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DOCKET
09-AFC-8
DATE DEC 23 2009
RECD. DEC 23 2009

December 23, 2009

California Energy Commission
Docket Unit
1516 Ninth Street
Sacramento, CA 95814-5512

Subject: **LOW RESOULTION SCAN OF THE BOREHOLE LOGS FOR OBS-1, OBS-2, TW-1, AND TW-2 FOR GENESIS SOLAR ENERGY PROJECT**
DOCKET NO. (09-AFC-8)

Enclosed for filing with the California Energy Commission is the original of **LOW RESOULTION SCAN OF THE BOREHOLE LOGS FOR OBS-1, OBS-2, TW-1, AND TW-2 FOR GENESIS SOLAR ENERGY PROJECT,** for the Genesis Solar Energy Project Docket No. (09-AFC-8).

Sincerely,

Ashley Y Garner

Ashley Y Garner

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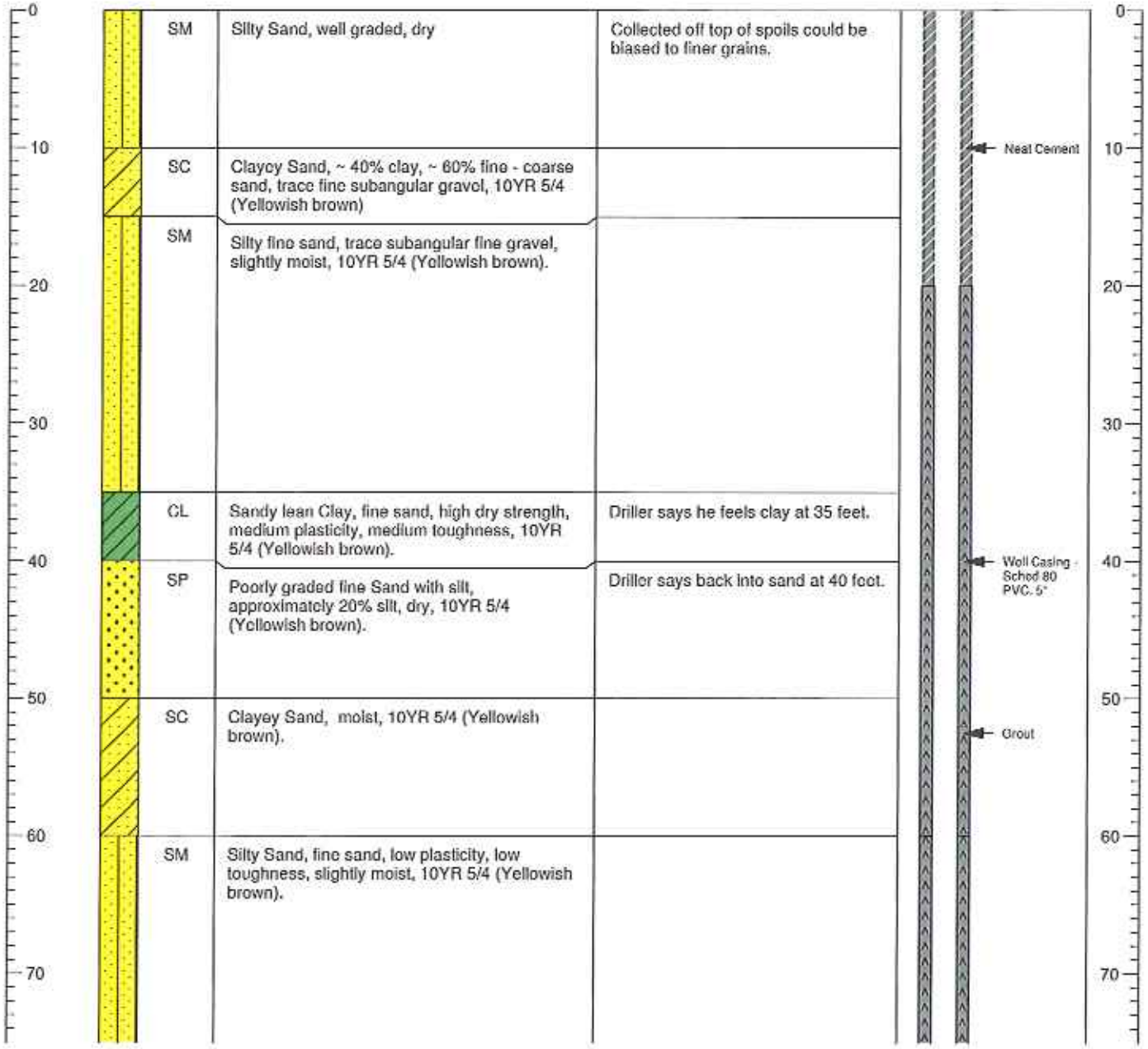
resources & energy

Lithologic Log of OBS-01

Genesis Solar, LLC
Project Number: 52004617

Date Drilled: 05/08/2009 to 05/09/2009		Borehole Location: N33°40' 24.91" W115°03'5.85"	
Drilling Method: Air Rotary, 10" Diameter		Ground Surface Elevation: 383 feet amsl	
Drilling Contractor: WDC Exploration		Static Water Level: 76.77 feet amsl	
Geologist: Ryan Farrel	Reviewer: Nat Beal	Total Depth: 160 ft	Well Depth:
Notes:			

Depth - Feet	Graphic Log	USCS Soil Type	Geologic Description	Remarks	Well Schematic
0–10		SM	Silty Sand, well graded, dry	Collected off top of spoils could be biased to finer grains.	
10–15		SC	Claycy Sand, ~ 40% clay, ~ 60% fine - coarse sand, trace fine subangular gravel, 10YR 5/4 (Yellowish brown)		
15–35		SM	Silty fine sand, trace subangular fine gravel, slightly moist, 10YR 5/4 (Yellowish brown).		
35–40		CL	Sandy lean Clay, fine sand, high dry strength, medium plasticity, medium toughness, 10YR 5/4 (Yellowish brown).	Driller says he feels clay at 35 feet.	
40–50		SP	Poorly graded fine Sand with silt, approximately 20% silt, dry, 10YR 5/4 (Yellowish brown).	Driller says back into sand at 40 feet.	
50–60		SC	Clayey Sand, moist, 10YR 5/4 (Yellowish brown).		
60–70		SM	Silty Sand, fine sand, low plasticity, low toughness, slightly moist, 10YR 5/4 (Yellowish brown).		



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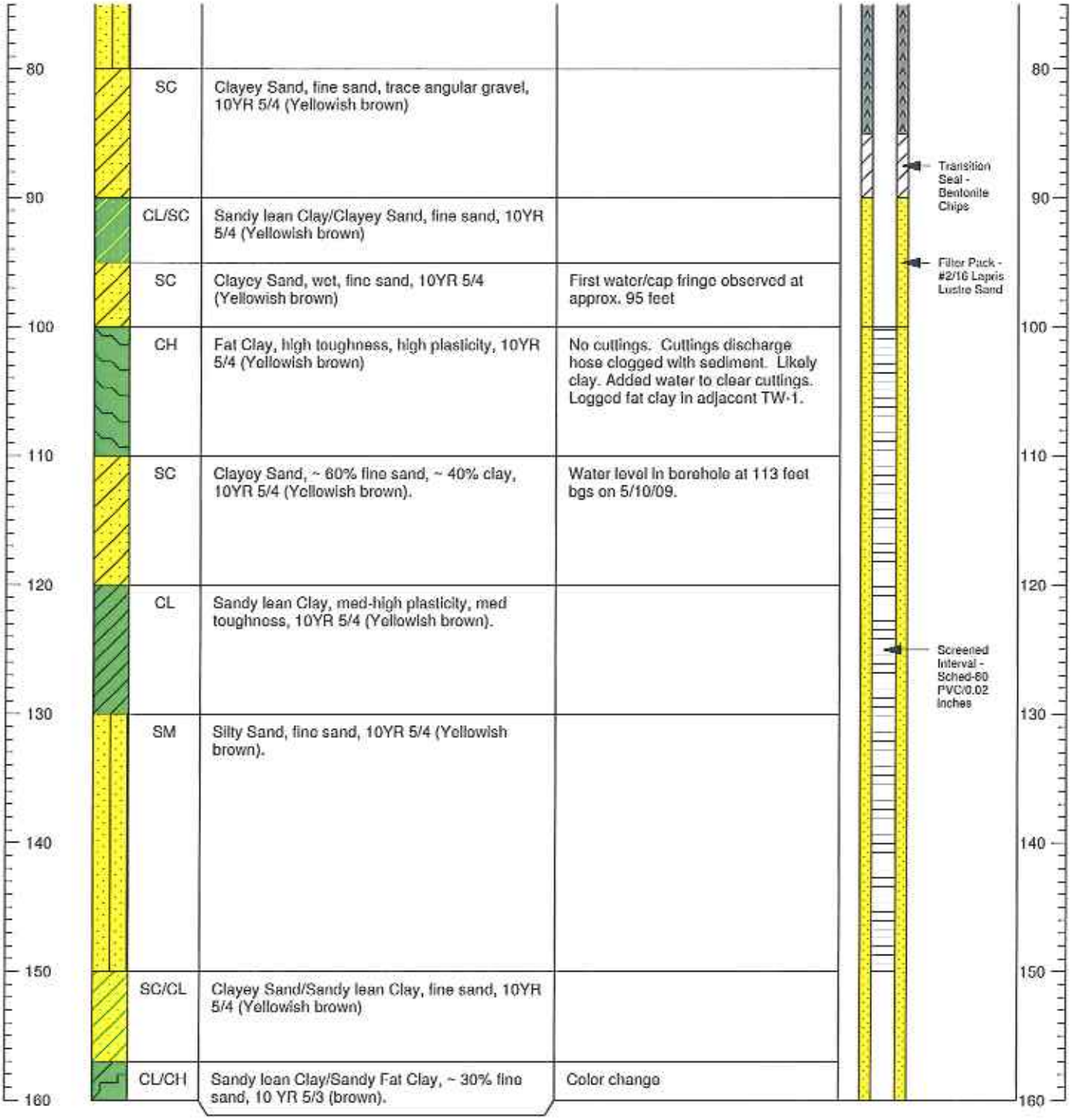
Lithologic Log of OBS-1

Genesis Solar, LLC
Project Number: 52004617



Lithologic Log of OBS-2 - 0 fbgs to 75 fbgs

Genesis Solar, LLC
Project Number: 52004617

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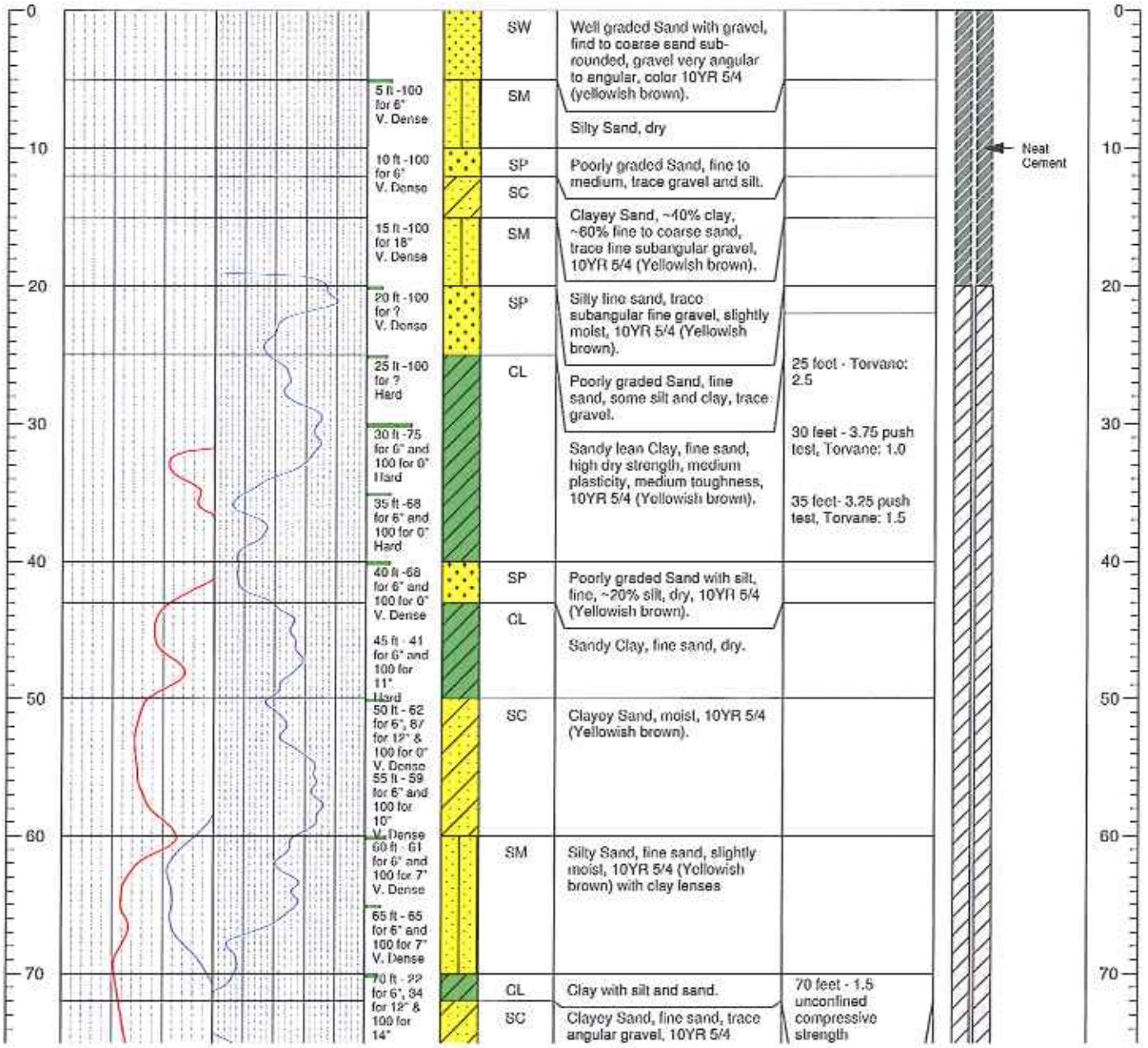
Date Drilled: 05/28/2009 to 07/02/2009		Borehole Location: N33°40.419' W115°03.268	
Drilling Method: Mud Rotary, 10" Diameter		Ground Surface Elevation: 383 feet amsl	
Drilling Contractor: WDC Exploration		Static Water Level: N/A	
Geologist: Andie Gehlhausen	Reviewer: Nat Beal	Total Depth: 900 ft	Well Depth: 405 ft

Notes:
1) Lithologic log was adjusted based on the cuttings log from OBS-1 and the geophysical logs
2) RSN and RLS have been corrected to 77 degrees F
3) Soil samples were collected using a Modified California Split Spoon Sampler and a standard 140-pound drive hammer



