




Summary Report for **LANTAU ACE [9216353]** dated **02-Feb-2021**

Machine Name	Oil Grade In Use	Oil Rating	Action	Rating
MAIN ENGINE WARTSILA 8RTA62 U CRANKCASE & SYSTEM	NAVIGO 6 SO	The oil is fit for limited further use provided the landed used oil sample is representative for the application.	Please check the integrity of stuffing box seal rings. PQ value shall be monitored on subsequent samples. Efficient purification is recommended to remove the wear particles in the oil.	
AUXILIARY ENGINE 1 MAN B&W 7L23/30H CRANKCASE & CYLINDERS	NAVIGO TPEO 30/30	The oil is fit for further use provided the landed used oil sample is representative for the application.	No action required.	
AUXILIARY ENGINE 2 MAN B&W 7L23/30H CRANKCASE & CYLINDERS	NAVIGO TPEO 30/30	The oil is fit for further use provided the landed used oil sample is representative for the application.	No action required.	

★ Immediate Action Required ★ Can Continue ★ Normal

LANTAU ACE [9216353]

MAIN ENGINE AA 1281 [CRANKCASE & SYSTEM]

Manufacturer	: WARTSILA	Model	: 8RTA62 U
Port Landed	: Novorossiysk	Volume[ltr]	: 17000
Fuel Grade / S%	: RME 180 / 0.48	Dispatched	: 27-Jan-21
Recommended	: NAVIGO 6 CO	Received	: 30-Jan-21

Sample Details	1 (Current)	2	3
Rating	Caution	Normal	Normal
Sample No	21009740	20574515	20033884
Sampled Date	17-Jan-21	12-Oct-20	01-Apr-20
Oil Grade In Use	NAVIGO 6 SO	NAVIGO 6 SO	NAVIGO 6 SO
Unit Service Hrs	91603	90194	88809
Oil Service Hrs	Not Stated	Not Stated	Not Stated
Daily Makeup[ltr]	150	100	32

New Oil	Critical Val.	Analysis			
100	<85 or >160	Appearance	Dark	Dark	Dark
11.5		KV@40°C[mm²/s]	103.3	101.5	94.30
6	>30	KV@100°C[mm²/s]	11.45	11.28	11.02
220	<190	BN[mgKOH/g]	5.1	4.3	5.8
	>2	Flash Point[°C]	>200	>200	>200
	>0.5	Soot/Insoluble[%wt]	0.20	0.30	0.20
		Water[%wt]	0.05	0.09	<0.05
		PQ Index/2ml	37	23	<10
Wear Elemental [ppm]					
	>100	Aluminium (Al)	1	<1	1
	>50	Chromium (Cr)	<1	<1	<1
	>100	Copper (Cu)	18	14	14
	>200	Iron (Fe)	67	47	18
	>100	Lead (Pb)	4	2	2
	>100	Tin (Sn)	1	1	1
Contaminant Elemental [ppm]					
	>250	Boron (B)	2	2	<1
	>100	Sodium (Na)	11	12	11
		Silicon (Si)	8	<1	5
		Molybdenum (Mo)	<1	<1	<1
		Nickel (Ni)	3	3	4
		Silver (Ag)	<1	<1	<1
		Vanadium (V)	3	4	9
Additive Elements [ppm]					
		Calcium (Ca)	1837	2263	2537

