The Dow Chemical Company
TXINN - APB
332 SH 332 E
Lake Jackson, TX 77566
USA

February 5, 2018

CERTIFIED MAIL 7016 3010 0000 5020 9192 RETURN RECEIPT REQUESTED

Team Leader
Air Permit Initial Review Team (APIRT) **MC-163**
Texas Commission on Environmental Quality (TCEQ)
P.O. Box 13087
Austin, TX 78711-3087

THE DOW CHEMICAL COMPANY CN600356976
DOW TEXAS OPERATIONS RN100225945
A-3600 PMDI PLANT
PBR 262 REGISTRATION
PROJECT NAME: NEW FUGITIVE COMPONENTS

Dear APIRT Team Leader:

This PBR 262 registration is being submitted to authorize changes at the PMDI Plant. The scope of this project is to authorize emissions from new fugitive components. Chapters 30 TAC §106.262 is being used to authorize the changes associated with this project.

The attachments to this submittal are:

- PI-7 CERT Registration Form
- PBR Fee
- §106.4 Check List
- §106.262 Check List
- Table 1 Emission Limits
- Table 2 PBR Compliance Table
- Emission Calculations

For future correspondence I can be contacted at (979) 238-1037 or via e-mail at MDKhan@dow.com.

Respectfully,

Danish Khan
Air Permit Manager
The Dow Chemical Company

XC:	Manager	Air Section, TCEQ, OCE/FO Region XII 5425 Polk Avenue, Suite H, Houston, TX 77023-1423
	Director	Environmental Health, Brazoria County Health Department, 111 E Locust Bldg A-29 Suite 270 Angleton, TX 77515
e-mail	Eric Rooney	The Dow Chemical Company
	Vanessa Smith	The Dow Chemical Company
	Brandon Kroll	The Dow Chemical Company
	Fran Falcon	The Dow Chemical Company

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Texas Commission on Environmental Quality
Certification and Registration for Permits by Rule
Form PI-7-CERT
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I. Registrant Information		
Company or Other Legal Customer Name: **The Dow Chemical Company**		
Company Official Contact Information (☒ Mr. ☐ Mrs. ☐ Ms. ☐ Other _____)		
Name: **Danish Khan**		
Title: **Air Permit Manager**		
Mailing Address: **2301 N. Brazosport Blvd.**		
City: **Freeport**	State: **TX**	ZIP Code: **77541-3257**
Phone: **(979) 238-1037**	Fax: **(979) 238-0317**	
E-mail Address: **MDKhan@dow.com**		
All PBR registration responses will be sent via e-mail unless a hard copy is specifically requested. The company official must initial here if hard copy is requested. _____ *(please initial)*		
Technical Contact Information (☒ Mr. ☐ Mrs. ☐Ms. ☐ Other _____)		
Name: **Danish Khan**		
Title: **Air Permit Manager**		
Company Name: **The Dow Chemical Company**		
Mailing Address: **2301 N. Brazosport Blvd., B-101**		
City: **Freeport**	State: **TX**	ZIP Code: **77541-3257**
Phone: **(979) 238-1037**	Fax: **(979) 238-0317**	
E-mail: **MDKhan@dow.com**		
II. Facility and Site Information		
A. Name and Type of Facility		
Facility Name: **A-3600 Polymeric Methylene Diphenyl Isocyanate (PMDI) Plant**		
Type of Facility:	☒ Permanent	☐ Temporary
For portable units, please provide the serial number of the equipment being authorized below.		
Serial No:	Serial No:	
B. Facility Location Information		
Street Address: **2301 N. Brazosport Blvd.**		
If there is no street address, provide written driving directions to the site and provide the closest city or town, county, and ZIP code for the site (attach description if additional space is needed).		
City: **Freeport**	County: **Brazoria**	ZIP Code: **77541-3257**

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II. Facility and Site Information *(continued)*	
C. TCEQ Core Data Form	
Is the Core Data Form (TCEQ Form Number 10400) attached?	☐ YES ☒ NO
If "NO," provide customer reference number (CN) and regulated entity number (RN) below.	
Customer Reference Number (CN): **CN600356976**	
Regulated Entity Number (RN): **RN100225945**	
TCEQ Account Identification Number (if known): **BL-0082-R**	
E. Type of Action:	
☒ Initial Application ☐ Change to Registration	
For Change to Registration provide the Registration Number:	
F. PBR number(s) claimed under 30 TAC Chapter 106	
(List all the individual rule number(s) that are being claimed.)	
106.262	106.
106.	106.
106.	106.
Historical Standard Exemption or PBR	
Are you claiming a historical standard exemption or PBR?	☐ YES ☒ NO
If "YES," enter rule number(s) and associated effective date in the spaces provided below.	
Rule Number(s)	Effective Date
Previous Standard Exemption or PBR Registration Number	
Is this authorization for a change to an existing facility previously authorized under a standard exemption or PBR?	☐ YES ☒ NO
If "YES," enter previous standard exemption number(s) and PBR registration number(s), and associated effective dates in the spaces provided below.	
Standard Exemption and PBR Registration Number(s)	Effective Date

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II. Facility and Site Information *(continued)*		
I. Other Facilities at this Site Authorized by Standard Exemption, PBR, or Standard Permit		
Are there any other facilities at this site that are authorized by an Air Standard Exemption, PBR, or Standard Permit?	☒ YES ☐ NO	
If "YES," enter standard exemption number(s), PBR registration number(s), and Standard Permit registration number(s), and associated effective date in the spaces provided below.		
Standard Exemption, PBR Registration, and Standard Permit Registration Number(s)	Effective Date	
There are many PBR and Standard Permits claims at this site. A list can be provided if necessary for review of this project.		
Other Air Preconstruction Permits		
Are there any other air preconstruction permits at this site?	☒ YES ☐ NO	
If "YES," enter permit number(s) in the spaces provided below.		
Over a hundred NSR air permits have been issued at this site. Public Notice requirements are frequently met. A list can be provided if necessary for review of this project.		
Affected Air Preconstruction Permits		
Does the PBR being claimed directly affect any permitted facility?	☒ YES ☐ NO	
If "YES," enter the permit number(s) in the spaces provided below.		
NSR Permit 46431		
Federal Operating Permit (FOP) Requirements (30 TAC Chapter 122 Applicability)		
1. Is this facility located at a site that is required to obtain an FOP pursuant to 30 TAC Chapter 122?	☒ YES ☐ NO ☐ To Be Determined	
If the site currently has an existing FOP, enter the permit number: **O2216**		
Check the requirements of 30 TAC Chapter 122 that will be triggered if this certification is accepted. *(check all that apply)* ☐ Initial Application for an FOP ☐ Significant Revision for an SOP ☐ Minor Revision for an SOP ☐ Operational Flexibility/Off Permit Notification for an SOP ☐ Revision for a GOP ☐ To be Determined ☒ None **(Existing fugitive area emission increase with no change in composition)**		
2. Identify the type(s) of FOP issued and/or FOP application(s) submitted/pending for the site. *(check all that apply)* ☐ SOP ☐ GOP ☐ GOP application/revision (submitted or under APD review) ☒ N/A ☐ SOP application/revision (submitted or under APD review)		

