Weston Solutions, Inc.
2310 E Artesia Blvd
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WestonSolutions.com

May 21, 2024

Mr. Christopher Myers
Federal On-Scene Coordinator
U.S. Environmental Protection Agency
Region 9, Emergency Response Section
2445 North Palm Drive, Suite 100
Signal Hill, CA 90755

Subject: **San Diego Lithium-Ion Battery Field Experiment Letter Report**
San Diego County, California
Subtask Order No.: 68HE0924F0022-02
Document Control No.: 0206-08-ABJS

Dear Mr. Myers:

Under Task Order No. 68HE0924F0022, the U.S. Environmental Protection Agency (EPA) Region 9 Emergency Response Section (ERS) activated the Weston Solutions, Inc. (WESTON®) Superfund Technical Assessment and Response Team (START) contractor to assist EPA Federal On-Scene Coordinator (FOSC) Christopher Myers with a field experiment. The County of San Diego Department of Environmental Health and Quality (DEHQ) Hazardous Incident Response Team (HIRT) sponsored this experiment in conjunction with the San Diego Fire Department (SDFD), the San Diego Sheriff's Office (SDSO), and EPA. Participants as also included the Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) and a host of private sector vendors with a common interest in exploring the Emergency Response (ER) aspect of lithium-ion battery (LIB) incidents with an emphasis on the environmental effects of thermal runaway.

Experiment Overview

Experiment Setting

The field experiment was conducted on the SDSO firing range located in San Diego County, California, between February 21, 2024, and February 23, 2024. A dedicated 8-foot by 8-foot shed (512 cubic feet [ft^3] by volume) was constructed by DEHQ, SDSO, and SDFD to control natural environmental factors like wind and to provide a stable setting for air monitoring and sampling efforts. The shed was made of wood, drywall, and plywood on a concrete base and featured two plexiglass windows, a 1-foot by 1-foot flap vent, a storage locker for shielding field equipment, a raised tray to place test subjects in the middle of the room, and a standard 6.5-foot door equipped with another plexiglass window for viewing. An existing cinderblock wall with door-sized openings separated the shed from the observational cold zone approximately 30 yards away. All LIB test subjects monitored/sampled by EPA were staged in this shed. See *Photograph A* and *Photograph B* for more insight.

Photograph A: Experimental shed and existing block wall barrier from outside of the Hot Zone. All personnel inside the Hot Zone were required to don Level C or higher personal protective equipment (PPE) during experimental activity.

Photograph B: Side view of experimental shed showing plywood construction with a plexiglass window, a flap vent, and all EPA monitoring and sampling equipment being plumbed through the wall vent.

Experiment Materials

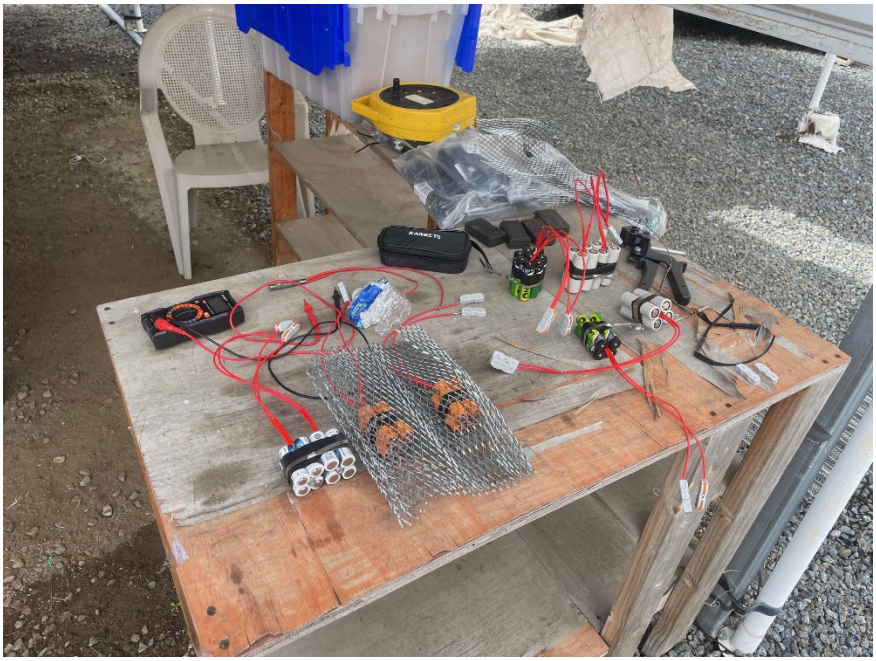
The experiment consisted of a series of engineered thermal runaway events on LIB packs of various make, model, size, cell count, and state of charge (SOC). Battery compositions included lithium iron phosphate ($LiFePO_4$) and nickel manganese cobalt (NMC). Battery cell types were cylindrical, unless prismatic or pouch cells were otherwise indicated. Known battery manufacturers included KULR, LG Chem, Molicel, Nuon, and Zhejang. All LIB cell configurations were forced into thermal runaway using a thermocouple heating element (*Photograph C*). The experimental burn schedule involving monitoring or sampling by EPA was as follows:

Day 1: February 21, 2024

Run #	Battery Type	Cell Count
1	$LiFePO_4$, 18500 solar batteries, 100% SOC	4
2	$LiFePO_4$, 18500 solar batteries, 100% SOC	4
3	$LiFePO_4$, 18500 solar batteries, low SOC	8
4	$LiFePO_4$, 18500 solar batteries, 100% SOC	8
5	NMC, Nuon 18650, 100% SOC	12
6	NMC, Zhejang 21700, 100% SOC (minus a prematurely ignited cell)	44
7	NMC, Molicel ISS 21700, <100% SOC	8
8	NMC, KULR Ebike & Amazon 18650, SOC as shipped, contents placed inside KULR "Safe Case" bag constructed to mitigate thermal runaway	65

Day 2: February 22, 2024

Run #	Battery Type	Cell Count
9	NMC, Molicel ISS 21700, 100% SOC	18
10	$LiFePO_4$, ESS Prismatic, one charged and one uncharged	2
11	NMC, Zhejang 21700, <40 volt (V) SOC	48
12	NMC, Zhejang 21700, 49.6V and 100% SOC	48
13	NMC, Zhejang 21700, 100% SOC, contents placed inside Akkugrain box constructed to mitigate thermal runaway	144



Photograph C: Thermocouple heating elements being attached to various LIB configurations and tested for voltage/SOC prior to inducing thermal runaway. Mesh wire was sometimes used to mitigate the risk of projectiles during experimentation.

Air Monitoring

EPA air monitoring materials included the continuous use of a Honeywell Single-Point Monitoring (SPM) Flex unit with a mineral acid cassette to detect Hydrogen Fluoride (HF) gas and a Safe Environmental X-Site unit equipped with both a TSI Sidepak particulate monitor and a Drager X-am 8000 gas monitor suited for reading oxygen (O_2%), volatile organic compounds (VOCs), carbon monoxide (CO), lower explosive limit (LEL%) and hydrogen cyanide (HCN). The SPM Flex unit and the X-Site equipment were both linked to a Safe Environmental "Smart Linc" cellular device located inside the X-Site in order to transmit continuous real-time data to the on-site unified command post. All air monitoring equipment was attached to fluorinated ethylene propylene (FEP) tubing, plumbed through the shed's flap vent, and suspended at approximate breathing zone height (5 feet to 6 feet). See *Photograph D*.

Air Sampling

EPA sampling efforts included materials necessary to perform the following methods:

I. **ASTM-D-1945:** Tedlar Bag samples taken using an SKC pump and a vacuum chamber. This method indicates percentage concentrations by mass (m/m) and volume (v/v) of hydrogen (H), carbon monoxide

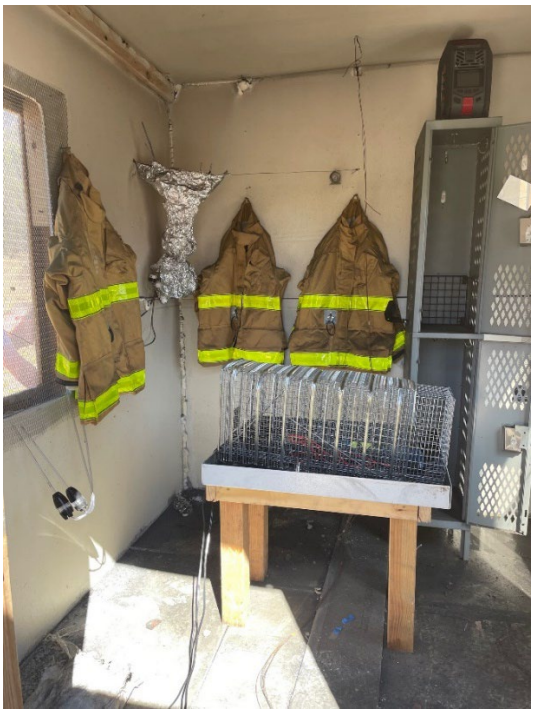
(CO) and oxygen (O_2) and is converted to parts per million (ppm) in our results. Two tedlar bag samples were required per sample to ensure ample sample volume.

II. **NIOSH 6010:** Colorimetric samples taken using an SKC pump and sampling media to determine hydrogen cyanide (HCN) concentration by volume.

III. **NIOSH 7902:** Ion concentration/ion-specific measurement (ISE) taken using SKC pump and sampling media to determine hydrogen fluoride (HF) vapor as well as soluble particulate concentrations by volume.

IV. **NIOSH 7303:** Inductively couple plasma (ICP) mass spectrometry sample taken using SKC pump and sampling media to determine an assortment of metals concentrations by volume. Metals screened for were: silver (Ag), aluminum (Al), arsenic (As), barium (Ba), beryllium (Be), cadmium (Cd), cobalt (Co), chromium (Cr), copper (Cu), iron (Fe), manganese (Mn), molybdenum (Mo), nickel (Ni), lead (Pb), antimony (Sb), selenium (Se), tin (Sn), strontium (Sr), titanium (Ti), thallium (Tl), vanadium (V), and zinc (Zn).

Sampling procedures were carried out for Runs 3, 7, 9, 11, 12, and 13. A duplicate sample was executed on Run 9 for HF (NIOSH 7902), Run 11 for metals (NIOSH 7303), Run 12 for HCN (NIOSH 6010), and Run 13 for ASTM-D-1945. All samples were taken using the laboratory provided Tygon tubing, which was plumbed through the shed flap vent where sample media was suspended at approximate breathing zone height (5 feet to 6 feet). See *Photograph D* and *Photograph E*.