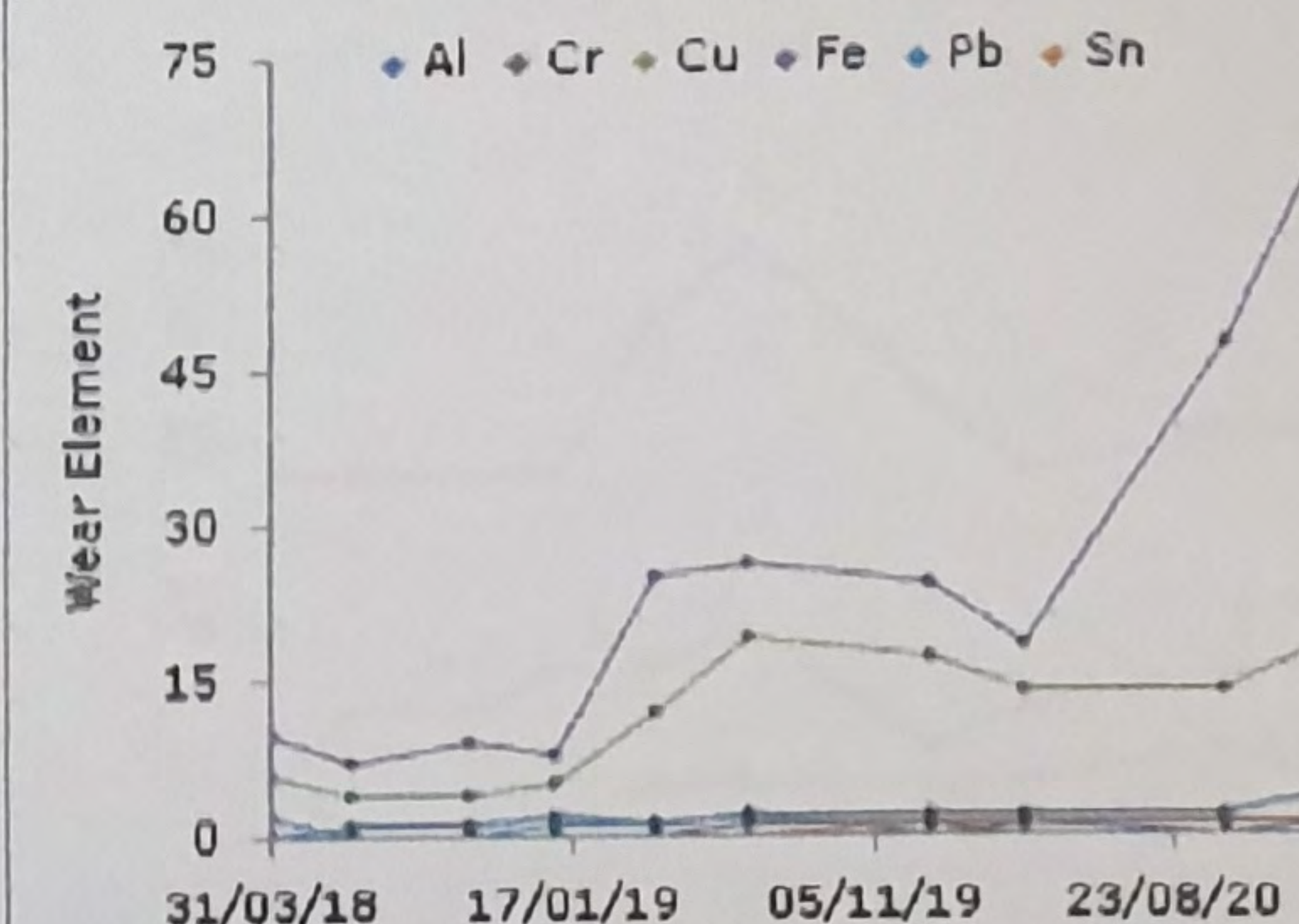
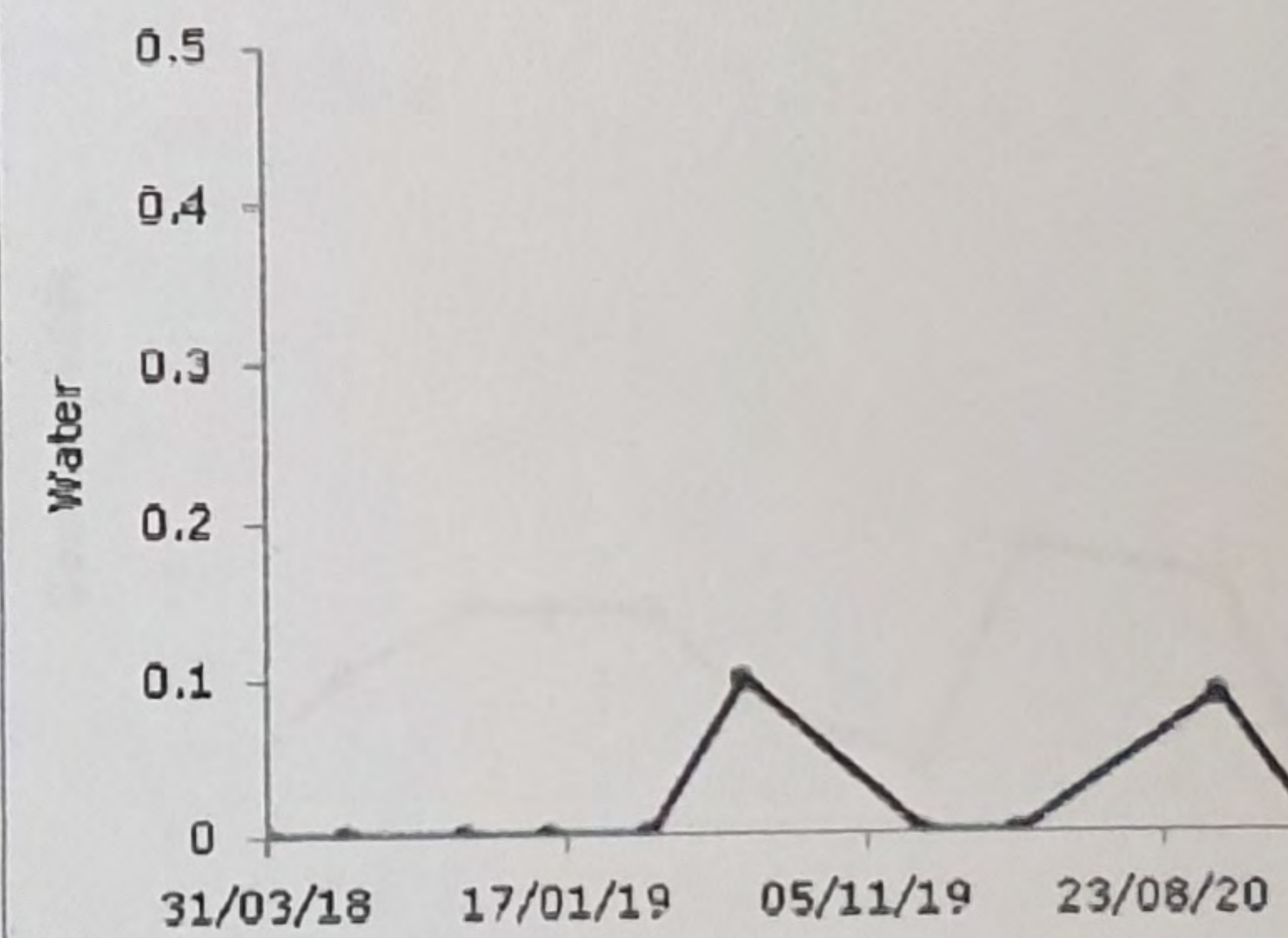
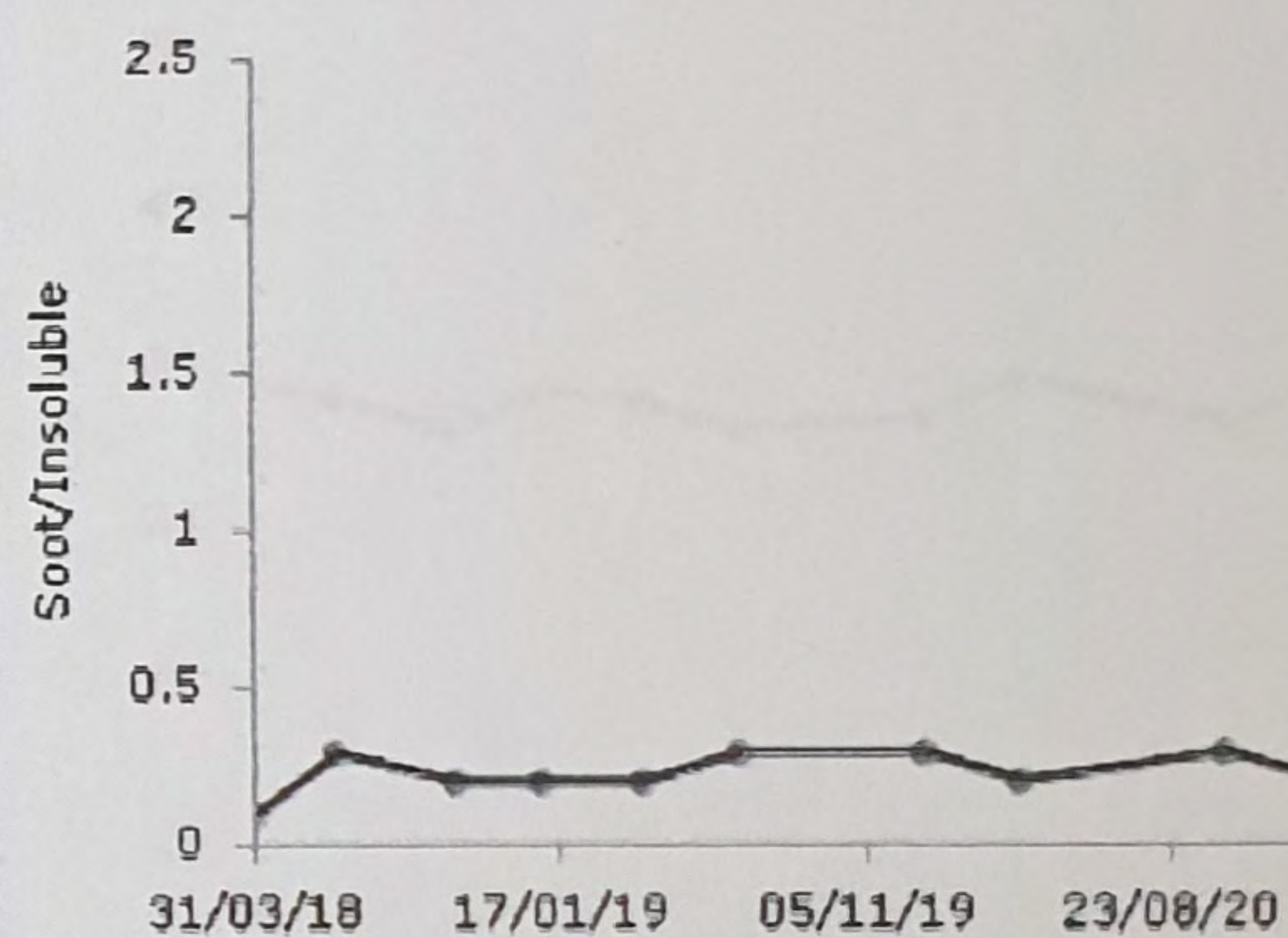
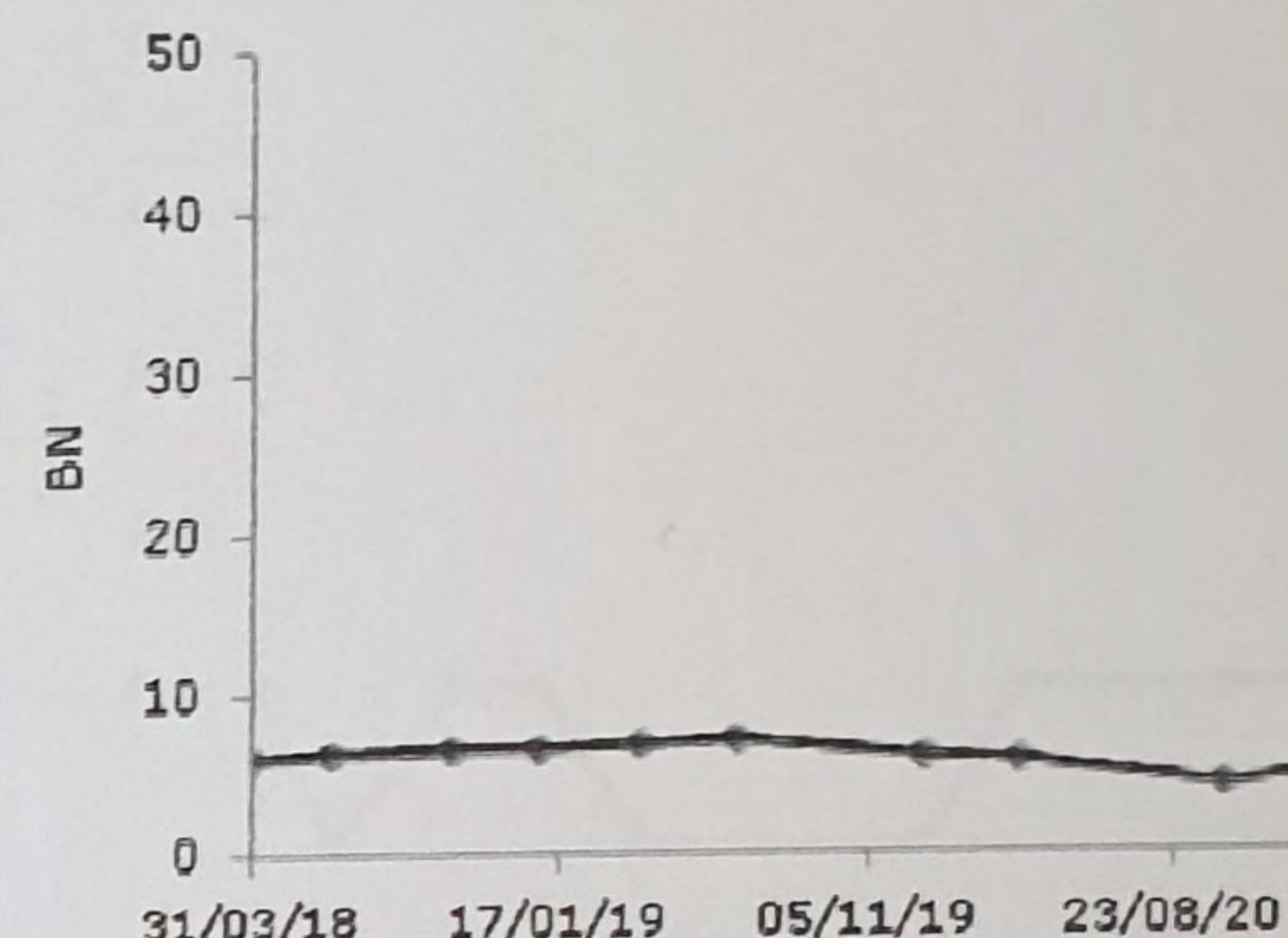
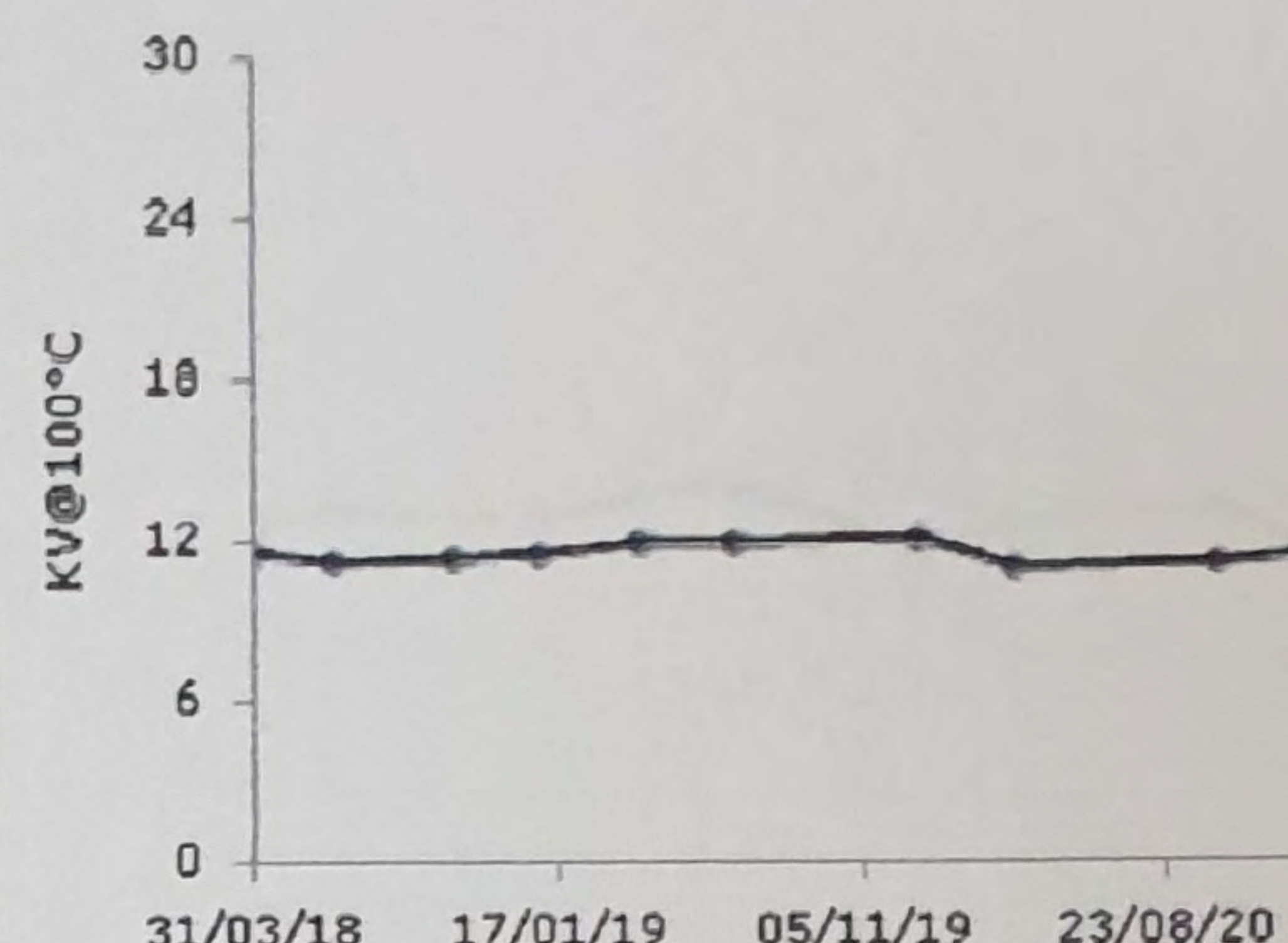
Oil Rating:
The oil is fit for limited further use provided the landed used oil sample is representative for the application.

