Item Barcode: **100348797**

New Source Permits

AIR NSR P 026

Air #: 106061534 94462

File Type: Permits

Volume: 001

Date: 1/1/2011 -

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TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

March 2, 2011

MR KHA MACH, P.E.
CORPORATE AIR ENGINEER COI
CHESAPEAKE OPERATING INC
PO BOX 18496
OKLAHOMA CITY OK 73154-0496

Permit by Rule Registration Number:	94462
Location/City/County:	From the junction of FM 592 & FM 1046 at Allison, go 4.0 mi west on CR 20 then 2.0 mi north then 0.1 mi east and north into location, Allison, Wheeler County
Project Description/Unit:	Lee 507H Facility
Regulated Entity Number:	RN106061534
Customer Reference Number:	CN600514004
New or Existing Site:	New
Affected Permit (if applicable):	None
Renewal Date (if applicable):	None

Chesapeake Operating, Inc. has certified the emissions associated with the Lee 507H Facility under Title 30 Texas Administrative Code §§ 106.352 (effective 9/4/2000) and 106.512 (effective 6/13/2001). For rule information see:

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

Planned MSS emissions have been reviewed. Periodically the Caterpillar engine may shut down for various reasons, which could result in blowdown emissions. COI has conservatively estimated the number of blowdowns to be 20 per year. Approximately 1000 cubic feet of gas could be vented to the atmosphere during a blowdown. One blowdown could occur in a one hour period. The resulting emissions are 3.89 lb/hr and 0.04 tpy of VOCs. These authorized MSS emissions are included on the emissions table. No other planned MSS emissions have been represented or reviewed. The company is also reminded that these facilities may be subject to and must comply with other state and federal air quality requirements. In addition, please be aware that the Commission is considering repeal and amendments to the permit by rule under which your facilities are registered and these changes may affect your authorization. Under the General Requirements for all Permit by Rules, § 106.2 states that particular requirements only apply "where construction is commenced on or after the effective date of the relevant permit by rule." For more information regarding the proposed rule changes, please see the following Web site:

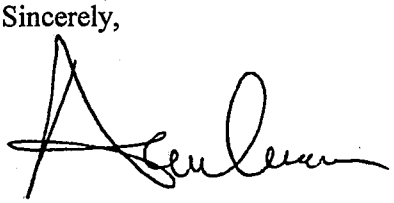
www.tceq.texas.gov/rules/prop.html

All analytical data generated by a mobile or stationary laboratory to support the compliance with an air permit must be obtained from a NELAC (National Environmental Laboratory Accreditation Conference) accredited laboratory. For additional information regarding the laboratory accreditation program, please see the following Web site which includes the accreditation and exemption information:

www.tceq.texas.gov/compliance/compliance_support/qa/env_lab_accreditation.html

This certification is taken under the authority delegated by the Executive Director of the TCEQ. If you have questions, please contact Ms. Patricia Moden at (512) 239-2524.

Sincerely,



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

Certified Site-wide Emissions:

VOC	22.69	tpy
HAPs (included in VOC)	0.42	tpy
NO_x	4.81	tpy
CO	7.25	tpy
PM_{10}	0.25	tpy
$PM_{2.5}$	0.25	tpy
SO_2	0.02	tpy
MSS (included in VOC)	0.04	tpy

cc: Air Section Manager, Region 1 - Amarillo

Project Number: 162450

TECHNICAL REVIEW: AIR PERMIT BY RULE

Permit No.:	94462	*Company Name:*	Chesapeake Operating, Inc.	*APD Reviewer:*	Ms. Patricia Moden
Project No.:	162450	*Unit Name:*	Lee 507H Facility	*PBR No(s).:*	106.352, 106.512

GENERAL INFORMATION			
Regulated Entity No.:	RN106061534	**Project Type:**	Permit by Rule Application
Customer Reference No.:	CN600514004	**Date Received by TCEQ:**	January 3, 2011
Account No.:	None	**Date Received by Reviewer:**	January 24, 2011
City/County:	Allison, Wheeler County	**Physical Location:**	From the junction of FM 592 & FM 1046 at Allison, go 4.0 mi west on CR 20 then 2.0 mi north then 0.1 mi east and north into location

CONTACT INFORMATION					
Responsible Official/ Primary Contact Name and Title:	Mr. Kha Mach, PE Corporate Air Engineer	**Phone No.:** **Fax No.:**	(405) 935-7908 (405) 849-7908	**Email:**	KHA.MACH@CHK.COM
Technical Contact/ Consultant Name and Title:	Ms. Rita Zebian Project Manager Air Quality	**Phone No.:** **Fax No.:**	(817) 640-6407 (817) 640-6447	**Email:**	RITA.ZEBIAN@BENHAM.COM

GENERAL RULES CHECK	YES	NO	COMMENTS
Is confidential information included in the application?		X	No confidential information has been submitted.
Are there affected NSR or Title V permits for the project?		X	There are no other air authorizations at this site.
Is each PBR > 25/250 tpy?		X	
Are PBR sitewide emissions > 25/250 tpy?		X	
Are there permit limits on using PBRs at the site?		X	
Is PSD or Nonattainment netting required?		X	This site is not one of the 28 PSD named sources, and emissions are below federal significance levels. The site is not located in a designated non-attainment area (Wheeler County). Therefore, neither PSD nor NA review is required.
Do NSPS, NESHAP, or MACT standards apply to this registration?	X		The company represents that they are subject to and will comply with the following: • NSPS Subpart JJJJ: ENG 1 was manufactured after July 1, 2008 • MACT Subpart ZZZZ: ENG 1 is subject to MACT ZZZZ and will meet the requirements by complying with NSPS JJJJ
Does NOx Cap and Trade apply to this registration?		X	The site is not located in the Houston/Galveston non-attainment area.
Is the facility in compliance with all other applicable rules and regulations?	X		The applicant represents that they are in compliance with all applicable rules and regulations.

