LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF ENVIRONMENTAL SERVICES

BASIS FOR DECISION

LOUISIANA POLLUTANT DISCHARGE ELIMINATION SYSTEM (LPDES)
PERMIT NO. LA0047546
AGENCY INTEREST NO. 3133
ACTIVITY NO. PER20050003

VANGUARD SYNFUELS, LLC, VANGUARD BIODIESEL PLANT
POLLOCK, GRANT PARISH, LOUISIANA

The Louisiana Department of Environmental Quality, Office of Environmental Services, Permits Division (LDEQ or DEQ), has issued to Vanguard SynFuels, LLC, Vanguard Biodiesel Plant, a Louisiana Pollutant Discharge Elimination System (LPDES) permit, LA0047546, for the biodiesel manufacturing facility located at 737 Abe Hall Road, Pollock, Grant Parish, Louisiana.

FINDINGS OF FACT

I. BACKGROUND

A. The Vanguard Biodiesel Plant is an existing biodiesel manufacturing facility located at 737 Abe Hall Road, Pollock, Grant Parish, Louisiana. The facility is owned by Vanguard SynFuels, LLC, (Vanguard) a private corporation. The applicant's mailing address is Post Office Box 399, Pollock, Louisiana 71467.

Vanguard is a biodiesel manufacturing facility located at the former Farmland Industries, Inc (Farmland) fertilizer manufacturing site near Pollock, in Grant Parish. Farmland began construction in 1974. The facility was first issued a Louisiana Stream Control Commission permit on August 20, 1975 and began ammonia production in the fall of 1976. NPDES permit, LA0047546, was issued on May 19, 1977. Vanguard purchased the facility from bankruptcy in July of 2003 and submitted a request to transfer permit LA0047546 initially on May 6, 2003. On October 1, 2003, the permit was transferred to Vanguard. On September 6, 2005, Vanguard submitted a Notice of Intent for the Light Commercial General Permit. On December 14, 2005, LAG480539 was issued (in addition to LA0047546) to cover discharges of boiler blowdown. On December 20, 2005, Vanguard Synfuels submitted a renewal permit application for permit LA0047546 including the change in operations and expected changes at the facility.

The facility manufactures biodiesel through the trans-esterification of soybean oil using methanol in the presence of a base catalyst (sodium methoxide, sodium hydroxide, or potassium hydroxide). Crude glycerin, a secondary product of the reaction, is

demethylated and stored, then shipped off-site for use as a feed-stock in glycerin refining. The process also produces residual fatty acids which are collected and sold to a rendering facility.

Soybean oil is transferred to the reactor vessels in batches. The oil is then combined with methanol and a base catalyst. Currently the facility plans to use sodium methoxide as a catalyst, which promotes a dry process. The alternative, a hydroxide-based catalyst, produces more water, which results in more soap by-products (i.e. less biodiesel product). Once the reaction is complete, crude glycerin is gravity separated from biodiesel in tanks. Crude glycerin bottoms are removed to a separate tank for demethylation. Biodiesel remains in the settling tank and also undergoes demethylation. Vapors are recovered and condensed in the Methanol Recovery System for reuse. After demethylation, the sorbent Magnesol is used to remove residual traces of glycerin soaps, moisture, and unreacted soybean oil. Spent sorbent is removed by filtration and disposed of off-site. ASTM-grade biodiesel and crude glycerin are stored in tanks prior to shipment.

B. Endangered Species Evaluation

The site is not the habitat of endangered or sensitive animal or plant species according to a review of the Louisiana Environmental Sensitivity Index and the 2007-2008 Implementation Strategy for the Louisiana Department of Environmental Quality and the United States Fish and Wildlife Service Memorandum of Understanding.

C. Historic Preservation Evaluation

The discharge is from an existing facility location, which does not include an expansion on undisturbed soils. Therefore, there should be no potential effect to sites or properties on or eligible for listing on the National Register of Historic Places, and in accordance with the "Memorandum of Understanding for the Protection of Historic Properties in Louisiana Regarding LPDES Permits," no consultation with the Louisiana State Historic Preservation Officer is required. An archaeological, historical, and cultural resources study was conducted at the time the original facility was constructed. This study indicated that no apparent sites of significant archaeological, historical, or cultural importance were found on the Farmland property.

