

Area **R**CLAYTON McWHORTER [RCLAYTON McWHORTER] 001 563471-1

Port Main Engine

CHEVRON DELO 710 LE (--- GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

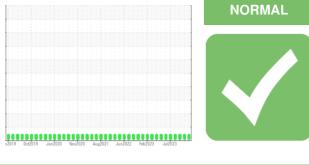
All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

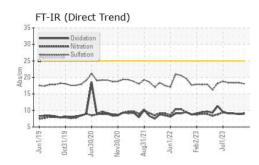


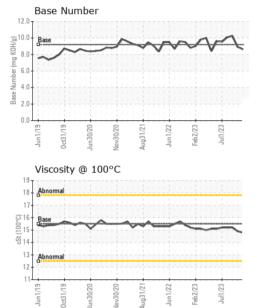
Sample Rating Trend

SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Number		Client Info		MW06207182	MW0055246	MW0058446
Sample Date		Client Info		01 May 2024	01 Apr 2024	01 Sep 2023
Machine Age	hrs	Client Info		70840	70136	67545
Oil Age	hrs	Client Info		173	0	0
Oil Changed		Client Info		N/A	N/A	N/A
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATION	٧	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	>75	13	12	11
Chromium	ppm	ASTM D5185m	>8	<1	<1	1
Nickel	ppm	ASTM D5185m	>2	0	0	<1
Titanium	ppm	ASTM D5185m	>3	0	<1	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>15	1	2	3
Lead	ppm	ASTM D5185m	>18	3	4	4
Copper	ppm	ASTM D5185m	>80	19	22	22
Tin	ppm	ASTM D5185m	>14	2	3	3
Vanadium	ppm	ASTM D5185m		<1	0	<1
Cadmium	ppm	ASTM D5185m		0	0	0
Cadmium ADDITIVES	ppm	ASTM D5185m method	limit/base	0 current	0 history1	0 history2
	ppm ppm		limit/base		-	-
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 44	history1 50	history2 38
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	limit/base	current 44 0	history1 50 0	history2 38 0
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	current 44 0 45	history1 50 0 45	history2 38 0 47
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	current 44 0 45 <1	history1 50 0 45 <1	history2 38 0 47 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	current 44 0 45 <1 14	history1 50 0 45 <1 19	history2 38 0 47 <1 12
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	current 44 0 45 <1 14 3554	history1 50 0 45 <1 19 3472	history2 38 0 47 <1 12 3431
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		current 44 0 45 <1 14 3554 7	history1 50 0 45 <1 19 3472 26	history2 38 0 47 <1 12 3431 5
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		current 44 0 45 <1 14 3554 7 6	history1 50 0 45 <1 19 3472 26 21	history2 38 0 47 <1 12 3431 5 4
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	10	Current 44 0 45 <1 14 3554 7 6 2814	history1 50 0 45 <1 19 3472 26 21 2773	history2 38 0 47 <1 12 3431 5 4 2863
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	10 limit/base	current 44 0 45 <1 14 3554 7 6 2814 current	history1 50 0 45 <1 19 3472 26 21 2773 history1	history2 38 0 47 <1 12 3431 5 4 2863 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	10 limit/base >20	current 44 0 45 <1 14 3554 7 6 2814 current 4	history1 50 0 45 <1 19 3472 26 21 2773 history1 3	history2 38 0 47 <1 12 3431 5 4 2863 history2 5
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	10 10 >20 >75	current 44 0 45 <1 14 3554 7 6 2814 current 4 2	history1 50 0 45 <1 19 3472 26 21 2773 history1 3 <1	history2 38 0 47 <1 12 3431 5 4 2863 history2 5 2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	10 10 >20 >75 >20	current 44 0 45 <1 14 3554 7 6 2814 current 4 2 <1	history1 50 0 45 <1 19 3472 26 21 2773 history1 3 <1 3 <1 3 <1 3	history2 38 0 47 <1 12 3431 5 4 2863 history2 5 2 2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	10 10 >20 >75 >20	current 44 0 45 <1 14 3554 7 6 2814 4 2 <1 current 4 2 <1 current	history1 50 0 45 <1 19 3472 26 21 2773 history1 3 <1 3 <1 3 <1 3 <1 3 <1 3 history1	history2 38 0 47 <1 12 3431 5 4 2863 history2 5 2 2 2 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	10 limit/base >20 >75 >20 limit/base	current 44 0 45 <1 14 3554 7 6 2814 current 4 2 <1 . <	history1 50 0 45 <1 19 3472 26 21 2773 history1 3 <1 3 <1 3 <1.5	history2 38 0 47 <1 12 3431 5 4 2863 history2 5 2 5 2 history2 1 1 1 1 1 1 1 1 1
ADDITIVES Boron Barium 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	method ASTM D5185m	10 10 20 >20 >75 >20 limit/base	current 44 0 45 <1 14 3554 7 6 2814 current 4 2 <1 .current 1.4 9.1	history1 50 0 45 <1 19 3472 26 21 2773 history1 3 <1 3 <1 3 <1.5 8.9	history2 38 0 47 <1 12 3431 5 4 2863 history2 5 2 5 2 history2 1.4 9.1
ADDITIVES Boron Barium 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	method ASTM D5185m ASTM D5185m	10 10 >20 >75 >20 limit/base >20 limit/base >20	current 44 0 45 <1 14 3554 7 6 2814 current 4 2 <1 .current 1.4 9.1 18.1	history1 50 0 45 <1 19 3472 26 21 2773 history1 3 <1 3 <1 3 <1 3 <1 3 <1 3 <1 3 <1.5 8.9 18.4	history2 38 0 47 <1 12 3431 5 4 2863 history2 5 2 history2 1.4 9.1 18.4

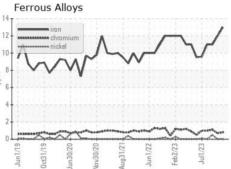


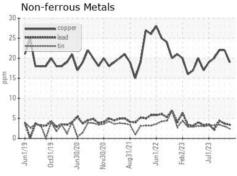
OIL ANALYSIS REPORT

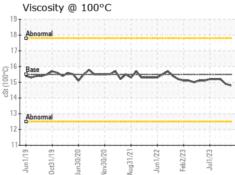


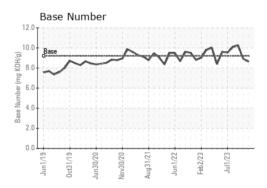


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.1	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPERT	IES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.5	14.8	14.9	15.2
GRAPHS						











Report Id: INGPAD [WUSCAR] 06207182 (Generated: 06/13/2024 10:49:54) Rev: 1

Contact/Location: ALLEN WILLHELM - INGPAD

Page 2 of 2