CHEMOURS DELISLE PLANT

2017 HWDIR EXEMPTION PETITION REISSUANCE APPLICATION

SECTION 1.0 ADMINISTRATIVE INFORMATION

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EXECUTIVE SUMMARY

The Chemours DeLisle Plant is located on the north shore of St. Louis Bay in Harrison County, Mississippi. The plant manufactures titanium dioxide pigment by the chloride-ilmenite process. Aqueous wastes are currently disposed of onsite by underground injection into the Washita-Fredericksburg Formation as permitted by the Mississippi Department of Environmental quality (MDEQ) UIC Permit No. MSI1001, and the EPA Hazardous Waste Disposal Injection Restrictions (HWDIR) exemption approved on May 5, 2000.

There is discussion of conversion of Well No. 1 to an injection well, and the proposed construction of Wells No. 6 and No. 7 in this application. However Chemours is not seeking to include these changes in the HWDIR exemption reissuance. These changes are included in the application for review by EPA only.

The MDEQ permit and HWDIR exemption cover injection into four existing injection wells (Well Nos. 2, 3, 4 and 5).This application seeks reissuance of the current HWDIR exemption that expires on December 31, 2020. The application seeks EPA approval for the following changes:

1. Continue injection of hazardous waste generated by the on-site beneficiation to ilmenite ore into titanium dioxide, and wastewater resulting from operation of air emission-control equipment through December 31, 2050, and subject to the conditions of the May 5, 2000 HWDIR exemption as modified on January 23, 2015 and on June 6, 2016 with exception of references to injection wells other than 2, 3, 4 and 5; and

2. Injection into the Tuscaloosa Massive Sand by completion of any injection well into the Tuscaloosa Massive Sand injection interval.

The application contains this Executive Summary, a certification of accuracy and completeness, and the sections outlined below:

Section	Description
Executive Summary	Discussion of no-migration and non-endangerment demonstration, conclusions, and results.
Section 1.0 Administrative Information	Plant contacts, administrative and background information, site location
Section 2.0 Geology	Discussion of regional geology, site geology, and groundwater hydrology
Section 3.0 Flow and Containment Modeling	Updated modeling to reflect actual historical injection volumes, rates, and pressures through year-end 2015. Projected volumes and rates were modeled for the years 2016 through 2050 using SWIFT.

Section	Description
Section 4.0 Area of Review	Updated Area of Review and Cone of Influence determination. Contains evaluation of artificial penetrations located within the Area of Review and Cone of Influence.
Section 5.0 Well Construction	Updated section to include workover and repairs performed from 1995 to present.
Section 6.0 Waste Compatibility	Summary of compatibility with an updated discussion on the compatibility of waste with the materials of construction to demonstrate that elimination of the FRP transition joint will not negatively impact the mechanical integrity of future sidetracks of Wells 2, 3, 4 and 5.
Section 7.0 Mechanical Integrity Testing	Updated to include the most recent (2019) results for Well Nos. 2, 3, 4 and 5. Includes results of individual well MITs (Annulus Pressure Test, Radioactive Tracer, Differential Temperature Survey), and formation bottomhole pressure / falloff test.

Within the application, the following conclusions are stated:

1. Model predicts that there will be no migration of hazardous waste from the injection zone. Computer modeling demonstrates that the injected waste is and will continue to be contained within the injection zone. The results of the modeling fall within the boundaries of the HWDIR exemption approved in May, 2000.

2. No corrective action is necessary for artificial penetrations in the Area of Review, the Cone of Influence, or the 10,000-year plume track. Only the Chemours DeLisle injection wells are located in the 2.0-mile radius Area of Review. Four wells are located beyond the Area of Review but within the Cone of Influence. Two of these are too shallow to penetrate the confining or injection zones. The remaining two are properly plugged to prevent movement of fluid out of the injection zone into the mud-filled borehole, and into an underground source of drinking water.

3. Mechanical integrity testing of the Chemours injection wells has been conducted on an annual basis. The wells have met requirements to prove mechanical integrity or have undergone repair and been successfully retested when necessary.

This application demonstrates the suitability of the Chemours DeLisle Plant for continued Class I Hazardous injection. The DeLisle Plant injection system has successfully, responsibly, and safely managed underground injection of hazardous waste since 1979.

CERTIFICATION

STATE OF MISSISSIPPI

ss.

COUNTY OF HARRISON

I, GLENN A. NEEHAM (Name) PLANT MANAGER (Title)
of the Chemours DeLisle Plant, certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attached documents; and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. [40 CFR 148.22(a)(4)]

_____ _____
(Signature) (Title)

_____
(Date)

SUBSCRIBED AND SWORN to before me by the said

_____ on this _____ day of _____, 2019

My commission expires on the _____ day of _____, _____.

_____
Notary Public in and for Harrison County, Mississippi

1.0 ADMINISTRATIVE INFORMATION

The Chemours DeLisle Plant is located on the north shore of St. Louis Bay in Harrison County, Mississippi. The site is located approximately 14 miles west of Gulfport, Mississippi, and 60 miles east of New Orleans, Louisiana. U.S. Interstate Highway 10 connects these two cities and lies immediately north of the plant, while St. Louis Bay, a part of the Gulf of Mexico, forms the southern boundary of the plant (Figure 1-1).

The site has five wells permitted by the Mississippi Department of Environmental Quality (MDEQ) UIC Permit No. MSI1001; this permit expires on November 30, 2017. MDEQ has already drafted a new permit for the period 2017 to 2027. See Appendix 1-1 for copies of the current and draft MDEQ permit. MDEQ is planning to go to public comment in the third quarter of 2017 with a view issuing the new permit in November, 2017. The contact at MDEQ is James O. Sparks, UIC Coordinator in the Waste Management Branch (601) 961-5640.

The site is authorized for hazardous waste injection via an EPA Hazardous Waste Disposal Injection Restrictions (HWDIR) exemption (Appendix 1-2) issued on May 5, 2000 (modified on January 23, 2015 and June 6, 2016), and valid through December 31, 2020. This application requests the following:

1. Reissue the HWDIR exemption through December 31, 2050
2. Approve injection into the Washita-Fredericksburg injection interval
3. Approve injection into the Tuscaloosa Massive Sand injection interval

This application provides data and technical analysis required by 40 CFR 148.20(a)(1)(i) to demonstrate that continued injection of wastewater will protect human health and the environment for as long as the waste remains hazardous in accordance with the applicable provisions of the Hazardous and Solid Waste Amendments of 1984 (HSWA).

1.1 Site Description

The Chemours DeLisle Plant is located on the Quaternary Coastal Plain of the southern Gulf Coast in Mississippi. The plant is situated between Interstate 10 and the north shore of St. Louis Bay, approximately one mile west of the town of DeLisle in Harrison County, Mississippi (Figures 1-1 and 1-2). Topography of the general area is relatively flat with an elevation ranging from 10 to 80 feet (Figure 1-2). Surface drainage from the plant site is generally south-southeast toward St. Louis Bay (Figures 1-2 and 1-3).

1.1.1 General Identification Data

Applicant:	The Chemours Company FC, LLC
Address:	7685 Kiln-DeLisle Road Pass Christian, Mississippi 39571
Telephone:	(228) 255-2100
Authorized Agents for Plant:	Glenn A. Needham Chemours DeLisle Plant Manager P. O. Box 430 DeLisle, Mississippi 39571 (228) 255-2300
	Eduardo Ramos Chemours DeLisle Plant Senior Environmental Consultant P. O. Box 430 DeLisle, Mississippi 39571 (228) 255-4931
Public Notice Agents:	Same
Wells for which Permit Application Submitted:	Well Nos. 2, 3, 4 and 5

1.1.2 Adjacent Landowners

The location of the Chemours DeLisle Plant and adjacent landowner lots is shown in Figure 1-5. Appendix 1-3 contains a complete list of the adjacent surface landowners.

1.1.3 Minerals Interest Owners

A list of impacted mineral interest owners, within the immediate facility area, is shown below and is keyed to a map presented in Figure 1-6. Appendix 1-4 also contains a complete list of the impacted mineral interest owners.

Mineral Ownership

(See Figure 1-6 and Appendix 1-4)

Tract	Ownership
1	Chemours-All
2	Chemours - All
3	Chemours - All
4	Roy T. Boeler Estate - 1/2 Lynn Crosby Gammill – 17/80 Stewart Gammill IV - 1/80 Lucius Olen Crosby Gammill – 1/80 Jennifer Lynn Gammill - 1/80 Christine E. Crosby Trust – 1/8 Tamara E. Crosby Trust – 1/16 Majorie Y. Crosby – 1/16
5	Chemours - All
6	Chemours - All
7	Roy T. Boeler Estate - 1/2 Lynn Crosby Gammill – 17/80 Stewart Gammill IV - 1/80 Lucius Olen Crosby Gammill – 1/80 Jennifer Lynn Gammill - 1/80 Christine E. Crosby Trust – 1/8 Tamara E. Crosby Trust – 1/16 Majorie Y. Crosby – 1/16

Tract	Ownership
8	Chemours - All
9	Chemours - All
10	Chemours - All
11	Roy T. Boeler Estate - 1/2 Lynn Crosby Gammill – 17/80 Stewart Gammill IV - 1/80 Lucius Olen Crosby Gammill – 1/80 Jennifer Lynn Gammill - 1/80 Christine E. Crosby Trust – 1/8 Tamara E. Crosby Trust – 1/16 Majorie Y. Crosby – 1/16
12	Chemours - All
13	Chemours – 1/2 Olivia Niolet Estate – 1/2

1.1.4 Nature and Status of Well Activity

The Chemours DeLisle Plant produces titanium dioxide (TiO_2) as a white pigment product for use in multiple industrial applications. The plant employs the chloride-ilmenite process that uses naturally-occurring ilmenite ore, which contains a significant amount of metal oxides other than TiO_2. The process generates an aqueous solution consisting of ferrous and ferric chloride, other metal chlorides, and hydrochloric acid resulting from the operation of air-pollution control equipment, and storm water runoff. Well Nos. 2, 3, 4, and 5 are used for disposing of this waste stream. Well No. 1 has never been used for waste disposal; it has been used to monitor the pressure in the injection interval since 1979 when the plant began operations. However, the DeLisle Plant wishes to obtain approval from EPA to convert it to an injection well as was its original purpose. In this way, the site will be able to expedite modification of the MDEQ permit when the time comes to convert the well.

1.2 Regulatory Classification

The injected waste stream is regulated as a characteristic liquid hazardous waste due to corrosivity (D002) under EPA 40 CFR 261.22(1), and due to the toxicity characteristic for hazardous waste codes D007 (Chromium) and D008 (Lead) under 40 CFR 261.24. However, due to unforeseeable variation in the composition of the ores, the waste stream could become hazardous for waste codes D004, D005, D006, D009, D010 and D011 under 40 CFR 261.24.

1.2.1 Permits

A copy of the current permit, MSI-1001 (modified on January 22, 2016) is provided in Appendix 1-1 of this section. The permit authorizes injection of Class I wastes and defines required operating conditions (Tables 1-1 through 1-5). EPA Region 4 approved a HWDIR Exemption on May 5, 2000 for the Chemours DeLisle site (modified on January 23, 2015 and June 6, 2016). See Appendix 1-2.

1.2.1.1 Permit Description

MSI1001 authorizes injection into the Washita-Fredericksburg sand formation. A summary of the specific regulatory injection zone and interval depths for each well completion is compiled in Table 1-1.

The permit has limits on the total volume injected by each well per month. Well Nos. 2, 3, and 4 are permitted to inject a maximum of gallons per month equivalent to 550 gallons per minute (gpm) per well multiplied by 1,440 minutes/calendar day multiplied by the number of days in the calendar month. The maximum injection volume per month for Well No. 5 is 1,000 gpm times 1,440 minutes per day times the number of days in the calendar month. The maximum total injection rate (site maximum) is 2,200 gpm at any one time. Table 1-4 contains a summary of the injection volumes and rates. Table 1-5 presents a compilation of the well completions for the injection wells.

1.2.1.2 Permit History

The MDEQ originally issued permits for Well Nos. 2, 3, and 4 on July 1, 1986, for a 10-year duration. The MDEQ issued an individual permit for Well No. 5 on October 13, 1992, also for a 10-year duration.

In 1992, the MDEQ modified the DeLisle permits when it upgraded its underground injection control (UIC) program to conform to federal regulations and well standards. The 1992 permits for Well Nos. 2, 3, 4 and 5 included requirements for periodic reporting, notification, and mechanical integrity testing of each operating injection well. Since that time, several permit modifications have been requested and permits were reissued.

- October 28, 1997: Permits were reissued for Wells Nos. 2, 3, 4, and 5, for a 10-year duration (expiring October 27, 2007).
- February 7, 2006: A permit modification authorized Well Nos. 2, 3, 4, 5, and 6. The permit duration is 10 years.
- December 11, 2007: Permit renewal issued for Well No. 2, 3, 4, 5 and 6, which will expire November 30, 2017.
- January 22, 2016: Permit modified to adjust proposed location for Well No. 6.
- November, 2017: Expected reissuance of permit prior to expiration date of 11/30/17.

Summary of Permit MSI-1001 Requirements

Item	Requested New Permit Conditions
Permit Duration	10 years
AUTHORIZED WASTE STREAMS (Permit MSI1001 Part I Section B.1.a)	Wastewater generated by the onsite beneficiation of ilmenite ore into titanium dioxide, sanitary wastewater[1], and wastewater resulting from operation of air emission equipment. Manifested wastes originating offsite shall not be injected.
PERMIT LIMITS	
Total Injection Rate Limit (instantaneous) (Permit MSI1001 Part I.B.1b)	2,200 gpm
Well Injection Volume Limit, gallons (Part I B.1.b)	Well No. 2 = 550 gpm * 1440 * days in month Well No. 3 = 550 gpm * 1440 * days in month Well No. 4 = 550 gpm * 1440 * days in month Well No. 5 = 1,000 gpm * 1440 * days in month Well No. 6 = 1,200 gpm * 1440 * days in month
Injection Pressure (Part I.B.2)	6,800 psi
Annulus Pressure > than Injection Pressure (Part I.B.3.b)	> + 25 psi
Allowable Annular Fluid Loss (24 Hours) (Part I.B.3.d)	< 500 gallons for each well applicable to Well Nos. 2, 3, 4, 5 and 6.
MONITORING REQUIREMENTS	
Monitoring of freshwater aquifers (Part I.D.4) NOTE: Monitoring wells are shown in Figures 1-7 (proposed off-site wells) and 1-8 (on-site wells).	Quarterly for 2 on-site wells; annually for 6 off-site wells.[2]
Well No. 1 wellhead pressure (Part I.D.4)	Once a week Continuously
Corrosion Monitoring (Part I.C.5)	Annually
Mechanical Integrity Testing (MIT) (Part I.C)	
Annular Pressure Test (Part I.C.6.a)	Annually
Radioactive Tracer Test (Part I.C.6.b)	Annually
Temperature, Gamma Ray or other Log (Part I.C.6.c)	Every 2 years
Oxygen-Activation Log (Part I.C.6.d)	Upon Request
Casing Inspection Log (Part I.C.6.e)	When injection string is pulled from well unless a log has been run less than 3 years earlier
Pressure fall-off test (rotate between Well Nos. 2, 3, 4 and 5) Part I.C.7	Annually
REPORTING REQUIREMENTS	
Routine Reporting (Part I.D.1)	Quarterly
Leaks or Well Failure (Part II.11(d))	24 hours
Well Tests and Workover Reports (Part I.D.2)	45 days from completion of test
Report new wells drilled within Area of Review (Part I.D.3)	Annually in quarterly report for 4th calendar quarter
Noncompliance report (Part II.11(e))	Within 5 days
RECORDKEEPING	
Records retention (Part II.A.10)	3 years

[1] The proposed permit has removed sanitary wastewater from the list of streams approved for injection.

[2] The proposed permit has reducedthe number of off-site monitoring wells from six to two.

1.3 Well Data - Monitor Well No. 1

1.3.1 Well Location

Well Name/Permit Number:		Monitor Well No. 1	
Lease:	Fee Land	Section:	4
County:	Harrison	State:	Mississippi
Township, Range, or Block No.:		T8S, R13W	
Well Location (legal description):		1,346 feet from south line and 1,842 feet from west line of Section 4, T8S, R13W. SE ¼ of SW ¼ of Section 4, T8S, R13W.	
Well X and Y Coordinates		X = 352744.6395 Y = 257244.9215	
Well Latitude Coordinates Well Longitude Coordinates		30° 22’ 24.9812” 89° 18’ 05.3751”	
Location to nearest town (legal description):		Approximately two miles west of DeLisle, Mississippi	

1.3.2 Injection Program

Waste Stream Description:	Wastewater generated by the onsite beneficiation of ilmenite ore into titanium dioxide, sanitary wastewater[3], and wastewater resulting from operation of air emission equipment.	
Well Completion Data:		
Spud Date:	January 9, 1974	
Completion Date:	March 11, 1974	
Total Depth Drilled (original):	10,030 feet	
Plug Back Total Depth:	10,015 feet	
Well Status:	Monitor pressure of injection interval	
Elevation (MSL):	Original kelly bushing (KB)	19.6 feet
	Original ground level (GL)	3.6 feet
	Original rig floor (RF)	18.6 feet

[3] The proposed permit has removed sanitary wastewater from the list of streams approved for injection.

Original Permit Date: July 29, 1974

1.3.3 Regulatory Units Well No. 1

Regulatory Unit	Geologic Formation	Depth (feet)*
Confining Zone	Midway Group and Selma Formation	6,140 - 8,021
Injection Zone	Eutaw, Tuscaloosa, Washita- Fredericksburg	8,021 - 10,043
Injection Interval	Tuscaloosa Massive Sand	9,395 – 9,635
Injection Interval	Washita-Fredericksburg	9,745 – 10,043

* All depths are approximate, and are referenced to Well No. 1 Dual Injection/Laterolog geophysical well log.

1.4 Well Data - Well No. 2

1.4.1 Well Location

Well Name/Permit Number:		Well No. 2 (MSI1001)	
Lease:	Fee Land	Section:	5
County:	Harrison	State:	Mississippi
Township, Range, or Block No.:		T8S, R13W	
Well Location (legal description):		1,392 feet from north line and 962 feet from east line of Section 5, T8S, R13W. SE ¼ of NE ¼ of Section 4, T8S, R13W.	
Well X and Y Coordinates		X = 349883.002 Y = 259902.7751	
Well Latitude Coordinates		30° 22’ 49.3873”	
Well Longitude Coordinates		89° 18’ 37.2026”	
Location to nearest town (legal description):		Approximately two miles west of DeLisle, Mississippi	

1.4.2 Injection Program

Waste stream description:	Aqueous solution of iron chloride, miscellaneous metal chlorides, and hydrochloric acid.	
Well Completion Data:		
Spud Date:	May 19, 1978	
Completion Date:	October 11, 1979	
Total Depth Drilled (original):	10,060 feet	
Well Status:	Active	
Elevation (MSL):	Original kelly bushing (KB)	30.00 feet
	Original ground level (GL)	16.58 feet
	Original rig floor (RF)	29.00 feet
	Top of Bradenhead flange (BHF)	18.00 feet
	Current ground level (GL)	17.00 feet
	Original KB to GL	21.00 feet
Original Permit Date:	May 19, 1978	
Original Service Date:	October 11, 1979	

Cumulative Injectate Volume to December 31, 2015: 2,754.59 million gallons

1.4.3 Regulatory Units Well No. 2

Regulatory Unit	Geologic Formation	Depth (feet)*
Confining Zone	Midway Group and Selma Formation	6,200 - 8,035
Injection Zone	Eutaw, Tuscaloosa, Washita-Fredericksburg	8,035 - 10,042
Injection Interval	Tuscaloosa Massive Sand	9,392 – 9,597
Injection Interval	Washita-Fredericksburg	9,802 - 10,042

* All depths are approximate, and are referenced to Well No. 2 Dual Injection/Laterolog geophysical well log.