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III.	**Fee Information (***See Section VII. for address to send fee or go to www.tceq.texas.gov/epay to pay online.)*	
A.	Fee Requirements	
Is a fee required per Title 30 TAC § 106.50?		☒ YES ☐ NO
If "NO," specify the exception. There are three exceptions to paying a PBR fee.	(*check all that apply*)	
1.	Registration is solely to establish a federally enforceable emission limit.	☐
2.	Registration is within six months of an initial PBR review, and it is addressing deficiencies, administrative changes, or other allowed changes.	☐
3.	Registration is for a remediation project (30 TAC § 106.533).	☐
B.	Fee Amount	
1.	A $100 fee is required if *any* of the answers in III.B.1 are "YES."	
This business has less than 100 employees.		☐ YES ☒ NO
This business has less than 6 million dollars in annual gross receipts.		☐ YES ☒ NO
This registration is submitted by a governmental entity with a population of less than 10,000.		☐ YES ☒ NO
This registration is submitted by a non-profit organization.		☐ YES ☒ NO
2.	A $450 fee is required for all other registrations.	
Payment Information		
Check/money order/transaction or voucher number: **Fee will be paid online**		
Individual or company name on check: **The Dow Chemical Company**		
Fee Amount: $ **450.00**		
Was fee paid online?		☒ YES ☐ NO
IV.	**Technical Information Including State And Federal Regulatory Requirements**	
Check the appropriate box to indicate what is included in your submittal.		
NOTE: *Any technical or essential information needed to confirm that facilities are meeting the requirements of the PBR must be provided. Not providing key information could result in an automatic deficiency and voiding of the project.*		
A.	PBR requirements (Checklists are optional; however, your review will go faster if you provide applicable checklists.)	
Did you demonstrate that the general requirements in 30 TAC § 106.4 are met?		☒ YES ☐ NO
Did you demonstrate that the individual requirements of the specific PBR are met?		☒ YES ☐ NO
Confidential Information Included (If confidential information is submitted with this registration, all confidential pages must be properly marked "CONFIDENTIAL.")		☒ YES ☐ NO

IV. Technical Information Including State And Federal Regulatory Requirements *(continued)* **Check the appropriate box to indicate what is included in your submittal.** **Note:** Any technical or essential information needed to confirm that facilities are meeting the requirements of the PBR must be provided. Not providing key information could result in an automatic deficiency and voiding of the project.	
Process Flow Diagram	☒ YES ☐ NO
Process Description	☒ YES ☐ NO
Maximum Emissions Data and Calculations	☒ YES ☐ NO
Note: *If the facilities listed in this registration are subject to the Mass Emissions Cap & Trade program under* ***30 TAC Chapter 101, Subchapter H, Division 3,*** *the owner/operator of these facilities must possess NO_x allowances equivalent to the actual NO_x, emissions from these facilities.*	
Is this certification being submitted to certify the emissions for the entire site?	☐ YES ☒ NO
If "NO," include a summary of the specific facilities and emissions being certified.	
Table 1(a) (Form 10153) Emission Point Summary	☒ YES ☐ NO
Distances from Property Line and Nearest Off-Property Structure	
Distance from this facility's emission release point to the nearest property line: **1,100** feet	
Distance from this facility's emission release point to the nearest off-property structure: **3,600** feet	
Project Status	
Has the company implemented the project or waiting on a response from TCEQ?	☐ Implemented ☒ Waiting
Projected Start of Construction and Projected Start of Operation Dates	
Projected Start of Construction (provide date): **02/05/2018**	
Projected Start of Operation (provide date): **02/05/2018**	
V. Delinquent Fees	
This form **will not be processed** until all delinquent fees and/or penalties owed to the TCEQ or the Office of the Attorney General on behalf of the TCEQ is paid in accordance with the Delinquent Fee and Penalty Protocol. For more information regarding Delinquent Fees and Penalties, go to the TCEQ website at: www.tceq.texas.gov/agency/delin/index.html.	

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VI. Signature For Registration And Certification
The signature below confirms that I have knowledge of the facts included in this application and that these facts are true and correct to the best of my knowledge and belief. I further state that to the best of my knowledge and belief, the project for which this application is made will not in any way violate any provision of the Texas Water Code (TWC), Chapter 7; the Texas Health and Safety Code, Chapter 382, the Texas Clean Air Act (TCAA); the air quality rules of the Texas Commission on Environmental Quality; or any local governmental ordinance or resolution enacted pursuant to the TCAA. I further state that I understand my signature indicates that this application meets all applicable nonattainment, prevention of significant deterioration, or major source of hazardous air pollutant permitting requirements. The signature further signifies awareness that intentionally or knowingly making or causing to be made false material statements or representations in the application is a criminal offense subject to criminal penalties.
Name (printed): **Danish Khan**
Signature (original signature required): Danish Khan
Date: 2/7/2018

