

LanzaJet Partners Across Trinity to Ensure Sustainable Aviation Fuel Plant Success

CHALLENGE

LanzaJet's pioneering new plant converts ethanol to jet fuel, requiring meticulous planning, strict safety, and environmental adherence.

SOLUTION

Trinity's Environmental Consulting and SafeBridge teams closely collaborated to address all regulatory, safety, and operational aspects of the project.

RESULT

Trinity's cooperative model helped secure permits early, ensure worker safety, and supported LanzaJet's ambitious sustainability goals, fostering collaboration and trust.

LanzaJet, LLC an innovative sustainable fuels technology company, embarked on a pioneering project to develop a first-of-its kind commercial-scale plant that would transform ethanol into sustainable aviation fuel. The LanzaJet Freedom Pines Fuels facility, located in Soperton, Georgia, was designed to process thousands of gallons of ethanol daily, which would translate into up to 9 million gallons of sustainable aviation fuel (SAF) and 1 million gallons of renewable diesel fuel per year. The new plant would represent a significant advancement in renewable energy technology, providing a sustainable alternative to traditional fossil fuels.

Recognizing the complexity and novelty of this venture, LanzaJet engaged Trinity Consultants for its wide-reaching expertise and excellent reputation within the fields of Environmental Consulting and Life Sciences to help the company navigate the regulatory landscape, ensure operational safety, and achieve its sustainability goals.

CHALLENGE

LanzaJet had no existing benchmarks for the new facility's novel industrial process, the complexity of which created several unique obstacles; including determining which regulations applied to the new process. Traditional regulatory frameworks for oil and gas refineries did not apply to the LanzaJet facility, and the Environmental Protection Agency (EPA) had not yet developed specific regulations for this type of sustainable fuel production. The company needed a tailored regulatory strategy that would ensure compliance without placing the plant in an inappropriate category.

Ensuring the safety of the control room operators and contractors was paramount. Potential hazards such as noise, heat stress, and chemical exposures needed careful planning, assessment, and management in compliance with OSHA standards. The project also had numerous points of contact throughout the multi-year build out, necessitating continuous adaptation and clear communication to maintain project momentum and alignment with safety and operational goals.

SOLUTION

Trinity's expertise was integral from the outset of the project, beginning with the company's Environmental Consulting (EC) group in 2021. At the suggestion of the EC team, this collaboration grew to include **Trinity's Provenance team**, the company's process safety management (PSM) arm in early 2022 and further expanded in fall of 2022 to encompass industrial hygiene consulting with **Trinity's SafeBridge team**. The Trinity teams implemented several key solutions:

Environmental Consulting: The EC team determined that the new plant belonged in the Synthetic Organic Chemical Manufacturing Industry (SOCMI), which refers to a category of industrial processes and facilities that produce synthetic organic chemicals that are typically regulated under standards distinct from those applied to traditional oil and gas operations. From there, the team worked closely with LanzaJet to develop a deliberate and consistent application of process knowledge, translating complex regulatory requirements into actionable strategies.

Trinity's PSM team: Trinity PSM ensured adherence to OSHA's PSM standards and EPA's Risk Management Plan (RMP) regulations. The team held bi-weekly meetings with LanzaJet's site leadership to tailor the PSM program to the unique requirements of the new plant, ensuring optimal safety performance and regulatory compliance.

Trinity's SafeBridge team: LanzaJet's leaders recognized the importance of proactively addressing potential challenges to prevent future worker safety issues. Trinity SafeBridge delivered detailed industrial hygiene written programs that included evaluating potential physical hazards and potential chemical exposures and conducting qualitative assessments. LanzaJet is prepared with a systematic and risk-based approach to confirm safety and health compliance and controls with hygiene measurements once they are operational.

RESULT

Trinity's EC, PSM, and SafeBridge teams secured the necessary permits prior to construction, satisfying investors and facilitating smooth project progression. They developed comprehensive process and industrial hygiene safety measures, ensuring a safe working environment for all personnel now and into the future, and supported LanzaJet in achieving its ambitious sustainability objectives.

The team's integrated efforts were instrumental to the project's success. The three individual groups fostered strong collaborative relationships that translated into seamless teamwork and trust, both within Trinity and with LanzaJet, and demonstrated the value of interdisciplinary expertise in tackling complex, innovative industrial projects.

LanzaJet continues to be a valued client, with Trinity poised to provide ongoing support as the plant becomes fully operational, further solidifying the partnership and paving the way for future innovations in sustainable fuel production.

ABOUT TRINITY CONSULTANTS

Trinity Consultants, a leading global environmental consulting firm, provides services and solutions in the EHS Regulatory Compliance, Built Environment, Life Sciences, and Water & Ecology markets. Founded in 1974, Trinity has the technical expertise, industry depth, and capabilities to help clients achieve their goals across the natural and built environments.