II. PUBLIC NOTICE AND COMMENT

A draft permit was issued on July 19, 2006. The permit was public noticed in the Office of Environmental Services Public Notice Mailing List on July 18, 2006, and The Chronicle on July 20, 2006. On August 24, 2006 the Department received a letter from Ernie L. Vallery requesting a public hearing. The hearing request was denied and the Final Permit was issued on December 13, 2006. The permit was effective January 1, 2007. On January 17, 2007, Mr. Vallery filed a petition at the Nineteenth Judicial District Court for judicial review of the LDEQ's decision to deny the public hearing. On

April 9, 2007, Mr. Howard Charrier and The Louisiana Environmental Action Network (LEAN) filed a petition to intervene. The matter was heard on April 16, 2007 and the Court remanded the case to LDEQ for the purpose of holding a public hearing. On May 15, 2007, the LDEQ applied to the First Circuit Court of appeal for a supervisory writ of review. The writ was denied and LDEQ held the public hearing on January 15, 2008.

III. RESPONSE TO PUBLIC COMMENT

Responses to the comments received during the public hearing are addressed in the Response to Comments Summary. (See Attachment A which is attached to and made a part of this document.).

IV. DESIGNATED USE CONCERNS

A. Receiving Waterbodies

1. The facility discharges wastewater from Outfalls 001, 101, and 005* to Little River by pipe and wastewater from Outfalls 003 and 005* to Mill Creek via local drainage, thence into Little River. These receiving waterbodies are part of the Ouachita River Basin, Subsegment 081602, Little River – from Bear Creek to Catahoula Lake.

   Per LAC 33:IX.1123 Table 3, the Designated Uses of Subsegment 081602 are primary contact recreation, secondary contact recreation, fish and wildlife propagation, and outstanding natural resource waters.

2. The facility discharges wastewater from Outfalls 002, 004, and 005* to Big Creek via local drainage. This receiving waterbody is part of the Ouachita River Basin, Subsegment 081608, Big Creek – from headwaters to Little River.

   Per LAC 33:IX.1123 Table 3, the Designated Uses of Subsegment 081608 are primary contact recreation, secondary contact recreation, fish and wildlife propagation, drinking water supply, and outstanding natural resource waters.

*Outfall 005 represents an internal outfall to Outfalls 001, 002, 003, or 004. It establishes limits for discharges of hydrostatic test wastewater and requires monitoring at the point of discharge from the tested vessel, prior to mixing with any other waters. Therefore, it has the potential to discharge to either subsegment.

B. Outstanding Natural Resource Waterbody Status

1. Per LAC 33:IX.1111.G, the outstanding natural resource waters designated use in Subsegment 081602 applies to Little River-from Bear Creek to Catahoula Lake, not to their tributaries or distributaries.

   i. Outfalls 001 and 101 discharge directly to the outstanding natural resource waterbody. Outfall 001 discharges process wastewater, utility wastewater, maintenance wastewater, previously monitored sanitary and hydrostatic test

wastewater, and stormwater. Outfall 101, sanitary wastewater, is internal to Outfall 001. The effluent from Outfall 001 is piped to Little River.

The Scenic Stream designation of Little River was given specific consideration by the Louisiana Stream Control Commission (SCC) in the approval of the initial discharge by Farmland at this location in 1975 (see EDMS Document ID # 34655023, p 58). At that time the Scenic Rivers permit was issued by the LA Department of Wildlife & Fisheries (WLF) and the Secretary of WLF, Mr. Angelle, also served as the Chairman of the SCC. As mentioned in the referenced document, Mr. Angelle was specifically interested in the discussion relative to the water discharge authorization by the SCC because of his pending involvement in the Scenic Rivers permit for the facility. Due to concern for water quality impacts, the limitations established by the SCC for Farmland in 1975 were lower than the technology-based limitations required by EPA at the time (See EDMS Document ID #24497312).

Using the Standard Operating Procedure for Louisiana Total Maximum Daily Load Technology Procedures, Revision 11 (which includes conversion factors for comparing NH_3 and BOD_5), it has been determined that there is no significant difference relative to water quality impacts between the Farmland discharge and the Vanguard discharge (when in compliance with the LPDES permit conditions). Therefore, it is reasonably expected that discharges in compliance with the permit limitations will not cause or contribute to a change in the water quality of Little River. Additionally, the LPDES permit was submitted for review to the Scenic Rivers Coordinator of the LA Department of Wildlife and Fisheries prior to issuance. As with any LPDES permit, the Department reserves the right to reopen the permit (Other Conditions, Part H, of the Final Permit) if it is determined that additional permit limitations and requirements are necessary in the future.

ii. Outfall 003, non-process area stormwater and deminimus quantities of utility and maintenance water, discharges to Mill Creek via local drainage, thence into Little River. According to the definition at LAC 33:IX.1111.G, this discharge is not to the outstanding natural resource waterbody.

iii. Outfall 005, hydrostatic test wastewater, is monitored at the point of discharge from the tested vessel, prior to mixing with any other waters. The facility is located approximately 5.25 miles from Little River. The discharge of hydrostatic wastewater to the outstanding natural resource waterbody is made through the treatment system then through Outfall 001. Discharges of hydrostatic wastewater in compliance with the permit limitations are not expected to cause degradation in the receiving waterbody.