Photograph D: Inside experiment shed. Note the locker used to house equipment (inside or on top) and the raised tray to place test subjects on, this time with a mesh cage to prevent projectiles. Several firefighter "turnout" jackets were placed inside during experiments to be analyzed by a partner entity. EPA sampling and monitoring media is in the corner shielded by a tin foil barrier to prevent heat from melting tubing. Various vendor equipment can be seen throughout.

Photograph E: A peak behind the tin foil shield shows EPA sampling and monitoring media at approximate breathing zone height plumbed through the shed wall. Each set of tubing and sample media is labeled to ensure accuracy.

Results

Air Monitoring

Air monitoring results have been filtered and summarized on a run-by-run basis and both the summarized and raw data are available in **Attachment B**. Note that sensor drift and data gaps did occur in some readings and are presented without correction to ensure transparency.

Air Sampling

Air sampling data have also been added to the summary tables on a run-by-run basis in **Attachment B,** and data validation reports are available to explore in **Attachment C**.

Note that air sampling data was executed based on four different air sampling methods and result

concentrations rely on varying sample volumes collected throughout each run. Analogously, air monitoring values reflect their continuous, real-time data sets. *Photograph F* provides a look at the shed door window during an experimental thermal runaway off-gassing event (Run 10).

Photograph F: Note the heavy amount of off-gassing matter through the shed door window and the off-gassing on the left side of the shed walls. An AreaRAE monitor provided by SDFD monitors for gaseous migration at the perimeter of the Hot Zone.

If you have any questions or comments regarding this report, please contact me at (310) 756 -7414.

Very truly yours,

Weston Solutions, Inc.

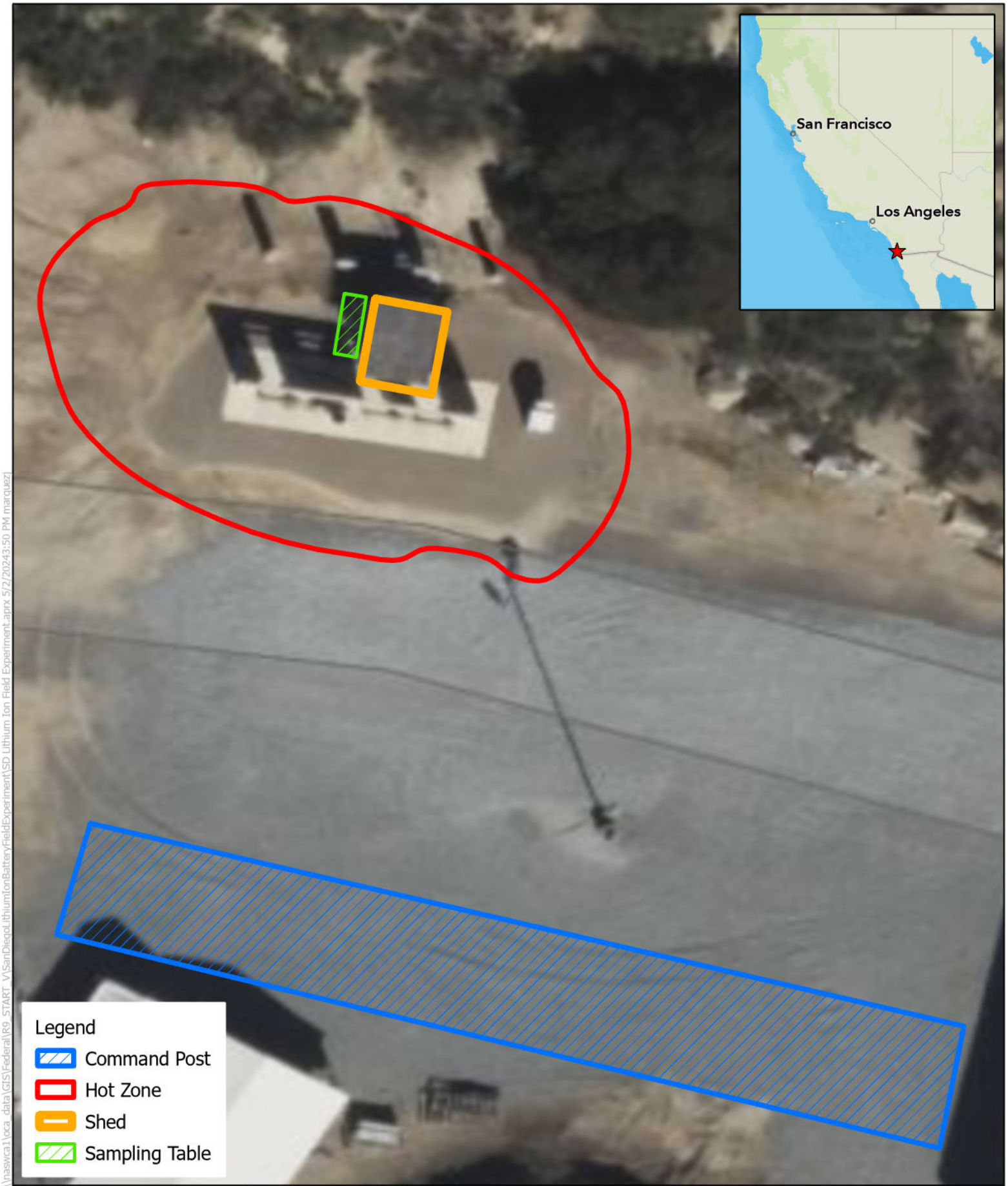
Justin Marquez
WESTON START
Associate Scientist III

Attachments:

A – Figures
B – Experiment Data Summary Tables
C – Laboratory Data Validation Reports

cc: WESTON START DCN File

ATTACHMENT A
FIGURES



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Contract:
68HE0919D0002

Task Order:
68HE0924F0022-02

DCN:
1234-56-ABCD

Prepared For
EPA Region 9
Pacific Southwest

Prepared By
Weston Solutions, Inc.
Long Beach, CA 90805
May 2024

FIGURE 1
SITE LAYOUT
San Diego Lithium Ion Battery Field Experiment
San Diego County, California

ATTACHMENT B
EXPERIMENT DATA SUMMARY TABLES

SEE ATTACHMENT FOR BEST VIEW

ATTACHMENT C
LABORATORY DATA VALIDATION REPORTS

SAN DIEGO LITHIUM-ION BATTERY EXPERIMENT
DATA VALIDATION REPORT

Date: May 1, 2024
Laboratory: SGS, Deer Park, TX
Laboratory Job Number: DP24-02881
Data Validation Performed By: Tara Johnson, Weston Solutions, Inc. (WESTON) Superfund Technical Assessment and Response Team (START)
Data Validation Reviewed By: Kelly Luck, WESTON START
Weston Work Order #: 20905.012.093.0206.00

This data validation report has been prepared by WESTON START under the START V U.S. Environmental Protection Agency (EPA) Region 9 contract. This report documents the data validation for 14 air samples collected for the San Diego Lithium-Ion Battery Experiment that were analyzed for the following parameters using the stated method.

- Permanent Gases (H_2, CO, and O_2) by American Society for Testing and Materials (ASTM) Method D1945

A data package was received from SGS, Deer Park, TX. The data validation was conducted in general accordance with the EPA "National Functional Guidelines for Inorganic Superfund Methods Data Review" dated November 2020. The Attachment contains results summary sheets with any qualifiers applied during data validation.

The lab was unable to provide a standard Level II data package, stating the following via email on 4/23/24: "Because we are not an environmental lab, we do not have the capability to provide blank sample results, laboratory spike sample results, laboratory duplicate results, and/or matrix spike sample results." The following statement regarding data accuracy and precision appears on the results report:

> *Users of analytical results, when establishing conformance with commercial or regulatory requirements should note the full provisions of ASTM D3244, IP 367 and ISO 4259 in that context, the default confidence level of petroleum testing having been set at the 95% confidence level. Your attention is specifically drawn to Sections 7.3.6, 7.3.7, and 7.3.8 of ASTM D3244.*

PERMANENT GASES (H_2, CO, and O_2) by ASTM METHOD D1945

The following table summarizes the samples for which this data validation is being conducted.

Sample	Lab ID	Date Collected	Matrix	Date Analyzed
SDFE-02224-1945-03A	DP24-02881.001	02/22/24	Air	02/25/24
SDFE-02224-1945-03B	DP24-02881.002	02/22/24	Air	02/25/24
SDFE-02224-1945-04A	DP24-02881.003	02/22/24	Air	02/25/24
SDFE-02224-1945-04B	DP24-02881.004	02/22/24	Air	02/25/24
SDFE-02224-1945-05A	DP24-02881.005	02/22/24	Air	02/25/24
SDFE-02224-1945-05B	DP24-02881.006	02/22/24	Air	02/25/24

Sample	Lab ID	Date Collected	Matrix	Date Analyzed
SDFE-02224-1945-06A	DP24-02881.007	02/22/24	Air	02/25/24
SDFE-02224-1945-06B	DP24-02881.008	02/22/24	Air	02/25/24
SDFE-02224-1945-06AD	DP24-02881.009	02/22/24	Air	02/25/24
SDFE-02224-1945-06BD	DP24-02881.010	02/22/24	Air	02/25/24
SDFE-02224-1945-01A	DP24-02881.011	02/21/24	Air	02/25/24
SDFE-02224-1945-01B	DP24-02881.012	02/21/24	Air	02/25/24
SDFE-02224-1945-02A	DP24-02881.013	02/21/24	Air	02/25/24
SDFE-02224-1945-02B	DP24-02881.014	02/21/24	Air	02/25/24

1. Data Verification Check

A data verification and completeness check was performed in accordance with the Stage 1 and 2A verification checks outlined in the EPA "Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use" dated January 13, 2009. For the permanent gases analyses, all analytical data package items were received from the laboratory and the analyses requested were performed.

2. Holding Times

The samples were analyzed within the recommended holding time limit of three days from sample collection, for samples collected in Tedlar bags, with the following exceptions, which were analyzed four days after collection: SDFE-02224-1945-01A, SDFE-02224-1945-01B, SDFE-02224-1945-02A, and SDFE-02224-1945-02B. The results for the three target analytes in samples SDFE-02224-1945-01A, SDFE-02224-1945-01B, SDFE-02224-1945-02A, and SDFE-02224-1945-02B were qualified as estimated (J/UJ) based on holding time exceedance.

3. Calibration

The laboratory provided an instrument calibration report for 2/20/24, five days before sample analyses. For the target analytes, no calibration issues were noted on the calibration report.