DESCRIBE OVERALL PROCESS AT THE SITE

Chesapeake Operating, Inc. (COI) owns and operates the Lee 507H Facility in Wheeler County under Permit by Rule 106.352 and 106.512. COI wishes to register and certify the site-wide emissions.

DESCRIBE PROJECT AND INVOLVED PROCESS

The company has submitted a Form PI-7-CERT and supporting documentation to register the emissions at the site.

Natural gas, oil and produced water are produced from the wellhead at the Facility. The annual natural gas throughput is estimated to be less than 8 MMScf/day. Average oil production is estimated to be 300 bbl/day and average water production is estimated to be 2500 bbl/day.

The site has one production unit and one heater treater. The oil, gas, and water come from the wellhead to the production unit where the first stage separation occurs. The gas is sent to the sales pipeline and fluid is sent to the heater treater. The flash off the heater treater is captured via a flash gas compressor and sent to the sales line. The fluids are separated and sent to the tanks. The flash gas compressor is powered by a 145 hp Caterpillar G3306NA engine which exhausts to the atmosphere.

All oil flows through Tank 4, the stabilization tank, then through Tank 2 or Tank 3. Water flows to Tank 1. Flashing occurs at Tank 4 and at the water tank, Tank 1. The oil and water are transferred offsite via trucks.

A ProMax process simulator run was used to estimate VOC flash emissions from Tank 4 and Water Tank 1. Working and breathing losses from the tanks were estimated using Tanks 4.0. The water tank breathing and working losses and truck loading losses assume all of the water is crude oil and 1% of the calculated emissions are emitted.

Vapors from all tanks are sent to an SFI combustor where they are combusted. It is conservatively estimated that 99% of the tank emissions will be destroyed in the combustor.

TECHNICAL REVIEW: AIR PERMIT BY RULE

Permit No.:	94462	*Company Name:*	Chesapeake Operating, Inc.	*APD Reviewer:*	Ms. Patricia Moden
Project No.:	162450	*Unit Name:*	Lee 507H Facility	*PBR No(s).:*	106.352, 106.512

Periodically the Caterpillar engine may shut down for various reasons, which could result in blowdown emissions. COI has conservatively estimated the number of blowdowns to be 20 per year. Approximately 1000 cubic feet of gas could be vented to the atmosphere during a blowdown. One blowdown could occur in a one hour period.

OIL AND GAS FACILITY GENERAL INFORMATION			
Natural Gas Throughput (MMSCF/day):	8	**H_2S Content of Inlet Gas:**	<24 ppm
Oil/Condensate Throughput (bbl/day):	300	**Is the gas sweet or sour?**	Sweet
Produced Water Throughput (bbl/day):	2500	**Is this site operational/producing?**	Yes
PI-7 or PI-7 CERT?	CERT	**Has the site been registered before?**	No

EQUIPMENT/PROCESSES AT SITE						
Number of each:	**Compressor Engines:**	1	**Glycol dehydrators:**	0	**VRU:**	0
	Separators:	1+	**Amine units:**	0	**Other:**	Combustor
	Storage Tanks:	4	**Heater Treaters:**	1	**Other:**	MSS
	Truck Loading:	Yes	**Flares:**	0	**Other:**	

30 TAC §106.352 RULE CHECK		
REQUIREMENTS	YES, NO, or n/a	OTHER / COMMENTS
If the site conditions the natural gas (with a glycol dehydrator, amine unit, sulfur recovery unit, etc.), it handles less than two long tons per day of sulfur compounds (1 long ton = 2240 pounds). *Long tons per day sulfur compounds = (MMSCF/day of inlet gas)*(MW of inlet gas)*(H_2S wt fraction) / (0.84896)*	Yes	Long tons per day of sulfur compounds = _<2__
(1) All compressors will meet the requirements of 106.512.	Yes	
(1) All flares will meet the requirements of 106.492.	NA	There are no flares at this site.
(2) Total emissions, including process fugitives, combustion unit stacks, separator, or other process vents, tank vents, and loading emissions from all such facilities constructed at a site under this section, will be equal to or below 25 tons per year (tpy) each of sulfur dioxide (SO_2), all other sulfur compounds combined, or all volatile organic compounds (VOC) combined; and 250 tpy each of nitrogen oxide and carbon monoxide. Emissions of VOC and sulfur compounds other than SO_2 must include gas lost by equilibrium flash as well as gas lost by conventional evaporation.	Yes	
(3) If the facility handles sour gas, it will be located at least 1/4 mile from any recreational area or residence or other structure not occupied or used solely by the owner or operator of the facility or the owner of the property upon which the facility is located.	NA	This is not a sour site.
(4) Total emissions of sulfur compounds, excluding sulfur oxides, from all vents will be equal to or below 4.0 pounds per hour (lb/hr).	NA	This is not a sour site.
(4) The height of each vent emitting sulfur compounds meets the following requirements, and is in no case less than 20 feet: (NOTE: other values may be interpolated) H_2S (lb/hr) / Minimum Vent Height (ft) 0.27 / 20 0.60 / 30 1.94 / 50 3.00 / 60 4.00 / 68	NA	
(5) If the site handles sour gas, the company will register the site by submitting Form PI-7 or PI-7-CERT before operations begin.	NA	This is not a sour site; however, the company has submitted a Form PI-7-CERT.