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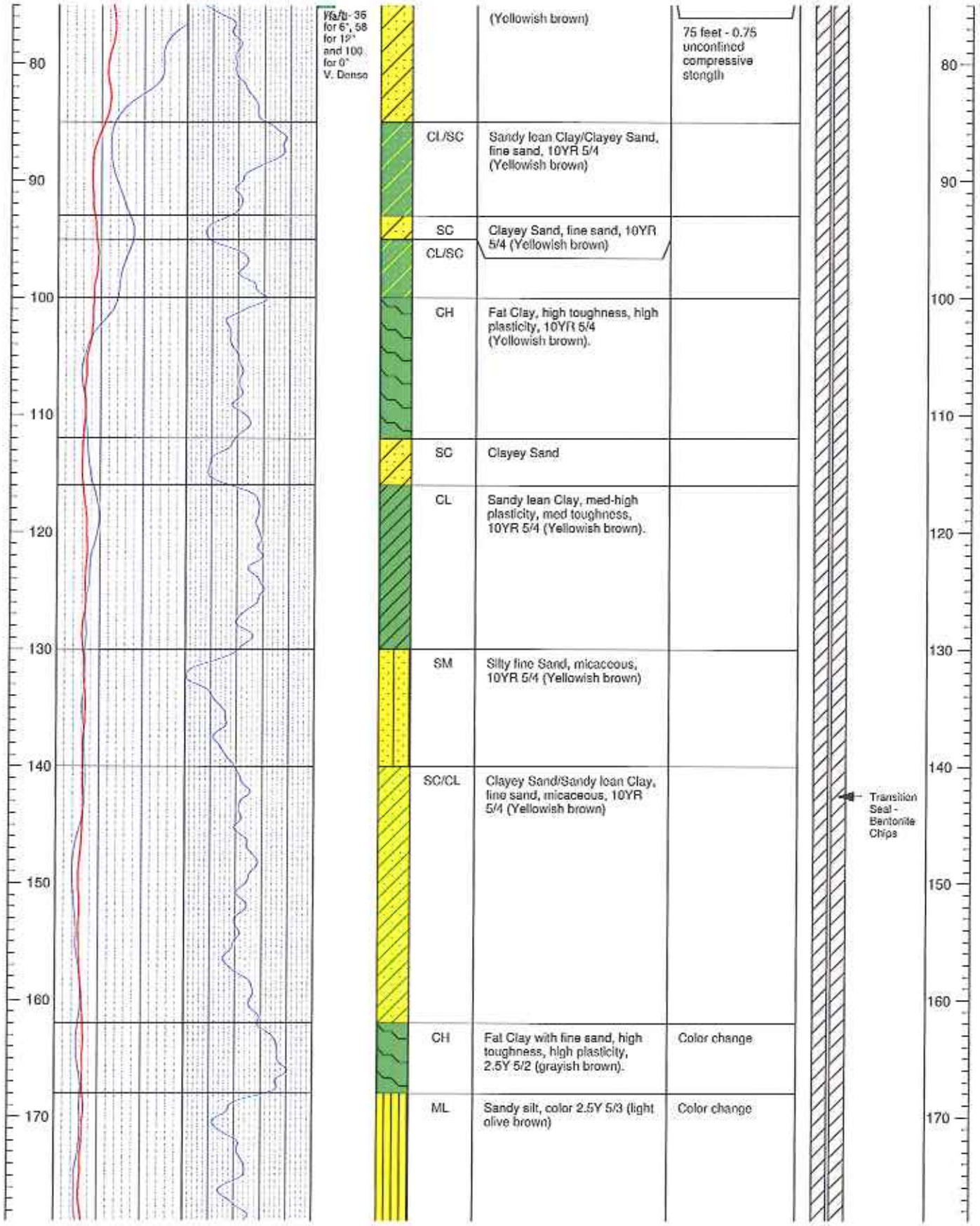
Lithologic Log of OBS-2

Genesis Solar, LLC
Project Number: 52004617



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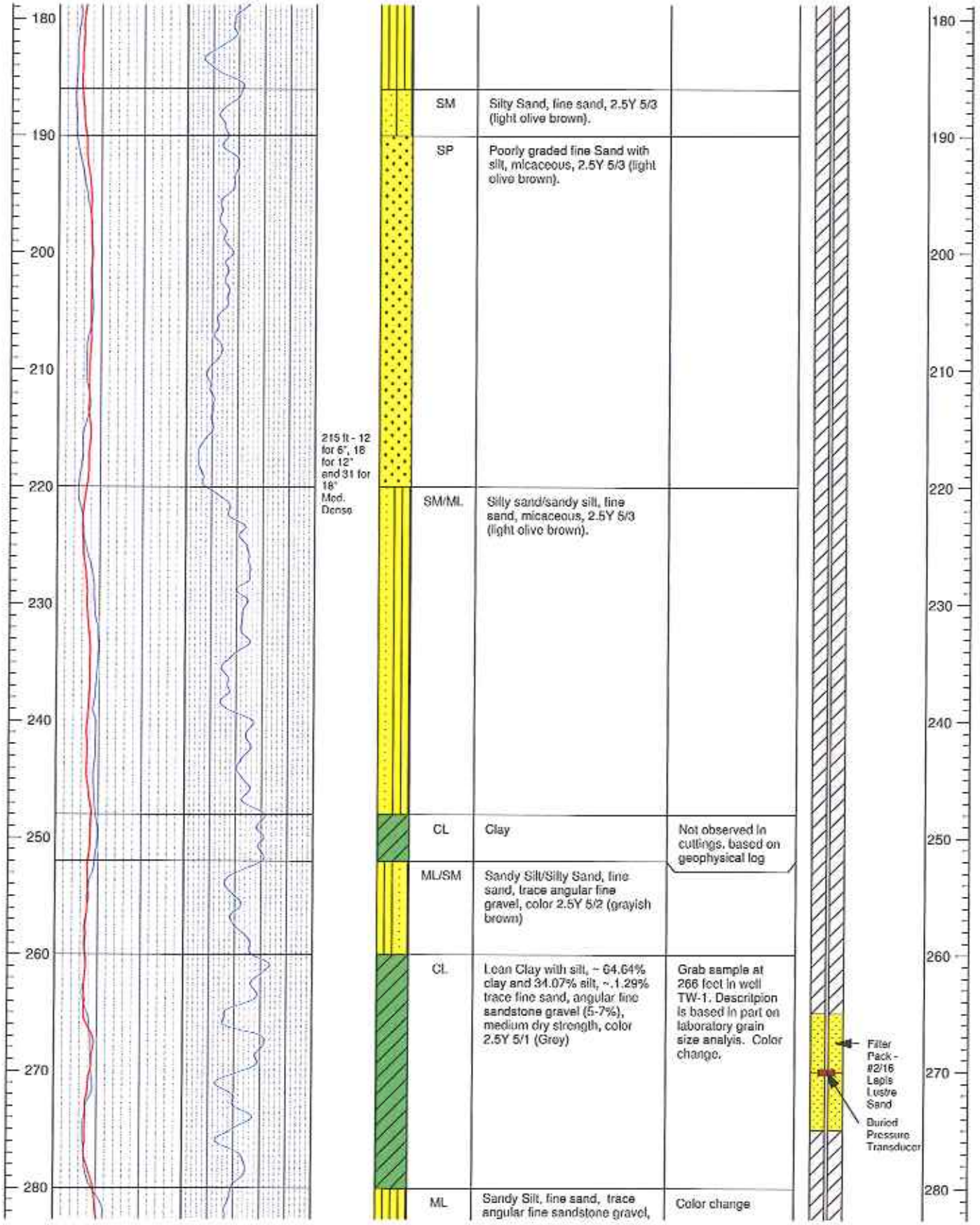
Lithologic Log of OBS-2

Genesis Solar, LLC
Project Number: 52004617



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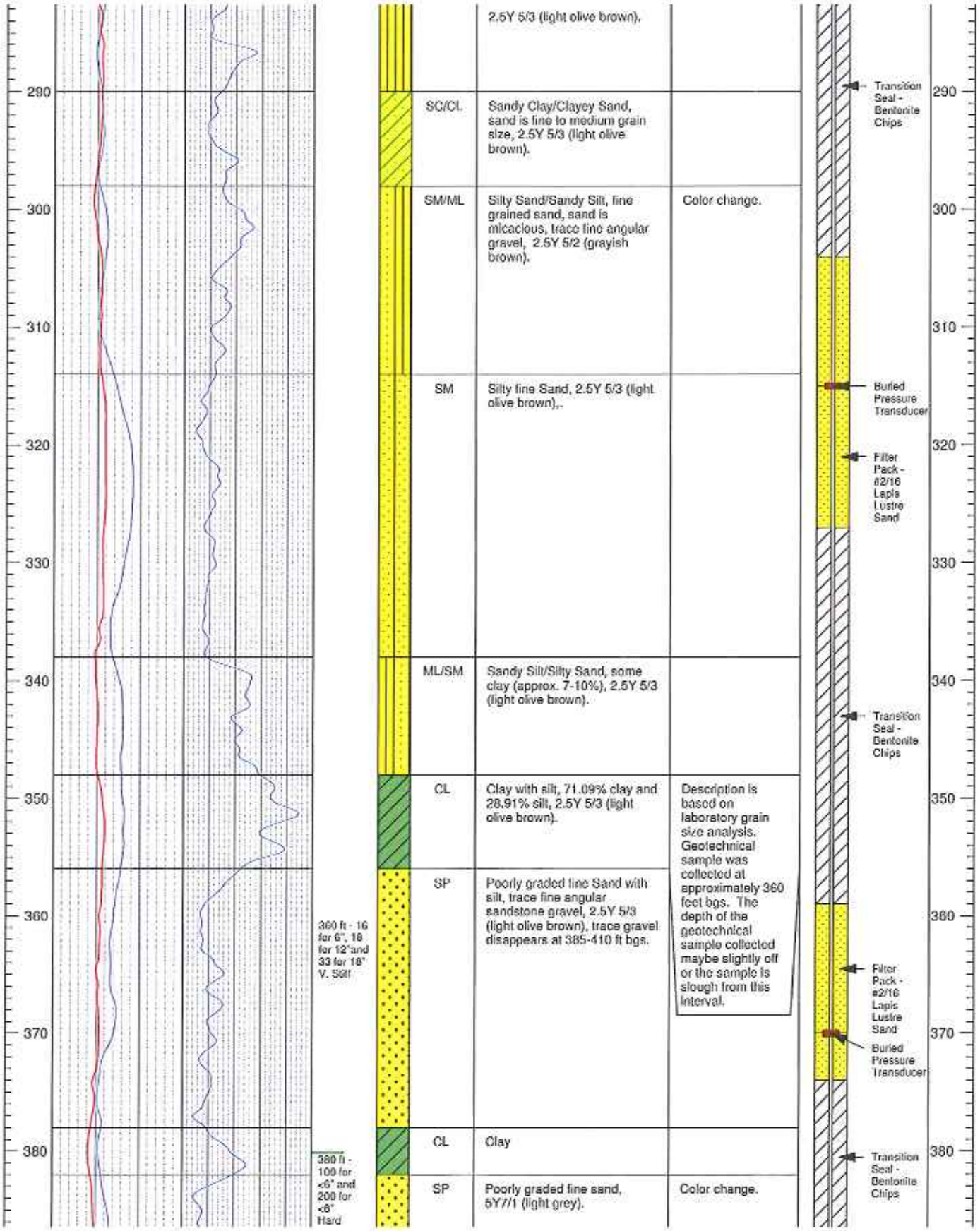
Lithologic Log of OBS-2

Genesis Solar, LLC
Project Number: 52004617



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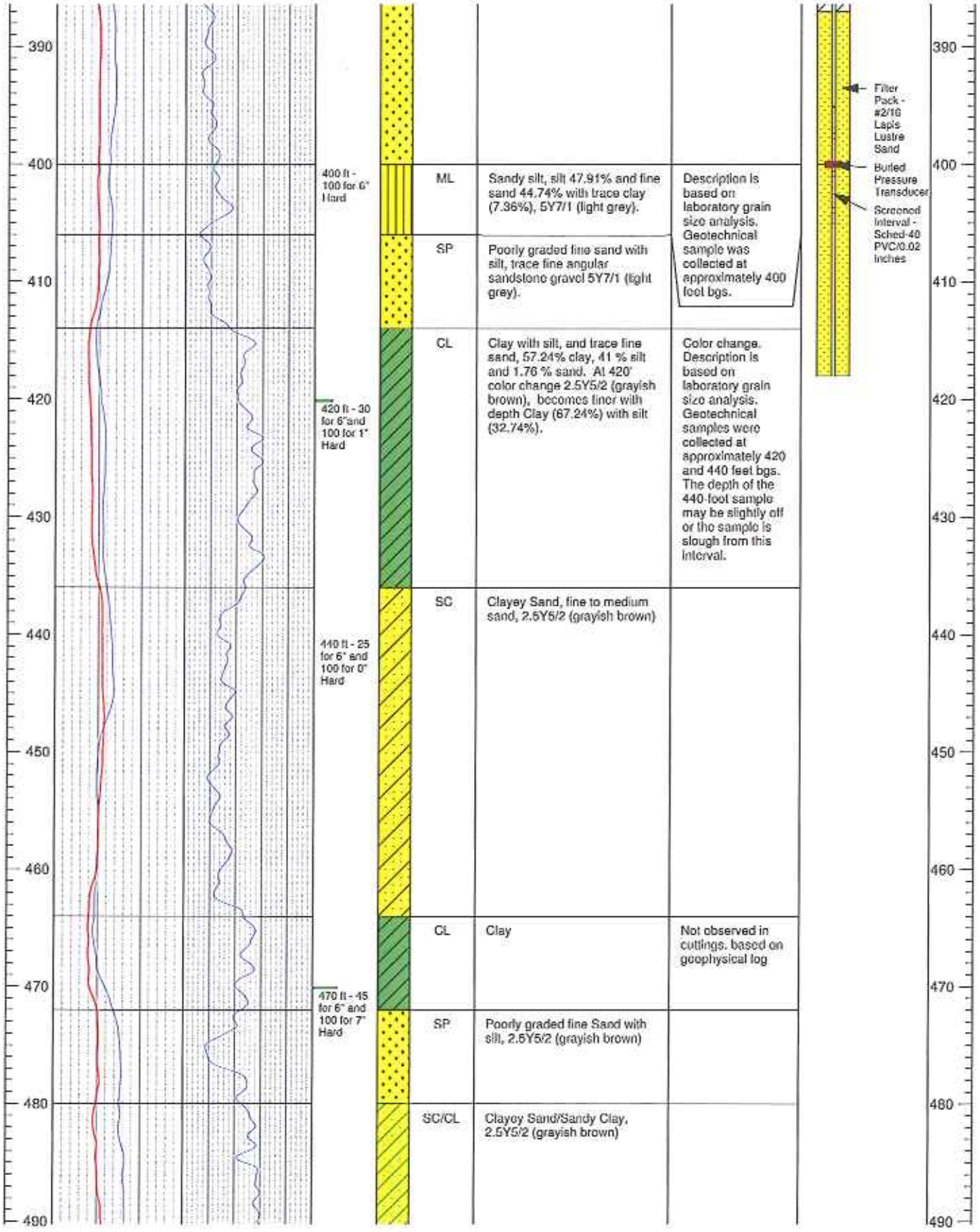
Lithologic Log of OBS-2

