


LOCKHEED MARTIN

Lockheed Martin Information Systems & Global Solutions (IS&GS - Civil)
Environmental Services SERAS
2890 Woodbridge Avenue, Building 209 Annex
Edison, NJ 08837-3679
Telephone: 732-321-4200, Facsimile: 732-494-4021

DATE: November 15, 2016

TO: Raj Singhvi, ERTC/EPA

FROM: Misty Barkley, Analytical Support Chemist 

SUBJECT: Preliminary Results of Project: Buffalo Fire ER WA# 84001

Attached please find the preliminary results of the above referenced project for the following samples.

Date Received		No of Samples	Analysis Requested		Lab Job No.
	chain of custody			Matrix	
11/11/16	2-111116-080803-0002	10	Metals	Air	16110809

Note: The Lot Blank, sample 1653 was reported as the Method Blank

cc: G. DePasquale
K. Taylor
D. Killeen
J. Patel
S. Burchette
P. Solinski



CASE NARRATIVE

Date: 15-Nov-16

CLIENT: LOCKHEED MARTIN

Project:

Work Order No 16110809

The results of this report relate only to the samples listed in the body of this report.

Unless otherwise noted below, the following statements apply: 1) all samples were received in acceptable condition, 2) all quality control results associated with this sample set were within acceptable limits and/or do not adversely affect the reported results, and 3) the industrial hygiene results have not been blank corrected.

→ Three pieces of unused media were supplied by the client to be used for QC. They were spiked to create the LCS, LCSD, and Media Blank QC sets.



ANALYTICAL RESULTS

Date: 15-Nov-16

Client: LOCKHEED MARTIN

Project:

Work Order No: 16110809

Client ID: 1632

Date Sampled: 11/10/2016

Lab ID: 001A

Date Received: 11/14/2016

Matrix: MCE Filter, .8um

Air Vol.(L): 1440

Analyte	Concentration (µg)	Concentration (mg/m³)	Reporting Limit (µg)	Test Method	Date Analyzed / Analyst
Aluminum	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Antimony	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Arsenic	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Barium	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Beryllium	<0.02	<0.000014	0.02	NIOSH 7303/7300 Mod	11/15/2016 DH
Cadmium	<0.5	<0.00035	0.5	NIOSH 7303/7300 Mod	11/15/2016 DH
Calcium	<10	<0.0069	10	NIOSH 7303/7300 Mod	11/15/2016 DH
Chromium	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Cobalt	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Copper	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Iron	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Lead	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Lithium	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Magnesium	<10	<0.0069	10	NIOSH 7303/7300 Mod	11/15/2016 DH
Manganese	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Molybdenum	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Nickel	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Phosphorus	<5	<0.0035	5	NIOSH 7303/7300 Mod	11/15/2016 DH
Potassium	<10	<0.0069	10	NIOSH 7303/7300 Mod	11/15/2016 DH
Selenium	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Silver	<0.2	<0.00014	0.2	NIOSH 7303/7300 Mod	11/15/2016 DH
Sodium	<10	<0.0069	10	NIOSH 7303/7300 Mod	11/15/2016 DH
Strontium	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Thallium	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Tin	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Titanium	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Vanadium	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Zinc	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH

General Notes:

<: Less than the indicated reporting limit (RL).

--: Information not available or not applicable.



ANALYTICAL RESULTS

Date: 15-Nov-16

Client: LOCKHEED MARTIN

Project:

Work Order No: 16110809

Client ID: 1635

Date Sampled: 11/10/2016

Lab ID: 002A

Date Received: 11/14/2016

Matrix: MCE Filter, .8um

Air Vol.(L): 1464

Analyte	Concentration (µg)	Concentration (mg/m³)	Reporting Limit (µg)	Test Method	Date Analyzed / Analyst
Aluminum	<1	<0.00068	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Antimony	<1	<0.00068	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Arsenic	<1	<0.00068	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Barium	<1	<0.00068	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Beryllium	<0.02	<0.000014	0.02	NIOSH 7303/7300 Mod	11/15/2016 DH
Cadmium	<0.5	<0.00034	0.5	NIOSH 7303/7300 Mod	11/15/2016 DH
Calcium	<10	<0.0068	10	NIOSH 7303/7300 Mod	11/15/2016 DH
Chromium	<1	<0.00068	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Cobalt	<1	<0.00068	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Copper	<1	<0.00068	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Iron	<1	<0.00068	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Lead	<1	<0.00068	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Lithium	<1	<0.00068	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Magnesium	<10	<0.0068	10	NIOSH 7303/7300 Mod	11/15/2016 DH
Manganese	<1	<0.00068	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Molybdenum	<1	<0.00068	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Nickel	<1	<0.00068	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Phosphorus	<5	<0.0034	5	NIOSH 7303/7300 Mod	11/15/2016 DH
Potassium	<10	<0.0068	10	NIOSH 7303/7300 Mod	11/15/2016 DH
Selenium	<1	<0.00068	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Silver	<0.2	<0.00014	0.2	NIOSH 7303/7300 Mod	11/15/2016 DH
Sodium	<10	<0.0068	10	NIOSH 7303/7300 Mod	11/15/2016 DH
Strontium	<1	<0.00068	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Thallium	<1	<0.00068	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Tin	<1	<0.00068	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Titanium	<1	<0.00068	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Vanadium	<1	<0.00068	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Zinc	<1	<0.00068	1	NIOSH 7303/7300 Mod	11/15/2016 DH

General Notes:

<: Less than the indicated reporting limit (RL).

--: Information not available or not applicable.



ANALYTICAL RESULTS

Date: 15-Nov-16

Client: LOCKHEED MARTIN

Project:

Work Order No: 16110809

Client ID: 1638

Date Sampled: 11/10/2016

Lab ID: 003A

Date Received: 11/14/2016

Matrix: MCE Filter, .8um

Air Vol.(L): 1440

Analyte	Concentration (µg)	Concentration (mg/m³)	Reporting Limit (µg)	Test Method	Date Analyzed / Analyst
Aluminum	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Antimony	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Arsenic	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Barium	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Beryllium	<0.02	<0.000014	0.02	NIOSH 7303/7300 Mod	11/15/2016 DH
Cadmium	<0.5	<0.00035	0.5	NIOSH 7303/7300 Mod	11/15/2016 DH
Calcium	<10	<0.0069	10	NIOSH 7303/7300 Mod	11/15/2016 DH
Chromium	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Cobalt	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Copper	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Iron	1.1	0.00078	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Lead	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Lithium	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Magnesium	<10	<0.0069	10	NIOSH 7303/7300 Mod	11/15/2016 DH
Manganese	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Molybdenum	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Nickel	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Phosphorus	<5	<0.0035	5	NIOSH 7303/7300 Mod	11/15/2016 DH
Potassium	<10	<0.0069	10	NIOSH 7303/7300 Mod	11/15/2016 DH
Selenium	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Silver	<0.2	<0.00014	0.2	NIOSH 7303/7300 Mod	11/15/2016 DH
Sodium	<10	<0.0069	10	NIOSH 7303/7300 Mod	11/15/2016 DH
Strontium	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Thallium	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Tin	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Titanium	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Vanadium	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Zinc	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH

General Notes:

<: Less than the indicated reporting limit (RL).

--: Information not available or not applicable.



ANALYTICAL RESULTS

Date: 15-Nov-16

Client: LOCKHEED MARTIN

Project:

Work Order No: 16110809

Client ID: 1641

Date Sampled: 11/10/2016

Lab ID: 004A

Date Received: 11/14/2016

Matrix: MCE Filter, .8um

Air Vol.(L): 1440

Analyte	Concentration (µg)	Concentration (mg/m³)	Reporting Limit (µg)	Test Method	Date Analyzed / Analyst
Aluminum	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Antimony	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Arsenic	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Barium	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Beryllium	<0.02	<0.000014	0.02	NIOSH 7303/7300 Mod	11/15/2016 DH
Cadmium	<0.5	<0.00035	0.5	NIOSH 7303/7300 Mod	11/15/2016 DH
Calcium	<10	<0.0069	10	NIOSH 7303/7300 Mod	11/15/2016 DH
Chromium	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Cobalt	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Copper	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Iron	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Lead	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Lithium	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Magnesium	<10	<0.0069	10	NIOSH 7303/7300 Mod	11/15/2016 DH
Manganese	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Molybdenum	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Nickel	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Phosphorus	<5	<0.0035	5	NIOSH 7303/7300 Mod	11/15/2016 DH
Potassium	<10	<0.0069	10	NIOSH 7303/7300 Mod	11/15/2016 DH
Selenium	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Silver	<0.2	<0.00014	0.2	NIOSH 7303/7300 Mod	11/15/2016 DH
Sodium	<10	<0.0069	10	NIOSH 7303/7300 Mod	11/15/2016 DH
Strontium	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Thallium	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Tin	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Titanium	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Vanadium	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Zinc	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH

General Notes:

<: Less than the indicated reporting limit (RL).