2. Per LAC 33:IX.1111.G, the outstanding natural resource waterbody designated use in Subsegment 081608 applies to Big Creek, headwaters to Little River, not their tributaries or distributaries.

i. Outfall 002 is discharged to Big Creek via local drainage. As shown in Attachment B, the initial discharge is into an unnamed tributary of Big Creek. This discharge consists primarily of non-process area stormwater with a low potential for contamination. Discharges in compliance with the permit limits are not expected to cause or contribute to degradation of water quality in the receiving stream or in the designated waterbody, Big Creek.

ii. Outfall 004 is discharged to Big Creek via local drainage. As shown in Attachment B, the initial discharge is into an unnamed tributary of Big Creek. This outfall includes the discharge from the containment area of the loading dock. Permit LA0047546 has additional BOD_5 limitations and reporting requirements to address potential spills in the shipping area. Vanguard also contains the stormwater in the loading dock area and has the ability to route contaminated stormwater to the treatment system to be discharged through Outfall 001. Therefore, the discharge, in compliance with the permit limitations, is not expected to cause or contribute to degradation of water quality in the receiving stream or in the designated waterbody, Big Creek.

C. Drinking Water Status

1. Per LAC 33:IX.1111.D, the drinking water supply designated use in Subsegment 081608 applies to Big Creek, headwaters to Little River, not their tributaries or distributaries.

2. Only Outfall 002 discharges to Big Creek above the drinking water intake for Rapides Parish Waterworks District 3 (See Attachment B). The discharge, expected to consist of primarily uncontaminated stormwater from the administration building and parking lot, travels approximately 1.8 miles through an unnamed tributary/local drainage prior to entering Big Creek. It then enters Big Creek approximately 1 mile above the drinking water intake. LAC 33:IX.1109.B.1 requires use and value of water for public water supplies to be considered in the development of standards and limitations. The permit conditions and limitations for Outfall 002 were developed in accordance with the Clean Water Act (33 U.S.C. 1251 et seq.) and the Louisiana Environmental Quality Act (LA. R.S. 30:2001, et seq.) as described in Title 33 Part IX of the Louisiana Administrative code. All regulations and requirements associated with the drinking water designated use were considered in the development of this permit.

3. Additionally, the facility SPCC plan prohibits loaded trucks from parking in the areas draining to Outfall 002 in order to reduce the potential for stormwater contamination. The facility has installed covers on the culvert at Outfall 002 and now has the capability to visually inspect stormwater prior to discharge.

V. SUMMARY OF ENVIRONMENTAL FACTORS CONSIDERED

Pursuant to Louisiana Revised Statute, La.R.S.30:2018 E.2, this minor water discharge permit is not subject to the requirements regarding environmental assessment statements or IT (See Save Ourselves v. La.Envtl Control Comm'n, 452.So.2d 1152 (La. 1984). Nevertheless, the LDEQ has considered similar factors in preparing this permit as set forth below.

A. The Vanguard facility was constructed on an existing industrial site utilizing infrastructure previously used by Farmland Industries (Farmland) for ammonia fertilizer production. LDEQ carefully reviewed the existing operations of the site, the surrounding area, the proposed operational changes, and other matters relevant to the siting of the facility. Vanguard states in Appendix E of the permit renewal application, that the site was chosen for the existing industrial infrastructure including a pond system with groundwater monitoring wells, pipeline, and discharge pumps to handle industrial wastewater. The existing effluent pond system, pumps, pipeline, and Little River discharge point were utilized for the new biodiesel plant. The site also had an existing rail spur that connects to Union Pacific railroad and has its own well water source as well as a pump station and pipeline from Little River. Approximately 100 acres of the facility is fenced and guarded for security with the total tract including 320 acres. Existing equipment from the ammonia process was used where possible. Unusable ammonia plant assets were sold in January of 2005, dismantlement and removal of these assets were completed in November 2007.

