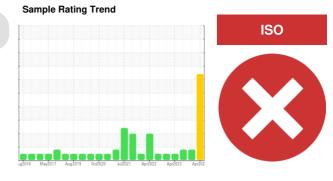


# **OIL ANALYSIS REPORT**

[966701] TPX-4

Hydraulic System

**CONOCO MEGAFLOW AW 46 (--- GAL)** 



## **DIAGNOSIS**

#### Recommendation

We advise that you check all areas where contaminants can enter the system. We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. Resample in 30-45 days to monitor this situation. Please specify the component make and model with your next sample.

### Wear

All component wear rates are normal.

### Contamination

There is a high amount of particulates (2 to 100 microns in size) present in the oil.

#### Fluid Condition

The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

Sample Number   Client Info   WC0926845   WC0843469   WC0843471   Sample Date   Client Info   O2 Apr 2024   23 Jan 2024   12 Oct 2023   Amachine Age   hrs   Client Info   1823   1789   1744   O10   Age   hrs   Client Info   1823   46   O   Not Changed   Not Changed   Not Changed   Not Changed   Not Changed   Not Changed   Sample Status   WC Method   Not Changed   Not Changed   ATTENTION   ABNORMAL   ABNORMAL   CONTAMINATION   method   Imitibase   current   history1   history2   water   WC Method   >0.1   NEG   NEG	SAMPLE INFORM	IATION	method	limit/base	current	history1	history2	
Sample Date         Client Info         02 Apr 2024         23 Jan 2024         12 Oct 2023           Machine Age         hrs         Client Info         1823         1789         1744           Oil Age         hrs         Client Info         1823         46         0           Oil Changed         Client Info         Not Changd SEVERE         Not Changd ABNORMAL           Zonta Mill         Memory         Net Changd SEVER         ATTENTION         ABNORMAL           CONTAMINATION         method         Imitibase         current         history1         history2           Water         WC Method         >0.1         NEG         NEG         NEG           WEAR METALS         method         Imitibase         current         history1         history2           Iron         ppm         ASTM 05185m         >10         0         <1	Sample Number		Client Info		WC0926845	WC0843469	WC0843471	
Machine Age         hrs         Client Info         1823         1789         1744           Oil Age         hrs         Client Info         1823         46         0         0           Oil Changed         Client Info         Not Changd         Not Changd         Not Changd         Not Changd           Sample Status         SEVERE         ATTENTION         ABNORMAL           CONTAMINATION         method         limit/base         current         history1         history2           Water         WC Method         >0.1         NEG         NEG         NEG           WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >20         4         5         2           Chromium         ppm         ASTM D5185m         >10         0         <1         0           Nickel         ppm         ASTM D5185m         10         0         0         0           Silver         ppm         ASTM D5185m         >10         0         0         0           Aluminum         ppm         ASTM D5185m         >10         1         <1         <1         <1 <th>·</th> <th></th> <th>Client Info</th> <th></th> <th>02 Apr 2024</th> <th>23 Jan 2024</th> <th>12 Oct 2023</th>	·		Client Info		02 Apr 2024	23 Jan 2024	12 Oct 2023	
Oil Age         hrs         Client Info         1823         46         0           Oil Changed         Client Info         Not Changd         Not Changd         Not Changd           Sample Status         SEVERE         ATTENTION         ABNORMAL           CONTAMINATION         method         limit/base         current         history1         history2           Water         WC Method         >0.1         NEG         NEG         NEG           WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >20         4         5         2           Chromium         ppm         ASTM D5185m         >10         0         <1		hrs			•			
Oil Changed Sample Status         Client Info         Not Changd SEVERE         Not Changd ABNORMAL         ABNORMAL         ABNORMAL         Not Changd ABNORMAL         Not								
Sample Status         SEVERE         ATTENTION         ABNORMAL           CONTAMINATION         method         limit/base         current         history1         history2           Water         WC Method         >0.1         NEG         NEG         NEG           WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >20         4         5         2           Chromium         ppm         ASTM D5185m         >10         0         <1	-							
CONTAMINATION         method         limit/base         current         history1         history2           Water         WC Method         >0.1         NEG         NEG         NEG           WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >20         4         5         2           Chromium         ppm         ASTM D5185m         >10         0         0         -1           Nickel         ppm         ASTM D5185m         0         0         0         0           Silver         ppm         ASTM D5185m         0         0         0         0           Aluminum         ppm         ASTM D5185m         0         0         0         0           Aluminum         ppm         ASTM D5185m         >10         1         2         1         1           Lead         ppm         ASTM D5185m         >10         1         2         1         -1         -1         -1         -1         -1         -1         -1         -1         -1         -1         -1         -1         -1         -1         -1         -1         <						Ü	_	