--: Information not available or not applicable.



ANALYTICAL RESULTS

Date: 15-Nov-16

Client: LOCKHEED MARTIN

Project:

Work Order No: 16110809

Client ID: 1644

Date Sampled: 11/10/2016

Lab ID: 005A

Date Received: 11/14/2016

Matrix: MCE Filter, .8um

Air Vol.(L): 1440

Analyte	Concentration (µg)	Concentration (mg/m³)	Reporting Limit (µg)	Test Method	Date Analyzed / Analyst
Aluminum	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Antimony	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Arsenic	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Barium	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Beryllium	<0.02	<0.000014	0.02	NIOSH 7303/7300 Mod	11/15/2016 DH
Cadmium	<0.5	<0.00035	0.5	NIOSH 7303/7300 Mod	11/15/2016 DH
Calcium	<10	<0.0069	10	NIOSH 7303/7300 Mod	11/15/2016 DH
Chromium	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Cobalt	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Copper	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Iron	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Lead	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Lithium	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Magnesium	<10	<0.0069	10	NIOSH 7303/7300 Mod	11/15/2016 DH
Manganese	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Molybdenum	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Nickel	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Phosphorus	<5	<0.0035	5	NIOSH 7303/7300 Mod	11/15/2016 DH
Potassium	<10	<0.0069	10	NIOSH 7303/7300 Mod	11/15/2016 DH
Selenium	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Silver	<0.2	<0.00014	0.2	NIOSH 7303/7300 Mod	11/15/2016 DH
Sodium	<10	<0.0069	10	NIOSH 7303/7300 Mod	11/15/2016 DH
Strontium	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Thallium	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Tin	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Titanium	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Vanadium	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Zinc	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH

General Notes:

<: Less than the indicated reporting limit (RL).

--: Information not available or not applicable.



ANALYTICAL RESULTS

Date: 15-Nov-16

Client: LOCKHEED MARTIN

Project:

Work Order No: 16110809

Client ID: 1647

Date Sampled: 11/10/2016

Lab ID: 006A

Date Received: 11/14/2016

Matrix: MCE Filter, .8um

Air Vol.(L): 1440

Analyte	Concentration (µg)	Concentration (mg/m³)	Reporting Limit (µg)	Test Method	Date Analyzed / Analyst
Aluminum	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Antimony	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Arsenic	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Barium	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Beryllium	<0.02	<0.000014	0.02	NIOSH 7303/7300 Mod	11/15/2016 DH
Cadmium	<0.5	<0.00035	0.5	NIOSH 7303/7300 Mod	11/15/2016 DH
Calcium	<10	<0.0069	10	NIOSH 7303/7300 Mod	11/15/2016 DH
Chromium	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Cobalt	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Copper	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Iron	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Lead	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Lithium	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Magnesium	<10	<0.0069	10	NIOSH 7303/7300 Mod	11/15/2016 DH
Manganese	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Molybdenum	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Nickel	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Phosphorus	<5	<0.0035	5	NIOSH 7303/7300 Mod	11/15/2016 DH
Potassium	<10	<0.0069	10	NIOSH 7303/7300 Mod	11/15/2016 DH
Selenium	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Silver	<0.2	<0.00014	0.2	NIOSH 7303/7300 Mod	11/15/2016 DH
Sodium	<10	<0.0069	10	NIOSH 7303/7300 Mod	11/15/2016 DH
Strontium	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Thallium	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Tin	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Titanium	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Vanadium	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Zinc	<1	<0.00069	1	NIOSH 7303/7300 Mod	11/15/2016 DH

General Notes:

<: Less than the indicated reporting limit (RL).

