Bryan W. Shaw, Ph.D., Chairman Carlos Rubinstein, Commissioner Toby Baker, Commissioner Mark R. Vickery, P.G., Executive Director



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

April 20, 2012

MR JOHN H KMETZ PLANT MANAGER CHEVRON PHILLIPS CHEMICAL COMPANY LP PO BOX 968 BORGER TX 79008-0968

Permit by Rule Registration Number: Location/City/County:

Project Description/Unit:

Regulated Entity Number: Customer Reference Number: New or Existing Site: Affected Permit (if applicable): Renewal Date (if applicable):

101596

From Intersection of SH Spurs 119 & 245 Go 2 Miles Northeast On Private Rd, Borger, Hutchinson County Installation of a dye injections system in Philtex process area.

area. RN102320850 CN600303614 Existing 21918 None

RECEIVED

MAY 0 8 2012

CENTRAL FILE ROOM

Chevron Phillips Chemical Company LP has certified the emissions associated with installation of a dye injections system in the Philtex process area. under Title 30 Texas Administrative Code §§ 106.261, 106.262. PBR Registration No. 101596 should be *consolidated* into Permit No. 21918 at the next amendment or renewal. Emission increases authorized by Chapter 106 of this title at an existing facility authorized by a flexible permit shall not cause an exceedance of the emissions cap or individual emission limitation. For rule information see:

www.tceq.texas.gov/permitting/air/nav/numerical_index.html

Planned MSS emissions for the pump in the dye injections system have been reviewed. These authorized MSS emissions are included on the emissions table. No other planned MSS emissions will be authorized under this registration. The company is also reminded that these facilities may be subject to and must comply with other state and federal air quality requirements. This certification is taken under the authority delegated by the Executive Director of the TCEQ. If you have questions, please contact Mr. Guillermo Reyes, P.E. at (512) 239-5716.

Sincerely,

Anne M. Inman, P.E., Manager Rule Registrations Section Air Permits Division

Certified Emissions:

VOC	0.20	tpy
HAPs (included in VOC)	0.12	tpy
NO _x	< 0.01	tpy
СО	< 0.01	tpy

cc: Air Section Manager, Region 1 - Amarillo Project Number: 175617

P.O. Box 13087 • Austin, Texas 78711-3087 • 512-239-1000 • tceq.texas.gov

TECHNICAL REVIEW: AIR PERMIT BY RULE

Permit No.:	101596	Company Name:	Chevron Phillips Chemical Company LP a	APD Reviewer:	Mr. Guillermo Reyes, P.E.
Project No.:	175617	Unit Name:	Installation of a dye injections system in Philtex process area. (PI-1CERT)	PBR No(s).:	106.261, 106.262

GENERAL INFORMATION			
Regulated Entity No.:	RN102320850	Project Type:	Permit by Rule Application
Customer Reference No.:	CN600303614	Date Received by TCEQ:	March 19, 2012
Account No.:	HW-0013-C	Date Received by Reviewer:	March 27, 2012
City/County:	Borger, Hutchinson County	Physical Location:	From intx of SH Spurs 119 & 245 go 2 mi ne on private rd.

CONTACT INFORMATION					
Responsible Official/ Primary Contact Name and Title:	John H Kmetz Plant Manager	Phone No.: Fax No.:	(806) 275-5749 (806) 275-5926	Email:	
Technical Contact/ Consultant Name and Title:	Bill Sheldon Environmental Air Engineer	Phone No.: Fax No.:	(806) 275-5760 (806) 275-5926	Email:	SHELDWR@CPCHEM.CO M

GENERAL RULES CHECK	YES	NO	COMMENTS
Is confidential information included in the application?		x	
Are there affected NSR or Title V permits for the project?	х		The plant operates under NSR permit No. 7719A, Flexible permit No. 21918, Standard Permit No. 97948 and several PBRs. The plant operates under Title V permits O-02164 and O-02165. Flexible permit No. 21918 and Title V permit O-02164 are affected by this project.
Is each PBR > 25/250 tpy?		х	
Are PBR sitewide emissions > 25/250 tpy?	NA		Flexible permit No. 21918 has undergone public notice.
Are there permit limits on using PBRs at the site?		x	
Is PSD or Nonattainment netting required?		X	The increase in emissions is below the PSD significance level for VOC, NOX and CO.
			The plant is not located in a Nonattainment area.
Do NSPS, NESHAP, or MACT standards apply to this registration?	Х		40 CFR Part 63, Subpart FFFF is applicable.
Does NOx Cap and Trade apply to this registration?		х	
Is the facility in compliance with all other applicable rules and regulations?	Х		Chevron Phillips Chemical Company represents that it is compliance will all other rules and regulations.

DESCRIBE OVERALL PROCESS AT THE SITE

The Chevron Phillips Borger plant is a large specialty chemicals manufacturing complex consisting of multiple process units. Chevron Phillips submitted a PI-ICERT to authorize the installation of a dye injections system in the Philtex process area and will consist of piping components changes, an additional waste stream to a flare and maintenance (MSS) related activities.

DESCRIBE PROJECT AND INVOLVED PROCESS

Currently dye is added to diesel manually before being shipped out of the facility in railcars. The installation of the dye skid will make it possible to perform dye injection into the product stream mechanically. The project entails the installation of a new Titon dye injection system and associated piping components. Diesel will enter the dye area and a flowmeter and a batch controller will measure the diesel and inject the dye as needed. The dyed diesel will be then be delivered to the railcar loading area via a dedicated two inch line.

The 40 gallon dye pot will incorporate a nitrogen blanket connected to the existing South Flare (EPN FL-02). Flare emissions are the result of dye loading into the dye pot from 55 gallon drums using a closed system. Loading of the dye pot is expected to occur once every 12 months.

The dye skid will include a positive displacement, gear pump. MSS emissions will result from annual maintenance on the pump.

TECHNICAL REVIEW: AIR PERMIT BY RULE

Permit No.:	101596	Company Name:	Chevron Phillips Chemical Company LP	APD Reviewer: Mr. Guillermo Reyes, P.E.
Project No.:	175617	Unit Name:	Installation of a dye injections system in Philtex process area.	PBR No(s).: 106.261, 106.262
			(PI-1CERT)	

TECHNICAL SUMMARY - DESCRIBE HOW THE PROJECT MEETS THE RULES

§ 106.261 Facilities (Emission Limitations):

(a)(1) The facility is located more than 200 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 facility is located.

(2) Total or new emissions do not exceed 6 pounds per hour and 10 tons per year of any contaminant.

- (3) Total new or increased, including fugitive, are less than or equal to 1.0 lb/hr.
- (4) There are no changes to or additions of any existing air pollution abatement equipment.
- (5) There are no visible emissions, except uncombined water, emitted to the atmosphere from any point or fugitive source in amounts greater than 5.0% opacity in any six-minute period.
- (6) Emissions do not increase five tons per year or greater.
- (7) Emission increases are not less than five tons per year.

§ 106.262- Facilities (Emission and Distance Limitations)

(a)(1) The facilities are located at least 200 feet from the nearest off-site receptor.

- (2) Total emissions of each contaminant claimed under this paragraph will not exceed 5 tpy or the value of E as determined by the equation E = L/K (See PBR Emission Limits below).
- (3) A Form PI-7CERT was submitted.

(4) NA

(5) There are no changes to or additions of any existing air pollution abatement equipment.

(6) The company represents visible emissions will not exceed 5.0% opacity in any six-minute period.

(b)(1) This claim for construction of a facility is not authorized in another section of this chapter or for which a standard permit is in effect.

(2) This claim for any change to any facility is not authorized under another section of this chapter or authorized under a standard permit.

(c) This section is not being used to qualify the use of other chemicals at a facility that has been authorized under another section of this chapter or under a standard permit.