1.5 Well Data - Well No. 3

1.5.1 Well Location

Well Name/Permit Number:		Well No. 3 (MSI1001)	
Lease:	Fee Land	Section:	5
County:	Harrison	State:	Mississippi
Township, Range, or Block No.:		T8S, R13W	
Well Location (legal description):		1,464.93 feet from north line and 1,083.12 feet from east line of Section 5, T8S, R13W SE ¼ of NE ¼ of Section 5, T8S, R13W	
Well X and Y Coordinates		X = 349744.4194 Y = 259825.9003	
Well Latitude Coordinates		30° 22’ 49.2124”	
Well Longitude Coordinates		89° 18’ 39.0288”	
Location to nearest town (legal description):		Approximately two miles west of DeLisle, Mississippi	

1.5.2 Injection Program

Waste Stream Description:	Aqueous solution of iron chloride, miscellaneous metal chlorides, and hydrochloric acid.	
Well Completion Data:		
Spud Date:	December 9, 1978	
Completion Date:	December 21, 1979	
Total Depth Drilled (original):	10,057 feet	
Well Status:	Active	
Elevation (MSL):	Original kelly bushing (KB)	37.58 feet
	Original ground level (GL)	16.58 feet
	Original rig floor (RF)	36.58 feet
	Top of Bradenhead flange (BHF)	18.00 feet
	Current ground level (GL)	17.00 feet
	Original KB to GL	21.00 feet
Original Permit Date:	April 25, 1978	
Original Service Date:	December 21, 1979	

Cumulative Injectate Volume to December 31, 2015 1,643.78 million gal

1.5.3 Regulatory Units Well No. 3

Regulatory Unit	Geologic Formation	Depth (feet)*
Confining Zone	Midway Group and Selma Formation	6,192 - 8,045
Injection Zone	Eutaw, Tuscaloosa, Washita-Fredericksburg	8,045 - 10,038
Injection Interval	Tuscaloosa Massive Sand	9,315 – 9,590
Injection Interval	Washita-Fredericksburg	9,796 - 10,038

* All depths are approximate, and are referenced to Well No. 3 Dual Injection/Laterolog geophysical well log.

1.6 Well Data - Well No. 4

1.6.1 Well Location

Well Name/Permit Number:		Well No. 4 (MSI1001)	
Lease:	Fee Land	Section:	5
County:	Harrison	State:	Mississippi
Township, Range, or Block No.:		T8S, R13W	
Well Location (legal description):		1,809 feet from north line and 1,086 feet from east line of Section 5, T8S, R13W. SE ¼ of NE ¼ of Section 5, T8S, R13W	
Well X and Y Coordinates		X = 349721.7402 Y = 259463.17	
Well Latitude and Longitude Coordinates		Latitude: 30° 22' 45.5699"	Longitude: 89° 18' 39.1697”
Location to nearest town (legal description):		Approximately two miles west of DeLisle, Mississippi	

1.6.2 Injection Program

Waste stream description:	Aqueous solution of iron chloride, miscellaneous metal chlorides, and hydrochloric acid.	
Well Completion Data:		
Spud Date:	June 21, 1982	
Completion Date:	October 18, 1982	
Total Depth Drilled (original):	10,045 feet	
Well Status:	Operational	
Elevation (MSL):	Original kelly bushing (KB)	33.3 feet
	Original ground level (GL)	12.3 feet
	Original rig floor (RF)	32.3 feet
	Top of Bradenhead flange (BHF)	18.0 feet
	Current ground level (GL)	13.0 feet
	Original KB to GL	21.0 feet
Original Permit Date:	August 4, 1981	
Original Service Date:	January 10, 1983	

Cumulative Injectate Volume to December 31, 2015 1,573.67 million gallons

1.6.3 Regulatory Units Well No. 4

Regulatory Unit	Geologic Formation	Depth (feet)*
Confining Zone	Midway Group and Selma Formation	6,155 – 8,003
Injection Zone	Eutaw, Tuscaloosa, Washita-Fredericksburg	8,003 – 10,023
Injection Interval	Tuscaloosa Massive Sand	9,344 – 9,550
Injection Interval	Washita-Fredericksburg	9,750 – 9,980

* All depths are approximate, and are referenced to Well No. 4 Dual Injection/Laterolog geophysical well log.

1.7 Well Data - Well No. 5

1.7.1 Well Location

Well Name/Permit Number:		Well No. 5 (MSI1001)	
Lease:	Fee Land	Section:	5
County:	Harrison	State:	Mississippi
Township, Range, or Block No.:		T8S, R13W	
Well Location (legal description):		100 feet from north line and 1,550 feet from east line of Section 5, T8S, R13W. NW ¼ of NE ¼ of Section 5, T8S, R13W	
Well X and Y Coordinates		X = 349254.8986 Y = 261248.739	
Well Latitude and Longitude Coordinates		Latitude: 30° 23' 03.2973”	Longitude: 89° 18’ 52.2135”
Location to nearest town (legal description):		Approximately two miles west of DeLisle, Mississippi	

1.7.2 Injection Program

Waste Stream Description: Aqueous solution of iron chloride, miscellaneous metal chlorides, and hydrochloric acid.

Well Completion Data:

Spud Date:	December 11, 1992	
Completion Date:	June 1, 1994	
Total Depth Drilled (original):	10,050 feet	
Well Status:	Operational	
Elevation (MSL):	Original kelly bushing (KB)	64.0 feet
	Original ground level (GL)	33.0 feet
	Original rig floor (RF)	63.0 feet
	Current ground level (GL)	33.0 feet
	Original KB to GL	31.0 feet
Original Permit Date:	October 13, 1992	
Original Service Date:	August 1994	

Cumulative Injectate Volume to December 31, 2015: 2,096.09 million gallons

1.7.3 Regulatory Units Well No. 5

Regulatory Unit	Geologic Formation	Depth (feet) *
Confining Zone	Midway Group and Selma Formation	6,130 - 8,003
Injection Zone	Eutaw, Tuscaloosa, Washita-Fredericksburg	8,003 - 10,043
Injection Interval	Tuscaloosa Massive Sand	9,268 – 9,560
Injection Interval	Washita-Fredericksburg	9,746 – 10,043

* All depths are approximate, and are referenced to Well No. 5 Dual Injection/Laterolog geophysical well log.

1.8 Financial Assurance

Chemours DeLisle Plant maintains a plugging bond and financial assurance to cover the existing wells. A copy of the current surety bond and standby financial agreement for the DeLisle deepwells is provided in Appendix 1-5.

The face value of the bond will be updated on a periodic basis. The DeLisle Plant is in compliance with the requirements of 40 CFR 144.62(a) [prepare initial plug and abandonment estimate] and 40 CFR 144.62(b) [update the estimate within 30 days of the anniversary of its initial preparation using the Oil and Gas Equipment Field Cost Index from the US Bureau of Labor Statistics available at http://data.bls.gov/cgi-bin/surveymost?pc]. The site voluntarily had a full-fledged estimate done in December, 2012. This estimate has been updated as required by 40 CFR 144.62(b) every year since. The facility will continue to periodically update the estimate based on actual vendor quotes to ensure long-term accuracy, and will update the face value of the bond as needed.

1.9 Quality Assurance/Quality Control

Quality assurance/quality control of the data utilized in the preparation of this document was maintained by using, on a priority basis, either site-specific data where available, or conservative values from creditable literature sources. The quality, reliability, and applicability of the data to the site were considered and reasonably conservative values were chosen. This document provides a sound and conservative analysis for the impact of waste disposal at the Chemours DeLisle Plant. Sources of the geologic and modeling data used in compiling the permit application include the following:

- Well logs from the plant wells;
- Well logs from exploratory drilling and oil and gas production wells;
- Log and core study reports by service companies;
- Injection well technical data summary reports prepared by either the plant or their consultants; and,
- Publications of scientific and engineering societies, or state/federal agencies.

Collectively, these sources reflect the EPA's HSWA 1984 standard by being "best available" sources of information which are commonly used and relied upon by experts in the field for mineral resource exploration, injection well permit applications, and other environmental engineering projects. The formulation and solution of the equations used in the flow and containment models is documented in the modeling section of the permit application. The models have been verified and validated against a variety of analytical and numerical solutions in the literature. Model predictions for injection at the DeLisle Plant over the historical time period are appropriate for the specific site, and were calibrated according to site-specific data where available.

Geologic mapping and well log interpretation for the DeLisle area have been performed by Geostock Sandia, LLC. Although the results represent an interpretation of many data sources, they remain consistent with published studies of geologic surveys, studies by previous consultants to the plant, studies by various Gulf Coast geologic societies in the published literature, and commercial and private company maps of the area.

1.9.1 Text References

References are identified in the body of the text in each section following standard referencing style [author(s), year].

1.9.2 Endnote Citations

Standard endnote format is used for the reference list. Reference citations are listed alphabetically by author. When a document is cited more than once in the text, it is not repeated in the reference list. Minimum information contained in each endnote citation includes: author, year written, and title, in that order. Additional information is included where applicable.

1.9.3 References to DeLisle Deepwell Document Database

References to key sources of data are included at the end of each section. Reference documents are archived in electronic form in a database. Each document has been assigned a unique reference number that makes it easily locatable. This unique reference number is shown in the reference given at the end of each section.

FIGURES

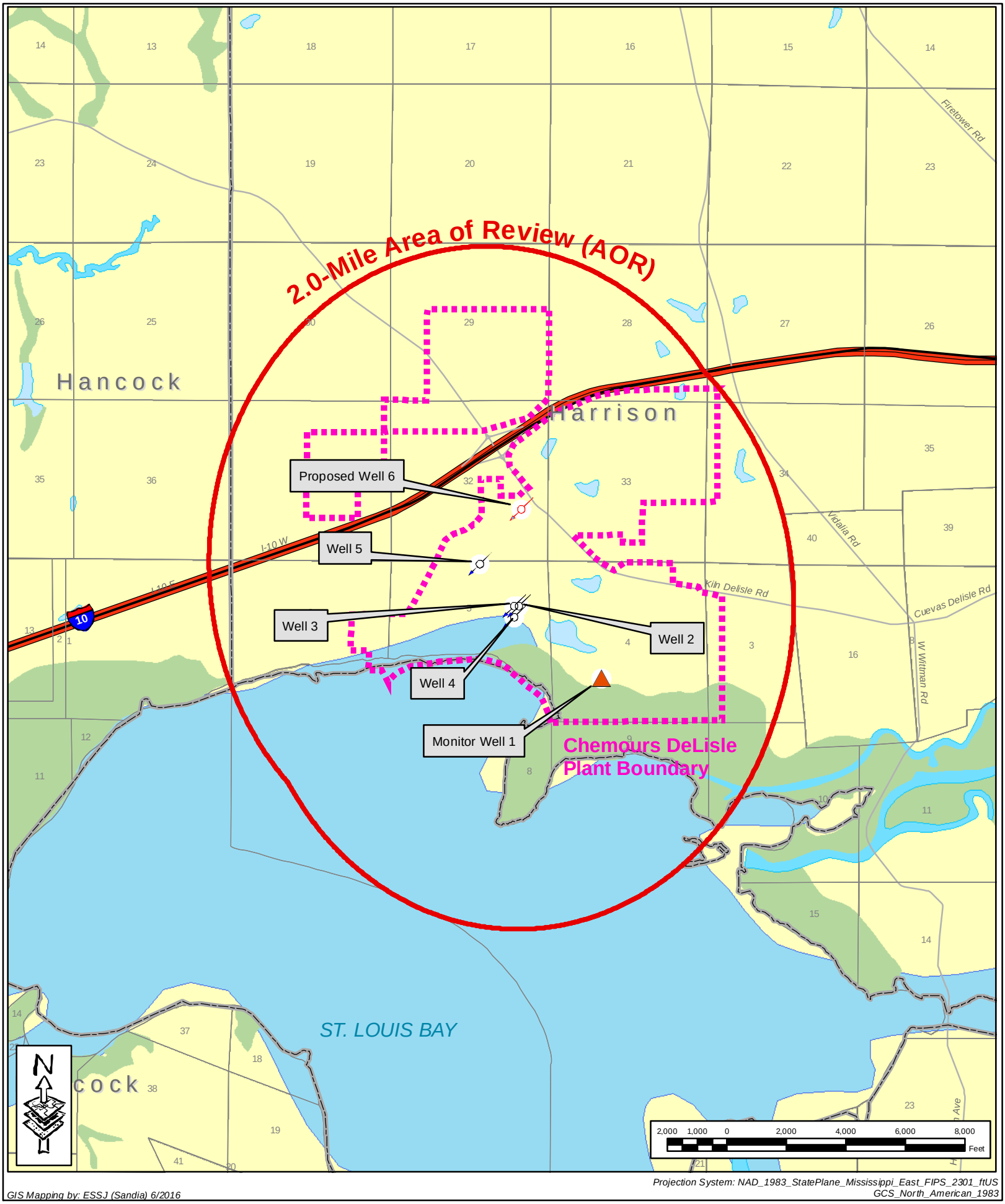


Figure 1-1 Site Location Map

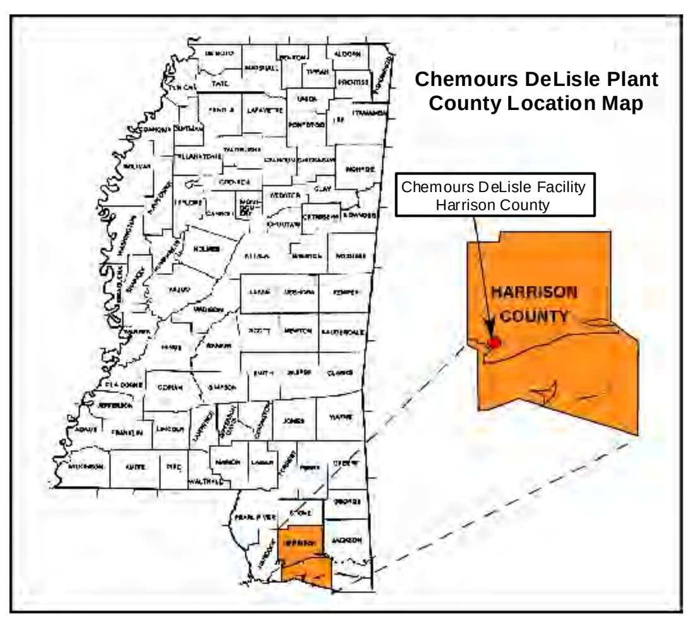

2-Mile Area of Review (AOR)
Chemours DeLisle
Plant Boundary
Well 5
Proposed Well 6
Well 3
Well 2
Well 4
Monitor Well 1
St Williams Ch
St Anne Ch
Little Bethel Ch
Lookout Tower
Pit
Rotten
Bayou
La Salle
Mill Creek
Coon Br
De Lisle
St Stephens Sch
Golf Course
HANCOCK CO
HARRISON CO
Shell Beach
Piling
Whitfield Bight
Grassy Point
Airy
Little Bay
WOLF
ST LOUIS BAY
BAY ST LOUIS
CORP
BOUNDARY
Pile
INTERCHANGE
047J0157
047J2355
047J0277
047J0152
047J0051
047J0158
047J0150
047J2345
047J0208
047J0349
047J0246
04J0074
047J0119
047J0001
047J0362
047J0145
047J0198
047J0240
047J2314
047J0168
047J0255
047J0105
047J0102
047J0020
047J0357
047J0201
047J0246
047J0213
047J0212
047J0203
047N0106
047N0291
047N0275
047N0248
047N0024
047N0026
047N0202
047N0107
047N0084
047N0090
047N2145
047N2122
047N0355
047N0252
047N0281
047N0015
047N0083
047N0282
047N0267
047N0288
047N0348
047N0031
047N0294
047N0206
047N0207
047N2139
047N0350
047N0085
047N0029
047N0166
047N0280
047N0081
047N0109
047N0094
047N0019
Cedar Point
Cowand Point
Flowing Well
Platform
JULIA AVE
BLAKEMAN AVE
BOARDMAN AVE
ENGMAN
FELICITY
BLUE MEADOW RD
WASHINGTON
NORTH BEACH BLVD
Bay Waveland Yacht Club
North Bay Sch
Tiger Stadium
High Sch
Hancock Medical Center
St Augustine Seminary
Hospital
St Stanislaus Stadium
St Rose de Lima Sch
City Hall
BAY ST LOUIS
BAY ST LOUIS BRIDGE
Submerged
Pipeline
Cable
Telephone
Mallini Point
Mallini Bayou
Henderson Point
BAYVIEW ST
PASS CHRISTIAN
Golf Course
Pile

1:20,000

0 850 1,700 3,400 5,100 6,800 Feet

Legend

- Injection Wells
- Source USGS Water Wells inside 2-Mile AOR
- Source USGS Water Wells
- Chemours Plant Boundary
- 047N0019 FIP Well Indentifier



N

Projected Coordinate System: NAD_1927_UTM_Zone_16N
Projection: Transverse_Mercator
False_Easting: 500000.00000000
False_Northing: 0.00000000
Central_Meridian: -87.00000000
Scale_Factor: 0.99960000
Latitude_Of_Origin: 0.00000000

*Note: Map compiled and adapted from theUSGS, Topographic Map Mississippi Quadrangle Location Area: Bay Saint Louis, Vidalia

**Note: Data gathered from the Mississippi Department of Environmental Quality (MDEQ) the Office of Land and Water Resources (OLWR) MS-USGS Source Water Assessnment Program (SWAP) - Source Water Wells http://landandwater.deq.ms.gov/swap/RadialSearch/SourceWater.html

Chemours

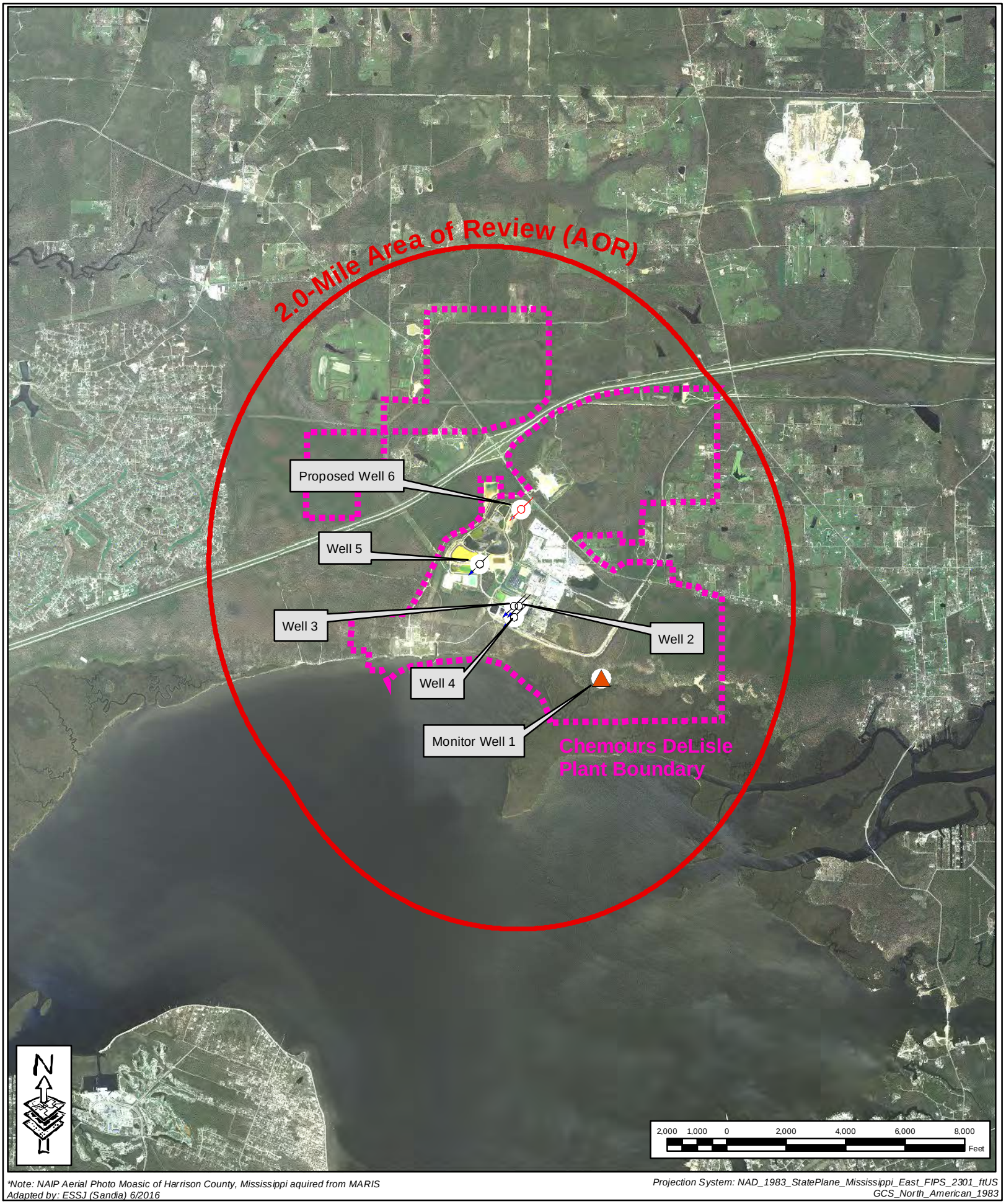
The Chemours Company FC, LLC
Titanium Technologies
Harrison County, MS