4. Blank Results

Analysis of a method blank is not specified in the method.

5. Laboratory Control Sample (LCS) Results

Analysis of an LCS is not specified in the method.

6. Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Results

Analysis of a MS sample (or MS/MSD pair) is not specified in the method.

7. Field Duplicate Results

The sample set included the following field duplicate pairs:

- SDFE-02224-1945-06A and SDFE-02224-1945-06AD; and
- SDFE-02224-1945-06B and SDFE-02224-1945-06BD.

The QC criteria for field duplication are relative percent difference (RPD) ≤35% for concentrations greater than five times the reporting limit (RL), and absolute difference between results less than the RL for sample concentrations less than five times the RL. The results for all target analytes were within QC limits in samples SDFE-02224-1945-06B and SDFE-02224-1945-06BD, but were outside QC limits in samples SDFE-02224-1945-06A and SDFE-02224-1945-06AD for hydrogen (RPD = 190% for results by volume and 120% for results by mass) and carbon monoxide (RPD = 181% for results by volume and by mass). The results for hydrogen and carbon monoxide were qualified as estimated in samples SDFE-02224-1945-06A and SDFE-02224-1945-06AD.

8. Overall Assessment

The laboratory stated that carbon monoxide is not published in the method scope.

SGS flagged sample results with the following laboratory qualifier:

#: Indicates the sample result is outside of test method limits and/or analytical range used in the method precision study. This qualifier was removed by the data validator and replaced with a "J" qualifier.

The metals data are acceptable for use as qualified based on the information received.

DATA QUALIFIER DEFINITIONS

J The associated numerical value is an estimated quantity because QC criteria were not met.

U The analyte was analyzed for but not detected above the RL. The associated value is the RL.

ATTACHMENT

SGS
RESULTS SUMMARY WITH QUALIFIERS

Certificate of Analysis: DP24-02881

Date: 25-Feb-2024

BOSS NO CLIENT
900 GEORGIA AVE
STE 1100
DEER PARK
UNITED STATES
77536

JOB DETAILS				SAMPLE NO.:	001	002	003	004	005	006
CLIENT ORDER NUMBER:				CLIENT ID:	SDFE-02224	SDFE-02224	SDFE-02224	SDFE-02224	SDFE-02224	SDFE-02224
				SAMPLE DETAILS:	As Supplied	As Supplied	As Supplied	As Supplied	As Supplied	As Supplied
SGS ORDER NO.:	5153804				1945-03A	1945-03B	1945-04A	1945-04B	1945-05A	1945-05B
LOCATION:	CONCORD CA 94520				As Submitted	As Submitted	As Submitted	As Submitted	As Submitted	As Submitted
SAMPLED:	22-Feb-2024				Gas	Gas	Gas	Gas	Gas	Gas
RECEIVED	23-Feb-2024 - 24-Feb-2024									
ANALYSED:	25-Feb-2024									
COMPLETED:	25-Feb-2024									
PROPERTY		**UNITS**	**MIN**	**MAX**						
Analysis of Natural Gas by GC - ASTM D1945										
Hydrogen		% (v/v)	--	--	1.94	0.04	0.04	0.03	0.02	0.01
Carbon Monoxide §		% (v/v)	--	--	0.02	0.93	0.04	0.08	0.15	0.06
Oxygen		% (v/v)	--	--	23.92 # J	26.39 # J	25.30 # J	23.30 # J	21.54 # J	24.70 # J
Oxygen		% (m/m)	--	--	31.83 # J	33.87 # J	32.56 # J	30.37 # J	28.24 # J	31.78 # J
Carbon Monoxide §		% (m/m)	--	--	0.02	0.82	0.04	0.07	0.14	0.05
Hydrogen		% (m/m)	--	--	0.16	<0.01	<0.01	<0.01	<0.01	<0.01

TBJ 5/1/2024

§ - Analyte not in published method scope

- Result is outside of test method limits and/or analytical range used in method precision study

AUTHORISED SIGNATORY

C. Monteleone

Carina Monteleone
Team Lead-Deer Park

25022024212000000471308

SGS North America Inc. | Oil, Gas & Chemicals Services 1201A West 8th Street, Deer Park, TX, 77536, U.S.A. Tel: +1-(281)-479-7170

Date: 25-Feb-2024

BOSS NO CLIENT
900 GEORGIA AVE
STE 1100
DEER PARK
UNITED STATES
77536

Certificate of Analysis: DP24-02881

JOB DETAILS		SAMPLE NO.:	007	008	009	010	011	012
CLIENT ORDER NUMBER :		CLIENT ID :	SDFE-02224	SDFE-02224	SDFE-02224	SDFE-02224	SDFE-02224	SDFE-02224
SGS ORDER NO.:	5153804	SAMPLE DETAILS :	As Supplied 1945-06A As Submitted Gas	As Supplied 1945-06B As Submitted Gas	As Supplied 1945-06AD As Submitted Gas	As Supplied 1945-06BD As Submitted Gas	As Supplied 1945-01A As Submitted Gas	As Supplied 1945-01B As Submitted Gas
LOCATION :	CONCORD CA 94520							
SAMPLED :	22-Feb-2024							
RECEIVED	23-Feb-2024							
ANALYSED :	25-Feb-2024							
COMPLETED :	25-Feb-2024							

PROPERTY	UNITS	MIN	MAX						
Analysis of Natural Gas by GC - ASTM D1945									
Hydrogen	% (v/v)	--	--	0.04 J	1.25	1.44 J	1.32	0.03 J	0.01 J
Carbon Monoxide §	% (v/v)	--	--	0.08 J	1.38	1.67 J	1.46	<0.01 UJ	<0.01 UJ
Oxygen	% (v/v)	--	--	24.76 # J	25.33 # J	25.80 # J	25.43 # J	27.08 # J	27.12 # J
Oxygen	% (m/m)	--	--	31.34 # J	33.31 # J	33.09 # J	33.03 # J	34.40 # J	34.44 # J
Carbon Monoxide §	% (m/m)	--	--	0.07 J	1.23	1.49 J	1.31	<0.01 UJ	<0.01 UJ
Hydrogen	% (m/m)	--	--	0.03 J	0.10	0.12 J	0.11	<0.01 UJ	<0.01 UJ

TBJ 5/1/2024

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- Result is outside of test method limits and/or analytical range used in method precision study

This document is only valid in its entirety and your attention is drawn to the Terms and Conditions on Page 1 of this report

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Team Lead-Deer Park

25022024212000000471308

Date: 25-Feb-2024

BOSS NO CLIENT
900 GEORGIA AVE
STE 1100
DEER PARK
UNITED STATES
77536

Certificate of Analysis: DP24-02881

JOB DETAILS		SAMPLE NO.:	013	014				
CLIENT ORDER NUMBER :		CLIENT ID :	SDFE-02224	SDFE-02224				
SGS ORDER NO.:	5153804	SAMPLE DETAILS :	As Supplied 1945-02A As Submitted Gas	As Supplied 1945-02B As Submitted Gas				
LOCATION :	CONCORD CA 94520							
SAMPLED :	22-Feb-2024							
RECEIVED	23-Feb-2024							
ANALYSED :	25-Feb-2024							
COMPLETED :	25-Feb-2024							

PROPERTY	UNITS	MIN	MAX						
Analysis of Natural Gas by GC - ASTM D1945									
Hydrogen	% (v/v)	--	--	0.02 J	0.02 J	.....	.....	.....	.....
Carbon Monoxide §	% (v/v)	--	--	<0.01 UJ	0.07 J	.....	.....	.....	.....
Oxygen	% (v/v)	--	--	26.30 % J	26.57 % J	.....	.....	.....	.....
Oxygen	% (m/m)	--	--	33.50 # J	33.32 # J	.....	.....	.....	.....
Carbon Monoxide §	% (m/m)	--	--	<0.01 UJ	0.06 J	.....	.....	.....	.....
Hydrogen	% (m/m)	--	--	<0.01 UJ	<0.01 UJ	.....	.....	.....	.....

** End of Analytical Results **

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SGS North America Inc.
Oil, Gas & Chemicals Services 1201A West 8th Street, Deer Park, TX, 77536, U.S.A. Tel: +1-(281)-479-7170

Date: 29-Feb-2024

WESTON SOLUTIONS

Certificate of Analysis: DP24-02881

JOB DETAILS		SAMPLE NO.:	001	002	003	004	005	006
CLIENT ORDER NUMBER :		CLIENT ID :	SDFE-02224	SDFE-02224	SDFE-02224	SDFE-02224	SDFE-02224	SDFE-02224
SGS ORDER NO.:	5153804	SAMPLE DETAILS :	As Supplied	As Supplied	As Supplied	As Supplied	As Supplied	As Supplied
LOCATION :	Concord, CA		1945-03A	1945-03B	1945-04A	1945-04B	1945-05A	1945-05B
SAMPLED :	22-Feb-2024		As Submitted	As Submitted	As Submitted	As Submitted	As Submitted	As Submitted
RECEIVED	23-Feb-2024 - 24-Feb-2024		Gas	Gas	Gas	Gas	Gas	Gas
ANALYSED :	25-Feb-2024							
COMPLETED :	25-Feb-2024							

PROPERTY	UNITS	MIN	MAX						
Analysis of Natural Gas by GC - ASTM D1945									
Hydrogen	ppm (v/v)	--	--	19370	350	400	320	240	<100
Carbon Monoxide §	ppm (v/v)	--	--	160	9310	430	790	1480	560
Oxygen	ppm (v/v)	--	--	239220 #J	263890 #J	253000 #J	233050 #J	215390 #J	247050 #J
Hydrogen	ppm (m/m)	--	--	1600	<100	<100	<100	<100	<100
Carbon Monoxide §	ppm (m/m)	--	--	150	8210	390	710	1350	500
Oxygen	ppm (m/m)	--	--	318280 #J	336680 #J	325560 #J	303680 #J	282370 #J	317830 #J

TBJ 5/1/2024

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- Result is outside of test method limits and/or analytical range used in method precision study

AUTHORISED SIGNATORY

Amy Lab

Team Lead-Deer Park

29022024134400000471797

OGC-EN_Report_MultiSamp_Port-2015-09-19_v17b

SGS North America Inc.

