

OIL ANALYSIS REPORT

Sample Rating Trend



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Oil and filter change at the time of sampling has been noted. We recommend an early resample to

All component wear rates are normal.

indicating ingress of seal material.

Elemental level of silicon (Si) above normal

The BN result indicates that there is suitable alkalinity remaining in the oil. The AN level is

DIAGNOSIS Recommendation

monitor this condition.

Contamination

Fluid Condition

acceptable for this fluid.

Wear

Machine Id SJNM02BE Component

Biogas Engine

CHEVRON HDAX 6500 LFG GAS ENGINE OIL (--- GAL)

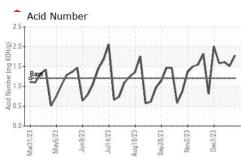
SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0865662	WC0865654	WC0865649
Sample Date		Client Info		04 Jan 2024	27 Dec 2023	21 Dec 202
Machine Age	hrs	Client Info		113160	112976	112832
Oil Age	hrs	Client Info		1061	877	733
Oil Changed		Client Info		Changed	Not Changd	Not Chango
Sample Status				SEVERE	SEVERE	NORMAL
CONTAMINATIO	N	method	limit/base	current	history1	history2
Fuel		WC Method	>4.0	<1.0	<1.0	<1.0
Water		WC Method	>0.1	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>15	3	2	0
Chromium	ppm	ASTM D5185m	>4	<1	0	0
Nickel	ppm	ASTM D5185m	>2	<1	0	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>5	0	0	0
Aluminum	ppm	ASTM D5185m	>6	2	2	1
Lead	ppm	ASTM D5185m	>9	5	4	2
Copper	ppm	ASTM D5185m	>6	2	2	2
Tin	ppm	ASTM D5185m	>4	5	4	3
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		5	5	5
Barium						
Banan	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m		0 7	0 5	0 3
Molybdenum	ppm	ASTM D5185m		7	5	3
Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m		7 <1	5 <1	3 <1
Molybdenum Manganese Magnesium Calcium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m		7 <1 32	5 <1 32 1995 311	3 <1 32 1979 311
Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		7 <1 32 2073	5 <1 32 1995	3 <1 32 1979
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		7 <1 32 2073 355	5 <1 32 1995 311	3 <1 32 1979 311
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	7 <1 32 2073 355 409	5 <1 32 1995 311 388	3 <1 32 1979 311 381 2341
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base >181	7 <1 32 2073 355 409 2650	5 <1 32 1995 311 388 2365 history1 202	3 <1 32 1979 311 381 2341
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method		7 <1 32 2073 355 409 2650 current	5 <1 32 1995 311 388 2365 history1	3 <1 32 1979 311 381 2341 history2
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m		7 <1 32 2073 355 409 2650 current 233	5 <1 32 1995 311 388 2365 history1 202	3 <1 32 1979 311 381 2341 history2 178
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m ASTM D5185m	>181	7 <1 32 2073 355 409 2650 current 233 <1	5 <1 32 1995 311 388 2365 history1 ◆ 202 2	3 <1 32 1979 311 381 2341 history2 178 0 0
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	>181 >20 limit/base	7 <1 32 2073 355 409 2650 current 233 <1 0 current 0.1	5 <1 32 1995 311 388 2365 history1 202 2 2 0 history1 0.1	3 <1 32 1979 311 381 2341 history2 178 0 0 0 history2 0.1
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	>181 >20	7 <1 32 2073 355 409 2650 current 233 <1 0 current	5 <1 32 1995 311 388 2365 history1 € 202 2 2 0 history1	3 <1 32 1979 311 381 2341 history2 178 0 0 0
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	>181 >20 limit/base	7 <1 32 2073 355 409 2650 current 233 <1 0 current 0.1	5 <1 32 1995 311 388 2365 history1 202 2 2 0 history1 0.1	3 <1 32 1979 311 381 2341 history2 178 0 0 0 history2 0.1
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m *ASTM D7844	>181 >20 limit/base >20	7 <1 32 2073 355 409 2650 current 0 233 <1 0 current 0.1 8.2	5 <1 32 1995 311 388 2365 history1 ◆ 202 2 2 0 history1 0.1 7.7	3 <1 32 1979 311 381 2341 history2 178 0 0 0 history2 0.1 7.4
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D51854 *ASTM D7844 *ASTM D7624	>181 >20 limit/base >20 >30	7 <1 32 2073 355 409 2650 Current 233 <1 0 Current 0.1 8.2 24.4	5 <1 32 1995 311 388 2365 history1 ◆ 202 2 0 history1 0.1 7.7 23.0	3 <1 32 1979 311 381 2341 history2 178 0 0 history2 0.1 7.4 20.6
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D7844 *ASTM D7624 *ASTM D7415	>181 >20 limit/base >20 >30 limit/base	7 <1 32 2073 355 409 2650 current 233 <1 0 current 0.1 8.2 24.4 current	5 <1 32 1995 311 388 2365 history1 ◆ 202 2 0 0 history1 0.1 7.7 23.0	3 <1 32 1979 311 381 2341 history2 178 0 0 history2 0.1 7.4 20.6 history2