PBR Emission Limits						
Chemical	PBR Claimed	L, mg/m ³	Emission Limit (E = L/K), lb/hr	Emission Limit tpy	Actual Emissions lb/hr	Actual Emissions tpy
Kerosene	262	100	0.5	2.19	<0.01	<0.01
Naphtha	262	350	1.75	5.00	<0.01	<0.12
Xylene	262	434	2.17	5.00	0.10	<0.01
Ethylbenzene	262	434	2.17	5.00	<0.01	<0.01
2-Naphthaenol	261(a)(3)	NA	1.00	4.38	<0.01	<0.01

ESTIMATED EMISSIONS	S												-	, i	
EPN / Emission Source	1 Source Specific VOC or VOC NOx CO PM10 PM 25 SC	D ₂	2 Other												
Oth	Other Pollutants	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy
F-SP4/Fugitives		<0.01	0.19							1		1			
FL-02/South Flare		0.12	.<0.01	<0.01	< 0.01	<0.01	<0.01								
MSS-PREP/MSS		<0.01	<0.01												
TOTAL I	EMISSIONS (TPY):	0.14	0.20	<0.01	<0.01	<0.01	<0.01								
MAXIMUM OPERA	FING SCHEDULE:	I	lours/D	ay	24	Days	/Week	7	١	Veeks/Ye	ar	52	Hou	s/Year	8760

SITE REVIEW / DISTANCE LIMIT	Yes	No	Description/Outcome	Date	Reviewed by
Site Review Required?		X		04/19/2012	Guillermo E. Reyes
PBR Distance Limits Met?	X		Chevron Phillips Chemical Co. represents that the PBR distance limits are met.	04/19/2012	Guillermo E. Reyes

TECHNICAL REVIEW: AIR PERMIT BY RULE

Permit No.:	101596	Company Name:	Chevron Phillips Chemical Company LP 1	APD Reviewer:	Mr. Guillermo Reyes, P.E.
Project No.:	175617	Unit Name:	Installation of a dye injections system in Philtex process area.	PBR No(s).:	106.261, 106.262
			(PI-1CERT)		

	TECHNICAL REVIEWER	PEER REVIEWER	FINAL REVIEWER
SIGNATURE:	en in the state	Monico Bande	See HardCoppy
PRINTED NAME:	Mr. Guillermo Reyes, P.E.	Mr. Monico Banda	
DATE:	April 19, 2012	April 19, 2012	

BASIS OF PROJECT POINTS	POINTS
Base Points:	1.5
Project Complexity Description and Points:	0.5
Technical Reviewer Project Points Assessment:	2.0
Final Reviewer Project Points Confirmation:	

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TCEQ IDA - Production

01110/0010

04/19/2012NSR IMS - PROJECT RECORD
PROJECT#: 176371PERMIT#: 21918STATUS: PENDINGDISP CODE:RECEIVED: 04/05/2012PROJTYPE: AMENDAUTHTYPE: FLEXIBLE GISSUED DT:RENEWAL: 02/23/2021PROJECT ADMIN NAME: ORGANIC CHEMICAL MANUFACTURING PLANTPROJECT TECH NAME: ORGANIC CHEMICAL MANUFACTURING PLANT
Assigned Team: CHEMICAL SECTION
STAFF ASSIGNED TO PROJECT:HICKMAN , SHARON- REVIEWR1_2 -LAWSHAE , THOMAS- REVIEW ENG -CHEMICAL TEAM #1
CUSTOMER INFORMATION (OWNER/OPERATOR DATA) ISSUED TO: CHEVRON PHILLIPS CHEMICAL COMPANY LP COMPANY NAME: Chevron Phillips Chemical Company LP CUSTOMER REFERENCE NUMBER: CN600303614
REGULATED ENTITY/SITE INFORMATIONREGULATED ENTITY NUMBER: RN102320850ACCOUNT: HW0013CPERMIT NAME: PHILTEX RYTON PLANTACCOUNT: HW0013C
REGULATED ENTITY LOCATION: FROM INTX OF SH SPURS 119 & 245 GO 2 MI NE ON PRIVATE RD REGION 01 - AMARILLO NEAR CITY: BORGER COUNTY: HUTCHINSON
CONTACT DATA
CONTACT NAME: MR JOHN H KMETZ CONTACT ROLE: RESPONSIBLE OFFICIAL JOB TITLE: PLANT MANAGER ORGANIZATION: CHEVRON PHILLIPS CHEMICAL COMPANY LP MAILING ADDRESS: PO BOX 968 , BORGER, TX, 79008-0968 PHONE: (806) 275-5749 Ext: 0 FAX: (806) 275-5904 Ext: 0
 CONTACT NAME: MR BILL SHELDON CONTACT ROLE: TECHNICAL CONTACT JOB TITLE: ENVIRONMENTAL ENGINEER ORGANIZATION: CHEVRON PHILLIPS CHEMICAL COMPANY LP MAILING ADDRESS: PO BOX 968 , BORGER, TX, 79008-0968 PHONE: (806) 275-5760 Ext: 0 FAX: (806) 275-5926 Ext: 0 EMAIL:SHELDWR@CPCHEM.COM
PROJECT NOTES: 04/13/2012 CHEMICAL REVIEW 4/10/12, RETURNED 4/13/12

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http://prs.tceq.texas.gov/ida/index.cfm?fuseaction=nsrproject.project_report&proj_id=176... 4/19/2012

DEC 4/40/49 ED 495450 DN 495994

TCEQ IDA - Production

U4/ 10/2012 DEC 4/ 10/ 12, OR 400 109, EN 400204

PERMIT NOTES:

03/04/2009	CONSOLIDATE OR RE RENEWAL.	FERENCE F	PBR REGISTRATION	87362 AT NEXT AMENDMENT OR
06/07/2010	CONSOLIDATE OR RE		PBR 92460 AT NEXT /	AMENDMENT OR RENEWAL
07/07/2011	INCORPORATE PBR 9	5559 INTO N	NSR PERMIT AT NEX	T PERMIT ACTIN
07/08/2011	CO SENT LETTER 4/14	4/2011 CLAII	MING 106.264 TO REI	PLACE THE SO2 TANK (B-13).
08/09/2011	INCORPORATE PBR N	10. 96967 W	HEN NEXT AMENDE	O OR RENEWED.
09/16/2011	INCORPORATE PCP S	SP 97948 AT	NEXT ACTION	
02/02/2012	SHOULD BE INCORPO	DRATED INT	O NSR FLEXIBLE PE	RMIT NO. 21918.
02/02/2012	INCORPORATE PBR N	NO. 100546 V	WHEN NEXT AMENDE	ED OR RENEWED.
03/06/2012	CONSOLIDATE OR RE	FERENCE F	PBR 100924 AT NEXT	AMENDMENT OR RENEWAL
04/16/2012	INCORPORATE OR RI RENEWED	EFERENCE	PBR 101434 IN PERM	IT 21918 WHEN AMENDED OR
04/19/2012	INCORPORATE PBR N	NO. 101596 I	NTO PERMIT AT NEX	T AMENDMENT OR RENEWAL.
FEE:	An Annae ann an Annae			n and a second and a second
Reference	Fee Receipt Number	Amount	Fee Receipt Date	Fee Payment Type
10594134	R224516	6009.00	04/09/2012	CHECK

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PUBLIC NOTICE:

Public Hearing Req Number	Public Meeting Req Number	Comment Count	Alternative Languages
0	0	0	SPANISH

TRACKING ELEMENTS:

TE Name	Start Date	Complete Date
APIRT RECEIVED PROJECT (DATE)	04/09/2012	
CENTRAL REGISTRY UPDATED	04/13/2012	04/13/2012
SITE REVIEW RFC SENT TO REGION (DATE)	04/13/2012	
APIRT TRANSFERRED PROJECT TO TECHNICAL STAFF (DATE)	04/16/2012	
COMPANY APPROVED DRAFT PUBLIC NOTICE (DATE)	04/16/2012	
LEGISLATORS NOTIFIED OF APPLICATION RECEIVED (DATE)	04/16/2012	
PROJECT DECLARED ADMIN COMPLETE (DATE)	04/16/2012	
PUBLIC NOTICE DRAFT SENT TO COMPANY (DATE)	04/16/2012	
PROJECT RECEIVED BY ENGINEER (DATE)	04/18/2012	
1ST NOTICE OCC COMPLETE (DATE)		
2ND NOTICE OCC COMPLETE (DATE)		
2ND PUBLIC NOTICE FINALIZED AND SENT (DATE)		
COMPLIANCE HISTORY REVIEW COMPLETED (DATE)		
DEFICIENCY CYCLE		
DRAFT PERMIT RFC SENT TO REGION (DATE)		
EMISSIONS MODELING CYCLE DONE BY APPLICANT		
EMISSIONS MODELING CYCLE DONE BY TCEQ		
FINAL PACKAGE REWORK CYCLE		
FINAL PACKAGE TO SECTION MANAGER FOR REVIEW (DATE)		
FINAL PACKAGE TO TEAM LEADER OR SUPERVISOR FOR REVIEW (DATE)		
MODELING AUDIT CYCLE		
POSTED TO EXECUTIVE DIRECTOR'S AGENDA (DATE)		

http://prs.tceq.texas.gov/ida/index.cfm?fuseaction=nsrproject_project_report&proj_id=176... 4/19/2012