The site was already permitted to discharge industrial wastewater under LPDES permit LA0047546. This site is not the habitat of endangered or sensitive animal or plant species according to a review of the Louisiana Environmental Sensitivity Index and the 2007-2008 Implementation Strategy for the Louisiana Department of Environmental Quality and the United States Fish and Wildlife Service Memorandum of Understanding.

Additionally, information submitted to the LDEQ by Farmland Industries, Inc (EDMS Document ID #159642241), related to the initial siting and construction of this facility indicates:

1. An extensive search for a suitable plant site for constructing the plant was made during the months of May and June, 1975.
2. An environmental impact study was performed prior to construction and revealed no significant environmental impact would result from the project.
3. The site had satisfactory soil conditions. The land was primarily cutover pine forest which had been affected by heavy rainfall and natural changes which leached the soils so extensively that at best they supported only relatively low biomass.
4. The project property was zoned for industrial use.
5. An extensive ecology study was conducted on the project sites prior to construction. No ecologically sensitive habitats were located at the site.

6. An archaeological, historical, and cultural resources study indicated that no apparent sites of significant archaeological, historical, or cultural importance were found on Farmland's property.

Therefore, the LDEQ finds there are no alternative sites which would offer more protection to the environment than the proposed without unduly curtailing non-environmental benefits.

B. The LDEQ finds that the project offers more protection to the environment than any other possible alternative without unduly curtailing non-environmental benefits. The LDEQ recognizes that selection of the most environmentally sound projects usually also serves as a mitigative measure, because the two considerations overlap considerably.

This operation converted an existing ammonia nitrogen manufacturing facility into an alternative fuel manufacturing facility. The primary feedstocks of the biodiesel reaction are soybean oil, methanol, and a base catalyst (such as sodium methoxide or sodium hydroxide). The reaction products are ASTM grade biodiesel, glycerin (crude soap stock), fatty acids (renderable material), and water. Excess methanol is recovered and reused.

Vanguard proposed to discharge significantly less water than Farmland and to discharge intermittently rather than continuously. Farmland Industries was permitted for a continuous discharge into Little River from Outfall 001. In 2000, the last full year of operation for Farmland Industries, the ammonia plant reported a 30-day average maximum discharge of 420,000 gallons per day on Discharge Monitoring Reports (DMRs) submitted to LDEQ. The Vanguard discharge is intermittent in nature. The facility has reported only two discharge events from Outfall 001 in the previous two years, a 210,000 gallon event in 2006 and a 337,500 gallon event in 2007. Both were single day discharges after large rainfall events. The limitations on oxygen-demanding pollutants in the permit reissued to Vanguard are not significantly different from the previously issued permit.

C. The LDEQ finds there are no mitigative measures that would offer more protection to the environment than the existing facility without unduly curtailing non-environmental benefits. The facility has adequate treatment for the proposed wastewater types to be discharged. The facility has taken extra mitigative steps to protect the environment.

The process area of the facility is graded and contained so that stormwater falling on the production side of the facility can be captured and routed through the treatment system. The facility's loading dock has containment and stormwater from this area can be routed to the treatment system if contamination/spills occur during loading and unloading. The facility has installed covers on the culvert at Outfall 002 to contain stormwater falling on the administration building and parking lot. This water can now be visually inspected prior to discharge through Outfall 002.

D. Potential adverse environmental impacts from the facility were assessed to include potential water quality degradation, air quality degradation, impact on groundwater, and cultural, historical or archaeological resources. As part of the permitting process, potential and real adverse environmental impacts of pollutant emissions from these sources are assessed to ensure that they are minimized. The following paragraphs describe this assessment by media:

Water

Process wastewater (including boiler blowdown, cooling tower blowdown, vacuum pump seal water, methanol recovery system, air compressor condensate), general maintenance water, plant washdown, safety showers, process and non-process area runoff, and demineralizer regeneration wastewater is pumped to the process sump (fitted with an oil skimmer), then gravity flows to the south effluent pond. The facility has two effluent ponds (North and South) with a capacity of 3.8 million gallons each. These ponds are connected so that they may be operated in either series or parallel. When operated in parallel, with the facility discharging the maximum expected monthly average flow of 0.1208 million gallons per day (MGD) to the ponds, Vanguard expects a retention time of 63 days. The pH is checked, and the effluent pumps can be used to re-circulate the water in the ponds to adjust pH to between 6.0 standard units (su) and 9.0 su. The treated effluent is pumped by the Effluent Pumping Station to Outfall 001 on Little River. The maximum pumping rate is 0.76 MGD. Based on the data presented and the expected characteristics of biodiesel wastewater (which are similar to discharges of sanitary wastewater), this system should be capable of adequately treating this type of wastewater.

