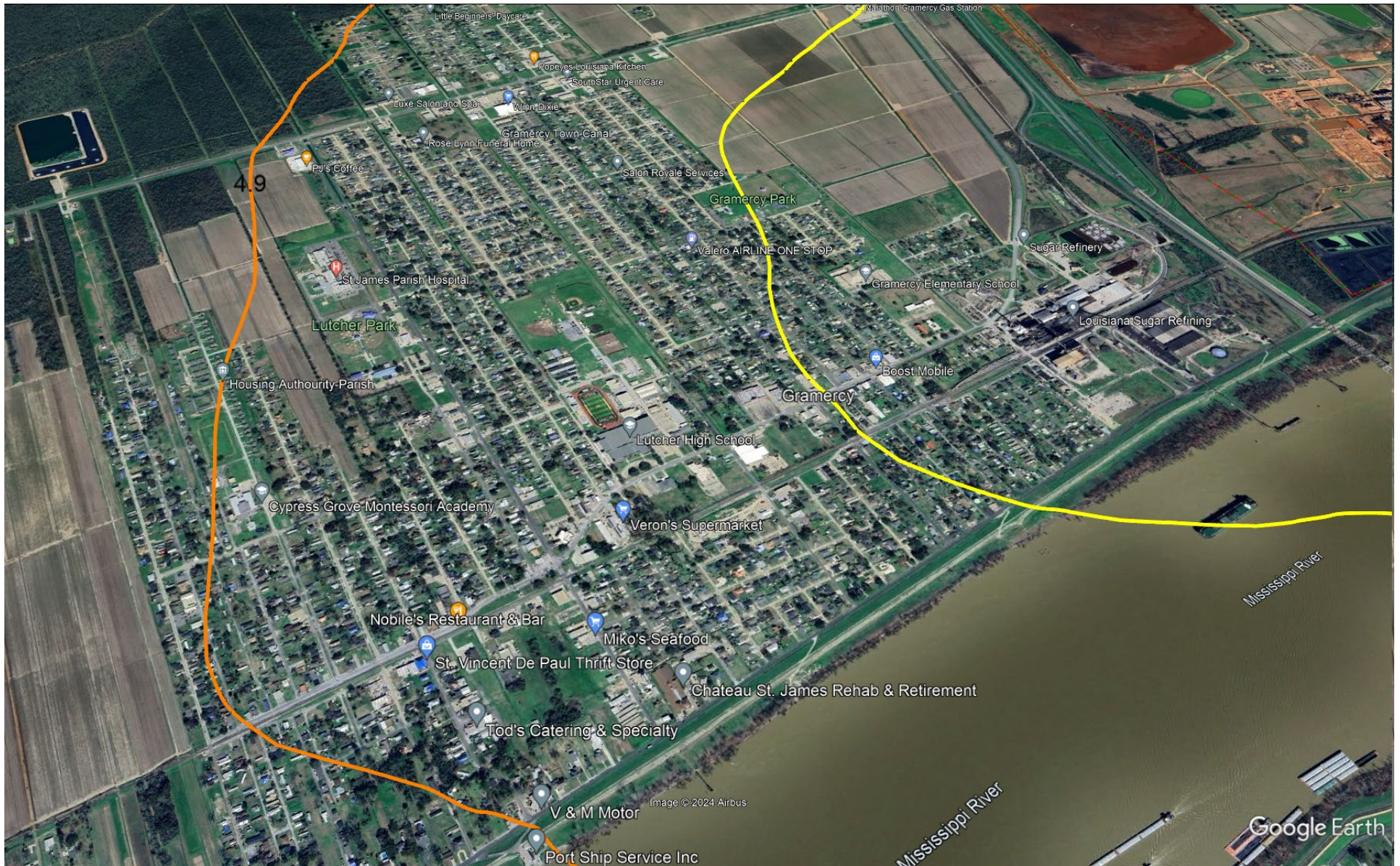


Figure 10: ANNUAL AVERAGE PM_{2.5} Modeling Results over Google Satellite Image Showing Close-up of Gramercy and Lusher.



Figure 11: ANNUAL AVERAGE PM_{2.5} Modeling Results over Google Satellite Image Showing Close-up of Mt. Airy and Garyville.