TCEQ IDA - Production Page 1 of 2 04/19/2012 -----NSR IMS - PROJECT RECORD ------PROJECT#: 175617 PERMIT#: 101596 STATUS: PENDING DISP CODE: RECEIVED: 03/19/2012 PROJTYPE: INITIAL AUTHTYPE: PBR **ISSUED DT: RENEWAL:** PROJECT ADMIN NAME: INSTALLATION OF A DYE SKID PROJECT TECH NAME: CHEVRON PHILLIPS CHEMICAL BORGER PLANT 2.0 Assigned Team: RULE REG SECTION μB STAFF ASSIGNED TO PROJECT: OBRIEN, BRENDA - REVIEWR1_2 -AP INITIAL REVIEW REYES, GUILLERMO - REVIEW ENG -**RR TEAM** CUSTOMER INFORMATION (OWNER/OPERATOR DATA) ISSUED TO: CHEVRON PHILLIPS CHEMICAL COMPANY LP COMPANY NAME: Chevron Phillips Chemical Company LP CUSTOMER REFERENCE NUMBER: CN600303614 **REGULATED ENTITY/SITE INFORMATION** REGULATED ENTITY NUMBER: RN102320850 ACCOUNT: HW0013C PERMIT NAME: CHEVRON PHILLIPS CHEMICAL BORGER PLANT REGULATED ENTITY LOCATION: FROM INTX OF SH SPURS 119 & 245 GO 2 MI NE ON PRIVATE RD **REGION 01 - AMARILLO** NEAR CITY: BORGER COUNTY: HUTCHINSON CONTACT DATA CONTACT NAME: MR JOHN H KMETZ CONTACT ROLE: RESPONSIBLE OFFICIAL JOB TITLE: PLANT MANAGER ORGANIZATION: CHEVRON PHILLIPS CHEMICAL COMPANY LP MAILING ADDRESS: PO BOX 968 , BORGER, TX, 79008-0968 PHONE: (806) 275-5749 Ext: 0 FAX: (806) 275-5926 Ext: 0 CONTACT NAME: MR BILL SHELDON CONTACT ROLE: TECHNICAL CONTACT JOB TITLE: ENVIRONMENTAL AIR ORGANIZATION: CHEVRON PHILLIPS CHEMICAL COMPANY ENGINEER LP MAILING ADDRESS: PO BOX 968 , BORGER, TX, 79008-0968 PHONE: (806) 275-5760 Ext: 0 FAX: (806) 275-5926 Ext: 0 EMAIL:SHELDWR@CPCHEM.COM

PROJECT NOTES:

TCEQ IDA - Production

PERMIT NOTES:

PBR 101596 SHOULD BE CONSOLIDATED INTO PERMIT NO. 21918 DURING NEXT AMENDMENT OR RENEWAL. 04/19/2012

FEE: Reference 151450	Fee Receipt Numbe	er Amount 450.00	Fee Receipt Dat	e Fee Pay m ePAY	ent Type	
TRACKING E	LEMENTS:					
TE Name				Start Date	Complete Date	
APIRT REC	EIVED PROJECT (DA	TE)		03/19/2012		
APIRT TRAI	NSFERRED PROJECT	TO TECHNICAL	STAFF (DATE)	03/20/2012		
CENTRAL F	REGISTRY UPDATED			03/20/2012	03/20/2012	
PROJECT F	RECEIVED BY ENGINE	EER (DATE)		03/27/2012		
ENGINEER	INITIAL REVIEW COM	IPLETED (DATE)		04/19/2012		
PEER / MA	NAGER REVIEW PERI	OD				
PROJECT R	ULES:		Rule	Request	On	Approve
Unit Desc			Desc	Туре	Application	
FACILITIES	(EMISSION LIMITATI	ONS)	106.261 -	ADD	Y	APPROVE
FACILITIES LIMITATIO	S (EMISSION AND DIS	TANCE	106.262 -	ADD	Y	APPROVE
PERMIT RUI	LES:					
Unit Desc	Rule Desc Star	t Date End Da	ite			
PROJECT A	TTRIBUTES:					
Attributes	Value					
CERT PI	7					

_____ PROJECT POINT 1.5

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)3/20/2012	NSR IMS - PROJECT	RECORD	
PROJECT# : 175617 RECEIVED: 03/19/2012 RENEWAL: PROJECT ADMIN NAME: PROJECT TECH NAME: C	PERMIT#: 101596 PROJTYPE: INITIAL INSTALLATION OF A DYE HEVRON PHILLIPS CHEM	STATUS: PENDING AUTHTYPE: PBR SKID MICAL BORGER PLANT	DISP CODE: ISSUED DT:
Assigned Team: RULE R	EG SECTION		
STAFF ASSIGNED TO PR OBRIEN , BRENDA TEAM LEADER , RR	OJECT: - REVIEWR1_; - REVIEW ENG	2 - AP INITIAL REVIE 3 - RULE REG SECTI	W ON
CUSTOMER INFORMATIC ISSUED TO: CHEVRON P COMPANY NAME: Chevro CUSTOMER REFERENCE	DN (OWNER/OPERATOR HILLIPS CHEMICAL COM n Phillips Chemical Compa NUMBER: CN600303614	DATA) PANY LP iny LP	
REGULATED ENTITY/SIT REGULATED ENTITY NUM PERMIT NAME: CHEVRON REGULATED ENTITY LOC REGION 01 - AMARILLO	E INFORMATION //BER: RN102320850 N PHILLIPS CHEMICAL BO CATION: FROM INTX OF S NEAR CITY: BO	ACCOUNT: HV DRGER PLANT SH SPURS 119 & 245 GO 2 MI N DRGER COUNTY	V0013C IE ON PRIVATE RD : HUTCHINSON
CONTACT DATA			
CONTACT NAME: MR JOH JOB TITLE: PLANT MANA MAILING ADDRESS: PO E PHONE: (806) 275-5749 E: FAX: (806) 275-5926 Ext: 0	IN H KMETZ CONTAG GER ORGAN OX 968 , BORGER, TX, 79 ct: 0	CT ROLE: RESPONSIBLE OFFI IZATION: CHEVRON PHILLIPS 9008-0968	CIAL CHEMICAL COMPANY LP
CONTACT NAME: MR BILI JOB TITLE: ENVIRONMEN MAILING ADDRESS: PO E PHONE: (806) 275-5760 E: FAX: (806) 275-5926 Ext: 0 EMAIL:SHELDWR@CPCH	- SHELDON ITAL AIR ENGINEER OX 968 , BORGER, TX, 79 kt: 0 EM.COM	CONTACT ROLE: TECHNICAL ORGANIZATION: CHEVRON PI 9008-0968	CONTACT HILLIPS CHEMICAL COMPANY LP
EE: Reference Fee Recei	pt Number Amount 450.00	Fee Receipt Date Fee Pay ePAY	ment Type
TRACKING ELEMENTS: TE Name APIRT RECEIVED PROJ APIRT TRANSFERRED F	ECT (DATE) PROJECT TO TECHNICAL	Start Date 03/19/2012 . STAFF (DATE) 03/20/2012	Complete Date

CENTRALF DEFICIENC ENGINEER PEER / MAI PROJECT F	REGISTRY UPL Y CYCLE INITIAL REVIE NAGER REVIEN RECEIVED BY 1	DATED W COMPLETE N PERIOD ENGINEER (D.	ED (DATE) ATE)	U	3/20/2012 03/20	<i>II</i> 2012	
PROJECT RU	JLES:						
Unit Desc				Rule Desc	Request Type	On Application	Approve
FACILITIES	(EMISSION LI	MITATIONS)		106.261 -	ADD	Y	APPROVE
FACILITIES	(EMISSION AN	ND DISTANCE	LIMITATIONS)	106.262 -	ADD	Y	APPROVE
PERMIT RUL	ES:						
	Dula Daara	Start Data	End Date				

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Attributes Value PROJECT POINT

-

Voucher Detail Voucher 151450

The voucher status has been updated.

-Transaction Information ----

 Voucher Number:
 151450

 Trace Number:
 582EA000118170

 Date:
 03/08/2012 04:24 PM

 Payment Method:
 CC - Authorization 0000021028

 Amount:
 \$450.00

 Fee Code:
 PBR

 Fee Type:
 PERMIT BY RULE - NOT SMALL BUSINESS, CITY OR ISD

 ePay Actor:
 BILL SHELDON

 Actor Email:
 SHELDWR@CPCHEM.COM

 IP:
 12.96.7.15

- Payment Contact Information –

Name:BILL SHELDONCompany:CHEVRON PHILLIPS CHEM COAddress:300 WEST 6TH ST, BORGER, TX 79007Phone:806-275-5760

- Site Information -

RN: RN102320850
Site Name: BORGER PLANT
Site Address: P O BOX 968, BORGER, TX 79008 0968
Site Location: 2 MILES NORTHEAST OF SPURS 245 & 119 ON PRIVATE ROAD

-Customer Information-

CN: CN600303614 Customer Name: CHEVRON PHILLIPS CHEMICAL COMPANY LP Customer Address: POBOX 968, BORGER, TX 79008 0968

–USAS Status –

USAS Status: RECEIVED USAS Date: 03/12/2012

	Status ———			
Status	Staff	Comment	Start	End
APPLIED	BOBRIEN	175617-101596	03/20/2012	

Change Status | Cancel



Texas Commission on Environmental Quality Form PI-7-CERT

Certification and Registration for Permits by Rule (Page 1)

