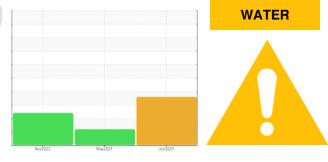


### **OIL ANALYSIS REPORT**

SAMPLE INFORMATION method

Sample Rating Trend

limit/base



history1

current

history2

Machine Id

# **SENNEBOGEN 840E MH-82**

Left Swing Drive Fluid AW HYDRAULIC OIL ISO 46 (--- LTR)

#### DIAGNOSIS

#### Recommendation

We advise that you check for the source of water entry. We recommend an early resample to monitor this condition.

#### 🔺 Wear

Gear wear is indicated.

#### Contamination

There is a high concentration of water present in the oil.

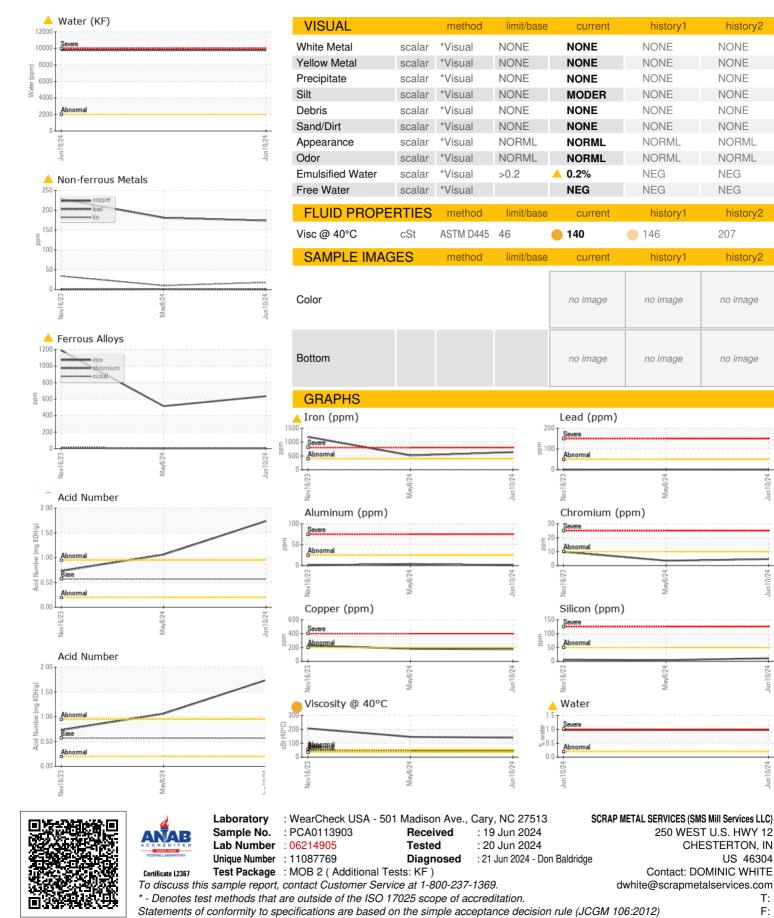
#### Fluid Condition

The oil viscosity is higher than normal. Confirm oil type. The AN level is acceptable for this fluid.