VII. Submitting Copies of the Certification and Registration		
Copies must be sent as listed below: **Processing delays may occur if copies are not sent as noted.**		
Who	**Where**	**What**
Air Permits Initial Review Team (APIRT)	Regular, Certified, Priority Mail MC 161, P.O. Box 13087 Austin, Texas 78711-3087 Hand Delivery, Overnight Mail MC 161, 12100 Park 35 Circle, Building C, Third Floor Austin, Texas 78753	Originals Form PI-7-CERT, Core Data Form, and all attachments. Not required if using ePermits[1]
Revenue Section, TCEQ	Regular, Certified, Priority Mail MC 214, P.O. Box 13088 Austin, Texas 78711-3088 Hand Delivery, Overnight Mail MC 214, 12100 Park 35 Circle, Building A, Third Floor Austin, Texas 78753	Original Money Order or Check, Copy of Form PI-7-CERT, and Core Data Form. Not required if fee was paid using ePay[2].
Appropriate TCEQ Regional Office	To find your Regional Office address, go to the TCEQ website at www.tceq.texas.gov/publications/gi/gi-002.html, or call (512) 239-1250.	Copy of Form PI-7-CERT, Core Data Form, and all attachments.
Appropriate Local Air Pollution Control Program(s)	To Find your local or Regional Air Pollution Control Programs go to the TCEQ, APD website at www.tceq.texas.gov/permitting/air/local_programs.html, or call (512)-239-1250	Copy of Form PI-7-CERT, Core Data Form, and all attachments.

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[1] ePermits located at www3.tceq.texas.gov/steers/
[1] ePay located at www.tceq.texas.gov/epay

FEE INFORMATION

Fee will be paid online. Voucher Number will be provided.

Texas Commission on Environmental Quality
Permit by Rule Applicability Checklist
Title 30 Texas Administrative Code § 106.4

The following checklist was developed by the Texas Commission on Environmental Quality (TCEQ), **Air Permits Division**, to assist applicants in determining whether or not a facility meets all of the applicable requirements. Before claiming a specific Permit by Rule (PBR), a facility must first meet all of the requirements of **Title 30 Texas Administrative Code § 106.4** (30 TAC § 106.4), "Requirements for Permitting by Rule." Only then can the applicant proceed with addressing requirements of the specific Permit by Rule being claimed.

The use of this checklist is not mandatory; however, it is the responsibility of each applicant to show how a facility being claimed under a PBR meets the general requirements of 30 TAC § 106.4 and also the specific requirements of the PBR being claimed. If all PBR requirements cannot be met, a facility will not be allowed to operate under the PBR and an application for a construction permit may be required under 30 TAC § 116.110(a).

Registration of a facility under a PBR can be performed by completing **Form PI–7** (Registration for Permits by Rule) or **Form PI–7–CERT** (Certification and Registration for Permits by Rule). The appropriate checklist should accompany the registration form. Check the most appropriate answer and include any additional information in the spaces provided. If additional space is needed, please include an extra page and reference the question number. The PBR forms, tables, checklists, and guidance documents are available from the TCEQ, Air Permits Division Web site at: www.tceq.texas.gov/permitting/air/nav/air_pbr.html.

1. 30 TAC § 106.4(a)(1) and (4): Emission limits	
List emissions in tpy for **each** facility (add additional pages or table if needed):	
• Are the SO_2, PM_{10}, VOC, or other air contaminant emissions claimed for **each** facility in this PBR submittal less than 25 tpy?	☒ YES ☐ NO
• Are the NO_x and CO emissions claimed for each facility in this PBR submittal less than 250 tpy?	☒ YES ☐ NO
*If the answer to both is "Yes," continue to the question below. If the answer to either question is "No," a **PBR cannot be claimed.***	
Has any facility at the property had public notice and opportunity for comment under 30 TAC Section 116 for a regular permit or permit renewal? (This does not include public notice for voluntary emission reduction permits, grandfathered existing facility permits, or federal operating permits.)	☒ YES ☐ NO
If "Yes," skip to Section 2. If "No," continue to the questions below.	
If the site has had no public notice, please answer the following:	
• Are the SO_2, PM_{10}, VOC, or other emissions claimed for **all** facilities in this PBR submittal less than 25 tpy?	☐ YES ☐ NO
• Are the NO_x and CO emissions claimed for all facilities in this PBR submittal less than 250 tpy?	☐ YES ☐ NO
If the answer to both questions is "Yes," continue to Section 2.	
*If the answer to either question is "No," **a PBR cannot be claimed.** A permit will be required under Chapter 116.*	

Permit by Rule Applicability Checklist
Title 30 Texas Administrative Code § 106

2. 30 TAC § 106.4(a)(2): Nonattainment check	
• Are the facilities to be claimed under this PBR located in a designated ozone nonattainment county?	☒ YES ☐ NO
If "Yes," please indicate which county by checking the appropriate box to the right.	
(Moderate) - Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller counties:	☒ HGB
(Moderate) - Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Rockwall, Tarrant, and Wise counties:	☐ DFW
If "Yes," to any of the above, continue to the next question. If "No," continue to Section 3.	
• Does this project trigger a nonattainment review?	☐ YES ☒ NO
• Is the project's potential to emit (PTE) for emissions of VOC or NO_x increasing by 100 tpy or more? *PTE is the maximum capacity of a stationary source to emit any air pollutant under its worst–case physical and operational design unless limited by a permit, rules, or made federally enforceable by a certification.*	☐ YES ☒ NO
• Is the site an existing major nonattainment site and are the emissions of VOC or NO_x increasing by 40 tpy or more?	☐ YES ☒ NO
If needed, attach contemporaneous netting calculations per nonattainment guidance.	
Additional information can be found at: www.tceq.texas.gov/permitting/air/forms/newsourcereview/tables/nsr_table8.html and www.tceq.texas.gov/permitting/air/nav/air_docs_newsource.html	
*If "Yes," to any of the above, the project is a major source or a major modification and **a PBR may not be used**. A Nonattainment Permit review must be completed to authorize this project. If "No," continue to Section 3.*	
3. 30 TAC § 106.4(a)(3): Prevention of Significant Deterioration (PSD) check	
Does this project trigger a review under PSD rules?	
To determine the answer, review the information below:	
• Are emissions of any regulated criteria pollutant increasing by 100 tpy of any criteria pollutant at a named source?	☐ YES ☒ NO
• Are emissions of any criteria pollutant increasing by 250 tpy of any criteria pollutant at an unnamed source?	☐ YES ☒ NO
• Are emissions increasing above significance levels at an existing major site?	☐ YES ☒ NO
PSD information can be found at: www.tceq.texas.gov/assets/public/permitting/air/Forms/NewSourceReview/Tables/10173tbl.pdf and www.tceq.texas.gov/permitting/air/nav/air_docs_newsource.html *If "Yes," to any of the above, **a PBR may not be used**. A PSD Permit review must be completed to authorize the project.* *If "No," continue to Section 4.*	