Water         WC Method         >0.1         NEG         NEG         NEG           WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >20         4         5         2           Chromium         ppm         ASTM D5185m         >10         0         <1         0           Nickel         ppm         ASTM D5185m         0         0         0         <1           Silver         ppm         ASTM D5185m         0         0         0         0           Aluminum         ppm         ASTM D5185m         >10         1         2         1           Lead         ppm         ASTM D5185m         >10         1         2         1           Copper         ppm         ASTM D5185m         >10         1         <1         <1         <1           Vanadium         ppm         ASTM D5185m         0         1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1 <td< th=""><th></th><th>J</th><th>method</th><th>limit/base</th><th></th><th></th><th></th></td<>		J	method	limit/base				
Iron		•						
Chromium         ppm         ASTM D5185m         >10         0         <1	WEAR METALS		method	limit/base	current	history1	history2	
Chromium         ppm         ASTM D5185m         >10         0         <1	Iron	nnm	ASTM D5185m	>20	4	5	2	
Nickel	-				-			
Titanium         ppm         ASTM D5185m         0         0         0           Silver         ppm         ASTM D5185m         0         0         0           Aluminum         ppm         ASTM D5185m         >10         <1					_			
Silver         ppm         ASTM D5185m         0         0         0           Aluminum         ppm         ASTM D5185m         >10         <1				210				
Aluminum         ppm         ASTM D5185m         >10         <1								
Lead         ppm         ASTM D5185m         >10         1         2         1           Copper         ppm         ASTM D5185m         >75         11         14         11           Tin         ppm         ASTM D5185m         >10         1         <1				>10				
Copper         ppm         ASTM D5185m         >75         11         14         11           Tin         ppm         ASTM D5185m         >10         1         <1         <1           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         0         0         0           Barium         ppm         ASTM D5185m         0         0         0           Molybdenum         ppm         ASTM D5185m         0         0         0           Magnesium         ppm         ASTM D5185m         <1         0         0           Magnesium         ppm         ASTM D5185m         4         4         5           Calcium         ppm         ASTM D5185m         346         299         358           Zinc         ppm         ASTM D5185m         430         444         463           Sulfur         ppm         ASTM D5185m         1433         1268         1294								
Tin         ppm         ASTM D5185m         >10         1         <1								
Vanadium         ppm         ASTM D5185m         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         0         0           Barium         ppm         ASTM D5185m         0         0         0           Molybdenum         ppm         ASTM D5185m         0         0         0           Manganese         ppm         ASTM D5185m         <1								
Cadmium         ppm         ASTM D5185m         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         0         0           Barium         ppm         ASTM D5185m         0         0         0           Molybdenum         ppm         ASTM D5185m         <1         0         0           Magnesium         ppm         ASTM D5185m         4         4         5           Calcium         ppm         ASTM D5185m         346         299         358           Zinc         ppm         ASTM D5185m         430         444         463           Sulfur         ppm         ASTM D5185m         1433         1268         1294           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >20         1         <1         1           Sodium         ppm         ASTM D5185m         >20         1         <1         1           Potassium         ppm         ASTM D5185m         >20         <				>10				
ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         0         0           Barium         ppm         ASTM D5185m         0         0         0           Molybdenum         ppm         ASTM D5185m         0         0         0           Magnese         ppm         ASTM D5185m         <1         0         0           Magnesium         ppm         ASTM D5185m         4         4         5           Calcium         ppm         ASTM D5185m         346         299         358           Zinc         ppm         ASTM D5185m         430         444         463           Sulfur         ppm         ASTM D5185m         1433         1268         1294           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         1         0         0           Potassium         ppm         ASTM D5185m         20         1         <1         1           Sodium         ppm         ASTM D5185m         >20         <1					_			
Boron         ppm         ASTM D5185m         0         0         0           Barium         ppm         ASTM D5185m         0         0         0           Molybdenum         ppm         ASTM D5185m         0         0         0           Manganese         ppm         ASTM D5185m         <1		ppm			-			
Barium         ppm         ASTM D5185m         0         0         0           Molybdenum         ppm         ASTM D5185m         0         0         0           Manganese         ppm         ASTM D5185m         <1         0         0           Magnesium         ppm         ASTM D5185m         4         4         5           Calcium         ppm         ASTM D5185m         346         299         358           Zinc         ppm         ASTM D5185m         430         444         463           Sulfur         ppm         ASTM D5185m         1433         1268         1294           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >20         1         <1         1           Sodium         ppm         ASTM D5185m         >20         1         <1         1           Sodium         ppm         ASTM D5185m         >20         <1         2         1           FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4μm				limit/base				