Sample Number     Client Info     PCA0113903     PCA0124482     PCA0112788       Sample Date     IClient Info     I0 Jun 2024     08 May 2024     16 Nov 2023       Machine Age     hrs     Client Info     3318     2811     230       Oil Age     hrs     Client Info     S00     1000     0       Oil Changed     rs     Client Info     Not Changed     Changed     Changed       Sample Status     Imit Obs     current     history1     history2       Iron     pp     ASTM D5185m     >10     5     4     10       Nickel     ppm     ASTM D5185m     >10     <1				initi base	Current		Thistory 2
Machine Age     hrs     Client Info     3318     2811     230       Oil Age     hrs     Client Info     500     1000     0       Oil Changed     Client Info     Not Changed     Changed     Changed       Sample Status      method     Imit/base     current     history1     history2       Iron     ppm     ASTM D5185m     >400     635     515     1190       Chromium     ppm     ASTM D5185m     >10     <1     2     2       Titanium     ppm     ASTM D5185m     >10     <1     2     2       Nickel     ppm     ASTM D5185m     >10     <1     2     2       Titanium     ppm     ASTM D5185m     >50     0     <1     0       Gopper     ppm     ASTM D5185m     >200     174     181     4228       Tin     ppm     ASTM D5185m     >10     <18     10     <34       Vanadium     ppm     ASTM D5185m     5     154     74	Sample Number		Client Info		PCA0113903	PCA0124482	PCA0112788
Oil Age     hrs     Client Info     500     1000     0       Oil Changed     Client Info     Not Changd     Changed     Changed       Sample Status     Image     Image     ABNORMAL     ABNORMAL     ABNORMAL       WEAR METALS     method     Imit/base     current     history1     history2       Iron     ppm     ASTM D5185m     >400     635     515     4     10       Nickel     ppm     ASTM D5185m     >10     5     4     10       Silver     ppm     ASTM D5185m     0     <1     0     0       Aluminum     ppm     ASTM D5185m     >50     0     <1     0       Copper     ppm     ASTM D5185m     >50     0     <1     0       Cadminum     ppm     ASTM D5185m     >10     18     10     .34       Vanadium     ppm     ASTM D5185m     5     154     74     14       Barium     ppm     ASTM D5185m     5     1     2	Sample Date		Client Info		10 Jun 2024	08 May 2024	16 Nov 2023
Oil Changed Sample StatusClient InfoNot Changed ABNORMALChanged ABNORMALChanged ABNORMALChanged ABNORMALWEAR METALSmethodlimit/basecurrenthistory1history2IronppmASTM D5185m>4006355151190OhromiumppmASTM D5185m>105410NickelppmASTM D5185m0<1122TitaniumppmASTM D5185m0<110SilverppmASTM D5185m0<10<10CopperppmASTM D5185m>500<10CopperppmASTM D5185m>200174181▲ 228TinppmASTM D5185m>10▲ 1810▲ 34VanadiumppmASTM D5185m<1<10CadmiumppmASTM D5185m51547414BariumppmASTM D5185m5<120MagnesiumppmASTM D5185m5<120MagnesiumppmASTM D5185m25572CalciumppmASTM D5185m20051584PhosphorusppmASTM D5185m20051584PhosphorusppmASTM D5185m2502140299405046ContradiumppmASTM D5185m2501146Sodiumppm <th>Machine Age</th> <th>hrs</th> <th>Client Info</th> <th></th> <th>3318</th> <th>2811</th> <th>230</th>	Machine Age	hrs	Client Info		3318	2811	230
Sample Status     Image: Status     Method     Imit/base     current     history1     ABNORMAL       WEAR METALS     method     limit/base     current     history1     history2       Iron     ppm     ASTM D5185m     >400     635     515     1190       Chromium     ppm     ASTM D5185m     >10     <1     2     2       Titanium     ppm     ASTM D5185m     >10     <1     0     <1     0       Silver     ppm     ASTM D5185m     >25     <1     4     <10       Lead     ppm     ASTM D5185m     >200     174     181     <228       Tin     ppm     ASTM D5185m     >200     174     181     <228       Tin     ppm     ASTM D5185m     >10     18     10     <34       Vanadium     ppm     ASTM D5185m     5     154     74     14       Barium     ppm     ASTM D5185m     5     5     7     2       Boron     ppm     ASTM	Oil Age	hrs	Client Info		500	1000	0