Oil, Gas & Chemicals Services 1201A West 8th Street, Deer Park, TX, 77536, U.S.A. Tel: +1-(281)-479-7170

Date: 29-Feb-2024

WESTON SOLUTIONS

Certificate of Analysis: DP24-02881

JOB DETAILS		SAMPLE NO.:	007	008	009	010	011	012
CLIENT ORDER NUMBER :		CLIENT ID :	SDFE-02224	SDFE-02224	SDFE-02224	SDFE-02224	SDFE-02224	SDFE-02224
SGS ORDER NO.:	5153804	SAMPLE DETAILS :	As Supplied 1945-06A As Submitted Gas	As Supplied 1945-06B As Submitted Gas	As Supplied 1945-06AD As Submitted Gas	As Supplied 1945-06BD As Submitted Gas	As Supplied 1945-01A As Submitted Gas	As Supplied 1945-01B As Submitted Gas
LOCATION :	Concord, CA							
SAMPLED :	22-Feb-2024							
RECEIVED	23-Feb-2024							
ANALYSED :	25-Feb-2024							
COMPLETED :	25-Feb-2024							

PROPERTY	UNITS	MIN	MAX						
Analysis of Natural Gas by GC - ASTM D1945									
Hydrogen	ppm (v/v)	--	--	358 J	12500	14400 J	13200	260 J	140 J
Carbon Monoxide §	ppm (v/v)	--	--	840 J	13770	16720 J	14620	<100 UJ	<100 UJ
Oxygen	ppm (v/v)	--	--	247560 #J	258340 #J	255980 #J	254290 #J	270790 #J	271170 #J
Hydrogen	ppm (m/m)	--	--	290 J	1000	1160 J	1070	<100 UJ	<100 UJ
Carbon Monoxide §	ppm (m/m)	--	--	740 J	12270	14930 J	13120	<100 UJ	<100 UJ
Oxygen	ppm (m/m)	--	--	318450 #J	333070 #J	330880 #J	330310 #J	343990 #J	344420 #J

TBJ 5/1/2024

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AUTHORISED SIGNATORY

Amy Lab
Team Lead-Deer Park

SGS North America Inc. Oil, Gas & Chemicals Services 1201A West 8th Street, Deer Park, TX, 77536, U.S.A. Tel: +1-(281)-479-7170

Date: 29-Feb-2024

WESTON SOLUTIONS

Certificate of Analysis: DP24-02881

JOB DETAILS				SAMPLE NO.:	013	014				
CLIENT ORDER NUMBER :				CLIENT ID :	SDFE-02224	SDFE-02224				
SGS ORDER NO.:	5153804			SAMPLE DETAILS :	As Supplied 1945-02A As Submitted Gas	As Supplied 1945-02B As Submitted Gas				
LOCATION :	Concord, CA									
SAMPLED :	22-Feb-2024									
RECEIVED	23-Feb-2024									
ANALYSED :	25-Feb-2024									
COMPLETED :	25-Feb-2024									
PROPERTY		UNITS	MIN	MAX						
Analysis of Natural Gas by GC - ASTM D1945										
Hydrogen		ppm (v/v)	--	--	230 J	190 J	.....	.....	.....	.....
Carbon Monoxide §		ppm (v/v)	--	--	<100 UJ	740 J	.....	.....	.....	.....
Oxygen		ppm (v/v)	--	--	263010 #J	265720 #J	.....	.....	.....	.....
Hydrogen		ppm (m/m)	--	--	<100 UJ	<100 UJ	.....	.....	.....	.....
Carbon Monoxide §		ppm (m/m)	--	--	<100 UJ	650 J	.....	.....	.....	.....
Oxygen		ppm (m/m)	--	--	335020 #J	338180 #J	.....	.....	.....	.....
** End of Analytical Results **										

TBJ 5/1/2024

§ - Analyte not in published method scope

- Result is outside of test method limits and/or analytical range used in method precision study

This document is only valid in its entirety and your attention is drawn to the Terms and Conditions on Page 1 of this report

AUTHORISED SIGNATORY

Amy Lab

Team Lead-Deer Park

29022024134400004717 97

SAN DIEGO LITHIUM-ION BATTERY EXPERIMENT
DATA VALIDATION REPORT

Date: April 23, 2024
Laboratory: SGS Galson, East Syracuse, NY
Laboratory Job Number: L618635
Data Validation Performed By: Tara Johnson, Weston Solutions, Inc. (WESTON) Superfund Technical Assessment and Response Team (START)
Data Validation Reviewed By: Kelly Luck, WESTON START
Weston Work Order #: 20905.012.093.0206.00

This data validation report has been prepared by WESTON START under the START V U.S. Environmental Protection Agency (EPA) Region 9 contract. This report documents the data validation for 16 air samples collected for the San Diego Lithium-Ion Battery Experiment that were analyzed for the following parameters using the stated methods.

- Hydrogen Cyanide (HCN) by National Institute for Occupational Safety and Health (NIOSH) Method 6010 Modified (M)
- Fluoride as Vapor (HF) and Soluble Particulate by NIOSH 7902(M)

A Level II data package was received from SGS Galson, East Syracuse, NY. The data validation was conducted in general accordance with the EPA "National Functional Guidelines for Inorganic Superfund Methods Data Review" dated November 2020. The Attachment contains results summary sheets with any qualifiers applied during data validation.

Reporting limits (referred to as levels of quantitation) on the results summary sheets were reported as absolute values (µg). In the EDD, the data validator has calculated the reporting limits in concentration units (ppm and/or mg/m^3).

HCN by NIOSH METHOD 6010(M)

The following table summarizes the samples for which this data validation is being conducted.

Sample	Lab ID	Date Collected	Matrix	Date Analyzed
SDFE-022124-6010-FB	L618635-1	02/21/24	Air	02/26/24
SDFE-022224-6010-D	L618635-2	02/22/24	Air	02/26/24
SDFE-022124-6010-01	L618635-3	02/21/24	Air	02/26/24
SDFE-022124-6010-02	L618635-4	02/21/24	Air	02/26/24
SDFE-022224-6010-03	L618635-5	02/22/24	Air	02/26/24
SDFE-022224-6010-04	L618635-6	02/22/24	Air	02/26/24
SDFE-022224-6010-05	L618635-7	02/22/24	Air	02/26/24
SDFE-022224-6010-06	L618635-8	02/22/24	Air	02/26/24

1. Data Verification Check

A data verification and completeness check was performed in accordance with the Stage 1 and 2A verification checks outlined in the EPA "Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use" dated January 13, 2009. For the HCN analyses, all analytical data package items were received from the laboratory and the analyses requested were performed.

2. Holding Times

The samples were analyzed within the recommended holding time limit of two weeks from sample collection.

3. Blanks

One method blank was analyzed with the sample set and was free of target analyte contamination above the reporting limit (RL). In addition, initial and continuing calibration blank results were provided; these blanks were also free of target analyte contamination above the RL.

One field blank sample, SDFE-022124-6010-FB, was analyzed with the sample set and was free of target analyte contamination above the RL.

4. Laboratory Control Sample (LCS) and Laboratory Control Sample Duplicate (LCSD) Results

One LCS/LCSD sample pair was analyzed with the sample set and the recoveries and the relative percent difference (RPD) were within respective laboratory quality control (QC) limits of 66.5-118% and ≤26.8%. In addition, initial and continuing calibration verification sample results were provided, and all recoveries were within QC limits of 80-120%.

One detection limit standard was prepared and analyzed with the sample set; the recovery (103%) was within QC limits of 70-130%.

5. Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Results

MS/MSD analysis was not required.

6. Field Duplicate Results

The sample set included the following field duplicate pair: SDFE-022224-6010-05 and SDFE-022224-6010-D. The QC criteria for field duplication are RPD ≤35% for concentrations greater than five times the RL, and absolute difference between results less than the RL for sample concentrations less than five times the RL. The results for HCN were within QC limits in the field duplicate pair.

7. Overall Assessment

The Laboratory Footnote Report stated that all Total µg values were corrected for a desorption efficiency of 101%.

Accuracy and mean recovery data were provided for HCN in the Laboratory Footnote Report, based on a 95% confidence interval (k=2), with accuracy based solely on spike recovery data from internal laboratory QC samples. The HCN accuracy value was reported as ±18.7% and the mean recovery value was 92.4%.

SGS Galson flagged sample results with the following laboratory qualifiers:

*: Indicates possible breakthrough or migration and that the result may be biased low. This qualifier was removed by the data validator and replaced with a "J" qualifier.

<: Indicates the sample result is less than the RL. These qualifiers were left in place in the Attachment; in the EDD, they were removed by the data validator and replaced with the equivalent qualifier "U."

The HCN data are acceptable for use as qualified based on the information received.

FLUORIDE as VAPOR (HF) and SOLUBLE PARTICULATE by NIOSH METHOD 7902(M)

The following table summarizes the samples for which this data validation is being conducted.

Sample	Lab ID	Date Collected	Matrix	Date Analyzed
SDFE-022124-7902-FB	L618635-9	02/21/24	Air	03/01/24
SDFE-022224-7902-D	L618635-10	02/22/24	Air	03/01/24
SDFE-022124-7902-01	L618635-11	02/21/24	Air	03/01/24
SDFE-022124-7902-02	L618635-12	02/21/24	Air	03/01/24
SDFE-022224-7902-03	L618635-13	02/22/24	Air	03/01/24
SDFE-022224-7902-04	L618635-14	02/22/24	Air	03/01/24
SDFE-022224-7902-05	L618635-15	02/22/24	Air	03/01/24
SDFE-022224-7902-06	L618635-16	02/22/24	Air	03/01/24

1. Data Verification Check

A data verification and completeness check was performed in accordance with the Stage 1 and 2A verification checks outlined in the EPA "Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use" dated January 13, 2009. For the fluoride analyses, all analytical data package items were received from the laboratory and the analyses requested were performed.

2. Holding Times

The samples were analyzed within 9-10 days of collection. The method does not recommend a holding time limit, stating that samples are "stable."

3. Blanks

Two method blanks for fluoride vapor (fluoride as HF) and one method blank for soluble particulate fluoride were analyzed with the sample set and were free of target analyte contamination above the respective RLs. In addition, an initial calibration blank result was provided for fluoride vapor; this blank was also free of target analyte contamination above the RL.

One field blank sample, SDFE-022124-7902-FB, was analyzed with the sample set and was free of target analyte contamination above the RLs.

4. LCS and LCSD Results

Two LCS/LCSD sample pairs for fluoride vapor and one LCS/LCSD sample pair for soluble particulate fluoride were analyzed with the sample set. The recoveries and RPDs were within laboratory QC limits of 59.0-121% and ≤21.6%, respectively, for fluoride vapor, and 66.2-109% and ≤23.5%, respectively, for soluble particulate fluoride.

