MALFUNCTION ABATEMENT PLAN

FOR

BUCKEYE RIVER ROUGE TERMINAL

January 2015

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I. SUMMARY

The vapor control system consists of two major parts the vapor collection system which collects the vapors from the trucks and the vapor recovery unit (VRU), which treats the gasoline vapors. The vapor collection system is the piping that connects to the trucks and passes vapors to the VRU for treatment.

The Buckeye River Rouge Terminal has a Jordan VRU that recovers vapors generated during the gasoline and distillate tank truck loading process that occurs at the facility loading rack. The control system is installed and operated in a manner to ensure compliance with air permit conditions. During the loading process, the VRU provides a signal to the loading rack permitting the loading of products into the tanker trucks. If the VRU is not operating (or has malfunctioned) a permissive is not sent to the loading rack and product cannot be loaded. This system programming ensures that loading without proper vapor controls is not conducted at the facility.

This plan is required ROP-B2987-2008a EULOADINRACK Condition III.5.

Per R336.1911, the Malfunction Abatement Plan must include the following:

(a) A complete preventative maintenance program, including identification of the supervisory personnel responsible for overseeing the inspection, maintenance, and repair of air-cleaning devices, a description of the items or conditions that shall be inspected, the frequency of the inspections or repairs, and an identification of the major replacement parts that shall be maintained in inventory for quick replacement.

(b) An identification of the source and air-cleaning device operating variables that shall be monitored to detect a malfunction or failure, the normal operating range of these variables, and a description of the method of monitoring or surveillance procedures.

(c) A description of the corrective procedures or operational changes that shall be taken in the event of a malfunction or failure to achieve compliance with the applicable emission limits.

II. RESPONSIBILITY OF PROGRAM OVERSIGHT

The terminal manger is responsible for the development, implementation, and oversight of the vapor control system preventative maintenance program. The terminal manager or the maintenance operator will direct trained Buckeye or contractor personnel to perform the inspections, maintenance and repair on the unit.

III. DESCRIPTION OF LOADING RACK INSPECTION AND MAINTENANCE PROGRAM

The preventative maintenance program is detailed in the River Rouge Terminal Vapor Recovery Unit (VRU) Monitoring and Inspection Plan required by 40 CFR 63 Subpart BBBBBB and included as Attachment 1. Inspection and maintenance records are maintained at the Terminal.

A list of spare parts maintained at the Terminal is included as Attachment 2. The primary VRU contractor also maintains an inventory of spare parts.

The Terminal also completes inspections of the loading rack using sight, sound and smell as detection methods. Records of these inspections are also maintained at the Terminal.

IV. VRU MALFUNCTION PLAN

Malfunctions and corrective actions are detailed in the River Rouge Terminal Vapor Recovery Unit (VRU) Monitoring and Inspection Plan required by 40 CFR 63 Subpart BBBBBB and included as Attachment 1.

The VRU is interlocked with the rack loading. If the VRU shuts down for any reason, a yellow light at the rack will flash to alert the driver the VRU is not working; the driver will then notify the operator. The operator is also paged when the VRU shuts down, the page continues until the operator has acknowledged it. If the operator cannot resolve the problem, he is to call the VRU contractor immediately. No gasoline loading is permitted when the VRU is not operating.

The Operation and Maintenance Manual (O&M) provided by the manufacturer is used to regularly maintain the system and ensure the system is in proper working order. The O&M Manual should be referenced for additional detail on servicing and inspecting this unit. The purpose of this plan is to provide a general summary of the unit and preventative maintenance. The O&M Plan provided by the manufacturer in included as Attachment 3.