WEAR METALS     method     limit/base     current     history1     history2       Iron     ppm     ASTM D5185m     >4000     ▲ 635     ▲ 515     ▲ 1190       Chromium     ppm     ASTM D5185m     >10     <1     2     2       Titanium     ppm     ASTM D5185m     >10     <1     2     2       Titanium     ppm     ASTM D5185m     >25     <1     4     <1       Aluminum     ppm     ASTM D5185m     >25     <1     4     <1       Lead     ppm     ASTM D5185m     >25     <1     4     <1       Copper     ppm     ASTM D5185m     >200     174     181     ▲ 248       Tin     ppm     ASTM D5185m     >10     ▲ 18     10     ▲ 34       Vanadium     ppm     ASTM D5185m     5     154     74     14       Barium     ppm     ASTM D5185m     5     158     4     9       Magnaese     ppm     ASTM D5185m     200	Oil Changed		Client Info		Not Changd	Changed	Changed
Iron     ppm     ASTM D5185m     >400     ▲ 635     ▲ 515     ▲ 119       Chromium     ppm     ASTM D5185m     >10     5     4     10       Nickel     ppm     ASTM D5185m     >10     <1     2     2       Titanium     ppm     ASTM D5185m     0     <1     0       Aluminum     ppm     ASTM D5185m     >25     <1     4     <1       Lead     ppm     ASTM D5185m     >50     0     <1     0       Copper     ppm     ASTM D5185m     >200     174     181     ▲ 228       Tin     ppm     ASTM D5185m     >200     174     181     ▲ 34       Vanadium     ppm     ASTM D5185m     >0     <1     0        Cadmium     ppm     ASTM D5185m     5     154     74     14       Barium     ppm     ASTM D5185m     5     <1     2     0       Magnesium     ppm     ASTM D5185m     5     <1     2	Sample Status				ABNORMAL	ABNORMAL	ABNORMAL
Chromium     ppm     ASTM D5185m     >10     5     4     10       Nickel     ppm     ASTM D5185m     >10     <1     2     2       Titanium     ppm     ASTM D5185m     0     <1     0       Silver     ppm     ASTM D5185m     0     <1     0       Aluminum     ppm     ASTM D5185m     >50     0     <1     0       Copper     ppm     ASTM D5185m     >50     0     <1     0       Copper     ppm     ASTM D5185m     >200     174     181     ▲ 228       Tin     ppm     ASTM D5185m     >10     ▲ 18     10     ▲ 34       Vanadium     ppm     ASTM D5185m     >10     ▲ 18     0     ▲ 34       Vanadium     ppm     ASTM D5185m     5     154     74     14       Barium     ppm     ASTM D5185m     5     <1     2     0       Magnesium     ppm     ASTM D5185m     5     <1     2     0 <	WEAR METAL	S	method	limit/base	current	history1	history2
Nickel     ppm     ASTM D5185m     >10     <1     2     2       Titanium     ppm     ASTM D5185m     0     <1	Iron	ppm	ASTM D5185m	>400	<b>6</b> 35	<b>5</b> 15	<b>1</b> 190
Titanium     ppm     ASTM D5185m     0     <1     0       Silver     ppm     ASTM D5185m     >25     <1	Chromium	ppm	ASTM D5185m	>10	5	4	10
Silver     ppm     ASTM D5185m     0     <1     0       Aluminum     ppm     ASTM D5185m     >25     <1	Nickel	ppm	ASTM D5185m	>10	<1	2	2
Aluminum     ppm     ASTM D5185m     >25     <1     4     <1       Lead     ppm     ASTM D5185m     >50     0     <1	Titanium	ppm	ASTM D5185m		0	<1	0
Lead   ppm   ASTM D5185m   >50   0   <1	Silver	ppm	ASTM D5185m		0	<1	0
Copper     ppm     ASTM D5185m     >200     174     181     ▲ 228       Tin     ppm     ASTM D5185m     >10     ▲ 18     10     ▲ 34       Vanadium     ppm     ASTM D5185m     >10     ▲ 18     10     ▲ 34       Vanadium     ppm     ASTM D5185m      0     <1	Aluminum	ppm	ASTM D5185m	>25	<1	4	<1
Tin     ppm     ASTM D5185m     >10     ▲ 18     10     ▲ 34       Vanadium     ppm     ASTM D5185m     0     <1	Lead	ppm	ASTM D5185m	>50	0	<1	0
Vanadium     ppm     ASTM D5185m     0     <1     0       Cadmium     ppm     ASTM D5185m     <1	Copper	ppm	ASTM D5185m	>200	174	181	<u> </u>
CadmiumppmASTM D5185m<1<1<10ADDITIVESmethodlimit/basecurrenthistory1history2BoronppmASTM D5185m51547414BariumppmASTM D5185m5000MolybdenumppmASTM D5185m5<1	Tin	ppm	ASTM D5185m	>10	<mark>/</mark> 18	10	<b>4</b> 34
ADDITIVESmethodlimit/basecurrenthistory1history2BoronppmASTM D5185m51547414BariumppmASTM D5185m5000MolybdenumppmASTM D5185m5<1	Vanadium	ppm	ASTM D5185m		0	<1	0
Boron   ppm   ASTM D5185m   5   154   74   14     Barium   ppm   ASTM D5185m   5   0   0   0     Molybdenum   ppm   ASTM D5185m   5   <1	Cadmium	ppm	ASTM D5185m		<1	<1	0