I.	REGISTRANT INFORMAT	ION				
	A. TCEQ Customer Reference	e Number:	CN-600303614			
	TCEQ Regulated Entity N	umber:	RN-102320850			
Note: availa	If "NO," CN or RN number was ble in Step II of the submittal pro	s entered above; pleas	se fill out the require	d Core Dat	a Form, which will be	
	B. Company or Other Legal C	Customer Name: Che	vron Phillips Chemi	cal Compan	y LP	
	Company Official Contact	Name: John H. Kme	etz			
	Title: Plant Manager					
	Mailing Address: P.O. Bo	x 968				
City: E	Borger	State: Texas		ZIP Code:	79008-0968	
Phone	: 806-275-5749	Fax: 806-275-5926	j	E-mail:		
	C. Technical Contact Name:	Bill Sheldon				
	Title: Environmental Air E	ngineer				
Company: Chevron Phillips Chemical Company LP						
	Mailing Address: P.O. Box	x 968			·	
City: 1	Borger	State: Texas		ZIP Code: 79008-0968		
Phone	: 806-275-5760	Fax: 806-275-5926	; ;	E-mail: sheldwr@cpchem.com		
	D. Facility Location Information	ion - Street Address:]	No	I		
If "NC), " street address, provide writte	n driving directions to	o the site: (attach de	scription if	additional space is needed)	
From i	intersection of State highway Spu	irs 119 and 245, proce	eed 2 miles northeas	t on private	road	
City:]	Borger	County: Hutchinso	on ZIP Code: 79007			
П.	FACILITY AND SITE INFO	ORMATION				
	A. Name and Type of Facility	: Specialty Chemical	s & Plastic		Permanent Portable	
	B. PBR claimed under 30 TA	C § 106 (List all):				
§ 106.:	261		§ 106.			
§ 106.2	262		§ 106.			
§ 106.	······		§ 106.	· · · · · · · · · · · · · · · · · · ·		
	Are you claiming a histori	cal standard exempt	ion or PBR?		🗌 YES 🛛 NO	
	If "YES," enter effective do	ate(s) and rule numbe	r(s) in the spaces pr	ovided belo	w.	
TCEQ 20 This form may be re	182 (Revised 02/10) Form PI-7 CERT 1 for use by facilities subject to air quality evised periodically. (APDG 5379v10)	permits requirements and	A. 1 . 2012	17	5617 Page <u>3 023</u> 01594	



Texas Commission on Environmental Quality Form PI-7-CERT Certification and Registration for Permits by Rule (Page 2)

II. FA	CILITY AND SI	TE INFORM	MATION (continu	ued)	1			
C.	Is there a previou	s Standard E	xemption or PBR	for the	facility in this	registrati	on?	🗌 YES 🖾 NO
	If "YES," enter re	egistration n	umber(s) and rule	numbe	er(s) in the spa	ces provia	led below	····
D.	D. Are there any other facilities at this site which are authorized by an Air Standard XES NO Exemption or PBR?							
	If "YES," enter re	egistration n	umber(s) and rule	numbe	er(s) in the spa	ces provia	led below	·
				(Se	e Attached list))		
E.	Are there any oth	er air preco	nstruction permit	ts at th	nis site?			YES 🗌 NO
	If "YES," enter p	ermit numbe	r(s) in the spaces p	provid	ed below.			
					7719A			
	Are there any othe associated with the	er air preconnis project?	struction permits a	t this :	site that would	be directl	у	🗌 YES 🛛 NO
	If "YES," enter p	ermit numbe	r(s) in the spaces p	provid	ed below.			
F.	Is this facility local Operating Permit	ated at a site (FOP) pursu	which is required ant to 30 TAC Ch	to obta apter 1	ain a Federal 122?	YES	<u> NO</u>] To be determined
	If the site current	ly has an exi	sting federal opera	ıting p	ermit, enter the	e permit n	umber.	O-2164, O-2165
	Check the require	ments of 30	TAC Chapter 122	that w	vill be triggered	l if this ce	rtification	is accepted.
🗌 Initial A	pplication for an F	FOP] Significant Revi	sion fo	or an SOP	Minor	Revision	for an SOP
Operation Operation	onal Flexibility/off	Permit Noti	fication for an SOI	Р 🗌	Revision for G	OP		
🗌 To be D	etermined			\boxtimes	None			
	Identify the type(s) issued and	Vor FOP applicatio	on(s) s	ubmitted/pendi	ng for the	site. (Ch	neck all that apply)
SOP	GOP		GOP application/re	vision	application: S	Submitted	or under.	APD review.
□ N/A	SOP app	plication/revi	ision application:	submi	tted or under A	PD review	<i>N</i> .	
G.	TCEQ Account Id	dentification	Number (if known	ı):	HW-0013-0	2		

TCEQ 20182 (Revised 02/10) Form PI-7 CERT This form for use by facilities subject to air quality permits requirements and may be revised periodically. (APDG 5379v10)

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Texas Commission on Environmental Quality Form PI-7-CERT Certification and Registration for Permits by Rule (Page 3)

III.	FE	E INFORMATION				
	See	Section VI. for address to send fee or go to www6.tceq.std	<u>ate.tx.us/epay</u> to pay online.			
	A. Is this certification to solely establish a federally enforceable emission limit and not authorize any new facilities?					
		If "YES," than no fee is required.				
		If "NO," then go to Section III.B.				
	B.	If "YES," to any of the following three questions, a \$100	fee is required. Otherwise, a \$45	50 fee is required.		
		Does this business have less than 100 employees?		🗌 YES 🖾 NO		
		Does this business have less than 1 million dollars in annu	ual gross receipts?	🗌 YES 🛛 NO		
		Is this registration submitted by a governmental entity with 10,000?	th a population of less than	🗌 YES 🛛 NO		
	C.	Enter the check, money order, or transaction number. TC ; V	CEQ Trace # 582EA000118170 Voucher # 151450			
		Enter the individual or company name printed on the chec	ck.			
	-	Fee amount (spell out): four hundred and fifty		\$450.00		
		Was fee Paid online?		🛛 YES 🗌 NO		
IV.	SE	LECTED FACILITY REVIEWS ONLY-TECHNICA	AL INFORMATION			
Note: 1 registra	lf cl tior	aiming one of the following PBRs, complete this section, a" below:	then skip to Section VI., "Subm	itting your		
Animal Storage	! Fe e an	eding Operations § 106.161, Livestock Auction Facilities d Drying § 106.283, Auto Body Refinishing Facilities § 1	§ 106.162, Saw Mills § 106.223, 06.436, and Air Curtain Inciner	Grain Handling, ator § 106.496		
	А.	Is the applicable PBR checklist attached which shows the specific requirements of the PBR(s) being claimed?	facility meets all general and	YES NO		
	B.	Distance from this facility's emission release point to the	nearest property line:	feet		
		Distance from this facility's emission release point to the	nearest off-property structure:	feet		
V. TECHNICAL INFORMATION INCLUDING STATE AND FEDERAL REGULATORY REQUIREMENTS Registrants must be in compliance with all applicable state and federal regulations and standards to claim a PBR.						
	А.	Is confidential information submitted and properly marke this registration?	ed "CONFIDENTIAL" with	□ yes ⊠no		
	B.	Is a process flow diagram or a process description attached	ed?	YES 🗌 NO		
	C.	Are emissions data and calculations for this claim attache	ed?	YES 🗌 NO		
and the second se						

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Texas Commission on Environmental Quality Form PI-7-CERT Certification and Registration for Permits by Rule (Page 4)

V. TECHNICAL INFORMATION INCLUDING STATE AND FEDERAL REGULATORY REQUIREMENTS

Registrants must be in compliance with all applicable state and federal regulations and standards to claim a PBR.

D. Is information attached showing how the general requirements (30 TAC § 106.4) of the PBR is met for this Registration? (PBR checklists may be used, but are optional)

Note: Please be reminded that 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.

E. Is information attached showing how the specific PBR requirements are met for this registration? (<i>PBR checklist may be used, but are optional</i>)	🛛 YES 🗌 NO
F. Distance from this facility's emission release point to the nearest property line:	56 feet

Distance from this facility's emission release point to the nearest off-property structure:

Note: In limited cases, a map or drawing of the site and surrounding land use may be requested during the technical review or at the request of the TCEQ Regional Office or local air pollution control program during an investigation.