In addition, initial and continuing calibration verification sample results were provided for fluoride vapor and all recoveries were within QC limits of 80-120%.

For fluoride vapor, one detection limit standard sample was prepared and analyzed with the sample set; the recovery (111%) was within QC limits of 70-130%.

5. Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Results

MS/MSD analysis was not required.

6. Field Duplicate Results

The sample set included the following field duplicate pair: SDFE-022224-7902-03 and SDFE-022224-7902-D. The QC criteria for field duplication are RPD ≤35% for concentrations greater than five times the RL, and absolute difference between results less than the RL for sample concentrations less than five times the RL. The results for fluoride vapor (fluoride as HF) and soluble particulate fluoride were within QC limits in the field duplicate pair.

7. Overall Assessment

Accuracy and mean recovery data were provided for each analyte in the Laboratory Footnote Report, based on a 95% confidence interval (k=2), with accuracy based solely on spike recovery

data from internal laboratory QC samples. The accuracy and mean recovery values, respectively, were ±23% and 90.3% for fluoride vapor, and ±16.1% and 87.4% for soluble particulate fluoride.

SGS Galson flagged sample results with the following laboratory qualifier:

<: Indicates the sample result is less than the RL. These qualifiers were left in place in the Attachment; in the EDD, they were removed by the data validator and replaced with the equivalent qualifier "U."

The fluoride data are acceptable for use as qualified based on the information received.

DATA QUALIFIER DEFINITIONS

J The associated numerical value is an estimated quantity because QC criteria were not met.

U The analyte was analyzed for but not detected above the RL. The associated value is the RL.

ATTACHMENT

SGS GALSON
RESULTS SUMMARY WITH QUALIFIERS

SGS GALSON

6601 Kirkville Road
East Syracuse, NY 13057
(315) 432-5227
FAX: (315) 437-0571
www.sgsgalson.com

LABORATORY ANALYSIS REPORT

Client : Weston Solutions, Inc.
Site : NS

Date Sampled : 21-FEB-24 - 22-FEB-24
Date Received : 24-FEB-24

Account No.: 38449
Login No. : L618635

Date Analyzed : 01-MAR-24
Report ID : 1410025

Fluoride, Vapor

Sample ID	Lab ID	Air Vol liter	Total ug	Conc mg/m3	ppm
SDFE-022124-7902-FB	L618635-9	NA	<2.1	NA	NA
SDFE-022224-7902-D	L618635-10	100	320	3.2	3.9
SDFE-022124-7902-01	L618635-11	19.56	400	20	25
SDFE-022124-7902-02	L618635-12	37.81	18	0.47	0.58
SDFE-022224-7902-03	L618635-13	100	410	4.1	5.0
SDFE-022224-7902-04	L618635-14	44	34	0.77	0.94
SDFE-022224-7902-05	L618635-15	39.5	25	0.63	0.77
SDFE-022224-7902-06	L618635-16	39.25	18	0.45	0.56

COMMENTS: Please see attached lab footnote report for any applicable footnotes.

Level of Quantitation: 2.1 ug
Analytical Method : mod. NIOSH 7902; ISE
Collection Media : 0.8um MCE w Pad

Submitted by: KGB
Date : 12-APR-24
Supervisor : JGC

Approved by: JGC

SGS GALSON

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LABORATORY ANALYSIS REPORT

Client : Weston Solutions, Inc.
Site : NS

Date Sampled : 21-FEB-24 - 22-FEB-24
Date Received : 24-FEB-24

Account No.: 38449
Login No. : L618635

Date Analyzed : 26-FEB-24
Report ID : 1409026

Hydrogen Cyanide

Sample ID	Lab ID	Air Vol liter	Front ug	Back ug	Total ug	Conc mg/m3	ppm
SDFE-022124-6010-FB	L618635-1	NA	<2.6	<2.6	<2.6	NA	NA
SDFE-022224-6010-D	L618635-2	4	3.7	<2.6	3.7	0.92	0.83
SDFE-022124-6010-01	L618635-3	4.12	<2.6	<2.6	<2.6	<0.62	<0.57
SDFE-022124-6010-02	L618635-4	2.96	<2.6	<2.6	<2.6	<0.87	<0.79
SDFE-022224-6010-03	L618635-5	10	<2.6	<2.6	<2.6	<0.26	<0.23
SDFE-022224-6010-04	L618635-6	4.18	8.0	3.6	*12	*2.8 J	*2.5 J
SDFE-022224-6010-05	L618635-7	3.86	3.7	<2.6	3.7	0.96	0.87
SDFE-022224-6010-06	L618635-8	3.84	<2.6	<2.6	<2.6	<0.67	<0.61

TBJ 04/23/2024

COMMENTS: Please see attached lab footnote report for any applicable footnotes.

Level of Quantitation: 2.6 ug
Analytical Method : mod. NIOSH 6010; Colorimetric
Collection Media : 226-210

Submitted by: PMH
Date : 27-FEB-24
Supervisor : JGC

Approved by: JGC

SGS GALSON

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LABORATORY ANALYSIS REPORT

Client : Weston Solutions, Inc.
Site : NS

Date Sampled : 21-FEB-24 - 22-FEB-24
Date Received : 24-FEB-24

Account No.: 38449
Login No. : L618635

Date Analyzed : 01-MAR-24
Report ID : 1410027

Fluoride, Soluble Particulate

Sample ID	Lab ID	Air Vol liter	Total ug	Conc mg/m3
SDFE-022124-7902-FB	L618635-9	NA	<2.0	NA
SDFE-022224-7902-D	L618635-10	100	440	4.4
SDFE-022124-7902-01	L618635-11	19.56	4.6	0.23
SDFE-022124-7902-02	L618635-12	37.81	1600	43
SDFE-022224-7902-03	L618635-13	100	460	4.6
SDFE-022224-7902-04	L618635-14	44	59	1.3
SDFE-022224-7902-05	L618635-15	39.5	940	24
SDFE-022224-7902-06	L618635-16	39.25	650	17

COMMENTS: Please see attached lab footnote report for any applicable footnotes.

Level of Quantitation: 2.0 ug
Analytical Method : mod. NIOSH 7902; ISE
Collection Media : 0.8um MCE w Pad

Submitted by: KGB
Date : 01-MAR-24
Supervisor : JGC

Approved by: JGC

SAN DIEGO LITHIUM-ION BATTERY EXPERIMENT
DATA VALIDATION REPORT

Date: April 22, 2024
Laboratory: SGS, Carson, CA
Laboratory Job Number: M258036
Data Validation Performed By: Tara Johnson, Weston Solutions, Inc. (WESTON) Superfund Technical Assessment and Response Team (START)
Data Validation Reviewed By: Kelly Luck, WESTON START
Weston Work Order #: 20905.012.093.0206.00

This data validation report has been prepared by WESTON START under the START V U.S. Environmental Protection Agency (EPA) Region 9 contract. This report documents the data validation for eight air samples collected for the San Diego Lithium-Ion Battery Experiment that were analyzed for the following parameters using the stated method.

- California Administrative Manual 17 Metals excluding Mercury (CAM 16 Metals) by National Institute for Occupational Safety and Health (NIOSH) Method 7303

A Level II data package was received from SGS, Carson, CA. The data validation was conducted in general accordance with the EPA "National Functional Guidelines for Inorganic Superfund Methods Data Review" dated November 2020. The Attachment contains results summary sheets with any qualifiers applied during data validation.

CAM 16 METALS by NIOSH METHOD 7303

The following table summarizes the samples for which this data validation is being conducted.

Sample	Lab ID	Date Collected	Matrix	Date Extracted	Date Analyzed
SDFE-022124-7303-FB	LM267278	02/21/24	Air	03/01/24	03/01/24
SDFE-022224-7303-D	LM267279	02/22/24	Air	03/01/24	03/01/24
SDFE-022124-7303-01	LM267280	02/21/24	Air	03/01/24	03/01/24
SDFE-022124-7303-02	LM267281	02/21/24	Air	03/01/24	03/01/24
SDFE-022224-7303-03	LM267282	02/22/24	Air	03/01/24	03/01/24
SDFE-022224-7303-04	LM267283	02/22/24	Air	03/01/24	03/01/24
SDFE-022224-7303-05	LM267284	02/22/24	Air	03/01/24	03/01/24
SDFE-022224-7303-06	LM267285	02/22/24	Air	03/01/24	03/01/24

1. Data Verification Check

A data verification and completeness check was performed in accordance with the Stage 1 and 2A verification checks outlined in the EPA "Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use" dated January 13, 2009. For the metals analyses,

all analytical data package items were received from the laboratory and the analyses requested were performed.

2. Holding Times

The samples were analyzed within the recommended holding time limit of 180 days from sample collection.

3. Blanks

One method blank was analyzed with the sample set and was free of target analyte contamination above the reporting limits (RLs).

In addition, one field blank sample, SDFE-022124-7303-FB, was analyzed with the sample set and was free of target analyte contamination above the RLs, except for the following.

Analyte	Amount (µg)	Affected Samples	Qualifier
Cobalt	0.3	SDFE-022224-7303-D SDFE-022124-7303-01 SDFE-022124-7303-02 SDFE-022224-7303-03 SDFE-022224-7303-04 SDFE-022224-7303-05 SDFE-022224-7303-06	None; analyte detected at >>blank amount.
Nickel	2.5	SDFE-022124-7303-01	J
		SDFE-022224-7303-D SDFE-022124-7303-02 SDFE-022224-7303-03 SDFE-022224-7303-04 SDFE-022224-7303-05 SDFE-022224-7303-06	None; analyte detected at >>blank amount.

4. Laboratory Control Sample (LCS) and Laboratory Control Sample Duplicate (LCSD) Results

One LCS/LCSD pair was analyzed with the sample set. The recoveries and relative percent differences (RPDs) were within quality control (QC) limits of 75-125% and ≤20%, respectively.

5. Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Results

MS/MSD analysis was not required.

6. Field Duplicate Result

The sample set included the following field duplicate pair: SDFE-022224-7303-04 and SDFE-022224-7303-D. The QC criteria for field duplication are relative percent difference (RPD) ≤35% for concentrations greater than five times the RL, and absolute difference between results

less than the RL for sample concentrations less than five times the RL. The results for the detected analytes were within QC limits in the field duplicate pair with the exception of copper (RPD = 36%). The results for copper in samples SDFE-022224-7303-04 and SDFE-022224-7303-D were qualified as estimated (J).

7. Overall Assessment

In the EDD, the data validator applied "U" qualifiers to sample results reported by the laboratory as <RL.

The metals data are acceptable for use as qualified based on the information received.

