Louisiana Department of Environmental Quality (LDEQ)
Office of Environmental Services

STATEMENT OF BASIS

Chlorine/Cell Service Plant
The Dow Chemical Co - Louisiana Operations
Plaquemine, Iberville/West Baton Rouge Parish, Louisiana
Agency Interest Number: 1409
Activity Number: PER20080038
Proposed Permit Number: 2573-V5

I. APPLICANT

Company:
The Dow Chemical Co - Louisiana Operations
PO Box 150
Plaquemine, Louisiana 70765-0150

Facility:
The Dow Chemical Co
21255 Hwy 1
Plaquemine, Iberville/West Baton Rouge Parish, Louisiana,
Approximate UTM coordinates are 670.30 kilometers East and 3355.3 kilometers North, Zone 15.

II. FACILITY AND CURRENT PERMIT STATUS

Brine from brine wells is purified at the Chlorine Plant before being electrolyzed in diaphragm cells to produce hydrogen, chlorine, and caustic soda. Diluted caustic soda solution is collected, used in the chlorine process, or pumped directly to the Caustic Plant for further processing. Hydrogen is compressed, purified, delivered via pipeline to Dow's electrical power generating system or sold. The wet gaseous chlorine is dried, compressed, purified, liquefied, and sent to storage tanks. The liquid chlorine is transported off-site via rail cars or gasified for internal chlorine users.

Dow Chemical Co - Louisiana Operations is a designated Part 70 source. Several Part 70 permits have been issued to the operating units within the Dow Chemical Plaquemine facilities. These include:

Permit No.	Unit or Source	Date Issued
2007-V2	Glycol I Plant	12/13/2006
2008-V4	Polyethylene A Plant	03/26/2008
2024-V3	Light Hydrocarbons III Plant	09/13/2006
2025-V2	Vector SBC Plant	06/25/2007
2048-V2	Polyethylene C Plant	11/19/2008
2179-V6	Polyethylene B Plant	02/22/2008

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2188-V0	Solvents/EDC I Plant	01/30/2004
Permit No.	**Unit or Source**	**Date Issued**
2200-V1	Chlorinated Polyethylene Plant	12/01/2004
2227-V5	Cellulose Plant	02/08/2008
2267-V2	Power & Utilities Plant	08/28/2006
2285-V3	Vinyl II Plant THROX Boilers	01/25/2007
2573-V4	Chlorine Cell Service Plants	05/21/2007
2665-V7	Vinyl II Plant	06/25/2007
2037-V1	Chlorinated Methanes Plant (CMP)	05/29/2007
2203-V1	Glycol II Plant	06/20/2005
2255-V1	Light Hydrocarbons II Plant	04/30/2007
2235-V0	Railroad Tank Car Cleaning Facility	01/18/2006

III. PROPOSED PROJECT/PERMIT INFORMATION

Application

A permit application dated October 16, 2008 was submitted requesting a Part 70 operating permit modification.

Project

Dow requested a Part 70 operating permit modification to reconcile the calculations for cap source GRP082. GRP082 is comprised of the brine mix tanks MT-1A/B and brine storage tanks CL-13 A/B, T-4 A/B, T-117 and T-400.

Proposed Permit

Permit 2573-V5 will be the modification of Part 70 Operating Permit 2573-V4 for the Chlorine/Cell Service Plant within the Dow Chemical Co - Louisiana Operations.

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Permitted Air Emissions

Estimated emissions in tons per year are as follows:

Pollutant	Permitted	Proposed	Change
PM_{10}	14.93	14.93	-
SO_2	0.16	0.16	-
CO	2.07	2.03	-0.04
VOC*	8.47	15.48	+7.01
Ammonia	0.01	0.01	-
Chlorine	4.82	4.82	-
Dichloromethane	1.99	2.20	+0.21
Hydrochloric acid	0.56	0.48	-0.08
Nitric acid	0.01	0.01	-
Sulfuric acid	0.11	0.11	-

IV REGULATORY ANALYSIS

The applicability of the appropriate regulations is straightforward and provided in the Specific Requirements section of the proposed permit. Similarly, the Monitoring, Reporting and Recordkeeping necessary to demonstrate compliance with the applicable terms, conditions and standards are also provided in the Specific Requirements section of the proposed permit.