Permit by Rule Applicability Checklist
Title 30 Texas Administrative Code § 106

4. 30 TAC § 106.4(a(6): Federal Requirements	
• Will all facilities under this PBR meet applicable requirements of Title 40 Code of Federal Regulations (40 CFR) Part 60, New Source Performance Standards (NSPS)?	☐ YES ☐ NO ☒ NA
If "Yes," which Subparts are applicable?	
• Will all facilities under this PBR meet applicable requirements of 40 CFR Part 63, Hazardous Air Pollutants Maximum Achievable Control Technology (MACT) standards?	☒ YES ☐ NO ☐ NA
If "Yes," which Subparts are applicable?	Subpart H
• Will all facilities under this PBR meet applicable requirements of 40 CFR Part 61, National Emissions Standards for Hazardous Air Pollutants (NESHAPs)?	☐ YES ☐ NO ☒ NA
If "Yes," which Subparts are applicable?	
If "Yes" to any of the above, please attach a discussion of how the facilities will meet any applicable standards.	
5. 30 TAC § 106.4(a)(7): PBR prohibition check	
• Are there any air permits at the site containing conditions which prohibit or restrict the use of PBRs?	☐ YES ☒ NO
If "Yes," PBRs may not be used or their use must meet the restrictions of the permit. A new permit or permit amendment may be required.	
List permit number(s):	
6. 30 TAC § 106.4(a)(8): NO_x Cap and Trade	
• Is the facility located in Harris, Brazoria, Chambers, Fort Bend, Galveston, Liberty, Montgomery, or Waller County?	☒ YES ☐ NO
If "Yes," answer the question below. If "No," continue to Section 7.	
• Will the proposed facility or group of facilities obtain required allowances for NO_x if they are subject to 30 TAC Chapter 101, Subchapter H, Division 3 (relating to the Mass Emissions Cap and Trade Program)?	☒ YES ☐ NO

7. Highly Reactive Volatile Organic Compounds (HRVOC) check		
• Is the facility located in Harris County?		☐ YES ☒ NO
If "Yes," answer the next question. If "No," skip to the box below.		
• Will the project be constructed after June 1, 2006?		☐ YES ☐ NO
If "Yes," answer the next question. If "No," skip to the box below.		
• Will one or more of the following HRVOC be emitted as a part of this project?		☐ YES ☐ NO
If "Yes," complete the information below:		
	lb/hr	tpy
► 1,3-butadiene		
► all isomers of butene (e.g., isobutene [2-methylpropene or isobutylene])		
► alpha-butylene (ethylethylene)		
► beta-butylene (dimethylethylene, including both cis- and trans-isomers)		
► ethylene		
► propylene		
• Is the facility located in Brazoria, Chambers, Fort Bend, Galveston, Liberty, Montgomery, or Waller County?		☒ YES ☐ NO
If "Yes," answer the next question. If "No," the checklist is complete.		
• Will the project be constructed after June 1, 2006?		☒ YES ☐ NO
If "Yes," answer the next question. If "No," the checklist is complete.		
• Will one or more of the following HRVOC be emitted as a part of this project?		☐ YES ☒ NO
If "Yes," complete the information below:		
	lb//hr	tpy
► ethylene		
► propylene		

Texas Commission on Environmental Quality
Title 30 Texas Administrative Code § 106.262
Permit by Rule (PBR) Checklist
Facilities (Emission and Distance Limitations)

The following checklist is designed to help you confirm that you meet Title 30 Texas Administrative Code § 106.262 (30 TAC § 106.262) requirements. If you do not meet all the requirements, you may alter the project design or operation in such a way that all the requirements of the PBR are met or you may obtain a construction permit. The PBR forms, tables, checklists, and guidance documents are available from the Texas Commission on Environmental Quality (TCEQ), Air Permits Division Web site at, www.tceq.texas.gov/nav/permits/air_permits.html.

For additional assistance with your application, including resources to help calculate your emissions, please visit the Small Business and Local Government Assistance (SBLGA) webpage at the following link: www.TexasEnviroHelp.org

Check the Most Appropriate Answer				
	Is a description or checklist of how this claim meets the general requirements for the use of PBRs in 30 TAC § 106.4 attached?			☒ YES ☐ NO ☐ N/A
b1.	Is this claim for construction of a facility authorized in another section of this chapter or for which a standard permit is in effect? *If "YES," this PBR cannot be used to authorize emissions from the project.*			☐ YES ☒ NO ☐ N/A
b2.	Is this claim for any change to any facility authorized under another section of this chapter or authorized under a standard perm? *If "YES," this PBR cannot be used to authorize emissions from the project.*			☐ YES ☒ NO ☐ N/A
c.	Is the facility authorized under another section of this chapter or under a standard permit? *If "YES," subsection (a)(2) and (3) of this section may be used to qualify the use of other chemicals at the facility.*			☐ YES ☒ NO ☐ N/A
a1.	Are facilities or changes located at least 100 feet from any recreational area or residence or other structure not occupied or used solely by the owner or operator of the facilities or the owner of the property upon which the facilities are located?			☒ YES ☐ NO ☐ N/A
a2.	Are new or increased emissions, including fugitives, emitted in a quantity less than five tons per year or in a quantity less than E as determined by using the equation E=L/K?3 See Table 262 Figures 1 and 2. *If "YES," the notification shall include a description of the project, calculations for all emissions being claimed under this PBR:*			☒ YES ☐ NO ☐ N/A
Chemical: **See attached table 2**		L value:	D:	K:
a3.	Is this checklist attached to a Form PI-7 within ten days following the installation or modification of the facilities? *If "YES," the notification shall include a description of the project, calculations, and data identifying specific chemical names, L values, and a description of pollution control equipment, if any.*			☒ YES ☐ NO ☐ N/A