Unit Rating:
PQ result indicates the presence of Ferro magnetic particles. Metallic Iron particles originated from the cylinder liner wear might have passed into the system oil via stuffing box leakage.

Action:
Please check the integrity of stuffing box seal rings. PQ value shall be monitored on subsequent samples. Efficient purification is recommended to remove the wear particles in the oil.



Caution



Critical Value : * Indicate Oil supplier/operator critical limits.
Support : technical@lukoil.com

Dated: 02-Feb-2021

LANTAU ACE [9216353]

MAIN ENGINE AA 1281 [CRANKCASE & SYSTEM]

Manufacturer	: WARTSILA	Model	: 8RTA62 U
Port Landed	: Novorossiysk	Volume[ltr]	: 17000
Fuel Grade / S%	: RME 180 / 0.48	Dispatched	: 27-Jan-21
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Rating	Caution	Normal	Normal
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Sampled Date	17-Jan-21	12-Oct-20	01-Apr-20
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Unit Service Hrs	91603	90194	88809
Oil Service Hrs	Not Stated	Not Stated	Not Stated
Daily Makeup[ltr]	150	100	32

New Oil	Critical Val.	Analysis			
100	<85 or >160	Appearance	Dark	Dark	Dark
11.5		KV@40°C[mm²/s]	103.3	101.5	94.30
6	>30	KV@100°C[mm²/s]	11.45	11.28	11.02
220	<190	BN[mgKOH/g]	5.1	4.3	5.8
	>2	Flash Point[°C]	>200	>200	>200
	>0.5	Soot/Insoluble[%wt]	0.20	0.30	0.20
		Water[%wt]	0.05	0.09	<0.05
		PQ Index/2ml	37	23	<10
Wear Elemental [ppm]					
>100		Aluminium (Al)	1	<1	1
>50		Chromium (Cr)	<1	<1	<1
>100		Copper (Cu)	18	14	14
>200		Iron (Fe)	67	47	18
>100		Lead (Pb)	4	2	2
>100		Tin (Sn)	1	1	1
Contaminant Elemental [ppm]					
>250		Boron (B)	2	2	<1
>100		Sodium (Na)	11	12	11
		Silicon (Si)	8	<1	5
		Molybdenum (Mo)	<1	<1	<1
		Nickel (Ni)	3	3	4
		Silver (Ag)	<1	<1	<1
		Vanadium (V)	3	4	9
Additive Elements [ppm]					
		Calcium (Ca)	1837	2263	2537

Oil Rating:

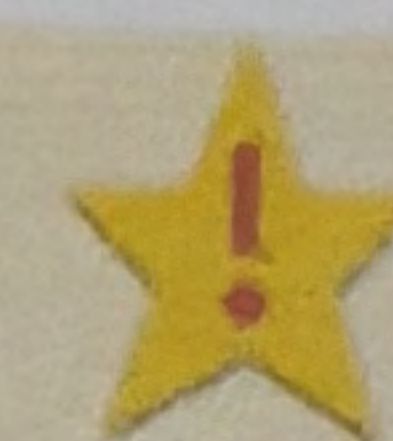
The oil is fit for limited further use provided the landed used oil sample is representative for the application.

Unit Rating:

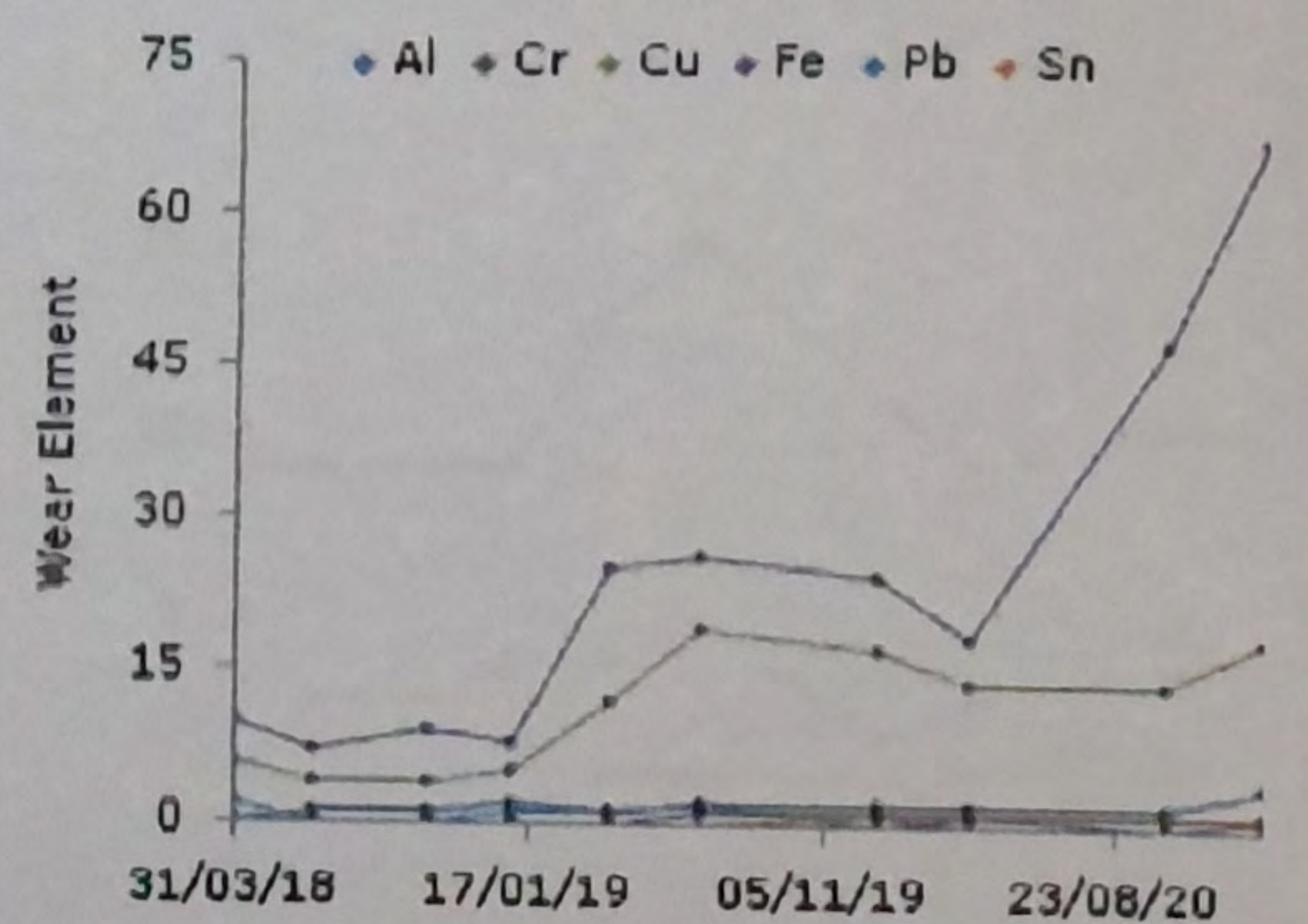
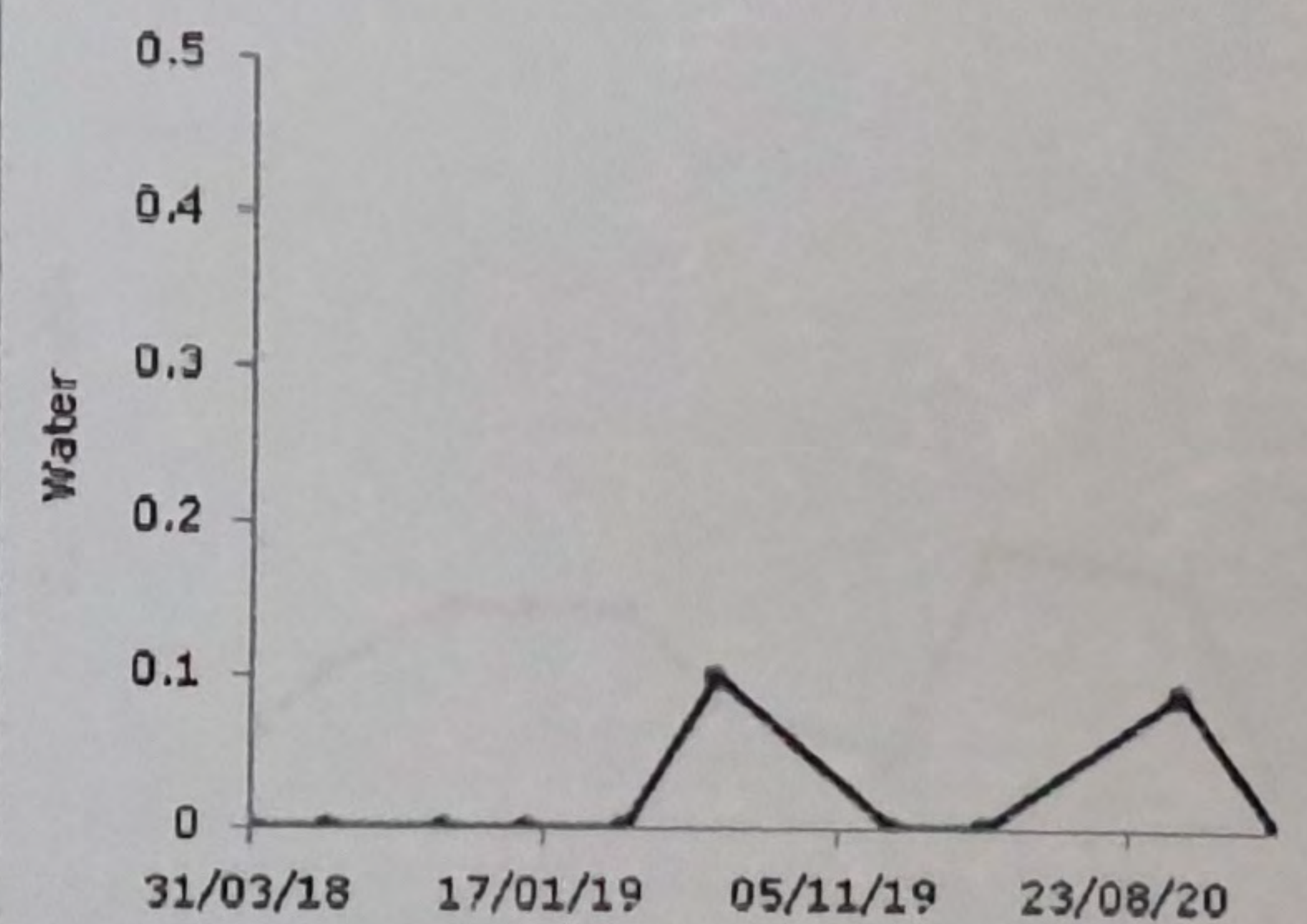
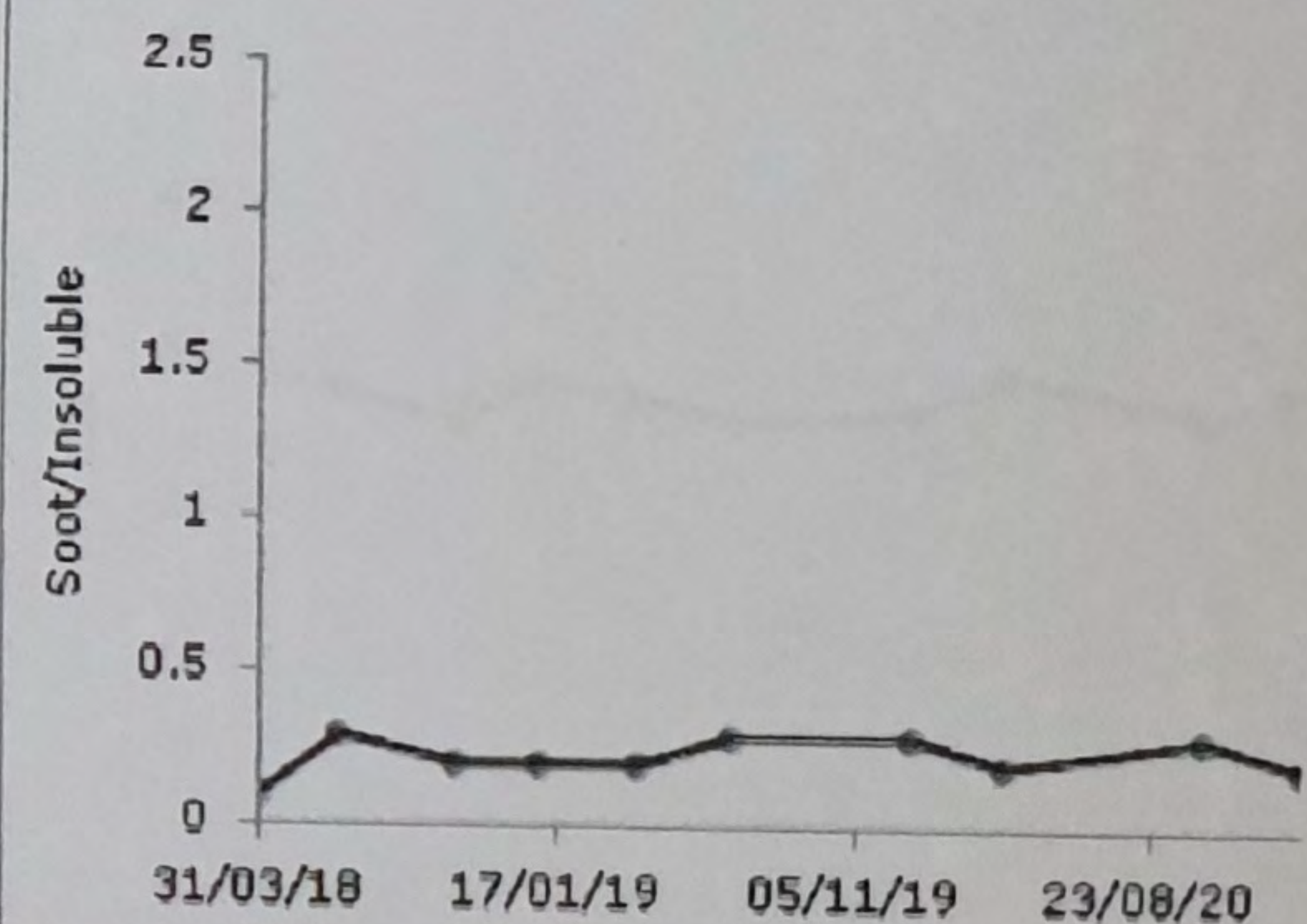
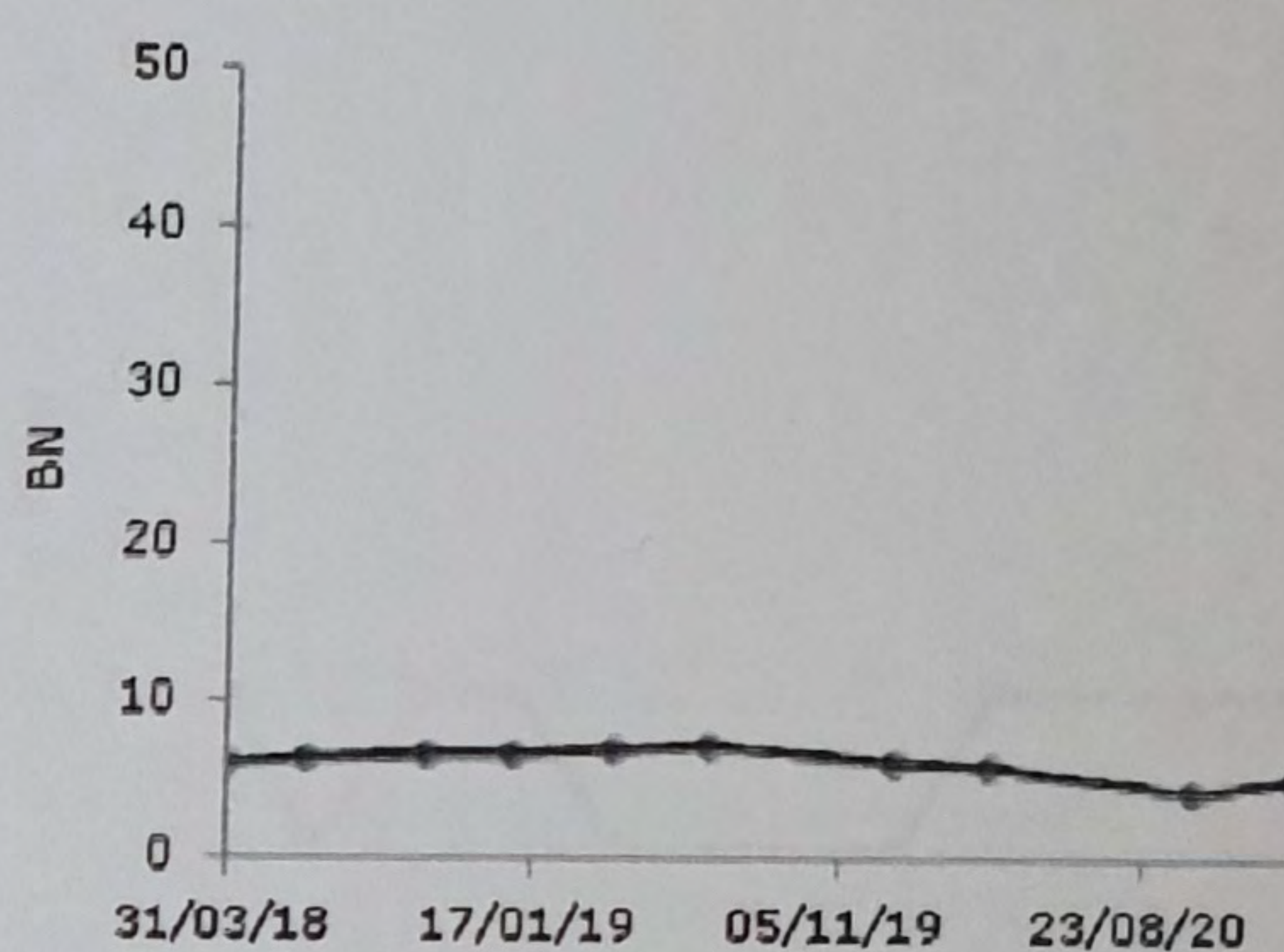
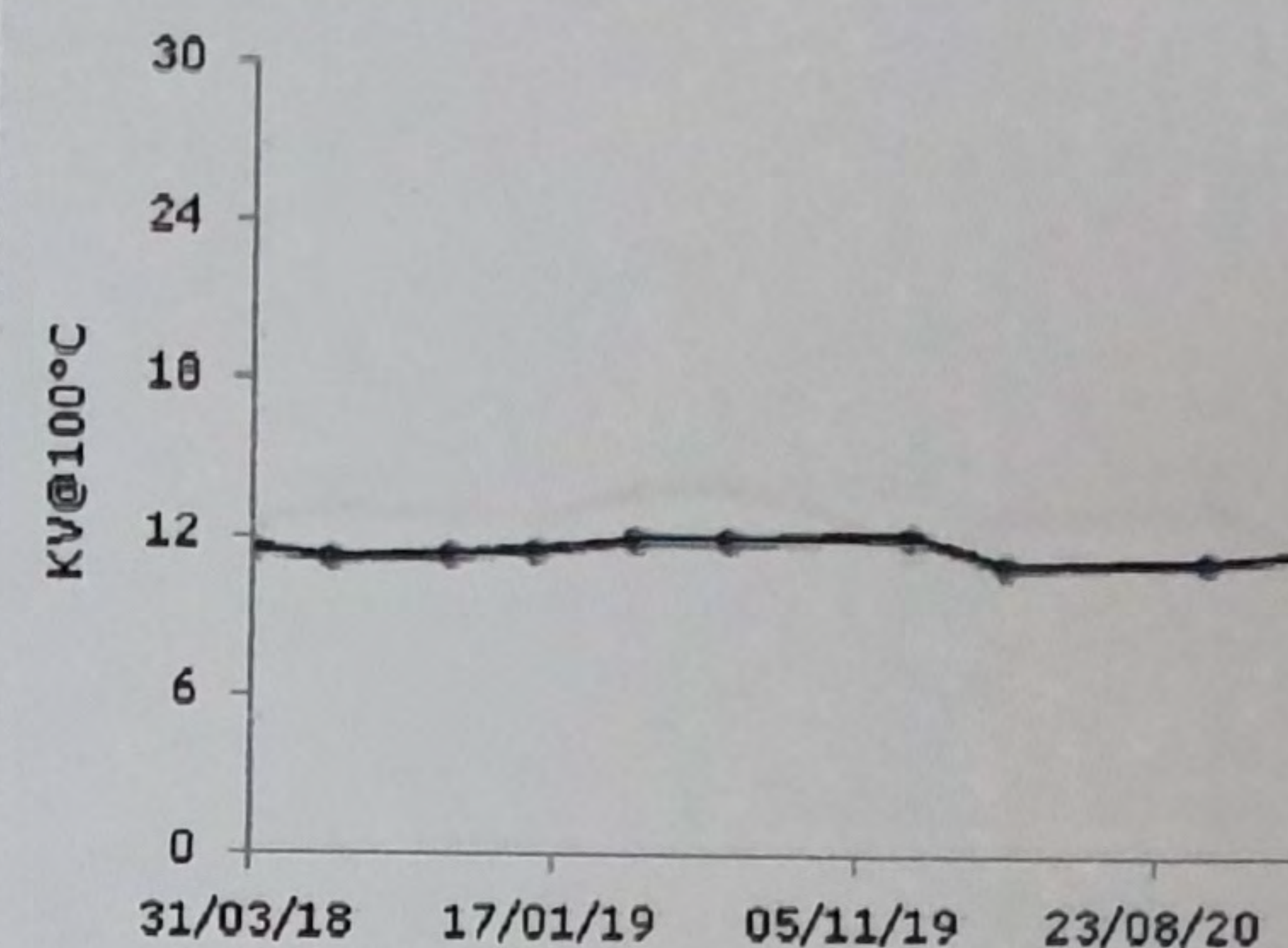
PQ result indicates the presence of Ferro magnetic particles. Metallic Iron particles originated from the cylinder liner wear might have passed into the system oil via stuffing box leakage.