Sanitary wastewater and laboratory wastewater is treated by a septic tank which gravity flows into a 1 million gallon solids settling pond. Based on the expected flow, Vanguard estimates a retention time of 345 days in this pond. The solids settling pond gravity overflows into the south effluent pond and is then discharged through Outfall 001. The loading dock is covered by Outfall 004. As stated above, the facility has the capability to contain stormwater in this area and route it to the effluent treatment ponds if necessary. Other discharges at the facility consist of non-process area stormwater, deminimus quantities of utility and general maintenance wastewater, and hydrostatic test wastewater.

Solid Waste

Vanguard maintains Solid Waste permit P-0105 and has a groundwater monitoring system containing 7 groundwater monitoring wells (1 up-gradient and 6 down-gradient). LDEQ inspections and groundwater monitoring data show that the surface impoundments/treatment ponds have intact liners and are not leaching contaminants.

Air

Vanguard is now operating under a Small Source air permit. Farmland Industries, Inc held a Title V air permit which has been closed out. According to the Air Permit Briefing Sheet for Vanguard (EDMS Document ID #36020240), "the facility was a major source of toxic air pollutants as a result of the emissions from ammonia production, but is no longer a major source due to the cessation of ammonia production."

Additionally, Farmland Industries, Inc. indicated the following (EDMS Document ID # 15964241):

1. During construction of the three surface impoundments, clay liners were installed to a minimum thickness of two feet to prevent significant seepage of leachate into the surrounding subsurface environment. As an added precaution, a network of monitoring wells was installed to detect if contaminants were leaching.
2. The use of Little River (a scenic river) as a water source and as the receiving stream of the plant's treatment system discharge received approval for permitting from the Louisiana Stream Control Commission and the Louisiana Department of Wildlife and Fisheries.
3. Special boring techniques were used at the water intake and discharge structures, to minimize the disturbance of existing banks at Little River. Additional bank stabilization techniques were incorporated during construction of these pipelines to minimize the effect of adjacent land at the river.
4. In relation to flood waters, the three impoundments are considerably above the historic flood elevations.
5. As stated above, no apparent sites of significant archaeological, historical, or cultural importance were found on Farmland's property.

Furthermore, the Vanguard facility projects to consume and discharge significantly less water than the previous ammonia operation. The change in operations from ammonia production to biodiesel has also resulted in significantly lower air emissions. The facility will not dispose of solid waste on-site. Impact from the facility is minimized through the use of mitigative measures discussed. As a result, there should be no significant adverse impact to human health or the environment. In addition, the LPDES permit imposes specific limits that are designed to protect human health and minimize the environmental impact of the facility. Therefore, the LDEQ finds that the potential and real adverse effects of the proposed facility have been avoided to the maximum extent possible.

E. The social and economic benefits of the facility will outweigh its adverse environmental impacts. Notably, the Louisiana constitution requires balancing, not protection of the environment as an exclusive goal. Save Ourselves, 452 So.2d at 1157. The facility proposed to create 22 new jobs in a depressed area of rural Louisiana (Vanguard public hearing Exhibit 1). The facility projects an annual purchasing impact of $30 million for feedstock, chemicals, and utilities and annual sales revenue of $38-45 million. The plant

will produce a low-sulfur renewable domestic fuel and provide new markets for soybean producers. The LDEQ determines that the social and economic benefits outweigh the minor environmental impact costs posed by the biodiesel manufacturing facility.

VI. CONCLUSIONS OF LAW

Any and all conclusions of law included in the foregoing findings of fact are adopted herein.

Based on a careful review and evaluation of the entire administrative record, which includes the permit application, additional information submitted by Vanguard SynFuels LLC, LDEQ records associated with permit LA0047546, and all public comments received, the Louisiana Department of Environmental Quality, Office of Environmental Services, finds that the facility complies with all applicable federal and state statutes and regulations and complies with the requirements of Save Ourselves, 452 So.2d at 1157. Particularly, the LDEQ finds that the facility has minimized or avoided potential and real adverse environmental impacts to the maximum extent possible and that social and economic benefits of the facility outweigh adverse environmental impacts. Id.

Baton Rouge, Louisiana, this 7 day of May 2008.

Cheryl Sonnier Nolan
Assistant Secretary
Office of Environmental Services

ATTACHMENT A:

Comments Response Summary