ATTACHMENT #1

RIVER ROUGE TERMINAL
VAPOR RECOVERY UNIT (VRU)
MONITORING AND INSPECTION PLAN

Buckeye
River Rouge Terminal
Vapor Recovery Unit (VRU) Monitoring and Inspection Plan

January 2015

BACKGROUND

This Monitoring and Inspection Plan (MIP) meets the requirements of the Gasoline Distribution Generally Achievable Control Technology (GD-GACT) rule (40 CFR 63.11092(b)(1)(i)(B)(*2*) (i to iv). This plan summarizes site specific operating parameter conditions that would be considered malfunctions of the carbon adsorption system during the inspections or automated monitoring performed under paragraphs (b)(1)(i)(B)(*2*)(*i*) through (*iii*) of the regulation. The plan describes the specific corrective actions that will be taken to address any malfunction, and defines what is considered to be a timely repair for each potential malfunction.. This plan will be fully implemented by the compliance due date of January 10, 2011.

Malfunctions that are discovered shall not constitute a violation of the emission standard in § 63.11088(a) if corrective actions as described in the monitoring and inspection plan are followed. The site owner or operator must:
(i) Initiate corrective action to determine the cause of the problem within 1 hour;
(ii) Initiate corrective action to fix the problem within 24 hours;
(iii) Complete all corrective actions needed to fix the problem as soon as practicable consistent with good air pollution control practices for minimizing emissions;
(iv) Minimize periods of start-up, shutdown, or malfunction; and
(v) Take any necessary corrective actions to restore normal operation and prevent the recurrence of the cause of the problem.

Emissions Unit

Description:	Vapor Recovery Unit	Back up Control Device
Maximo ID:	VRU-1	Bladder Tank
Facility:	River Rouge Terminal	
Location	River Rouge, MI	
Gasoline Loading Rack throughput greater than 250,000 gpd	Yes	

Applicable Regulation, Emission Limit, and Monitoring Requirements

Control Technology:	VRU model #: JT-120-130-3000-3 0-VP2660-12I-8R-12V
Air Permit Number:	MI-ROP-B2987-2008
Permit Condition for VRU Emission Limits:	EULOADING RACK I.1
Permitted Emission Limits: mg per liter of gasoline loaded	VOC Permit Limit: 10 mg per liter gasoline loaded
GD GACT Emissions Standard	80 mg per liter gasoline loaded
Most Recent VRU Stack Test date and result	Due June 2015 <10 mg/l of gasoline loaded

FACILITY DESCRIPTION

The Buckeye River Rouge Terminal is equipped with a Carbon Adsorption / Gasoline Absorption Hydrocarbon Vapor Recovery Unit (VRU). Hydrocarbon vapors, generated from truck loading, enter the VRU into one of three carbon adsorbers (beds). The three carbon beds actually function as two carbon beds, as two of the three carbon beds are manifolded together and thus functions as a single bed.

Truck loading occurs into vapor tight trucks at a truck loading rack with 7 lanes. A vapor tight collection system is used to route the displaced hydrocarbon and air vapors flow from the trucks to the VRU where the hydrocarbons are adsorbed.

The air continues through the carbon bed and is vented to the atmosphere. While this carbon bed is on-line processing the hydrocarbon vapors, the other carbon bed is off-line being vacuum regenerated (i.e. cleaned). The purpose of regeneration is to restore the carbon to a level where it will effectively adsorb hydrocarbons again. The two carbon beds alternate between adsorption and regeneration at approximately 15 minute intervals.

When a carbon bed with liquid ring pump is being regenerated, the vacuum pump desorbs the hydrocarbons from the carbon. The hydrocarbon vapors, (from the carbon bed) are mixed with the vacuum pump seal fluid and are discharged to the separator / absorber.

The hydrocarbons are condensed and separated from the seal fluid in the separator and are pumped back to the terminal's gasoline storage tank. Hydrocarbons that are not condensed pass up through the packed absorber tower and are contacted by a fresh stream of gasoline which absorbs most of the remaining hydrocarbons. Any hydrocarbons that are not absorbed are routed to the on-line carbon bed.

Monitoring Requirements:

- Daily, monitor lowest maximum vacuum gauge reading during carbon bed regeneration cycle, (see # 5 below)
- Daily, check the proper valve sequencing, cycle time, gasoline flow, purge air flow, and operating temperatures (see #2 below and Appendix 1 for daily checklist)
- Monthly, monitor the VRU vent stack with a LEL meter. If using LEL meter, measure during the last 5 minutes of an adsorption cycle for each carbon bed, compare LEL meter reading versus VOC emission rate chart). Measurements shall be less than the 10 mg/l limit of the permit. (See Appendix 2 for monthly LEL documentation form)
- Semi-annually, test the automatic shutdown of the VRU and have preventative maintenance performed on the VRU by an outside contractor (see #3 below)
- Annually, test the carbon for absorption capacity (performed by outside contractor).

MONITORING AND INSPECTION PLAN:

The GD-GACT regulation requires the development of a monitoring and inspection plan, which has five parts:

1. Document the lowest maximum required vacuum gauge level and duration {*of carbon bed cycle*} needed to assure proper regeneration of the carbon beds (40 CFR 63.11092 (b)(1)(i)(B)(2)(i)).

   The minimum required vacuum level can be determined by engineering analysis or from the VRU manufacturer's recommendation (in the operation and maintenance manual for the VRU). Typically, this level is -27 inches of mercury (Hg). The carbon bed regeneration cycle is 15 minutes per manufactures specifications.

2. Daily, document the proper valve sequencing, cycle time, gasoline flow, purge air flow, and operating temperatures. Verification shall be through visual observation, or automated alarm or shutdown system that monitors and records system operation. (40 CFR 11092(b)(1)(i)(B)(2)(ii))

   This facility conducts daily visual observations on the VRU using a checklist for various operating parameters. Each checklist must also include:

- **Proper valve sequencing (yes/no). Most VRUs are programmed to shut down if proper valve sequencing fails.**
- **Cycle time in minutes (typically, programmed for 15 minutes)**
- **Gasoline supply and return flow (pump pressures)**
- **Purge air flow (valve opening at proper time and proper rate)**
- **Operating temperatures**

See Appendix 1 for daily VRU checklist that incorporates all of the operating parameters listed above. All documents must be kept for 5 years.

3. Semi-annual preventative maintenance inspections shall be performed on the VRU according to the recommendations of the manufacturer. (40 CFR 63.11092(b)(1)(i)(B)(2)(iii))

   Buckeye utilizes a 3rd party contractor, to perform semi-annual (at a minimum) VRU maintenance. Keep any records generated by the contractors during the preventative maintenance inspection onsite for 5 years.

4. Malfunctions and associated corrective actions (40 CFR 63.11092(b)(1)(i)(B)(2)(iv)):

   Table 1 lists the indicators and associated corrective actions to be taken for specific malfunctions.

Table 1
OPERATING PARAMETERS, MALFUNCTIONS AND ASSOCIATED CORRECTIVE ACTIONS

Operating Parameter Indicators	Malfunction Trigger and Corrective Action Description (see flow diagram in Appendix 4)
OPI 1 - Vacuum Gauge Level	A malfunction occurs when the regenerating carbon bed vacuum level fails to reach -26 inches of Hg (per third party contractor recommendation) and verified by a second operating parameter, which is a current LEL reading greater than 20% (90% of the permit limit). This operating condition confirms a performance problem. The following actions are to be taken when the OPI 1 is not maintained: 1. Stop truck loading and cycle carbon beds twice with no VOC load to beds and then take vacuum gauge readings. If they still do not reach -26 inches of Hg then go to step 2, otherwise resume normal operation. 2. Upon noting a vacuum level of -26 inches Hg or less, take an LEL reading of both carbon beds during absorption cycle within 1 hour. Contact terminal manager immediately, document date, time and operating parameter reading (LEL and vacuum) for both beds. If both beds are under -26 inches Hg follow steps #2 thru #5. If only one bed is under -26 inches Hg follow steps #6 thru #9. 3. If neither carbon bed reaches -26 inches Hg or greater, and then continue taking LEL reading on an hourly basis. 4. If LEL readings are <u>under</u> 17% (75% of permit limit) continue hourly monitoring and troubleshooting. Contact VRU maintenance contractor if cannot be resolved in 24 hours. a. If LEL readings continue to increase, reduce loading rates. Continue hourly LEL readings. b. If LEL readings continue to increase at reduced rate,

	immediately shut down loading rack. c. If LEL readings hold for 3 hours, document the new operating rate. Monitor LEL on daily basis at this new operating rate until additional troubleshooting/adjustments/repairs can be made. A timely repair would be less than 10 days. 5. If LEL readings are <u>between</u> 17% to 20% (75% - 90% of permit limit) reduce loading rate and continue hourly monitoring and troubleshooting. Contact VRU maintenance contractor if cannot be resolved in 24 hours. a. If LEL readings continue to increase at reduced rate, immediately shut down loading rack. b. If LEL readings hold for 3 hours, document the new operating rate. Monitor LEL on daily basis at this new operating rate until additional troubleshooting/adjustments/repairs can be made. A timely repair would be less than 10 days. 6. If LEL reading is <u>over</u> 20% (90% of permit limit), immediately shut down rack. Go to step #10. 7. If only one bed has proper vacuum level, but the other carbon bed does not reach -26 inches Hg on the next cycle, then begin taking LEL reading on an hourly basis. 8. If LEL readings are <u>under</u> 17% (75% of permit limit) continue daily monitoring and troubleshooting. Contact VRU maintenance contractor if cannot be resolved in 24 hours. a. If LEL readings continue to increase, reduce loading rates. Continue daily LEL readings. b. If LEL readings continue to increase at reduced rate, immediately shut down loading rack.

	c. If LEL readings hold, document the new operating rate. Monitor LEL on daily basis at this new operating rate until additional troubleshooting/adjustments/repairs can be made. A timely repair would be less than 10 days. 9. If LEL readings are <u>between</u> 17% to 20% (75% - 90% of permit limit) reduce loading rate and continue daily monitoring and troubleshooting. Contact VRU maintenance contractor if cannot be resolved in 24 hours. a. If LEL readings continue to increase at reduced rate, immediately shut down loading rack. b. If LEL readings hold, document the new operating rate. Monitor LEL on daily basis at this new operating rate until additional troubleshooting/adjustments/repairs can be made. A timely repair would be less than 10 days. 10. If LEL reading is <u>over</u> 20% (90% of permit limit), immediately shut down rack. 11. Document event in Log as described in Section 5. 12. Contact your Environmental Coordinator of this incident.

Operating Parameter Indicators	Malfunction Trigger and Corrective Action Description
OPI 2_- Monthly measure the Percent LEL Reading on VRU Vent Stack using portable analyzer meeting requirements of Method 21 and calibrated prior to each use. Measurement shall be taken over the last 5 minutes of an adsorption cycle for each carbon bed	If the **LEL reading reaches 75%** of the corresponding VOC emission rate, take the following actions: 1. Verify that all VRU operating parameters are within range using the daily checklist in Appendix 1. 2. If all are within range, the preventative maintenance contractor should be called in to check VRU (possible carbon channeling or deterioration, etc.). If the **LEL reading reaches the corresponding 90% (LEL reading of 20 %) of permit limit of 10 mg/l,** the following actions will be taken: Loading Operations must be shut down immediately. 1. Call Terminal Manager and preventative maintenance company. 2. Document event in Log as described in section 5. 3. Contact your Environmental Coordinator of this incident. **Please note that each meter will have chart specific to that meter and calibration gas used, which will correlate the meter reading with the allowable VOC reading.*

5. Documentation of Daily Vacuum Levels, Monthly Vent Stack Readings and Malfunctions in a Written Log Book (40 CFR 63.11092(b)(1)(i)(B)(2)(v))

Daily Vacuum Gauge Reading

On a daily basis (7 days per week), the operator/technician will record the maximum vacuum level reached during the regeneration cycle on both carbon beds and document this information on the daily VRU checklist (see Appendix 1).

Monthly Vent Stack Reading

Initially, review EPA Method 21 summary in Appendix 3 to ensure that the LEL meter used meets the requirements of this regulation and the proper sampling procedure is followed, in particular whether the response time is less than 30 seconds to reach 90% of final reading.

On a monthly basis, the operator/technician will calibrate the LEL meter to methane calibration gas, take the vent stack reading according to the procedures in Appendix 3 and document this information on the monthly vent stack LEL documentation form (see Appendix 2).

Malfunction Events

If a malfunction occurs as indicated by Operating Parameter Indicators in Table 1 above document these malfunction events with a written entry into a log book or other permanent form of record. Record shall also include a description of the following:

1. Corrective action taken and whether such corrective actions were taken in a timely manner, as defined in the monitoring and inspection plan,
2. An estimate of the amount of gasoline loaded during the period of the malfunction.
3. Record of any activation of an automated Truck Rack and / or VRU alarm or shutdown system.

Malfunctions are reported in the excess emission and semi-annual monitoring reports submitted to EPA and the state delegated authority for this federal regulation.

APPENDIX 1

Daily VRU checklist

Date: _____

JOHN ZINK HAMWORTHY COMBUSTION

Dry Vacuum Pump System Daily Checklist
Jordan Vapor Recovery Unit

Parameter to Be Monitored	Unit of Measure	Range	Setpoint	Daily Reading						
				Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1. Ambient Temperature	°F	NA	NA							
2. LT-570 Absorbent Level in V-3	%	approx. 40%	45%							
3. Vacuum Pump Discharge Pressure	psig	<5 psig	5-20 psig							
4. PI-540 Absorbent Supply Pressure	psig	30-60	30-60							
5. PI-570 Absorbent Return Pressure	psig	30-60	30-60							
6. Absorbent Return Pump Overview										
a. Any leaks?	NA		NA							
b. Any unusual noises?	NA		NA							
c. Oil level checked?	NA		NA							
7. Vacuum Pump #1 Overview										
a. Any leaks?	NA		NA							
b. Any unusual noises?	NA		NA							
c. Drive end oil checked?	NA	1/2 full	1/2 full							
d. Non-drive-end oil checked?	NA	1/2 full	1/2 full							
e. TIT-5511(Discharge Temp)	°F	<150°F	<220							
f. TIT-5510 Gas temp inside cooling jacket	°F		>130							
8. Vacuum Pump #2 Overview										
a. Any leaks?	NA		NA							
b. Any unusual noises?	NA		NA							
c. Drive end oil checked?	NA	1/2 full	1/2 full							
d. Non-drive-end oil checked?	NA	1/2 full	1/2 full							
e. TIT-5521 (Discharge Temp)	°F	<150°F	<220							
f. TIT-5520Gas temp inside cooling jacket	°F		>130							
9. Vacuum Pump #3 Overview										
a. Any leaks?	NA		NA							
b. Any unusual noises?	NA		NA							
c. Drive end oil checked?	NA	1/2 full	1/2 full							

Date: _____

VRU Daily Compliance Checklist

Inspect each item and place a "Y" in the corresponding daily box for any item which is operating within normal parameters. Place an "N" in the box which corresponds to any item which is not operating within normal parameters. Record a value where indicated. Notify the Terminal Superintendent immediately of any discrepancies identified. Refer to the Alternative Monitoirng Plan for corrective action. All corrective action must be documented in log maintained on site. Record any actions taken in response to out-of-range readings in the comment section. Sign in the appropriate daily signature section.