Applicability and Exemptions of Selected Subject Items

ID No:	Requirement	Status	Citation	Explanation
EQT619 EQT624 thru EQT640 EQT645, EQT646, EQT647 EQT650 thru EQT656	LAC 33:III.2115 - Waste Gas Disposal	Exempt	LAC 33:III.2115.H.1.d	VOC concentration < 3000 ppmv
EQT620, EQT621, EQT623 EQT641, EQT642, EQT643 EQT657 thru EQT662	LAC 33:III.5109.A – MACT requirements	Does not apply	LAC 33:III.5109.A	Emits Class I II TAP only. MACT is not required
EQT624, EQT625	40 CFR 64 - CAM	Exempt	40 CFR 64.2(b)(1)(vi)	Subject to continuous compliance requirements of the permit.
The above table provides explanation for both the exemption status or non-applicability of a source cited by 2 or 3 in the matrix presented in Section X of this permit				

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Prevention of Significant Deterioration/Nonattainment Review

There is no project associated with this permit renewal. Prevention of Significant Deterioration (PSD) and Nonattainment New Source Review (NNSR) are not required.

Streamlined Equipment Leak Monitoring Program

The permit does not include any streamlined requirements.

MACT Requirements

Purging and clearing equipment are MACT for equipment openings while minimizing sample size is MACT for the lab vent. Conducting a leak detection and repair (LDAR) program that meets all requirements of Louisiana MACT for fugitive emissions. No additional control was determined as MACT for TAP emissions from the scrubbers.

Air Quality Analysis

Since there is no project associated with this permit modification, air quality analysis is not required.

General Condition XVII Activities

The facility will comply with the applicable General Condition XVII Activities emissions as required by the operating permit rule. However, General Condition XVII Activities are not subject to testing, monitoring, reporting or recordkeeping requirements. For a list of approved General Condition XVII Activities, refer to the Section VIII – General Condition XVII Activities of the proposed permit.

Insignificant Activities

All Insignificant Activities are authorized under LAC 33:III.501.B.5. For a list of approved Insignificant Activities, refer to the Section IX – Insignificant Activities of the proposed permit.

V. PERMIT SHIELD

No permit shield is requested.

VI. PERIODIC MONITORING

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The Monitoring, Reporting and Recordkeeping necessary to demonstrate compliance with the applicable terms, conditions and standards are provided in the Facility Specific Requirements Section of the proposed permit.

VII. GLOSSARY

Carbon Monoxide (CO) – A colorless, odorless gas, which is an oxide of carbon.

Maximum Achievable Control Technology (MACT) – The maximum degree of reduction in emissions of each air pollutant subject to LAC 33:III.Chapter 51 (including a prohibition on such emissions, where achievable) that the administrative authority, upon review of submitted MACT compliance plans and other relevant information and taking into consideration the cost of achieving such emission reduction, as well as any non-air-quality health and environmental impacts and energy requirements, determines is achievable through application of measures, processes, methods, systems, or techniques.

Hydrogen Sulfide (H_2S) – A colorless inflammable gas having the characteristic odor of rotten eggs, and found in many mineral springs. It is produced by the reaction of acids on metallic sulfides, and is an important chemical reagent.

New Source Review (NSR) – A preconstruction review and permitting program applicable to new or modified major stationary sources of air pollutants regulated under the Clean Air Act (CAA). NSR is required by Parts C ("Prevention of Significant Deterioration of Air Quality") and D ("Nonattainment New Source Review").

Nitrogen Oxides (NO_X) – Compounds whose molecules consist of nitrogen and oxygen.

Organic Compound – Any compound of carbon and another element. Examples: Methane (CH_4), Ethane (C_2H_6), Carbon Disulfide (CS_2)

Part 70 Operating Permit – Also referred to as a Title V permit, required for major sources as defined in 40 CFR 70 and LAC 33:III.507. Major sources include, but are not limited to, sources which have the potential to emit: $\geq$ 10 tons per year of any toxic air pollutant; $\geq$ 25 tons of total toxic air pollutants; and $\geq$ 100 tons per year of regulated pollutants (unless regulated solely under 112(r) of the Clean Air Act) (25 tons per year for sources in non-attainment parishes).

PM_{10} – Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers as measured by the method in Title 40, Code of Federal Regulations, Part 50, Appendix J.

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Potential to Emit (PTE) – The maximum capacity of a stationary source to emit any air pollutant under its physical and operational design.