Molybdenum         ppm         ASTM D5185m         0         0         0           Manganese         ppm         ASTM D5185m         <1         0         0           Magnesium         ppm         ASTM D5185m         4         4         5           Calcium         ppm         ASTM D5185m         52         54         54           Phosphorus         ppm         ASTM D5185m         346         299         358           Zinc         ppm         ASTM D5185m         430         444         463           Sulfur         ppm         ASTM D5185m         1433         1268         1294           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >20         1         <1         1           Sodium         ppm         ASTM D5185m         >20         <1         2         1           FUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4µm         ASTM D7647         >5000         59442         4455         11355           Particles >514µm         ASTM D7647								
Manganese         ppm         ASTM D5185m         <1	<th></th> <th>ppm</th> <th>ASTM D5185m</th> <th></th> <th>0</th> <th>0</th> <th>0</th>		ppm	ASTM D5185m		0	0	0
Magnesium         ppm         ASTM D5185m         4         4         5           Calcium         ppm         ASTM D5185m         52         54         54           Phosphorus         ppm         ASTM D5185m         346         299         358           Zinc         ppm         ASTM D5185m         430         444         463           Sulfur         ppm         ASTM D5185m         1433         1268         1294           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >20         1         <1         1           Sodium         ppm         ASTM D5185m         >20         <1         2         1           Potassium         ppm         ASTM D5185m         >20         <1         2         1           FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4µm         ASTM D7647         >5000         59442         4455         11355           Particles >54µm         ASTM D7647         >160         1023         102         34           Particles >21	Molybdenum	ppm	ASTM D5185m		0	0	0	
Calcium         ppm         ASTM D5185m         52         54         54           Phosphorus         ppm         ASTM D5185m         346         299         358           Zinc         ppm         ASTM D5185m         430         444         463           Sulfur         ppm         ASTM D5185m         1433         1268         1294           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >20         1         <1         1           Sodium         ppm         ASTM D5185m         >20         <1         2         1           Potassium         ppm         ASTM D5185m         >20         <1         2         1           FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4µm         ASTM D7647         >5000         59442         4455         11355           Particles >6µm         ASTM D7647         >160         1023         102         34           Particles >21µm         ASTM D7647         >40         372         58         15	Manganese	ppm	ASTM D5185m		<1	0	0	
Phosphorus         ppm         ASTM D5185m         346         299         358           Zinc         ppm         ASTM D5185m         430         444         463           Sulfur         ppm         ASTM D5185m         1433         1268         1294           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >20         1         <1         1           Sodium         ppm         ASTM D5185m         >20         <1         2         1           Potassium         ppm         ASTM D5185m         >20         <1         2         1           FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4μm         ASTM D7647         >5000         59442         4455         ▲ 11355           Particles >6μm         ASTM D7647         >1300         ▲ 13159         1012         1057           Particles >14μm         ASTM D7647         >160         ▲ 1023         102         34           Particles >21μm         ASTM D7647         >40         ▲ 372         58         15	Magnesium	ppm	ASTM D5185m		4	4	5	
Zinc         ppm         ASTM D5185m         430         444         463           Sulfur         ppm         ASTM D5185m         1433         1268         1294           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >20         1         <1         1           Sodium         ppm         ASTM D5185m         >20         <1         2         1           Potassium         ppm         ASTM D5185m         >20         <1         2         1           FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4μm         ASTM D7647         >5000         ★ 59442         4455         ★ 11355           Particles >6μm         ASTM D7647         >1300         ★ 13159         1012         1057           Particles >14μm         ASTM D7647         >160         ★ 1023         102         34           Particles >21μm         ASTM D7647         >40         ★ 372         58         15           Particles >71μm         ASTM D7647         >3         1         4         0	Calcium	ppm	ASTM D5185m		52	54	54	