--: Information not available or not applicable.



ANALYTICAL RESULTS

Date: 15-Nov-16

Client: LOCKHEED MARTIN

Project:

Work Order No: 16110809

Client ID: 1650

Date Sampled: 11/10/2016

Lab ID: 007A

Date Received: 11/14/2016

Matrix: MCE Filter, .8um

Air Vol.(L): 1464

Analyte	Concentration (µg)	Concentration (mg/m ³)	Reporting Limit (µg)	Test Method	Date Analyzed / Analyst
Aluminum	<1	<0.00068	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Antimony	<1	<0.00068	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Arsenic	<1	<0.00068	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Barium	<1	<0.00068	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Beryllium	<0.02	<0.000014	0.02	NIOSH 7303/7300 Mod	11/15/2016 DH
Cadmium	<0.5	<0.00034	0.5	NIOSH 7303/7300 Mod	11/15/2016 DH
Calcium	<10	<0.0068	10	NIOSH 7303/7300 Mod	11/15/2016 DH
Chromium	<1	<0.00068	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Cobalt	<1	<0.00068	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Copper	<1	<0.00068	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Iron	<1	<0.00068	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Lead	<1	<0.00068	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Lithium	<1	<0.00068	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Magnesium	<10	<0.0068	10	NIOSH 7303/7300 Mod	11/15/2016 DH
Manganese	<1	<0.00068	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Molybdenum	<1	<0.00068	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Nickel	<1	<0.00068	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Phosphorus	<5	<0.0034	5	NIOSH 7303/7300 Mod	11/15/2016 DH
Potassium	<10	<0.0068	10	NIOSH 7303/7300 Mod	11/15/2016 DH
Selenium	<1	<0.00068	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Silver	<0.2	<0.00014	0.2	NIOSH 7303/7300 Mod	11/15/2016 DH
Sodium	<10	<0.0068	10	NIOSH 7303/7300 Mod	11/15/2016 DH
Strontium	<1	<0.00068	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Thallium	<1	<0.00068	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Tin	<1	<0.00068	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Titanium	<1	<0.00068	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Vanadium	<1	<0.00068	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Zinc	<1	<0.00068	1	NIOSH 7303/7300 Mod	11/15/2016 DH

General Notes:

<: Less than the indicated reporting limit (RL).

--: Information not available or not applicable.



ANALYTICAL RESULTS

Date: 15-Nov-16

Client: LOCKHEED MARTIN

Project:

Work Order No: 16110809

Client ID: 1656 FIELD BLANK

Date Sampled: 11/10/2016

Lab ID: 008A

Date Received: 11/14/2016

Matrix: MCE Filter, .8um

Air Vol.(L): NA

Analyte	Concentration (µg)	Concentration (mg/m³)	Reporting Limit (µg)	Test Method	Date Analyzed / Analyst
Aluminum	<1	--	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Antimony	<1	--	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Arsenic	<1	--	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Barium	<1	--	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Beryllium	<0.02	--	0.02	NIOSH 7303/7300 Mod	11/15/2016 DH
Cadmium	<0.5	--	0.5	NIOSH 7303/7300 Mod	11/15/2016 DH
Calcium	<10	--	10	NIOSH 7303/7300 Mod	11/15/2016 DH
Chromium	<1	--	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Cobalt	<1	--	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Copper	<1	--	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Iron	<1	--	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Lead	<1	--	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Lithium	<1	--	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Magnesium	<10	--	10	NIOSH 7303/7300 Mod	11/15/2016 DH
Manganese	<1	--	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Molybdenum	<1	--	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Nickel	<1	--	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Phosphorus	<5	--	5	NIOSH 7303/7300 Mod	11/15/2016 DH
Potassium	<10	--	10	NIOSH 7303/7300 Mod	11/15/2016 DH
Selenium	<1	--	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Silver	<0.2	--	0.2	NIOSH 7303/7300 Mod	11/15/2016 DH
Sodium	<10	--	10	NIOSH 7303/7300 Mod	11/15/2016 DH
Strontium	<1	--	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Thallium	<1	--	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Tin	<1	--	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Titanium	<1	--	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Vanadium	<1	--	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Zinc	<1	--	1	NIOSH 7303/7300 Mod	11/15/2016 DH

General Notes:

<: Less than the indicated reporting limit (RL).