Action:








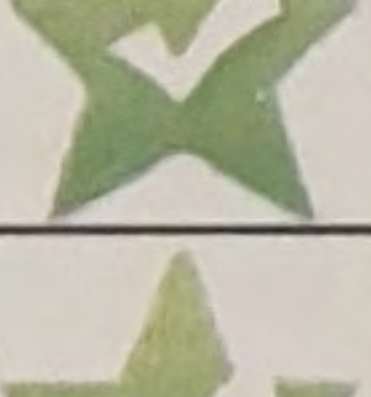
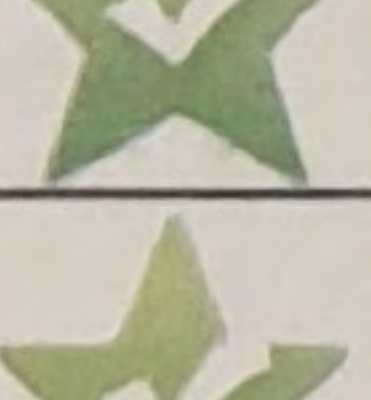
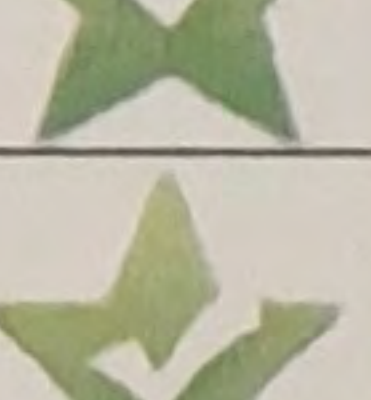

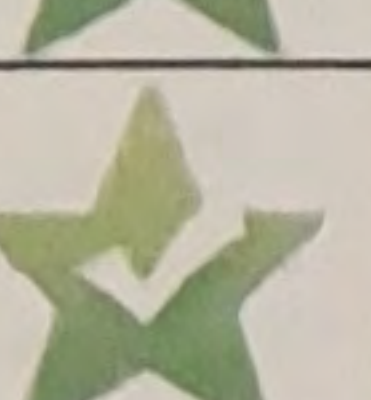
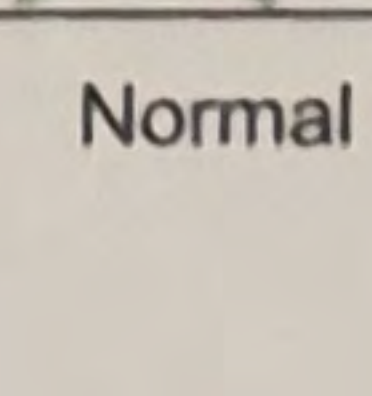
Please check the integrity of stuffing box seal rings. PQ value shall be monitored on subsequent samples. Efficient purification is recommended to remove the wear particles in the oil.