[1] Any upstream and/or downstream actual emission increases that result from a project for which this PBR is claimed need to be authorized appropriately. Any associated upstream and/or downstream emissions authorized as part of the PBR claim will need to be included as part of the total new or increased emissions, unless: 1) these emissions stay below current authorized emission limits; 2) there is not a change to any underlying air authorizations for the applicable units associated with BACT, health and environmental impacts, or other representations (i.e. construction plans, operating procedures, throughputs, maximum emission rates, etc.); and 3) this claim is certified via PI-7 CERT or APD-CERT. Notwithstanding the exclusion of any upstream and/or downstream emissions under this PBR claim, the total of all emission increases, including upstream and/or downstream actual emission increases, are required to be part of the PBR registration to determine major new source review applicability under Title 30 TAC Chapter 116. The emission increases

Title 30 Texas Administrative Code § 106.262
Permit by Rule (PBR) Checklist
Facilities (Emission and Distance Limitations)

Check the Most Appropriate Answer			
a4. Are one or more of the following chemicals is handled for this registration? (Check all that apply) *If "YES," answer the following four questions.*			☐ YES ☒ NO ☐ N/A
☐ acrolein	☐ diazomethane	☐ hydrogen sulfide	☐ ozone
☐ allyl chloride	☐ diborane	☐ ketene	☐ pentabornev
☐ ammonia (anhydrous)	☐ diglycidyl ether	☐ methylamine	☐ perchloromethyl mercaptan
☐ arsine	☐ dimethylhydrazine	☐ methyl bromide	☐ perchloryl fluoride
☐ boron trifluoride	☐ ethyleneimine	☐ methyl hydrazine	☐ phosgene
☐ bromine	☐ ethyl mercaptan	☐ methyl isocyanate	☐ phosphine
☐ carbon disulfide	☐ fluorine	☐ methyl mercaptan	☐ phosphorus trichloride
☐ chlorine	☐ formaldehyde (anhydrous)	☐ nickel carbonyl	☐ selenium
☐ chlorine dioxide	☐ hydrogen bromide	☐ nitric acid	☐ hexafluoride stibine
☐ chlorine trifluoride	☒ hydrogen chloride	☐ nitric oxide	☐ liquefied sulfur dioxide
☐ chloroacetaldehyde	☐ hydrogen cyanide	☐ nitrogen dioxide	☐ sulfur pentafluorid
☐ chloropicrin	☐ hydrogen fluoride	☐ oxygen difluoride	☐ tellurium hexafluoride
☐ chloroprene	☐ hydrogen selenide		
Are all facilities are located at least 300 feet from the nearest property line and 600 feet from any off-plant receptor?			☐ YES ☐ NO ☐ N/A
Are the cumulative amount of any of the following chemicals resulting from one or more authorizations under this section (but not including permit authorizations) less than or equal to 500 pounds on the plant property?			☐ YES ☐ NO ☐ N/A
Are all listed chemicals handled only in unheated containers operated in compliance with the United States Department of Transportation regulation (49 Code of Federal Regulation, Parts 171-178)?			☐ YES ☐ NO ☐ N/A
a5. Are there any changes to or additions of any existing air pollution abatement equipment?			☐ YES ☒ NO ☐ N/A
a6. Will there be any visible emissions, except uncombined water, emitted to the atmosphere from any point or fugitive source in amounts greater that 5.0% opacity in any six-minute period?			☐ YES ☒ NO ☐ N/A

associated with the PBR claim and all upstream and/or downstream actual emission increases may not circumvent major new source review requirements under 30 TAC Chapter 116.

D (feet)	K	Value Description
100	326	E=maximum allowable hourly emission, and never to exceed 6 pounds per hour.
200	200	
300	139	
400	104	
600	65	
700	54	
800	46	K=value from the table on this page. (interpolate intermediate values)
900	39	
1,000	34	
2,000	14	D=distance to the nearest off-plant receptor
3,000 or more	8	

Table 262
Limit Values (L) for use with Exemptions from Permitting § 106.262

The values are not to be interpreted as acceptable health affects values relative to the issuance of any permits under Chapter 116 of this title (relating to Control of Air Pollution by Permits for new Construction or Modification).

Compound	Limit (L) Milligrams Per Cubic Meter
Acetone	590.
Acetaldehyde	9.
Acetone	4.
Acetonitrile	34.
Acetylene	2662.
N-Amyl Acetate	2.7
Sec-Amyl Acetate	1.1
Benzene	3.
Beryllium and Compounds	0.0005
Boron Trifluride, as HF	0.5
Butyl Alcohol,	76.
Butyl Acrylate	19.
Butyl Chromate	0.01
Butyl Glycidyl Ether	30.
Butyl Mercaptain	0.3
Butyraldehyde	1.4
Butyric Acid	1.8
Butyronitrile	22.
Carbon Tetrachloride	12.
Chloroform	10.
Chlorophenol	0.2
Chloroprene	3.6
Chromic Acid	0.01
Chromium Metal, Chromium II and III Compounds	0.1
Chromium VI Compounds	0.01
Coal Tar Pitch Volatiles	0.1
Creosote	0.1
Cresol	0.5
Cumene	50.
Dicyclopentadiene	3.1
Diethylaminoethanol	5.5

Table 262
Limit Values (L) for use with Exemptions from Permitting § 106.262

The values are not to be interpreted as acceptable health affects values relative to the issuance of any permits under Chapter 116 of this title (relating to Control of Air Pollution by Permits for new Construction or Modification).

Compound	Limit (L) Milligrams Per Cubic Meter
Diisobutyl Ketone	63.9
Dimethyl Aniline	6.4
Dioxane	3.6
Dipropylamine	8.4
Ethyl Acrylate	0.5
Ethylene Dibromide	0.38
Ethylene Glycol	26.
Ethylene Glycol Dinitrate	0.1
Ethylidene 2-norbornene, 5	7.
Ethyl Mercaptan	0.08
Ethyl Sulfide	1.6
Glycolonitrile	5.
Halothane	16.
Heptane	350.
Hexanediamine, 1, 6	0.32
Hydrogen Chloride	1.
Hydrogen Fluoride	0.5
Hydrogen Sulfide	1.1
Isoamyl Acetate	133.
Isoamyl Alcohol	15.
Isobutyronitrile	22.
Kepone	0.001
Kerosene	100.
Malononitrile	8.
Mesityl Oxide	40.
Methyl Acrylate	5.8
Methyl Amyl Ketone	9.4
Methyl-T-Butyl Ether	45.
Methyl Butyl Ketone	4.
Methyl Disulfide	2.2

Table 262
Limit Values (L) for use with Exemptions from Permitting § 106.262

The values are not to be interpreted as acceptable health affects values relative to the issuance of any permits under Chapter 116 of this title (relating to Control of Air Pollution by Permits for new Construction or Modification).