--: Information not available or not applicable.



ANALYTICAL RESULTS

Date: 15-Nov-16

Client: LOCKHEED MARTIN

Project:

Work Order No: 16110809

Client ID: 1659

Date Sampled: 11/10/2016

Lab ID: 009A

Date Received: 11/14/2016

Matrix: MCE Filter, .8um

Air Vol.(L): 1416

Analyte	Concentration (µg)	Concentration (mg/m³)	Reporting Limit (µg)	Test Method	Date Analyzed / Analyst
Aluminum	<1	<0.00071	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Antimony	11	0.0078	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Arsenic	<1	<0.00071	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Barium	<1	<0.00071	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Beryllium	<0.02	<0.000014	0.02	NIOSH 7303/7300 Mod	11/15/2016 DH
Cadmium	1.7	0.0012	0.5	NIOSH 7303/7300 Mod	11/15/2016 DH
Calcium	<10	<0.0071	10	NIOSH 7303/7300 Mod	11/15/2016 DH
Chromium	<1	<0.00071	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Cobalt	<1	<0.00071	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Copper	<1	<0.00071	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Iron	1.5	0.0010	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Lead	1.3	0.00089	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Lithium	<1	<0.00071	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Magnesium	<10	<0.0071	10	NIOSH 7303/7300 Mod	11/15/2016 DH
Manganese	<1	<0.00071	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Molybdenum	<1	<0.00071	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Nickel	<1	<0.00071	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Phosphorus	<5	<0.0035	5	NIOSH 7303/7300 Mod	11/15/2016 DH
Potassium	<10	<0.0071	10	NIOSH 7303/7300 Mod	11/15/2016 DH
Selenium	<1	<0.00071	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Silver	<0.2	<0.00014	0.2	NIOSH 7303/7300 Mod	11/15/2016 DH
Sodium	<10	<0.0071	10	NIOSH 7303/7300 Mod	11/15/2016 DH
Strontium	<1	<0.00071	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Thallium	<1	<0.00071	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Tin	<1	<0.00071	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Titanium	<1	<0.00071	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Vanadium	<1	<0.00071	1	NIOSH 7303/7300 Mod	11/15/2016 DH
Zinc	1.5	0.0011	1	NIOSH 7303/7300 Mod	11/15/2016 DH

General Notes:

<: Less than the indicated reporting limit (RL).

--: Information not available or not applicable.



Bureau Veritas North America, Inc.

Date: 15-Nov-16

CLIENT: LOCKHEED MARTIN

Work Order: 16110809

Project:

QC SUMMARY REPORT

Method Blank

Sample ID	66160-LB	Batch ID: 66160	Units: µg	Analysis Date 11/15/2016 5:05:07 AM		Prep Date					
Client ID:		Run ID: ME_PE10J_161115A		SeqNo: 4736496							
Analyte	Result 1	PQL	Spike Added	Unspiked Sample Result	%REC	LowLimit	HighLimit	Result 2	%RPD	RPDLimit	Qual
Aluminum	0.018	1.0									
Antimony	ND	1.0									
Arsenic	0.0906	1.0									
Barium	ND	1.0									
Beryllium	0.0005	0.020									
Cadmium	ND	0.50									
Calcium	ND	10									
Chromium	0.0178	1.0									
Cobalt	0.0042	1.0									
Copper	ND	1.0									
Iron	0.0566	1.0									
Lead	0.017	1.0									
Lithium	ND	1.0									
Magnesium	0.1858	10									
Manganese	0.0024	1.0									
Molybdenum	0.0145	1.0									
Nickel	ND	1.0									
Phosphorus	0.4937	5.0									
Potassium	0.1319	10									
Selenium	0.2457	1.0									
Silver	ND	0.20									
Sodium	2.222	10									
Strontium	0.0094	1.0									

Qualifiers:

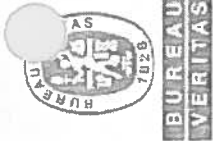
ND - Not Detected at the Reporting Limit

J - Analyte detected below Reporting Limit

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank



CLIENT: LOCKHEED MARTIN

Work Order: 16110809

Project:

QC SUMMARY REPORT

Method Blank

Sample ID: 66160-LB Batch ID: 66160 Units: µg Analysis Date: 11/15/2016 5:05:07 AM Prep Date:
Client ID: Run ID: ME_PE10J_161115A SeqNo: 4736496

Analyte	Result 1	PQL	Spike Added	Unspiked		%REC	LowLimit	HighLimit	Result 2	%RPD	RPDLimit	Qual
				Sample	Result							
Thallium	0.025	1.0										
Tin	0.0333	1.0										
Titanium	0.0026	1.0										
Vanadium	ND	1.0										
Zinc	ND	1.0										

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
J - Analyte detected below Reporting Limit R - RPD outside accepted recovery limits

Bureau Veritas North America, Inc.

Date: 15-Nov-16

CLIENT: LOCKHEED MARTIN

Work Order: 16110809

Project:

QC SUMMARY REPORT

Laboratory Control Spike



Sample ID	66160-LCS	Batch ID	66160	Units: µg	Run ID	ME_PE10J_161115A	SeqNo:	4736497	Analysis Date	11/15/2016 5:06:55 AM	Prep Date
Client ID:											
Analyte	Result 1	PQL	Spike Added	Unspiked Sample Result	%REC	LowLimit	HighLimit	Result 2	%RPD	RPDLimit	Qual
Aluminum	9.642	1.0	10	0	96.4	83.4	117				
Antimony	9.318	1.0	10	0	93.2	86.1	116				
Arsenic	9.491	1.0	10	0	94.9	87.3	116				
Barium	9.501	1.0	10	0	95	92.2	119				
Beryllium	8.88	0.020	10	0	88.8	87.7	119				
Cadmium	9.919	0.50	10	0	99.2	90.8	119				
Calcium	11.37	10	10	0	114	85.5	121				
Chromium	9.847	1.0	10	0	98.5	91.2	118				
Cobalt	9.659	1.0	10	0	96.6	91.1	119				
Copper	9.893	1.0	10	0	98.9	93.5	121				
Iron	9.526	1.0	10	0	95.3	85.8	124				
Lead	9.586	1.0	10	0	95.9	93	121				
Lithium	10.05	1.0	10	0	101	84.5	119				
Magnesium	9.383	10	10	0	93.8	89.1	117				
Manganese	9.991	1.0	10	0	99.9	91.5	122				
Molybdenum	9.609	1.0	10	0	96.1	90.8	115				
Nickel	10.01	1.0	10	0	100	92.5	119				
Phosphorus	9.676	5.0	10	0	96.8	86.9	118				
Potassium	101.3	10	100	0	101	87.2	121				
Selenium	9.854	1.0	10	0	98.5	80.8	122				
Silver	9.798	0.20	10	0	98	65.6	128				
Sodium	99.48	10	100	0	99.5	69	111				
Strontium	10.15	1.0	10	0	102	87.5	117				

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
J - Analyte detected below Reporting Limit R - RPD outside accepted recovery limits



CLIENT: LOCKHEED MARTIN

Work Order: 16110809

Project:

QC SUMMARY REPORT

Laboratory Control Spike

Sample ID 66160-LCS Batch ID: 66160 Units: µg Analysis Date 11/15/2016 5:06:55 AM Prep Date
Client ID: Run ID: ME_PE10J_161115A SeqNo: 4736497

Analyte	Result 1	PQL	Spike Added	Unspiked		%REC	LowLimit	HighLimit	Result 2	%RPD	RPDLimit	Qual
				Sample	Result							
Thallium	9.596	1.0	10	10	0	96	84.3	125				
Tin	9.94	1.0	10	10	0	99.4	93.2	123				
Titanium	9.666	1.0	10	10	0	96.7	88.9	118				
Vanadium	9.596	1.0	10	10	0	96	89	116				
Zinc	9.787	1.0	10	10	0	97.9	90.3	119				

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below Reporting Limit

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

Bureau Veritas North America, Inc.