Genesis Solar, LLC
Project Number: 52004617



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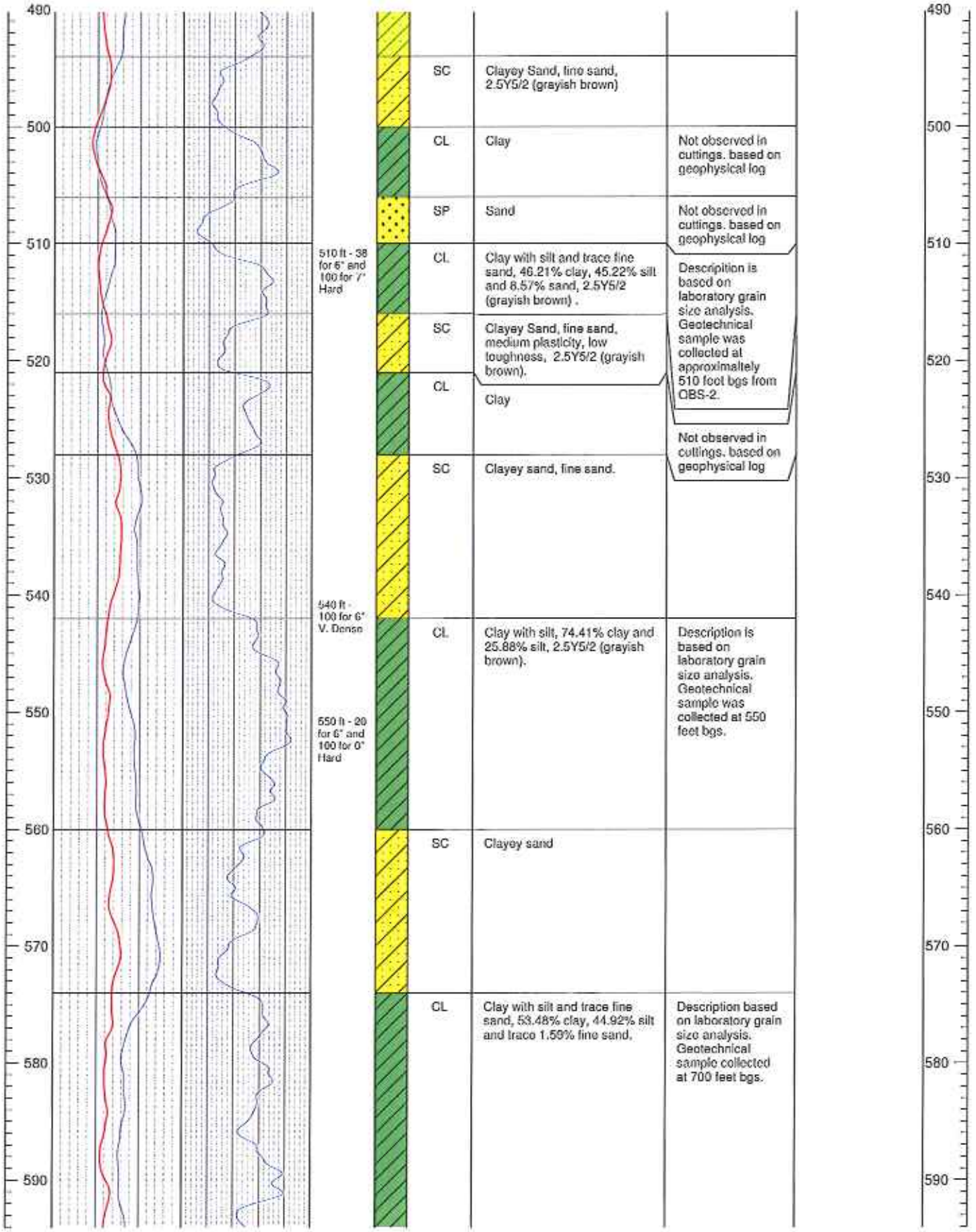
Lithologic Log of OBS-2

Genesis Solar, LLC
Project Number: 52004617



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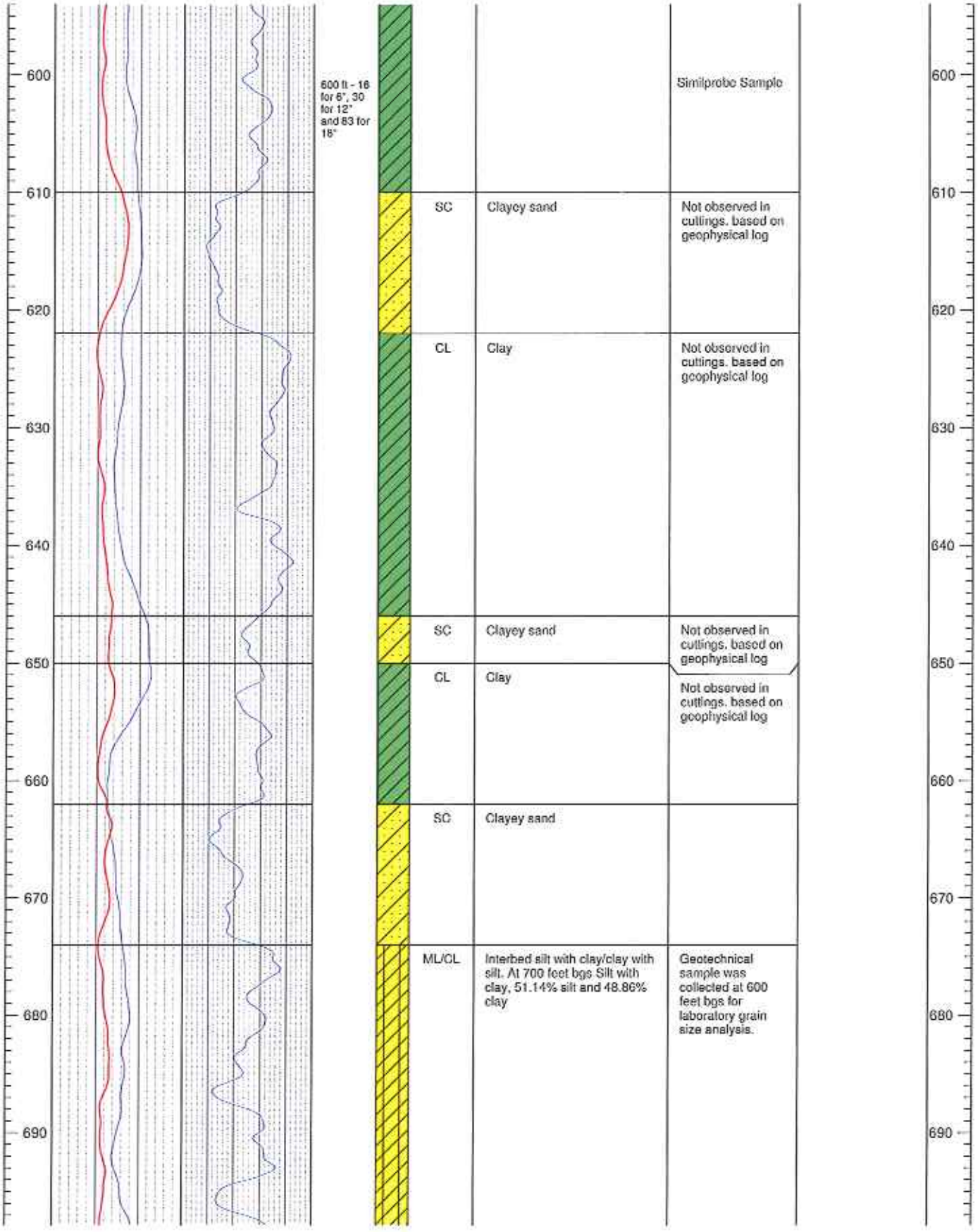
Lithologic Log of OBS-2

Genesis Solar, LLC
Project Number: 52004617



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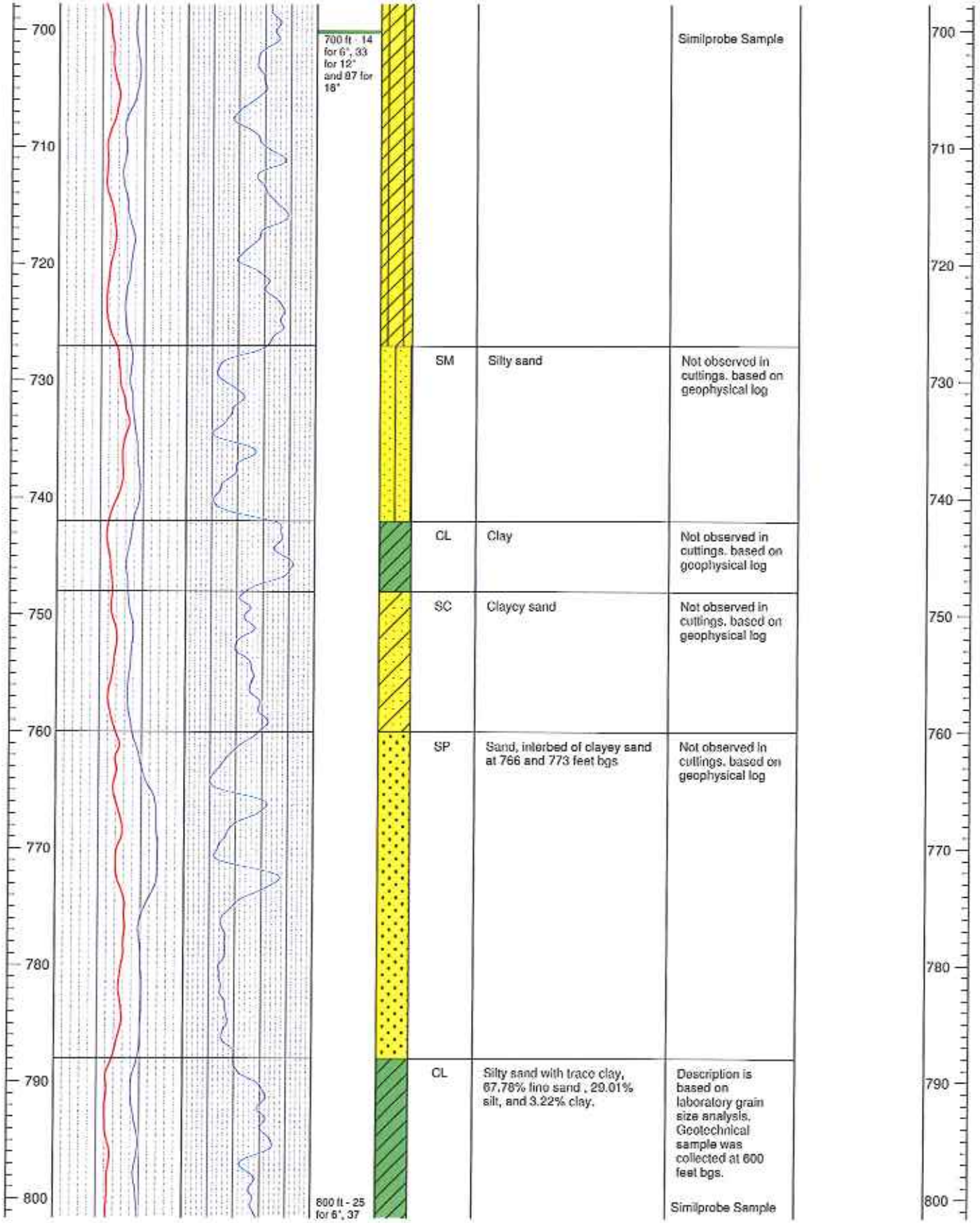
Lithologic Log of OBS-2

Genesis Solar, LLC
Project Number: 52004617



		Similprobe Sample
SM	Silty sand	Not observed in cuttings. based on geophysical log
CL	Clay	Not observed in cuttings. based on geophysical log
SC	Claycy sand	Not observed in cuttings. based on geophysical log
SP	Sand, interbed of clayey sand at 766 and 773 feet bgs	Not observed in cuttings. based on geophysical log
CL	Silty sand with trace clay, 67.78% fino sand , 29.01% silt, and 3.22% clay.	Description is based on laboratory grain size analysis. Geotechnical sample was collected at 600 feet bgs. Similprobe Sample

700
710
720
730
740
750
760
770
780
790
800

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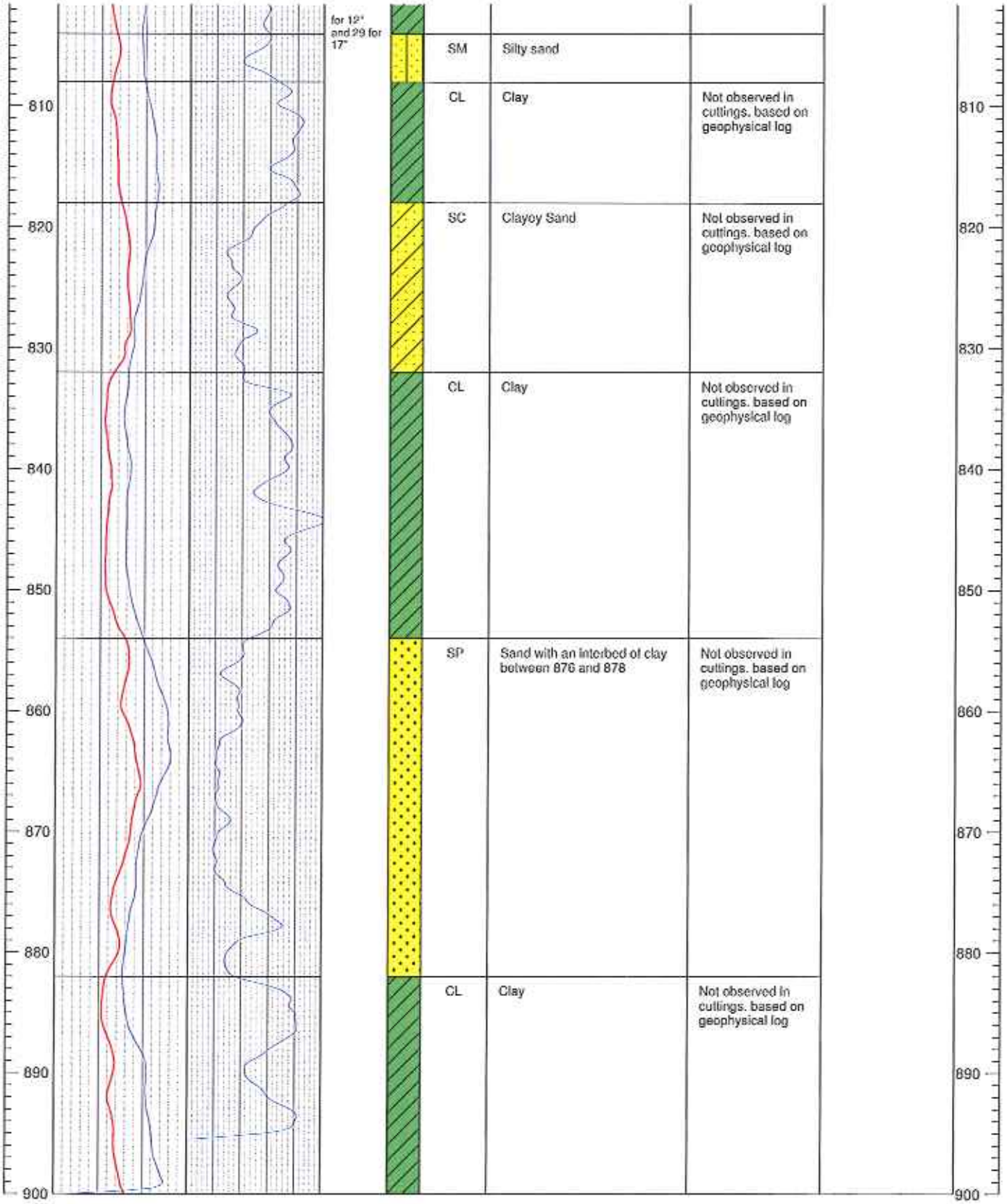
Lithologic Log of OBS-2