STORAGE TANKS						
Tank Identifier (EPN)	**Capacity of Tank**	**Throughput (bbl/day)**	**Contents of Tank**	**Working and breathing Loss Calculation Method**	**Flash Loss Calculation Method**	**Comments**
TANK4	400 bbl	300	Crude Oil	Tanks 4.0	ProMax	Vapors from all tanks are sent to an SFI combustor where they are combusted. It is
TANK3	300 bbl	150	Crude Oil	Tanks 4.0	ProMax	
TANK2	300 bbl	150	Crude Oil	Tanks 4.0	ProMax	
TANK1	300 bbl	2500	Water	Tanks 4.0		

TECHNICAL REVIEW: AIR PERMIT BY RULE

Permit No.:	94462	*Company Name:*	Chesapeake Operating, Inc.	*APD Reviewer:*	Ms. Patricia Moden
Project No.:	162450	*Unit Name:*	Lee 507H Facility	*PBR No(s).:*	106.352, 106.512

						conservatively estimated that 99% of the tank emissions will be destroyed in the combustor.

TANKS 4.0 SOFTWARE [FOR ESTIMATING WORKING AND BREATHING LOSSES FROM STORAGE TANKS]

Tank Identifier (EPN)	Throughput (gallons/year) *(pg. 1 of report)*	Turnovers per year *(pg. 1 of report)*	Mixture/ Component *(pg. 2 of report)*	Basis for VP Calculations *(pg. 2 of report)*	Vapor MW *(pg. 2 of report)*	Results (lb/year) *(last page of report)*
TANK1	38325000	3041.67	Gasoline RVP 8	Option 4	68	44277.77
TANK 2& 3	2299500	182.50	Gasoline RVP 8	Option 4	68	5677.23
TANK 4	4599000	273.75	Gasoline RVP 8	Option 4	68	9062.11

Please explain any controls or reductions in calculated emissions: The water tank breathing and working losses assume all of the water is crude oil and 1% of the calculated emissions are emitted.

TRUCK LOADING [EMISSIONS CALCULATED USING L_L=(12.46)(S)(P)(M)/(T) EQUATION FROM AP-42, SECTION 5.2-4]

What is being Loaded	S	P (psia)	M (lb/lb-mole)	T (°R)	L_L (lb VOC/1000 gallons loaded)	Hourly Loading Rate (gallons/hour)	Annual Loading Rate (gallons/year)	Hourly Emissions (lb/hr)	Annual Emissions (tpy)
Crude Oil	0.6	4.54	68	516.63	4.46	8000	4599000	35.68	8.97
Water	0.6	4.54	68	516.63	4.46	8000	38325000	0.36	0.75

Please explain any controls or reductions in calculated emissions: The truck loading losses assume all of the water is crude oil and 1% of the calculated emissions are emitted

HEATERS AND BOILERS (INCLUDING GLYCOL DEHYDRATOR REBOILERS)

Identifier (EPN)	Rating (MMBtu/hr)	Operating Hours per year	Fuel Heat Value (Btu/SCF)	NOx emissions Factor Used
HT1	1.0	8760	1020	100

FUGITIVES [EMISSIONS CALCULATED USING EMISSION FACTORS FROM EPA DOCUMENT 4531, R-95-017, Table 2-4]

	Valves	Flanges	Connectors	Open Ended lines	Pump Seals	Other	VOC content of stream (weight %)	H_2S content of stream (weight %)	VOC Emissions (tpy)	H_2S Emissions (tpy)
Gas Service Component Count	100	110	–	–	–	65	8.73	–	0.92	–
Light Oil Component Count	10	11	–	–	6	5	100	–	1.36	–
								TOTAL:	2.28	–

If VOC content of gas stream <100%, was inlet or other laboratory gas analysis included?	Yes	Date of Sample:	12/10/10	VOC:TOC ratio from lab analysis (wt %):	8.73	H_2S:TOC ratio from lab analysis (wt %):	

VAPOR OXIDIZER

Type (thermal, catalytic, or regenerative):	Thermal			
VOC Destruction Efficiency:	99%	H_2S Destruction Efficiency:		
EPN/Identifier for sources of emissions routed to oxidizer:	Flow Rate of Each Source (SCF/hour)	Heat Content of Each Source (Btu/SCF)	H_2S Emissions From Each Source (lb/hr)	VOC Emissions From Each Source (lb/hr)
Tanks	2900	1020	–	131.86

30 TAC §106.512 RULE CHECK

REQUIREMENTS	YES, NO, or n/a	OTHER / COMMENTS
(1) The engines or turbines have been registered with Form PI-7 or PI-7-CERT within 10 days of the start of construction. Engines and turbines rated less than 240 horsepower (hp) need not be registered, but must meet paragraphs (5) and (6) of this section, relating to fuel and protection of air quality.	Yes	Horsepower of engine(s) = 145
(1) Table 29 has been submitted for each proposed gas or liquid fuel-fired stationary internal	Yes	