			RECORD READINGS						
			S	M	T	W	T	F	S
Observe one (1) complete regeneration cycle and record **maximum** carbon bed vacuum reading for each bed (**Min: 26" Hg**).* and length of regeneration cycle									
Bed A:	RECORD VALUE	MIN 26"							
Bed B:	RECORD VALUE	MIN 26"							
Note duraction of cycle time: (if not min of 26" REFER TO ALTERNATIVE MONITORING PLAN FOR CORRECTIVE ACTION)									

*If minimum vacuum not reached, observe additional three (3) regeneration cycles and record readings below.

Additional cycles (only if first cycle did not meet setpoint)										
cycle 1	Bed A:	RECORD VALUE	MIN 26"							
	Bed B:	RECORD VALUE	MIN 26"							
cycle 2	Bed A:	RECORD VALUE	MIN 26"							
	Bed B:	RECORD VALUE	MIN 26"							
cycle 3	Bed A:	RECORD VALUE	MIN 26"							
	Bed B:	RECORD VALUE	MIN 26"							

*If at least one (1) cycle meets the setpoint, no further action required. In NO additional cycle meets setpoint, REFER TO ALTERNATIVE MONITORING PLAN FOR CORRECTIVE ACTION

	RECORD READINGS						
Pressure Readings	S	M	T	W	T	F	S
Gasoline Inlet Absorber Pressure (flow) - Top							
Was manual adjustment required?							
Document valve adjustment in corrective action log							
Temperature Readings Gasoline Supply Temperature (°F) - should be LESS THAN 110 °F							
Liquid Seal Temperature leaving the Heat Exchanger (°F) - should be LESS THAN 120 °F							

If temperatures are not less than setpoints, REFER TO ALTERNATIVE MONITORING PLAN FOR CORRECTIVE ACTION

Note Y if operating properly.

Visually verify the following:								
Proper valve sequencing - did valves sequence and unit stayed in operation? IF NO REFER TO ALTERNATIVE MONITORING MANUAL FOR CORRECTIVE ACTION								
CYCLE TIME Visually observe and note cycle time. IF SETPOINT NOT MET REFER TO ALTERNATIVE MONITORING MANUAL								
CEM Start Mode Setpoint:								
Remote Start Setpoint:								
PURGE AIR FLOW During regeneration cycle, confirm vacuum level slightly decreases when purge air valve opens.								
Vacuum level should be between 26" and 27" (site specific, may be 28-29) when purge air valve opens.	Note Vacuum Level							
If during purge air, vacuum is outside of setpoint range, manually adjust valve to between setpoint range								
Was manual adjustment of purge flow required?								
DOCUMENT VALVE ADJUSTMENT IN CORRECTIVE ACTION LOG								

ONCE PER MONTH VOC Measurement from Outlet of Beds								
Bed A:	RECORD VALUE							
Bed B:	RECORD VALUE							

Measure VOCs from outlet of carbon bed. Record over last 5 min of an adsorption cycle for each bed, document highest VOC concentration

Operator's Remarks	Day	Init.	Date	Time	Tank Volume
	Sun				
	Mon				
	Tues				
	Wed				

APPENDIX 2

Monthly vent stack LEL documentation form

BUCKEYE RIVER ROUGE TERMINAL
MONTHLY VENT STACK READING REPORT

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Date:												
Time of Day												
Inspector												
Monthly vent stack reading – Bed A												
Monthly vent stack reading – Bed B												

APPENDIX 3

EPA Method 21 Summary

EPA Method 21 Procedure for Sampling VRU Vent Stacks

Summary of Method:
A portable instrument is used to detect VOC levels from Vapor Recovery Unit (VRU) vent stacks.