Genesis Solar, LLC
Project Number: 52004617



SM	Silty sand	
CL	Clay	Not observed in cuttings. based on geophysical log
SC	Clayey Sand	Not observed in cuttings. based on geophysical log
CL	Clay	Not observed in cuttings. based on geophysical log
SP	Sand with an interbed of clay between 876 and 878	Not observed in cuttings. based on geophysical log
CL	Clay	Not observed in cuttings. based on geophysical log

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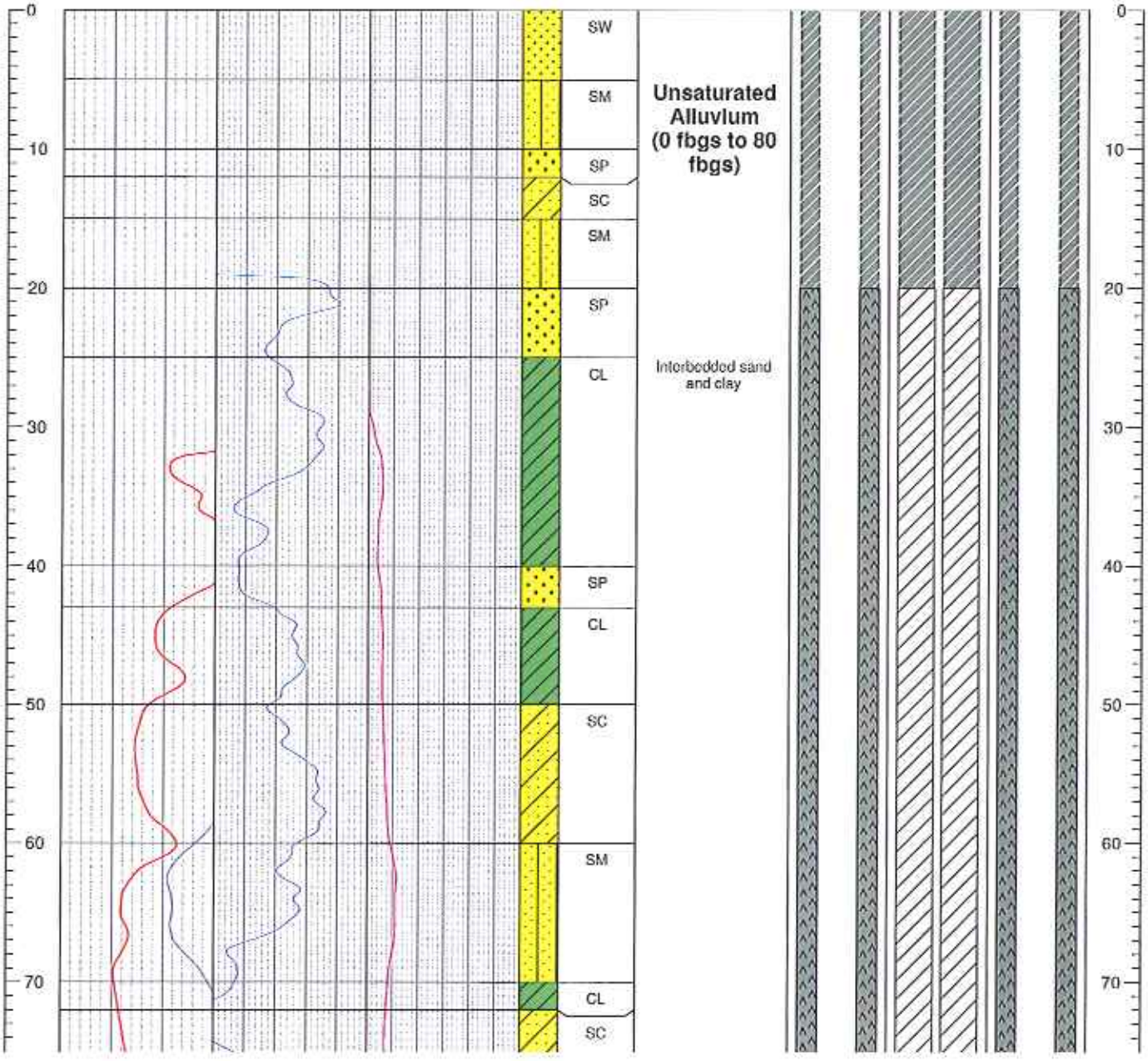
Calculated TDS for OBS-2

Genesis Solar, LLC
Project Number: 52004617

Date Drilled: 05/28/2009 to 07/02/2009		Borehole Location: N33°40.419' W115°03.268	
Drilling Method: Mud Rotary, 10" Diameter		Ground Surface Elevation: 383 feet amsl	
Drilling Contractor: WDC Exploration		First Groundwater: 80 feet bgs	
Geologist: Andie Gehlhausen	Reviewer: Nat Beal	Total Depth: 900 ft	Well Depth: 405 ft

Notes: 1) The upper 160 ft was adjusted based on the cuttings log from OBS-1 and the geophysical logs
2) From 160 ft to 550 ft the log was adjusted based on the cuttings logs and geophysical logs for this well and TW-1.
3) From 550 ft to 900 ft the log was adjusted based on the borehole geophysical logs for this well.
4) RSN and RLS have been corrected to 77 degrees F
5) TDS calculated from the formation water salinity determined from the Formation Factor (12 for 0 to 550 fbgs, and 8.5 for 550 to 800 fbgs)

Well Completion Legend: Neat Cement; Filter Pack; Grout; Buried Pressure Transducer; Transition Seal; Screen



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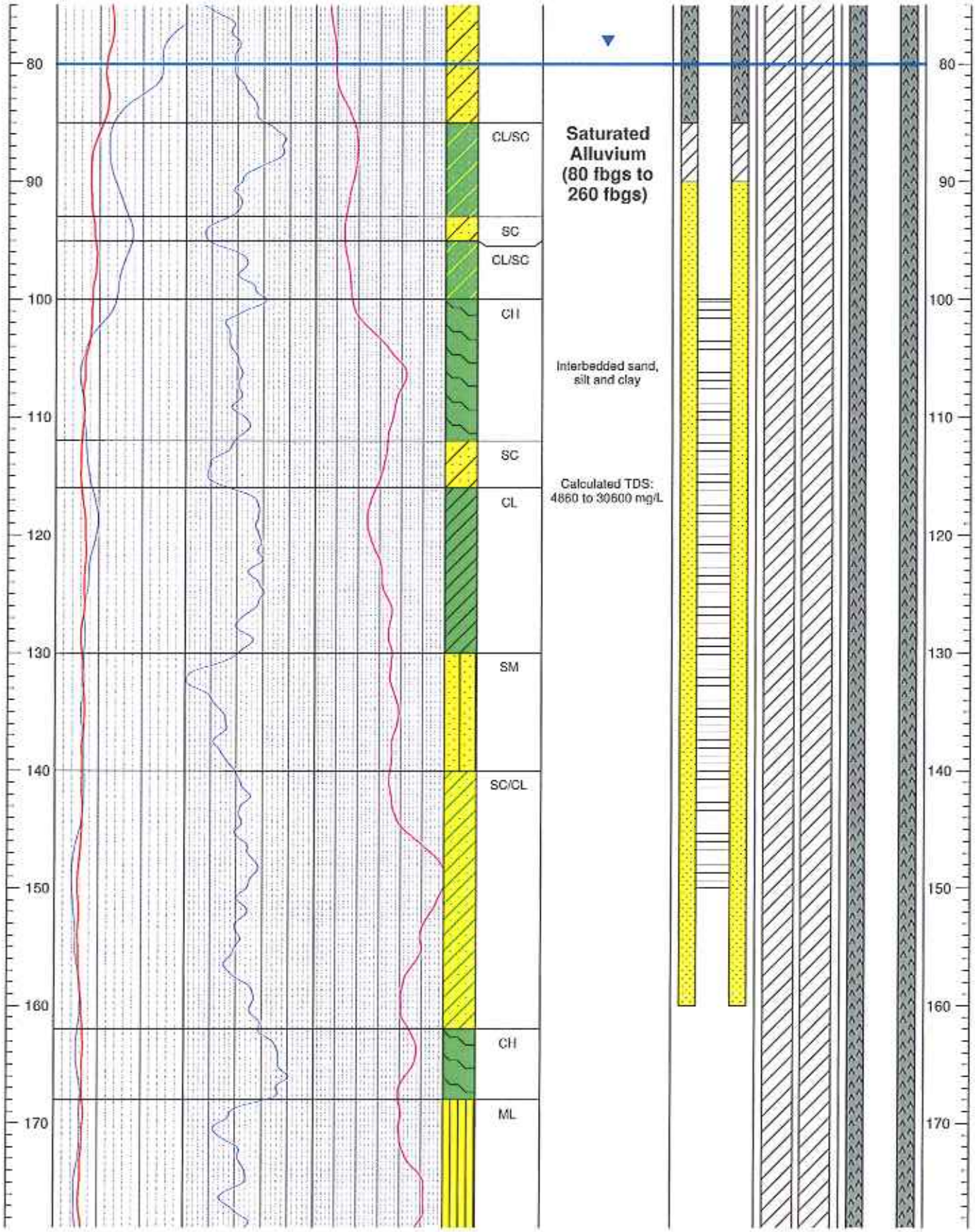
Calculated TDS for OBS-2

Genesis Solar, LLC
Project Number: 52004617



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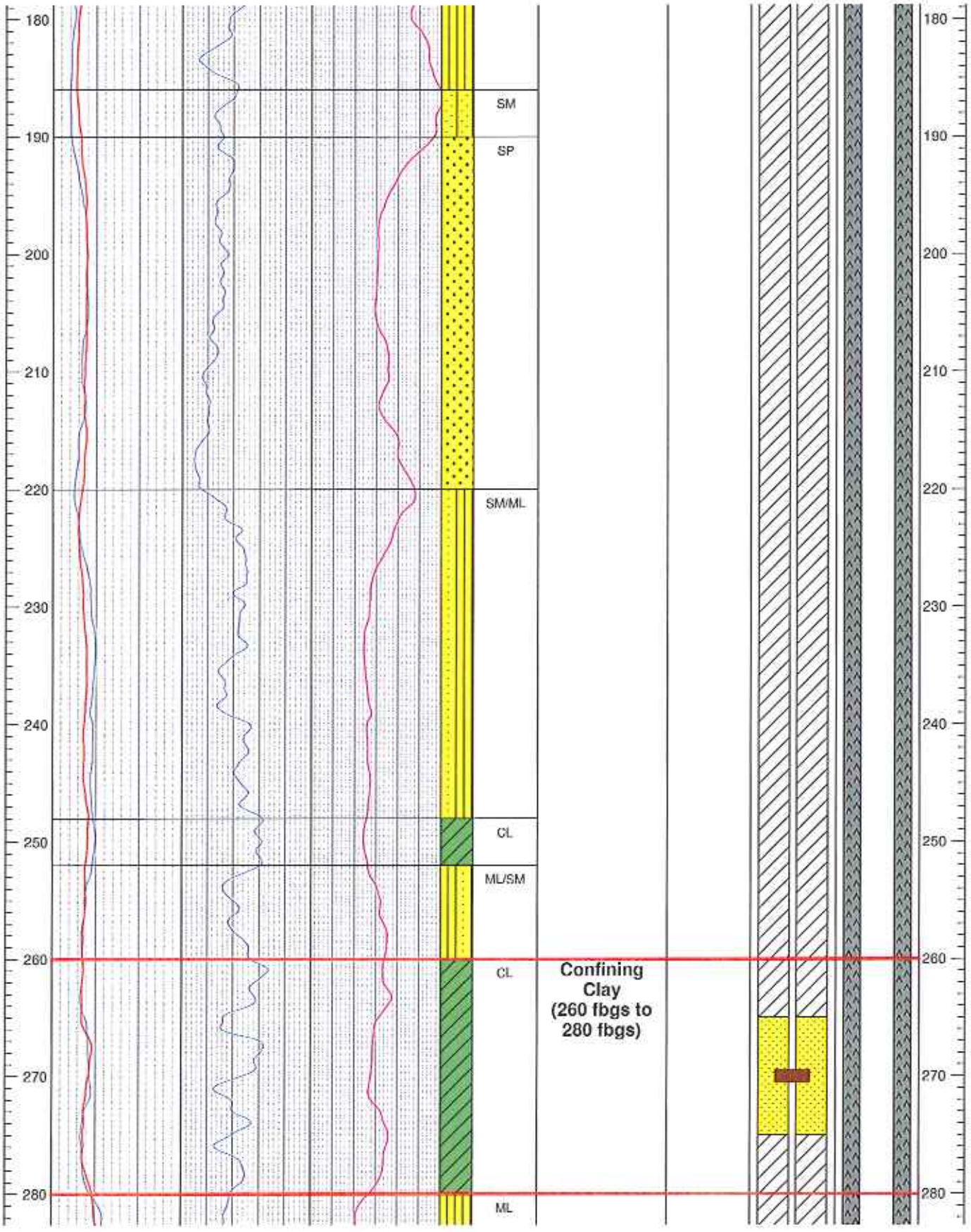
Calculated TDS for OBS-2