VI. SIGNATURE FOR CERTIFICATION AND REGISTRATION

The signature below indicates that the Responsible Official has knowledge of the facts herein set forth and that the same are true, accurate, and complete to the best of my knowledge and belief. By this signature, the maximum emission rates listed on this certification reflect the maximum anticipated emissions due to the operation of this facility and all representations in this certification of emissions are conditions upon which the facilities and sources will operate. It is understood that it is unlawful to vary from these representations unless the certification is first revised. The signature certifies that to the best of the Responsible Official's knowledge and belief, the project will satisfy the conditions and limitations of the indicated exemption or permit by rule and the facility will operated in compliance with all regulations of the Texas Commission on Environmental Quality and with Federal U.S. Environmental Protection Agency regulations governing air pollution. The signature below certifies that, based on information and belief formed after reasonable inquiry, the statements and information above and contained in the attached document(s) are true, accurate, and complete. **If you questions on how to fill out this form or about air quality permits. Please call (512) 239-1250.** *Individuals are entitled to request and review their personal information that the agency gathers on its forms. They may also have any errors in their information corrected. To review such information, call (512) 239-3282.*

SIGNATURE: John H. Fronte	3/15/2012
O (ORIGINAL SIGNATURE REQUIRED)	DATE

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TCEQ 20182 (Revised 02/10) Form PI-7 CERT This form for use by facilities subject to air quality permits requirements and may be revised periodically. (APDG 5379v10) 205 feet



Bill Sheldon Environmental Team

Borger Plant P. O. Box 968 Borger, Texas 79008-0968

(806) 275-5760 Fax: (806) 275-5926 sheldwr@cpchem.com

www.cpchem.com

CERTIFIED MAIL RETURN RECEIPT REQUESTED

APIRT MAR 19 2012

March 12, 2012

AIR PERMITS DIVISION

MAR 1 9 2012

Texas Commission on Environmental Quality Air Permits Initial Review Team MC-161 P.O. Box 13087 Austin, Texas 78711-3087

Re: Notification for Permit by Rules §106.261 & §106.262 RN102320850, CN600303614, Air Account HW-0013-C; Flexible Permit 21918; Red Dye Skid

Dear Review Team:

Enclosed, please find a notification in conformance with 30 TAC §106.261(a)(7)(A) & 30 TAC §106.262(a)(3) for the installation of a dye skid to the otherwise permitted facilities of Chevron Phillips Chemical—Borger Plant associated with the Philtex operating areas of Flexible Permit 21918. This notification consists piping component changes and no confidential information associated with the changes is deemed necessary and none has been included. Please contact me with any questions concerning this notification. Thank you.

Respectfully, Chevron Phillips Chemical Company LP

Bill Sheldon Environmental Engineer

Enclosures

cc: Eddy Vance, Air Section Manager, TCEQ Region 1, Amarillo, TX

APIRT MAR 19 2012

Table of Contents

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- TCEQ Form 21182, Registration for Permit by Rule PI-7 CERT
- TCEQ Form 10149, Permit by Rule Checklist for §106.4
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- TCEQ Form 10122, Permit by Rule Checklist for §106.262

Supplemental Information

- Summary
- Process Description (Non-confidential)
- Chemical List
- Distance Information
- Authorizations
- Site List of Other Standard Exemptions and Permits by Rule
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TCEQ Forms

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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), <u>Air Permits Division</u>, 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 <u>Title 30 Texas Administrative Code § 106.4</u> (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 <u>Form PI-7</u> (Registration for Permits by Rule) or <u>Form PI-7-CERT</u> (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: <u>www.tceq.state.tx.us/permitting/air/nav/air pbr.html</u>.

1. 30 TAC § 106.4(a)(1) & (4): Emission limits						
List emissions in tpy for each facility (add additional pages or table if needed):						
$SO_2 = \PM_{10} = \VOC = 0.205$ $NO_x = 3.39E-6$ $CO = 2.91E-5$ Other $\ = \$						
$SO_2 = \ PM_{10} = \ VOC = \ NO_x = \ CO = \ Other \ = \ Other \ PM_{10} = \PM_{10} = \PM$						
$SO_2 = \ PM_{10} = \ VOC = \ NO_x = \ CO = \ Other \ = \ $						
Total 0.205 3.39E-6 2.91E-5						
• Are the SO ₂ , PM ₁₀ , VOC, or other air contaminant emissions claimed for each facility in this PBR submittal less than 25 tpy?	Ø YES □ NO					
• Are the NO _x and CO emissions claimed for each facility in this PBR submittal less than 250 tpy?	M YES UNO					
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 \square YES \square NO regular permit or permit renewal? (This does not include public notice for voluntary emission reduction permits, grandfathered existing facility permits, or federal operating permits.)						
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? • Are the NO _x and CO emissions claimed for all facilities in this PBR submittal less than 250 tpy?						
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.						
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? If "Yes," please indicate which county by checking the appropriate box to the right.						
(Marginal) - Hardin, Jetterson, and Orange counties (BPA)						
(Moderate) - Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller counties (<i>HGA</i>) (Moderate) - Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Rockwall, and Tarrant counties (<i>DFW</i>)	DFW					
If "Yes." to any of the above, continue to the next question. If "No," continue to Section 3.						

TCEQ - 10149 (Revised 11/05) 106.4 Checklist for Permits by Rule General Requirements This form for use by facilities subject to air quality permit requirements and may be revised periodically. (APDG 4999v6)

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Permit by Rule General Applicability Checklist 30 TAC § 106.4

 Does this project trigger a nonattainment review? To determine the answer, review the information below: Is the project's potential to emit (PTE) for emissions of VOC or NO_x increasing by 100 tpy or more? 	U YES U NO				
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, rule, or made federally enforceable by a certification.					
• Is the site an existing major nonattainment site and are the emissions of VOC or NO _x increasing by 40 tpy or more.					
If needed, attach contemporaneous netting calculations per nonattainment guidance.					
www.tceq.state.tx.us/permitting/air/forms/newsourcereview/tables/nsr table8.html and					
www.tceq.state.tx.us/permitting/air/nav/air_docs_newsource.html					
If checklist is submitted as a hard copy, attach additional pages as needed. If checklist is submitted electronically, please email attachment to the following address: apd@tceq.state.tx.us					
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 Ø NO				
• Are emissions increasing above significance levels at an existing major site?	□ YES ☑ NO				
PSD information can be found at: www.tceq.state.tx.us/permitting/air/forms/newsourcereview/tables/nsr.table9.html and					
www.tccq.state.tx.us/permitting/air/nor/nis/newsourcereview/tables/nsr_tables.ntml and www.tccq.state.tx.us/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.					
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)? If "Yes," which Subparts are applicable?	□ YES □ NO ☑ N/A				
 Will all facilities under this PBR meet applicable requirements of 40 CFR Part 63, Hazardous Air Pollutants Maximum Achievable Control Technology (MACT) standards? If "Yes," which Subparts are applicable? FFFF 					
• Will all facilities under this PBR meet applicable requirements of 40 CFR Part 61, National Emissions Standards for Hazardous Air Pollutants (NESHAPs)? If "Yes," which Subparts are applicable?					
If checklist is submitted as a hard copy, attach additional pages as needed. If checklist is submitted electronically, please email attachment to the following address: apd@tceq.state.tx.us					
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 Ø 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):					
If "No," continue to Section 6.					

TCEQ - 10149 (Revised 11/05) 106.4 Checklist for Permits by Rule General Requirements This form for use by facilities subject to air quality permit requirements and may be revised periodically. (APDG 4999v6) $\Re = 22$

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Permit by Rule General Applicability Checklist 30 TAC § 106.4

6.	30 TAC § 106.4(a)(8): NO _x Cap and Trade						
• If '	Is the facility located in Harris, Brazoria, Chambers, Fort Bend, Galveston, Liberty, Montgomery, or Waller County? 'Yes " answer the question below. If "No." continue to Section 7	🛛 YES 🗹 NO					
•	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)?						
7.	Highly Reactive Volatile Organic Compounds (HRVOC) check						
•	Is the facility located in Harris County? If "Yes," answer the next question. If "No," skip to the box below. Will the project be constructed after June 1, 2006? 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 □ YES □ NO □ YES □ NO					
If '	"Yes," complete the information below: lb/hr tpy > 1,3-butadiene						
• If •	Is the facility located in Brazoria, Chambers, Fort Bend, Galveston, Liberty, Montgomery, or Waller County? "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: <u>lb/hr</u> tpy > ethylene						

TCEQ - 10149 (Revised 11/05) 106.4 Checklist for Permits by Rule General Requirements This form for use by facilities subject to air quality permit requirements and may be revised periodically. (APDG 4999v6)

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Title 30 Texas Administrative Code § 106.261 Permit By Rule (PBR) Checklist Facilities (Emission Limitations)

The following checklist is designed to help you confirm that you meet Title 30 Texas Administrative Code § 106.261 (30 TAC § 106.261) 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.state.tx.us/nav/permits/air_permits.html.