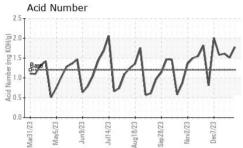
Submitted By: Aaron Klein

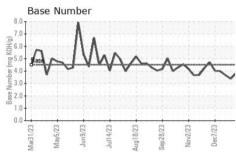
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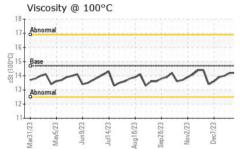


OIL ANALYSIS REPORT









		VISUAL		method	limit/base	current	history1	history2
		White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Λ	11.1	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
110	CV~	Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
1/1/1	TV	Silt	scalar	*Visual	NONE	NONE	NONE	NONE
VVI		Debris	scalar	*Visual	NONE	NONE	NONE	NONE
		Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
1/23 -	1/23 -	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Jul14/23 Aug18/23 Sep28/23	Nov2/23 Dec7/23	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
		Emulsified Water	scalar	*Visual	>0.1	NEG	NEG	NEG
		Free Water	scalar	*Visual		NEG	NEG	NEG
۸ .		FLUID PROPERT	IES	method	limit/base	current	history1	history2
110	AW	Visc @ 100°C	cSt	ASTM D445	14.7	14.2	14.2	14.0
VIA	//	GRAPHS						
		Iron (ppm)				Lead (ppm)		
	13 13	25 20			20			
Jul14/23 Aug18/23 Sep28/23	Nov2/23 Dec7/23	Abnormal			15	Severe		
A A					퉡 10	Abnormal	1	
		5			5	rv v	MAA	MA /
			\sim	$\overline{\mathbf{w}}$	→ 0		VV	
		Mar31/23 May5/23 Jun9/23 Jul14/23	Aug18/23	Sep28/23 Nov2/23	17/mar	Mar31/23 May5/23 Jun9/23	Jul14/23 Aug18/23 Sep28/23	Nov2/23 Dec7/23
VV	\sim	2	Au	S ~ L	-	<u>E-</u>	S 100 3 1010	
		Aluminum (ppm)			6	Chromium (pp	om)	
		10			5	Severe		
		8 Abnormal			4 E	Abnormal		
Jul14/23 Aug18/23 Sep28/23	Nov2/23 Dec7/23	E 6 Abnormal			법.3 2			
Jul Aug Sep	No			. ~	1			
°C			-M		0		u na ana ana ana ana ana ana ana ana ana	
	10000000	Mar31/23 May5/23 Jun9/23 Jul14/23	Aug18/23	Sep28/23 . Nov2/23 .	zinar	Mar31/23 May5/23 Jun9/23	Jul14/23 Aug18/23 Sep28/23	Nov2/23 Dec7/23
0.0000000000	0.10014.0000	2 - /	Au	30 Z L	**	2 -	J Au Se	2 0
		Copper (ppm)			300	Silicon (ppm)		
111	11	15 Severe			250	Sentra A	1.1 0	1 4 1
		튶 10-			200 톮 150	- Alimontal	ANT/	TT
		Abnormal			읍 150 100		VV	VV
23	23	5	~	1	50		V. V.	
Jul14/23 Aug18/23 Sep28/23	Nov2/23 Dec7/23				0	2 2 2 2		g g
S P		Mar31/23 May5/23 Jun9/23 Jul14/23	Aug18/23	Sep28/23 Nov2/23	חפריוק	Mar31/23 May5/23 Jun9/23	Jul14/23 Aug18/23 Sep28/23	Nov2/23 Dec7/23
		≤ ≤ ⊂ − Viscosity @ 100°C	Aı	0	2011	≤ ≥ ¬ Base Number	A. J.	
		18 -			- 8.0			
		Abnormal 16			B/HOX 6.0	- AA		
		D Base		~~	Bu so	Bas V	ma	~~
		16- Base Abnormal	~~		admin 4.0			~~
		12 -			8.0 (0)(0) (0) (0) (0) (0) (0) (0) (0) (0)			
			/23	/23 - /23 -	0.0	/23 - /23 -	/23 /23 /23	/23 -
		Mar31/23 May5/23 Jun9/23 Ju114/23	Aug18/23	Sep28/23 Nov2/23	neri	Mar31/23 May5/23 Jun9/23	Jul14/23 Aug18/23 Sep28/23	Nov2/23 Dec7/23
	Laboratory	· WaarChack USA 501			/ NC 07510	F		South Jordon
Laboratory Sample No.		: WC0865662	n Ave., Cary, NC 27513 EDL NA Recips-South Jordan ved : 08 Jan 2024 South Jordan Powerstation, 10473 S. Bacchus Hwy.					
ACCREDITED	Lab Number	: 06054077		Tested : 09 Jan 2024				uth Jordan, UT
TESTING LABORATORY	Unique Number		Diagr	nosed : 09	Jan 2024 - Sea	an Felton	_	US 84095
Certificate L2367	Test Package		no at 1 C	200-227 120	٥			ct: Aaron Klein
		contact Customer Servi					aaron.kiein@	edlenergy.com

* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

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