Date: 15-Nov-16

CLIENT: LOCKHEED MARTIN

Work Order: 16110809

Project:

QC SUMMARY REPORT

Laboratory Control Spike Duplicate

Sample ID 66160-LCSD

Batch ID: 66160

Units: µg

Analysis Date 11/15/2016 5:08:40 AM

Prep Date

Client ID:

Run ID: ME_PE10J_161115A

SeqNo: 4736498

Analyte	Result 1	PQL	Spike Added	Unspiked Sample Result	%REC	LowLimit	HighLimit	Result 2	%RPD	RPDLimit	Qual
Aluminum	9.263	1.0	10	0	92.6	83.4	117	9.642	4.01	9.96	
Antimony	9.161	1.0	10	0	91.6	86.1	116	9.318	1.7	10.8	
Arsenic	9.355	1.0	10	0	93.6	87.3	116	9.491	1.44	11.6	
Barium	9.429	1.0	10	0	94.3	92.2	119	9.501	0.761	9.47	
Beryllium	8.878	0.020	10	0	88.8	87.7	119	8.88	0.0113	11	
Cadmium	9.908	0.50	10	0	99.1	90.8	119	9.919	0.111	8.71	
Calcium	11.07	10	10	0	111	85.5	121	11.37	2.67	14	
Chromium	9.722	1.0	10	0	97.2	91.2	118	9.847	1.28	8.81	
Cobalt	9.691	1.0	10	0	96.9	91.1	119	9.659	0.331	9.83	
Copper	9.614	1.0	10	0	96.1	93.5	121	9.893	2.86	8.1	
Iron	9.062	1.0	10	0	90.6	85.8	124	9.526	4.99	13.6	
Lead	9.601	1.0	10	0	96	93	121	9.586	0.156	9.1	
Lithium	9.663	1.0	10	0	96.6	84.5	119	10.05	3.93	9.13	
Magnesium	9.21	10	10	0	92.1	89.1	117	9.383	1.86	11.1	
Manganese	9.74	1.0	10	0	97.4	91.5	122	9.991	2.54	8.23	
Molybdenum	9.677	1.0	10	0	96.8	90.8	115	9.609	0.705	9.54	
Nickel	9.953	1.0	10	0	99.5	92.5	119	10.01	0.571	8.99	
Phosphorus	9.696	5.0	10	0	97	86.9	118	9.676	0.206	13.1	
Potassium	96.8	10	100	0	96.8	87.2	121	101.3	4.51	9.66	
Selenium	8.635	1.0	10	0	86.4	80.8	122	9.854	13.2	14.6	
Silver	9.657	0.20	10	0	96.6	65.6	128	9.798	1.45	29.6	
Sodium	95.44	10	100	0	95.4	69	111	99.48	4.15	18.2	
Strontium	9.77	1.0	10	0	97.7	87.5	117	10.15	3.83	8.8	

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below Reporting Limit

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank



CLIENT: LOCKHEED MARTIN

Work Order: 16110809

Project:

QC SUMMARY REPORT

Laboratory Control Spike Duplicate

Sample ID 66160-LCSD Batch ID: 66160 Units: µg Analysis Date 11/15/2016 5:08:40 AM Prep Date
Client ID: Run ID: ME_PE10J_161115A SeqNo: 4736498

Analyte	Result 1	PQL	Spike Added	Unspiked		%REC	LowLimit	HighLimit	Result 2	%RPD	RPDLimit	Qual
				Sample	Result							
Thallium	9.498	1.0	10	10	0	95	84.3	125	9.596	1.03	17.7	
Tin	9.872	1.0	10	10	0	98.7	93.2	123	9.94	0.686	10.7	
Titanium	9.453	1.0	10	10	0	94.5	88.9	118	9.666	2.23	10.9	
Vanadium	9.45	1.0	10	10	0	94.5	89	116	9.596	1.53	9.88	
Zinc	9.752	1.0	10	10	0	97.5	90.3	119	9.787	0.358	8.75	

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below Reporting Limit

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

USEPA

DateShipped:

CarrierName:

AirbillNo:

CHAIN OF CUSTODY RECORD

Site #: 84-001

Contact Name:

Contact Phone:

No: 2-11116-080803-0002

Cooler #:

Lab:

Lab Phone:

[illegible]

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY

Special Instructions: Analyze Per Leidos (Lockheed Martin) Contract. MCE Filters SKC 225-3-01 Lot# 16769-7E0-020

RAPID 2 DAY TURNAROUND RESULTS BY COB 11/15/16

[illegible]