TECHNICAL REVIEW: AIR PERMIT BY RULE

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combustion reciprocating engine.		
(2) Any engines rated greater than 500-hp will meet the requirements of subparagraphs (A) - (C) of this paragraph.	NA	The engine is rated less than 500 hp.
(3) Any gas turbine rated greater than 500-hp will meet the requirements of subparagraphs (A) and (B) of this paragraph.	NA	There are no turbines at the site.
(4) Any engine or turbine rated less than 500 hp or used for temporary replacement purposes is exempt from the emission limitations of paragraphs (2) and (3) above. Temporary replacement engines or turbines shall be limited to a maximum of 90 days of operation after which they shall be removed or rendered physically inoperable.	Yes	Horsepower= 145 . Temporary? no .
(5) The gas fuel will be limited to: sweet natural gas or liquid petroleum gas, fuel gas containing no more than ten grains total sulfur per 100 dry standard cubic feet, or field gas.	Yes	Type of fuel= field gas or natural gas . Sulfur content of fuel gas (gr/100 dSCF): <10 .
(6) Compliance with National Ambient Air Quality Standard (NAAQS) in the area of the proposed facility has been demonstrated.	Yes	Which method was used (A, B, or C)? A . *Delete rows below that are not needed.*

(6)(A) Ambient sampling or dispersion modeling, accomplished pursuant to guidance obtained from the executive director, was used to demonstrate NAAQS:

Engine Identifier / EPN	Max. Hourly Concentration of NO_2/NOx (from Screen3 modeling) ($\mu g/m^3$)	Max. Annual Concentration of NO_2/NOx (Max. Hourly Conc. X 0.08) ($\mu g/m^3$)	NO_2/NOx Ratio (from table below)	Annual NO_2 Concentration (Max. Annual Conc. X NO_2/NO_x Ratio) ($\mu g/m^3$)
ENG1	62.89	5.03	0.4	2.01
			Background Concentration for County =	20
			TOTAL =	22.01
			Is total below NAAQS limit for NO_2 of 100 $\mu g/m^3$ (yes/no)?	yes

Unless otherwise documented by actual test data, the following nitrogen dioxide (NO_2)/NO_x ratios shall be used for modeling NO_2;

Device	NO_x Emission Rate (g/hp-hr)	NO_2/NO_x Ratio
IC Engine	Less than 2.0	0.4
IC Engine	2.0 thru 10.0	0.15 + (0.5/Q)
IC Engine	Greater than 10.0	0.2
Turbines		0.25
IC Engine with catalytic converter		0.85

Q = NOx emission rate (g/hp-hr)

(7) The engine or turbine will not be used to generate electricity.	Yes	No electricity will be generated.
(7) If NO to the above question, do any of the following apply? (A) The engines or turbines are used to provide power for the operation of facilities registered under the Air Quality Standard Permit for Concrete Batch Plants; (B) The engines or turbines satisfy the conditions for facilities permitted by rule under Subchapter E of this title (relating to Aggregate and Pavement); (C) The engines or turbines are used exclusively to provide power to electric pumps used for irrigating crops. (D) The engine is for on site use only and it is located where the electric grid is not readily available or where it is not economically feasible to connect to the electric grid.	NA	

NATURAL GAS FIRED COMPRESSOR ENGINE

Engine Identifier (EPN / name)	Engine Information		Pollutant	Source of Emission factor	Emission Factor before controls	Type of Control Device	Control efficiency	Emission Factor after controls	Emissions (lb/hr)	Emissions (tpy)
CAT G3306NA	Horsepower:	145	NMNEHC	Manuf. Data	0.33	Catalyst		1.0	0.32	1.40
	Fuel Consumption (Btu/hp-hr):	7775	NOx	Manuf. Data	10.90			2.0	0.64	2.79
	2 or 4 stroke, Rich or Lean Burn:	4, rich	CO	Manuf. Data	13.10			4.0	1.28	5.59
	Hours of Operation per year:	8760	PM_{10}	AP-42				0.019	0.02	0.10

TECHNICAL REVIEW: AIR PERMIT BY RULE

Permit No.:	94462	*Company Name:*	Chesapeake Operating, Inc.	*APD Reviewer:*	Ms. Patricia Moden
Project No.:	162450	*Unit Name:*	Lee 507H Facility	*PBR No(s).:*	106.352, 106.512

	Vendor Data Sheet Included? (required if ≥ 500-hp)	NA	SO_2	AP-42				0.0005	<0.01	<0.01
	Date of Manufacture or Reconstruction:	7/30/10	CH_2O	Manuf. Data	0.29			0.29	0.10	0.42

Does NSPS, Subpart JJJJ apply?	Yes	**Why or why not? If yes, how will requirements be met?**	NSPS Subpart JJJJ: ENG 1 was manufactured after July 1, 2008
Does MACT, Subpart ZZZZ apply?	Yes	**Why or why not? If yes, how will requirements be met?**	MACT Subpart ZZZZ: ENG 1 is subject to MACT ZZZZ and will meet the requirements by complying with NSPS JJJJ

COMMUNICATION LOG

Date	Time	Name/Company	Subject of Communication
February 22, 2011	11:27 AM	Ms. Rita Zebian/The Benham Companies, LLC	Hi, Rita, I am currently working on seven PBR applications for Chesapeake (listed below) which need additional information. Also, please provide an approximate start of construction date for all sites. **PGE Browne 2H:** 1. Formaldehyde emissions have not been included on Table 1a or the Emission Summary table. Please update accordingly; 2. Please provide the gas heating value (Btu/SCF), the tip velocity (ft/sec), heat release value (Btu/hr), and flow rate (scf/hr) for the flare. **Lohberger 401H Pad / West T 1H / Lee 507H:** 1. Formaldehyde emissions have not been included on Table 1a or the Emission Summary table. Please update accordingly; 2. What type of vapor combustor is used (i.e. thermal, catalytic, etc.)? **Fox Creek Unit B 1H Pad / Pena Creek III 1H / Traylor North 2H:** 1. Please provide the gas heating value (Btu/SCF), the tip velocity (ft/sec), heat release value (Btu/hr), and flow rate (scf/hr) for the flare. Please get back to me with the above requested information no later than noon on Monday, February 28, 2011. Let me know if you have any questions. Regards, Patricia
February 22, 2011	2:38 PM	Ms. Rita Zebian/The Benham Companies, LLC	Patricia, My contact at Chesapeake is out of the office today and tomorrow so I won't have specific information for you until Thursday or Friday. I received a similar email today from Jameica Hanney who is working on Chesapeake PBRs also. I sent her the following question on formaldehyde and would appreciate your feedback also. On your formaldehyde questions, in the past we did list formaldehyde separately on our summary but one of your permit reviewers told us we needed to add the formaldehyde to the VOC and report the total. We stopped showing the formaldehyde separately because we did not want it double counted. Has the agency's position changed on this? If we list the formaldehyde separately then I assume we would not include it in the VOC number also. Is this correct? Thanks, Rita