Genesis Solar, LLC
Project Number: 52004617



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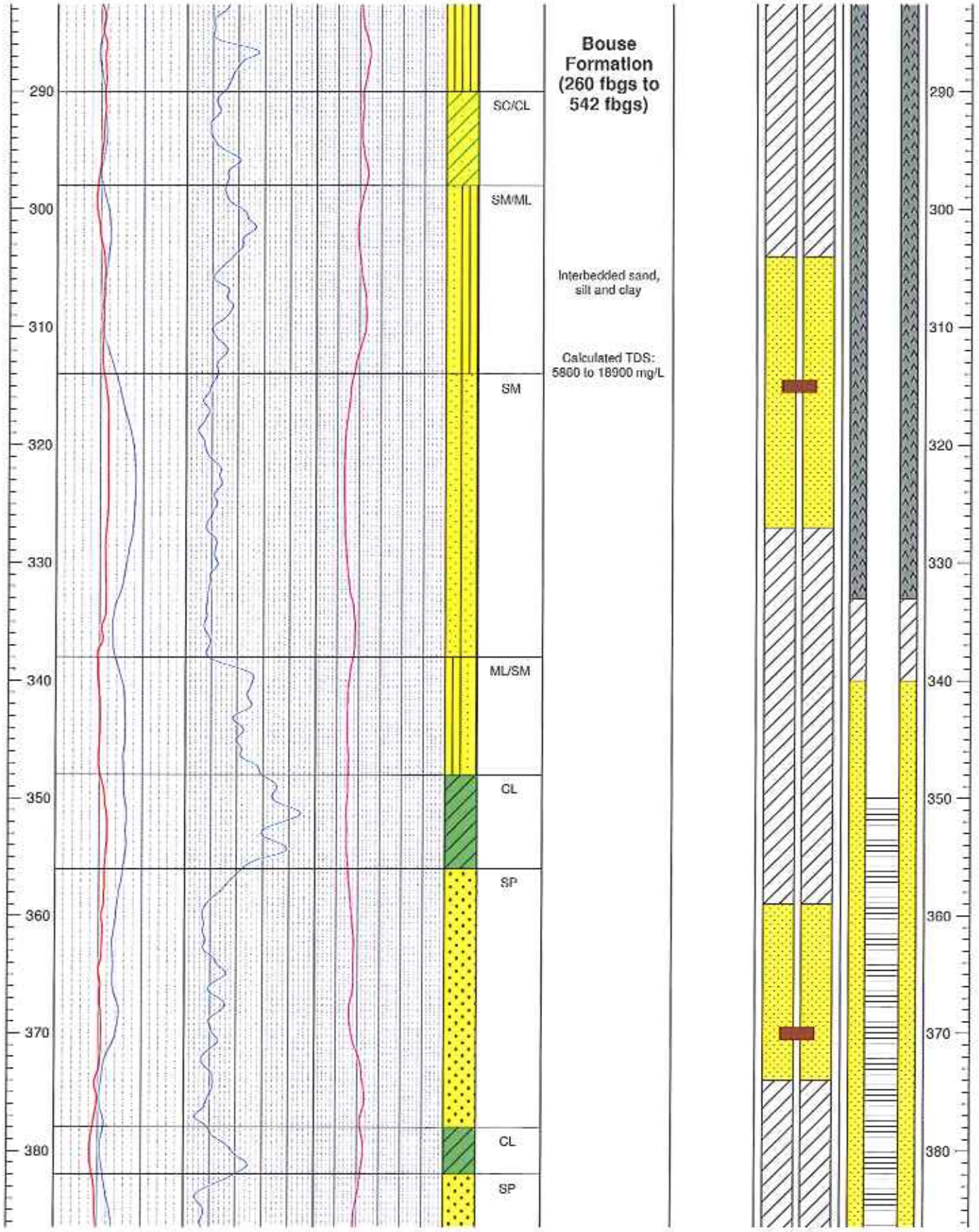
Calculated TDS for OBS-2

Genesis Solar, LLC
Project Number: 52004617



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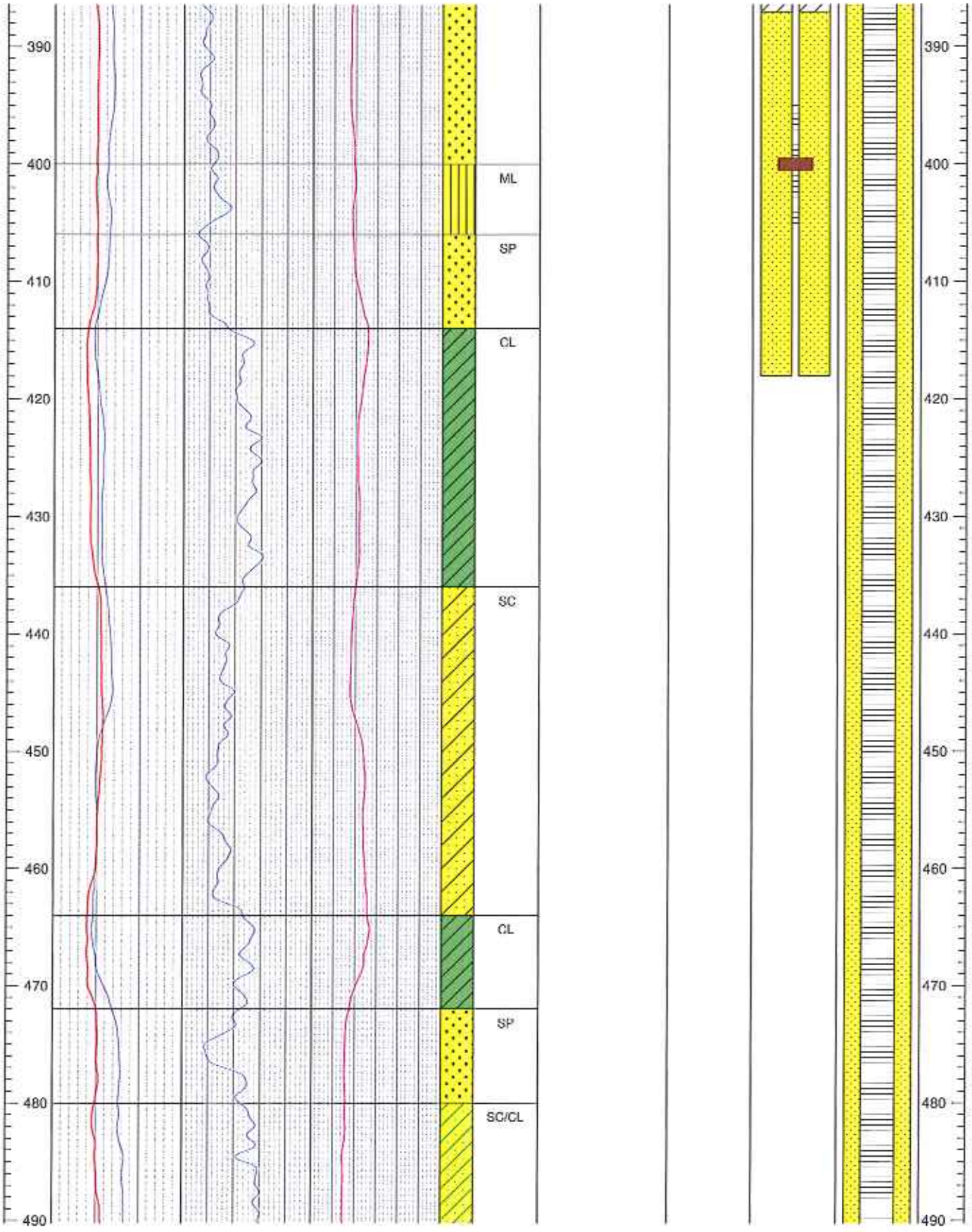
Calculated TDS for OBS-2

Genesis Solar, LLC
Project Number: 52004617



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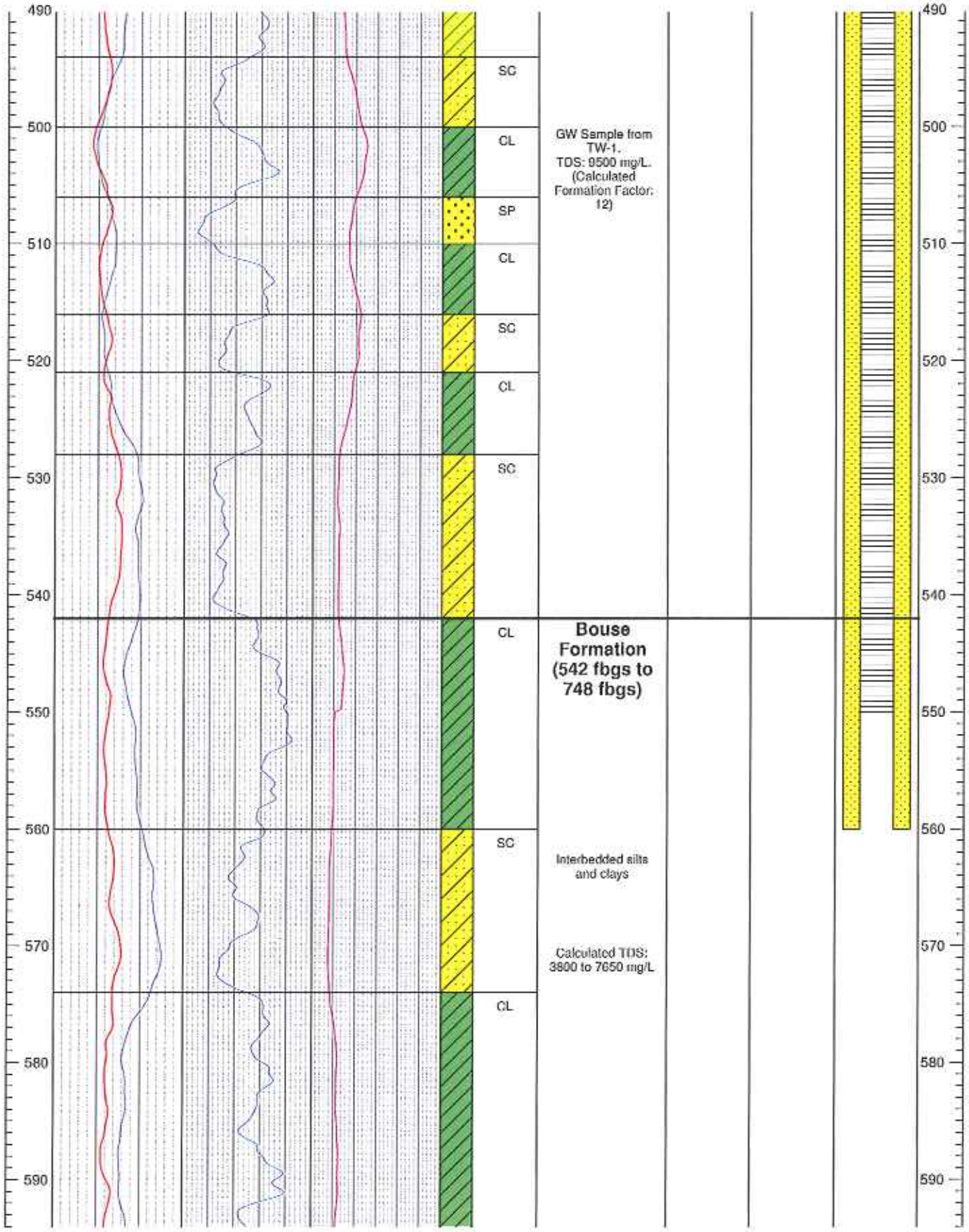
Calculated TDS for OBS-2

Genesis Solar, LLC
Project Number: 52004617



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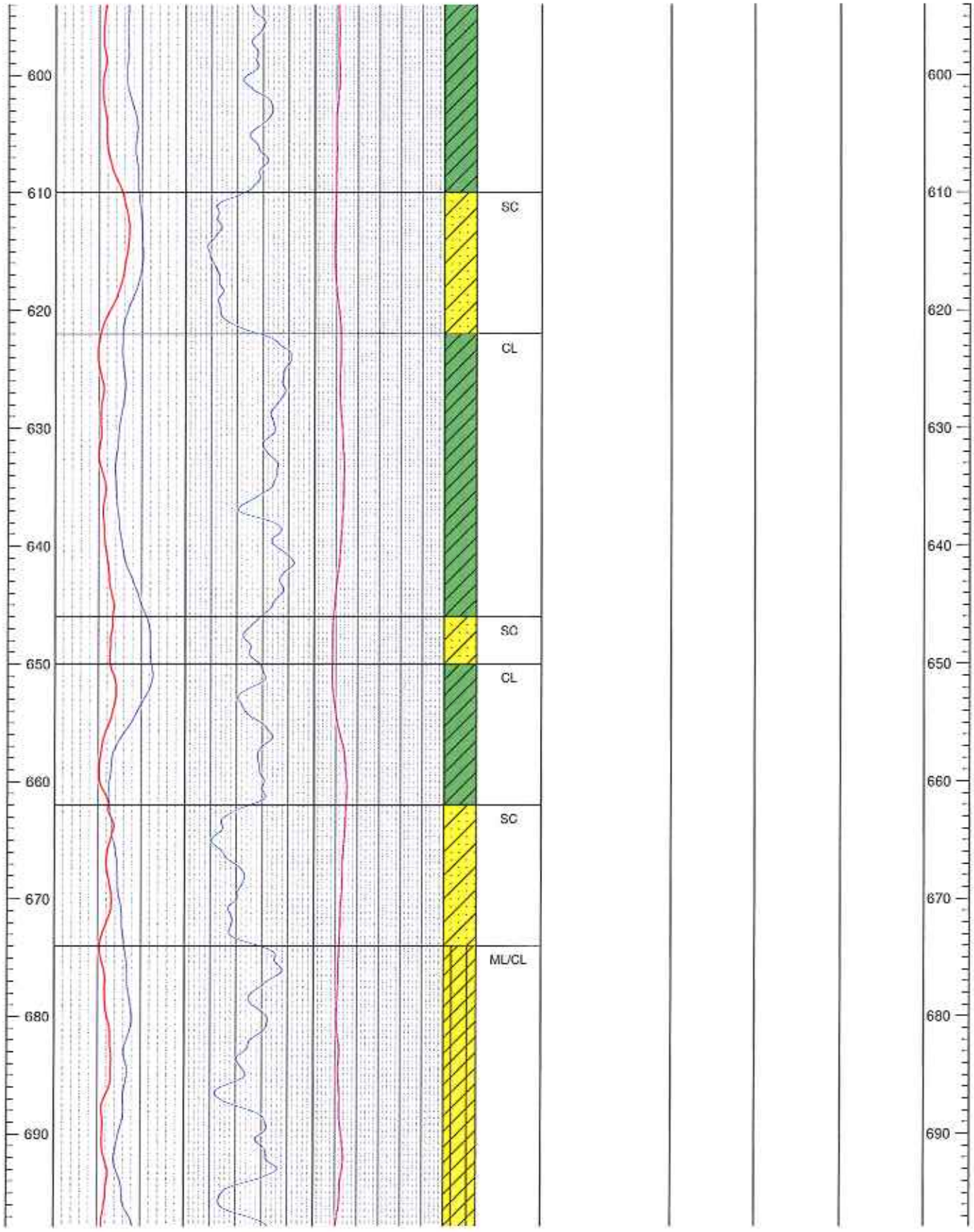
Calculated TDS for OBS-2