CH	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?						
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 permit? If "YES," this PBR cannot be used to authorize emissions from the project	□ yes Øno □n/a					
al	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?	Øyes □ no □n/a					
a2	Are total new or increased emissions, including fugitives, less than or equal to 6.0 pounds per hour (lb/hr) and ten tons per year of the following materials (check all that apply):	□yes □ no Øn/a					
	acetyleneheliumpropyl etherargonargonisohexanesulfur dioxidebutaneisopropyl alcoholaluminacrude oilmethyl acetylenecalcium carbonatecarbon monoxidemethyl chloroformcalcium silicatecyclohexanemethyl cyclohexanecellulose fibercyclohexeneneoncement dustcyclopentannonanemery dustethyl acetateoxides of nitrogenglycerin mistethyl etherpropyl alcoholiron oxide dustethyl etherpropylenekaolin	limestone magnesite marble pentaerythritol plaster of paris silicon silicon carbide starch sucrose zinc stearate zinc oxide					
a3	3 Are total new or increased emissions, including fugitives, less than or equal to 1.0 lb/hr of any chemical having a limit value (L) greater than 200 milligrams per cubic meter (mg/m ³) as listed and referenced in Table 262 of 30 TAC § 106.262 of this title (relating to Facilities (Emission and Distance Limitations)? List chemical:L value:						
	Are total new or increased emissions, including fugitives, less than or equal to 1.0 lb/hr of any chemical not listed or referenced in Table 262? List chemical: <u>See attachment</u>	Øyes □ no □n/a					
	Are total new or increased emissions, including fugitives, of a chemical with a limit value of less than 200 mg/m ³ ? If "Yes" the authorization of the chemical is not allowed under this section. We suggest you use 30 TAC 106.262 to authorize the emissions, if applicable.	□ yes □ no Øn/a					

TCEQ - 10121 [Revised 10/04] PBR Checklist for Facilities (Emission Limitations) This form for use by facilities subject to air quality permit requirements and may be revised periodically. [APDG 5018v4]

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Title 30 Texas Administrative Code § 106.261 Checklist

a4	Are there any changes to or additions of any existing air pollution abatement equipment?	□ yes ☑ no □n/a
a5	5 Will there be any visible emissions, except uncombined water, emitted to the atmosphere any point or fugitive source in amounts greater than 5.0% opacity in any six-minute period	e from \Box YES \blacksquare NO \Box N/A
a6	Are emission increases five tons per year or greater? If "YES," this checklist must be attact a Form PI-7 within ten days following the installation or modification of the facilities notification shall include a description of the project, calculations, data identifying sp chemical names, limit values, and a description of pollution control equipment, if any.	hed to s. The pecific
a7	7 Are emission increases less than five tons per year? If "YES," this checklist must be attac a Form PI-7 and include a description of the project, calculations, data identifying sp chemical names, limit values, and a description of pollution control equipment, if any. one):	thed to vecific (pick) vecific
	 Within ten days following the installation or modification of the facilities. The notifis shall include a description of the project, calculations, data identifying specific chanames, limit values, and a description of pollution control equipment, if any; or By March 31 of the following year summarizing all uses of this permit by rule previous calendar year. 	cation emical in the

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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.state.tx.us/nav/permits/air_permits.html.

CHECK THE MOST APPROPRIATE ANSWER							
Is a description or check of PBRs in 30 TAC § 10	Is a description or checklist of how this claim meets the general requirements for the use of PBRs in 30 TAC § 106.4 attached?						
b1. Is this claim for constru or for which a standard <i>authorize emissions from</i>	ction of a facility authorized in another permit is in effect? If "YES," this PB in the project.	er section of this chapter R cannot be used to	U YES	☑ NO	🗆 N/A		
b2. Is this claim for any cha or authorized under a st <i>emissions from the proj</i>	nge to any facility authorized under a andard perm? If "YES," this PBR car ect.	nother section of this chapter anot be used to authorize	U YES	M NO	🗖 N/A		
c. Is the facility authorized If "YES," subsection (a chemicals at the facility	under another section of this chapter (2) and (3) of this section may be use	or under a standard permit? d to qualify the use of other	U YES	🗹 NO	🛛 N/A		
a1. Are facilities or change or other structure not o the owner of the proper	s located at least 100 feet from any recupied or used solely by the owner of ty upon which the facilities are located	recreational area or residence or operator of the facilities or d?	🗹 YES	□ NO	🛛 N/A		
a2. Are new or increased e tons per year or in a qua Table 262 Figures 1 ar project, calculations for	🗹 YES	D NO	🛛 N/A				
Chemical: Naphtha; Eth	E=1.75;2	2.17; 2.17	bs/hr				
a3. Is this checklist attach modification of the fact project, calculations, description of pollution	🗹 YES	NO NO	🛛 N/A				
a4. Are one or more of the that apply) If "YES," a	following chemicals is handled for nswer the following four questions.	this registration? (Check all	U YES	D NO	☑ N/A		
 acrolein allyl chloride ammonia (anhydrous) arsine boron trifluoride bromine carbon disulfide chlorine dioxide chlorine trifluoride chloroacetaldehyde chloropicrin chloroprene 	 diazomethane diborane diglycidyl ether dimethylhydrazine ethyleneimine ethyl mercaptan fluorine formaldehyde (anhydrous) hydrogen bromide hydrogen chloride hydrogen fluoride hydrogen fluoride hydrogen selenide 	 hydrogen sulfide ketene methylamine methyl bromide methyl hydrazine methyl isocyanate methyl mercaptan nickel carbonyl nitric acid nitric oxide nitrogen dioxide oxygen difluoride 	 ozone pentaba perchla perchla phosph phosph seleniu hexaflu liquefa sulfur p telluriu 	orne oryl fluorid ne ine orus trichlo m oride stibin ed sulfur di pentafluorid m hexafluorid	nercaptan e oride ne oxide 1 oride		

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

	CHECK THE MOST APPROPRIATE ANSWER			
	Are all facilities are located at least 300 feet from the nearest property line and 600 feet from any off-plant receptor?	U YES	D 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?	U 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)?	S YES	🗆 NO	🗹 N/A
	Are any changes to or additions of any existing air pollution abatement equipment?	U YES	🖬 NO	🗹 N/A
a5.	Are there any changes to or additions of any existing air pollution abatement equipment?	U YES	N NO	🛛 N/A
аб.	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?	U YES	☑ NO	🛛 N/A

Supplemental Information

- o Summary
- o Process Description (Non-confidential)
- o Chemical List
- o Distance Information
- o Authorization
- o Site List of Other Standard Exemptions and Permits by Rule
- o Calculations

Summary

Currently dye is added to diesel manually before being shipped out of the facility in railcars. The changes associated with this project will make it possible to perform dye injection into the product stream mechanically. This permit-by-rule registration addresses changes within the Philtex operational area (associated with Flexible Permit 21918), and is in conformance with 30 TAC §106.261 & 30 TAC §106.262—submitted within ten days of the change implementation; the dye skid was installed on March 7, 2012. There will be no throughput changes as a result of any of the stated changes; there are no upstream or downstream impacts—the rationale for the change is described below; and, MSS (Maintenance, Start-up, and Shutdown) activities and emissions are described below.

Emissions Summary by EPN:

	Fugitive F-S	Fugitives—EPN: F-SP4		South Flare—EPN: FL-02		MSS—EPN: MSS-PREP	
Compound	Maximum Emissions	Annual Emissions	Maximum Emissions	Annual Emissions	Maximum Emissions	Annual Emissions	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	
Kerosene	6.70E-03	2.94E-02	-	-	6.31E-04	2.76E-03	
Naphtha	2.12E-03	9.27E-03	-	•	1.99E-04	8.72E-04	
Xylene	2.29E-03	1.15E-01	9.86E-02	4.93E-05	2.16E-04	9.45E-04	
Ethylbenzene	5.29E-04	1.02E-02	2.27E-02	1.14E-05	4.98E-05	2.18E-04	
2-Naphthalenol (colorant)	6.00E-03	2.63E-02	-	-	5.64E-04	2.47E-03	
NOx	-	-	6.79E-03	3.39E-06	-	-	
CO	-	-	5.82E-02	2.91E-05	-	-	
Total	1.76E-02	1.90E-01	1.86E-01	9.31E-05	1.66E-03	7.27E-03	

Table 1

Emissions Summary by Component

Total Emissions:	CO	NOx	VOC
lbs/hr	5.82E-02	6.79E-03	1.41E-01
tpy	2.91E-05	3.39E-06	1.98E-01

Table 2

Process Description (Non-confidential)

This project entails the installation a new Titon dye injection system. The system incorporates a 40 gallon dye pot, injection skid and diesel batch system. Diesel will enter the dye area from one

of several shipping lines. A flowmeter and batch controller will measure the diesel and relay that information to the dye injection controller. An actuated valve on the diesel line will be controlled by the diesel batch controller. The diesel actuated valve will also shut if the rail rack shutdown system is activated. The dyed diesel will be delivered to shipping rail spots via a dedicated two inch line.