TECHNICAL REVIEW: AIR PERMIT BY RULE

Permit No.:	94462	*Company Name:*	Chesapeake Operating, Inc.	*APD Reviewer:*	Ms. Patricia Moden
Project No.:	162450	*Unit Name:*	Lee 507H Facility	*PBR No(s).:*	106.352, 106.512

February 23, 2011	8:01 AM	Ms. Rita Zebian/The Benham Companies, LLC	Rita, In the past, there has been confusion as to whether engine VOC emissions included the formaldehyde component which is why it may have been double counted. In this case, based on your calculations, it is clear that the formaldehyde is part of the total engine VOC emission rate. For consideration of HAP emissions, though, it is helpful to have the formaldehyde listed separately. To avoid being double counted, a footnote can be added to indicate that formaldehyde is already included in the VOC totals. Or, conversely, a footnote can be added to inform the reviewer that formaldehyde has not be included. Whichever way works best for you or the company, so long as it is clear that formaldehyde has been considered. Please let me know if you have any questions. Patricia
February 28, 2011	11:54 AM	Ms. Rita Zebian/The Benham Companies, LLC	Patricia, Attached are revised tables for the Chesapeake sites listed below that show the formaldehyde emissions. Also, a summary table is attached that provides responses to your other questions. Please call or email if you need anything else. Thanks, Rita
March 1, 2011	2:10 PM	Ms. Rita Zebian/The Benham Companies, LLC Mr. Marc Olivier/Permit Reviewer	The following email was sent to Ms. Zebian regarding the certification submitted by the company for several in-house registration requests: Dear Ms. Rita Zebian, I am working on the technical review of six certified PBR registrations for Chesapeake Operating, Inc. and am aware that there are other pending registrations. While going through the registration packages as part of the initial review, I noticed that the cover letter for each registration states "COI is certifying only the annual site-wide emissions in this submittal." There recently has been some confusion with what information is included in the certification when submitting a PI-7-CERT or APD-CERT, so I wanted to clarify that **all** representations in the certification of emissions are conditions upon which the facilities and sources will operate. Therefore, the basis of the annual emissions, which may be derived based on hourly emission rates that are determined based on the type of activity, the frequency and duration of an activity, throughput, production composition, and emission controls, or other operational limitations less than the potential to emit are also certified. Once I have completed the technical review, I will let you know if there is any other information that is needed before sending the projects for final review and signature. Sincerely, Marc Olivier

NOTE: The start of construction date for this site was prior to February 27, 2011, which is represented in an email attachment.

EPN / Description	Screen 3 model distance	Maximum Hourly Concentration of NOx (from screen 3 model)
ENG1	53 m	62.89
	Background Concentration of Region / County =	70
	Total =	132.90
	Is the total limit below the hourly NAAQS Limit of 188 ug/m3 (yes/no)?	yes
Notes:		

ESTIMATED EMISSIONS

EPN / Emission Source	Specific VOC or Other Pollutants	VOC		NOx		CO		PM_{10}		$PM_{2.5}$		SO_2		HCHO*	
		lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy
ENG1/CAT G3304NA		0.42	1.82	0.64	2.79	1.28	5.59	0.02	0.10	0.02	0.10	<0.01	<0.01	0.10	0.42
MSS/Engine Blowdown		3.89	0.04												
FUG/Sitewide Fugitives		0.52	2.28												
TANK1/Water Storage		<0.01	0.03												

TECHNICAL REVIEW: AIR PERMIT BY RULE

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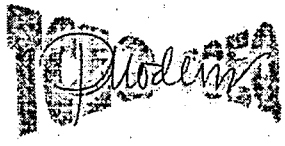
TANK2/Condensate Storage		<0.01	0.01												
TANK3/Condensate Storage		0.01	0.01												
TANK4/Condensate Storage		0.65	2.85												
COMB/Combustor		1.34	5.87	0.29	1.27	0.24	1.05	0.02	0.09	0.02	0.09	<0.01	0.01		
HT/Heater Treater		<0.01	0.02	0.07	0.31	0.06	0.26	<0.01	0.02	<0.01	0.02	<0.01	<0.01		
PU/Production Unit		0.01	0.04	0.10	0.44	0.08	0.35	0.01	0.04	0.01	0.04	<0.01	<0.01		
CLOAD/Condensate Loading		35.68	8.97												
PWLOAD/Water Loading		0.36	0.75												
TOTAL EMISSIONS (TPY):			**22.69**		**4.81**		**7.25**		**0.25**		**0.25**		**0.02**		**0.42**

MAXIMUM OPERATING SCHEDULE:	**Hours/Day**		**Days/Week**		**Weeks/Year**		**Hours/Year**	8760

*Formaldehyde emissions have been included in the total VOC emissions.

SITE REVIEW / DISTANCE LIMIT	Yes	No	Description/Outcome	Date	Reviewed by
Site Review Required?		X	Site review is not required for this registration.	February 25, 2011	Ms. Patricia Moden
PBR Distance Limits Met?	X		The applicant represents that they are at least 200 feet from the nearest property line and at least 1320 feet from the nearest off-property receptor.	February 25, 2011	Ms. Patricia Moden

	TECHNICAL REVIEWER	PEER REVIEWER	FINAL REVIEWER
SIGNATURE:			See Hard Copy.
PRINTED NAME:	Ms. Patricia Moden		Ms. Anne M. Inman, P.E., Manager
DATE:	March 2, 2011		March 2, 2011

BASIS OF PROJECT POINTS	POINTS
Base Points:	2.0
Project Complexity Description and Points:	
Additional Rule	0.5
Tables (12)	3.0
Communication	1.0
Technical Reviewer Project Points Assessment:	6.5
Final Reviewer Project Points Confirmation:	

03/02/2011 ----------NSR IMS - PROJECT RECORD ----------

PROJECT#: 162450 PERMIT#: 94462 STATUS: PENDING DISP CODE: C
RECEIVED: 01/03/2011 PROJTYPE: INITIAL AUTHTYPE: PBR ISSUED DT: 3/2/11
RENEWAL:
PROJECT ADMIN NAME: LEE 507H FACILITY
PROJECT TECH NAME: LEE 507H FACILITY

6.5
Amul

Assigned Team: RULE REG SECTION

STAFF ASSIGNED TO PROJECT:

HUNSBERGER , JOANNA	- REVIEWR1_2 -	AP INITIAL REVIEW
MODEN , PATRICIA	- REVIEW ENG -	RR TEAM

CUSTOMER INFORMATION (OWNER/OPERATOR DATA)

ISSUED TO: CHESAPEAKE OPERATING INC
COMPANY NAME: Chesapeake Operating, Inc.
CUSTOMER REFERENCE NUMBER: **CN600514004**

REGULATED ENTITY/SITE INFORMATION

REGULATED ENTITY NUMBER: **RN106061534** ACCOUNT:
PERMIT NAME: LEE 507H FACILITY

REGULATED ENTITY LOCATION: FROM THE JUNCTION OF FM 592 & FM 1046 AT ALLISON GO 4.0 MI W ON CR 20 THEN 2.0 MI N THEN 0.1 MI E AND N INTO LOCATION
REGION 01 - AMARILLO NEAR CITY: ALLISON COUNTY: WHEELER

CONTACT DATA

CONTACT NAME: MR KHA MACH CONTACT ROLE: RESPONSIBLE OFFICIAL
JOB TITLE: CORPORATE AIR ENGINEER COI ORGANIZATION: CHESAPEAKE OPERATING INC
MAILING ADDRESS: PO BOX 18496 , OKLAHOMA CITY, OK, 73154-0496
PHONE: (405) 935-7908 Ext: 0
FAX: (405) 849-7908 Ext: 0
EMAIL:KHA.MACH@CHK.COM

CONTACT NAME: MS RITA ZEBIAN CONTACT ROLE: TECHNICAL CONTACT
JOB TITLE: PROJECT MANAGER AIR QUALITY ORGANIZATION: THE BENHAM COMPANIES LLC AN SAIC COMPANY
MAILING ADDRESS: 1200 E COPELAND RD STE 510 , ARLINGTON, TX, 76011-4939
PHONE: (817) 640-6407 Ext: 0
FAX: (817) 640-6447 Ext: 0
EMAIL:RITA.ZEBIAN@BENHAM.COM

FEE:

Reference	Fee Receipt Number	Amount	Fee Receipt Date	Fee Payment Type
1406600		450.00		CHECK

TRACKING ELEMENTS:

TE Name	Start Date	Complete Date
APIRT RECEIVED PROJECT (DATE)	01/03/2011	
APIRT TRANSFERRED PROJECT TO TECHNICAL STAFF (DATE)	01/04/2011	
PROJECT RECEIVED BY ENGINEER (DATE)	01/24/2011	
ENGINEER INITIAL REVIEW COMPLETED (DATE)	02/18/2011	
DEFICIENCY CYCLE	02/22/2011	02/28/2011
PEER / MANAGER REVIEW PERIOD	03/02/2011	03/02/2011

UNIT TYPES:

Project Unit Type:

PROJECT RULES:

Unit Desc	Rule Desc	Request Type	On Application	Approve
OIL AND GAS PRODUCTION FACILITIES	106.352 2000-SEP-04 TO 2011-FEB-27 -	ADD	Y	APPROVE
ENGINES AND TURBINES	106.512 -	ADD	Y	APPROVE

PERMIT RULES:

Unit Desc	Rule Desc	Start Date	End Date

PROJECT ATTRIBUTES:

Attributes	Value
CERT_PI_7	
MSS- 101.222(H)(1)	

From: "Zebian, Rita M." <RITA.M.ZEBIAN@saic.com>
To: "Patricia Moden" <Patricia.Moden@tceq.texas.gov>
CC: "Kha Mach" <kha.mach@chk.com>
Date: 2/28/2011 11:54 AM
Subject: RE: PBR Applications for Chesapeake Operating, Inc.
Attachments: PGEBrowne2HRevTables.pdf; Lohberger401HTablesR1.pdf; WestT1HTablesR1.pdf; L ee507HTablesR1.pdf; 02.28.11TCEQResponsePM.pdf

Patricia,
Attached are revised tables for the Chesapeake sites listed below that show the formaldehyde emissions. Also, a summary table is attached that provides responses to your other questions. Please call or email if you need anything else.
Thanks,
Rita

Rita Zebian
Project Manager, Air Quality | Water, Environment & Transportation
SAIC Energy, Environment & Infrastructure, LLC (SEE&I)
office: 817.640.6407 | fax: 817.640.6447
www.saic.com/EEandI

----Original Message----
From: Patricia Moden [mailto:Patricia.Moden@tceq.texas.gov]
Sent: Wednesday, February 23, 2011 8:02 AM
To: Zebian, Rita M.
Cc: Jameica Hanney
Subject: RE: PBR Applications for Chesapeake Operating, Inc.

Rita,

In the past, there has been confusion as to whether engine VOC emissions included the formaldehyde component which is why it may have been double counted. In this case, based on your calculations, it is clear that the formaldehyde is part of the total engine VOC emission rate. For consideration of HAP emissions, though, it is helpful to have the formaldehyde listed separately. To avoid being double counted, a footnote can be added to indicate that formaldehyde is already included in the VOC totals. Or, conversely, a footnote can be added to inform the reviewer that formaldehyde has not be included. Whichever way works best for you or the company, so long as it is clear that formaldehyde has been considered.

Please let me know if you have any questions.

Patricia

>>> "Zebian, Rita M." <Rita.Zebian@benham.com> 2/22/2011 2:38 PM >>>
Patricia,

My contact at Chesapeake is out of the office today and tomorrow so I won't have specific information for you until Thursday or Friday. I received a similar email today from Jameica Hanney who is working on Chesapeake PBRs also. I sent her the following question on formaldehyde and would appreciate your feedback also.

On your formaldehyde questions, in the past we did list formaldehyde separately on our summary but one of your permit reviewers told us we needed to add the formaldehyde to the VOC and report the total. We stopped showing the formaldehyde separately because we did not want it double counted. Has the agency's position changed on this? If we list the formaldehyde separately then I assume we would not include it in the VOC number also. Is this correct?

Thanks,
Rita

Rita Zebian
Project Manager, Air Quality | Water, Environment & Transportation
SAIC Energy, Environment & Infrastructure, LLC (SEE&I)
office: 817.640.6407 | fax: 817.640.6447
www.saic.com/EEandI

----Original Message----
From: Patricia Moden [mailto:Patricia.Moden@tceq.texas.gov]
Sent: Tuesday, February 22, 2011 11:28 AM

To: Zebian, Rita M.
Subject: PBR Applications for Chesapeake Operating, Inc.

Hi, Rita,

I am currently working on seven PBR applications for Chesapeake (listed below) which need additional information. Also, please provide an approximate start of construction date for all sites.

PGE Browne 2H:
1. Formaldehyde emissions have not been included on Table 1a or the Emission Summary table. Please update accordingly;
2. Please provide the gas heating value (Btu/SCF), the tip velocity (ft/sec), heat release value (Btu/hr), and flow rate (scf/hr) for the flare.

Lohberger 401H Pad / West T 1H / Lee 507H:
1. Formaldehyde emissions have not been included on Table 1a or the Emission Summary table. Please update accordingly;
2. What type of vapor combustor is used (i.e. thermal, catalytic, etc.)?

Fox Creek Unit B 1H Pad / Pena Creek III 1H / Traylor North 2H:
1. Please provide the gas heating value (Btu/SCF), the tip velocity (ft/sec), heat release value (Btu/hr), and flow rate (scf/hr) for the flare.

Please get back to me with the above requested information no later than noon on Monday, February 28, 2011. Let me know if you have any questions.

Regards,
Patricia

Patricia Moden
Rule Registrations Section
Air Permits Division
Texas Commission on Environmental Quality
512-239-2524
512-239-1070 (fax)

From: Patricia Moden
To: Zebian, Rita M.
CC: Hanney, Jameica
Date: 2/23/2011 8:01 AM
Subject: RE: PBR Applications for Chesapeake Operating, Inc.

Rita,

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Rita Zebian
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www.saic.com/EEandI

-----Original Message-----
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Regards,
Patricia

Patricia Moden
Rule Registrations Section
Air Permits Division
Texas Commission on Environmental Quality
512-239-2524
512-239-1070 (fax)

From: "Zebian, Rita M." <Rita.Zebian@benham.com>
To: "Patricia Moden" <Patricia.Moden@tceq.texas.gov>
Date: 2/22/2011 2:38 PM
Subject: RE: PBR Applications for Chesapeake Operating, Inc.

Patricia,

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Rita

Rita Zebian
Project Manager, Air Quality | Water, Environment & Transportation
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——Original Message——
From: Patricia Moden [mailto:Patricia.Moden@tceq.texas.gov]
Sent: Tuesday, February 22, 2011 11:28 AM
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Regards,
Patricia

Patricia Moden
Rule Registrations Section
Air Permits Division
Texas Commission on Environmental Quality
512-239-2524
512-239-1070 (fax)

From: Patricia Moden
To: rita.zebian@benham.com
Date: 2/22/2011 11:27 AM
Subject: PBR Applications for Chesapeake Operating, Inc.

Hi, Rita,

I am currently working on seven PBR applications for Chesapeake (listed below) which need additional information. Also, please provide an approximate start of construction date for all sites.

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2. What type of vapor combustor is used (i.e. thermal, catalytic, etc.)?

