



CONSTRUCTION EQUIPMENT

CATERPILLAR M-2 - HYDRAULIC SYSTEM



Sample No: VCP442904
Oil Type: ESSO NUTO H ISO 46
Job No:



SAMPLE INFORMATION

Sample Number	VCP442904	VCP442921	VCP408917	VCP390139
Sample Date	25 Jan 2024	21 Nov 2023	25 Oct 2023	07 Mar 2023
Machine Hours	6256	5984	5892	5507
Oil Hours	272	1991	2902	1500
Oil Changed	Not Changd	Changed	Not Changd	Not Changd
Sample Status	NORMAL	ABNORMAL	NORMAL	ATTENTION

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 DICKERSON, MD
 US 20842
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 aparr@menv.com
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OIL CONDITION

Visc @ 40°C	cSt	43.7	44.1	44.3	44.1
Acid Number (AN)	mg KOH/g	0.48	0.65	0.59	0.58



CONTAMINATION

Water	%	NEG	NEG	NEG	NEG
Particles >4µm		2068	10287	3190	8526
Particles >6µm		301	1785	366	1534
Particles >14µm		31	278	28	83
ISO 4406:1999 (c)		18/15/12	21/18/15	19/16/12	20/18/14
Silicon	ppm	0	1	2	2
Sodium	ppm	0	<1	1	<1
Potassium	ppm	3	3	2	<1

Diagnosis

Resample at the next service interval to monitor. All component wear rates are normal. The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The system and fluid cleanliness is acceptable. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.



WEAR METALS

Iron	ppm	2	2	4	3
Copper	ppm	3	3	4	4
Lead	ppm	<1	<1	<1	0
Tin	ppm	<1	<1	0	0
Aluminum	ppm	2	<1	<1	<1
Chromium	ppm	2	2	2	1
Molybdenum	ppm	2	2	4	4
Nickel	ppm	0	<1	0	0
Titanium	ppm	<1	0	<1	0
Silver	ppm	0	<1	0	0
Manganese	ppm	0	<1	<1	<1
Vanadium	ppm	0	0	0	<1



ADDITIVES

Calcium	ppm	165	246	233	239
Magnesium	ppm	8	15	5	16
Zinc	ppm	569	683	666	676
Phosphorus	ppm	403	536	516	505
Barium	ppm	0	0	0	0
Boron	ppm	0	1	1	<1

Depot: MARDIC
Unique No: 10856725
Signed: Wes Davis
Report Date: 31 Jan 2024

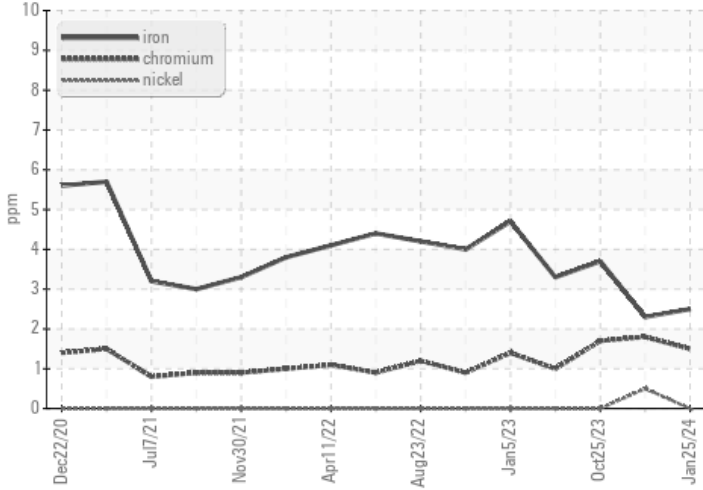


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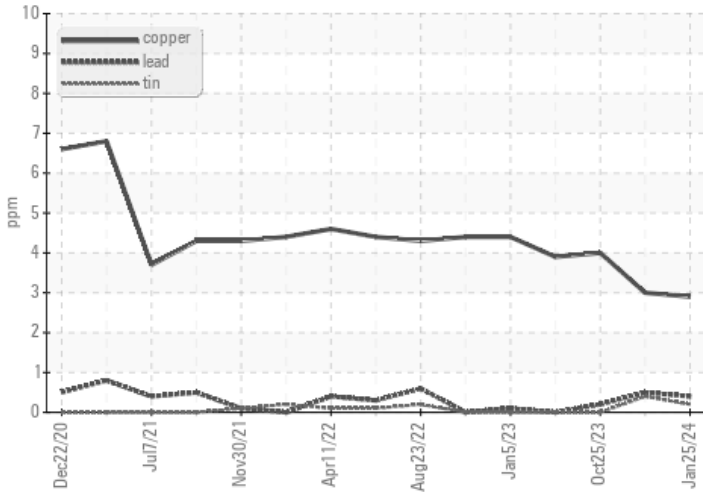