Figure 1-2
Site Topographic Map

Illustration by: ESSJ	Scale: SEE SCALEBAR	Date: 3/2016

GEOSTOCK SANDIA ENTREPOSE

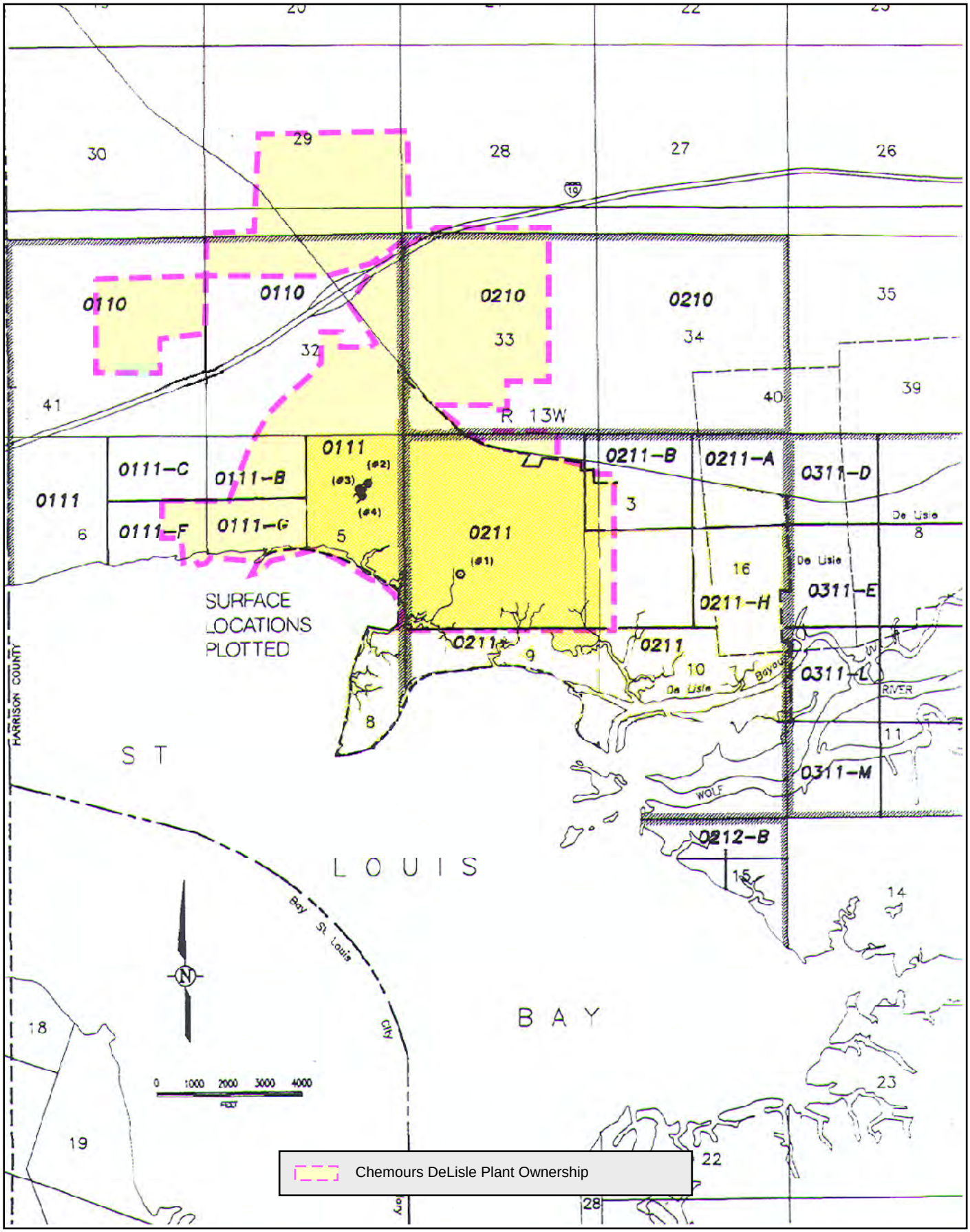
6731 Theall Road Houston, TX USA 77066 (832) 286-0471 Fax: (832) 286-0477 www.sandiatech.com



*Note: NAIP Aerial Photo Moasic of Harrison County, Mississippi aquired from MARIS
Adapted by: ESSJ (Sandia) 6/2016

Projection System: NAD_1983_StatePlane_Mississippi_East_FIPS_2301_ftUS
GCS_North_American_1983

Figure 1-3 Site Aerial Photgraph



adapted by: ESSJ 1/24/2007, 7/2016

Figure 1-4 DeLisle Plant and other Chemours Land Ownership.

1 Bond Daniel R & Cheryl P
2 Pavolini Marie E
3 Bond Daniel R & Cheryl P
4 Ladner John H Sr & Doris G
5 Ladner John H Sr & Doris D
6 Harshbarger William L Jr Et Al
7 Bond Daniel R & Cheryl P
8 Farragut Debra K & Edwards Jackie L
9 Farragut Debra K & Edwards Jackie L
10 Farragut Patsy L -L/E-
11 Farragut Debra K Farragut & David W
12 Mallette Milburn L/E
13 Niolet Rene J & Andra E
14 Department Of Marine Resources
15 Department Of Marines Resources
16 Page Herman J
17 Lafontaine Betty Jane
18 Lafontaine Paul E
19 Lafontaine Paul E
20 Lujano Benito & Rachael
21 Gallager Joseph C
22 Gallager Joseph C
23 Fortenberry Melvin E & Mary L
24 Niolet Douglas F & Courtney D
25 Waggle Jeffrey A & Teresa L
26 Kansas City Southern
27 Dirty Boys Llc
28 Oak Grove Marketplace Llc
29 B & J Of Gulfport Llc
30 B & J Of Gulfport Llc
31 Jenkins Joseph S & Phyllis M
32 Epperson David O & Cynthia
33 Giovingo Salvador & Wf
34 Stafford Elizabeth J -Trustee-
35 Moran Alan T Sr & Kathryn-Trustees-
36 Moran Alan Thomas Jr
37 Moran Jacob N & Amanda D
38 Ladner Eddie A & Ada M
39 K A T Investment Group Llc
40 Storey Richard J & Dedra
41 Storey Richard James & Dedra
42 Storey Richard James & Dedra
43 Storey James Chadwick
44 Storey Dedra F & James C
45 Knowles Jay
46 Knowles Jay
47 Crosby Marjorie Y
48 Demetz Donald J Et Al
49 Wood Robert D Et Al
50 Family Lands Lp Et Al

51 Crosby L O Iii -Trust- Et Al
52 Crosby Marjorie Y Et Al
53 Steube Karen Ann
54 Terrell Kathy R
55 Cuevas James L & Shirley L
56 Ladner Daron R & Nikki
57 Mixon Elizabeth Ann & George Truste
58 Cuevas Huey L & Veda Mae
59 Savarese Debra
60 Cuevas Lecter J Jr & Jewel
61 Cuevas Lector J Jr & Jewel J
62 Cuevas Lector J Jr
63 Morrison Mary L N Et Al
64 Stockstill James A Et Al
65 Dinero Unlimited Inc
66 Stockstill James & Mcraney T O
67 Harrison County Utility Authority
68 Family Land LP
69 Family Land LP
70 Family Land LP
71 Family Land LP
72 Family Land LP
73 Family Land LP
74 Family Land LP
75 Family Land LP
76 Family Land LP
77 Family Land LP
78 Family Land LP
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89 Family Land LP
90 Family Land LP
91 Family Land LP
92 Family Land LP
93 Family Land LP
94 Family Land LP
95 Family Land LP
96 Family Land LP
97 Family Land LP
98 Family Land LP
99 Shelly Plantation Venture
100 Family Land LP
101 Family Land LP
102 Family Land LP
103 Family Land LP
104 Family Land LP
105 Niolet Eugene J

N

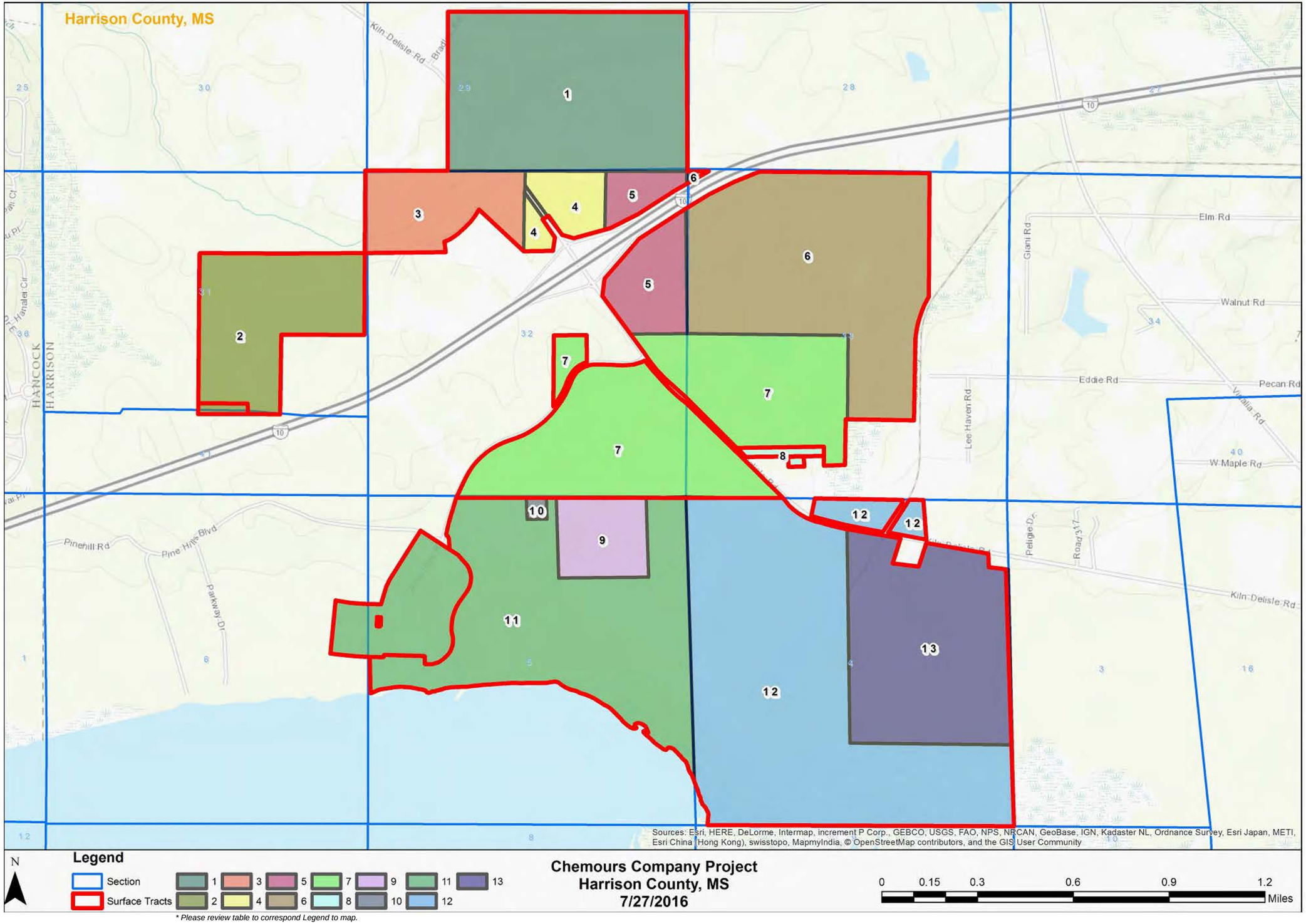
Chemours Company Project
Harrison County, MS
7/19/2016

0 0.2 0.4 0.8 1.2 1.6 Miles

adapted by: ESSJ 7/28/2016

** Please review table to correspond Legend to map.*

Figure 1-5 DeLisle Plant Boundary and Surface Land Ownership Map



* Please review table to correspond Legend to map.

adapted by: ESSJ 7/28/2016

Figure 1-6 DeLisle Mineral Ownership Map

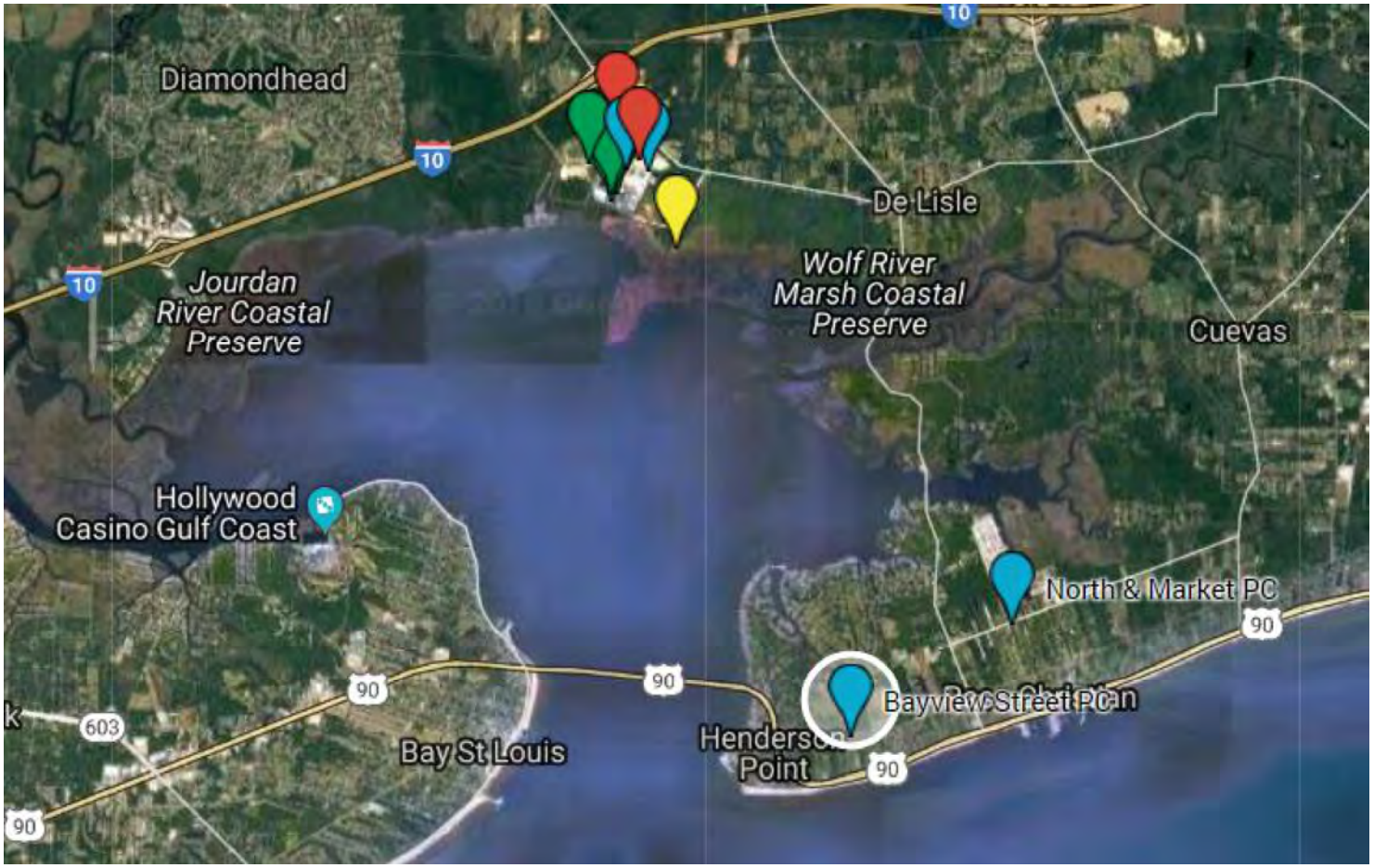


Figure 1-7 Location of Community Wells

LEGEND: Community Wells shown in blue:

1. City of Pass Christian North Street & Market Street Well – 5.10 miles from Injection Well No. 4
2. City of Pass Christian 519 Bayview Street Well – 5.35 miles from Injection Well No. 4
3. Source of distances is Page 1-14 of 2016 Chemours DeLisle MDEQ UIC Permit Renewal Application

Figure 1-8 Location of Wells on Chemours DeLisle Facility

LEGEND:

1. Green Marker – Active Injection Wells Nos. 2, 3, 4 and 5
2. Yellow Marker – Monitor Well No. 1
3. Red Marker: Proposed (Future) Injection Wells Nos. 6 and 7
4. Blue Marker – Plant Water Wells Nos. 1 and 2 are On-Site Monitoring Wells.

TABLES

Table 1-1

Chemours DeLisle Plant Washita-Fredericksburg Sand Injection Interval

Well Completion Table

Well No.	Permitted Injection Zone (ft)	Permitted Injection Interval (ft)	Completed Injection Interval (ft)	Completion Figure Reference
Monitor Well No. 1	NA	NA	9,775 - 9,801* 9,812 - 9,844* 9,850 - 9,914* 9,934 - 9,974*	Figure 5-2
Well No. 2 (MSI1001)	8,025 - 10,043	9,779 - 10,018	9,764 – 9,999	Figure 5-5
Well No. 3 (MSI1001)	8,045 - 10,043	9,797 - 10,043	9,807 - 10,045	Figure 5-8
Well No. 4 (MSI1001)	8,003 - 10,043	9,754 – 10,023	9,747 – 10,013	Figure 5-11
Well No. 5 (MSI1001)	8,003 - 10,043	9,746 - 10,043	9,733 - 10,028	Figure 5-14
Well No. 6 (MSI1001)	8,000 - 10,100	9,700 – 10,100**	TBD**	

* Perforated monitor interval in the Washita-Fredericksburg Sand

** TBD-- To be determined from electric log following drilling of well.

Table 1-2

Chemours DeLisle Plant

Summary of MDEQ PERMIT MSI1001

Well No.	Date Drilled	Original Permit Issued	Permit Expiration	Term	Permit No.
Monitor Well No. 1	1974	NA	NA	NA	NA
Well No. 2	1979	July 1, 1986	November 30, 2017	10 years	MSI 1001
Well No. 3	1979	July 1, 1986	November 30, 2017	10 years	MSI 1001
Well No. 4	1982	July 1, 1986	November 30, 2017	10 years	MSI 1001
Well No. 5	1993	October 13, 1992	November 30, 2017	10 years	MSI 1001
Well No. 6	Proposed	December 11, 2007	November 30, 2017	10 years	MSI1001

Table 1-3

Chemours DeLisle Plant

Summary of MDEQ Permit MSI1001 Conditions

Well No.	Injection Interval Top (ft)	Injection Interval Bottom (ft)	Injection Rate (gpm)	Injection Pressure (psi)	Differential Annulus Pressure (psig)	Annulus Fluid Loss (gal/24 hrs)
Monitor Well No. 1	NA	NA	N/A	N/A	N/A	N/A
Well No. 2 (MSI1001)	9,779	10,018	550	< 6,800	> 25	500
Well No. 3 (MSI1001)	9,797	10,043	550	< 6,800	> 25	500
Well No. 4 (MSI1001)	9,754	10,023	550	< 6,800	> 25	500
Well No. 5 (MSI1001)	9,746	10,043	1,000	< 6,800	> 25	500
Well No. 6 (MSI1001)	9,700	10,100	1,200	< 6,800	>25	500

Table 1-4

Chemours DeLisle Plant

Injection Well Volume and Rate Summary

Well No.	Permit No.	Maximum Permitted Injection Rate (gpm)	1979 - 2015 Cumulative Volume (gal)
Monitor Well No. 1	NA	NA	NA
Well No. 2	MSI1001	550	2,748,076,000
Well No. 3	MSI1001	550	1,643,034,000
Well No. 4	MSI1001	550	1,557,007,000
Well No. 5	MSI1001	1,000	2,101,794,000
Well No. 6	MSI1001	1,200	NA

Table 1-5

Chemours DeLisle Plant Injection Well Completion Summary

Injection Well No.	Mississippi Permit No.	Permitted Injection Interval (feet)	Current Washita-Fredericksburg Injection Interval (ref. KB feet)	Date	Historical Washita-Fredericksburg Injection Intervals (feet)
Well No. 2			Not applicable	06/79 11/79	5-1/2" Titanium Grade 7 slotted liner set in 8-12 mesh Gravel Pack Sand from 9,788' - 10,027' Packer @ 9,766' 5-1/2" Titanium Grade 7 slotted liner set in 8-12 mesh Gravel Pack Sand from 9,766 - 10,021' Packer @ 9,766'
Well No. 2 Sidetrack No. 1	MSI1001	9,779 - 10,018	**9/14 to present** Refer to Figure 5-5 4-1/2" FRP slotted liner w/33 3" x 0.15" slots per foot set from 9,764' – 9,999' Packer @ 9,700' – 9,705' PBR 9,679' – 9,700'	5/92	4-1/2" FRP slotted liner w/24 2" x 0.002" slots per foot set from 9,779' - 10,018' Packer @ 9,715' – 9,720' PBR 9,696 – 9,715'
Well No. 3			Not applicable	12/79 06/84	4-1/2" Titanium slotted liner set in Gravel Pack Sand from 9,788' - 10,025' Packer @ 9,738' 4-1/2" Titanium slotted liner set in Gravel Pack Sand from 9,788' - 10,025' Packer @ 9,738'
Well No. 3 Sidetrack No. 1	MSI1001	9,797 - 10,043	**11/03 to present** Refer to Figure 5-8 4-1/2" FRP slotted liner set from 9,807' - 10,045' Packer at 9,653' – 9,658' and 9,656' – 9,661' Straddle Packer Assembly and Latch-in PBR: 9,517' – 9,522' and 9,573 – 9,578' PBR at 9,517'- 9,496'		
Well No. 4			Not applicable	10/82 02/91	4-1/2" FRP tubing, open-hole completion from 9,752' - 9,982' Packer @ 9,708' 4-1/2" FRP slotted liner set to 10,044' Packer @ 9,708'
Well No. 4 Sidetrack No. 1	MSI1001	9,754 – 10,023	**9/13 to present** Refer to Figure 5-11 4-1/2" FRP slotted liner set from 9,747' - 10,013' 7-inch DPI Packer @ 9,683 – 9,688' PBR 9,662 – 9,683'	02/94	4-1/2" FRP slotted liner set from 9,757' - 10,022' 7-inch GPS Packer @ 9,692 – 9,696' PBR 9,671 – 9,692'
Well No. 5	MSI1001	9,746 - 10,043	**09/15 to present** Refer to Figure 5-14 6-5/8-inch FRP slotted liner 9,733 – 10,028' Upper Packer @ 9,692 – 9,699'	06/93 10/04	6-5/8-inch FRP slotted liner set to 10,043' Lower Packer @ 9,716 – 9,720' 6-5/8-inch FRP slotted liner 9,750 – 10,043' Upper Packer @ 9,695 – 9,701'
Well No. 6	MSI1001	9,700 – 10,100	Refer to Figure 5-17	2013	NA

Table 1-6

Abbreviation Standards

Terms shown here may be abbreviated within the document text.

