

Husky Energy
1-21-38-2-W5M
Contact: Lawrence Borowicz
Office #:
Cell #: 1-403-321-3885
Fax #:

Work Order #: N/A
Hazard Assessment #(s): N/A
Safe Work Permit: N/A
Additional Ref#: N/A
Gas Permit #: N/A
Authorizing Body: N/A
Date: 4-Sep-13

Phone: , Alberta <http://>
Fax: Direct Dispatch: 1-866-744-3974

Before Service - TEG heater

Burner Information

Type:	Eclipse Conventional	Fuel Type:	Natural Gas
Size:	4"	Orifice Jet:	N/A
Nozzle Type:	Ferro Fix	Orifice Spud:	O
Barrel Type/Combination:		Max Press.:	10 PSI
Sleeve With Compound		Min Press.:	6 PSI
Pilot Type/Style:	Natco (Modified)	Pilot Pressure:	6 PSI
Burn Back Prot.:	No	Pilot Orifice:	58
		CSA B 149.3 - 10 Compliant:	No
BMS Type:	Profire 1100	Electrical Spec:	24VDC
BMS Serial #:	N/A	Mod Bus:	N/A
Pre-Purge Time:	20 sec	General Alarm:	Lockout
Start w/ Power:	Yes	Hi Temp Alarm:	Lockout
Remote Start:	No	Lo Level Alarm:	Lockout
Soft Start:	No	Hi Gas Alarm:	Lockout
Low Fire Start:	No	Lo Gas Alarm:	Lockout
Low Fire Timer:	sec.	CSA B 149.3 - 10 Compliant:	No

Firebox Information

Type:	Wenco	Size:	36
Serial #:	N/A0704-262		
Condition of Seals / Gaskets:	Fair		
Arrestor Size:	36	Number:	1
Arrestor Cond.:	Fair	Hole Size:	0.063
Flashback Test:	Yes	When:	4-Sep-13
CSA B 149.3 - 10 Compliant:	No		

Vessel Information

Type:	TEG heater	Size:	5' X 26'
Serial #:	2007-7738-01		
Fluid Temp:	N/A C	BS+W:	N/A%
Fluid Level:	N/A	H2O Level:	N/A
Inlet Temperature:	N/A C	Thermowell:	N/A
Discharge Temperature:	N/A C		
H2O Discharge Temperature:	N/A C		

Valve Train Information

Main Regulator:	Fisher 627	Main ESD:	ACL POC
Pilot Regulator:	Fisher 67CFR	Pilot ESD:	ASCO
Proof of Closure:	yes		
Temp. Control:	PLC	Set @:	180 C
PRV./PSV. Size:	N/A Serial# [N/A]		
Hi temp shutoff:	CCS 6900TUE20	Set @:	215 C
Flame Fail Type:	Ion Detect	FF time:	3.8s sec
Thermocouple:	N/A		
Lo Fire Solenoid:	No		
Orifice Plate:	N/A	BTU Input:	N/A
Soft Start:	N/A		
Lo Level Shutoff:	N/A	Set @:	N/A
Hi Level Shutoff:	N/A	Set @:	N/A
L.P. Switch:	CCS 6900G12	Set @:	5psi
H.P. Switch:	CCS 6900G12	Set @:	30psi
CSA B 149.3 - 10 Compliant:	No		

Firetube Information

Discharge Design:	hard 90
Tube Diameter:	20 inches
Tube Length:	25 feet
Stack Size:	20 inches
Stack Height:	20 feet
Orientation:	Horizontal
Return Side:	No
Internal Baffle:	No
Stack Cap:	No
Stack Damp.:	No
Stack Therm.:	No
Impingement:	No
Tube Distorted:	No

Internal Skin Temperatures

N/A C	N/A C	N/A C
Highest Skin Temp Distance from Nozzle: N/A		
Tube Condition: Fair		
Klinker Buildup: No		

After Service - TEG heater

Burner Settings

Orifice Jet:	N/A
Orifice Spud:	O
Main Fuel:	Line Gas
	10psi PSI Max
	6psi PSI Min
Secondary Fuel:	N/A
	N/A PSI Max
	N/A PSI Min
BTU Input	
Max Current	2.5mm btu/h BTU
Max Potential	2.9mm btu/h BTU

Internal Skin Temperatures

N/A C	N/A C	N/A C
Highest Skin Temp Distance from Nozzle: N/A		

Safety Checklist

Burner Adjusted as per Manual:	Yes
Pri/Sec. air dampener secured:	Yes
Firebox Closed - good seal made:	Yes
Regulator Set & Secured:	Yes
Any System Deficiencies:	Yes
Owner Notified of Actions Taken:	Yes
Site Cleanup Complete:	Yes
Tools & Equipment Stored:	Yes
All Parts Accounted For:	Yes
All Reports Complete:	Yes
Signed Off By:	Stan Neu

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Analyzer Strips - TEG heater

	Before	After Service	
		High	High
Date	4-Sep-13	4-Sep-13	
Time	13:00:21	13:00:21	
O2 [%]	1.8	4.6	
CO [PPM]	50000+	21	
PRS	9psi	9psi	
Eff [%]	86.2	78.2	
Xair [%]	1.3	31.2	
CO2 [%]	10.21	8.91	
NO [PPM]	25	35	

	Before	After Service	
		High	High
NO2 [PPM]	N/A		
NOx [PPM]	28	37	
SO2 [PPM]	N/A	N/A	
Flue [°C]	361	382	
Inlet [°C]	N/A		
Natural Gas	N/A	N/A	
Raw Gas	N/A	N/A	
Propane	N/A	N/A	
Flue CFM	N/A	N/A	

Before Service Comments

Analyze combustion/ stack emissions before P.M.
Preform preventative maintenance on process heater.
Recertify firebox flame arrestor according to API 12N code of practice.

Flame arrestor is extremely dirty leading to very high CO readings. This will result in sooting of the fire tubes.

After Service Comments

Adjust and set burners.
Change pilot orifice size.
Clean flame arrestors with compressed air.
Clean pilot orifice
Flame arrestor has been flashback tested in 10 locations to API 12N code and has passed.
Leak test gas lines, repair as applicable
Post maximum and minimum burner settings, fuel types, stack temperatures and firetube internal skin temperatures onto the firebox via service stickers.
Replace ignition cable.
Verify all parts of the firebox are appropriately sealed.
Verify burner management system provides correct firing for pilot and main burner, with stable flame for high and low fire conditions.
Verify burner orifice size and calculate maximum current BTU input.
Verify correct bath temperature set point.
Verify correct emissions form heater stack with burner fueled by line gas, see combustion analyzer strips.
Verify correct fastening and alignment of main and pilot burner.
Verify correct pilot burner alignment to provide proper ignition for main.
Verify correct safety relief valve is installed in gas supply system.
Verify flame arrestor is in good condition.
Verify gas line is turned off on loss of flame detection.
Verify no flame present at bath temperature set point.
Verify seals and gaskets are in good condition.
Verify there is no leaks on bath or gas lines after the warm up.
Verify valves are installed correctly checking flow direction.

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