GRAPHS

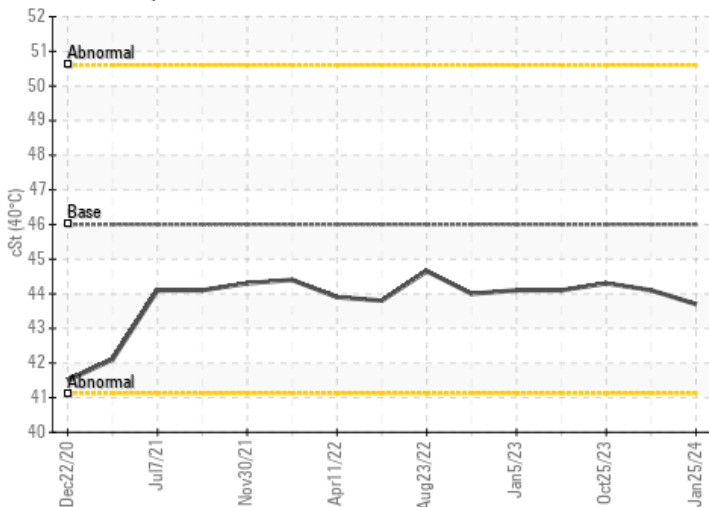
Ferrous Alloys



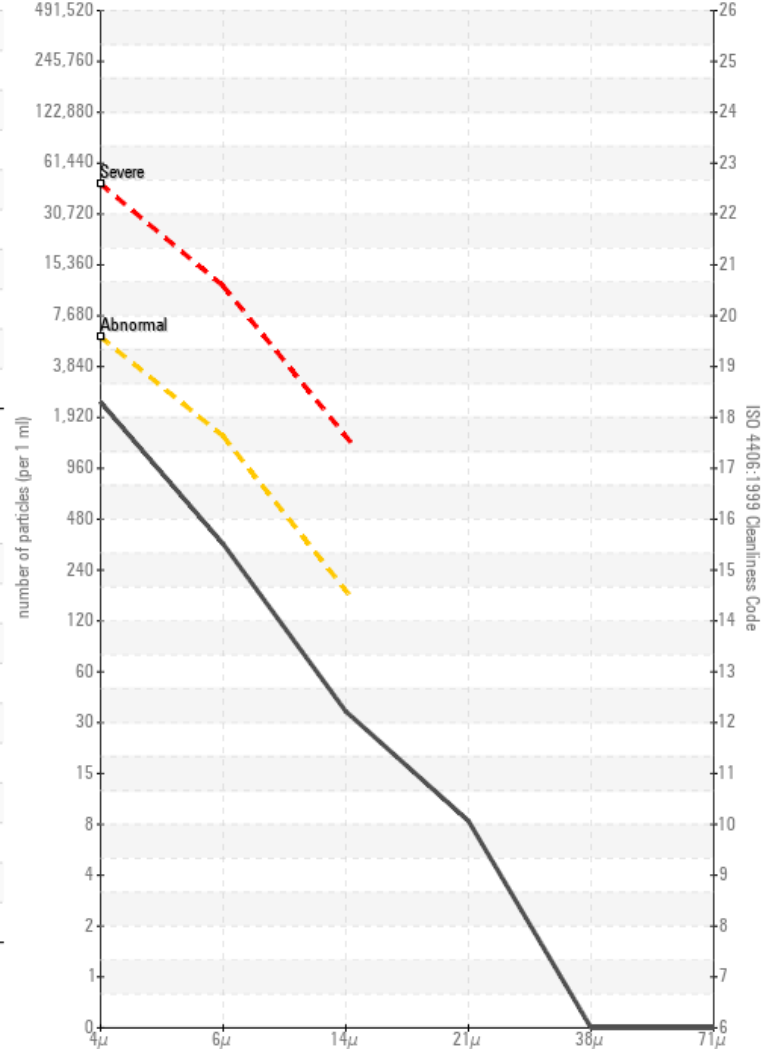
Non-ferrous Metals



Viscosity @ 40°C



Particle Count



Acid Number