Agency Information Consultants, Incorporated	AIC
American Petroleum Institute	API
Best Demonstrated Available Technology	BDAT
biological oxygen demand	BOD
bottom-hole pressure	BHP
bottom-hole temperature	BHT
cement bond log	CBL
cement sack (94 lb)	sx
chemical oxygen demand	COD
Company	Co.
Comprehensive Environmental Response, Compensation and Liability Act	CERCLA
Code Federal Regulations	CFR
drill stem test	DST
Environmental Protection Agency	EPA
Environmental Testing and Certification	ETC
and others	et al.
diversion tool	DV tool
fiber reinforced plastic	FRP
gallons per minute	gpm
grams per cubic centimeter	gm/cc
ground level	GL
Hazardous and Solid Waste Amendments	HSWA
Incorporated	Inc.
inside diameter	ID
Kelly bushing	KB
mean sea level	MSL
mechanical integrity test	MIT
milligrams per liter	mg/l
outside diameter	OD
parts per million	ppm
pounds per gallon	lb/gal
pounds per square inch	psi
radioactive tracer survey	RTS
Resource Conservation and Recovery Act	RCRA
retrievable test treat and squeeze	RTTS
Safe Drinking Water Act	SDWA
spontaneous potential	SP
thermal decay time log	TDT
total depth	TD
total dissolved solids	TDS
total organic carbon	TOC
total suspended solids	TSS
Underground Injection Control	UIC
Underground Injection Practices Council	UIPC
Underground Source of Drinking Water	USDW
United States Geological Survey	USGS

Table 1-7

Summary of Permit MSI-1001 Requirements

Item	Requested New Permit Conditions
Permit Duration	10 years
AUTHORIZED WASTE STREAMS (Permit MSI1001 Part I Section B.1.a)	Wastewater generated by the onsite beneficiation of ilmenite ore into titanium dioxide, sanitary wastewater[1], and wastewater resulting from operation of air emission equipment. Manifested wastes originating offsite shall not be injected.
PERMIT LIMITS	
Total Injection Rate Limit (instantaneous) (Permit MSI1001 Part I.B.1b)	2,200 gpm
Well Injection Volume Limit, gallons (Part I B.1.b)	Well No. 2 = 550 gpm * 1440 * days in month Well No. 3 = 550 gpm * 1440 * days in month Well No. 4 = 550 gpm * 1440 * days in month Well No. 5 = 1,000 gpm * 1440 * days in month Well No. 6 = 1,200 gpm * 1440 * days in month
Injection Pressure (Part I.B.2)	6,800 psi
Annulus Pressure > than Injection Pressure (Part I.B.3.b)	> + 25 psi
Allowable Annular Fluid Loss (24 Hours) (Part I.B.3.d)	< 500 gallons for each well applicable to Well Nos. 2, 3, 4, 5, and 6.
MONITORING REQUIREMENTS	
Monitoring of freshwater aquifers (Part I.D.4) NOTE: Monitoring wells are shown in Figures 1-7 (proposed off-site wells) and 1-8 (on-site wells).	Quarterly for 2 on-site wells; annually for 6 off-site wells.[2]
Well No. 1 wellhead pressure (Part I.D.4)	Once a week Continuously
Corrosion Monitoring (Part I.C.5)	Annually
Mechanical Integrity Testing (MIT) (Part I.C)	
Annular Pressure Test (Part I.C.6.a)	Annually
Radioactive Tracer Test (Part I.C.6.b)	Annually
Temperature, Gamma Ray or other Log (Part I.C.6.c)	Every 2 years
Oxygen-Activation Log (Part I.C.6.d)	Upon Request
Casing Inspection Log (Part I.C.6.e)	When injection string is pulled from well unless a log has been run less than 3 years earlier
Pressure fall-off test (rotate between Well Nos. 2, 3, 4, and 5) Part I.C.7	Annually
REPORTING REQUIREMENTS	
Routine Reporting (Part I.D.1)	Quarterly
Leaks or Well Failure (Part II.11(d))	24 hours
Well Tests and Workover Reports (Part I.D.2)	45 days from completion of test
Report new wells drilled within Area of Review (Part I.D.3)	Annually in quarterly report for 4th calendar quarter
Noncompliance report (Part II.11(e))	Within 5 days
RECORDKEEPING	
Records retention (Part II.A.10)	3 years

[1] The proposed permit has removed sanitary wastewater from the list of streams approved for injection.
[2] The proposed permit has reduced the number of off-site monitoring wells from six to two.

Table 1-8

Regulatory Units for Well No. 1

Regulatory Unit	Geologic Formation	Depth (feet)*
Confining Zone	Midway Group and Selma Formation	6,200 - 8,035
Injection Zone	Eutaw, Tuscaloosa, Washita-Fredericksburg	8,035 - 10,042
Injection Interval	Tuscaloosa Massive Sand	9,392 – 9,597
Injection Interval	Washita-Fredericksburg	9,802 - 10,042

* All depths are approximate, and are referenced to Well No. 1 Dual Injection/Laterolog geophysical well log.

Table 1-9

Regulatory Units for Well No. 2

Regulatory Unit	Geologic Formation	Depth (feet)*
Confining Zone	Midway Group and Selma Formation	6,140 - 8,021
Injection Zone	Eutaw, Tuscaloosa, Washita- Fredericksburg	8,021 - 10,043
Injection Interval	Tuscaloosa Massive Sand	9,395 – 9,635
Injection Interval	Washita-Fredericksburg	9,745 – 10,043

* All depths are approximate, and are referenced to Well No. 2 Dual Injection/Laterolog geophysical well log.

Table 1-10

Regulatory Units for Well No. 3

Regulatory Unit	Geologic Formation	Depth (feet)*
Confining Zone	Midway Group and Selma Formation	6,192 - 8,045
Injection Zone	Eutaw, Tuscaloosa, Washita-Fredericksburg	8,045 - 10,038
Injection Interval	Tuscaloosa Massive Sand	9,315 – 9,590
Injection Interval	Washita-Fredericksburg	9,796 - 10,038

* All depths are approximate, and are referenced to Well No. 3 Dual Injection/Laterolog geophysical well log.

Table 1-11

Regulatory Units for Well No. 4

Regulatory Unit	Geologic Formation	Depth (feet)*
Confining Zone	Midway Group and Selma Formation	6,155 – 8,003
Injection Zone	Eutaw, Tuscaloosa, Washita-Fredericksburg	8,003 – 10,023
Injection Interval	Tuscaloosa Massive Sand	9,344 – 9,550
Injection Interval	Washita-Fredericksburg	9,750 – 9,980

* All depths are approximate, and are referenced to Well No. 4 Dual Injection/Laterolog geophysical well log.

Table 1-12

Regulatory Units for Well No. 5

Regulatory Unit	Geologic Formation	Depth (feet) *
Confining Zone	Midway Group and Selma Formation	6,130 - 8,003
Injection Zone	Eutaw, Tuscaloosa, Washita-Fredericksburg	8,003 - 10,043
Injection Interval	Tuscaloosa Massive Sand	9,268 – 9,560
Injection Interval	Washita-Fredericksburg	9,746 – 10,043

* All depths are approximate, and are referenced to Well No. 5 Dual Injection/Laterolog geophysical well log.

APPENDICES

APPENDIX 1-1

STATE OF MISSISSIPPI
UNDERGROUND INJECTION CONTROL PERMIT
PERMIT NO. MSI1001

CHEMOURS DELISLE MISSISSIPPI PLANT

STATE OF MISSISSIPPI
Underground Injection Control
PERMIT

THIS CERTIFIES THAT

The Chemours Company FC, LLC
7685 Kiln-DeLisle Road
Pass Christian, Mississippi
Harrison County

has been granted permission to inject fluids into a Class I well located at

Chemours DeLisle Facility
Section 4, Township 8 South, Range 13 West
Harrison County, Mississippi

in accordance with limitations, monitoring requirements and other conditions set forth in part I and II, hereof. This permit is issued in accordance with the provisions of the Mississippi Water Pollution Control Law (section 49-17-1 et. seq., Mississippi Code of 1972), and the regulations and standards adopted and promulgated thereunder, and under authority granted pursuant to the Safe Drinking Water Act, as amended (42 U.S.C. 300f et. seq. commonly known as SDWA) and attendant regulations incorporated by the U.S. Environmental Protection Agency under Title 40 of the Code of Federal Regulations (CFR).

MISSISSIPPI ENVIRONMENTAL QUALITY PERMIT BOARD

AUTHORIZED SIGNATURE
MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY

Issued: December 1, 2017

Expires: November 30, 2027

Permit No.: MSI1001

PART I

SECTION A. CONSTRUCTION REQUIREMENTS

1. Casing and Cementing

The permittee shall maintain the casing and cement in all wells to prevent the movement of fluids into or between underground sources of drinking water or into any unauthorized zone.

2. Tubing and Packer Specifications

Injection may only take place through the injection tubing with a packer set within the casing no higher than 9,500 feet for all wells. The tubing and packer shall be maintained in a manner that is compatible with the injection operation specified in Part I.B of this permit so as to prevent the movement of fluids into or between underground sources of drinking water.

SECTION B. OPERATING REQUIREMENTS

1. Injection Volume and Mass Limitations

(a) The permittee shall only inject wastewater generated by the onsite beneficiation of ilmenite ore into titanium dioxide, sanitary wastewater, and wastewater resulting from air emission equipment. Principal constituents of the wastewater include an aqueous solution of iron chloride, other metals (predominantly chromium, lead, manganese and vanadium), and hydrochloric acid. Manifested wastes originating offsite shall not be injected.

Future remediation projects will be addressed as minor modifications pursuant to 40 CFR Sec. 144.41(e). In the event that exemptions are granted from land disposal restrictions under Subtitle C of the Resource Conservation and Recovery Act, any proposal for injection of additional non-hazardous constituents in the waste stream shall include obtaining approval from the U.S. Environmental Protection Agency. This requirement will ensure that the revised waste stream will not invalidate the basis upon which the land disposal exceptions were granted.

To support compliance with this requirement, the permittee shall monitor the quantity and quality of the wastewater effluent in accordance with Section C below. Upon the request of the Mississippi Department of Environmental Quality (Department), the permittee should also be prepared to submit other information, such as raw materials throughput, ore analysis, production data, remediation system operation and other data which would satisfactorily explain any significant increases in wastewater effluent quantity or quality.

(b) The method of operation for the deepwells may be any manner the permittee so prescribes provided the field injection rate at the facility does not exceed 2,200 gpm at any one time. The bottom hole pressure shall be controlled and not allowed to exceed the fracture pressure of the formation.

The cumulative volume injected in each of Plant Wells 2, 3, 4, 5 and 6 during any given month shall not exceed that calculated by multiplying the injection rate (gpm) x 60 minutes per hour x 24 hours per day x the number of days in the month. The appropriate injection rate should be determined from the following table:

Well 2 – 550 gpm
Well 3 – 550 gpm
Well 4 – 550 gpm
Well 5 – 1,000 gpm
Well 6 – 1,200 gpm

2. Injection Pressure Limitations

(a) Except during stimulation of the injection zone as approved by the Permit Board, injection pressure at the well head shall be allowed to vary according to the following relationship:

$$P_{bh} = P_{inj} + P_h - P_f$$

Where: P_{bh} = bottom hole pressure
P_{inj} = injection or well head pressure
P_h = head pressure
P_f = friction head loss

The bottom hole pressure shall be constantly monitored and controlled through a combination of injection pressure measurements (i.e., C.3 of this permit) and the use of a standard calculated relationship between these measurements and actual bottom hole conditions. The pressure shall not exceed 6,800 psi. This limit will serve to assure that the pressure in the injection zone during injection does not initiate new fractures or propagate existing fractures in the injection zone, since the fracture pressure for the zone is estimated at approximately 8,000 psi.

(b) In no case shall injection and stimulation pressure initiate fractures in the confining zone or cause the movement of injection or formation fluids into an underground source of drinking water.

(c) Injection between the outermost casing protecting underground sources of drinking water and the well bore is prohibited in the wells.

3. Annulus Fluid and Pressure

(a) During well operation, the annulus between the injection tubing and the long string casing shall be filled with a corrosion-inhibited non-toxic fluid.

(b) A positive annulus pressure greater than the injection pressure by at least 25 psig (differential pressure) shall be maintained from top to bottom, as a safety precaution in each operating well.

(c) If a differential pressure of at least 25 psig cannot be maintained during well operation and trouble-shooting, and if investigations lasting a maximum of 30 minutes cannot determine the cause, the well shall be shutdown and the permittee shall notify the Department.

(d) The annulus fluid consumption in any individual well shall be limited to 500 gallons during any 24-hour period. In the event the annulus fluid consumption for a well exceeds its permit limits, the permittee shall notify the Department in accordance with Part II.A.11 of this permit and shall cease injection of wastewater in the well until the cause of annulus fluid consumption is determined and corrected.

(e) Operating and maintenance trouble-shooting procedures shall be initiated if there is a precipitous change in annulus fluid consumption without a corresponding drop in pressure differential which requires the permittee to activate the second annulus fluid pump.

(f) To ensure that the movement of wastewater outside of the injection zone will not occur during well shutdown periods, the permittee shall implement an appropriate shutdown procedure.

4. Injection Zone

The injection zone for the wells as defined in 40 CFR 146.3 shall be limited to the following intervals below ground surface:

(i) Well No. 2 – 8,025 to 10,043 feet.
(ii) Well No. 3 – 8,045 to 10,043 feet.
(iii) Well No. 4 – 8,003 to 10,023 feet.
(iv) Well No. 5 – 8,003 to 10,043 feet.
(v) Well No. 6 – 8,000 to 10,100 feet*.

* (estimated, to be established by final well log and report)

5. Injection Interval

The injection interval for the wells as defined by 40 CFR 146.61(b) shall be limited to

the Washita Fredricksburg Sands at the following approximate depths below ground surface:

(i) Well No. 2 – 9,779 to 10,018 feet.
(ii) Well No. 3 – 9,797 to 10,043 feet.
(iii) Well No. 4 – 9,754 to 10,023 feet.
(iv) Well No. 5 – 9,746 to 10,043 feet.
(v) Well No. 6 – 9,700 to 10,100 feet*.
* (estimated, to be established by final well log and report)

Authorization for use of any interval of injection other than those specified in this section of the permit will require the submittal of a revised application and consequent approval by the Department.

6. Loss of Mechanical Integrity During Operation

In accordance with 40 CFR 146.67(h), if loss of mechanical integrity, as defined by 40 CFR 146.8, becomes evident during well operation, the permittee shall notify the Mississippi Department of Environmental Quality in accordance with Part II.A.11 of this permit, cease injection of wastewater and take all steps necessary to determine whether there may have been a release of hazardous wastes or hazardous waste constituents into any unauthorized zone. Injection shall not be resumed in a well until adequate demonstration of mechanical integrity has been made as required in Part II.C of this permit.

7. Alarm System

The permittee shall install and use automatic alarm and shut-off systems, designed to sound and shut-in a well when pressure and flow rates or other parameters approved by the Mississippi Department of Environmental Quality (Department) exceed a range and/or gradient specified in paragraphs I.B.1(b), I.B.2(a), I.B.3(b) and I.B.3(d) of Part I Section B of this permit.

If an automatic alarm or shutdown is triggered, the permittee shall immediately investigate and identify as expeditiously as possible the cause of the alarm or shutoff. If upon investigation, a well appears to be lacking mechanical integrity, the permittee shall:

(a) Cease injection of waste fluids in the well until authorized by the Department to continue or resume injection.
(b) Take all necessary steps to determine the presence or absence of a leak; and
(c) Notify the Department within 24 hours after the alarm or shutdown.

8. Contamination of Underground Source of Drinking Water (USDW)

Should the permittee obtain evidence that there may have been a release of injected waste from any well into an unauthorized zone the permittee must:

(a) Immediately cease injection of waste fluids in the well;
(b) Notify the Department within 24 hours of obtaining such evidence;
(c) Take all necessary steps to identify and characterize the extent of any release;
(d) Comply with any remediation plan specified by the Department;
(e) Implement any remediation plan approved by the Department; and
(f) Place a notice in a newspaper of general circulation, if such release is into an underground source of drinking water currently serving as a water supply.

SECTION C. MONITORING REQUIREMENTS

1. Sampling and Analytical Methods

Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. Test methods and procedures shall be as specified in 40 CFR 136, 40 CFR 261 Appendix A. When the analytical method for a particular parameter is not specified in 40 CFR 136, or 40 CFR 261 Appendix A, the permittee must obtain the approval of the Regional Administrator of the EPA for an alternate method.

2. Waste Liquid

Injection of wastewater shall be recorded as required in 40 CFR 146.67(f). The following parameters will be monitored:

Parameter	**Frequency**	**Sample Type**
Temperature	Continuous	Digital Storage
Flow Rate	Continuous	Digital Storage
Volume	Continuous	Digital Storage
Total Acidity	Monthly	Composite*
Specific Gravity	Monthly	Composite*
Total Iron	Monthly	Composite*
Total Chromium	Monthly	Composite*
Total Vanadium	Monthly	Composite*
Total Lead	Monthly	Composite*
Total Manganese	Monthly	Composite*
Volatile Organic Compounds**	Quarterly	Grab Sample (1)

Temperature shall be measured at the wellhead. All other parameters shall be measured at the nearest accessible point following pretreatment and prior to injection.

* A composite shall consist of equal portions of 24-hour composite samples collected on each operation day of the month. The 24-hour composite shall consist of samples taken at least once per hour for 24-hours and composited on the basis of flow.

** The permittee shall utilize Method 8260 as described in "Test Methods of Evaluating Solid Waste, Physical/Chemical Methods", EPA publication SW-846.

3. Injection Pressure and Annulus Pressure

Injection pressure, annulus pressure, and the differential pressure between the injection tubing and the annulus shall be monitored continuously with a recorder in each well.

4. Monitoring Wells

The permittee shall continue to monitor the freshwater aquifers above the injection zone according to the prescribed monitoring program approved by the Department. The monitoring plan includes reporting the following parameters/concentrations: pH, temperature, conductivity, total dissolved solids, chlorides, total iron, chromium, vanadium, manganese and lead. This groundwater data shall be collected quarterly from two on-site wells and annually from two off-site public water supply wells.

5. Wellhead Pressure

The permittee shall maintain the wellhead pressure in Well #1 and monitor the formation pressure in the injection interval. Wellhead surface pressure data shall be collected weekly; a maximum and minimum pressure range for each month shall be reported quarterly to the Department. In the event Well #1 is plugged, the permittee shall monitor formation pressure in the injection interval annually by performing a bottom-hole pressure fall-off test required by Part I Section C Paragraph 8.

6. Corrosion Monitoring

(a) The permittee shall conduct continuous monitoring of the construction materials used in the wells by:

(i) Placing coupons of the well construction material in contact with the waste stream; or
(ii) routing the waste stream through a loop constructed with the material used in the wells; or
(iii) using an alternative method approved by the Department.

(b) The test shall use materials identical to those used in the construction of the wells, and such materials must be continuously exposed to the operating pressure and temperatures (measured at the wellhead) and flow rates of the injection operation.