DATA QUALIFIER DEFINITIONS

J The associated numerical value is an estimated quantity because QC criteria were not met.

U The analyte was analyzed for but not detected above the RL. The associated value is the RL.

ATTACHMENT

SGS
RESULTS SUMMARY WITH QUALIFIERS

Click Link to Left for Raw Data

Metals Analysis of Air Filters

(AIHA-LAP, LLC Accreditation, Lab ID #101629)

WESTON SOLUTIONS
Justin Marquez
1800 Sutter Street
Suite 850
Concord, CA 94520

Client ID: L2165
Report Number: M258036
Date Received: 02/23/24
Date Analyzed: 03/01/24
Date Printed: 03/01/24
First Reported: 03/01/24

Job ID / Site: SDFE; San Diego, CA
Date(s) Collected: 02/21/24 - 02/22/24

SGSFL Job ID: L2165
Total Samples Submitted: 8
Total Samples Analyzed: 8

Sample Number	Lab Number	Volume	Analyte	Result	Result Units	Reporting Limit*	Method Reference
SDFE-022124-7303-FB	LM267278	NA	Ag	< 0.3	ug	0.3	NIOSH 7303
	LM267278	NA	As	< 0.6	ug	0.6	NIOSH 7303
	LM267278	NA	Ba	< 0.5	ug	0.5	NIOSH 7303
	LM267278	NA	Be	< 0.08	ug	0.08	NIOSH 7303
	LM267278	NA	Cd	< 0.6	ug	0.6	NIOSH 7303
	LM267278	NA	Co	0.3	ug	0.3	NIOSH 7303
	LM267278	NA	Cr	< 0.9	ug	0.9	NIOSH 7303
	LM267278	NA	Cu	< 0.5	ug	0.5	NIOSH 7303
	LM267278	NA	Mo	< 2	ug	2	NIOSH 7303
	LM267278	NA	Ni	2.5	ug	0.3	NIOSH 7303
	LM267278	NA	Pb	< 0.8	ug	0.8	NIOSH 7303
	LM267278	NA	Sb	< 0.5	ug	0.5	NIOSH 7303
	LM267278	NA	Se	< 0.9	ug	0.9	NIOSH 7303
	LM267278	NA	Tl	< 3	ug	3	NIOSH 7303
	LM267278	NA	V	< 0.5	ug	0.5	NIOSH 7303
	LM267278	NA	Zn	< 0.8	ug	0.8	NIOSH 7303

Metals Analysis of Air Filters

(AIHA-LAP, LLC Accreditation, Lab ID #101629)

WESTON SOLUTIONS
Justin Marquez
1800 Sutter Street
Suite 850
Concord, CA 94520

Client ID: L2165
Report Number: M258036
Date Received: 02/23/24
Date Analyzed: 03/01/24
Date Printed: 03/01/24
First Reported: 03/01/24

Job ID / Site: SDFE; San Diego, CA
Date(s) Collected: 02/21/24 - 02/22/24

SGSFL Job ID: L2165
Total Samples Submitted: 8
Total Samples Analyzed: 8

Sample Number	Lab Number	Volume	Analyte	Result	Result Units	Reporting Limit*	Method Reference
SDFE-022224-7303-D	LM267279	87 L	Ag	< 4	ug/m3	4	NIOSH 7303
	LM267279	87 L	As	< 7	ug/m3	7	NIOSH 7303
	LM267279	87 L	Ba	< 6	ug/m3	6	NIOSH 7303
	LM267279	87 L	Be	< 0.9	ug/m3	0.9	NIOSH 7303
	LM267279	87 L	Cd	< 7	ug/m3	7	NIOSH 7303
	LM267279	87 L	Co	210	ug/m3	4	NIOSH 7303
	LM267279	87 L	Cr	< 20	ug/m3	20	NIOSH 7303
	LM267279	87 L	Cu	30 J	ug/m3	6	NIOSH 7303
	LM267279	87 L	Mo	< 20	ug/m3	20	NIOSH 7303
	LM267279	87 L	Ni	1800	ug/m3	4	NIOSH 7303
	LM267279	87 L	Pb	< 9	ug/m3	9	NIOSH 7303
	LM267279	87 L	Sb	100	ug/m3	6	NIOSH 7303
	LM267279	87 L	Se	< 20	ug/m3	20	NIOSH 7303
	LM267279	87 L	Tl	< 40	ug/m3	40	NIOSH 7303
	LM267279	87 L	V	< 6	ug/m3	6	NIOSH 7303
	LM267279	87 L	Zn	70	ug/m3	9	NIOSH 7303

TBJ 04/22/24

Metals Analysis of Air Filters

(AIHA-LAP, LLC Accreditation, Lab ID #101629)

WESTON SOLUTIONS
Justin Marquez
1800 Sutter Street
Suite 850
Concord, CA 94520

Client ID: L2165
Report Number: M258036
Date Received: 02/23/24
Date Analyzed: 03/01/24
Date Printed: 03/01/24
First Reported: 03/01/24

Job ID / Site: SDFE; San Diego, CA
Date(s) Collected: 02/21/24 - 02/22/24

SGSFL Job ID: L2165
Total Samples Submitted: 8
Total Samples Analyzed: 8

Sample Number	Lab Number	Volume	Analyte	Result		Result Units	Reporting Limit*	Method Reference
SDFE-022124-7303-01	LM267280	83 L	Ag	< 4		ug/m3	4	NIOSH 7303
	LM267280	83 L	As	< 8		ug/m3	8	NIOSH 7303
	LM267280	83 L	Ba	< 6		ug/m3	6	NIOSH 7303
	LM267280	83 L	Be	< 1		ug/m3	1	NIOSH 7303
	LM267280	83 L	Cd	< 8		ug/m3	8	NIOSH 7303
	LM267280	83 L	Co	< 4		ug/m3	4	NIOSH 7303
	LM267280	83 L	Cr	< 20		ug/m3	20	NIOSH 7303
	LM267280	83 L	Cu	350		ug/m3	6	NIOSH 7303
	LM267280	83 L	Mo	< 20		ug/m3	20	NIOSH 7303
	LM267280	83 L	Ni	7	J	ug/m3	4	NIOSH 7303
	LM267280	83 L	Pb	< 10		ug/m3	10	NIOSH 7303
	LM267280	83 L	Sb	130		ug/m3	6	NIOSH 7303
	LM267280	83 L	Se	< 20		ug/m3	20	NIOSH 7303
	LM267280	83 L	Tl	< 40		ug/m3	40	NIOSH 7303
	LM267280	83 L	V	< 6		ug/m3	6	NIOSH 7303
	LM267280	83 L	Zn	60		ug/m3	10	NIOSH 7303

TBJ 04/22/24

Metals Analysis of Air Filters

(AIHA-LAP, LLC Accreditation, Lab ID #101629)

WESTON SOLUTIONS
Justin Marquez
1800 Sutter Street
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Client ID: L2165
Report Number: M258036
Date Received: 02/23/24
Date Analyzed: 03/01/24
Date Printed: 03/01/24
First Reported: 03/01/24

Job ID / Site: SDFE; San Diego, CA
Date(s) Collected: 02/21/24 - 02/22/24

SGSFL Job ID: L2165
Total Samples Submitted: 8
Total Samples Analyzed: 8

Sample Number	Lab Number	Volume	Analyte	Result	Result Units	Reporting Limit*	Method Reference
SDFE-022124-7303-02	LM267281	74 L	Ag	6	ug/m3	5	NIOSH 7303
	LM267281	74 L	As	< 9	ug/m3	9	NIOSH 7303
	LM267281	74 L	Ba	19	ug/m3	7	NIOSH 7303
	LM267281	74 L	Be	< 2	ug/m3	2	NIOSH 7303
	LM267281	74 L	Cd	< 9	ug/m3	9	NIOSH 7303
	LM267281	74 L	Co	18000	ug/m3	5	NIOSH 7303
	LM267281	74 L	Cr	< 20	ug/m3	20	NIOSH 7303
	LM267281	74 L	Cu	29000	ug/m3	7	NIOSH 7303
	LM267281	74 L	Mo	< 20	ug/m3	20	NIOSH 7303
	LM267281	74 L	Ni	190000	ug/m3	500	NIOSH 7303
	LM267281	74 L	Pb	30	ug/m3	20	NIOSH 7303
	LM267281	74 L	Sb	570	ug/m3	7	NIOSH 7303
	LM267281	74 L	Se	< 20	ug/m3	20	NIOSH 7303
	LM267281	74 L	Tl	130	ug/m3	50	NIOSH 7303
	LM267281	74 L	V	< 7	ug/m3	7	NIOSH 7303
	LM267281	74 L	Zn	9500	ug/m3	20	NIOSH 7303

Metals Analysis of Air Filters

(AIHA-LAP, LLC Accreditation, Lab ID #101629)

WESTON SOLUTIONS
Justin Marquez
1800 Sutter Street
Suite 850
Concord, CA 94520

Client ID: L2165
Report Number: M258036
Date Received: 02/23/24
Date Analyzed: 03/01/24
Date Printed: 03/01/24
First Reported: 03/01/24

Job ID / Site: SDFE; San Diego, CA
Date(s) Collected: 02/21/24 - 02/22/24

SGSFL Job ID: L2165
Total Samples Submitted: 8
Total Samples Analyzed: 8

Sample Number	Lab Number	Volume	Analyte	Result	Result Units	Reporting Limit*	Method Reference
SDFE-022224-7303-03	LM267282	197 L	Ag	< 2	ug/m3	2	NIOSH 7303
	LM267282	197 L	As	< 4	ug/m3	4	NIOSH 7303
	LM267282	197 L	Ba	3	ug/m3	3	NIOSH 7303
	LM267282	197 L	Be	< 0.4	ug/m3	0.4	NIOSH 7303
	LM267282	197 L	Cd	< 4	ug/m3	4	NIOSH 7303
	LM267282	197 L	Co	2800	ug/m3	2	NIOSH 7303
	LM267282	197 L	Cr	< 5	ug/m3	5	NIOSH 7303
	LM267282	197 L	Cu	650	ug/m3	3	NIOSH 7303
	LM267282	197 L	Mo	< 7	ug/m3	7	NIOSH 7303
	LM267282	197 L	Ni	26000	ug/m3	20	NIOSH 7303
	LM267282	197 L	Pb	< 4	ug/m3	4	NIOSH 7303
	LM267282	197 L	Sb	210	ug/m3	3	NIOSH 7303
	LM267282	197 L	Se	< 5	ug/m3	5	NIOSH 7303
	LM267282	197 L	Tl	20	ug/m3	20	NIOSH 7303
	LM267282	197 L	V	< 3	ug/m3	3	NIOSH 7303
	LM267282	197 L	Zn	350	ug/m3	4	NIOSH 7303

Metals Analysis of Air Filters

(AIHA-LAP, LLC Accreditation, Lab ID #101629)

WESTON SOLUTIONS
Justin Marquez
1800 Sutter Street
Suite 850
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Client ID: L2165
Report Number: M258036
Date Received: 02/23/24
Date Analyzed: 03/01/24
Date Printed: 03/01/24
First Reported: 03/01/24

Job ID / Site: SDFE; San Diego, CA
Date(s) Collected: 02/21/24 - 02/22/24

SGSFL Job ID: L2165
Total Samples Submitted: 8
Total Samples Analyzed: 8

Sample Number	Lab Number	Volume	Analyte	Result	Result Units	Reporting Limit*	Method Reference
SDFE-022224-7303-04	LM267283	87 L	Ag	< 4	ug/m3	4	NIOSH 7303
	LM267283	87 L	As	< 7	ug/m3	7	NIOSH 7303
	LM267283	87 L	Ba	< 6	ug/m3	6	NIOSH 7303
	LM267283	87 L	Be	< 0.9	ug/m3	0.9	NIOSH 7303
	LM267283	87 L	Cd	< 7	ug/m3	7	NIOSH 7303
	LM267283	87 L	Co	220	ug/m3	4	NIOSH 7303
	LM267283	87 L	Cr	< 20	ug/m3	20	NIOSH 7303
	LM267283	87 L	Cu	43 J	ug/m3	6	NIOSH 7303
	LM267283	87 L	Mo	< 20	ug/m3	20	NIOSH 7303
	LM267283	87 L	Ni	1900	ug/m3	4	NIOSH 7303
	LM267283	87 L	Pb	< 9	ug/m3	9	NIOSH 7303
	LM267283	87 L	Sb	120	ug/m3	6	NIOSH 7303
	LM267283	87 L	Se	< 20	ug/m3	20	NIOSH 7303
	LM267283	87 L	Tl	< 40	ug/m3	40	NIOSH 7303
	LM267283	87 L	V	< 6	ug/m3	6	NIOSH 7303
	LM267283	87 L	Zn	66	ug/m3	9	NIOSH 7303

TBJ 04/22/24

Metals Analysis of Air Filters

(AIHA-LAP, LLC Accreditation, Lab ID #101629)

WESTON SOLUTIONS
Justin Marquez
1800 Sutter Street
Suite 850
Concord, CA 94520

Client ID: L2165
Report Number: M258036
Date Received: 02/23/24
Date Analyzed: 03/01/24
Date Printed: 03/01/24
First Reported: 03/01/24

Job ID / Site: SDFE; San Diego, CA
Date(s) Collected: 02/21/24 - 02/22/24

SGSFL Job ID: L2165
Total Samples Submitted: 8
Total Samples Analyzed: 8

Sample Number	Lab Number	Volume	Analyte	Result	Result Units	Reporting Limit*	Method Reference
SDFE-022224-7303-05	LM267284	79 L	Ag	< 4	ug/m3	4	NIOSH 7303
	LM267284	79 L	As	< 8	ug/m3	8	NIOSH 7303
	LM267284	79 L	Ba	21	ug/m3	6	NIOSH 7303
	LM267284	79 L	Be	< 1	ug/m3	1	NIOSH 7303
	LM267284	79 L	Cd	< 8	ug/m3	8	NIOSH 7303
	LM267284	79 L	Co	7600	ug/m3	4	NIOSH 7303
	LM267284	79 L	Cr	< 20	ug/m3	20	NIOSH 7303
	LM267284	79 L	Cu	7500	ug/m3	6	NIOSH 7303
	LM267284	79 L	Mo	< 20	ug/m3	20	NIOSH 7303
	LM267284	79 L	Ni	70000	ug/m3	80	NIOSH 7303
	LM267284	79 L	Pb	430	ug/m3	10	NIOSH 7303
	LM267284	79 L	Sb	1400	ug/m3	6	NIOSH 7303
	LM267284	79 L	Se	< 20	ug/m3	20	NIOSH 7303
	LM267284	79 L	Tl	60	ug/m3	40	NIOSH 7303
	LM267284	79 L	V	< 6	ug/m3	6	NIOSH 7303
	LM267284	79 L	Zn	1100	ug/m3	10	NIOSH 7303

Metals Analysis of Air Filters

(AIHA-LAP, LLC Accreditation, Lab ID #101629)

WESTON SOLUTIONS
Justin Marquez
1800 Sutter Street
Suite 850
Concord, CA 94520

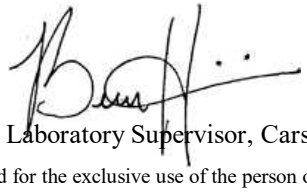
Client ID: L2165
Report Number: M258036
Date Received: 02/23/24
Date Analyzed: 03/01/24
Date Printed: 03/01/24
First Reported: 03/01/24

Job ID / Site: SDFE; San Diego, CA
Date(s) Collected: 02/21/24 - 02/22/24

SGSFL Job ID: L2165
Total Samples Submitted: 8
Total Samples Analyzed: 8

Sample Number	Lab Number	Volume	Analyte	Result	Result Units	Reporting Limit*	Method Reference
SDFE-022224-7303-06	LM267285	78 L	Ag	< 4	ug/m3	4	NIOSH 7303
	LM267285	78 L	As	< 8	ug/m3	8	NIOSH 7303
	LM267285	78 L	Ba	46	ug/m3	6	NIOSH 7303
	LM267285	78 L	Be	< 1	ug/m3	1	NIOSH 7303
	LM267285	78 L	Cd	< 8	ug/m3	8	NIOSH 7303
	LM267285	78 L	Co	3600	ug/m3	4	NIOSH 7303
	LM267285	78 L	Cr	< 20	ug/m3	20	NIOSH 7303
	LM267285	78 L	Cu	2300	ug/m3	6	NIOSH 7303
	LM267285	78 L	Mo	< 20	ug/m3	20	NIOSH 7303
	LM267285	78 L	Ni	33000	ug/m3	8	NIOSH 7303
	LM267285	78 L	Pb	220	ug/m3	10	NIOSH 7303
	LM267285	78 L	Sb	240	ug/m3	6	NIOSH 7303
	LM267285	78 L	Se	< 20	ug/m3	20	NIOSH 7303
	LM267285	78 L	Tl	< 40	ug/m3	40	NIOSH 7303
	LM267285	78 L	V	< 6	ug/m3	6	NIOSH 7303
	LM267285	78 L	Zn	470	ug/m3	10	NIOSH 7303

* The Reporting Limit represents the lowest amount of analyte that the laboratory can confidently detect in the sample, and is not a regulatory level. The Units for the Reporting Limit are the same as the Units for the Final Results.



Beatriz Hinojosa, Laboratory Supervisor, Carson Laboratory

SAN DIEGO LITHIUM-ION BATTERY EXPERIMENT
DATA VALIDATION REPORT

Date: April 23, 2024
Laboratory: SGS Galson, East Syracuse, NY
Laboratory Job Number: L621801
Data Validation Performed By: Tara Johnson, Weston Solutions, Inc. (WESTON) Superfund Technical Assessment and Response Team (START)
Data Validation Reviewed By: Kelly Luck, WESTON START
Weston Work Order #: 20905.012.093.0206.00

This data validation report has been prepared by WESTON START under the START V U.S. Environmental Protection Agency (EPA) Region 9 contract. This report documents the data validation for eight air samples collected for the San Diego Lithium-Ion Battery Experiment that were analyzed for the following parameters using the stated method.

- Select Metals by National Institute for Occupational Safety and Health (NIOSH) Method 7303, Modified (M)

A Level II data package was received from SGS Galson, East Syracuse, NY. The data validation was conducted in general accordance with the EPA "National Functional Guidelines for Inorganic Superfund Methods Data Review" dated November 2020. The Attachment contains results summary sheets with any qualifiers applied during data validation.

Analysis of the samples for additional metals (beyond the CAM 16 metals reported in M258036) was requested via email on 03/22/24.

For sample SDFE-022124-7303-01, the laboratory used the incorrect sample volume to calculate results in mg/m^3. The data validator has corrected the sample volume and sample results in the EDD and on the results summary sheet for the sample. In addition, reporting limits (referred to as LOQs) on the results summary sheets were reported as absolute values (µg). In the EDD, the data validator has calculated the reporting limits in concentration units (ppm and/or mg/m^3).

METALS by NIOSH METHOD 7303(M)

The following table summarizes the samples for which this data validation is being conducted. Samples were re-extracted and re-analyzed for aluminum, iron, manganese, strontium, tin, and titanium.

Sample	Lab ID	Date Collected	Matrix	Date Analyzed
SDFE-022124-7303-FB	L621801-1	02/21/24	Air	04/05/24
SDFE-022224-7303-D	L621801-2	02/22/24	Air	04/05/24
SDFE-022124-7303-01	L621801-3	02/21/24	Air	04/05/24
SDFE-022124-7303-02	L621801-4	02/21/24	Air	04/05/24

Sample	Lab ID	Date Collected	Matrix	Date Analyzed
SDFE-022224-7303-03	L621801-5	02/22/24	Air	04/05/24
SDFE-022224-7303-04	L621801-6	02/22/24	Air	04/05/24
SDFE-022224-7303-05	L621801-7	02/22/24	Air	04/05/24
SDFE-022224-7303-06	L621801-8	02/22/24	Air	04/05/24

1. Data Verification Check

A data verification and completeness check was performed in accordance with the Stage 1 and 2A verification checks outlined in the EPA "Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use" dated January 13, 2009. For the metals analyses, all analytical data package items were received from the laboratory and the analyses requested were performed.

2. Holding Times

The samples were analyzed within the recommended holding time limit of 180 days from sample collection.

3. Blanks

Method blank results were not provided. However, initial and continuing calibration blank results were provided; the blanks were free of target analyte contamination above the respective reporting limits (RLs).

One field blank sample, SDFE-022124-7303-FB, was analyzed with the sample set and was free of target analyte contamination above the RLs.

4. Laboratory Control Sample (LCS) Results

No LCS results were provided. However, initial and continuing calibration verification sample results were provided. The initial calibration verification recoveries were within quality control (QC) limits of 90-110%, and the continuing calibration verification recoveries were within QC limits of 80-120%.

5. Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Results

MS/MSD analysis was not required.