Barium   ppm   ASTM D5185m   5   0   0   0     Molybdenum   ppm   ASTM D5185m   5   <1   2   0     Manganese   ppm   ASTM D5185m   5   <1   2   0     Magnesium   ppm   ASTM D5185m   25   5   7   2     Calcium   ppm   ASTM D5185m   200   51   58   4     Phosphorus   ppm   ASTM D5185m   300   1013   463   353     Zinc   ppm   ASTM D5185m   370   70   107   101     Sulfur   ppm   ASTM D5185m   2500   21402   9940   5046     CONTAMINANTS   method   limit/base   current   history1   history2     Silicon   ppm   ASTM D5185m   >50   11   4   6     Sodium   ppm   ASTM D5185m   >20   3   3   2     Water   %   ASTM D6304   >0.2   0.979       ppm Water   ppm   ASTM D6304 <t< th=""><th>ADDITIVES</th><th></th><th>method</th><th>limit/base</th><th>current</th><th>history1</th><th>history2</th></t<>	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum     ppm     ASTM D5185m     5     <1     2     0       Manganese     ppm     ASTM D5185m     7     4     9       Magnesium     ppm     ASTM D5185m     25     5     7     2       Calcium     ppm     ASTM D5185m     200     51     58     4       Phosphorus     ppm     ASTM D5185m     300     1013     463     353       Zinc     ppm     ASTM D5185m     370     70     107     101       Sulfur     ppm     ASTM D5185m     2500     21402     9940     5046       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >50     11     4     6       Sodium     ppm     ASTM D5185m     >20     3     3     2       Water $%$ ASTM D5185m     >20     3     3     2       ppm Water     ppm     ASTM D6304     >0.2     0.9790     <	Boron	ppm	ASTM D5185m	5	154	74	14
Magnesse     ppm     ASTM D5185m     7     4     9       Magnesium     ppm     ASTM D5185m     25     5     7     2       Calcium     ppm     ASTM D5185m     200     51     58     4       Phosphorus     ppm     ASTM D5185m     300     1013     463     353       Zinc     ppm     ASTM D5185m     370     70     107     101       Sulfur     ppm     ASTM D5185m     2500     21402     9940     5046       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >50     11     4     6       Sodium     ppm     ASTM D5185m     >20     3     3     2       Water     %     ASTM D5185m     >20     3     3     2       ppm Water     ppm     ASTM D6304     >0.2     0.979         ppm Water     ppm     ASTM D6304     >2000     9790	Barium	ppm	ASTM D5185m	5	0	0	0
Magnesium     ppm     ASTM D5185m     25     5     7     2       Calcium     ppm     ASTM D5185m     200     51     58     4       Phosphorus     ppm     ASTM D5185m     300     1013     463     353       Zinc     ppm     ASTM D5185m     370     70     107     101       Sulfur     ppm     ASTM D5185m     2500     21402     9940     5046       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >50     11     4     6       Sodium     ppm     ASTM D5185m     >20     3     3     2       Water     ppm     ASTM D5185m     >20     3     3     2       ppm Water     ppm     ASTM D6304     >0.2     0.979         ppm Water     ppm     ASTM D6304     >2000     9790         FLUID DEGRADATION     method     limit/base	Molybdenum	ppm	ASTM D5185m	5	<1	2	0
Calcium   ppm   ASTM D5185m   200   51   58   4     Phosphorus   ppm   ASTM D5185m   300   1013   463   353     Zinc   ppm   ASTM D5185m   370   70   107   101     Sulfur   ppm   ASTM D5185m   2500   21402   9940   5046     CONTAMINANTS   method   limit/base   current   history1   history2     Silicon   ppm   ASTM D5185m   >50   11   4   6     Sodium   ppm   ASTM D5185m   >20   3   3   2     Water   ppm   ASTM D6304   >0.2   0.979       ppm Water   ppm   ASTM D6304   >2000   9790       FLUID DEGRADATION   method   limit/base   current   history1   history2	Manganese						
Phosphorus     ppm     ASTM D5185m     300     1013     463     353       Zinc     ppm     ASTM D5185m     370     70     107     101       Sulfur     ppm     ASTM D5185m     2500     21402     9940     5046       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >50     11     4     6       Sodium     ppm     ASTM D5185m     >50     11     4     6       Sodium     ppm     ASTM D5185m     >20     3     3     2       Water     %     ASTM D6304     >0.2     0.979         ppm Water     ppm     ASTM D6304     >2000     9790         FLUID DEGRADATION     method     limit/base     current     history1     history2	Manganooo	ppm	ASTM D5185m		7	4	9