The permittee shall monitor the materials for loss of mass, thickness, cracking, pitting and other signs of corrosion on an annual basis to ensure that the well components meet or exceed standards developed for such materials by the American Petroleum Institute, the American Society of Testing Materials, or comparable standards acceptable to the Department.

7. Periodic Mechanical Integrity Testing

Unless a well has been shut down and is expected to remain shut down for 12 months or more, the permittee shall conduct annual mechanical integrity testing of the well. The permittee may request an extension of this requirement to allow the testing of wells once per calendar year if necessary. Mechanical integrity testing on each well shall be conducted as follows:

(a) The long string casing, injection tubing, and annular seal shall be tested by means of an approved pressure test with a liquid or gas annually and whenever there has been a well workover.

(b) The bottom-hole cement shall be tested by means of an approved radioactive tracer survey annually. This test shall be conducted at the maximum demonstrated injection rate of the well.

(c) An approved temperature, gamma ray, or other approved log shall be run at least once every two years to test for movement of fluid along the borehole. A detailed report of the biennial testing shall be prepared by a qualified individual amenable to both the permittee and the Mississippi Department of Environmental Quality and submitted to the agency. The report shall include a narrative analysis of test results and a discussion of any indicated changes in downhole conditions since initiation of injection.

(d) Depending on the testing and conclusions contained in any mechanical integrity test reports submitted or required by this section, the agency reserves the right to require oxygen-activation logs or any other tests which it may find necessary to more accurately describe downhole conditions.

(e) An approved casing inspection log shall be run whenever the owner or operator conducts a workover in which the injection string is pulled, unless the Department waives this requirement due to well construction or other factors which limit the test reliability, or based upon the satisfactory results of a casing inspection log run within the previous five years. The Department may require that a casing inspection log be run every five years, if there is reason to believe that the integrity of the long string casing of the well may be adversely affected by naturally-occurring or man-made events.

(f) Any other test approved by the Department in accordance with the procedures in 40 CFR 146.8(d) may also be used.

8. Ambient Monitoring

The permittee shall monitor the pressure build-up in the injection zone as follows:

(a) A pressure fall-off test shall be conducted annually on Well #2, Well #3, Well #4, or Well #5. This test shall be performed on a rotating basis so that each operational well is tested once every four years.

(b) An annual pressure fall-off test shall be performed on Well #6. Should it be demonstrated that Well #6 is communicative with other wells in the reservoir, then only one pressure fall-off test need be conducted annually. If this communication is demonstrated, a pressure fall-off test shall be performed on a rotating basis so that each operational well is tested once every five years.

SECTION D. REPORTING REQUIREMENTS

1. Quarterly and Annual Reports

In accordance with 40 CFR 144.51(l)(4), the permittee shall submit the results of all monitoring conducted during each calendar quarter no later than the 28th day of the month following the quarter. Also the permittee shall submit the results of all monitoring that is required on an annual basis no later than the 28th day of the month following the end of the 4th quarter. Signed copies of these and all other reports required herein shall be submitted to the Mississippi Department of Environmental Quality at the following address:

Mississippi Department of Environmental Quality
Office of Pollution Control/Waste Division
Attention: UIC Coordinator
P. O. Box 2261
Jackson, MS 39225-2261

All reports shall be submitted in a format approved by the Department. Quarterly reports shall, at a minimum, include:

(a) The maximum injection pressure for each well for each month of the quarter;

(b) A description of any event that exceeds operating parameters as specified in paragraphs I.B.1(b), I.B.2(a), I.B.3(b) and B.3(d) of Part I, Section B of the permit during the quarter;

(c) A listing and description of any event that triggers an automatic alarm or shut down device required pursuant to 40 CFR 146.67(f) which exceeds conditions in paragraphs I.B.1(b), I.B.2(a), I.B.3(b) and I.B.3(d) of Part I, Section B of this

permit while waste is being injected and the response taken. Further, alarms and shut down devices triggered when the well is not in operation (that is, when waste is not being injected) do not need to be reported since they are associated with routine maintenance of the well instruments;

(d) The total volume of fluid injected in each well for each month of the quarter;

(e) Any change in the annular fluid volume greater than 50% of the permit limitation established in Part I.B.3(d) of this permit;

(f) The physical, chemical, and other relevant characteristics of injected fluids; and

(g) The results of monitoring prescribed under 40 CFR 146.68.

2. Reports on Well Tests and Workovers

The permittee shall submit the results of any mechanical integrity tests, logging or other test data revealing down hole conditions. These results and corresponding report by a knowledgeable expert shall be submitted to the Mississippi Department of Environmental Quality within 45 days of completion of the test, unless the permittee requests and obtains permission from the MDEQ to submit it at a later date.

3. Reporting of New Wells Drilled Within the Area of Review (AOR)

The permittee shall file annually the following information with the report submitted for the fourth quarter of the calendar year, to the extent such information is reasonable available:

(a) The locations and depths of newly drilled or newly discovered wells within the Area of Review as defined by 40 CFR 146.6, which penetrate to within 300 feet of the top of the injection zone, if such wells were not included in the technical report accompanying the permit application or in later reports; and

(b) A tabulation of data as required in 40 CFR 170(a)(3) for those wells reported under paragraph (a) above.

SECTION E. COMPLIANCE SCHEDULE

1. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 30 days following each schedule date.

2. The permittee shall continue to investigate alternative treatment and/or disposal technologies and shall discontinue deepwell disposal by a schedule agreed to by the

Mississippi Department of Environmental Quality if it is found that these or other technologies are feasible and economically practicable.

SECTION F. CLOSURE

1. Closure Plan

The permittee shall prepare, maintain and comply with a plan for well closure that meets the regulatory requirements of 40 CFR 146.71.

2. Temporary Cessation of Injection

(a) The permittee, upon temporarily ceasing injection, may keep the wells open provided the permittee:

(i) has received authorization from the Mississippi Department of Environmental Quality; and

(ii) has described actions or procedures, satisfactory to the Mississippi Department of Environmental Quality, that the permittee will take to ensure that the wells do not endanger underground sources of drinking water during the period of temporary disuse. These actions and procedures shall include compliance with the technical requirements applicable to active injection wells unless waived by the Department.

(b) The permittee shall notify the Mississippi Department of Environmental Quality 30 days prior to resuming operation of a well if the well has been temporarily shut in for more than two years.

(c) The permittee shall demonstrate the mechanical integrity of any well shut down for eighteen months or longer before the well is placed back into service.

3. Notice of Intent to Close

The permittee shall notify the Mississippi Department of Environmental Quality at least 60 days before closure of a well. At the discretion of the Department, a shorter notice period may be allowed.

4. Closure Report

The permittee shall submit a closure report to the Mississippi Department of Environmental Quality within 60 days after closure or at the time of the next quarterly report (whichever is less). If the quarterly report is due less than 15 days after completion of closure, then the report shall be submitted within 60 days after closure. The report shall be certified as accurate by the permittee and by the person who

performed the closure operation (if other than the permittee). Such report shall consist of either:

(a) A statement that a well was closed in accordance with the closure plan previously submitted and approved by the Department; or

(b) Where actual closure differed from the plan previously submitted, a written statement specifying the differences between the previous plan and the actual closure.

5. Plugging and Abandonment Plan

(a) Prior to closing a well, the permittee shall observe and record the pressure decay for a time specified by the Mississippi Department of Environmental Quality. The Department shall analyze the pressure decay and the transient pressure observations required under Part I, Section C, item 7, and determine whether the injection activity has conformed with predicted values.

(b) Plugging and abandonment of all permitted injection wells shall be in accordance with Part II, Section F of this permit and 40 CFR 146.71(d).

6. Post-Closure Care

The permittee shall prepare, maintain and comply with a plan for post-closure care that meets the regulatory requirements of 40 CFR 146.72 and is acceptable to the Mississippi Department of Environmental Quality. The obligation to implement the post-closure care plan survives the termination of this permit and/or the cessation of injection activities. The requirement to maintain an approved plan is directly enforceable regardless of whether the requirement is a condition of any permit.

SECTION G. CERTIFICATION BY PERMITTEE

The permittee shall annually make the following certification:

As the generator of the hazardous waste being injected in the wells covered by this permit, I hereby certify that the generator has a program to reduce the volume or quantity and toxicity of such waste to the degree determined to be economically practicable; and that injection of the waste is the most practicable method of disposal currently available to the generator which minimizes the present and future threat to human health and the environment.

PART II
STANDARD CONDITIONS

SECTION A. GENERAL REQUIREMENTS

1. Effect of Permit

The permittee is allowed to engage in underground injection in accordance with the conditions of this permit. The underground injection activity authorized by this permit shall not allow the movement of fluid containing any contaminant into underground sources of drinking water, if the presence of that contaminant may cause a violation of any primary drinking water regulation under 40 CFR 142 or may otherwise adversely affect the health of persons. Any underground injection activity not authorized in this permit is prohibited. Under 40 CFR 144.51(g), issuance of this permit does not convey property rights of any sort, or any exclusive privilege; nor does it authorize any injury to persons or property, or invasion of other private rights, or any infringements of State or local law or regulations. Compliance with the terms of this permit does not constitute a defense to any action brought under Section 1431 of the safe Drinking Water Act (SDWA) or any other law governing protection of public health or the environment for any imminent and substantial endangerment to human health, or the environment. However, compliance with this permit during its term constitutes compliance, for purposes of enforcement, with Part C of the SDWA.

2. Modification, Revocation and Reissuance, or Termination

(a) This permit may be modified, revoked and reissued, or terminated for cause as set forth in 40 CFR 144.39, 144.40, 144.41 and 144.51(f).

(b) The filing of a request for a permit modification, revocation and reissuance, or termination, or the notification of planned changes or anticipated noncompliance on the part of the permittee does not stay the applicability or enforceability of any permit condition.

(c) Under 40 CFR 144.51(h), the permittee shall furnish to the Director of the Mississippi Department of Environmental Quality within a specified time, any information which the director may request to determine whether cause exists for modifying revoking and reissuing, or terminating the permit, or to determine compliance with the permit.

3. Severability

The provisions of this permit are severable, and if any provision of this permit or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

4. Duty to Comply

The permittee must comply with all conditions of this permit, except to the extent and for duration that noncompliance is authorized by an emergency permit. Any permit noncompliance constitutes a violation of the Mississippi Air and Water Pollution Control Act and the Federal Safe Drinking Water Act and is grounds for enforcement action, permit termination, revocation and reissuance, modification, or for denial of a permit renewal application.

5. Duty to Reapply

If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must submit a complete application for a new permit at least 180 days before this permit expires.

The conditions of an expired permit continue in force until the effective date of a new permit if:

(a) The permittee has submitted a timely and complete application; and

(b) The Permit Board, through no fault of the permittee, fails to act on the application on or before the expiration date of this permit.

6. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for the permittee to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

7. Duty to Mitigate

The permittee shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this permit.

8. Proper Operation and Maintenance

The permittee shall at all times properly operate and maintain all injection facilities and related appurtenances which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation and back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of this permit.

9. Inspection and Entry

The permittee shall allow any authorized representative of the Commission on Environmental Quality to:

(a) Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of the permit;

(b) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

(c) Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

(d) Sample or monitor, at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by the Safe Drinking Water Act, any substances or parameters at any location.

10. Recordkeeping

(a) In accordance with 40 CFR 144.51(j), the permittee shall retain records of all monitoring information, including the following:

1. Calibration and maintenance records and all original strip charts or computer recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for the permit, for a period of at least three (3) years from the date of the sample, measurement, report, or application. This period may be extended by request of the Permit Board at any time; and

2. The nature and composition of all injected fluids until three (3) years after the completion of any plugging and abandonment procedures specified in Section D of this part. The Permit Board may require the permittee to deliver these records to the Mississippi Department of Environmental Quality at the conclusion of the retention period.

(b) Records of the monitoring information shall include:

1. The date, exact place, and time of sampling or measurements;

2. The individual(s) who performed the sampling or measurements;

3. The date(s) analyses were performed;

4. The individual(s) who performed the analyses;

5. The analytical techniques or methods used; and

6. The results of such analyses.

(c) The permittee shall furnish to the Department, upon request, copies of records required to be kept by this permit.

11. Reports

(a) The permittee shall give notice to the Mississippi Department Environmental Quality as soon as possible of any planned physical alterations or additions to the permitted facility.

(b) The permittee shall give advance notice to the Director of the Mississippi Department of Environmental Quality of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

(c) The permittee shall notify the Mississippi Department of Environmental Quality and obtain its approval prior to conducting any well workover.

(d) As required in 40 CFR 144.51(l)(6), the permittee shall report orally to the Mississippi Department of Environmental Quality within 24 hours of becoming aware of the following:

1. any monitoring or other information which indicates that any contaminant may cause an endangerment to an underground source of drinking water;

2. any noncompliance with a permit condition or malfunction of the injection system which may cause fluid migration into or between underground sources of drinking water; or

3. any shutdown of an injection well as required in Part I.B.3 of this permit, or any other shutdown which requires down hole maintenance or repair. Excluded are normal operational shutdowns or maintenance procedures.

(e) A written report shall be submitted to the Director of the Mississippi Department of Environmental Quality within five (5) days of becoming aware of any instance of noncompliance with a condition of this permit or with any circumstance described in Section 11(c) of this Part. The report shall contain a description of the noncompliance and its cause, if known; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the non-compliance.

(f) Where the permittee becomes aware that relevant facts were omitted or submitted incorrectly in any report to the Mississippi Department of Environmental Quality, the permittee shall promptly submit the correct facts or information as required in 40 CFR 144.51(l)(8).

(g) All reports or information required by this permit shall be signed and certified by a responsible corporate officer, or by a duly authorized representative in accordance with 40 CFR 144.32 and 144.51(k).

12. Transfer of Permit

This permit is not transferable to any person except after notice to and approval of the Permit Board. The Permit Board may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the Safe Drinking Water Act.

This permit may be transferred to a new owner or operator by modification, if the Permit Board determines that no other change in the permit is necessary, provided that a written agreement containing a specific date of transfer of permit responsibility, coverage, and liability between the current and new permittees has been submitted to the Executive Director of the Mississippi Department of Environmental Quality.

SECTION B. FINANCIAL RESPONSIBILITY

1. The permittee shall maintain continuous compliance with the requirement to demonstrate adequate financial responsibility and resources to close, plug, and abandon the permitted injection well, as required in Subpart F of 40 CFR Part 144.

2. The permittee shall not substitute an alternative demonstration of financial responsibility from that which was initially submitted, unless the permittee has previously submitted evidence of that alternative demonstration to the Mississippi Department of Environmental Quality and the Department notifies the permittee that the alternative demonstration of financial responsibility is acceptable.

SECTION C. MECHANICAL INTEGRITY

1. Mechanical Integrity Demonstration

Injection operations are prohibited after the effective date of this permit unless the permittee has demonstrated that the well covered by this permit has mechanical integrity in accordance with 40 CFR 146.8 and 146.68(d), and the permittee has received written notice from the Mississippi Department of Environmental Quality that such demonstration is satisfactory.

A demonstration of mechanical integrity shall be made in accordance with 40 CFR 146.8 and 146.68(d). Mechanical integrity shall also be demonstrated at any time the

tubing is removed from a well or if a loss of mechanical integrity becomes evident during operation. The permittee may continue well operation only if the permittee has received written notice from the Mississippi Department of Environmental Quality that such demonstration is satisfactory. The permittee shall notify the Office of his intent to demonstrate mechanical integrity at least 30 days prior to such demonstration. In the event of an unexpected workover, notification of intent to demonstrate mechanical integrity shall be made at least three (3) working days prior to the proposed demonstration. Such demonstration shall be made according to the last approved mechanical integrity test plan for the well.

2. Methods to be Used for Mechanical Integrity Test (MIT)

A plan for logging and testing wells for mechanical integrity shall be prepared and submitted for the Mississippi Department of Environmental Quality for approval at least 60 days prior to the proposed MIT demonstration date. The plans shall propose logs and tests designed to make the demonstrations required by 40 CFR 146.8. The plans shall also propose the standard that will be used for evaluating the results of logging and testing. Mechanical integrity will be confirmed if the well logs and test date meet or exceed the standards approved as a result of the Department's review of the plan.

3. Duty to Establish and Maintain Mechanical Integrity

In accordance with 40 CFR 146.51(q), the following shall apply when appropriate:

1. The permittee shall establish prior to commencing injection or on a schedule determined by the Mississippi Department of Environmental Quality (Department) and thereafter maintain mechanical integrity as defined in 40 CFR 146.8.

2. When it is determined that a well lacks mechanical integrity pursuant to 40 CFR 146.8, the Department shall give written notice to the permittee. Unless the agency requires immediate cessation, the permittee shall cease injection into the well within 48 hours of receipt of the agency's determination. The Department may allow plugging of the well pursuant to the requirements of 40 CFR 146.10 or required the permittee to perform such additional construction, operation, monitoring, reporting and corrective action as is necessary to prevent the movement of fluid into or between USDWs caused by the lack of mechanical integrity. The permittee may resume injection upon written notification from the Department that the permittee has demonstrated mechanical integrity pursuant to 40 CFR 146.8.

3. The Department may allow the permittee to continue or resume injection in a well which lacks mechanical integrity pursuant to 40 CFR 146.8(a)(1) if there has been a satisfactory determination that there is no movement of fluid into or between USDWs.

APPENDIX 1-2

EPA HDWIR EXEMPTION

CHEMOURS DELISLE MISSISSIPPI PLANT

EC12-G2

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

JUN 0 6 2016

CERTIFIED MAIL 7011 3500 0003 2064 3988
RETURN RECEIPT REQUESTED

Mr. Eduardo Ramos
Senior Consultant, Environmental
DeLisle Plant
The Chemours Company FC, LLC
7685 Kiln DeLisle Road
Pass Christian, Mississippi 39571

Re: Request for administrative modification of DeLisle Plant HSWA landban exemption

Dear Mr. Ramos:

This letter is in response to your May 5, 2016, notification of ownership change for injection wells 2, 3, 4, 5, and 6 at the former DuPont White Pigment & Mineral Products facility in DeLisle, Mississippi. The name change is from E. I. Du Pont De Nemours and Company to The Chemours Company FC, LLC which occurred on May 19, 2015. The Environmental Protection Agency has determined that this change does not affect the approved petition demonstration and is a nonsubstantive revision. Therefore, the EPA has modified its files to reflect the ownership change mentioned above. The approval conditions of the EPA's May 5, 2000, petition issuance and the January 23, 2015, modification provisions are still in effect.

If you have any questions or comments please contact Richie Hall at (404) 562-8067.

Sincerely,

James D. Giattina
Director
Water Protection Division

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

CERTIFIED MAIL
RETURN RECEIPT REQUEST

Mr. Ed G. Ramos
DuPont Titanium Technologies
P.O. Box 430
7685 Kiln DeLisle Road
Pass Christian, Mississippi 39571

JAN 23 2015

Subject: DuPont Titanium Technologies (DuPont), DeLisle Plant, Application to Modify Existing Land Ban Exemption Petition

Dear Mr. Ramos:

Effective the date of this letter, the U.S. Environmental Protection Agency Region 4 approves DuPont's application to modify the existing Land Band Exemption Petition which was originally approved by the EPA in May 2000. The DeLisle Plant is located on the north shore of St. Louis Bay in Harrison County, Mississippi. The EPA reviewed the following three changes to the existing Land Ban Exemption Petition.

- Relocation of DeLisle Plant Well No. 6 (never constructed).
- The injection rate for DeLisle Plant Well No. 6 to be increased from 550 to 1,200 gpm.
- An unconventional well construction (i.e., fiberglass reinforced expansion joints and epoxy cement) for DeLisle Plant Well No. 6.

During the EPA's evaluation of DuPont's application to modify the existing Land Ban Exemption Petition, we reviewed the existing data and information from the original Land Ban Exemption Petition dated June 1995. The plume configurations from the original petition and the revision request were evaluated through the year 2020 (the date when the current petition expires) and the 10,000-year migration modeling. The pressure increase due to higher injection volume and relocating Well #6 was evaluated from both the original and proposed revised petition ending in 2020. We determined that the pressure increase and well relocation have negligible effects and do not result in the plume extending significantly either horizontally or vertically beyond its location in the original petition.

The EPA reviewed the results for compatibility testing on the waste stream produced at the DeLisle Plant with two different resins, EPSEAL® and WellLock (R1 and H1) ™. The original construction plan included fiberglass reinforced expansion joints. However, as stated in the DuPont letter dated October 21, 2013, the fiberglass reinforced expansion joints will not be used in the well construction of Well #6. Previously, DuPont used EPSEAL® in its injection well construction. DuPont has proposed to use

WellLock™ resin for future construction. DuPont submitted the "Chemical Stability of WellLock™ resin to $FeCl_3$/HCL Waste Fluid" (WellLock Report), using ASTM D 543-06, "Standard Practices for Evaluating the Resistance of Plastics to Chemical Reagents", and the actual testing was conducted by Halliburton Company on March 5, 2013. The ASTM D 543-06 standards outline a seven (7) day sampling period and the WellLock Report used a twenty-eight (28) day sampling period. Based on the testing results submitted to the EPA using ASTM D 543-06, the use of WellLock™ resin in the construction of Well #6 would not be affected by the $FeCl_3$/HCL waste stream produced by the DeLisle Plant.