Sulfur         ppm         ASTM D5185m         1433         1268         1294           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >20         1         <1         1           Sodium         ppm         ASTM D5185m         >20         <1         0         0           Potassium         ppm         ASTM D5185m         >20         <1         2         1           FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4μm         ASTM D7647         >5000         Δ 59442         4455         Δ 11355           Particles >6μm         ASTM D7647         >1300         Δ 13159         1012         1057           Particles >14μm         ASTM D7647         >160         Δ 1023         102         34           Particles >21μm         ASTM D7647         >40         Δ 372         58         15           Particles >71μm         ASTM D7647         >3         1         4         0           Oil Cleanliness         ISO 4406 (c)         >19/17/14         23/21/17         19/17/14         21/17/	Phosphorus	ppm	ASTM D5185m		346	299	358	
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >20         1         <1         1           Sodium         ppm         ASTM D5185m         >20         <1         2         1           Potassium         ppm         ASTM D5185m         >20         <1         2         1           FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4μm         ASTM D7647         >5000         Δ 59442         4455         Δ 11355           Particles >6μm         ASTM D7647         >1300         Δ 13159         1012         1057           Particles >14μm         ASTM D7647         >160         Δ 1023         102         34           Particles >21μm         ASTM D7647         >40         Δ 372         58         15           Particles >71μm         ASTM D7647         >3         1         4         0           Oil Cleanliness         ISO 4406 (c)         >19/17/14         Δ 23/21/17         19/17/14         Δ 21/17/12	Zinc	ppm	ASTM D5185m		430	444	463	
Silicon       ppm       ASTM D5185m       >20       1       <1	Sulfur	ppm	ASTM D5185m		1433	1268	1294	
Sodium         ppm         ASTM D5185m         1         0         0           Potassium         ppm         ASTM D5185m         >20         <1	CONTAMINANTS		method	limit/base	current	history1	history2	
Potassium         ppm         ASTM D5185m         >20         <1	Silicon				1	<1	1	
FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4μm         ASTM D7647         >5000         ▲ 59442         4455         ▲ 11355           Particles >6μm         ASTM D7647         >1300         ▲ 13159         1012         1057           Particles >14μm         ASTM D7647         >160         ▲ 1023         102         34           Particles >21μm         ASTM D7647         >40         ▲ 372         58         15           Particles >38μm         ASTM D7647         >10         ▲ 43         18         1           Particles >71μm         ASTM D7647         >3         1         4         0           Oil Cleanliness         ISO 4406 (c)         >19/17/14         ▲ 23/21/17         19/17/14         ▲ 21/17/12	Sodium	ppm	ASTM D5185m		1	0	0	
Particles >4μm       ASTM D7647       >5000       ▲ 59442       4455       ▲ 11355         Particles >6μm       ASTM D7647       >1300       ▲ 13159       1012       1057         Particles >14μm       ASTM D7647       >160       ▲ 1023       102       34         Particles >21μm       ASTM D7647       >40       ▲ 372       58       15         Particles >38μm       ASTM D7647       >10       ▲ 43       18       1         Particles >71μm       ASTM D7647       >3       1       4       0         Oil Cleanliness       ISO 4406 (c)       >19/17/14       ▲ 23/21/17       19/17/14       ▲ 21/17/12	Potassium	ppm	ASTM D5185m	>20	<1	2	1	
Particles >6μm       ASTM D7647       >1300       ▲ 13159       1012       1057         Particles >14μm       ASTM D7647       >160       ▲ 1023       102       34         Particles >21μm       ASTM D7647       >40       ▲ 372       58       15         Particles >38μm       ASTM D7647       >10       ▲ 43       18       1         Particles >71μm       ASTM D7647       >3       1       4       0         Oil Cleanliness       ISO 4406 (c)       >19/17/14       ▲ 23/21/17       19/17/14       ▲ 21/17/12	FLUID CLEANLIN	ESS	method	limit/base	current	history1	history2	
Particles >14μm       ASTM D7647       >160       ▲ 1023       102       34         Particles >21μm       ASTM D7647       >40       ▲ 372       58       15         Particles >38μm       ASTM D7647       >10       ▲ 43       18       1         Particles >71μm       ASTM D7647       >3       1       4       0         Oil Cleanliness       ISO 4406 (c)       >19/17/14       ▲ 23/21/17       19/17/14       ▲ 21/17/12	Particles >4µm		ASTM D7647	>5000	<b>▲</b> 59442	4455	<u> </u>	
Particles >21μm       ASTM D7647       >40       Δ 372       58       15         Particles >38μm       ASTM D7647       >10       Δ 43       18       1         Particles >71μm       ASTM D7647       >3       1       4       0         Oil Cleanliness       ISO 4406 (c)       >19/17/14       Δ 23/21/17       19/17/14       Δ 21/17/12	Particles >6µm		ASTM D7647	>1300	<b>13159</b>	1012	1057	
Particles >38μm       ASTM D7647       >10       43       18       1         Particles >71μm       ASTM D7647       >3       1       4       0         Oil Cleanliness       ISO 4406 (c)       >19/17/14       23/21/17       19/17/14 $\triangle$ 21/17/12	Particles >14µm		ASTM D7647	>160	<b>1023</b>	102	34	
Particles >71μm       ASTM D7647       >3       1       4       0         Oil Cleanliness       ISO 4406 (c)       >19/17/14       Δ 23/21/17       19/17/14       Δ 21/17/12	Particles >21µm		ASTM D7647	>40	<b>▲</b> 372	<b>58</b>	15	
Oil Cleanliness ISO 4406 (c) >19/17/14 <b>A 23/21/17</b> 19/17/14 <b>A</b> 21/17/12	Particles >38µm		ASTM D7647	>10	<b>43</b>	<b>1</b> 8	1	
Oil Cleanliness ISO 4406 (c) >19/17/14 <b>A 23/21/17</b> 19/17/14 <b>A</b> 21/17/12	Particles >71µm		ASTM D7647	>3	1	4	0	
FLUID DEGRADATION method limit/base current history1 history2	·		ISO 4406 (c)	>19/17/14	<b>23/21/17</b>	19/17/14	<u>\$\rightarrow\$ 21/17/12</u>	
	FLUID DEGRADA	TION	method	limit/base	current	history1	history2	