The 40 gallon dye pot will incorporate a nitrogen blanket connected to the existing South Flare (EPN FL-02). Flare emissions from the day pot are a result of dye loading into the day pot from 55 gallon drums using a closed system "stinger assembly"—loading of the dye into the day pot is expected to occur once every 12-18 months. Spill containment will also be provided around the vessel. A positive displacement, gear pump is included in the skid. Magnetic coupling (magdrive) allows this pump to be sealless. Maintenance, Startup, and Shutdown (MSS) is comprised of the annual maintenance of one pump—see Table 1 for a summary of emissions and detailed MSS calculations in the Calculations section of this submittal.

Chemical	Listed in 106.261	Listed in 261(a)(2)	Table 262	Listed in ACGIH 1997 TLVs	Emissions All	Allowables Project Emissio		nissions
	(a)(2)		Listea	(mg/m3)	Lbs/hr	tpy	Lbs/hr	tpy
Kerosene	No	No	No	No	≤ 1		7.33E-03	3.21E-02
Naphtha	No	No	Yes (350)	No	≤ 1		2.32E-03	1.01E-02
Xylene	No	No	No	Yes (434)	≤ 2.17	_ ≤ 5	1.01E-01	1.16E-01
Ethylbenzene	No	No	No	Yes (434)	≤ 2.17		2.33E-03	1.04E-02
2-Naphthalenol (colorant)	No	No	No	No	≤ 1		6.56E-03	2.87E-02

Chemical List

Table 3

Distance Information

In accordance with PBR 106.261(a)(1) and PBR 106.262(a)(1), the changes associated with this permit—by-rule registration application are at least 205 feet (>100 feet) from either a recreational area, residence, or other structure not occupied or solely used by Chevron Phillips Chemical Company—Borger Plant. In addition, in accordance with distance information requested in section V, subsection F of TCEQ Form PI-7: the distance from the facility's emission points associated with this PBR registration to the nearest property line is at least 56 feet. See Table 2 below for the distances associated with the changes.

Distance Table		
	Distance to:	
Change No.	Property Line	Structure
M20112585-001 (261 & 262)	56	206

Table 4

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Authorization

Adding a dye skid along with associated piping and piping components is authorized by 30 TAC § 106.261. Kerosene (CAS—8008-20-6) is neither listed in Table 262 of 30 TAC §106.262 nor referenced in §106.261(a)(2); therefore, the kerosene has no limit value and §106.261(a)(3) states that total new or increased emissions, including fugitives, shall not exceed 1.0 lb/hr. The expected emission rate including fugitives, from kerosene is expected to be below 1.0 lb/hr (7.33 x 10^{-3} lbs/hr). 2-Naphthalenol (CAS—2425-85-6) is also neither listed in Table 262 nor referenced in §106.261(a)(2); and, new or increased emissions shall also not exceed 1.0 lb/hr—the expected emission rate including fugitives, from 2-Naphthalenol is expected to be below 1.0 lb/hr.

In addition, Naphtha (CAS---64742-94-5) is referenced in Table 262 of 30 TAC §106.262; therefore, emissions shall not exceed an "E" of 1.75 lbs/hr [E = L/K, where L =350 & K = 200 (D, in feet is equal to 206) which is greater than 200; therefore, Naphtha has an emissions limit that shall not exceed 1.75 lbs/hr. The expected emission rate, consisting of only fugitives, of this chemical is expected to be below 1.75 lb/hr (2.32 x 10^{-3} lbs/hr).

Ethylbenzene & Xylene (Dimethylbenzene) (CAS—100-41-4 & 1330-20-7 respectively) are not listed or referenced in Table 262 of 30 TAC §106.262 but have published TWAs of 434 mg/m³ as listed in the ACGIH 1997 TLVs and BEIs guide and shall not have emissions that exceed 2.17 lbs/hr (E) [E = L/K, where L =434 & K = 200 (D, in feet greater than 200). The expected emission rate, including fugitives, of this chemical is expected to be below 1.0 lb/hr (2.33 x 10^{-2} lbs/hr for ethylbenzene and 1.01 x 10^{-1} lbs/hr for xylene).

Other Permits by Rule and Standard Exemptions

Registration No	Rule No. 106.122				
NA (3 instances)					
55433	106.261				
92460	106.262				
54297	106.261, 472				
81490	106.261				
41609	106.261, 262				
47873	106.261, 262				
48432	106.262, 261				
85444	106.261, 262				
NA (2 instances)	106.511				
NA (2 instances)	SE 51				
87362	106.261				
92077	106.262, 261				
88312	106.262, 261				

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91758	106.262, 261
92045	106.261
NA	106.263
NA (2 instances)	106.371
NA (25 instances)	106.472
NA	106.472, 372
NA	106.373
NA	106.412
NA (4 instances)	106.393
94082	106.261
84319	106.261
50537	106.262
45470	106.433, 512
46022	106.433
47618	106.261
39927	106.452
94226	106.262, 261
45708	106.452, 512
72623	106.261
70021	106.454
None (2 instances)	106.261
None (2 instances)	106.261, 472
NA	106.473
53320	106.478
31409	SE106, 118
Pending 1/3/11	106.261
95559	106.261
95570	106.261,262
41609	106.261,262
96967	106.261,262
NA	106.124
NA	106.264
97948	SP PCP
98809	106.262
Pending (1/6/12)	106.261,262
Pending (1/12/12)	106.261,262
Pending (2/8/12)	106.261,262
Pending (3/2/12)	106.261,262
Pending (3/8/12)	106.261,262

Calculations (See attached)

Emissions Summary	
Relevant guidance document:	
Relevant guidance document:	
	,
TCEQ Air Permit Technical Guidance for Chemical Sources: Equipment Leak Fugitives, dated October 2000.	
Regulatory Lists:	
Kerosene Naphtha Xylene Ethylbenzene 2-Naphthalenol	
ACGIH 1997 TLVs (mg/m3): Unlisted Unlisted 434 434 Unlisted	
TCEQ Table 262: Unlisted 350 Unlisted Unlisted Unlisted	
It is anticipated that the new equipment will be placed into service before October, 2012.	
Naphtha:	
<100 feet from north property line, approx.	
200 feet from nearest structure not owned or occupied by owner or owner of land	
K = 200 value for 106.261	
L = 350 mg/m3 from Table 262	
E = 1.75 Ib/hr 106.262 Maximum Allowable Emission Rate	
5.00 tpy Allowable 106.261	
Ethylebemnzene & Xylene: <100 feet from north property line, approx.	
200 feet from nearest structure not owned or occupied by owner or owner of land	
200 value for 106.261	
434 mg/m3 from ACGIH TLV	
2.17 lb/hr 106.261 Maximum Allowable Emission Rate	
5.00 tpy Allowable 106.261	
Total Fugitive Emissions Calculated (EPN F-SP4): lbs/hr tpy Total MSS Emissions Calculated (EPN MSS-PREP): lbs/hr tpy	
Naphtha Estimated Emissions: 2.12E-03 9.27E-03 Naphtha Estimated Emissions: 1.99E-04 8.7	2E-04
Ethylbenzene Estimated Emissions: 5.29E-04 1.02E-02 Ethylbenzene Estimated Emissions: 4.98E-05 2.1	8E-04
Xylene Estimated Emissions: 2.29E-03 1.15E-01 Xylene Estimated Emissions: 2.16E-04 9.4	5E-04
Kerosene Estimate Emissions: 6.70E-03 2.94E-02 Kerosene Estimate Emissions: 6.31E-04 2.7	6E-03
2-naphthalenol Estimated Emissions: 6.00E-03 2.63E-02 2-naphthalenol Estimated Emissions: 5.64E-04 2.4	7E-03
Total: 1.76E-02 1.90E-01 Total: 1.66E-03 7.2	7E-03
Total Flare Emissions Calculated (EPN FL-02): Ibs/hr tpy	
CO Nox VOC Ethylbenzene Estimated Emissions: 2.27E-02 1.14E-05	
5.82E-02 6.79E-03 1.41E-01 lbs/hr Xylene Estimated Emissions: 9.86E-02 4.93E-05	
2.91E-05 3.39E-06 1.98E-01 tpy CO Estimated Emissions: 5.82E-02 2.91E-05	
Nox Estimated Emissions: 6.79E-03 3.39E-06	
Total: 1.21E-01 6.07E-05	
Page of	

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Red Dye Skid Project Fugitive Emissions