Compound	Limit (L) Milligrams Per Cubic Meter
Methylenebis (2-chloroaniline) (MOCA)	0.003
Methylene Chloride	26.
Methyl Isoamyl Ketone	5.6
Methyl Mercaptan	0.2
Merthyl Methacrylate	34.
Methyl Propyl Ketone	530.
Methyl Sulfide	0.3
Mineral Spirits	350.
Naphtha	350.
Nickel, Inorganic Compounds	0.015
Nitroglycerine	0.1
Nitropropane	5.
Octane	350.
Parathion	0.05
Pentane	350.
Perchloroethylene	33.5
Petroleum Ether	350.
Phenyl Mercaptan	0.4
Propionitrile	14.
Propyl Acetate	62.6
Propylene Oxide	20.
Propyl Mercaptan	0.23
Silica-amorphous-precipitated, silica gel	4.
Silicon Carbide	4.

Table 262
Limit Values (L) for use with Exemptions from Permitting § 106.262

The values are not to be interpreted as acceptable health affects values relative to the issuance of any permits under Chapter 116 of this title (relating to Control of Air Pollution by Permits for new Construction or Modification).

Compound	Limit (L) Milligrams Per Cubic Meter
Stoddard Solvent	350.
Styrene	21.
Succiononitrile	20.
Tolidin	0.02
Trichloroethylene	135.
Trinethylamine	0.1
Valeric Acid	0.34
Vinyl Acetate	15.
Vinyl Chloride	2.
Note: The time weighted average (TWA) threshold Limit Value (TLV) published by the American Conference of Governmental Industrial Hygienists (AGGIH), in its TLVs and BEIs guide (1997 Edition) shall be used for compounds not included in the table. The Short Term Exposure Level (STEL) or Ceiling Limit (annotated with a "C") published by the ACGIH shall be used for compounds that do not have a published TWA TLV. This section cannot be used if the compound is not listed in the table or does not have a published TWA TLV, STEL, or Ceiling Limit in the ACGIH TLVs and BEIs guide.	

Project Information

Overview	This project will authorize emissions from the addition of new fugitive components being installed due to the installation of pressure and temperature transmitters. There are no modifications to control equipment and no changes to control technologies associated with the plant. There are no changes to existing or triggering of new applicable regulatory requirements.
Affected Sources	The following sources (FIN/EPN) are affected by this project: • A36MDFU1/A36S533
Upstream and downstream impacts	This project will not impact upstream or downstream production units as this project only authorizes emissions from new fugitive components.
Impact on central wastewater and solid waste facilities	There will also be no impact on the central wastewater treatment facilities or the solid waste facilities. There will be no change to the current scope of wastewater or solid waste from this facility.
MSS Emissions	MSS emissions have not been identified for inclusion in this PBR.
Air Pollutant Watch List	This project occur within an Air Pollutant Watch List Area (APL1201) but it does not include any increases or decreases of any pollutant of concerns for that area (arsenic, cobalt, nickel or vanadium).
Maintenance of Control Device Effectiveness	This project will not lessen the effectiveness or the destruction removal efficiency DRE of any existing air pollution control device. Compliance with the previously authorized representations of the control device effectiveness will be maintained.
Title V and Other Regulations	The plant is also authorized under the Title V Permit No. O2216. As this is an increase in only fugitive component emissions, no off-permit notification will be submitted.

Process Description:

Raw Material Storage

Aniline Storage	Aniline is received via barge and is stored in two API tanks. The tank vents to a carbon adsorption system.
Formalin Storage	Formalin (formaldehyde in water) is received via rail car (50% formaldehyde in water). It is stored in an API tank at concentrations ranging from 37 to 50%. During loading, the tank vents back to its source or rail car. The tank vents to a thermal treatment device. This project will add the option of receiving the formalin via pipeline.
Caustic Storage	Aqueous 50% caustic is produced in another facility. It is forwarded to this plant via pipeline. It is stored in an API tank and vents directly to the atmosphere.
Other Raw Materials	Aqueous 36% hydrogen chloride, carbon monoxide and chlorine are produced in other production facilities. They are forwarded to this plant via pipeline. There are no emissions. (hydrogen chloride is received into an API day tank, which vents to the TOX scrubber).
Amination Reaction and Rearrangement	Aniline and aqueous hydrogen chloride are mixed to make aniline hydrochloride. Aniline hydrochloride is then mixed with formalin to make polymeric methylene diphenyl amine, (PMDA).
HCL Absorption	Aqueous 36% hydrogen chloride is also absorbed inside the block limits in an absorption unit, or may be received via pipeline. The vent from the HCl absorber is sent to the TTU.
PMDA and Aniline Recovery	The amination reaction products are neutralized with caustic. The organic and aqueous phases are decanted. PMDA remains in the organic phase. The organic phase is transferred to a distillation column. Aniline is recovered as an overheads product. PMDA is recovered as a bottoms product and is phosgenated in the Phosgenation Reaction Area.
PMDA Storage	The intermediate product (PMDA) is stored in API tanks. The true vapor pressure of PMDA is less than 0.0002 psia. As a result, this compound is not considered an air contaminant; therefore, the intermediate product storage tanks vent to the atmosphere.
Brine Recovery	The brine phase is contacted with aniline to recover organics, which remain in the aqueous phase. The brine is then steam stripped to recover aniline. The brine is then neutralized, passed through a carbon bed to adsorb any remaining organics and the clean brine is then discharged from the plant.