Genesis Solar, LLC
Project Number: 52004617



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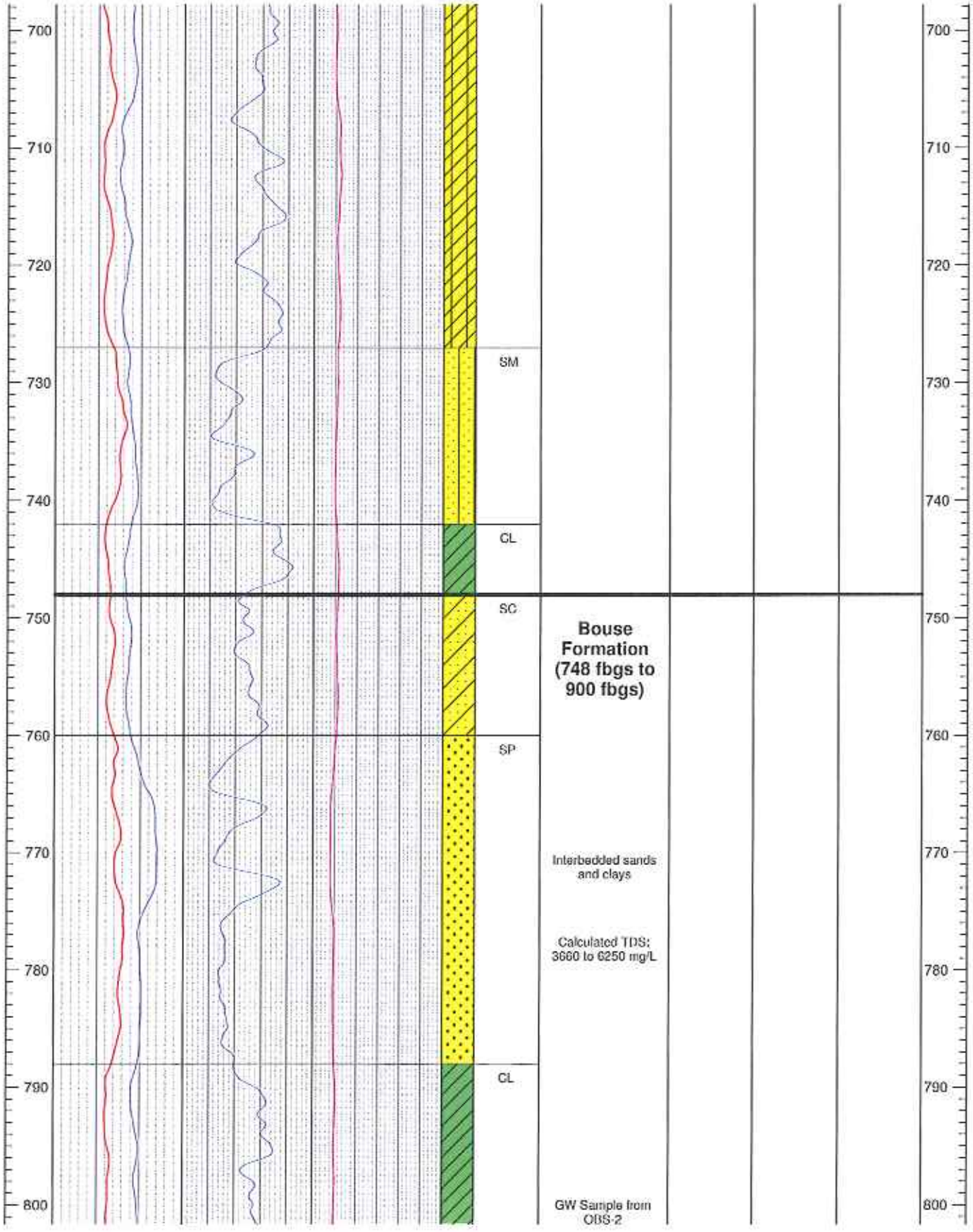
Calculated TDS for OBS-2

Genesis Solar, LLC
Project Number: 52004617



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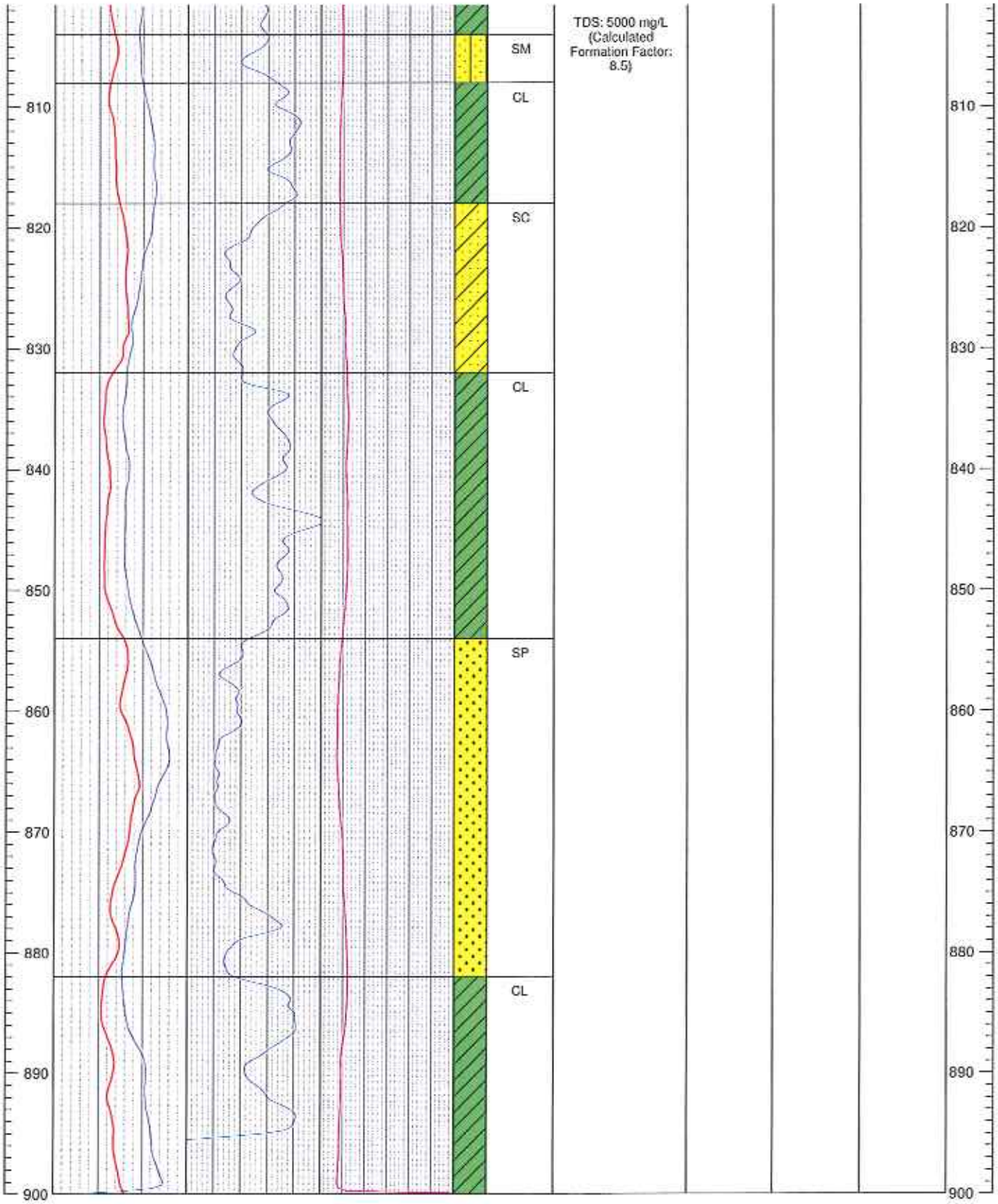
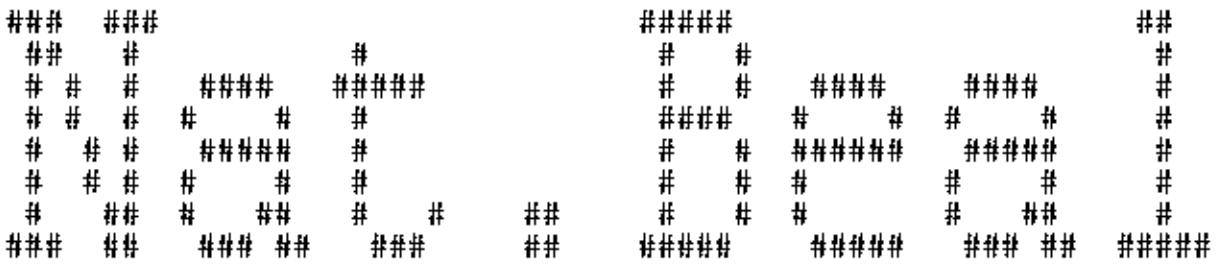
Calculated TDS for OBS-2

Genesis Solar, LLC
Project Number: 52004617





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Date: 12/22/2009
Time: 3:04:48 PM

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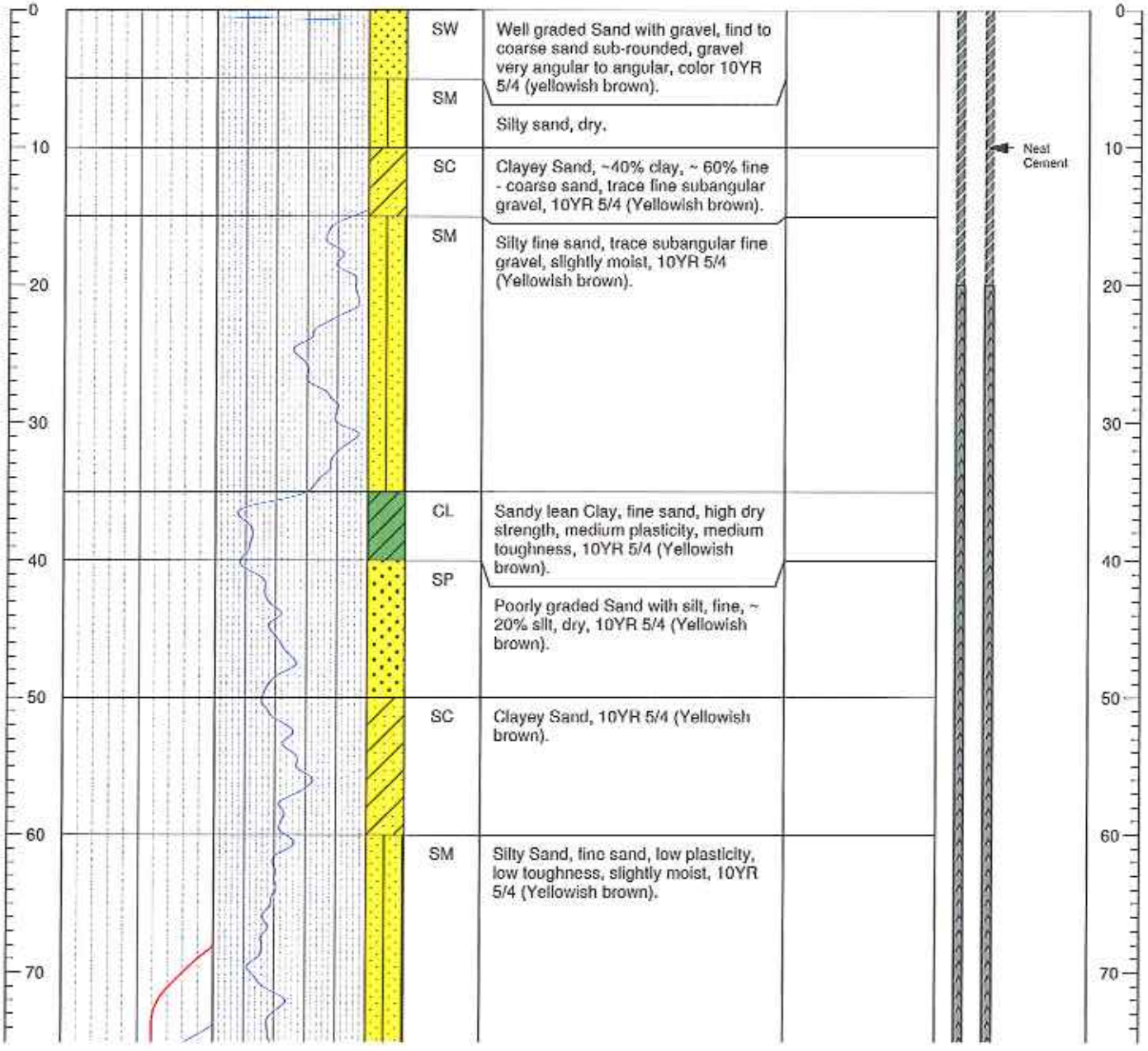
Adjusted Lithologic Log of TW-1

Genesis Solar, LLC
Project Number: 52004617

Date Drilled: 05/15/2009 to 05/18/2009		Borehole Location: N33°40.419' W115°03.268	
Drilling Method: Mud Rotary, 10" Diameter		Ground Surface Elevation: 383 feet amsl	
Drilling Contractor: WDC Exploration		Static Water Level: 86.26 feet amsl	
Geologist: Nat Beal	Reviewer: Nat Beal	Total Depth: 564 ft	Well Depth: 555 ft

Notes:
1) The upper 160 ft were adjusted based on the cuttings log from OBS-1 and the geophysical logs
2) From 160 ft to 550 ft the log was adjusted based on the borehole geophysical logs for this well and geotechnical samples collected from well OBS-2.
3) RLN and RSN logs have been corrected to 77 degrees F



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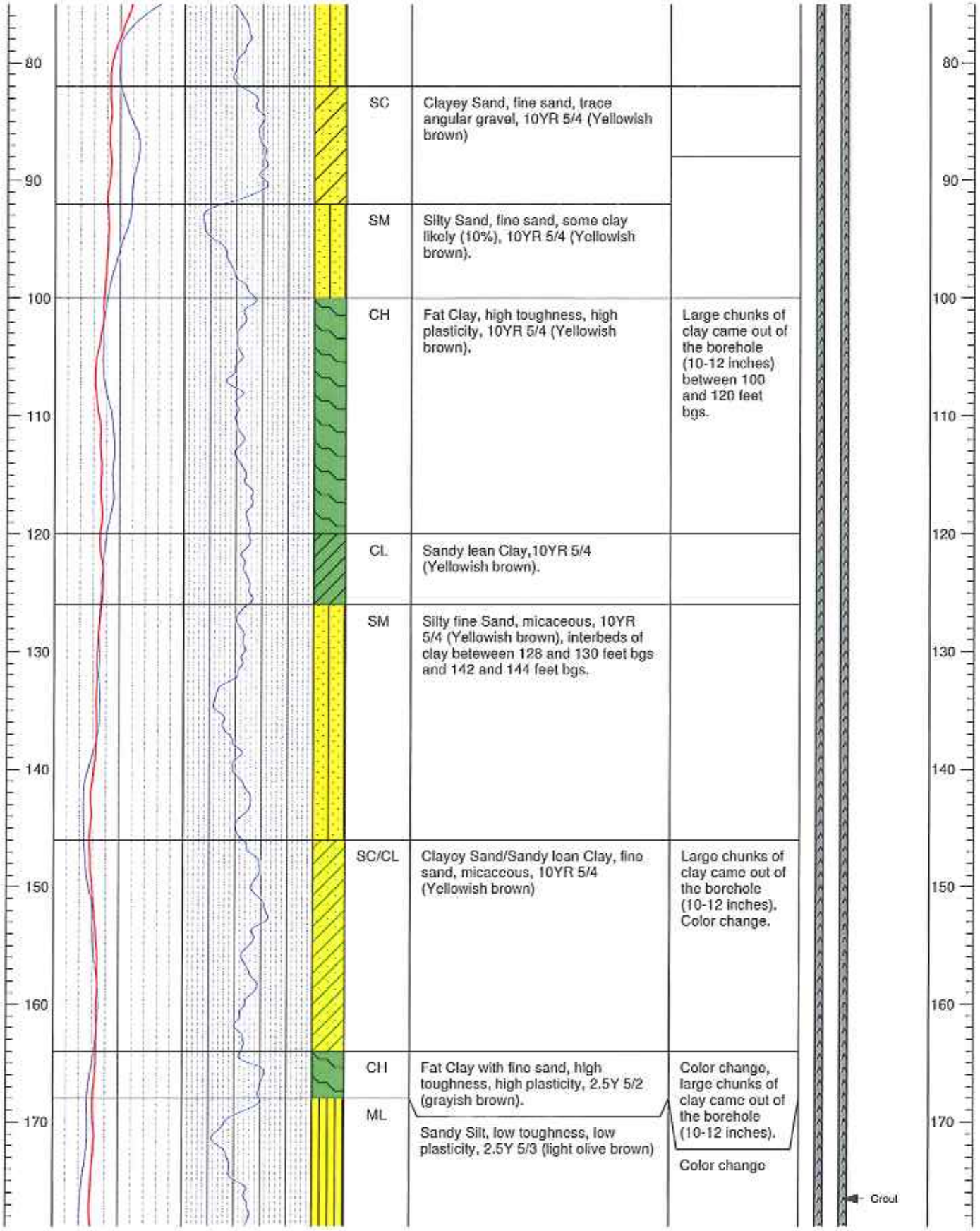
Adjusted Lithologic Log of TW-1

Genesis Solar, LLC
Project Number: 52004617



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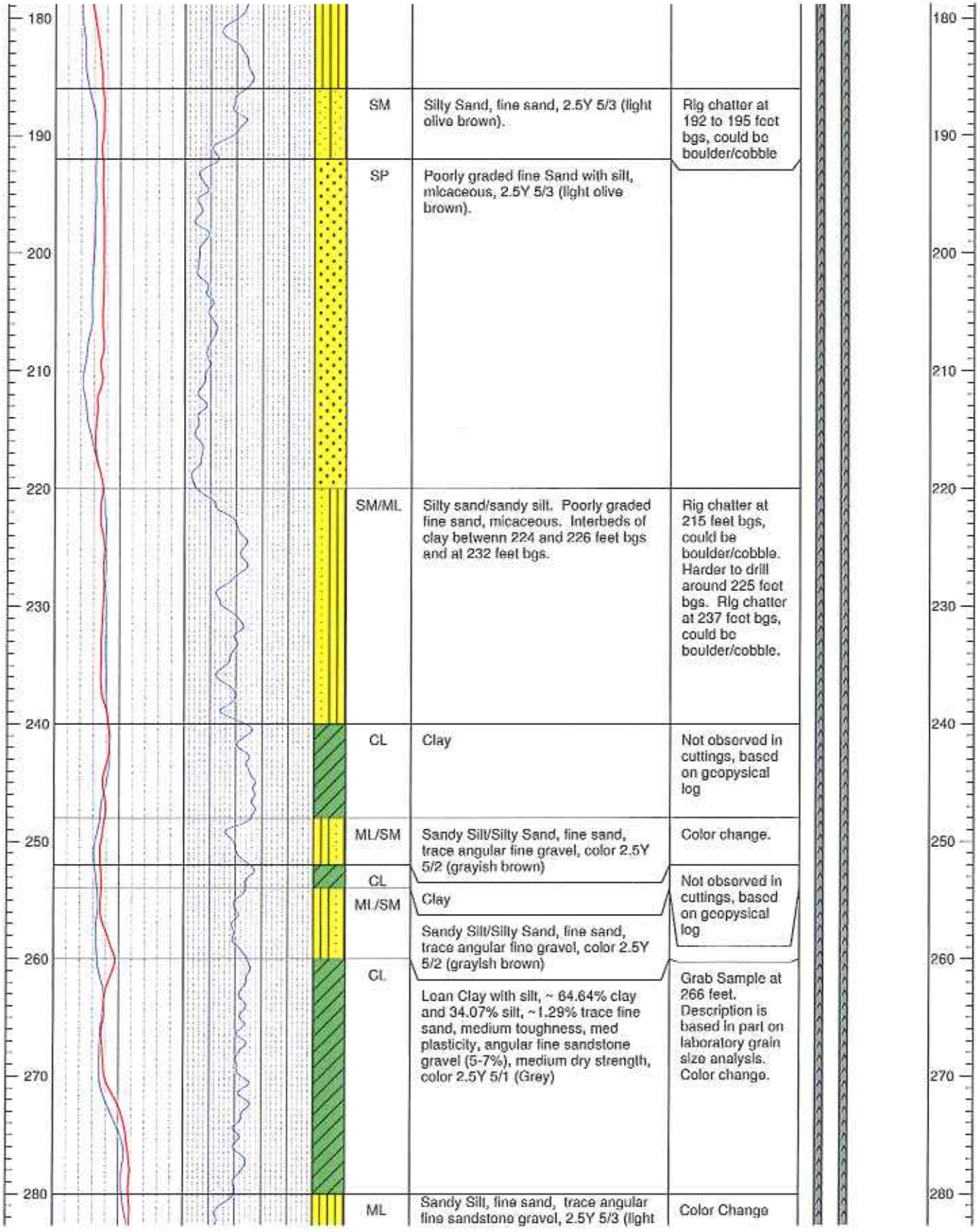
Adjusted Lithologic Log of TW-1

Genesis Solar, LLC
Project Number: 52004617



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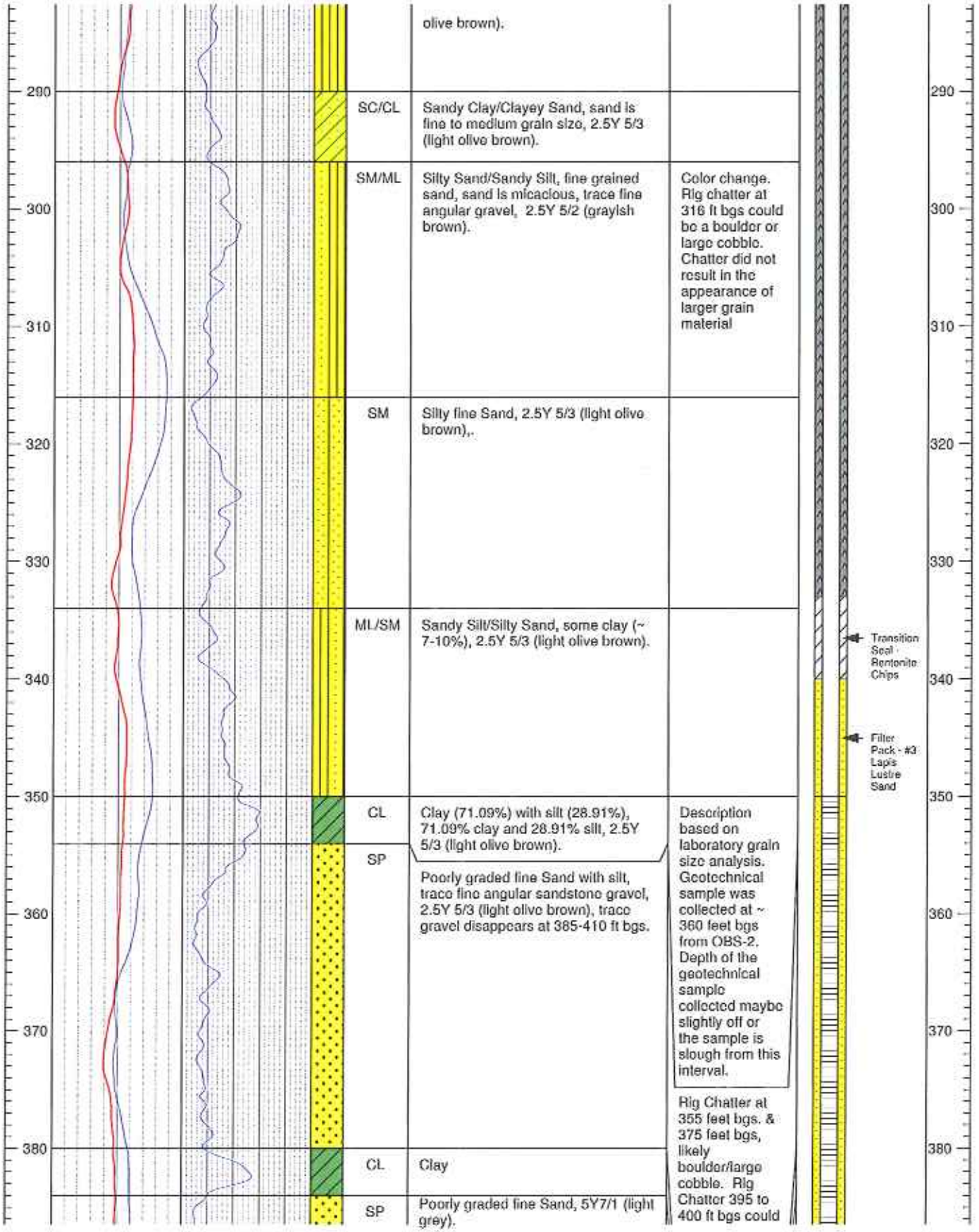
Adjusted Lithologic Log of TW-1

Genesis Solar, LLC
Project Number: 52004617



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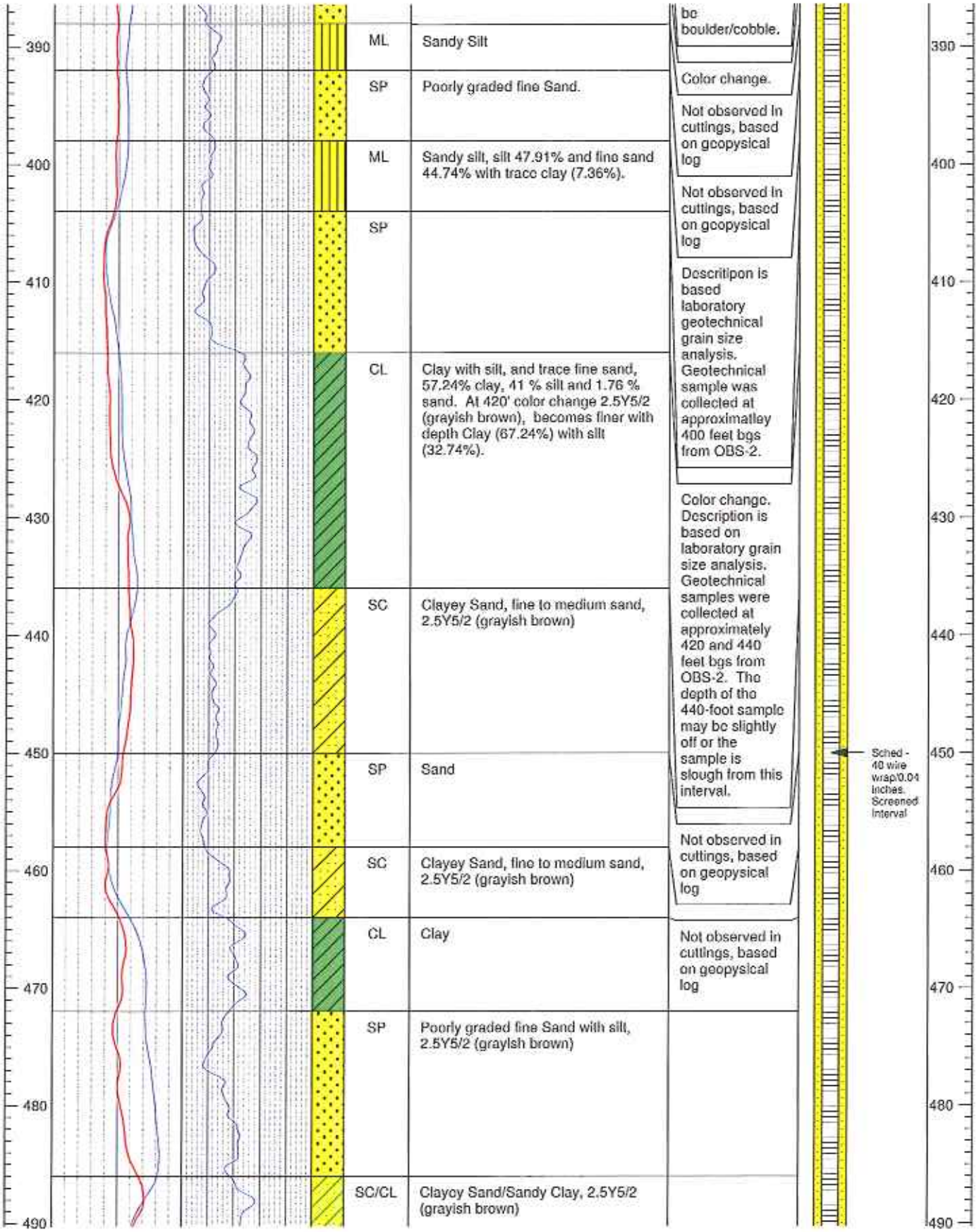
Adjusted Lithologic Log of TW-1