Caution



Summary Report for **LANTAU ACE [9216353]** dated **21-Oct-2020**

Machine Name	Oil Grade In Use	Oil Rating	Action	Rating
EMERGENCY DIESEL GENERATOR ENGINE VOLVO PENTA TAMD7 1BRC CRANKCASE & CYLINDERS	TITAN TRUCK SAE 15W40	Drop in Flash Point and Viscosity together is indicative of the fuel ingress into the lube oil. The oil is not suitable for further use provided the landed used oil sample is representative for the application.	Fuel ingress source shall be identified and appropriate corrective measures taken. After eliminating the cause of contamination oil charge should be renewed using the correct grade.	
STERN TUBE BLOHM & VOSS B+V KTR BEARINGS & SEALS	NAVIGO 6 CO	The oil is fit for limited further use provided the landed used oil sample is representative for the application.	Wear trend of Lead shall be monitored on subsequent samples. Please minimize any external contamination during sampling.	
MAIN ENGINE WARTSILA 8RTA62 U CRANKCASE & SYSTEM	NAVIGO 6 SO	The oil is fit for further use provided the landed used oil sample is representative for the application.	No action required.	
AUXILIARY ENGINE 1 MAN B&W 7L23/30H CRANKCASE & CYLINDERS	NAVIGO TPEO 30/30	The oil is fit for further use provided the landed used oil sample is representative for the application.	No action required.	
AUXILIARY ENGINE 2 MAN B&W 7L23/30H CRANKCASE & CYLINDERS	NAVIGO TPEO 30/30	The oil is fit for further use provided the landed used oil sample is representative for the application.	No action required.	
AUXILIARY ENGINE 3 MAN B&W 7L23/30H CRANKCASE & CYLINDERS	NAVIGO TPEO 30/30	The oil is fit for further use provided the landed used oil sample is representative for the application.	No action required.	
STEERING GEAR 1 TONG MYUNG FE21-090-T050 HYDRAULIC SYSTEM	RENOLIN B 68 HVI	The oil is fit for further use provided the landed used oil sample is representative for the application. ISO Code is reported for the information only.	No action required.	
STEERING GEAR 2 TONG MYUNG FE21-090-T050 HYDRAULIC SYSTEM	RENOLIN B 68 HVI	The oil is fit for further use provided the landed used oil sample is representative for the application. ISO Code is reported for the information only.	No action required.	
BOW THRUSTER KAWASAKI HEAVY INDUSTRIES KT-105B3 ENCLOSED GEARS	RENOLIN CLP 100	The oil is fit for further use provided the landed used oil sample is representative for the application.	No action required.	
RESCUE BOAT DAVIT ORIENTAL PRECISION NOT STATED HYDRAULIC SYSTEM	RENOLIN B 32 HVI	The oil is fit for further use provided the landed used oil sample is representative for the application. ISO Code is reported for the information only.	No action required.	
WINDLASS ROLLS ROYCE BFM41.064 HYDRAULIC SYSTEM	RENOLIN B 100 HVI	The oil is fit for further use provided the landed used oil sample is representative for the application. ISO Code is reported for the information only.	No action required.	
MOORING WINCH ROLLS ROYCE BFM41.064 HYDRAULIC SYSTEM	RENOLIN B 100 HVI	The oil is fit for further use provided the landed used oil sample is representative for the application. ISO Code is reported for the information only.	No action required.	
REMOTE CONTROL VALVES PLEIGER NOT STATED HYDRAULIC SYSTEM	RENOLIN B 15 HVI	The oil is fit for further use provided the landed used oil sample is representative for the application. ISO Code is reported for the information only.	No action required.	

★ Immediate Action Required ★ Can Continue ★ Normal

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LANTAU ACE [9216353]

EMERGENCY DIESEL GENERATOR ENGINE VDK 2001-3-26 [CRANKCASE & CYLINDERS]



Manufacturer	: VOLVO PENTA	Model	: TAM7 1BRC
Port Landed	: Haifa	Volume[ltr]	:
Fuel Grade / S%	:	Dispatched	: 12-Oct-20
Recommended	: AVANTGARDE ULTRA 15W-40	Received	: 19-Oct-20

Sample Details		1 (Current)	2	3
Rating		Critical	Normal	Caution
Sample No		20574519	20033888	20010023
Sampled Date		12-Oct-20	01-Apr-20	01-Jan-20
Oil Grade In Use		TITAN TRUCK SAE 15W40	TITAN TRUCK SAE 15W40	TITAN TRUCK SAE 15W40
Unit Service Hrs		347	345	345
Oil Service Hrs		Not Stated	Not Stated	Not Stated
Daily Makeup[ltr]		Not Stated	Not Stated	Not Stated

New Oil	Critical Val.	Analysis	1	2	3
103		Appearance	Dark	Dark	Dark
14.3	<10.7 or >17.9*	KV@40°C[mm²/s]	79.10	87.07	91.04
	>0.5*	KV@100°C[mm²/s]	11.75	12.43	12.74
10	<5*	Water[%wt]	0.13	<0.05	<0.05
237	<170*	BN[mgKOH/g]	9.7	10.4	10.6
	>2.5*	Flash Point[°C]	154	186	176
		Soot/Insoluble[%wt]	0.30	0.10	0.10
		PQ Index/2ml	<10	<10	<10