Based on the Underground Injection Control regulations, Guidance Document #74 ("Modification of Class I Hazardous Injection Well No-Migration Exemptions – Underground Injection Control Program") criteria and our review of all pertinent information submitted by DuPont, the EPA has determined that DuPont's petition modification request meets the requirements of 40 C.F.R. Part 148 and qualifies as a revision and reissuance will not be required. In addition, no comments were received in response to the August 24, 2014, public notice of our intent to approve the modification. Therefore, DuPont's request for a modification of the existing Land Ban Exemption Petition is approved.

If you have any questions concerning the enclosed procedures associated with the Land Ban Exemption Petition, please contact us at the above address or by calling Mr. James Ferreira at (404) 562-9399.

Sincerely,

James D. Giattina
Director
Water Protection Division

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4

Fact Sheet

For

NOTICE OF INTENT TO APPROVE A
MODIFICATION OF AN EXISTING LAND BAN
EXEMPTION PETITION

For

DuPont Titanium Technologies
P.O. Box 430
7685 Kiln DeLisle Road
Pass Christian, Mississippi 39571

The DuPont Titanium Technologies, DeLisle Plant (DuPont) is located on the north shore of St. Louis Bay in Harrison County, Mississippi. This facility has drilled five wells; four wells (well numbers 2 through 5) were constructed as injection wells to the Washita-Fredricksburg Formation (from 9,831 to 10,062 feet below ground surface), and the remaining well was constructed as a monitoring well (well number 1). The facility has permits for five injection wells issued by the Mississippi Department of Environmental Quality. The injected waste stream consists of an aqueous solution of iron chloride, metal chlorides, and hydrochloric acid. In August 2012, DuPont submitted a request to the EPA to modify their existing Land Ban Exemption Petition for the facility listed above which was originally approved by the EPA in May 2000. DuPont proposed the following three changes to the existing Land Ban Exemption Petition.

- Relocation of DeLisle Plant Well No. 6 (the well was authorized under the existing Land Ban Exception but was never constructed).

- The proposed injection rate for DeLisle Plant Well No. 6 to be increased from 550 to 1,200 gpm.

- An unconventional well construction (i.e., fiberglass reinforced expansion joints and epoxy cement) for DeLisle Plant Well No. 6.

The EPA Underground Injection Control (UIC) Program Guidance Document #74 entitled, "Modification of Class I Injection Well Hazardous Waste No-Migration Exemptions – Underground Injection Control Program", lays out specific criteria involving the location of the waste plume and pressure increases resulting from injection. Flow and transport modeling programs were used in this

petition, and are the fundamental determinants for the evaluation of the upward and outward movement of the waste plume and changes in pressure buildup. A modification could be approved if the waste plume will not extend "significantly" beyond what was modeled in the initial demonstration.

During the EPA's evaluation of DuPont's application to modify the existing Land Ban Exemption Petition, we reviewed the existing data and information from the original Land Ban Exemption Petition dated June 1995. The plume configurations from the original petition and the revision request were evaluated through the year 2020 (the date when the current petition expires) and the 10,000-year migration modeling. The pressure increase from injection was evaluated from both the original and proposed revised petition ending in 2020. As per the original petition, the 2020 plume was projected to be 16,252 feet in diameter. In the revised petition, the 2020 plume was projected to be 12,400 feet in diameter along the long axis. As per the original petition, the high density plume scenario at the end of 10,000 years is projected to be 60,000 feet in length and 16,000 feet in width. In the revised petition, the high density plume scenario is projected to be 56,000 feet in length and 11,200 feet in width. As per the original petition, the low density plume scenario is projected to be 25,000 feet in length and 16,000 feet in width. In the revised petition, the low density plume scenario is projected to be 23,100 feet in length and 12,000 feet in width. In comparing the horizontal dimension of the plumes between the original petition and the revised petition, the revised petition plume is smaller than the original. In the vertical dimension, a similar situation is found. In the original petition, the vertical permeation in the year 2020 is projected to be 24.4 feet and after 10,000 years to be 152.5 feet. In the revised petition, the vertical permeation in the year 2020 is projected to be 21 feet and after 10,000 years to be 152 feet. A different situation is observed with respect to maximum injection pressure in the year 2020. In the original petition, the projected maximum injection pressure increase will be 967 psi. In the revised petition, the maximum pressure increase is projected to be 1,111.8 psi. However, although the pressure increase is higher for the revised petition, the effect does not result in the plume extending significantly either horizontally or vertically beyond its location in the original petition. Hence, the pressure increase is not significant.

The EPA reviewed the results for compatibility testing on the waste stream produced at the DuPont Plant with two different resins, EPSEAL® and WellLock (R1 and H1)™. The original construction plan included fiberglass reinforced expansion joints. However, as stated in the DuPont letter dated October 21, 2013, the fiberglass reinforced expansion joints will not be used in the well construction of the DeLisle Plant Well #6. Previously, DuPont used EPSEAL® in its injection well construction. DuPont has proposed to use WellLock™ resin for future construction. DuPont submitted the "Chemical Stability of WellLock™ resin to $FeCl_3$/HCL Waste Fluid" (WellLock Report), using ASTM D 543-06, "Standard Practices for Evaluating the Resistance of Plastics to Chemical Reagents", and the actual testing was conducted by Halliburton Company on March 5, 2013. The standard practices cover the evaluation of all plastic materials including cast, hot-molded, cold-molded, laminated resinous products, and sheet materials for resistance to chemical reagents. These practices include provisions for reporting changes in weight, dimensions, appearance, and strength properties. As stated in the WellLock Report, the procedures used were modeled after ASTM D 543-06 set standards, with one exception, duration time. The ASTM D 543-06 standards outlines a seven (7) day sampling period and the WellLock Report used a twenty-eight (28) day sampling period.

The results of the twenty-eight (28) day evaluation conducted on EPSEAL® and WellLock™ resins are as follows: There were no visual changes in the samples, and the samples retained their compressive strength when exposed to the $FeCl_3$/HCL waste stream. The chemical immersion of the two resins and mechanical properties tested indicated that WellLock™ resin had a higher degree of tolerance to compressive and deformation forces when compared to EPSEAL®. Based on the testing results submitted to the EPA using ASTM D 543-06, the use of WellLock™ resin in the construction of the DeLisle Plant Well #6 would not be affected by the $FeCl_3$/HCL waste stream produced by the DuPont Plant. So, DuPont's proposal to use epoxy cement, WellLock™ resin is acceptable.

Based on the UIC regulations, Guidance Document #74 criteria and the EPA's review of all pertinent information submitted by DuPont, we determined that DuPont's petition modification request would qualify as a revision and a reissuance will not be required. Therefore, DuPont's request for a modification of the existing Land Ban Exemption Petition can be approved.

Additional Information: Questions, comments and requests for additional information or for a public hearing may be directed to the contact person listed below. The public comment period on this permitting action will close forty five (45) days after the date of the public notice. If EPA receives written comments of substantial public interest concerning a hearing on this action, a public notice of this hearing will be published locally and mailed to interested parties.

Mr. James Ferreira
U.S. EPA, Region 4
Water Protection Division
Safe Drinking Water Branch
Ground Water and UIC Section
61 Forsyth Street, SW
Atlanta, Georgia 30303-8960

120388-000
EC12-K

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

MAY 5 2000

BCC: M.M. Ramirez, Spec. Chem. RO-Houston
Phil Papadeas, Sandia Technologies, LLC: RO-Houstor
Guy Johnson, DuPont Legal – Wilm
Gregg Martin – BARLML, Bldg 36
James E. Clark, Beaumont
H.A. Walter-Terrinoni
Doug Lottes
Vic Stroud
B.F. Faust
G.A. Martz
Aldo Morell
Ed Ramos

EC12-K

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

REF: 4WM-GWDW

Mr. Aldo A. Morell
Plant Manager
DuPont White Pigment & Mineral Products
DeLisle Plant
P.O. Box 430
Pass Christian, MS 39571

Dear Mr. Morell:

Effective the date of this letter, the U.S. Environmental Protection Agency (EPA) approves the request of E. I. Du Pont de Nemours & Company, Inc. (DuPont) for exemption to the land disposal restrictions imposed by the Hazardous and Solid Waste Amendments of 1984 of the Resource Conservation and Recovery Act. This approval is for injection well operations in Plant Wells 2, 3, 4, 5, and 6 at the DuPont White Pigment & Mineral Products facility in DeLisle, Mississippi.

The land disposal restrictions prohibit the injection of hazardous waste unless a petitioner can demonstrate to EPA, to a reasonable degree of certainty, that there will be no migration of hazardous constituents from the injection zone for as long as the wastes remain hazardous. The land disposal restrictions for injection wells codified in 40 CFR Part 148, provide the standards and procedures by which petitions to dispose of an otherwise prohibited waste by injection will be reviewed and by which exemptions pursuant to these petitions will be granted or denied.

A letter dated March 7, 2000, informed DuPont that EPA was proposing to approve the DuPont petition request for an exemption to the land disposal restrictions. The public comment period associated with this proposed decision began on February 29, 2000, and closed on April 13, 2000.

The only comments that EPA received during the public comment period were contained in a letter, dated April 7, 2000, from DuPont to EPA. The comments concerned three of the proposed petition approval conditions contained in the February 29, 2000, Fact Sheet that was included with EPA's March 7, 2000, proposed petition approval letter.

The first comment concerned the injection interval and injection zone depths contained in proposed condition #1. DuPont proposed that the word "approximate" be used in conjunction with these depths since the distance from the Rig Kelly Bushing (RKB) to ground surface varies from well to well and because of accuracy limitations with gauge measurements for deep wells. In response to this comment, EPA is aware that accuracy limitations of gauge measurements in wells can cause depth readings that vary by a few feet for different logging runs in the same well. The variation of the RKB elevation between wells should not be important since each well's depths should be referenced only to its own RKB as measured from each well's ground surface elevation. However, the RKB elevation can vary with different rig set ups on the same well. The depths listed in proposed condition #1 were not referenced to specific, dated well logs by which to ascertain the specific RKB for those depths. Therefore, EPA agrees that the referenced depths listed in condition #1 should be listed as approximate.

DuPont's second comment concerned proposed condition #3's stipulation for cessation of injection by December 31, 2020. DuPont stated that it has not decided to cease injection by this date and recommends that the language in the condition be changed to read that the exemption itself expires on December 31, 2020. EPA established the date for cessation of injection in proposed condition #3 based on this date being provided by DuPont within the no migration demonstration petition. The importance of this date is that it represents the termination of the time frame upon which the injection modeling was based. To inject beyond this date with the existing petition parameters would invalidate the modeling and therefore the petition approval. 40 C.F.R. §148.20(e) allows for the modification of "any conditions placed on the exemption" with the appropriate demonstration. This would include the date of cessation for injection in condition #3 should DuPont decide to extend the time frame of injection operations at the DeLisle facility. Therefore, EPA does not agree to change the language in this condition.

DuPont's third comment concerned proposed condition #12, which required the submission of a pressure test to re-establish mechanical integrity after a well workover in Plant Well #3. DuPont has submitted the pressure test with its comment letter, and this test indicates the well has mechanical integrity. Therefore, EPA is removing proposed condition #12 from the final approval conditions.

Based on a detailed technical review of the submitted petition and support documents, EPA has determined that this information for the DuPont facility meets the requirements of 40 CFR Part 148 by demonstrating no migration of hazardous constituents from the injection zone for at least 10,000 years. The following are conditions of this land disposal restriction exemption:

Petition Approval Conditions

The approval to allow injection of restricted hazardous wastes is subject to the following conditions, which are necessary to assure that the standard in 40 CFR §148.20(a) is met. Noncompliance with any of these conditions is grounds for termination of the exemption in

accordance with 40 CFR §148.24(a)(1). This exemption only applies to Plant Wells 2, 3, 4, 5, and 6.

1. Injection of restricted waste shall be limited to the following approximate intervals in the wells:

Plant Well No. 2	9,779 to10,018 feet RKB
Plant Well No. 3	9,797 to10,043 feet RKB
Plant Well No. 4	9,754 to10,023 feet RKB
Plant Well No. 5	9,746 to10,043 feet RKB
Plant Well No. 6	(See Condition 10)

These intervals occur in an injection zone occurring at the following approximate depths in the wells:

Plant Well No. 2	8,025 to10,043 feet RKB
Plant Well No. 3	8,045 to10,043 feet RKB
Plant Well No. 4	8,003 to10,023 feet RKB
Plant Well No. 5	8,003 to10,043 feet RKB
Plant Well No. 6	(See Condition 10)

2. The cumulative volume injected in each of Plant Wells 2, 3, 4, 5, and 6 during any given month shall not exceed that calculated by multiplying the injection rate (gpm) X 60 minutes per hour X 24 hours per day X the number of days in that month. The appropriate injection rate should be determined from the following table; however, the combined rate of any combination of wells at any one time shall not exceed 2200 gpm.

Plant Well	Injection Rate (gpm)
2	550
3	550
4	550
5	1000
6	550

3. The facility shall cease injection by December 31, 2020.

4. The characteristics of the injected waste stream shall at all times conform to those of Section 3.3 in the petition. The density of the waste stream shall remain within a range of from 1.05 to 1.35 g/cc inclusive, as measured at 70° F and 14.7 psi.

5. The proposed approval for injection is limited to the hazardous constituents identified by wastes codes found on the attached Table 1.

6. The facility must petition for approval to inject additional hazardous wastes which are not included in Condition No. 5, above. The facility must also petition for approval to increase the concentration of any waste which would necessitate the recalculation of the limiting concentration reduction factor and the extent of the waste plume. The facility must also petition for approval prior to any alteration of the characteristics of the injected waste stream that would invalidate the basis for the existing approval of this petition. Petition reissuances or modifications shall be made pursuant to 40 CFR §148.20 (e) or (f).

7. The results of the bottom hole pressure survey for the injection interval shall be submitted annually to EPA . The survey shall have been performed after shutting in the well to be tested for a period of time sufficient to allow the pressure in the injection interval to reach equilibrium, in accordance with 40 CFR §146.68(e)(1). This annual report should include a comparison of reservoir parameters determined from the falloff tests with parameters used in the approved no migration petition.

8. Upon the expiration, cancellation, reissuance, or modification of the Mississippi Department of Environmental Quality (MDEQ) permit for Plant Wells 2, 3, 4, and 5 or upon the issuance, expiration, cancellation, reissuance, or modification of a MDEQ permit for Plant Well 6, this exemption is subject to review. A new demonstration may be required if information shows that the basis for granting the exemption is no longer valid.

9. Plant Well 6 must meet the requirements of the MDEQ injection permit. Results of the pressure and radioactive tracer tests must be submitted to EPA Region 4 for approval. If this and other conditions listed below for Plant Well 6 are approved, the exemption will become effective and EPA authorization to begin injection of restricted hazardous waste in Plant Well 6 will be issued.

10. Information obtained from the drilling and construction of proposed Plant Well 6 shall be submitted to EPA Region 4 to ensure the basis for the petition approval continues to remain valid. The information will be used to determine the specific depths for the injection zone and injection interval. The approximate depths for Plant Well 6 are from 9,700 to 10,100 feet (RKB) for the injection interval and from 8,000 to 10,100 feet (RKB) for the injection zone. The submitted information should include well logs and formation tests and may include geologic core analysis of the confining and injection zones and a hydrogeologic compatibility determination.

11 Drilling mud used in the drilling process of Plant Well 6 shall be disposed of properly.

In addition to the above conditions, this petition approval is contingent on the validity of the information submitted in the DuPont DeLisle facility petition for an exemption to the land

disposal restrictions. This approval is subject to termination in accordance with 40 CFR §148.24. EPA will be publishing public notice of this decision in an upcoming Federal Register notice.

We appreciate the cooperation shown by you and your staff during the petition process. If you have any questions or comments regarding this matter, please call Mr. Larry Meyer at (404) 562-9449.

Sincerely,

John H. Hankinson, Jr.
Regional Administrator

Enclosure

cc: E. Ramos, DuPont
J. Crawford, MDEQ

Table 1

DuPont DeLisle Hazardous Waste Codes

Waste Code	Compound
D002	Corrosive
D004	Arsenic
D005	Barium
D006	Cadmium
D007	Chromium
D008	Lead
D009	Mercury
D010	Selenium
D011	Silver

APPENDIX 1-3

ADJACENT LANDOWNERS

CHEMOURS DELISLE MISSISSIPPI PLANT

TRACT NO.	SECTION/TOWNSHIP/ RANGE	SURFACE OWNER	ADDRESS	SURFACE ACRES	PARCEL ID NO.
1	Section: 33 Township: 7S Range: 13W	Bond Daniel R & Cheryl P	7472 Kiln Delisle Rd Pass Christian, MS 39571	1.90	0210 -33-005.002
2	Section: 33 Township: 7S Range: 13W	Pavolini Marie E	7456 Kiln-Delisle Rd Pass Christian, MS 39571	2.50	0210 -33-007.000
3	Section: 33 Township: 7S Range: 13W	Bond Daniel R & Cheryl P	7472 Kiln Delisle Rd Pass Christian, MS 39571	0.62	0210 -33-006.000
4	Section: 33 Township: 7S Range: 13W	Ladner John H Sr & Doris G	7442 Kiln Delisle Rd Pass Christian, MS 39571	0.79	0210 -33-008.000
5	Section: 33 Township: 7S Range: 13W	Ladner John H Sr & Doris D	7442 Kiln Delisle Rd Pass Christian, MS 39571	1.00	0210 -33-009.001
6	Section: 33 Township: 7S Range: 13W	Harshbarger William L Jr Et Al	603 W North St Pass Christian, MS 39571	2.00	0210 -33-009.002
7	Section: 33 Township: 7S Range: 13W	Bond Daniel R & Cheryl P	7472 Kiln-Delisle Rd Pass Christian, MS 39571	1.20	0210 -33-005.003
8	Section: 4 Township: 8S Range: 13W	Farragut Debra K & Edwards Jackie L	7384 Kiln-Delisle Rd Pass Christian, MS 39571	0.13	0211 -04-009.001
9	Section: 4 Township: 8S Range: 13W	Farragut Debra K & Edwards Jackie L	7384 Kiln-Delisle Rd Pass Christian, MS 39571	0.31	0211 -04-009.000
10	Section: 4 Township: 8S Range: 13W	Farragut Patsy L -L/E-	7380 Kiln-Delisle Rd Pass Christian, MS 39571	7.30	0210 -33-009.000

TRACT NO.	SECTION/TOWNSHIP/ RANGE	SURFACE OWNER	ADDRESS	SURFACE ACRES	PARCEL ID NO.
11	Section: 4 Township: 8S Range: 13W	Farragut Debra K Farragut & David W	7384 Kiln Delisle Rd Pass Christian, MS 39571	2.00	0210 -33-009.003
12	Section: 33 Township: 7S Range: 13W	Mallette Milburn L/E	826 E Railroad St Long Beach, MS 39560	35.00	0210 -33-010.000
13	Section: 4 Township: 8S Range: 13W	Niolet Rene J & Andra E	219 White Harbor Road Long Beach, MS 395605611	4.00	0211 -04-002.002
14	Section: 9 Township: 8S Range: 13W	Department Of Marine Resources	1141 Bayview Ave Ste 101 Biloxi, MS 39530	169.50	0211 -09-001.000
15	Section: 8 & 3 Township: 7S Range: 13W	Department Of Marines Resources	1141 Bayview Ave Ste 101 Biloxi, MS 39530	215.00	0211 -10-001.000
16	Section: 4 Township: 8S Range: 13W	Page Herman J	7021 Kiln-Delisle Rd Pass Christian, MS 39571	1.10	0211B-01-036.000
17	Section: 4 Township: 8S Range: 13W	Lafontaine Betty Jane	7047 Kiln Delisle Rd Pass Christian, MS 39571	1.39	0211 -04-008.000
18	Section: 4 Township: 8S Range: 13W	Lafontaine Paul E	7040 Kiln Delisle Road Pass Christian, MS 39571	4.20	0211 -04-001.003
19	Section: 4 Township: 8S Range: 13W	Lafontaine Paul E	18328 S Gaylord Rd Saucier, MS 39574	4.00	0211 -04-001.004
20	Section: 4 Township: 8S Range: 13W	Lujano Benito & Rachael	512 Magnolia Dr Bay St Louis, MS 39520	3.84	0211 -04-001.005