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Regards,
Patricia

Patricia Moden
Rule Registrations Section
Air Permits Division
Texas Commission on Environmental Quality
512-239-2524
512-239-1070 (fax)

01/04/2011 ----------NSR IMS - PROJECT RECORD ----------

PROJECT#: 162450 PERMIT#: 94462 STATUS: PENDING DISP CODE: _____
RECEIVED: 01/03/2011 PROJTYPE: INITIAL AUTHTYPE: PBR ISSUED DT: _____
RENEWAL:
PROJECT ADMIN NAME: LEE 507H FACILITY
PROJECT TECH NAME: LEE 507H FACILITY

Assigned Team: RULE REG SECTION

STAFF ASSIGNED TO PROJECT:

HUNSBERGER , JOANNA	- REVIEWR1_2 -	AP INITIAL REVIEW
TEAM LEADER , RR	- REVIEW ENG -	RULE REG SECTION

CUSTOMER INFORMATION (OWNER/OPERATOR DATA)
ISSUED TO: CHESAPEAKE OPERATING INC
COMPANY NAME: Chesapeake Operating, Inc.
CUSTOMER REFERENCE NUMBER: **CN600514004**

REGULATED ENTITY/SITE INFORMATION
REGULATED ENTITY NUMBER: **RN106061534** ACCOUNT:
PERMIT NAME: LEE 507H FACILITY

REGULATED ENTITY LOCATION: FROM THE JUNCTION OF FM 592 & FM 1046 AT ALLISON GO 4.0 MI W ON CR 20 THEN 2.0 MI N THEN 0.1 MI E AND N INTO LOCATION
REGION 01 - AMARILLO NEAR CITY: ALLISON COUNTY: WHEELER

CONTACT DATA

CONTACT NAME: MR KHA MACH CONTACT ROLE: RESPONSIBLE OFFICIAL
JOB TITLE: CORPORATE AIR ENGINEER COI ORGANIZATION: CHESAPEAKE OPERATING INC
MAILING ADDRESS: PO BOX 18496 , OKLAHOMA CITY, OK, 73154-0496
PHONE: (405) 935-7908 Ext: 0
FAX: (405) 849-7908 Ext: 0
EMAIL:KHA.MACH@CHK.COM

CONTACT NAME: MS RITA ZEBIAN CONTACT ROLE: TECHNICAL CONTACT
JOB TITLE: PROJECT MANAGER AIR QUALITY ORGANIZATION: THE BENHAM COMPANIES LLC AN SAIC COMPANY
MAILING ADDRESS: 1200 E COPELAND RD STE 510 , ARLINGTON, TX, 76011-4939
PHONE: (817) 640-6407 Ext: 0
FAX: (817) 640-6447 Ext: 0
EMAIL:RITA.ZEBIAN@BENHAM.COM

FEE:

Reference	Fee Receipt Number	Amount	Fee Receipt Date	Fee Payment Type
1406600		450.00		CHECK

TRACKING ELEMENTS:

TE Name	Start Date	Complete Date
APIRT RECEIVED PROJECT (DATE)	01/03/2011	
APIRT TRANSFERRED PROJECT TO TECHNICAL STAFF (DATE)	01/04/2011	
DEFICIENCY CYCLE		
ENGINEER INITIAL REVIEW COMPLETED (DATE)		
PEER / MANAGER REVIEW PERIOD		
PROJECT RECEIVED BY ENGINEER (DATE)		

PROJECT RULES:

Unit Desc	Rule Desc	Request Type	On Application	Approve
OIL AND GAS PRODUCTION FACILITIES	106.352 -	ADD	Y	APPROVE
ENGINES AND TURBINES	106.512 -	ADD	Y	APPROVE

PERMIT RULES:

Unit Desc	Rule Desc	Start Date	End Date

V 22.69
N 4.91
C 7.25
P .25
S .02
F .42

From: Marc Olivier
To: Hanney, Jameica; Moden, Patricia
Date: 3/1/2011 2:16 PM
Subject: Fwd: Certified PBR registrations for Chesapeake Operating, Inc.

Below is the e-mail I sent to Chesapeake regarding certifications. I addressed the issue generically so that the company understands what is included in the certification of any pending and future projects. Therefore, you do not need to send separate e-mails to Chesapeake or hold your pending projects. You can print this e-mail and place it in each of the project folders.

>>>

From: Marc Olivier
To:rita.zebian@benham.com
CC:kha.mach@chk.com
Date: 3/1/2011 2:10 PM
Subject: Certified PBR registrations for Chesapeake Operating, Inc.
Dear Ms. Rita Zebian,

I am working on the technical review of six certified PBR registrations for Chesapeake Operating, Inc. and am aware that there are other pending registrations. While going through the registration packages as part of the initial review, I noticed that the cover letter for each registration states "COI is certifying only the annual site-wide emissions in this submittal."

There recently has been some confusion with what information is included in the certification when submitting a PI-7-CERT or APD-CERT, so I wanted to clarify that **all** representations in the certification of emissions are conditions upon which the facilities and sources will operate. Therefore, the basis of the annual emissions, which may be derived based on hourly emission rates that are determined based on the type of activity, the frequency and duration of an activity, throughput, production composition, and emission controls, or other operational limitations less than the potential to emit are also certified.

Once I have completed the technical review, I will let you know if there is any other information that is needed before sending the projects for final review and signature.

Sincerely,

Marc Olivier
Texas Commission on Environmental Quality
Air Permits Division, Rule Registrations Section
Marc.Olivier@tceq.texas.gov
(512) 239-1294
(512) 239-5698 (fax)