

Region 6 - Enforcement & Compliance Assurance Division
INSPECTION REPORT

Inspection Date(s):	02/02/2022; 04/13/2022	
Media Program:	Air	
Regulatory Program(s)	Title V CAA	
Company Name:	Louisiana Integrated Polyethylene JV, LLC	
Facility Name:	Louisiana Integrated Polyethylene JV	
Facility Physical Location:	2201 Old Spanish Trial	
(city, state, zip code)	Westlake, LA, 70669	
Mailing address:	2201 Old Spanish Trial	
(city, state, zip code)	Westlake, LA, 70669	
County/Parish:	Calcasieu	
Facility Phone Number	{Phone Number}	
Facility Contact:	Megan Leger	Environmental Manager
	Megan.Leger@lyondellbasell.com	
FRS Number:	110070879384	
Identification/Permit Number:	AI 226602	
Media Identifier Number:	LA0000002201900514	
NAICS:	32511; 32619; 325120; 325110; 325199; 325211; 325110; 325110	
SIC:	N/A	
Personnel participating in inspection:		
Justin Chen	ECD-AT	Inspector
Doreen AU	NEIC	Inspector
Andrew Miller	LDEQ	Inspector
EPA Lead Inspector Signature/Date		
	{Inspector name}	Date
Supervisor Signature/Date		
	{Supervisor name}	Date

Section I – INTRODUCTION

PURPOSE OF THE INSPECTION

EPA Region 6 inspector Justin Chen (J. Chen) and EPA NEIC inspector Doreen Au (D. Au) arrived at the Louisiana Integrated Polyethylene Joint Venture (“LIP JV”) facility at 08:00AM on February 2, 2022, for an unannounced inspection. We met with Megan Leger/environmental manager, Ashton Singletary/environmental engineer, and Beau Mixon/environmental engineer. D. Au and I presented my credentials to Megan Leger and informed her that this was an EPA inspection to determine compliance with the facility’s Title V Air Permit and the Clean Air Act (“CAA”). The scope of the inspection is a partial compliance evaluation specifically focusing on the wastewater treatment system in relation to the Sasol Chemicals Lake Charles Chemical Complex (“Sasol Chemicals Complex”) for which the LIP JV shares property with and processes some of its wastewater. The facility’s relationship with the Sasol Chemicals Complex, specifically its processing of wastewater from ethylene oxide (“EO”) related units was what prompted this inspection. Employees of the LIP JV are LyondellBassell employees, and the operator of the facility is LyondellBassell.

The EPA inspection team returned on April 13, 2022, in an announced continuation of the inspection with LDEQ inspector Andrew Miller participating in the inspection. In this opening meeting we met with Megan Leger/environmental manager, Ashton Singletary/environmental engineer, Beau Mixon/environmental engineer, and Yasser Elouri/HSE manager.

FACILITY DESCRIPTION

The LIP JV facility is in Westlake, Louisiana near the Calcasieu River with an address of 2201 Old Spanish Trail, Westlake, Louisiana 70669. The facility encompasses approximately 405 acres and was founded as a joint venture between Sasol Chemicals LLC and LyondellBasell Industries N.V. in December 2020. It operates 8760 hours per year with 434 full time staff and approximately 470 contractors working there. The facility is comprised of the Low Density Polyethylene (“LDPE”) and Linear-Low Density Polyethylene (“LLDPE”) units, Ethylene 2 unit, a Steam 2 Unit, the Utilities, Offsite, and Infrastructure (“UO&I”) unit, and the Wastewater Treatment Plant 2 (“WWTP2”). WWTP2 receives wastewater from the Sasol Chemicals Complex’s Ethylene Oxide/Ethylene Glycol (“EO/EG”) unit, Ethoxylation Units (“ETO”) 4 & 5, and the Guerbet Alcohol Unit. Per LIP JV’s staff, the wastewater streams from Sasol Chemical Complex are composed of oily process wastewater, non-oily process wastewater, and potentially contaminated storm water via the First Flush Tank and Storm Water Storage Tank (if contaminated). LIP JV staff explained that the WWTP also treats wastewater from their Utilities Operations and Infrastructure (“UO&I”) Oily Water Sewer (OWS) and other UO&I wastewaters.

The LDPE, LLDPE, Ethylene 2, Steam 2, UO&I, and WWTP2 units operate under individual CAA Title V permits. The facility operates 3 ground flares (One for the Ethylene 2 Unit, one for the LLDPE Unit, and one for the LDPE Unit) and 1 raised flare (UO&I units). Railcar loading degassing is normally sent to the Guerbet thermal oxidizer, which is located and controlled by the Sasol Chemicals Complex.

Section II - OBSERVATIONS

Part 1 of Inspection

On January 31, 2022, the EPA inspection team (referred to as “the inspectors” herein) conducted an unannounced inspection of the Sasol Chemicals Complex in Westlake, Louisiana. During the opening

meeting with Sasol staff, it was explained to me and D. Au that on December 1st, 2020, a joint venture was opened between Sasol Chemicals and LyondellBassell which resulted in the creation of the LIP JV from some parts formerly of the Sasol Chemicals Complex, including the Ethylene 2 plant, as well as new constructions. We were told that the LIP JV had its own air permits and staff to manage its operations. Allyson Leger, Environmental Manager of Sasol Chemicals Complex, stated that the LIP JV had five CAA Title V permits and 1 Prevention of Significant Deterioration Permit ("PSD Permit") and provided us the contact information of LIP JV Environmental Manager Megan Leger. Allyson stated that the ethylene used for EO production at the Sasol controlled EO/EG Unit comes from the LIP JV controlled Ethylene 2 Unit. We continued our inspection of the Sasol Chemicals Complex at this point.

On February 2, 2022, myself and D. Au met with the LIP JV staff to discuss the LIP JV facility. They stated that the ethylene cracker of the Ethylene 2 Unit was the source of ethylene for the Sasol Chemical Complex's EO/EG Unit. They also stated that ethylene produced would be sent to offsite "Domes" for storage. We were then told about the two polyethylene units which include the LDPE and LLDPE units. They then described the UO&I unit including its steam production from three boilers, its rail loading/truck loading, and the benzene stripper and wet air oxidation system used to treat the Ethylene 2 unit. We were told that the rail and truck loading operations were only used for ethylene glycol loading in relation to the Sasol Chemical Complex. We were then told that LIP JV maintained a Title V permit for the wastewater treatment system, and we were later told that Clean Water Act ("CWA") permit was in the process of being transferred from Sasol Chemical Complex to the LIP JV, but currently was still under Sasol's name. LIP JV staff then described the three ground flares for Ethylene 2, LLDPE, and LDPE. They also described the UO&I flare which receives waste gas if safety valves blow from the loading area because under normal circumstances rail car loading degassing is normally sent to the Guerbet thermal oxidizer, which is controlled by Sasol Chemical Complex. We were then told about the UO&I thermal oxidizer, which receives waste gases from the benzene stripper at the wet air oxidation system, and the LDPE thermal oxidizer.

We then asked about what HON group type of wastewater was handled by the WWTP, the facility staff told us that it only received group 2 wastewater, including wastewater from the Sasol Chemical Complex's EO/EG, Ethoxylation 4 & 5, and Guerbet Alcohol units. We were told that wastewater from both LIP JV and Sasol Chemical Complex come in wastewater tanks prior to treatment. At this time, we were told that Sasol currently holds the CWA permit from 2017 for the WWTP outfall, LyondellBassell staff operate it, and that it is currently in process of being transferred to LIP JV. We were told that in January 2021, applications for two CWA permits for separate areas were submitted. LIP JV staff also stated that if there is an issue at the outfall, such as a Discharge Monitoring Report ("DMR") exceedance, it would be Sasol's responsibility.

I then asked the LIP JV staff how air emissions were calculated for the WWTP, and they told us that the facility uses a Toxchem model to account for air emissions. They restated that their wastewater stream was classified as a group 2 wastewater stream and did not contain EO. I asked what documentation the facility had to claim that group designation, and they responded that the basis for the Toxchem model was speciation entered into the model from their permit application. They also stated that they don't have water analysis results stating that no EO was in the wastewater, and that Sasol Chemical Complex may have that documentation since they originally permitted the WWTP2 unit. Prior to going on site, I emailed Megan Leger a document request and received a response stating that the request would be fulfilled by February 16, 2022. We finished the interview with the LIP JV environmental staff at 09:20AM.

Part 2 of Inspection

On April 13, 2022, myself, D. Au, and LDEQ inspector Andrew Miller returned to the LIP JV facility in an announced continuation of an inspection to physically tour WWTP2 and ask additional emission calculation questions. At the opening meeting of LIP JV inspection continuation, we met with LIP JV/LyondellBassell EHS staff and Yasser Elouri, who is the HSE manager for the facility. During the opening meeting, LIP JV EHS staff reviewed a wastewater flow diagram with me and the inspection team. They explained the connections between first flush and stormwater tanks, rework and equalization tanks, stormwater and wastewater oil drums, the Dissolved Nitration Floatation Unit, Aeration Basin and Membrane Biological Reactor System, Biosludge System, and the Oily sludge System. I was also told that Outfall 081 was for the LIP JV WWTP and Outfall 001 was for the Sasol Chemical Complex Activated Sludge Unit ("ASU") WWTP.

LIP JV staff restated that no group 1 wastewater was sent to the LIP JV WWTP and that the Ethylene 2 Unit is a Benzene Waste Operations NESHA ("BWON") unit. They further explained that because of its BWON applicability and requirements, the UO&I unit treats the wastewater stream which comes from the Ethylene 2 Unit, including a sulfide caustic stream, and then passes on the stream to the WWTP after treatment. We were also told that the wet air oxidation stream from UO&I is sent to the Sasol Chemical Complex ASU. LIP JV staff told us that applicable regulations require that a sample from the benzene stream at UO&I is taken monthly and sent to a certified 3rd party lab for analysis and that internal sampling is conducted prior to forward flow/bottoms being released to the LIP JV WWTP. They further stated that if the benzene stream at UO&I is out of specification, it is recirculated through the benzene stripper of the UO&I Unit.

At 8:45AM we were joined by Hillary Ledoux, LIP JV Unit Engineer for UO&I, and Ernest Petross, LIP JV Team Lead for UO&I Water. LIP JV staff then restated that they do not sample any of the Sasol Chemical Complex wastewater streams sent to the WWTP2 Unit. They can request Sasol staff to conduct their own sampling of the wastewater and are currently requesting that Sasol conduct chemical oxygen demand ("COD") sampling every time wastewater is sent to the LIP JV WWTP2 Unit. If the COD sampled is greater than 2000 parts per million ("ppm"), a rate limit of wastewater being sent from Sasol to the LIP JV WWTP is placed on the stream which is calculated from pump output. I was also reminded that the LIP JV WWTP was started in October 2018 under Sasol Chemicals Complex operation.

LIP JV staff described the WWTP2 Unit itself next, stating that there were 2 nitrogen padded Equalization Tanks in series followed by 2 Dissolved Nitrogen Floatation Units linked in parallel. We were told by LIP JV staff that this is where insolubles are removed from the wastewater stream and sent to the oily sludge system. We were also told that the Nitrogen Floatation Units have a dissolved oxygen analyzers and that influent and effluent COD testing is conducted to confirm wastewater treatment effectiveness. The Influent sampling takes place before the parallel Aeration Basins, and effluent sampling takes place after wastewater passes through the basins. LIP JV staff stated that if the COD is out of specification from the samples, they can slow the wastewater flow rates and send the streams back to the Rework Tank. They also stated that COD testing is done twice daily at an internal lab, once per 12-hour shift. We were also told that pH adjustment is done to wastewater prior to entering the aeration basin. LIP JV staff then explained that the Biosludge System for removing solids is composed of a thickener, then a holding tank, then to a belt press into a roll off dumpster.

Field Inspection of WWTP

At 9:50AM, myself and the inspection team mobilized with the LIP JV environmental staff to tour the LIP JV WWTP2 Unit. We first saw the EQ tanks and their skim tank and were told they gravity drain to the coagulation and flocculation tanks (Photos 1, 2, 3). We then went to view the coagulation, flocculation and DNF tanks for both the A Train and B Train (Photos 4, 5). We then moved on to view the First Flush

Tank (Photo 6) and Storm Water Tank, including the oil analyzer on the Storm Water Tank (Photos 7, 8). We next visited the Aeration Basins area where I saw the Inlet COD sampling station for the Aeration Basins (Photo 9), Aeration Basin A (Photo 10), Aeration Basin B (Photo 11), the post basin Membrane Filtration Tanks (Photo 12), and the COD effluent sampling point post Membrane Tanks (Photo 13). We then walked to the Reuse Tank (Photo 14) and Effluent Tank (Photo 15). We then saw that the Biowater Sump Pump was not working as intended (Photo 16), and we were told by the staff that the Biowater Sump Pump was currently being operated with a mobile diesel engine due to a design issue. We concluded the field tour at returned to the Administrative Building at 11:15 AM.

Discussion of Emission Calculations

After lunch at 12:40 PM, the inspection team returned to the Administrative Building and discussed with the LIP JV environmental staff how they calculate their emissions for annual reporting purposes. We were told that a consultant, CK Associates, prepares the annual air emissions calculations for the LIP JV. We were told that CK Associates uses software called Toxchem for calculating emissions twice a year while LIP JV staff collect the input data used in the software monthly. We were told that CK Associates will provide the Toxchem calculation results back to LIP JV environmental staff, who then combine the information for the required annual air emission reporting. We were then told that the Toxchem model for the facility was created by CK Associates in 2018 when the WWTP2 Unit began operating under Sasol Chemicals Complex.

We then discussed the Benzene Stripper control device which releases treated water to the WWTP. I was told by LIP JV environmental staff that the Benzene Stripper hours of operation do not include periods when the stripper isn't running or times when it is recirculating. They also stated that the Benzene Stripper is used approximately every 2 to 3 months for about 3 days at a time. LIP JV environmental staff stated that the Aerobic Bioreactor will normally have lower mixed liquor suspended solids (MLSS) than the Membrane Tank because cleaned water is removed at the Membrane Tank and solids concentrations increase there.

LIP JV environmental staff also stated that this year was the first time they were preparing and submitting an annual emission report to the LDEQ ERIC submittal system for reporting year 2021 because it was the first year their Title V air permits were separate from the Sasol Chemical Complex. LIP JV's CAA Title V permits are to be renewed in 2023. The staff stated that LIP JV intends to conduct a sampling project of wastewater streams for data to be used in their CAA Title V Permit renewal.

D. Au and I then asked about any recent issues with wastewater coming from the Sasol Chemicals Complex being sent to the LIP JV WWTP. The LIP JV environmental staff stated that during 2021, the COD of wastewater being sent would be out of specification about once a month and they believe that it was likely due to batch processes and unit startups occurring at the Sasol Chemicals Complex. To correct the issue, the wastewater stream valve was throttled in March 2021 on Sasol's neutralization and wastewater sump pump such that the daily COD mass limit is met by measuring the COD concentration and flow rate of wastewater being sent to the LIP JV WWTP. We were told that COD from Sasol Chemicals Complex had not been out of specification since the installation. D. Au asked whether there had ever been a total basin kill of biomass/bacteria at the aeration basins since it started operating and the staff stated that it has not happened.

Section III – AREAS OF CONCERN

I observed no areas of concern at the time of inspection. I do recommend that wastewater emissions be based upon the results of water sampling rather than process knowledge, engineering calculations, and

modeling. LIP JV did tell us that they intend to conduct a wastewater sampling project prior to their forthcoming CAA Title Permit Renewal in 2023.

At 1:50 PM, I conducted the closing conference. In attendance from LIP JV was Beau Mixon, Ashton Singletary, Hillary LeDoux, Megan Leger, and Yasser Elouri. I recapped the staff on the events of our on-site inspection and concluded our inspection at 2:00 PM. During the closing conference, the inspection team had no Areas of Concern to report from the inspection.

Section IV – FOLLOW UP

I asked Megan Leger by email the number of staff working at LIP JV after exiting the facility. No other additional information was received by EPA after exiting the Facility on 4/13/2022.

Section V – LIST OF APPENDICES

Appendix 1 – Photo Log – 16 photos taken 4/13/22

Appendix 2 – Opening and closing conference sign-in sheets

Appendix 3 – Water Balance Diagram of LIP JV WWTP

Appendix 1

Photograph Log



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 1

Location: Louisiana Integrated Polyethylene JV, LLC		
City: Westlake	County/Parish: Calcasieu	State: Louisiana



Pipe headers feeding to EQ 1 tank.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 2

Location: Louisiana Integrated Polyethylene JV, LLC		
City: Westlake	County/Parish: Calcasieu	State: Louisiana



EQ 1 tank.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 3

Location: Louisiana Integrated Polyethylene JV, LLC		
City: Westlake	County/Parish: Calcasieu	State: Louisiana



Oil skim drum next to EQ tanks.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 4

Location: Louisiana Integrated Polyethylene JV, LLC		
City: Westlake	County/Parish: Calcasieu	State: Louisiana



Coagulation, flocculation, and DNF 1 tanks for A train.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 5

Location: Louisiana Integrated Polyethylene JV, LLC		
City: Westlake	County/Parish: Calcasieu	State: Louisiana



Coagulation, flocculation, and DNF 2 tanks for B train.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 6

Location: Louisiana Integrated Polyethylene JV, LLC		
City: Westlake	County/Parish: Calcasieu	State: Louisiana



First Flush Tank.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 7

Location: Louisiana Integrated Polyethylene JV, LLC		
City: Westlake	County/Parish: Calcasieu	State: Louisiana



Storm Water Tank.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 8

Location: Louisiana Integrated Polyethylene JV, LLC		
City: Westlake	County/Parish: Calcasieu	State: Louisiana



Oil analyzer for stormwater tank.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 9

Location: Louisiana Integrated Polyethylene JV, LLC		
City: Westlake	County/Parish: Calcasieu	State: Louisiana



Inlet chemical oxygen demand sampling station for aeration basins.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 10

Location: Louisiana Integrated Polyethylene JV, LLC		
City: Westlake	County/Parish: Calcasieu	State: Louisiana



Aeration Basin A.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 11

Location: Louisiana Integrated Polyethylene JV, LLC		
City: Westlake	County/Parish: Calcasieu	State: Louisiana



Aeration Basin B.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 12

Location: Louisiana Integrated Polyethylene JV, LLC		
City: Westlake	County/Parish: Calcasieu	State: Louisiana



Membrane filter tanks.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 13

Location: Louisiana Integrated Polyethylene JV, LLC		
City: Westlake	County/Parish: Calcasieu	State: Louisiana



Chemical oxygen demand effluent sampling point post membrane tanks.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 14

Location: Louisiana Integrated Polyethylene JV, LLC		
City: Westlake	County/Parish: Calcasieu	State: Louisiana



Reuse Tank.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 15

Location: Louisiana Integrated Polyethylene JV, LLC		
City: Westlake	County/Parish: Calcasieu	State: Louisiana



Effluent Tank.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 16

Location: Louisiana Integrated Polyethylene JV, LLC		
City: Westlake	County/Parish: Calcasieu	State: Louisiana



Biowater Sump Pump.

Appendix 2

Sign In Sheets

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Opening/Pre-Inspection Meeting

Commence opening/pre-inspection meeting Time:

Name	Title	Representing	Telephone No.
Megan Leger	Env. Manager	LIP JV	337-936-2344
Ashton Singletary	Env Engr	LIP JV	337-496-7184
Beau Moran	Env. Eng.	LIP JV	337-304-3942
Dorcen Au	Inspector	EPA	303 462 9266
Justin Chen	Inspector	EPA RG	214 665 2273
Andrew Mills	Inspector	LDEQ	337-491-2667
Yasser Eloupi	HSE Manager	LIP JV	713-298-6969

Conclude opening/pre-inspection meeting Time:

Initials / Date: SHC / 4/13/22

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Exit interview / Out-briefing Meeting

Commenced meeting..... Time: 13:50

Name	Title	Representing	Telephone No.
Justin Chen	Inspector	EPA RG	214-665-2273
Doreen Au	Inspector	EPA -NEIC	303 462 9266
Beau Mixon	Env. Engineer	LIP JV	337-304-3942
Ashton Singletary	Env Engr	LIP JV	337-496-7184
Hillary LeDoux	QOSI Engr	LIP JV	337-515-1181
Megan Leger	Env. Manager	LIP JV	337-936-2344
Yasser Elouri	HSE Manager	LIP JV	713-298-6969
Andrew Mills	Inspector	LDER	337-491-2667

Conclude meeting..... Time: 14:00

Initials / Date: JHC, 4/13/22

Appendix 3

Water Balance Diagrams



