

From: [McAtee Nancy](#)
To: [Hill Millicent](#)
Cc: [Budinski Michael](#)
Subject: Email report- ERA18LA193 (oil sample)
Date: Thursday, July 11, 2019 1:39:58 PM
Attachments: [V0609485-06-30-2018.PDF](#)

Millicent,

An oil sample from the accident aircraft was submitted to the Materials Laboratory for examination. The sample was sent to an independent, third-party lab for examination. The sample was tested using Inductively Coupled Plasma Optical Emission spectroscopy (ICP-OES) to look for the presence of metals and other elements. The testing reports are attached to this email. No significant anomalies were found in any of the samples. The slightly elevated presence of silicon (Si) in the sample is indicative of soil/dirt in the sample. The elevated presence of phosphorous in the sample can be indicative of the presence of anti-wear additives in the oil. The other metal/element amounts in the sample were negligible.

If you have any question, please let me know.

Nancy B McAtee
Chemist
RE-30



Analysis Report

Printed: 03/11/2019 04:48:17 PM

Lab Number: **V0609485**

Test Pkg:

Sampled: 6/30/2018

Equipment: LABV0609485-9531BM, Mission, 96658, ERA18LA193, San Juan PR, Bell 206

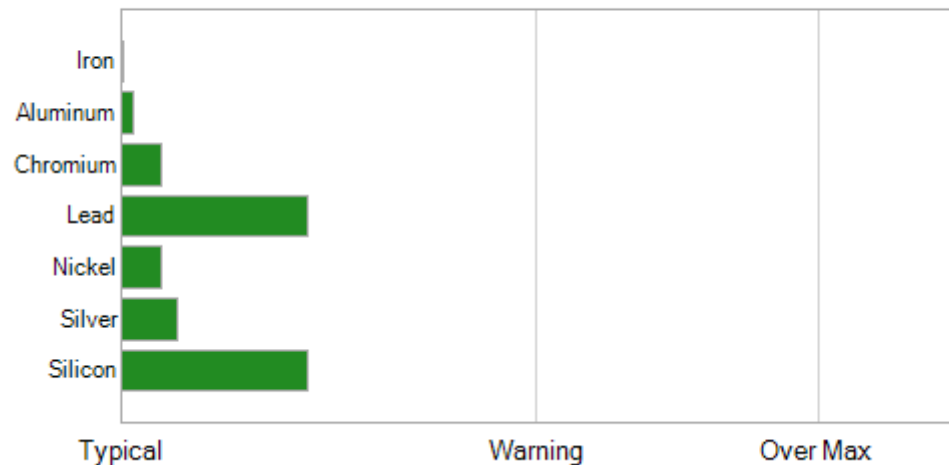
Received: 3/5/2019

Completed: 3/11/2019 4:48:01 PM

Customer Information	Equipment Information	Condition
Lab Account: NATINM National Transportation Safety Board 490 L'Enfant Plaza, SW Washington, DC 20594 PO: POSTED CASH	Equipment Type: Gear (GN_GR001) Equipment Time: 0 Lubricant Type: Mobil Jet Oil 254 -(POE) (MO_081) Lubricant Time: 0 Comments <i>ISO 9001:2008 Certified and ISO/IEC 17025:2005 Accredited</i> Data is reported per client specified testing request.	

Lab Number	Sample Date	Reported Units	Minimum	Maximum	Ref Oil	V0609485
					...	06/30/2018
Equipment MI		MI				0
Lubricant MI		MI				0
Metals						
Iron		ppm		778	1	2
Aluminum		ppm		83	<1	3
Chromium		ppm		10	<1	1
Copper		ppm			<1	6
Lead		ppm		4	<1	2
Tin		ppm		4	<1	<2
Nickel		ppm		10	<1	1
Silver		ppm		4.5	<0.1	0.6
Silicon		ppm		20	<1	8
Sodium		ppm			<2	37
Boron		ppm			<1	3
Zinc		ppm			<1	16
Phosphorus		ppm			2634	3055
Calcium		ppm			<1	2
Magnesium		ppm			<1	5
Barium		ppm			<1	<1
Molybdenum		ppm			<1	<1
Vanadium		ppm				<1
Titanium		ppm				<1
Manganese		ppm				<1
Potassium		ppm			<3	<4
Antimony		ppm				<1

Comparative Graphical Analysis

Evaluated By: **Mindy L. Villalba, Project Manager**

For questions about this report, please call 888 HER-GUTH (437-4884) between 8:00 am and 5:00 pm PST. A Technical Support Representative will be glad to help you.

The results shown in this test report specifically refer to the sample(s) tested as received unless otherwise stated. All tests have been performed using the latest revision of the methods indicated, unless specifically marked otherwise on the report. Precision parameters apply in the determination of the above results. Users of the data shown on this report should refer to the latest published revisions of ASTM D-3244; IP 367; ISO 4259 and Appendix E of IP Standard Methods for Analysis and Testing when utilizing the test data to determine conformance with any specification or process requirement. This Test Report is issued under the Company's General Conditions of Service (copy available upon request or on the company website at www.sgs.com/terms_and_conditions). Attention is drawn to the limitations of liability, indemnification and jurisdictional issues defined therein. This report shall not be reproduced except in full, without the written approval of the laboratory.

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