6. Field Duplicate Result

The sample set included the following field duplicate pair: SDFE-022224-7303-04 and SDFE-022224-7303-D. The QC criteria for field duplication are relative percent difference (RPD) ≤35% for concentrations greater than five times the RL, and absolute difference between results

less than the RL for sample concentrations less than five times the RL. The results for the detected analytes were within QC limits in the field duplicate pair.

7. Overall Assessment

The Laboratory Footnote Report indicated that, due to limited sample volume, samples SDFE-022124-7303-02 and SDFE-022224-7303-03 were analyzed at a dilution; the RLs for all analytes were elevated as a result of the dilutions.

Accuracy and mean recovery data were provided for each analyte in the Laboratory Footnote Report, based on a 95% confidence interval (k=2), with accuracy based solely on spike recovery data from internal laboratory QC samples. Accuracy values ranged from ±8.4 to ±10.5%, and mean recoveries ranged 99.5-106%.

SGS Galson flagged sample results with the following laboratory qualifier:

<: Indicates the sample result is less than the RL. These qualifiers were left in place in the Attachment; in the EDD, they were removed by the data validator and replaced with the equivalent qualifier "U."

The metals data are acceptable for use as qualified based on the information received.

DATA QUALIFIER DEFINITIONS

U The analyte was analyzed for but not detected above the RL. The associated value is the RL.

ATTACHMENT

SGS GALSON
RESULTS SUMMARY WITH QUALIFIERS

SGS GALSON

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FAX: (315) 437-0571
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LABORATORY ANALYSIS REPORT

Client : Weston Solutions, Inc.
Site : SDFE

Date Sampled : 21-FEB-24 - 22-FEB-24
Date Received : 29-MAR-24

Account No.: 38449
Login No. : L621801

Date Analyzed : 05-APR-24
Report ID : 1416811

Client ID : SDFE-022124-7303-FB **Lab ID : L621801-1** **Air Volume : NA**
Date Sampled : 02/21/24 **Date Analyzed : 04/05/24**

Parameter	LOQ ug	Total ug	Conc	Units
Aluminum	7.5	<7.5	NA	mg/m3
Iron	7.5	<7.5	NA	mg/m3
Manganese	0.15	<0.15	NA	mg/m3
Strontium	0.15	<0.15	NA	mg/m3
Tin	3.0	<3.0	NA	mg/m3
Titanium	0.75	<0.75	NA	mg/m3

COMMENTS: Please see attached lab footnote report for any applicable footnotes.

Collection Media: Filter
Date : 05-APR-24

Submitted by: EJB/LER/CAW
Supervisor : JJL

Approved by: JJL

SGS GALSON

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LABORATORY ANALYSIS REPORT

Client : Weston Solutions, Inc.
Site : SDFE

Date Sampled : 21-FEB-24 - 22-FEB-24
Date Received : 29-MAR-24

Account No.: 38449
Login No. : L621801

Date Analyzed : 05-APR-24
Report ID : 1416811

Client ID : SDFE-022224-7303-D **Lab ID : L621801-2** **Air Volume : 86.9 L**
Date Sampled : 02/22/24 **Date Analyzed : 04/05/24**

Parameter	LOQ ug	Total ug	Conc	Units
Aluminum	7.5	58	0.67	mg/m3
Iron	7.5	<7.5	<0.086	mg/m3
Manganese	0.15	0.24	0.0027	mg/m3
Strontium	0.15	<0.15	<0.0017	mg/m3
Tin	3.0	<3.0	<0.035	mg/m3
Titanium	0.75	<0.75	<0.0086	mg/m3

COMMENTS: Please see attached lab footnote report for any applicable footnotes.

Collection Media: Filter
Date : 05-APR-24

Submitted by: EJB/LER/CAW
Supervisor : JJL

Approved by: JJL

SGS GALSON

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LABORATORY ANALYSIS REPORT

Client : Weston Solutions, Inc.
Site : SDFE

Date Sampled : 21-FEB-24 - 22-FEB-24
Date Received : 29-MAR-24

Account No.: 38449
Login No. : L621801

Date Analyzed : 05-APR-24
Report ID : 1416811

Client ID : SDFE-022124-7303-01 **Lab ID : L621801-3** **Air Volume : ~~41.02 L~~ 82.74 L**
Date Sampled : 02/21/24 **Date Analyzed : 04/05/24**

Parameter	LOQ ug	Total ug	Conc		Units
Aluminum	7.5	<7.5	<~~0.18~~	0.091	mg/m3
Iron	7.5	<7.5	<~~0.18~~	0.091	mg/m3
Manganese	0.15	<0.15	<~~0.0037~~	0.0018	mg/m3
Strontium	0.15	<0.15	<~~0.0037~~	0.0018	mg/m3
Tin	3.0	<3.0	<~~0.073~~	0.036	mg/m3
Titanium	0.75	<0.75	<~~0.018~~	0.0091	mg/m3

TBJ 04/23/2024

COMMENTS: Please see attached lab footnote report for any applicable footnotes.

Collection Media: Filter
Date : 05-APR-24

Submitted by: EJB/LER/CAW
Supervisor : JJL

Approved by: JJL

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LABORATORY ANALYSIS REPORT

Client : Weston Solutions, Inc.
Site : SDFE

Date Sampled : 21-FEB-24 - 22-FEB-24
Date Received : 29-MAR-24

Account No.: 38449
Login No. : L621801

Date Analyzed : 05-APR-24
Report ID : 1416811

Client ID : SDFE-022124-7303-02 **Lab ID : L621801-4** **Air Volume : 74.48 L**
Date Sampled : 02/21/24 **Date Analyzed : 04/05/24**

Parameter	LOQ ug	Total ug	Conc	Units
Aluminum	30.	2500	34	mg/m3
Iron	30.	140	1.9	mg/m3
Manganese	0.60	21	0.29	mg/m3
Strontium	0.60	1.1	0.014	mg/m3
Tin	12.	<12	<0.16	mg/m3
Titanium	3.0	64	0.85	mg/m3

COMMENTS: Please see attached lab footnote report for any applicable footnotes.

Collection Media: Filter
Date : 05-APR-24

Submitted by: EJB/LER/CAW
Supervisor : JJL

Approved by: JJL

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LABORATORY ANALYSIS REPORT

Client : Weston Solutions, Inc.
Site : SDFE

Date Sampled : 21-FEB-24 - 22-FEB-24
Date Received : 29-MAR-24

Account No.: 38449
Login No. : L621801

Date Analyzed : 05-APR-24
Report ID : 1416811

Client ID : SDFE-022224-7303-03 **Lab ID : L621801-5** **Air Volume : 197.0 L**
Date Sampled : 02/22/24 **Date Analyzed : 04/05/24**

Parameter	LOQ ug	Total ug	Conc	Units
Aluminum	15.	2400	12	mg/m3
Iron	15.	<15	<0.076	mg/m3
Manganese	0.30	6.6	0.033	mg/m3
Strontium	0.30	0.76	0.0039	mg/m3
Tin	6.0	<6.0	<0.030	mg/m3
Titanium	1.5	2.9	0.015	mg/m3

COMMENTS: Please see attached lab footnote report for any applicable footnotes.

Collection Media: Filter
Date : 05-APR-24

Submitted by: EJB/LER/CAW
Supervisor : JJL

Approved by: JJL

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LABORATORY ANALYSIS REPORT

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Site : SDFE

Date Sampled : 21-FEB-24 - 22-FEB-24
Date Received : 29-MAR-24

Account No.: 38449
Login No. : L621801

Date Analyzed : 05-APR-24
Report ID : 1416811

Client ID : SDFE-022224-7303-04 **Lab ID : L621801-6** **Air Volume : 87.0 L**
Date Sampled : 02/22/24 **Date Analyzed : 04/05/24**

Parameter	LOQ ug	Total ug	Conc	Units
Aluminum	7.5	70	0.80	mg/m3
Iron	7.5	<7.5	<0.086	mg/m3
Manganese	0.15	<0.15	<0.0017	mg/m3
Strontium	0.15	<0.15	<0.0017	mg/m3
Tin	3.0	<3.0	<0.034	mg/m3
Titanium	0.75	<0.75	<0.0086	mg/m3

COMMENTS: Please see attached lab footnote report for any applicable footnotes.

Collection Media: Filter
Date : 05-APR-24

Submitted by: EJB/LER/CAW
Supervisor : JJL

Approved by: JJL

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LABORATORY ANALYSIS REPORT

Client : Weston Solutions, Inc.
Site : SDFE

Date Sampled : 21-FEB-24 - 22-FEB-24
Date Received : 29-MAR-24

Account No.: 38449
Login No. : L621801

Date Analyzed : 05-APR-24
Report ID : 1416811

Client ID : SDFE-022224-7303-05 **Lab ID : L621801-7** **Air Volume : 79.2 L**
Date Sampled : 02/22/24 **Date Analyzed : 04/05/24**

Parameter	LOQ ug	Total ug	Conc	Units
Aluminum	7.5	1000	13	mg/m3
Iron	7.5	12	0.16	mg/m3
Manganese	0.15	6.9	0.088	mg/m3
Strontium	0.15	0.83	0.010	mg/m3
Tin	3.0	21	0.27	mg/m3
Titanium	0.75	4.2	0.053	mg/m3

COMMENTS: Please see attached lab footnote report for any applicable footnotes.

Collection Media: Filter
Date : 05-APR-24

Submitted by: EJB/LER/CAW
Supervisor : JJL

Approved by: JJL

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Client : Weston Solutions, Inc.
Site : SDFE

Date Sampled : 21-FEB-24 - 22-FEB-24
Date Received : 29-MAR-24

Account No.: 38449
Login No. : L621801

Date Analyzed : 05-APR-24
Report ID : 1416811

Client ID : SDFE-022224-7303-06 **Lab ID : L621801-8** **Air Volume : 78.0 L**
Date Sampled : 02/22/24 **Date Analyzed : 04/05/24**

Parameter	LOQ ug	Total ug	Conc	Units
Aluminum	7.5	650	8.4	mg/m3
Iron	7.5	13	0.16	mg/m3
Manganese	0.15	0.54	0.0069	mg/m3
Strontium	0.15	0.15	0.0020	mg/m3
Tin	3.0	21	0.27	mg/m3
Titanium	0.75	1.8	0.022	mg/m3

COMMENTS: Please see attached lab footnote report for any applicable footnotes.

Collection Media: Filter
Date : 05-APR-24

Submitted by: EJB/LER/CAW
Supervisor : JJL

Approved by: JJL