

Module Setup 1121 - Three Hills 05-19-31-22-W4M K220			
Detection Number	1121	Asset Name	Three Hills 05-19-31-22-W4M K220
Client Asset #	1121	Asset Location	05-19-31-22-W4M
Asset Type	Recip	Recipient Location	
Latitude	51.6689158	Elevation - fast	2759.2
Longitude	-113.1202413	Time Zone	America/Edmonton
Area	Mikiwan/Twining	Field	Three Hills
Foreman	Matt Cassidy		
Operator		Province/State	Alberta
Packager Name	Toromont	Package Serial #	31237
Package Manufacturer Date			
Noise Suppression Installed	No	Asset Sound Level (dB)	0
Noise Suppression Description			
Cost Center Code	6120027		
Asset Properties			
Gas Working Interest %	100	Gas Pricing - \$/mscf	2
Skid Type	Housed	Electricity Pricing - \$/kWh	0.1
Field Limitation	No	Sour Service	No
Ownership Status	Owned	Asset Application	Gathering
Disable HP Savings CFR Due To Bypass	No	Vibration Planes	1
Emissions			
EUB License #		Environmental Registration #	
Regulated Facility Name	Three Hills 05-19-31-22-W4M	Regulated Facility Type	OilAndGasOther
Facility ID (From Environment Canada)	93a8f295-0886-40db-b297-b6fddefed9f8	Facility - Date of Change	2016-06-17
Facility Licensed NOx Emissions		Facility Licensed CO Emissions	
Facility Licenced HP			
NPRI	21422	Provincial Identifier Type	
Provincial Identifier		Other Provincial Identifier Type	
Additional Responsible Person Name		Additional Responsible Person ID	
Additional Responsible Person Role			
Setup Date	1/9/2015	Setup Fee	Setup Fee # 1
		Enalysis Fee	Enalysis Fee # 1
Active Status	Surplus	Using Maintenance	Yes
Surplus Condition	Unknown		
Stand-by	No	Using SCADA	Yes
Remote Asset ID			
Reason Unit is not Operating			

## Gas Analysis 1121 - Three Hills 05-19-31-22-W4M K220

Stream Name	Generic Inlet Gas	Generic Fuel
Stream Type	Inlet Stream	Fuel Gas
Sample Date	02/02/2015	02/02/2015
Hydrogen	0.0000	0.0000
Helium	0.0000	0.0000
Nitrogen	0.0082	0.0082
Carbon Dioxide	0.0020	0.0020
Hydrogen Sulfide	0.0000	0.0000
Methane	0.9853	0.9853
Ethane	0.0041	0.0041
Propane	0.0004	0.0004
ISO Butane	0.0000	0.0000
Normal Butane	0.0000	0.0000
ISO Pentane	0.0000	0.0000
Normal Pentane	0.0000	0.0000
Hexane	0.0000	0.0000
Heptane	0.0000	0.0000
Octane	0.0000	0.0000
Oxygen	0.0000	0.0000
Ammonia	0.0000	0.0000
Water	0.0000	0.0000
Pseudo Critical Temperature Adjustment	0.44	0.44
Specific Gravity	0.562	0.562
Dehydrated Gas	Yes	Yes
Temperature Base - °F	60	60
Pressure Base - psia	14.696	14.696

Driver Setup 1121 - Three Hills 05-19-31-22-W4M K220

Manufacturer	Waukesha	Model	L7042GL
Serial Number	C-15121/1	Asset Tracking Number	
Driver Type	Turbo	Engine Manufacturer Date	
Engine Configuration	V	Number of Cylinders	12
Compression Ratio	10.5		
Rated rpm	1200	Min rpm	700
Max Horsepower @Sea Level	1448	Max Derated Horsepower	1432
Min Horsepower @Sea Level	845	Min Derated Horsepower	835
Fuel Requirements - Btu/HPhr	7274	Inlet Stream LHV - Btu/cft	903.59
Engine Timing - BTDC °	10	Air / Fuel Ratio	16.8
Max Boost - psig	14.55	Max Engine Exhaust Temp - °F	709
Exhaust Flow - cfm	8165	Exhaust O2 %	9.8
Max Engine NOx - g/bhp-hr	1.5	Max Engine CO - g/bhp-hr	2.65
Max Engine CO2 - g/bhp-hr	448.5	Overall Exhaust dB @ 1.5m	112
Water Pump - HP	28.96	Other Auxiliary Draw - HP	0
Max Top End Overhaul Hours	30000	Max BTM End Overhaul Hours	60000
Max Oil Change Hours	3120	Ambient Operating Temp - °F	60
Gear Ratio	1	Compressor rpm @ Rated Driver rpm	1200
Intake Valve Recession Limit	0.06	Exhaust Valve Recession Limit	0.06
Valves per Cylinder	2	Stroke Type	FourStroke
Burn Type	LeanBurn	Burn Type Date Modified	06/17/2016
Engine Muffler Make		Engine Muffler Model	
Engine Muffler Serial Number		Engine Coolant Type	
Catalytic Converter Installed	N/A		
Catalytic Converter Make		Catalytic Converter Model	
Catalytic Converter Serial Number		Element Installed	
Year Organization Became Responsible Person	2016	Company Role	Both
If Owner, owned before 2016-06-17?	Yes	Date of ownership if on or after June 17, 2016	
Internal ID	1121		
Requesting unique identifier?	No	Reason for requesting unique identifier	
Unique Alphanumeric Identifier			
Records located at facility?	No	Records Location	Ember Resources Calgary server
Group Type	AddedToGroup	Group Date Start	12/18/2018
Emission Control Systems Type		Emission control systems type if other	
Emission control systems before or on March 31, 2020?		Emission control systems date if after March 31, 2020	
Registered Date	12/18/2018		

Engine Flags Setup 1121 - Three Hills 05-19-31-22-W4M K220

Pressure - psig	High	High	Low	Low	Temperature - °F	High	High	Low	Low
Oil Header	75	63	35	30	Oil Header	205	195	170	140
Jacket	21.7	18	7	2.5	Jacket	200	190	170	150
Fuel Gas	65	60	50	43	Fuel Gas	140	130	-10	-20
Intercooler	21.7	18	7	2.5	Intercooler	150	137	124	110
Intake Manifold	14.7	13	10	7	Intake Manifold	160	155	130	110
					Exhaust Manifold	900	860	760	685
					Aux. Water	140	130	120	100
					Cylinder Deviation	75			



Manufacturer	Ariel	Model	JGK/4
Serial Number	F-20573	Asset Tracking Number	
Manufacturer Date Frame		Stroke - inches	5.5
Number of Throws	4	Number of Stages	4
Unloader Type	None		
Rod Load Type	Internal		
Max Compression - lbs	40000	Max Tension - lbs	37000
Total Max Rod Load - lbs	74000		
Dynamic Max Compression - lbs	74000	Dynamic Max Tension - lbs	74000
Max Overhaul Hours	50000	Max Horsepower	2540
Rated rpm	1200	Min rpm	600

**Cylinder Setup 1121 - Three Hills 05-19-31-22-W4M K220**

Stage	1	2	3	4		
Throw	3	4	2	1		
Cylinder Model	K	K	K	K		
Dummy Cylinder	No	No	No	No		
Cylinder Serial #	C-66157	C-66158	C-66159	C-66160		
Cylinder MAWP - psig	230	635	845	2050		
Lube Status	Lube	Lube	Lube	Lube		
Cylinder Action	DA	DA	DA	DA		
Cylinder Diameter - inches	26.5	15.875	10.5	6.25		
Rod Diameter - inches	2	2	2	2		
Tail Rod Diameter - inches	0	0	0	0		
Associated Gas Stream	Generic Inlet Gas	Generic Inlet Gas	Generic Inlet Gas	Generic Inlet Gas		
Orifice Data						
Suct. Internal Pipe Diam. - inches	0	8.5	6.875	3.152		
Suct. Orifice Diam. - inches	0	8.5	5	2.5		
Disc. Internal Pipe Diam. - inches	0	8.5	6.875	3.152		
Disc. Orifice Diam. - inches	0	8.5	4.5	2		

**Cylinder Heating/Cooling Factor 1121 - Three Hills 05-19-31-22-W4M K220**

Heating/Cooling Factor - %	0	0	0	0		
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**Cylinder Blowby Thresholds 1121 - Three Hills 05-19-31-22-W4M K220**

SA Severe Threshold - %	20	20	20	20		
SA Warning Threshold - %	12	12	12	12		
DA Severe Threshold - %	20	20	20	20		
DA Warning Threshold - %	12	12	12	12		
Deviation Severe Threshold - %	1000	1000	1000	1000		
Deviation Warning Threshold - %	10	10	10	10		