Continued on next page

Process Description, (*continued*)

Phosgenation

Phosgene Manufacture	Phosgene is made via a gas phase reaction of chlorine with an excess of carbon monoxide. The vent stream, containing the excess carbon monoxide, is normally fed to the incinerator. If the incinerator is out of service, the vent stream is sent to a Phosgene / HCl scrubber system, which vents to a flare. Relief devices are discharged to a Phosgene / HCl scrubber system (which vents to a flare).
Phosgenation Reaction	Polymeric methylene diphenylene isocyanate, PMDI, is produced by the phosgenation of PMDA. Phosgene is dissolved in a solvent, monochlorobenzene (MCB). PMDA is mixed with the phosgene / MCB solution to make PMDI and HCl.
HCl / Phosgene Recovery	HCl, phosgene, and MCB are fed to a distillation column. Anhydrous HCl is taken off as an overhead product and is either adsorbed in water and used by the plant or forwarded to another plant. Phosgene and MCB are the bottoms product. They are recycled back to the phosgenation reaction.

Finishing

PMDI Product and MCB Solvent Recovery	Phosgenation reaction products undergo heat treating to complete the reaction. The MCB is vacuum distilled as an overheads product from the crude PMDI. The finished PMDI is then forwarded to product storage.
MCB Solvent Recovery	MCB is purified via distillation. The overhead product is recycled back to the process. The bottoms are further recycled for use in the plant. Unrecycled material is forwarded to another plant where it is burned.

Utilities

Cooling Tower	Cooling is provided to the process by circulating water through a cooling tower system. A tempered MCB barrier fluid system is used in phosgene generation, phosgenation, PMDI Product and MCB Solvent Recovery to serve as an intermediate between the process and the cooling water.
Process Heat Requirements	A Dowtherm Q system will be used for reboilers and high temperature heating done within the isocyanate production portion of the process. Steam and process heat recovery using MCB will be used for other heating done within the process.
Chilled Water System	Chilled water is used as a heat transfer fluid in the plant.
Mechanical Refrigeration	A mechanical refrigeration unit with propylene as a refrigerant is used. Relief devices exhaust to a flare. During maintenance, some of the propylene may also be exhausted to a flare.

Continued on next page,

Process Description, (*continued*)

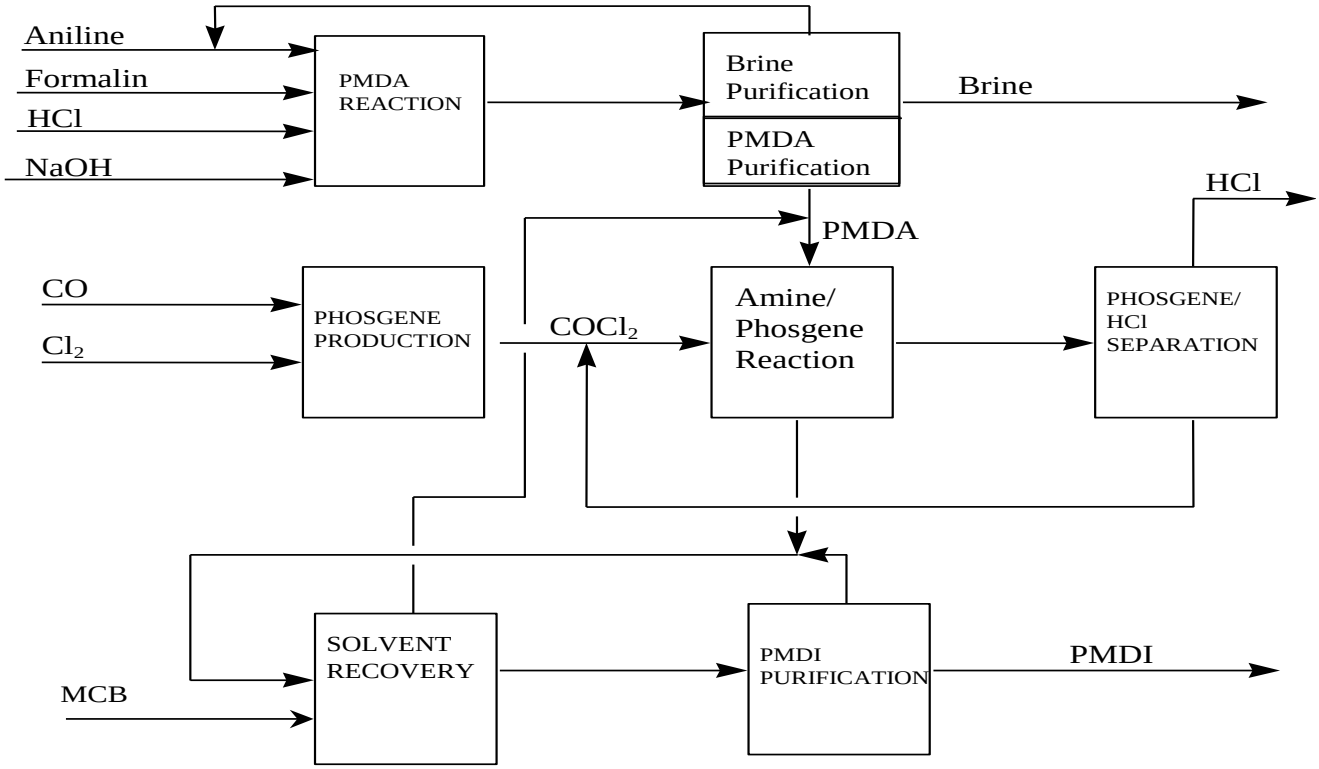
Environmental

Thermal Treatment Device	A thermal treatment device oxidizes the following vapor streams: - Amination area process vents, - Phosgenation area process vents, - Solvent recovery area process vents The exiting vapor is contacted through a caustic scrubber and vented to the atmosphere.
Dowtherm Q Furnace	Burns natural gas and hydrogen in addition to a methanol/ammonia process vent gas stream. The exhaust gas is sent through an SCR unit for NOx abatement. Anhydrous ammonia required for the SCR is received via pipeline from an off-site supplier.
Scrubber / Flare System	Vent streams containing phosgene, CO and/or HCl are sent to a caustic scrubber and then to a flare when the thermal treatment device has tripped off line or is otherwise not operating. This system removes phosgene and HCl from vapor streams and then incinerates the CO in the flare.
Containment Dome Scrubber System	The phosgenation system is contained within a dome, which normally vents to a stack. The air space within the dome is continuously monitored for phosgene. In the unlikely event that the air becomes contaminated with phosgene or HCl, it is sent to a caustic scrubber.