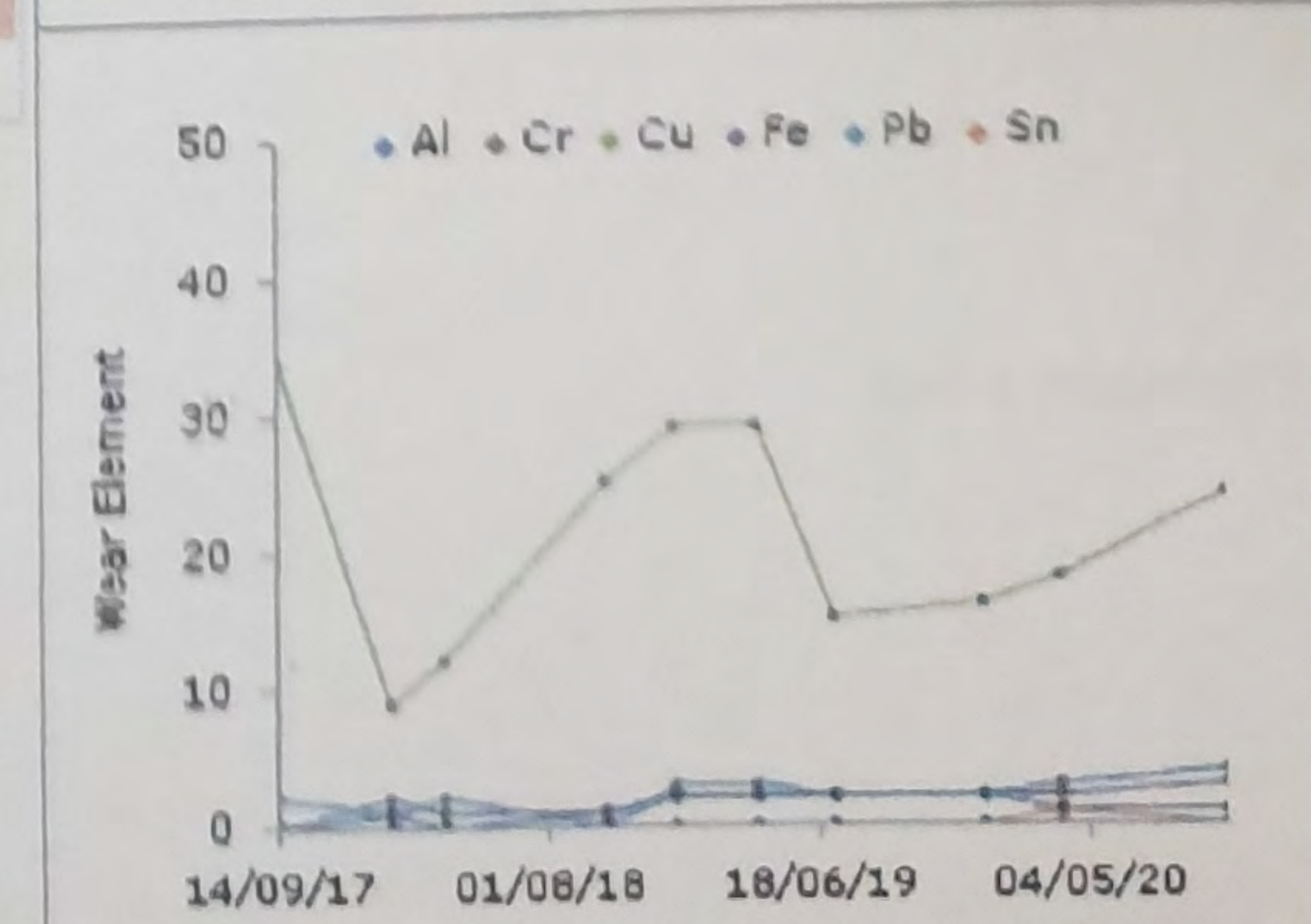
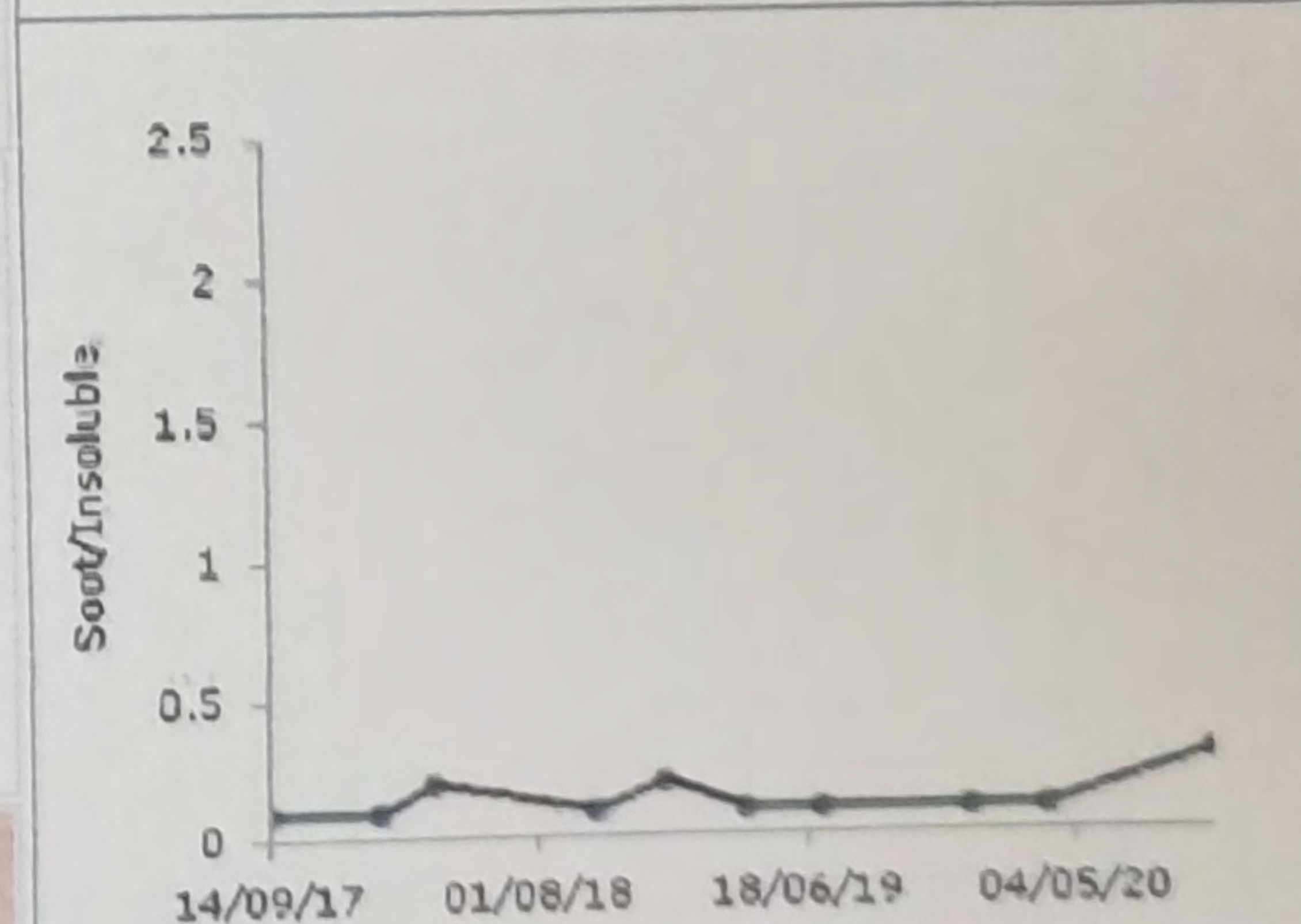
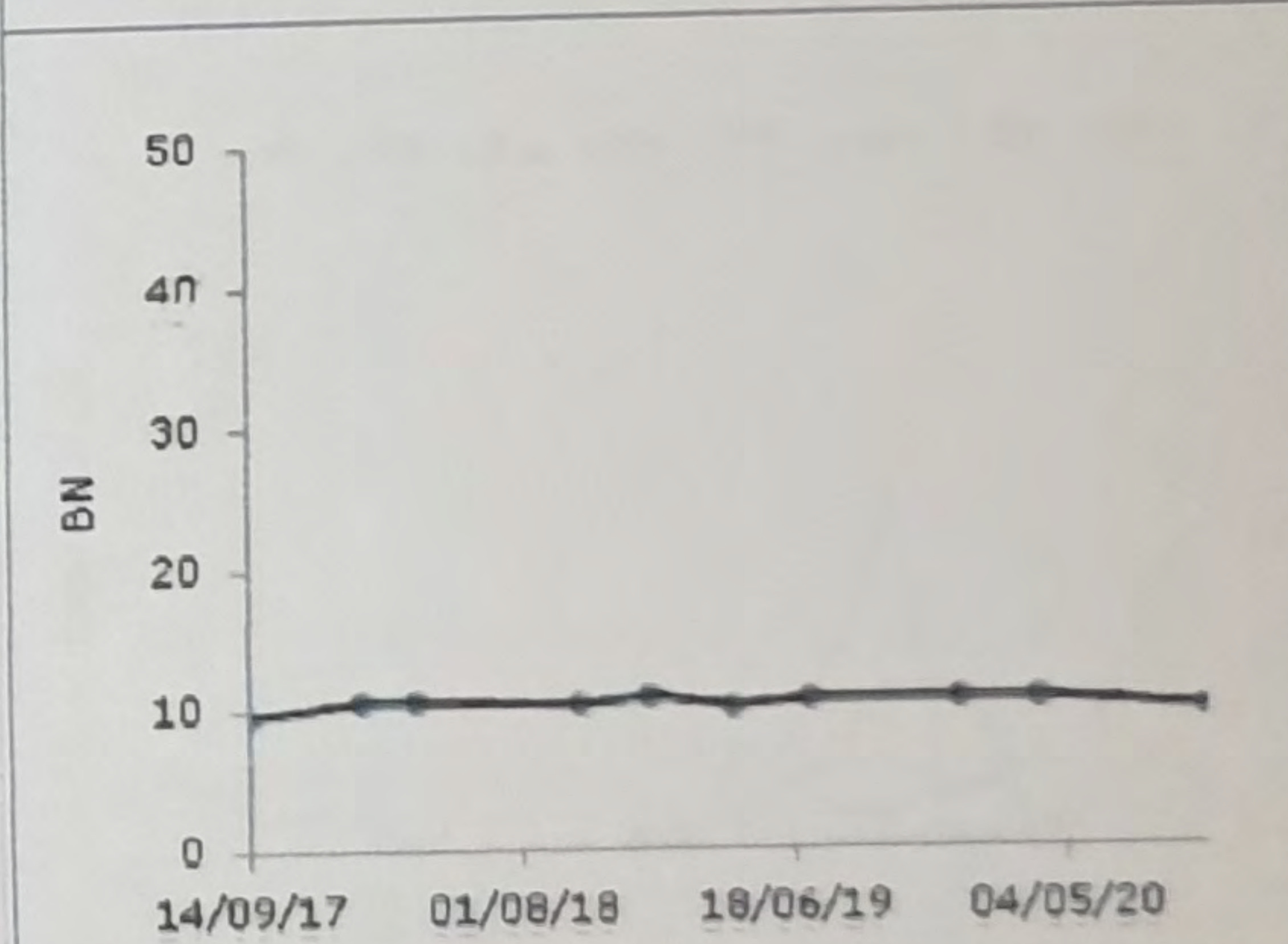
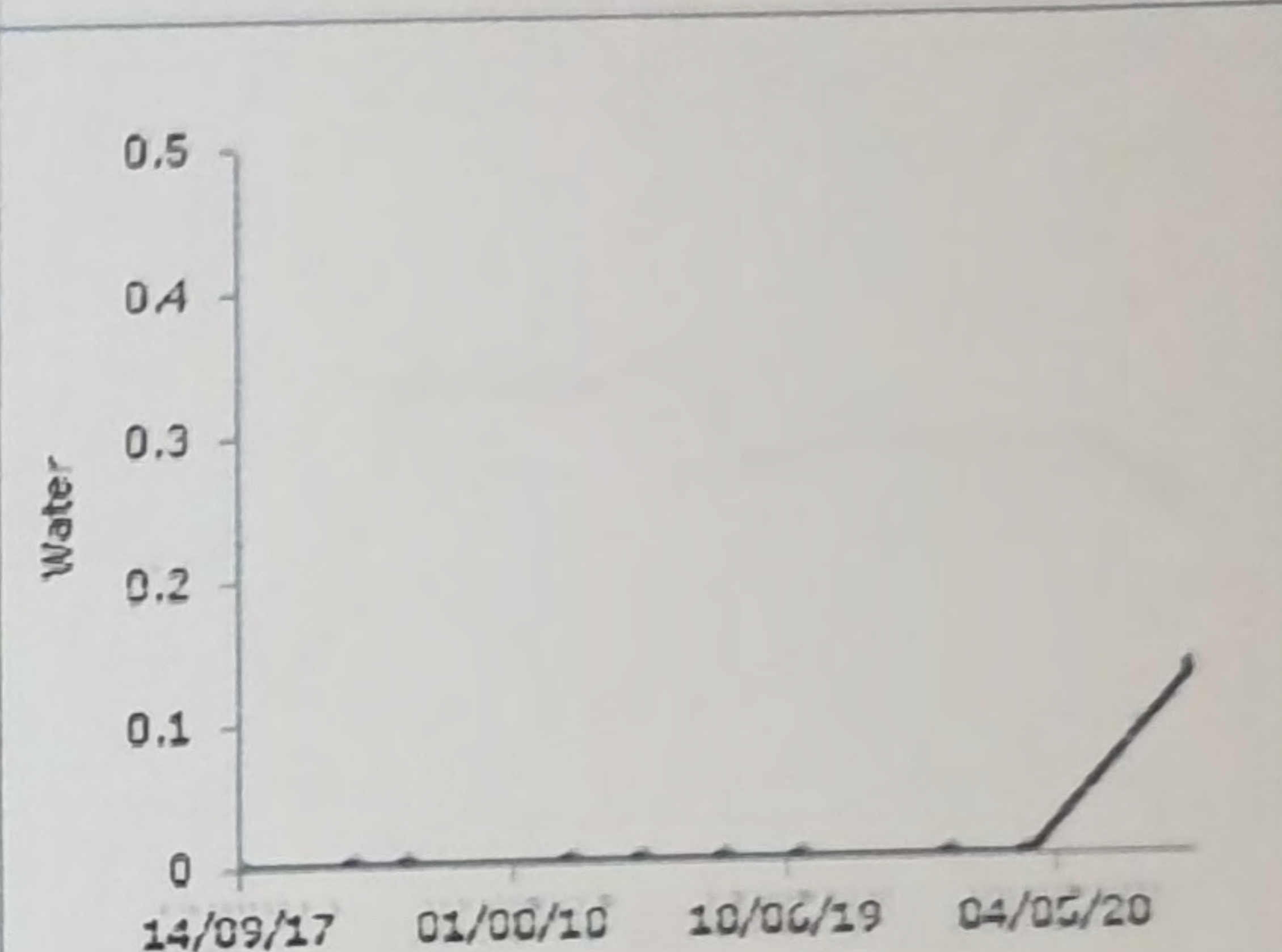
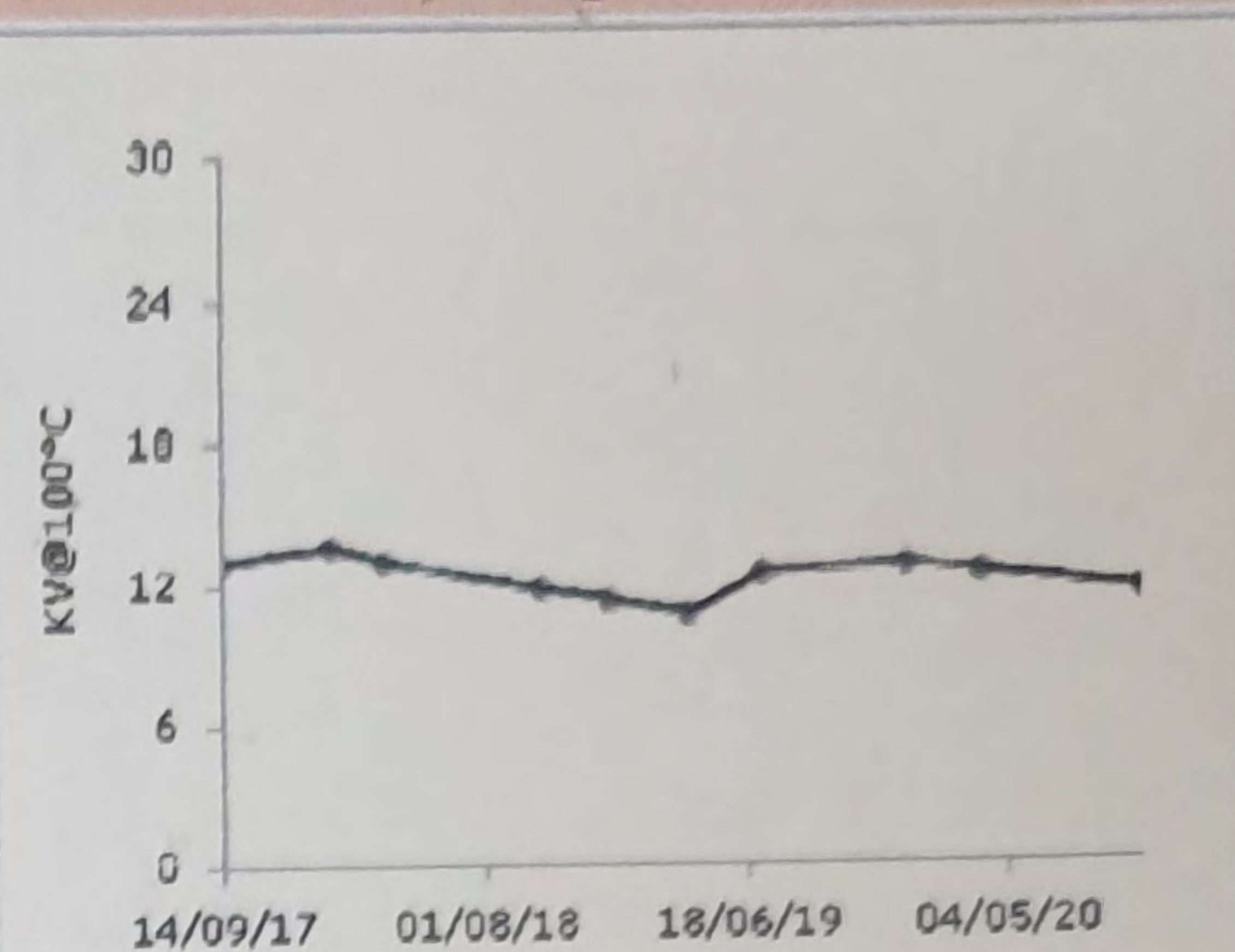
Wear Elements [ppm]		1	2	3
>100*	Aluminium (Al)	1	1	2
>50*	Chromium (Cr)	<1	<1	<1
>50*	Copper (Cu)	24	18	16
>150*	Iron (Fe)	3	2	2
>50*	Lead (Pb)	4	3	2
>30*	Tin (Sn)	<1	1	<1