TRACT NO.	SECTION/TOWNSHIP/ RANGE	SURFACE OWNER	ADDRESS	SURFACE ACRES	PARCEL ID NO.
21	Section: 4 Township: 8S Range: 13W	Gallager Joseph C	9912 Haiku Ct Diamondhead, MS 39525	1.80	0211 -04-001.002
22	Section: 4 Township: 8S Range: 13W	Gallager Joseph C	9912 Haiku Ct Diamondhead, MS 39525	1.80	0211 -04-001.006
23	Section: 4 Township: 8S Range: 13W	Fortenberry Melvin E & Mary L	26114 Elm Rd Pass Christian, MS 39571	3.50	0211 -04-001.001
24	Section: 4 Township: 8S Range: 13W	Niolet Douglas F & Courtney D	299 South 2Nd Street Bay St Louis, MS 39520	4.00	0211 -04-001.000
25	Section: 4 Township: 8S Range: 13W	Waggle Jeffrey A & Teresa L	7133 Lee Haven Rd Pass Christian, MS 39571	10.20	0210 -33-011.000
26	Section: 33 Township: 7S Range: 13W	Kansas City Southern	427 W 12th St. Kansas City, MO 64105	13.50	N/A (Railroad)
27	Section: 33 Township: 7S Range: 13W	Dirty Boys Llc	Po Box 779 Long Beach, MS 39560	77.60	0210 -33-001.000
28	Section: 28 & 33 Township: 7S Range: 13W	Oak Grove Marketplace Llc	112 Sheffield Loop, Suite D Hattiesburg, MS 39402	8.00	0210 -28-010.000
29	Section: 28 Township: 7S Range: 13W	B & J Of Gulfport Llc	549 East Pass Rd Gulfport, MS 39507	311.30	0210 -28-010.004
30	Section: 28 Township: 7S Range: 13W	B & J Of Gulfport Llc	549 East Pass Rd Gulfport, MS 39507	78.50	0210 -28-010.002

TRACT NO.	SECTION/TOWNSHIP/ RANGE	SURFACE OWNER	ADDRESS	SURFACE ACRES	PARCEL ID NO.
31	Section: 29 Township: 7S Range: 13W	Jenkins Joseph S & Phyllis M	P O Box 717 Pass Christian, MS 39571	19.50	0110 -29-002.001
32	Section: 29 Township: 7S Range: 13W	Epperson David O & Cynthia	101 Clower Ave Long Beach, MS 39560	19.50	0110 -29-002.000
33	Section: 29 Township: 7S Range: 13W	Giovingo Salvador & Wf	1635 MaryLAnd Dr Albany, GA 31707	30.00	0110 -29-003.000
34	Section: 29 Township: 7S Range: 13W	Stafford Elizabeth J -Trustee-	1020 Rue Chinon Mandeville, LA 70471-1211	90.00	0110 -29-001.000
35	Section: 29 Township: 7S Range: 13W	Moran Alan T Sr & Kathryn-Trustees-	28376 Bradley Rd Pass Christian, MS 39571	3.00	0110 -29-007.004
36	Section: 29 Township: 7S Range: 13W	Moran Alan Thomas Jr	28338 Bradley Rd Pass Christian, MS 39571	2.00	0110 -29-004.000
37	Section: 29 Township: 7S Range: 13W	Moran Jacob N & Amanda D	28310 Bradley Rd Pass Christian, MS 39571	3.00	0110 -29-007.002
38	Section: 29 Township: 7S Range: 13W	Ladner Eddie A & Ada M	29529 N Kadber Rd Pass Christian, MS 39571	7.75	0110 -29-006.015
39	Section: 29 Township: 7S Range: 13W	K A T Investment Group Llc	8328 Kiln Delisle Rd Pass Christian, MS 39571	2.30	0110 -29-006.001
40	Section: 29 Township: 7S Range: 13W	Storey Richard J & Dedra	8337 Kiln Delisle Rd Pass Christian, MS 39571	2.10	0110 -29-006.010

TRACT NO.	SECTION/TOWNSHIP/ RANGE	SURFACE OWNER	ADDRESS	SURFACE ACRES	PARCEL ID NO.
41	Section: 29 Township: 7S Range: 13W	Storey Richard James & Dedra	8287 Kiln Delisle Rd Pass Christian, MS 39571	2.00	0110 -29-006.011
42	Section: 29 Township: 7S Range: 13W	Storey Richard James & Dedra	8287 Kiln Delisle Rd Pass Christian, MS 39571	12.40	0110 -29-006.012
43	Section: 29 Township: 7S Range: 13W	Storey James Chadwick	8337 Kiln-Delisle Rd Pass Christian, MS 39571	4.00	0110 -29-006.017
44	Section: 29 Township: 7S Range: 13W	Storey Dedra F & James C	8287 Kiln Delisle Rd Pass Christian, MS 39571	21.80	0110 -29-006.000
45	Section: 29 Township: 7S Range: 13W	Knowles Jay	17581 Old Highway 49 Saucier, MS 39574	321.80	0110 -30-043.000
46	Section: 30 Township: 7S Range: 13W	Knowles Jay	17581 Old Highway 49 Saucier, MS 39574	42.00	0110 -31-001.000
47	Section: 31 Township: 7S Range: 13W	Crosby Marjorie Y	C/O Timber Inv Managers Purvis, MS 39475	42.00	0110 -31-002.000
48	Section: 31 Township: 7S Range: 13W	Demetz Donald J Et Al	425 E Beach Blvd Pass Christian, MS 39571	42.00	0110 -31-003.000
49	Section: 31 Township: 7S Range: 13W	Wood Robert D Et Al	C/O Walter C Dunn Monroe, LA 71201	120.00	0110 -31-005.000
50	Section: 31 Township: 7S Range: 13W	Family Lands Lp Et Al	514 Elenore St New Orleans, LA 70115	106.00	0110 -31-007.000

TRACT NO.	SECTION/TOWNSHIP/ RANGE	SURFACE OWNER	ADDRESS	SURFACE ACRES	PARCEL ID NO.
51	Section: 31 Township: 7S Range: 13W	Crosby L O Iii -Trust- Et Al	C/O Timber Inv Managers Purvis, MS 39475	37.00	0110 -31-009.000
52	Section: 31 Township: 7S Range: 13W	Crosby Marjorie Y Et Al	C/O Timber Inv Managers Purvis, MS 39475	13.50	0110 -32-006.000
53	Section: 32 Township: 7S Range: 13W	Steube Karen Ann	7396 Cuevas Rd Pass Christian, MS 39571	2.20	0110 -32-005.002
54	Section: 32 Township: 7S Range: 13W	Terrell Kathy R	22238 Evangeline Drive Pass Christian, MS 39571	3.30	0110 -32-005.001
55	Section: 32 Township: 7S Range: 13W	Cuevas James L & Shirley L	7434 Cuevas Rd Pass Christian, MS 39571	7.00	0110 -32-004.000
56	Section: 32 Township: 7S Range: 13W	Ladner Daron R & Nikki	7400 Cuevas Rd Pass Christian, MS 39571	1.30	0110 -32-002.001
57	Section: 32 Township: 7S Range: 13W	Mixon Elizabeth Ann & George Truste	7475 Cuevas Rd Pass Christian, MS 39571	6.00	0110 -32-002.000
58	Section: 32 Township: 7S Range: 13W	Cuevas Huey L & Veda Mae	7552 Cuevas Rd Pass Christian, MS 39571	2.00	0110 -32-009.000
59	Section: 32 Township: 7S Range: 13W	Savarese Debra	723 Briarwood Dr Long Beach, MS 39560	1.10	0110 -32-011.000
60	Section: 32 Township: 7S Range: 13W	Cuevas Lecter J Jr & Jewel	7628 Cuevas Rd Pass Christian, MS 39571	11.40	0110 -32-001.001

TRACT NO.	SECTION/TOWNSHIP/ RANGE	SURFACE OWNER	ADDRESS	SURFACE ACRES	PARCEL ID NO.
61	Section: 32 Township: 7S Range: 13W	Cuevas Lector J Jr & Jewel J	7628 Cuevas Rd Pass Christian, MS 39571	2.90	0110 -32-013.000
62	Section: 32 Township: 7S Range: 13W	Cuevas Lector J Jr	7628 Cuevas Rd Pass Christian, MS 39571	26.00	0110 -32-012.000
63	Section: 32 Township: 7S Range: 13W	Morrison Mary L N Et Al	538 Hagan Ave New Orleans, LA 70119	3.00	0110 -32-014.000
64	Section: 32 Township: 7S Range: 13W	Stockstill James A Et Al	897 Hwy 43 E Picayune, MS 39466	15.60	0110 -32-017.000
65	Section: 32 Township: 7S Range: 13W	Dinero Unlimited Inc	2701 13Th Ave Gulfport, MS 39501	1.90	0110 -32-017.001
66	Section: 32 Township: 7S Range: 13W	Stockstill James & Mcraney T O	897 Hwy 43 E Picayune, MS 39466	1.93	0110 -32-016.000
67	Section: 32 Township: 7S Range: 13W	Harrison County Utility Authority	Po Box 2409 Gulfport, MS 39503	0.50	0110 -32-021.002
68	Section: 32 Township: 7S Range: 13W	Family Land LP	3702 Hardy St Hattiesburg, MS 39401	7.70	0110 -32-021.000
69	Section: 32 Township: 7S Range: 13W	Family Land LP	3702 Hardy St Hattiesburg, MS 39401	170.30	0110 -32-019.000
70	Section: 31, 32, 5 & 6 Township: 7S Range: 13W	Family Land LP	3702 Hardy St Hattiesburg, MS 39401	0.38	0111B-03-002.000

TRACT NO.	SECTION/TOWNSHIP/ RANGE	SURFACE OWNER	ADDRESS	SURFACE ACRES	PARCEL ID NO.
71	Section: 5 Township: 7S Range: 13W	Family Land LP	3702 Hardy St Hattiesburg, MS 39401	0.21	0111B-03-003.000
72	Section: 5 Township: 7S Range: 13W	Family Land LP	3702 Hardy St Hattiesburg, MS 39401	0.21	0111B-03-004.000
73	Section: 5 Township: 7S Range: 13W	Family Land LP	3702 Hardy St Hattiesburg, MS 39401	0.21	0111B-03-005.000
74	Section: 5 Township: 7S Range: 13W	Family Land LP	3702 Hardy St Hattiesburg, MS 39401	0.21	0111B-03-006.000
75	Section: 5 Township: 7S Range: 13W	Family Land LP	3702 Hardy St Hattiesburg, MS 39401	0.21	0111B-03-007.000
76	Section: 5 Township: 7S Range: 13W	Family Land LP	3702 Hardy St Hattiesburg, MS 39401	0.21	0111B-03-008.000
77	Section: 5 Township: 7S Range: 13W	Family Land LP	3702 Hardy St Hattiesburg, MS 39401	0.20	0111B-03-009.000
78	Section: 5 Township: 7S Range: 13W	Family Land LP	3702 Hardy St Hattiesburg, MS 39401	0.21	0111B-03-010.000
79	Section: 5 Township: 7S Range: 13W	Family Land LP	3702 Hardy St Hattiesburg, MS 39401	0.21	0111B-03-011.000
80	Section: 5 Township: 7S Range: 13W	Family Land LP	3702 Hardy St Hattiesburg, MS 39401	0.20	0111B-03-012.000

TRACT NO.	SECTION/TOWNSHIP/ RANGE	SURFACE OWNER	ADDRESS	SURFACE ACRES	PARCEL ID NO.
81	Section: 5 Township: 7S Range: 13W	Family Land LP	3702 Hardy St Hattiesburg, MS 39401	0.20	0111B-03-013.000
82	Section: 5 Township: 7S Range: 13W	Family Land LP	3702 Hardy St Hattiesburg, MS 39401	0.21	0111B-03-014.000
83	Section: 5 Township: 7S Range: 13W	Family Land LP	3702 Hardy St Hattiesburg, MS 39401	0.22	0111B-03-015.000
84	Section: 5 Township: 7S Range: 13W	Family Land LP	3702 Hardy St Hattiesburg, MS 39401	0.35	0111B-03-016.000
85	Section: 5 Township: 7S Range: 13W	Family Land LP	3702 Hardy St Hattiesburg, MS 39401	0.37	0111B-04-001.000
86	Section: 5 Township: 7S Range: 13W	Family Land LP	3702 Hardy St Hattiesburg, MS 39401	0.24	0111B-04-008.000
87	Section: 5 Township: 7S Range: 13W	Family Land LP	3702 Hardy St Hattiesburg, MS 39401	0.21	0111B-04-007.000
88	Section: 5 Township: 7S Range: 13W	Family Land LP	3702 Hardy St Hattiesburg, MS 39401	0.20	0111B-04-006.000
89	Section: 5 Township: 7S Range: 13W	Family Land LP	3702 Hardy St Hattiesburg, MS 39401	0.20	0111B-04-005.000
90	Section: 5 Township: 7S Range: 13W	Family Land LP	3702 Hardy St Hattiesburg, MS 39401	0.21	0111C-01-043.000

TRACT NO.	SECTION/TOWNSHIP/ RANGE	SURFACE OWNER	ADDRESS	SURFACE ACRES	PARCEL ID NO.
91	Section: 5 Township: 7S Range: 13W	Family Land LP	3702 Hardy St Hattiesburg, MS 39401	0.20	0111C-01-042.000
92	Section: 6 Township: 7S Range: 13W	Family Land LP	3702 Hardy St Hattiesburg, MS 39401	0.21	0111C-01-041.000
93	Section: 6 Township: 7S Range: 13W	Family Land LP	3702 Hardy St Hattiesburg, MS 39401	0.21	0111C-01-040.000
94	Section: 6 Township: 7S Range: 13W	Family Land LP	3702 Hardy St Hattiesburg, MS 39401	0.20	0111C-01-039.000
95	Section: 6 Township: 7S Range: 13W	Family Land LP	3702 Hardy St Hattiesburg, MS 39401	0.20	0111C-01-038.000
96	Section: 6 Township: 7S Range: 13W	Family Land LP	3702 Hardy St Hattiesburg, MS 39401	0.21	0111C-01-037.000
97	Section: 6 Township: 7S Range: 13W	Family Land LP	3702 Hardy St Hattiesburg, MS 39401	0.20	0111C-01-036.000
98	Section: 6 Township: 7S Range: 13W	Family Land LP	3702 Hardy St Hattiesburg, MS 39401	0.18	0111C-01-035.000
99	Section: 6 Township: 7S Range: 13W	Shelly Plantation Venture	P O Box 267 Bell Chasse, LA 70037	0.21	0111C-02-010.000
100	Section: 6 Township: 7S Range: 13W	Family Land LP	3702 Hardy St Hattiesburg, MS 39401	0.28	0111C-02-011.000

TRACT NO.	SECTION/TOWNSHIP/ RANGE	SURFACE OWNER	ADDRESS	SURFACE ACRES	PARCEL ID NO.
101	Section: 6 Township: 7S Range: 13W	Family Land LP	3702 Hardy St Hattiesburg, MS 39401	0.28	0111C-02-012.000
102	Section: 6 Township: 7S Range: 13W	Family Land LP	3702 Hardy St Hattiesburg, MS 39401	0.32	0111C-02-013.000
103	Section: 6 Township: 7S Range: 13W	Family Land LP	3702 Hardy St Hattiesburg, MS 39401	0.63	0111C-02-014.000
104	Section: 6 Township: 7S Range: 13W	Family Land LP	3702 Hardy St Hattiesburg, MS 39401	286.10	0111D-01-003.000
105	Section: 6 & 5 Township: 7S Range: 13W	Niolet Eugene J	10237 LAcy Niolet Rd Pass Chrisitan, MS 39571	0.23	0111B-04-016.000

APPENDIX 1-4

MINERAL OWNERS

CHEMOURS DELISLE MISSISSIPPI PLANT

TRACT NO.	SECTION/TOWNSHIP/ RANGE	SURFACE OWNER	MINERAL OWNER	GROSS ACRES (M/L)	MINERAL INTEREST
1	Section: 29 Township: 7S Range: 13W	The Chemours Company FC, LLC	The Chemours Company FC, LLC 974 Centre Rd. Wilmington, DE 19805	240.00	1.0000
2	Section: 31 Township: 7S Range: 13W	The Chemours Company FC, LLC	The Chemours Company FC, LLC 974 Centre Rd. Wilmington, DE 19805	120.00	1.0000
3	Section: 32 Township: 7S Range: 13W	The Chemours Company FC, LLC	The Chemours Company FC, LLC 974 Centre Rd. Wilmington, DE 19805	70.00	1.0000
4	Section: 32 Township: 7S Range: 13W	The Chemours Company FC, LLC	Roy T. Boteler Estate (Probate Ordered from Hinds Co, MS)	33.60	0.5000
4	Section: 32 Township: 7S Range: 13W	The Chemours Company FC, LLC	Lynn Crosby Gammill	33.60	0.21250
4	Section: 32 Township: 7S Range: 13W	The Chemours Company FC, LLC	Stewart Gammill IV	33.60	0.01250
4	Section: 32 Township: 7S Range: 13W	The Chemours Company FC, LLC	Lucius Olen Crosby Gammill	33.60	0.01250
4	Section: 32 Township: 7S Range: 13W	The Chemours Company FC, LLC	Jennifer Lynn Gammill	33.60	0.01250
4	Section: 32 Township: 7S Range: 13W	The Chemours Company FC, LLC	Christine E. Crosby Trust U/A 1993	33.60	0.12500
4	Section: 32 Township: 7S Range: 13W	The Chemours Company FC, LLC	Tamara E. Crosby Trust U/A April 10, 1993	33.60	0.06250

TRACT NO.	SECTION/TOWNSHIP/ RANGE	SURFACE OWNER	MINERAL OWNER	GROSS ACRES (M/L)	MINERAL INTEREST
4	Section: 32 Township: 7S Range: 13W	The Chemours Company FC, LLC	Marjorie Y. Crosby	33.60	0.06250
5	Section: 32 Township: 7S Range: 13W	The Chemours Company FC, LLC	The Chemours Company FC, LLC 974 Centre Rd. Wilmington, DE 19805	65.80	1.0000
6	Section: 33 Township: 7S Range: 13W	The Chemours Company FC, LLC	The Chemours Company FC, LLC 974 Centre Rd. Wilmington, DE 19805	274.65	1.0000
7	Sections: 32, 33 Township: 7S Range: 13W	The Chemours Company FC, LLC	Roy T. Boteler Estate (Probate Ordered from Hinds Co, MS)	289.28	0.5000
7	Sections: 32, 33 Township: 7S Range: 13W	The Chemours Company FC, LLC	Lynn Crosby Gammill	289.28	0.21250
7	Sections: 32, 33 Township: 7S Range: 13W	The Chemours Company FC, LLC	Stewart Gammill IV	289.28	0.01250
7	Sections: 32, 33 Township: 7S Range: 13W	The Chemours Company FC, LLC	Lucius Olen Crosby Gammill	289.28	0.01250
7	Sections: 32, 33 Township: 7S Range: 13W	The Chemours Company FC, LLC	Jennifer Lynn Gammill	289.28	0.01250
7	Sections: 32, 33 Township: 7S Range: 13W	The Chemours Company FC, LLC	Christine E. Crosby Trust U/A 1993	289.28	0.12500
7	Sections: 32, 33 Township: 7S Range: 13W	The Chemours Company FC, LLC	Tamara E. Crosby Trust U/A April 10, 1993	289.28	0.06250

TRACT NO.	SECTION/TOWNSHIP/ RANGE	SURFACE OWNER	MINERAL OWNER	GROSS ACRES (M/L)	MINERAL INTEREST
7	Sections: 32, 33 Township: 7S Range: 13W	The Chemours Company FC, LLC	Marjorie Y. Crosby	289.28	0.06250
8	Section: 33 Township: 7S Range: 13W	The Chemours Company FC, LLC	The Chemours Company FC, LLC 974 Centre Rd. Wilmington, DE 19805	5.83	1.0000
9	Section: 5 Township: 8S Range: 13W	The Chemours Company FC, LLC	The Chemours Company FC, LLC 974 Centre Rd. Wilmington, DE 19805	45.00	1.0000
10	Section: 5 Township: 8S Range: 13W	The Chemours Company FC, LLC	The Chemours Company FC, LLC 974 Centre Rd. Wilmington, DE 19805	2.88	1.0000
11	Sections: 5, 6 Township: 8S Range: 13W	The Chemours Company FC, LLC	Roy T. Boteler Estate (Probate Ordered from Hinds Co, MS)	341.11	0.5000
11	Sections: 5, 6 Township: 8S Range: 13W	The Chemours Company FC, LLC	Lynn Crosby Gammill	341.11	0.21250
11	Sections: 5, 6 Township: 8S Range: 13W	The Chemours Company FC, LLC	Stewart Gammill IV	341.11	0.01250
11	Sections: 5, 6 Township: 8S Range: 13W	The Chemours Company FC, LLC	Lucius Olen Crosby Gammill	341.11	0.01250
11	Sections: 5, 6 Township: 8S Range: 13W	The Chemours Company FC, LLC	Jennifer Lynn Gammill	341.11	0.01250
11	Sections: 5, 6 Township: 8S Range: 13W	The Chemours Company FC, LLC	Christine E. Crosby Trust U/A 1993	341.11	0.12500

TRACT NO.	SECTION/TOWNSHIP/ RANGE	SURFACE OWNER	MINERAL OWNER	GROSS ACRES (M/L)	MINERAL INTEREST
11	Sections: 5, 6 Township: 8S Range: 13W	The Chemours Company FC, LLC	Tamara E. Crosby Trust U/A April 10, 1993	341.11	0.06250
11	Sections: 5, 6 Township: 8S Range: 13W	The Chemours Company FC, LLC	Marjorie Y. Crosby	341.11	0.06250
12	Section: 4 Township: 8S Range: 13W	The Chemours Company FC, LLC	The Chemours Company FC, LLC 974 Centre Rd. Wilmington, DE 19805	418.75	1.0000
13	Section: 4 Township: 8S Range: 13W	The Chemours Company FC, LLC	The Chemours Company FC, LLC 974 Centre Rd. Wilmington, DE 19805	205.00	0.5000
13	Section: 4 Township: 8S Range: 13W	The Chemours Company FC, LLC	Olivia Niolet Estate (Probate Ordered from Harrison Co., MS)	205.00	0.5000

APPENDIX 1-5

DELISLE DEEPWELLS SURETY BOND AND STANDBY TRUST AGREEMENT

Bernard J. Reilly
Corporate Counsel
The Chemours Company
1007 Market Street, 9098-1
Wilmington, DE 19899
(302) 773-0061
bernard.j.reilly@chemours.com

March 30, 2018

SENT VIA CERTIFIED MAIL

Mississippi Department of Environmental Quality
RCRA Program Manager
Environmental Permits Division
P.O. Box 2261
Jackson, Mississippi 39225

Re: **Chemours DeLisle Plant and Pascagoula First Chemical Plant**
Corporate Guarantee for RCRA Closure Post Closure and UIC Closure

Dear Sir or Madam:

Guarantee made this date of March 30, 2018, by The Chemours Company, a business corporation organized under the laws of the State of Delaware, herein referred to as guarantor. This guarantee is made on behalf of The Chemours Company FC, LLC of 1007 Market Street, Wilmington, DE 19899, which is a subsidiary.