Product Storage

PMDI Storage	Finished polymeric MDI (methylene diphenylene isocyanate) is stored in API tanks under a nitrogen pad. It is shipped to customers by drum, bulk container, tank truck, rail car, and ship. Shipping containers are vented back to the product storage tanks. The true vapor pressure of the finished PMDI is less than 0.0002 psia. As a result, this compound is not considered an air contaminant; therefore, emission calculations are not required.

Simplified Process Flow Diagram:



Emission Summary Tables

Emission Limit Summary Table 1(a)

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
Table 1(a) Emission Point Summary

Date: 02/05/2018	**Permit No.: TBD**	**Regulated Entity No.: RN100225945**
Area Name: The Dow Chemical Company		**Customer Reference No.: CN600356976**

Review of applications and issuance of permits will be expedited by supplying all necessary information requested on this Table.

AIR CONTAMINANT DATA					
1. Emission Point			**2. Component or Air Contaminant Name**	**3. Air Contaminant Emission Rate**	
(A) EPN	**(B) FIN**	**(C) Name**		**(A) Pound Per Hour**	**(B) TPY**
A36S533	A36MDFU1	Containment Dome Fugitive Area (SK-533 Stack)	VOC	0.000003	0.000014
			HCl	0.000001	0.000006

EPN = Emission Point Number

FIN = Facility Identification Number

Note:
The above table represents emissions increases only.

Table 2 PBR Compliance

EPN	Air Contaminant	Project Increase		TLV or L Value	PBR Limit		Limit Citation	Compli-ant
		lb/hr	T/yr	mg/m3	lb/hr	T/yr		
A36S533	Phosgene	0.000004	0.000018					
	Total Phosgene	**0.000004**	**0.000018**	0.4	**0.05**	**0.22**	106.262(a)(2)	**YES**
A36S533	Chlorobenzene	0.000004	0.000016					
	Total Chlorobenzene	**0.000004**	**0.000016**	46.0	**5.75**	**5.00**	106.262(a)(2)	**YES**
A36S533	Hydrogen Chloride	0.000003	0.000015					
	Total Hydrogen Chloride	**0.000003**	**0.000015**	1.0	**0.13**	**0.55**	106.262(a)(2)	**YES**
	PBR Increase of VOC		**0.00001**			**25**	106.4(a)(1)	**YES**

A-3600	>3,000	ft. from the nearest off-site receptor.
Therefore in 106.262, the value for K is:	8	

Project Summary of Emission Changes

Plant Name: PMDI

Project Name: New Fugitive Components

	CO	NOx	PM10	PM2.5	SO2	VOC
Total of Increases only	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00001**
PSD Significance Levels	**100**	**40**	**15**	**10**	**40**	
PSD Site Netting Supplied?	**NO**	**NO**	**NO**	**NO**	**NO**	
Site Contemporaneous increase	**NA**	**NA**	**NA**	**NA**	**NA**	
PSD Applicable?	**NO**	**NO**	**NO**	**NO**	**NO**	
NNSR Project Netting Required?		**NO**				**NO**
NNSR Net Project Increase		**0.00**				**0.00**
NNSR Applicable?		**NO**				**NO**

Basis for Determination:
This determination is based on project and AEI information according to TCEQ's draft "PSD Air Quality Guidance Document" dated January, 2001 and the "Nonattainment New Source Review" draft guidance document dated January, 2002.

Post-Project Maximum Allowable Annual Emissions, T/yr

Emission Units affected by project		CO	NOx	PM10	PM2.5	SO2	VOC
FIN	**EPN**						
A36MDFU1	A36S533	-	-	-	-	-	0.00001

Pre-Project Actual Annual Emissions, T/yr (24 month average)
SUBSTITUTE THE PRECHANGE ALLOWABLE IF IT IS SMALLER THAN THE ACTUAL

Emission Units affected by project		CO	NOx	PM10	PM2.5	SO2	VOC
FIN	**EPN**						
A36MDFU1	A36S533	-	-	-	-	-	-

Changes in Emissions , T/yr

(Post-Project Allowable,T/yr) - (Pre-Project Actual, T/yr)

Emission Units affected by project		CO	NOx	PM10	PM2.5	SO2	VOC
FIN	**EPN**						
A36MDFU1	A36S533	-	-	-	-	-	0.00001

Emission Calculations

EPN A36S533

Containment Dome Fugitive Area (SK-533 Stack) Emission Calculation

These fugitive emission components are double-contained within the phosgene containment dome.
The emissions are vented from the containment dome to the atmosphere through a stack (SK533).

Emission Rates Summary

Component	Emissions	
	(lb/hr)	(tpy)
VOC	0.000003	0.000014
HCl	0.000001	0.000006

Equipment	Service[1]	Emission Factor lb/hr/component [2]	No Monitoring Credit Allowed	Equipment Count	Total Emissions lb/hr	Total Emissions tpy
Valves	LL	0.00000199	0%	2	0.0000040	0.0000174
Flanges	LL	0.00000011	0%	4	0.0000004	0.0000019
			Totals	**6**	**0.000004**	**0.000019**

Speciated Emissions (Worst Case Scenario)

Composition	Wt% in Stream	lb/hr	tpy
Phosgene	92%	0.000004	0.000018
HCL	75%	0.000003	0.000015
MCB	85%	0.000004	0.000016
Total	252%	0.000011	0.000049
Total Normalized Emissions	100%	0.000004	0.000019
Total VOC	**70%**	**0.000003**	**0.000014**
HCl	**30%**	**0.000001**	**0.000006**

Footnotes:

Fugitive Guidance based on TNRCC "Equipment Leak Fugitives", Draft, October 2000

MCB = Monochlorobenzene, HCl = Hydrogen chloride,

(1) G/V = Gas / Vapor or two phase gas / liquid & LL = Light Liquid with vapor pressure > 0.044 psia 70F

(2) Emission factors used are for Phosgene w/LDAR. Air Permit Division TCEQ Fugitive Guidance Document December 2017.