Contaminant Elements [ppm]		1	2	3
>100*	Boron (B)	3	<1	2
>50*	Sodium (Na)	2	5	3
	Silicon (Si)	<1	6	6
	Molybdenum (Mo)	48	44	49
	Nickel (Ni)	<1	<1	<1
	Silver (Ag)	<1	<1	<1
	Vanadium (V)	<1	<1	1

Oil Rating:
Drop in Flash Point and Viscosity together is indicative of the fuel ingress into the lube oil. The oil is not suitable for further use provided the landed used oil sample is representative for the application.

Unit Rating:
Wear rate is normal; no abnormalities are evident.

Action:
Fuel ingress source shall be identified and appropriate corrective measures taken. After eliminating the cause of contamination oil charge should be renewed using the correct grade.



Dated: 21-Oct-2020

Critical Value : * Indicate Oil supplier/operator critical limits.
Support : technical@lukoil.com

LANTAU ACE [9216353]

STERN TUBE 1015664 [BEARINGS & SEALS]

Manufacturer	: BLOHM & VOSS	Model	: B+V KTR
Port Landed	: Haifa	Volume[ltr]	:
Fuel Grade / S%	:	Dispatched	: 12-Oct-20
Recommended	: NAVIGO 6 CO	Received	: 19-Oct-20

Sample Details	1 (Current)	2	3
Rating	Caution	Normal	Normal
Sample No	20574520	20033889	19034773
Sampled Date	12-Oct-20	01-Apr-20	08-Apr-19
Oil Grade In Use	NAVIGO 6 CO	NAVIGO 6 CO	NAVIGO 6 SO
Unit Service Hrs	Not Stated	Not Stated	85076
Oil Service Hrs	Not Stated	Not Stated	Not Stated
Daily Makeup[ltr]	Not Stated	Not Stated	Not Stated

New Oil	Critical Val.	Analysis			
100	<75 or >125*	Appearance	Clear	Clear	Clear
	>5*	KV@40°C[mm²/s]	107.6	108.2	104.3
		Water[%wt]	<0.05	<0.05	<0.05
		Soot/Insoluble[%wt]	<0.05	<0.05	<0.05
		Oxidation[Abs/0.1mm]	<0.05	<0.05	<0.05
		AN[mgKOH/g]	1.17	1.44	1.45
	>140*	Chloride as Cl-[ppm]	<5	<5	<5
		PQ Index/2ml	<10	<10	<10
Wear Elemental Analysis [ppm]					
		Aluminium (Al)	1		
	>20*	Chromium (Cr)	<1	1	<1
	>100*	Copper (Cu)	3	16	1
	>60*	Iron (Fe)	6	6	1
	>40*	Lead (Pb)	22	19	<1
	>40*	Tin (Sn)	1	2	<1
		Antimony (Sb)	1	1	<1
	>40*	Nickel (Ni)	<1	<1	<1
Contaminant Elements [ppm]					
		Boron (B)	2	<1	<1
	>160*	Sodium (Na)	14	15	3
		Magnesium (Mg)	14	17	20
		Silicon (Si)	<1	4	7
		Manganese (Mn)	<1	<1	<1
Additive Elements [ppm]					
		Calcium (Ca)	2742	2528	2862
		Zinc (Zn)	579	578	619
		Phosphorus (P)	542	515	522

Oil Rating:

The oil is fit for limited further use provided the landed used oil sample is representative for the application.

Unit Rating:

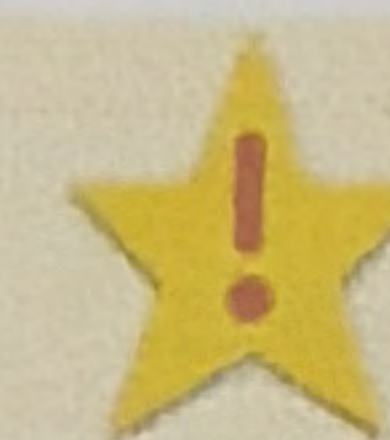
Elemental analysis shows the elevated wear rate of Lead. White metal bearings are the normal wear sources of Lead. Check whether the stern tube bearing material is Lead based. Wear or leaching from any other Lead based components in the system could also be sources of Lead.

Action:

Wear trend of Lead shall be monitored on subsequent samples. Please minimize any external contamination during sampling.

Critical Value : * Indicate Oil supplier/operator critical limits.
Support : technical@lukoil.com

Dated: 21-Oct-2020


Caution