Procedure for Monitoring VOC Levels in VRU Vent Stacks

Equipment -- Ensure that the unit being used meets the following requirements:

1. It must be capable of detecting the compounds being processed by the VRU.
2. The unit must be capable of measuring the leak concentration specified in the permit. In this case, it is VOCs.
3. The scale on the instrument shall be readable to +/- 2.5% of the specified leak concentration.
4. **The response time of the handheld unit must be within 30 seconds to reach 90% of final reading.**
5. The unit must have an electrically driven pump to ensure a constant flow rate for the sample to be provided to the detector.
6. The probe shall not exceed ¼" outside diameter.
7. The instrument shall be intrinsically safe as defined by NEC/NFPA.
8. Two gas mixtures are required for calibration: zero gas (less than 10 ppm VOCs) and a calibration gas (reference gas, usually propane) with a known concentration of VOCs.
9. You may use a non-reference gas for calibration purposes, but a conversion must be determined in order to give reference compound (propane) results.

Sample Collection and Recordkeeping:

1. Start up the instrument according to the manufacturer's instructions for recommended warmup period and preliminary adjustments.
2. Be sure to also "zero" the unit, an internal calibration procedure with the zero gas. Calibrate the instrument with the reference compound as specified in the operating manual for your instrument. Adjust the instrument meter readout to correspond to the calibration gas value.
3. For Open-End Lines/Valves, you must place the probe tip at approximately the center of the opening to the atmosphere.
4. The VOC measurement must be taken during the LAST 5 minutes of the adsorption cycle for each carbon vessel, and you must record the highest VOC reading taken during that 5 minute period.
5. The readings for both beds must be taken during a time when a truck is loading gasoline, and the readings are to be taken once/month.
6. Readings for both beds must be recorded on the Monthly Vent Stack Reading Report.

APPENDIX 4

Malfunction Trigger and Corrective Action Description Flow Diagram

Operating Parameter OPI 1
Vacuum Gauge Level
Flow Diagram (steps 2-11)
after cycling beds twice with no truck loading

ATTACHMENT #2

VRU SPARE PARTS

Attachment #2

VRU Spare Parts List

1. Product Supply Failsafe MOV
2. 2 small MOVs
3. 2 large MOVs
4. Spare Gauges

ATTACHMENT #3

JORDAN VAPOR RECOVERY UNIT
OPERATIONS & MAINTENANCE MANUAL

UNDER SEPARATE COVER

Date: _____

JOHN ZINK HAMWORTHY COMBUSTION

Dry Vacuum Pump System Daily Checklist
Jordan Vapor Recovery Unit

d. Non-drive-end oil checked?	NA	1/2 full	1/2 full							
e. TIT-5521 (Discharge Temp)	°F	<150°F	<220							
f. TIT-5520Gas temp inside cooling jacket	°F		>130							
10. Vent Emissions Monitor (CEM)										
a. F-1 Sample flow Indicator	SCFH	1.5-2	1.5-2							
b. Reading on CEM analyzer readout	%	per permit	per permit							
c. FI-2 (zero gas flow)	SCFH	0	1.5-2							
d. FI-3 (span gas flow)	SCFH	0	1.5-2							
11. Carbon Bed Vacuum										
a. Highest vacuum observed on V-1	"Hg Vac.	25-27"	25-27"							
b. Highest vacuum observed on V-2	"Hg Vac.	25-27"	25-27"							
c. Time to break vacuum on PIT-520	seconds	60-80	60-80							
d. Time to break vacuum on PIT-530	seconds	60-80	60-80							
12. Absorbent Pressures and Flows										
c. FIT-540 Absorbent supply flow	gpm	250-280	365-380							
b. TE-540 Absorbent supply temperature	°F	<100	<90							
d. PI-540 Absorbent supply pressure	psig	30-60	30-60							
13. Operator Interface Panel										
a. Any warnings?	NA		NA							
b. Variable Frequency Drive Check?	NA		NA							
14. Absorbent Supply Pump Overview										
a. Any leaks?	NA		NA							
b. Any unusual noises?	NA		NA							
c. Oil level checked?	NA		NA							
15. PenGUIn Panel										
a. Any warnings?	NA		NA							
16. Operator's Initials										