Zinc     ppm     ASTM D5185m     370     70     107     101       Sulfur     ppm     ASTM D5185m     2500     21402     9940     5046       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >50     11     4     6       Sodium     ppm     ASTM D5185m     >50     11     4     6       Sodium     ppm     ASTM D5185m     >20     3     3     2       Water     %     ASTM D6304     >0.2     0.979         ppm Water     ppm     ASTM D6304     >2000     9790         FLUID DEGRADATION     method     limit/base     current     history1     history2	•			25			
SulfurppmASTM D5185m25002140299405046CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>501146SodiumppmASTM D5185m253PotassiumppmASTM D5185m>20332Water%ASTM D6304>0.20.979ppm WaterppmASTM D6304>20009790FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2	Magnesium	ppm	ASTM D5185m		5	7	2
CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>501146SodiumppmASTM D5185m253PotassiumppmASTM D5185m>20332Water%ASTM D6304>0.20.9779ppm WaterppmASTM D6304>20009790FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2	Magnesium Calcium	ppm ppm	ASTM D5185m ASTM D5185m	200	5 51	7 58	2 4
Silicon     ppm     ASTM D5185m     >50     11     4     6       Sodium     ppm     ASTM D5185m     2     5     3       Potassium     ppm     ASTM D5185m     >20     3     3     2       Water     %     ASTM D6304     >0.2 <b>0.979</b> ppm Water     ppm     ASTM D6304     >2000 <b>9790</b> FLUID DEGRADATION     method     limit/base     current     history1     history2	Magnesium Calcium Phosphorus	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	200 300	5 51 1013	7 58 463	2 4 353
Sodium     ppm     ASTM D5185m     2     5     3       Potassium     ppm     ASTM D5185m     >20     3     3     2       Water     %     ASTM D6304     >0.2     ▲ 0.979         ppm Water     ppm     ASTM D6304     >2000     ▲ 9790         FLUID DEGRADATION     method     limit/base     current     history1     history2	Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	200 300 370	5 51 1013 70	7 58 463 107	2 4 353 101
Potassium     ppm     ASTM D5185m     >20     3     3     2       Water     %     ASTM D6304     >0.2     0.979         ppm Water     ppm     ASTM D6304     >2000     9790         FLUID DEGRADATION     method     limit/base     current     history1     history2	Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	200 300 370 2500	5 51 1013 70 21402	7 58 463 107 9940	2 4 353 101 5046
Water   %   ASTM D6304   >0.2   0.979       ppm Water   ppm   ASTM D6304   >2000   9790       FLUID DEGRADATION   method   limit/base   current   history1   history2	Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method	200 300 370 2500 limit/base	5 51 1013 70 21402 current	7 58 463 107 9940 history1	2 4 353 101 5046 history2
ppm Water ppm ASTM D6304 >2000 9790     FLUID DEGRADATION method limit/base current history1 history2	Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	200 300 370 2500 limit/base	5 51 1013 70 21402 current 11	7 58 463 107 9940 history1 4	2 4 353 101 5046 history2 6
FLUID DEGRADATION method limit/base current history1 history2	Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	200 300 370 2500 limit/base >50	5 51 1013 70 21402 current 11 2	7 58 463 107 9940 history1 4 5	2 4 353 101 5046 history2 6 3
	Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	200 300 370 2500 limit/base >50 >20	5 51 1013 70 21402 <u>current</u> 11 2 3	7 58 463 107 9940 history1 4 5 3	2 4 353 101 5046 history2 6 3 2
Acid Number (AN) mg KOH/g ASTM D8045 0.57 1.74 1.06 0.73	Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Water	ppm ppm ppm ppm ppm tTS ppm ppm ppm %	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	200 300 370 2500 limit/base >50 >20 >0.2	5 51 1013 70 21402 current 11 2 3 3 ▲ 0.979	7 58 463 107 9940 history1 4 5 3 3	2 4 353 101 5046 history2 6 3 2 2
	Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Water ppm Water	ppm ppm ppm ppm ppm TS ppm ppm ppm % ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D6304 ASTM D6304	200 300 370 2500 limit/base >50 >20 >20 >0.2 >2000	5 51 1013 70 21402 current 11 2 3 ▲ 0.979 ▲ 9790	7 58 463 107 9940 history1 4 5 3 	2 4 353 101 5046 history2 6 3 2 



## **OIL ANALYSIS REPORT**



Report Id: SCRBURIN [WUSCAR] 06214905 (Generated: 06/23/2024 04:56:36) Rev: 1

Contact/Location: DOMINIC WHITE - SCRBURIN

US 46304

T:

F:

CHESTERTON, IN

history2

NONE

NONE

NONE

NONE

NONE

NONE

NORML

NORML

history2

history2

no image

no image

NEG

NEG

207