Recitals

1. Guarantor meets or exceeds the financial test criteria and agrees to comply with the reporting requirements for guarantors as specified in 40 CFR264.143(f), 264.145(f), 265.143(e), and 265.145(e).

2. The Chemours Company FC, LLC owns and operates the following hazardous waste management facilities covered by this guarantee: the Chemours DeLisle Plant, 7686 Kiln DeLisle Road, Pass Christian, MS 39571 and Pascagoula First Chemical Plant, 1001 Industrial Road, Pascagoula, MS 39581. This guarantee covers the costs of plugging and abandoning the UIC well at the DeLisle Plant in the amount $12,468,659 and closure/post-closure of the RCRA units at the Pascagoula Plant in the amount $386,900 for closure and $3,432,964 for post-closure.

3. "Closure plans" and "post-closure plans" as used below refer to the plans maintained as required by subpart G of 40 CFR parts 264 and 265 for the closure and post-closure care of facilities as identified above.

4. For value received from The Chemours Company FC, LLC guarantor guarantees to EPA that in the event that The Chemours Company FC, LLC fails to perform corrective action at the above facilities in accordance with the closure or post-closure plans and other permit or interim status requirements whenever required to do so, the guarantor shall do so or establish a trust fund as specified in subpart H of 40 CFR part 264 or 265, as applicable, in the name of The Chemours Company FC, LLC in the amount of the current corrective action estimate shown in attachment A.

5. Guarantor agrees that if, at the end of any fiscal year before termination of this guarantee, the guarantor fails to meet the financial test criteria, guarantor shall send within 90 days, by certified mail, notice to the Administrator for EPA Region 4, the Executive Director of MDEQ and to The Chemours Company FC, LLC that he intends to provide alternate financial assurance as specified in subpart H of 40 CFR part 264 or 265, as applicable, in the name of The Chemours Company FC, LLC. Within 120 days after the end of such fiscal year, the guarantor shall establish such financial assurance unless The Chemours Company FC, LLC has done so.

6. The guarantor agrees to notify the EPA Regional Administrator and Executive Director MDEQ by certified mail, of a voluntary or involuntary proceeding under Title 11 (Bankruptcy), U.S. Code, naming guarantor as debtor, within 10 days after commencement of the proceeding.

7. Guarantor agrees that within 30 days after being notified by an EPA Regional Administrator or the Executive Director MDEQ of a determination that guarantor no longer meets the financial test criteria or that he is disallowed from continuing as a guarantor of closure or post-closure care, he shall establish alternate financial assurance as specified in subpart H of 40 CFR part 264 or 265, as applicable, in the name of The Chemours Company FC, LLC unless The Chemours Company FC, LLC has done so.

8. Guarantor agrees to remain bound under this guarantee notwithstanding any or all of the following: amendment or modification of the closure or post-closure plans, amendment or modification of the permit, the extension or reduction of the time of performance of closure or post-closure, or any other modification or alteration of an obligation of the owner or operator pursuant to 40 CFR part 264 or 265.

9. Guarantor agrees to remain bound under this guarantee for as long as The Chemours Company FC, LLC must comply with the applicable financial assurance requirements of subpart H of 40 CFR parts 264 and 265 for the above-listed facility, except as provided in paragraph 10 of this agreement.

10. Guarantor may terminate this guarantee by sending notice by certified mail to the EPA Regional Administrators for the Regions in which the facilities are located, the Executive Director MDEQ and to The Chemours Company FC, LLC provided that this guarantee may not be terminated unless and until the Chemours Company FC, LLC obtains and the EPA Regional Administrators and Executive Director MDEQ approve, alternate corrective action coverage complying with 40 CFR 264.143,264.145, 265.143, and/or 265.145.

11. Guarantor agrees that if The Chemours Company FC, LLC fails to provide alternate financial assurance as specified in subpart H of 40 CFR part 264 or 265, as applicable, and obtain written approval of such assurance from the EPA Regional Administrator and the Executive Director MDEQ within 90 days after a notice of cancellation by the guarantor is received by the EPA Regional Administrator and the Executive Director MDEQ from guarantor, guarantor shall provide such alternate financial assurance in the name of The Chemours Company FC, LLC.

12. Guarantor expressly waives notice of acceptance of this guarantee by the EPA, MDEQ or by The Chemours Company FC, LLC. Guarantor also expressly waives notice of amendments or modifications of the closure and/or post-closure plans and of amendments or modifications of the facility permit(s).

I hereby certify that the wording of this guarantee is identical to the wording specified in 40 CFR 264.151(h) as such regulations were constituted on the date first above written.

Effective date: March 30, 2018

The Chemours Company, Guarantor

Bernard J Reilly
Corporate Counsel

Signature of witness or notary:

pwc

Report of Independent Accountants

To The Chemours Company:

We have performed the procedures enumerated below, which were agreed to by the Company aud Mississippi Department of Environmental Quality, solely to assist you in evaluating the selected financial data of The Chemours Company ("The Company") as contained in the accompanying letter dated March 29, 2018 from Mark E. Newman to the Mississippi Department of Environmental Quality. These procedures were performed solely to assist the specified parties in confirming selected financial data disclosed by the Company in the accompanying letter to comply with the financial test to demonstrate financial assurance for closure and/or post-closure costs, as specified in Subpart H of 40 CFR 264.151 (f) as adopted by reference in Title 11 Part 3 Chapter 1 Rule 1.7. Management is responsible for the Company's compliance with those requirements. The sufficiency of these procedures is solely the responsibility of the parties specified in this report. Consequently, we make no representation regarding the sufficiency of the procedures enumerated below either for the purpose for which this report has been requested or for any other purpose.

The procedures performed and results thereof are as follows:

1. We confirm that we have audited the consolidated financial statements of the Company as of and for the year ended December 31, 2017. Our report dated February 16, 2018, with respect thereto, is included in the Company's 2017 Annual Report on Form 10-K.

2. We compared the amount entitled "Total Liabilities" in the accompanying letter to the Company's calculation of total liabilities, derived from the Company's December 31, 2017 consolidated financial statements and/or underlying accounting records which support the consolidated financial statements and found such amouut to be in agreement.

3. We compared the amount entitled "Tangible Net Worth" in the accompauying letter to the Company's calculation of tangible net worth, derived from the Company's December 31, 2017 consolidated financial statements and/or underlying accounting records which support the consolidated financial statements and found such amount to be in agreement.

4. We compared the amount entitled "Net Worth" in the accompanying letter to the Company's calculation of total net worth, derived from the Company's December 31, 2017 consolidated financial statements and/or underlying accountiug records which support the consolidated fiuancial statements and found such amouut to be iu agreement.

5. We compared the amount eutitled "Current Assets" in the accompanying letter to the Company's calculation of current assets derived from the Compauy's December 31, 2017 consolidated financial statements and/or underlying accountiug records which support the Company's December 31, 2017 consolidated financial statements and found such amount to be in agreement.

6. We compared the amount entitled "Current Liabilities" in the accompanying letter to the Company's calculation of current liabilities derived from the Company's December 31, 2017 consolidated financial statements aud/or underlying accounting records which support the

Company's December 31, 2017 consolidated financial statements and found such amount to be iu agreement.

7. We compared the amount entitled "Net Income Plus Depreciation, Depletion, and Amortization" in the accompanying letter to the Compauy's calculation of net income plus depreciation, depletion, and amortization derived from the Company's December 31, 2017 consolidated fiuancial statements and/or underlying accounting records which support the Company's December 31, 2017 consolidated fiuancial statements and found such amouut to be in agreement.

8. We compared the amount entitled "Total Assets in U.S." in the accompanying letter to the Company's calculation of total assets in U.S. derived from the Company's December 31, 2017 consolidated financial statements and/or underlying accounting records which support the Company's December 31, 2017 consolidated financial statements and found such amount to be in agreement.

9. We recomputed the ratio of the Company's total assets in the U.S. to the Company's total consolidated assets, derived from the Company's December 31, 2017 consolidated financial statements aud/or underlying accounting records, to note that the Company's conclusion that total assets in the U.S. is less than 90% of the Company's consolidated total assets is correct.

This agreed-upon procedures engagement was conducted in accordance with attestation standards established by the American Institute of Certified Public Accountants. We were not engaged to and did not conduct an examination or review, the objective of which would be the expression of an opinion or conclusion, respectively, on financial compliance. Accordingly, we do not express such an opinion or conclusion. Had we performed additional procedures, other matters might have come to our attention that would have been reported to you.

This report relates only to the data specified in the steps above, and accordingly, we do not express an opinion or any form of assurance on any other data appearing in the Company's letter.

This report is intended solely for the information and use of you and the Mississippi Department of Environmental Quality, and is not intended to be, and should not be, used by anyone other than the specified parties.

PricewaterhouseCoopers LLP

March 29, 2018

Chemours™

The Chemours Company
1007 Market Street
PO Box 2047
Wilmington, DE 19899

302-773-1000 t
chemours.com

MARCH 29, 2018

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY
RCRA PROGRAM MANAGER
ENVIRONMENTAL PERMITS DIVISION
P.O. BOX 2261
JACKSON, MS 39225

LETTER FROM CHIEF FINANCIAL OFFICER

I am the chief financial officer of The Chemours Company. This letter is in support of this firm's use of the financial test to demonstrate financial assurance for closure and/or post-closure costs, as specified in subpart H of 40 CFR parts 264 and 265.

1. This firm is the owner or operator of the following facilities for which financial assurance for closure or post-closure care is demonstrated through the financial test specified in subpart H of 40 CFR parts 264 and 265. The current closure and/or post-closure cost estimates covered by the test are shown for each facility: None.

2. This firm guarantees, through the guarantee specified in subpart H of 40 CFR parts 264 and 265, the closure or post-closure care, of the following facilities owned or operated by the guaranteed party. The current cost estimates for the closure or post-closure care responsibility so guaranteed are shown for each facility: See Attachment. The firm identified above is the direct or higher-tier parent corporation of the owner or operator.

3. In States where EPA is not administering the financial requirements of subpart H of 40 CFR part 264 or 265, this firm, as owner or operator or guarantor, is demonstrating financial assurance for the closure or post-closure care, of the following facilities through the use of a test equivalent or substantially equivalent to the financial test specified in subpart H of 40 CFR parts 264 and 265. The current closure and/or post-closure cost estimates covered by such a test are shown for each facility: See Attachment.

4. This firm is the owner or operator of the following hazardous waste management facilities for which financial assurance for closure or, if a disposal facility, post-closure care, is not demonstrated either to EPA or a State through the financial test or any other financial assurance mechanism specified in subpart H of 40 CFR parts 264 and 265 or equivalent or substantially equivalent State mechanisms. The current closure and/or post-closure cost estimates not covered by such financial assurance are shown for each facility: None.

5. This firm is the owner or operator of the following UIC facilities for which financial assurance for plugging and abandonment is required under part 144. The current closure cost estimates as required by 40 CFR 144.62 are shown for each facility: See Attachment

This firm is required to file a Form 10K with the Securities and Exchange Commission (SEC) for the latest fiscal year.

The fiscal year of this firm ends on December 31, 2017. The figures for the following items marked with an asterisk are derived from this firm's independently audited, year-end financial statements for the latest completed fiscal year, ended 2017.

ALTERNATIVE I

1. Sum of current closure and post-closure cost estimate [total of all cost estimates shown in the five paragraphs above] $106.5 million

*2. Total liabilities [if any portion of the closure or post-closure cost estimates is included in total liabilities, you may deduct the amount of that portion from this line and add that amount to lines 3 and 4] $6,428.0 million

*3. Tangible net worth $699.0 million

*4. Net worth $865.0 million

*5. Current assets $3,493.0 million

*6. Current liabilities $1,648.0 million

7. Net working capital [line 5 minus line 6] $1,845.0 million

*8. The sum of net income plus depreciation, depletion, and amortization $1,019.0 million

*9. Total assets in U.S. (required only if less than 90% of firm's assets are located in the U.S.) $3,808.0 million

10. Is line 3 at least $10 million? (Yes/No) Y

11. Is line 3 at least 6 times line 1? (Yes/No) Y

12. Is line 7 at least 6 times line 1? (Yes/No) Y

*13. Are at least 90% of firm's assets located in the U.S.? If not, complete line 14 (Yes/No) N

14. Is line 9 at least 6 times line 1? (Yes/No) Y

15. Is line 2 divided by line 4 less than 2.0? (Yes/No) N

16. Is line 8 divided by line 2 greater than 0.1? (Yes/No) Y

17. Is line 5 divided by line 6 greater than 1.5? (Yes/No) Y

ALTERNATIVE II (NOT USED)

1. Sum of current closure and post-closure cost estimates [total of all cost estimates shown in the five paragraphs above]

2. Current bond rating of most recent issuance of this firm and name of rating service ____

3. Date of issuance of bond ____

4. Date of maturity of bond ____

*5. Tangible net worth [if any portion of the closure and post-closure cost estimates is included in "total liabilities" on your firm's financial statements, you may add the amount of that portion to this line]

*6. Total assets in U.S. (required only if less than 90% of firm's assets are located in the U.S.)

7. Is line 5 at least $10 million ? (Yes/No)

8. Is line 5 at least 6 times line 1? (Yes/No)

*9. Are at least 90% of firm's assets located in the U.S.? If not, complete line 10 (Yes/No)

10. Is line 6 at least 6 times line 1? (Yes/No)

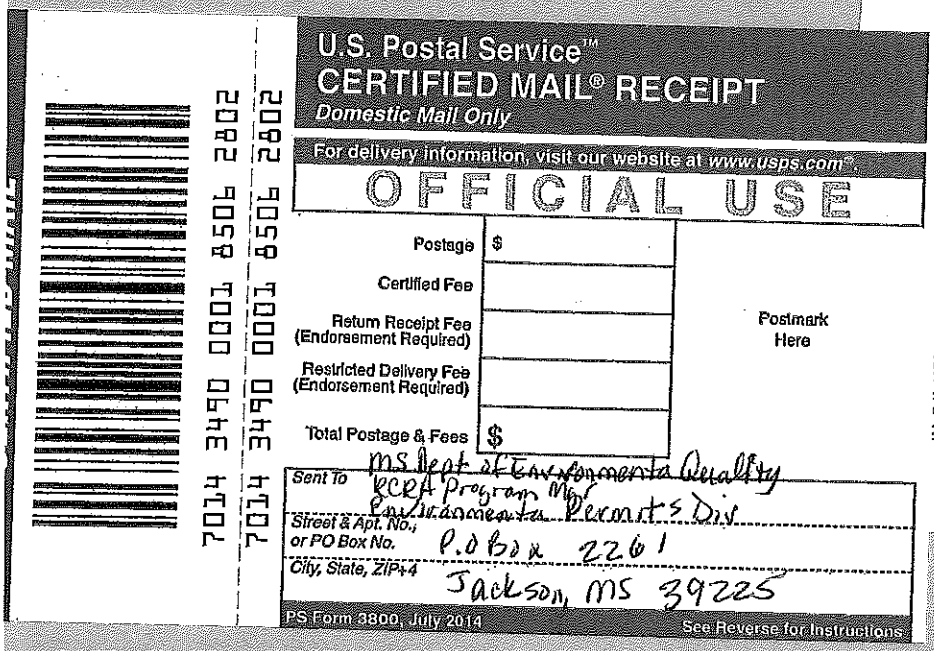
I hereby certify that the wording of this letter is identical to the wording specified in 40 CFR 264.151(f) as such regulations were constituted on the date shown immediately below.

Mark E. Newman
Senior Vice President and Chief Financial Officer
The Chemours Company
1007 Market Street
Wilmington, DE 19899

March 28, 2018
Date

2018 Chemours Financial Assurance

SITE	AGENCY	EPA ID#	CORRECTIVE ACTION (RCRA)	CLOSURE	POST CLOSURE	UIC	GRAND TOTAL
Chambers Works - Shell Road, Route 130, Deepwater, NJ 08023	EPA2	EPA ID # NJD 002385730	$ 11,616,000.00				
DeLisle - 7685 Kiln-DeLisle Road, Pass Christian, MS 39571	MDEQ	EPA ID # MSD096046792	$ 4,535,403.60			$ 12,468,659.14	
Florida Plant - Highland Site 274 NE CR 125, Lawtey, FL 32091; Maxville Mine Site Highway 302/CR 218, Maxville, FL 32234; Trail Ridge Site SR 230, Starke, FL 32091	FLDEP	EPA ID # FLD0040529200		$ 13,718,382.35			
Johnsonville Plant - DuPont Road, New Johnsonville, TN 37134	TNDEC	EPA ID # TND 004044491		$ 7,186,064.79	$ 12,375,186.80		
Martin Aaron Superfund - 1542 South Broadway, Camden, NJ 08104	EPA2	EPA ID # NJD 014623854	$ 4,004,456.90				
Necco Park - 56th & Pine, Niagara Falls, NY 14304	EPA2	EPA ID # NYD 980532162	$ 4,809,000.00				
Newport Superfund Site - James and Waters Streets, Newport, DE 19804	EPA3	EPA ID # DED 984056696	$ 7,326,987.00				
Pascagoula First Chemical - 1001 Industrial Road, Pascagoula, MS 39581	EPA4 and MDEQ	EPA ID # MSD 033417031	$ 3,712,839.08	$ 386,900.61	$ 3,432,964.15		
Pompton Lakes - 2000 Cannonball Road, Pompton Lakes, NJ 07442	EPA2	EPA ID # NJD 002173946	$ 18,980,929.00				
Washington Works - 8480 DuPont Road, Washington, WV 26181	EPA 3	EPA ID # WVD 045875291	$ 1,975,000.00				
Current Closure, Post-Closure, and CERCLA Cost Estimates for Chemours Sites using the Corporate Guarantee Financial Assurance Mechanism			$ 56,960,615.58	$ 21,291,347.75	$ 15,808,150.95	$ 12,468,659.14	$106,528,773.42



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RCRA Program Mgr
Environmental Permits Div
Street & Apt. No., or PO Box No.: P.O Box 2261
City, State, ZIP+4: Jackson, MS 39225

PS Form 3800, July 2014 — See Reverse for Instructions

7014 3490 0001 8506 2802

7014 3490 0001 8506 2802

RCRA Program Manager
Environmental Permits Division
P.O. Box 2261
Jackson, Mississippi 39225

The Chemours Company
1007 Market Street
Wilmington, DE 19899

Chemours™

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.

MS Department of Environmental Quality
RCRA Program Manager
Environmental Permits Division
P.O. Box 2261
Jackson, Mississippi 39225

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