**Valve Setup 1121 - Three Hills 05-19-31-22-W4M K220**

Stage	1	2	3	4		
Throw	3	4	2	1		
HE Suction Valve Resist VHDS	4.44	4.44	4.44	4.44		
HE Suction Valve Quantity	4	3	2	1		
HE Suction Valve Lift - inches	0.102	0.102	0.102	0.102		
HE Suction Valve Area - sq. in .	18.724	10.776	7.597	4.614		
HE Discharge Valve Resist VHDS	4.44	4.44	4.44	4.44		
HE Discharge Valve Quantity	4	3	2	1		
HE Discharge Valve Lift - inches	0.102	0.102	0.102	0.094		
HE Discharge Valve Area - sq. in .	18.724	10.776	7.597	4.259		
CE Suction Valve Resist VHDS	4.44	4.44	4.44	4.44		
CE Suction Valve Quantity	4	3	2	1		
CE Suction Valve Lift - inches	0.102	0.102	0.102	0.102		
CE Suction Valve Area - sq. in.	18.724	10.776	7.597	4.614		
CE Discharge Valve Resist VHDS	4.44	4.44	4.44	4.44		
CE Discharge Valve Quantity	4	3	2	1		
CE Discharge Valve Lift - inches	0.102	0.102	0.102	0.094		
CE Discharge Valve Area - sq. in .	18.724	10.776	7.597	4.259		
Suction Valve Manufacturer						
Suction Valve Model						
Suction Valve Type						
Discharge Valve Manufacturer						

Discharge Valve Model						
Discharge Valve Type						

Clearance Setup 1121 - Three Hills 05-19-31-22-W4M K220

Stage	1	2	3	4		
Throw	3	4	2	1		
HE Clearance Min - %	14.2	17.85	22.22	18.01		
HE Clearance Max - %	70.2	66.62	69.88	57.94		
Max Pocket Travel - inches	4	4	4	4.75		
HE Spacers Max Quantity	0	6	4	2		
HE Clearance per Spacer - %	0	3	3.29	5		
CE Clearance Min - %	13.5	17.6	19.9	21		
CE Clearance Max - %	13.5	17.6	19.9	21		
CE Spacers Max Quantity	0	6	4	2		
CE Clearance per Spacer - %	0	3.05	3.42	5.57		

Reciprocating Setup 1121 - Three Hills 05-19-31-22-W4M K220

Stage	1	2	3	4		
Throw	3	4	2	1		
Con. Rod Length - inches	13.75	13.75	13.75	13.75		
1/3 Con Rod Weights - lbs.	30.47	30.47	30.47	30.47		
Crosshead Pin Weight - lbs.	0	0	0	0		
Piston Weight - lbs.	357.6	243.7	185.8	101.7		
Rod Weight - lbs.	0	0	0	0		
Crosshead Weight - lbs.	76.1	155.1	76.4	134		
Balance Weight Added - lbs.	10.1	45.5	10.1	34.8		
Total Weight - lbs.	474.27	474.77	302.77	300.97		



**Aerial Cooler Setup 1121 - Three Hills 05-19-31-22-W4M K220**

Manufacturer	Air-X-Changer	Model	0144EH
Serial Number	044113	Horsepower Draw	57.92
Coolant Type		Rated RPM	0
Blade RPM		Blade Diameter	
Electricity Draw			

Stage	1	2	3	4		
Design Pressure MAWP - psig	215	270	645	1290		
Required Temperature Out - °F	120	120	120	120		
Estimated Pressure Drop - psig	5	5	5	5		
Max Design Temperature - °F	350	350	350	350		
# of Passes/Section						
# of Tubes/Section						
# of Rows						
Tube O.D. - inches						
Tube Gauge						
Tube I.D. - inches						
Length of Tubes - feet						
Tube Material - feet						
Corrosion Allowance - inches						
Fouling Factor						
Ambient Air Design Temp - °F						

**Design Conditions Setup 1121 - Three Hills 05-19-31-22-W4M K220**

Stage	1	2	3	4		
PSV Setting - psig	215	270	645	1290		
Max Discharge Valve Temp - °F	300	300	300	300		
Piping/Bottles Max Temp - °F	350	350	350	350		
Discharge Piping/Bottles MAWP - psig	215	270	645	1292		

**Reporting Compliance 1121 - Three Hills 05-19-31-22-W4M K220**

Set Expected Interval	No
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**Linked Modules 1121 - Three Hills 05-19-31-22-W4M K220**

Links to related asset modules.