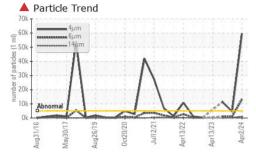
Acid Number (AN)

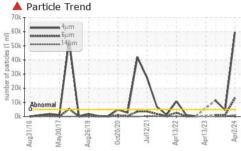
mg KOH/g ASTM D8045 0.38

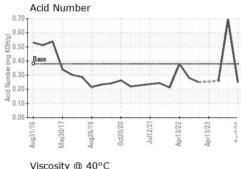
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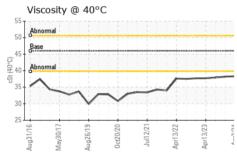


# **OIL ANALYSIS REPORT**







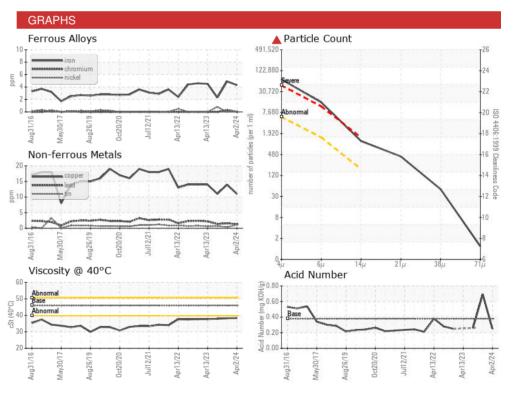


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	LIGHT	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
<b>Emulsified Water</b>	scalar	*Visual	>0.1	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

FLUID PROPER	HES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	46	38.3	38.2	37.9

SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					TOWNS .

00.01		
Bottom		







Certificate 12367

Laboratory Sample No.

Lab Number : 06140615 Unique Number : 10965423

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : WC0926845

Test Package : MOB 2

Received : 05 Apr 2024 **Tested** : 08 Apr 2024 Diagnosed

: 08 Apr 2024 - Wes Davis

**AES USA - NORTH CHARLESTON** 

5400 INTERNATIONAL BLVD, BLDG 88-20 NORTH CHARLESTON, SC US 29418

Contact: Maxime Banctel maxime.banctel@aes-gse.com

To discuss this sample report, contact Customer Service at 1-800-237-1369. \* - 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)

T:

F: x: