SunStar Laboratories, Inc.
PROVIDING QUALITY ANALYTICAL SERVICES NATIONWIDE

25712 Commercentre Drive
Lake Forest, California 92630
949.297.5020 Phone
949.297.5027 Fax

17 October 2022

Aron Liu
Hanwha Q CELLS
400 Spectrum Center Drive, Ste 1400
Irvine, CA 92618

RE: Q.PEAK DUO XL-G11.3/BFG & Q.PEAK DUO XL-G11S.3/BFG

Enclosed are the results of analyses for samples received by the laboratory on 10/04/22 17:33. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Joann Marroquin
Director of Operations

SunStar Laboratories, Inc.
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Hanwha Q CELLS	Project: Q.PEAK DUO XL-G11.3/BFG & Q.PEAK DUO XL-G11S.3/BFG	
400 Spectrum Center Drive, Ste 1400	Project Number: -	**Reported:**
Irvine CA, 92618	Project Manager: Aron Liu	10/17/22 11:50

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Sample 1 Composite	T222753-03	solid	09/22/22 00:00	10/04/22 17:33
Sample 3 Composite	T222753-06	Solid	09/22/22 00:00	10/04/22 17:33

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Hanwha Q CELLS	Project: Q.PEAK DUO XL-G11.3/BFG & Q.PEAK DUO XL-G11S.3/BFG	
400 Spectrum Center Drive, Ste 1400	Project Number: -	**Reported:**
Irvine CA, 92618	Project Manager: Aron Liu	10/17/22 11:50

DETECTIONS SUMMARY

Sample ID: Sample 1 Composite **Laboratory ID:** T222753-03

Analyte	Result	Reporting Limit	Units	Method	Notes
Barium	**1.1**	0.10	mg/l	EPA 1311/6010/7000	
Lead	**4.0**	0.10	mg/l	EPA 1311/6010/7000	
Zinc	**0.98**	0.10	mg/l	EPA 1311/6010/7000	

Sample ID: Sample 3 Composite **Laboratory ID:** T222753-06

Analyte	Result	Reporting Limit	Units	Method	Notes
Barium	**2.2**	0.10	mg/l	EPA 1311/6010/7000	
Lead	**3.1**	0.10	mg/l	EPA 1311/6010/7000	
Zinc	**2.2**	0.10	mg/l	EPA 1311/6010/7000	

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Hanwha Q CELLS	Project: Q.PEAK DUO XL-G11.3/BFG & Q.PEAK DUO XL-G11S.3/BFG	
400 Spectrum Center Drive, Ste 1400	Project Number: -	**Reported:**
Irvine CA, 92618	Project Manager: Aron Liu	10/17/22 11:50

Sample 1 Composite

T222753-03 (solid)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SunStar Laboratories, Inc.									
TCLP Metals by 6000/7000 Series Methods									
Mercury	ND	3.0	ug/l	1	22J0082	10/06/22	10/11/22	EPA 1311/7470	
Antimony	ND	0.10	mg/l	"	22J0062	10/06/22	10/11/22	EPA 1311/6010/7000	
Arsenic	ND	0.10	"	"	"	"	"	"	
Barium	**1.1**	0.10	"	"	"	"	"	"	
Beryllium	ND	0.10	"	"	"	"	"	"	
Cadmium	ND	0.10	"	"	"	"	"	"	
Chromium	ND	0.10	"	"	"	"	"	"	
Cobalt	ND	0.10	"	"	"	"	"	"	
Copper	ND	0.10	"	"	"	"	"	"	
Lead	**4.0**	0.10	"	"	"	"	"	"	
Molybdenum	ND	0.10	"	"	"	"	"	"	
Nickel	ND	0.10	"	"	"	"	"	"	
Selenium	ND	0.10	"	"	"	"	"	"	
Silver	ND	0.10	"	"	"	"	"	"	
Thallium	ND	0.10	"	"	"	"	"	"	
Vanadium	ND	0.10	"	"	"	"	"	"	
Zinc	**0.98**	0.10	"	"	"	"	"	"	

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400 Spectrum Center Drive, Ste 1400	Project Number: -	**Reported:**
Irvine CA, 92618	Project Manager: Aron Liu	10/17/22 11:50

Sample 3 Composite

T222753-06 (Solid)

SunStar Laboratories, Inc.

TCLP Metals by 6000/7000 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Mercury	ND	3.0	ug/l	1	22J0082	10/06/22	10/11/22	EPA 1311/7470	
Antimony	ND	0.10	mg/l	"	22J0062	10/06/22	10/11/22	EPA 1311/6010/7000	
Arsenic	ND	0.10	"	"	"	"	"	"	
Barium	**2.2**	0.10	"	"	"	"	"	"	
Beryllium	ND	0.10	"	"	"	"	10/11/22	"	
Cadmium	ND	0.10	"	"	"	"	10/11/22	"	
Chromium	ND	0.10	"	"	"	"	"	"	
Cobalt	ND	0.10	"	"	"	"	"	"	
Copper	ND	0.10	"	"	"	"	"	"	
Lead	**3.1**	0.10	"	"	"	"	"	"	
Molybdenum	ND	0.10	"	"	"	"	"	"	
Nickel	ND	0.10	"	"	"	"	"	"	
Selenium	ND	0.10	"	"	"	"	"	"	
Silver	ND	0.10	"	"	"	"	"	"	
Thallium	ND	0.10	"	"	"	"	"	"	
Vanadium	ND	0.10	"	"	"	"	"	"	
Zinc	**2.2**	0.10	"	"	"	"	"	"	

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400 Spectrum Center Drive, Ste 1400	Project Number: -	**Reported:**
Irvine CA, 92618	Project Manager: Aron Liu	10/17/22 11:50

TCLP Metals by 6000/7000 Series Methods - Quality Control

SunStar Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 22J0062 - TCLP Metals										
Blank (22J0062-BLK1)				Prepared: 10/05/22 Analyzed: 10/11/22						
Antimony	ND	0.10	mg/l							
Arsenic	ND	0.10	"							
Barium	ND	0.10	"							
Beryllium	ND	0.10	"							
Cadmium	ND	0.10	"							
Chromium	ND	0.10	"							
Cobalt	ND	0.10	"							
Copper	ND	0.10	"							
Lead	ND	0.10	"							
Molybdenum	ND	0.10	"							
Nickel	ND	0.10	"							
Selenium	ND	0.10	"							
Silver	ND	0.10	"							
Thallium	ND	0.10	"							
Vanadium	ND	0.10	"							
Zinc	ND	0.10	"							
LCS (22J0062-BS1)				Prepared: 10/05/22 Analyzed: 10/11/22						
Arsenic	0.586	0.10	mg/l	0.500		117	75-125			
Barium	0.532	0.10	"	0.500		106	75-125			
Cadmium	0.584	0.10	"	0.500		117	75-125			
Chromium	0.551	0.10	"	0.500		110	75-125			
Lead	0.529	0.10	"	0.500		106	75-125			
Matrix Spike (22J0062-MS1)	**Source: T222753-03**			Prepared: 10/05/22 Analyzed: 10/11/22						
Arsenic	0.570	0.10	mg/l	0.500	ND	114	75-125			
Barium	1.67	0.10	"	0.500	1.13	109	75-125			
Cadmium	0.573	0.10	"	0.500	ND	115	75-125			
Chromium	0.543	0.10	"	0.500	ND	109	75-125			
Lead	4.54	0.10	"	0.500	3.97	115	75-125			

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400 Spectrum Center Drive, Ste 1400	Project Number: -	**Reported:**
Irvine CA, 92618	Project Manager: Aron Liu	10/17/22 11:50

TCLP Metals by 6000/7000 Series Methods - Quality Control

SunStar Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 22J0062 - TCLP Metals										
Matrix Spike Dup (22J0062-MSD1)	**Source: T222753-03**			Prepared: 10/05/22 Analyzed: 10/11/22						
Arsenic	0.576	0.10	mg/l	0.500	ND	115	75-125	0.928	30	
Barium	1.67	0.10	"	0.500	1.13	108	75-125	0.294	30	
Cadmium	0.565	0.10	"	0.500	ND	113	75-125	1.35	30	
Chromium	0.537	0.10	"	0.500	ND	107	75-125	1.07	30	
Lead	4.54	0.10	"	0.500	3.97	115	75-125	0.0568	30	
Batch 22J0082 - TCLP Hg CV										
Blank (22J0082-BLK1)				Prepared: 10/06/22 Analyzed: 10/11/22						
Mercury	ND	3.0	ug/l							
LCS (22J0082-BS1)				Prepared: 10/06/22 Analyzed: 10/11/22						
Mercury	7.75	3.0	ug/l	7.00		111	75-125			
Matrix Spike (22J0082-MS1)	**Source: T222753-03**			Prepared: 10/06/22 Analyzed: 10/11/22						
Mercury	7.79	3.0	ug/l	7.00	0.0986	110	75-125			
Matrix Spike Dup (22J0082-MSD1)	**Source: T222753-03**			Prepared: 10/06/22 Analyzed: 10/11/22						
Mercury	7.72	3.0	ug/l	7.00	0.0986	109	75-125	0.917	30	

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400 Spectrum Center Drive, Ste 1400	Project Number: -	**Reported:**
Irvine CA, 92618	Project Manager: Aron Liu	10/17/22 11:50

Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

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25712 Commercentre Dr
Lake Forest, CA 92630
949-297-5020

Chain of Custody Record

SunStar Laboratories, Inc.
Providing Quality Analytical Services Nationwide

Client: QCells North America
Address: 400 Spectrum Center Dr. Irvine, CA 92618
Phone: 206-395-5589 Fax:
Project Manager: Aron Liu

Date: 9/29/2022 Page: 1 Of 1
Project Name: Q.Peak Duo XL-G11.3/BFG & Q.Peak Duo XL-G11S.3/BFG
Collector: Client Project #:
Batch #: T222753 EDF #:

	Sample ID	Date Sampled	Time	Sample Type	Container Type	8260	8260 + OXY	8260 BTEX, OXY only	8270	8021 BTEX	8015M (gasoline)	8015M (diesel)	8015M Ext./Carbon Chain	6010/7000 Title 22 Metals	6020 ICP-MS Metals	TCLP Metal			Laboratory ID #	Comments/Preservative	Total # of containers
sample1	Sample 1 - Glass, frames, XL-G11.3 BFG	9/22/22		Solid	bag											✓			01	PB	
	Sample 1 - laminate - XL-G11.3 BFG	9/22/22														✓			02	PB	
sample3	Sample 3 - Glass, frame, XL-G11S.3 BFG	9/23/22														✓			03	PB	
	Sample 3 - laminate - XL-G11S.3 BFG	9/22/22														✓			04	PB	

Relinquished by: (signature)	Date / Time	Received by: (signature)	Date / Time
	10/4/22 14:03		10/4/22 14:03
Relinquished by: (signature)	Date / Time	Received by: (signature)	Date / Time
	10/4/22 17:33		10/4/22 17:33
Relinquished by: (signature)	Date / Time	Received by: (signature)	Date / Time

Total # of containers	
Chain of Custody seals Y/N/NA	N
Seals intact? Y/N/NA	NA
Received good condition/cold	2.3°C

Turn around time:

Notes

Sample disposal Instructions: Disposal @ $2.00 each ____ Return to client ____ Pickup ____

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SAMPLE RECEIVING REVIEW SHEET

Batch/Work Order #: T222753

Client Name: Q Cells North America Project: Q.Peak Duo XL-G11.3/BFG x Q.Peak Duo XL-G11S.3/BFG

Delivered by: ☐ Client ☑ SunStar Courier ☐ GLS ☐ FedEx ☐ Other

If Courier, Received by: Paul Date/Time Courier Received: 10/4/22 14:03

Lab Received by: PB Paul Travis Date/Time Lab Received: 10/4/22 17:33

Total number of coolers received: 1 Thermometer ID: SC-1 Calibration due : 8/2/23

Temperature: Cooler #1	2.2°C +/- the CF (+ 0.1°C)	=	2.3 °C	corrected temperature
Temperature: Cooler #2	°C +/- the CF (+ 0.1°C)	=	°C	corrected temperature
Temperature: Cooler #3	°C +/- the CF (+ 0.1°C)	=	°C	corrected temperature

Temperature criteria = ≤ 6°C (no frozen containers)	Within criteria?	☑ **Yes** ☐ **No** ☐ **N/A**
If NO:		
Samples received on ice?	☐ Yes	☐ **No → Complete Non-Conformance Sheet**
If on ice, samples received same day collected?	☐ Yes → Acceptable	☐ **No → Complete Non-Conformance Sheet**

Custody seals intact on cooler/sample	☐ Yes	☐ No*	☑ N/A
Sample containers intact	☑ Yes	☐ No*	
Sample labels match Chain of Custody IDs	☑ Yes	☐ No*	
Total number of containers received match COC	☑ Yes	☐ No*	
Proper containers received for analyses requested on COC	☑ Yes	☐ No*	
Proper preservative indicated on COC/containers for analyses requested	☐ Yes	☐ No*	☑ N/A
Complete shipment received in good condition with correct temperatures, containers, labels, volumes preservatives and within method specified holding times	☑ **Yes**	☐ **No***	

* Complete Non-Conformance Receiving Sheet if checked Cooler/Sample Review - Initials and date: PB 10/4/22

Comments:

SunStar Laboratories, Inc.
PROVIDING QUALITY ANALYTICAL SERVICES NATIONWIDE

WORK ORDER

T222753

Client: **Hanwha Q CELLS** **Project Manager:** **Joann Marroquin**
Project: **Q. Peak Dou XL-G11.3/BFG&Q.peak Dou XL-G11** **Project Number:** **-**

Report To:
Hanwha Q CELLS
Aron Liu
400 Spectrum Center Drive, Ste 1400
Irvine, CA 92618

Date Due:	10/12/22 17:00 (5 day TAT)		
Received By:	Travis Berner	Date Received:	10/04/22 17:33
Logged In By:	Elizabeth Sprowell	Date Logged In:	10/05/22 11:09

Samples Received at:	**2.3°C**		
Custody Seals	No	Received On Ice	Yes
Containers Intact	Yes		
COC/Labels Agree	Yes		
Preservation Confir	No		

Analysis	Due	TAT	Expires	Comments
T222753-01 Sample 1A [Solid] Sampled 09/22/22 00:00 (GMT-08:00) Pacific Time (US &				
[NO ANALYSES]				
T222753-02 Sample 1B [Solid] Sampled 09/22/22 00:00 (GMT-08:00) Pacific Time (US &				
[NO ANALYSES]				
T222753-03 Sample 1 Composite [Soil] Sampled 09/22/22 00:00 (GMT-08:00) Pacific Time (US &				
TCLP Leaching Procedure Metals	10/12/22 15:00	5	03/21/23 00:00	
TCLP Title 22	10/12/22 15:00	5	03/21/23 00:00	
T222753-04 Sample 3A [Solid] Sampled 09/22/22 00:00 (GMT-08:00) Pacific Time (US &				
[NO ANALYSES]				
T222753-05 Sample 3B [Solid] Sampled 09/22/22 00:00 (GMT-08:00) Pacific Time (US &				
[NO ANALYSES]				
T222753-06 Sample 3 Composite [Soil] Sampled 09/22/22 00:00 (GMT-08:00) Pacific Time (US &				
TCLP Leaching Procedure Metals	10/12/22 15:00	5	03/21/23 00:00	
TCLP Title 22	10/12/22 15:00	5	03/21/23 00:00	

Reviewed By Date

SunStar Laboratories, Inc.
PROVIDING QUALITY ANALYTICAL SERVICES NATIONWIDE

WORK ORDER

T222753

Client:	**Hanwha Q CELLS**	**Project Manager:**	**Joann Marroquin**
Project:	**Q. Peak Dou XL-G11.3/BFG&Q.peak Dou XL-G11**	**Project Number:**	**-**

Analysis groups included in this work order

TCLP Title 22

sub TCLP Title 22 Metals sub TCLP Hg CV

Reviewed By Date