Note: There are no evaporativ	e losses as	sociated w	ith the Red	I Dye Proje	ct				a	
Name of Mixture:	Diesel Red	Dye Skid			Mixture:					
					Vapor Pres	ssure = ΣPo	0.06	psia		
Calculation Temperature	89	F			Vapor Mol	Wt. = Σa/Σ	116.68	lb/lbmol		
% of day in service:	24	hrs		1					2	
	INPUTS			CA		NS				
			Ę	Var	Ŧ	1	part			
	a =			, ğ	뼕	1	tial			
COL	4 ip	nor quip	ŭla	en a pre	5 3	Ē	em l			ņ
npc	fra vi	ma d w	r v	pen icul		ਡੂ ਹੋ	ben Den			
bhe	ctic eig	eigl ctic	eig	atio a	eig		atic atu		Š	
2	<u>ㅋ ㅋ ㅎ</u>	친 거 큐 @	<u>1</u>	<u> </u>	<u> 국 역</u>	30			Ū	5
	AWI	<u></u>	IVII	PV		$\Lambda = m/2m$	rp=rv XI	a≕wirp		
	(lb/lb)	(lb/lb)	(lb/lbmol)	(psia)	(ibmol/ib)	(Ibmol)	(psia)		(lb/hr)	(tpy)
Kerosene	38.00%	38.00%	170	7.73E-03	2.24E-3	3.26E-1	2.52E-3	4.28E-1	6.70E-03	2.94E-0
Naphtha	12.00%	12.00%	160	8.70E-02	7.50E-4	1.09E-1	9.52E-3	1.52E+0	2.12E-03	9.27E-0
Xylene	13.00%	13.00%	106	2.24E-01	1.23E-3	1.79E-1	4.01E-2	4.25E+0	2.29E-03	1.00E-0
Ethylbenzene	3.00%	3.00%	106	2.69E-01	2.83E-4	4.13E-2	1.11E-2	1.18E+0	5.29E-04	2.32E-0
2-Naphthalenol	34.00%	34.00%	144	1.99E-11	2.36E-3	3.44E-1	6.85E-12	9.87E-10	6.00E-03	2.63E-0
total	100.00%	100.00%			6.86E-03	1.00E+00	6.32E-02	7.38E+00	0.01764	7.73E-0
Equipment Leak Emissions Spre	eadsheet for				Red Dye S	kid Project				
Emission Eastors Used:			SOCMIW	۰C.=			oono Nonh	the and 2 h	loobtoloool	
Control Eastern Llood:			Mookky wa	lk through			serie, Napri	4 60 E 9 001	чарпаленог =	
Control Factors Used.			Quarteriu n	nonitoring		assumed to	o de equai a	1 00 - 0 091	•	
Table of Emission Factors (lb/hr	1		Guarterry i	nonitoring						
Component Type	/	valve	flange	relief valve	open end	sampler	DUMD	compr.	drain	1
Gas/Vapor		0.0089	0.0029	0.2293	0.004	0.033	FALSE	0.5027	FALSE	
Light Liquid		0.0035	0.0005	FALSE	0.004	0.033	0.0386	FALSE	FALSE	
Heavy Liquid		0.0007	0.00007	FALSE	0.004	0.033	0.0161	FALSE	FALSE	
Component Type		veho	flenge	roliof volvo	onon and	aamplar	numn	00000	drain	1
GasA/apor		Valve	nange	relier valve	open ena	sampler	pump	compr.	arain	
Light Liquid		97	30							
Heavy Liquid		0,								
						•				
Gas/Vapor Streams										
Component Type		valve	flange	relief valve	open end	sampler	pump	compr.	drain	
Number Emission (seten		0	0	0	0	0		0	- N 05	
Emission factor		0.0089	0.0029	0.2293	0.004	0.033	FALSE	0.5027	FALSE	
Control Eactor		0	0				0	0		
Emission (lb/hr)		Ő	0	o o	Ö	Ö	ő	0	ŏ	
				. <u> </u>				v		
Light Liquid Streams										
Component Type		valve	flange	relief valve	open end	sampler	pump	compr.	drain	
Number		48	36		0	0	0	0	0	
Emission factor		0.0035	0.0005	FALSE	0.004	0.033	0.0386	FALSE	FALSE	
Control Eactor		0.108	0.018				0	0		
Emission (lb/br)		9/	0.0126				0	0		
		0.00004	0.0120	. 0	. 0	. 0	0	0	. <u> </u>	
Heavy Liquid Streams				(Vapor pre	<u>ssure 0.0</u> 44	psia or les	s at 68° F.)			
Component Type		valve	flange	relief valve	open end	sampler	pump	compr.	drain	
Number		0	0	0	0	0	0	0	0	
Emission factor		0.0007	0.00007	FALSE	0.004	0.033	0.0161	FALSE	FALSE	
Uncontrolled emis.		0	0	0	0	0	0	0	0	
Control Factor		0	0		0	0	0	0	0	
Emission (ID/NF)		0	ļ Q	0	. 0	. 0	0	0	0	
Summary of Emissions					Pumps:	there will h	e two numn	s used but t	they are ma	anetic dri
Gas/Vapor Emissions			0	lb/hr	. anga	and receive	100% con	rol credit		9.1010 011
Light Liquid Emissions			0.01764	lb/hr						
Heavy Liquid Emissions			0	lb/hr						
Total Emissions			0.01764	lb/hr						

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Dye Pot Filling Emissions--South Flare (EPN: FL-02) Ideal Gas Law - Xylene and Ethylbenzene Emissions from flaring dye pot before filling

Constants:	R	10.73	(ft^3*psia)/ (lb mol * R)					
	V	8.02	ft^3		Total volume of dye p	ot			
T 304.8 R			R		Ambient Temperature (89 F) Xvlenes and Ethylbenzene				
	MW 106.16 lb/lb mol								
					15 Minute filling Activi	ty			
Initial Cond	dition	S							
Pressure 23.3 psia					Pressure on the pot will be at 10 psig, atmospheric pressure ~ 13.3 psia				
Mass	=	P*V*MW/(R*T)							
		6.065638373	lb						
				Liquid Red BK-50	3% Ethylbenzene				
Ethylbenzer	ne	1.137307195			MSDS info.	13% Xylenes			
Xylenes 4.928331178				* Assuming that no other components volatilize					
					-				
Flare Emis	sions	;	lle e /le u	Aug. 1	From flare emission s	preadsneet			
		1			1				
		Ethylbenzene	2.27E-02	1.14E-05					
		Xylenes	9.86E-02	4.93E-05					
		NO	3.39E-04	1.70E-07					
		NO2	6.45E-03	3.22E-06					
		CO	5.82E-02	2.91E-05					

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1.86E-01 9.31E-05

Flare Emissions Calculation Worksheet



Pump Maintenance Emissions (EPN: MSS-PREP)

This spreadsheet calculates air emissions from a puddle of liquid.

Date & Time:

Formulae:

Location:Railcar dye skidEvent:Spill associated with pump maintenance

INPUTS:

0.032 A = Area of puddle (m^2)
233 MW = Molecular weight (kg/kmol)
1034 PV = Vapor pressure (Pa) (see note)
305 T = Ambient temperature (K)
0.04 U = Wind speed at 10 m (m/s)
0.2 Z = Pool diameter along wind direction (m)
0.25 Duration of Air Release (hours)

CALCULATIONS:

1.005724725 C = -(PA / PV) * ln(1 - PV / PA) 6.67067E-06 DM = Dwater * (MWwater / MW)^0.5 2.248649286 SC = V / DM 0.000273529 KM = 0.0048 * U^(7/9) * Z^(-1/9) * SC^(-2/3) 8.36371E-07 E = A * KM * ((MW * PV) / (R * T)) * C

OUTPUTS:

8.36371E-07 E = Evaporation Rate (kg/s) 0.006637911 Evaporation Rate (lb/hr) 0.001659478 Total quantity evaporated (lb)

SOURCE:

"Modeling Hydrochloric Acid Evaporation in ALOHA™ Mary Evans, Robert Jones, Roy Overstreet Modeling and Simulation Studies Branch Hazardous Materials Response and Assessment Division Office of Ocean Resources Conservation and Assessment National Oceanic and Atmospheric Administration Report No. HAZMAT 93-3 July 1993 E = A * KM * ((MW * PV) / (R * T)) * C E = Evaporation Rate (kg/s) A = Area of puddle (m^2) KM = Mass transfer coefficient (m/s) MW = Molecular weight (kg/kmol) PV = Vapor pressure (Pa) (see note) R = Gas constant (8314 J*kmol*K) T = Ambient temperature (K) C = Correction term for volatile chemicals

KM = 0.0048 * U^(7/9) * Z^(-1/9) * SC^(-2/3)

KM = Mass transfer coefficient (m/s)

- U = Wind speed at 10 m (m/s)
- Z = Pool diameter along wind direction (m)
- SC = Laminar Schmidt number

SC = V / DM

SC = Laminar Schmidt numberV = kinematic viscosity of air (1.5E-5 m^2/s) DM = Molecular diffusivity in air (m^2/s)

DM = Dwater * (MWwater / MW)^0.5 Graham's Law Dwater = 2.4E-5 (m^2/s) MWwater = 18 kg/kmol MW = Molecular weight (kg/kmol)

C = -(PA / PV) * ln(1 - PV / PA)

PA = Atmospheric pressure (91000 Pa at Borger) PV = Vapor pressure (Pa) (see note)

NOTE:

For a component in solution, PV is the partial pressure.