Figure 12: ANNUAL AVERAGE PM_{2.5} Modeling Results over Google Satellite Image Showing Close-up of Wallace.

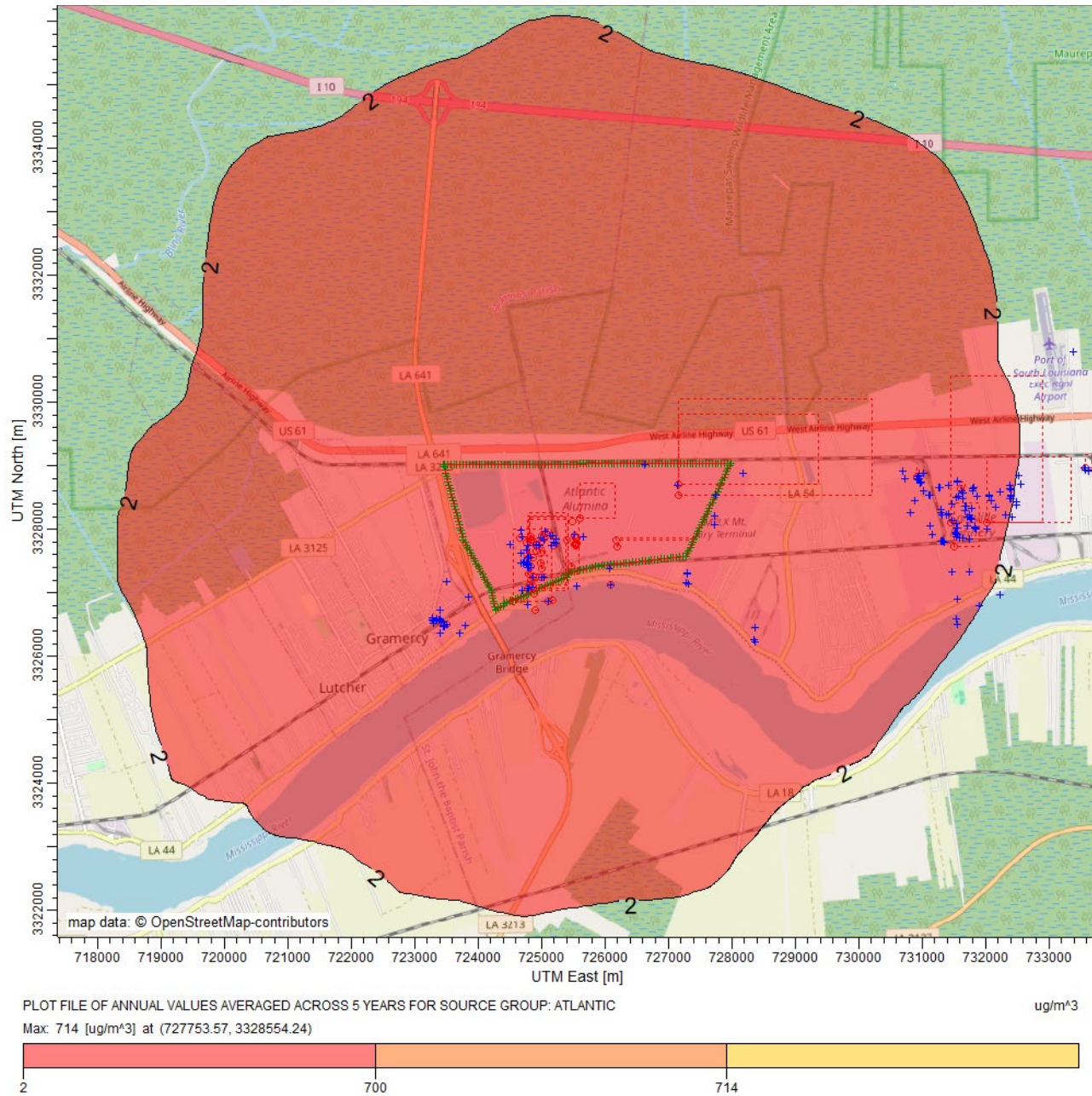


Figure 13: ANNUAL AVERAGE PM_{2.5} Modeling of Atlantic Alumina Emissions ONLY – No Offsite Sources or Background Emissions Included