Prevention of Significant Deterioration (PSD) – A New Source Review permitting program for major sources in geographic areas that meet the National Ambient Air Quality Standards (NAAQS) at 40 CFR Part 50. PSD requirements are designed to ensure that the air quality in attainment areas will not degrade.

Sulfur Dioxide (SO_2) – An oxide of sulfur.

Sulfuric Acid (H_2SO_4) – A highly corrosive, dense oily liquid. It is a regulated toxic air pollutant under LAC 33:III.Chapter 51.

Title V Permit – See Part 70 Operating Permit.

Volatile Organic Compound (VOC) – Any organic compound, which participates in atmospheric photochemical reactions; that is, any organic compound other than those, which the administrator of the U.S. Environmental Protection Agency designates as having negligible photochemical reactivity.

Email by 1/15/09

State of Louisiana
Emissions Inventory Questionnaire (EIQ) for Air Pollutants

Date of submitt
Oct | 20

Emission Point ID No. (Alternate ID)	Descriptive Name of the Emissions Source (Alt. Name)	Approximate Location of Stack or Vent (see instructions)
V1A	Brine Clarifier CL-13A	Method 19,"Interpolation - Photo" Datum Unknov
Tempo Subject Item ID No.		UTM Zone 15 Horizontal 669669.1 mE Vertical 3355173.9
		Latitude 30 ° 18 ' 59 " 33 hundr
		Longitude 91 ° 14 ' 7 " 19 hundr

Stack and Discharge Physical Characteristics Change? (yes or no)	Diameter (ft) or Stack Discharge Area (ft^2)	Height of Stack Above Grade (ft)	Stack Gas Exit Velocity	Stack Gas Flow at Conditions, not at Standard (ft^3/min)	Stack Gas Exit Temperature (°F)	Normal Operating Time (hours per year)	Date of Construction or Modificaiton	Percent of Annu Throughput Through Emission Point		
								Jan-Mar	Apr-Jun	Jul-Sep
no	120 ft ft^2	25 ft	N/A ft/sec	N/A ft^3/min	86 °F	8760 hr/yr	constructed	25%	25%	25%

Type of Fuel Used and Heat Input (see instructions)

Fuel		Type of Fuel	Heat Input (MMBTU/hr)
	a		
	b		
	c		

Notes

Operating Parameters (include units)

	Parameter	Description
Normal Operating Rate/Throughput	3500	Gallons/Minute
Maximum Operating Rate/Throughput	9000	Gallons/Minute
Design Capacity/Volume		
Shell Height (ft)	25	
Tank Diameter (ft)	120	

☐ Fixed Roof Floating Roof ☐ External ☐ Inte

Air Pollutant Specific Information

Emission Point ID No. (Alternate ID) V1A Pollutant	Control Equipment Code	Control Equipment Efficiency	HAP / TAP CAS Number	Proposed Emission Rates Average (lb/hr)	Maximum (lbs/hr)	Annual (tons/yr)	Permitted Emission Rate (Current) Annual (tons/yr)	Add, Change, Delete, or Unchanged	Continuous Compliance Method	Concentration in G: Exiting at Stack
Total VOC (including those listed below)	000	0%			2.87			C		
1,2-Dichloroethane	000	0%	00107-06-2		0.101			C		
1,2-Dichloropropane	000	0%	00078-87-5					D		
Benzene	000	0%	00071-43-2		0.02			C		
Bromoform	000	0%	00075-25-2		2.53			C		
Carbon tetrachloride	000	0%	00056-23-5					D		
Chlorine	000	0%	07782-50-5					D		
Chlorobenzene	000	0%	00108-90-7					D		
Chloroethane	000	0%	00075-00-3					D		

NONE

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Chloroform	000	0%	00067-66-3		0.03			C		
1,4-Dichlorobenzene	000	0%	00106-46-7					D		
Dichlorobromomethane	000	0%	00075-27-4		0.1			C		
Dichloromethane	000	0%	00075-09-2		0.04			C		
Diethanolamine	000	0%	00111-42-2					D		
Ethyl benzene	000	0%	00100-41-4		<0.01					
Methyl chloride	000	0%	00074-87-3		0.01			C		
Tetrachloroethylene	000	0%	00127-18-4		<0.01					
Toluene	000	0%	00108-88-3		<0.01			C		
Xylene (mixed isomers)	000	0%	01330-20-7		<0.01					

NONE

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