Genesis Solar, LLC
Project Number: 52004617



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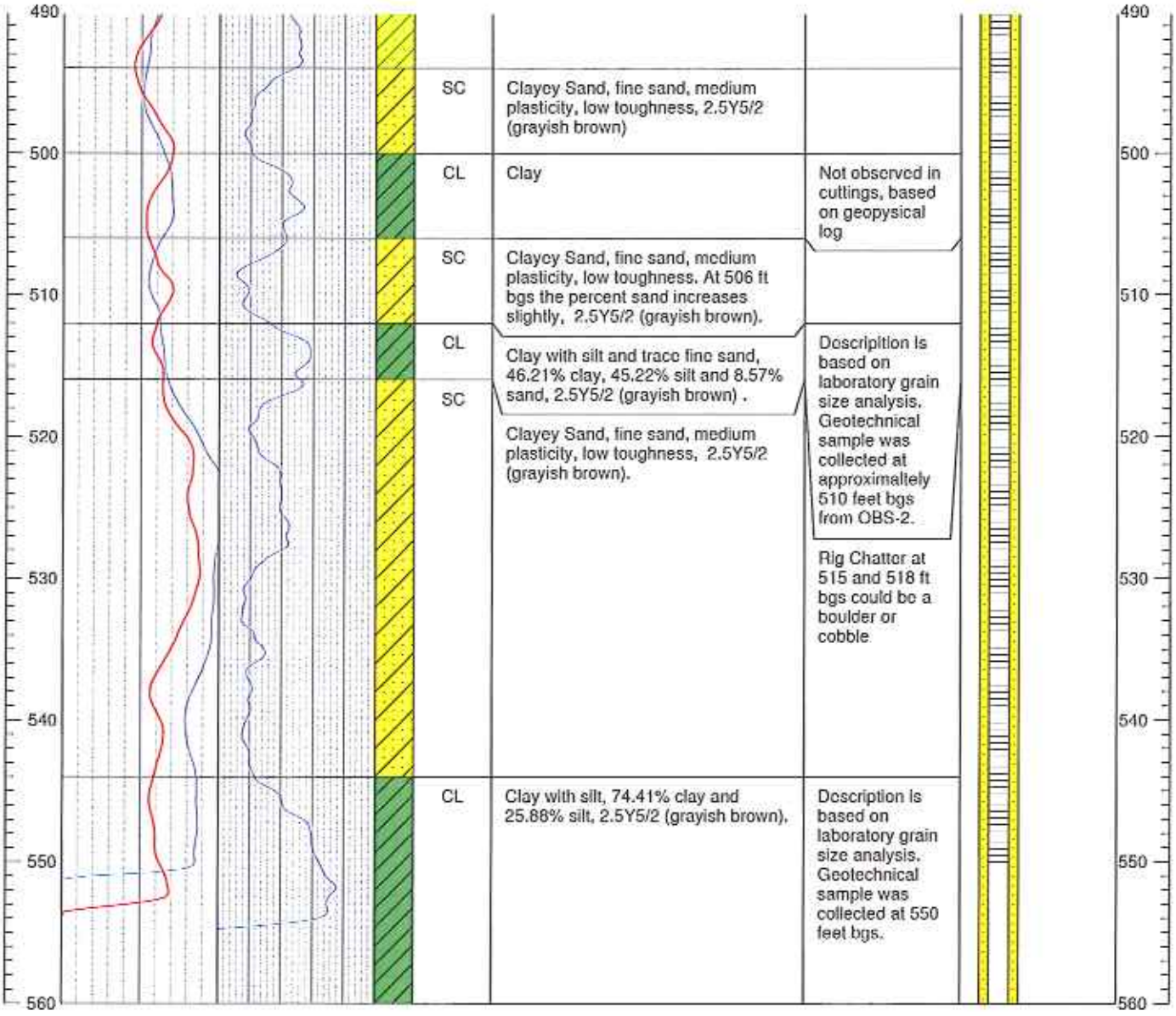
Adjusted Lithologic Log of TW-1

Genesis Solar, LLC
Project Number: 52004617



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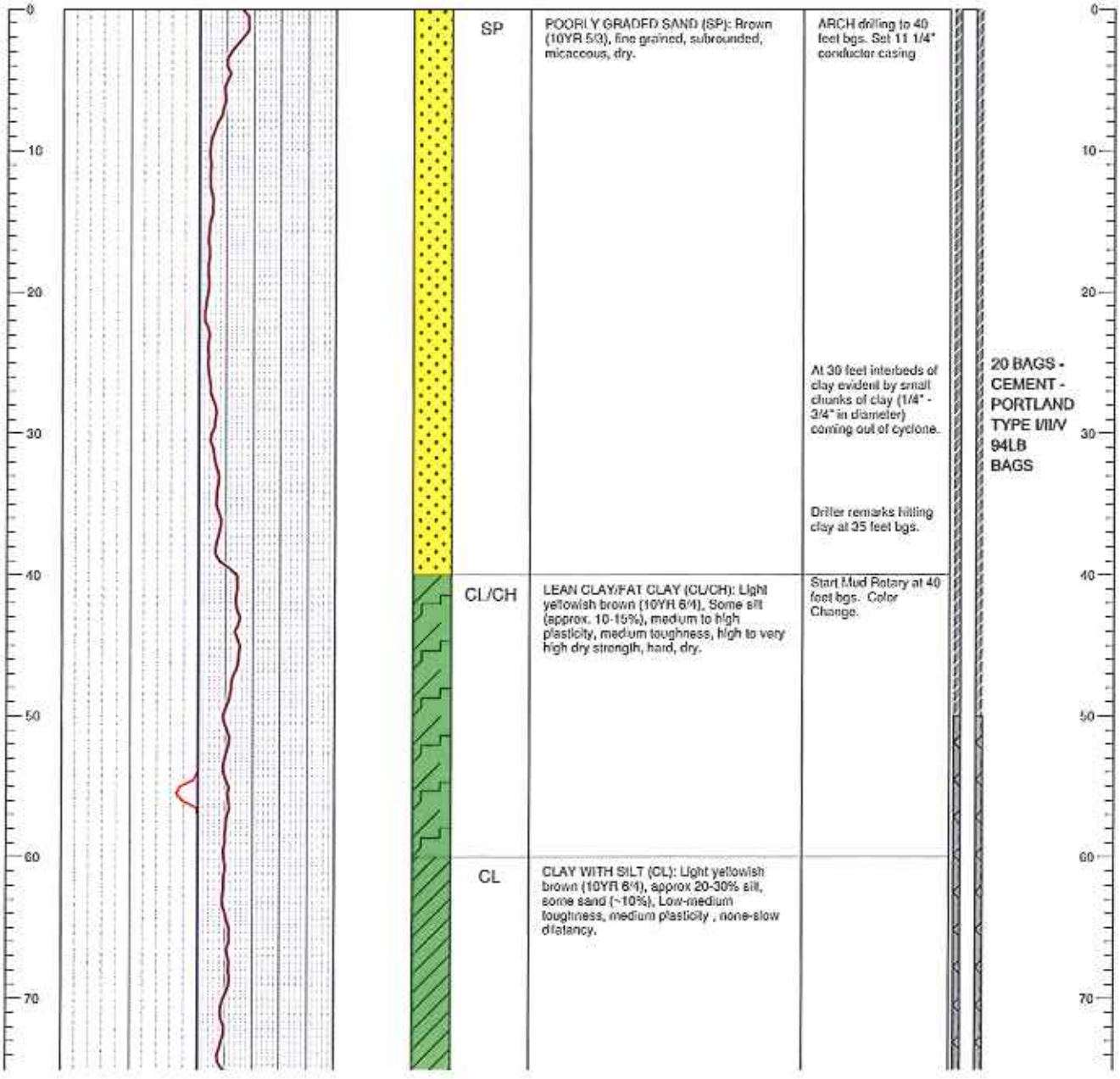
Draft Lithologic Log and Well Completion Details for TW-2

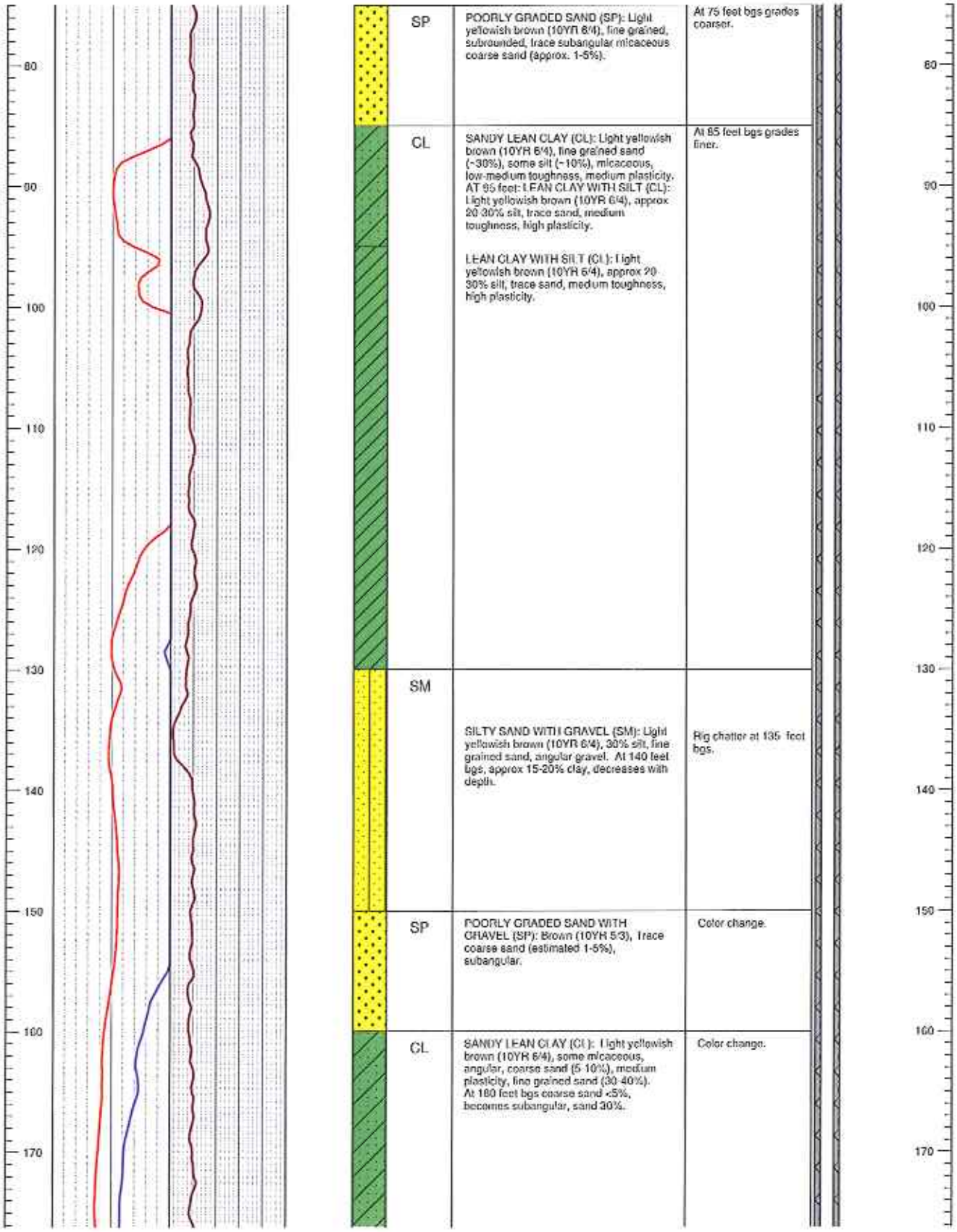
Genesis Solar, LLC
Project Number: 52004617

Date Drilled: 11/17/2009 to 12/09/2009	Northing 2169119.765 Easting 6970187.073	
Drilling Method: Mud Rotary, 10" Diameter Tricone	Ground Surface Elevation: 390.12 feet amsl	
Drilling Contractor: WDC Exploration	Total Depth: 1841 ft	Well Depth: 1830 ft
Geologist: Nat Beal, Ed Baqurizo, Ryan Farrell	Reviewer: Mike Tietze	
Notes: The cuttings log was adjusted based on the interpretation of the geophysical logs.		



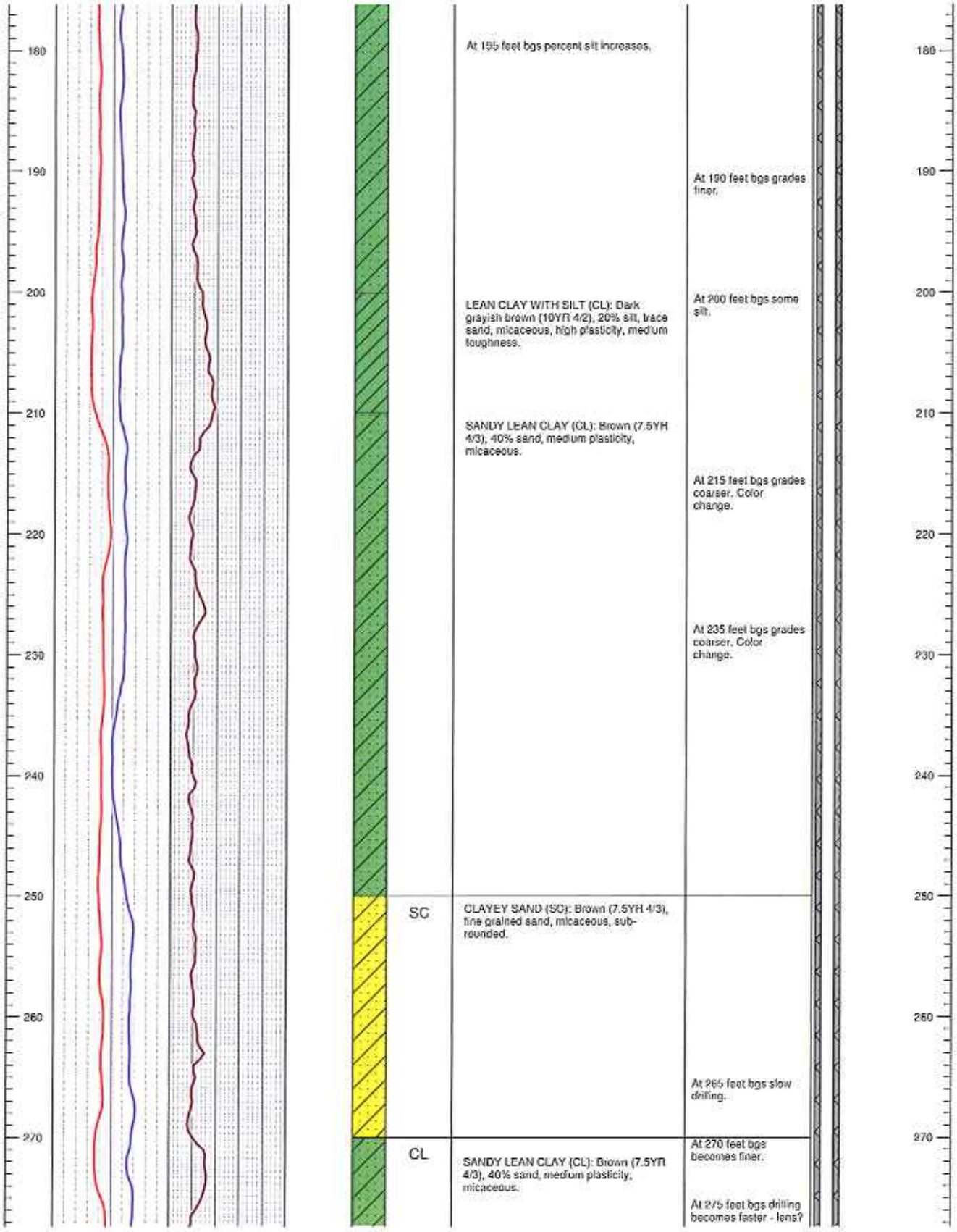
Draft Lithologic Logs and Well Completation Details for TW-2

Genesis Solar, LLC
Project Number: 52004617



Draft Lithologic Logs and Well Completation Details for TW-2

Genesis Solar, LLC
Project Number: 52004617



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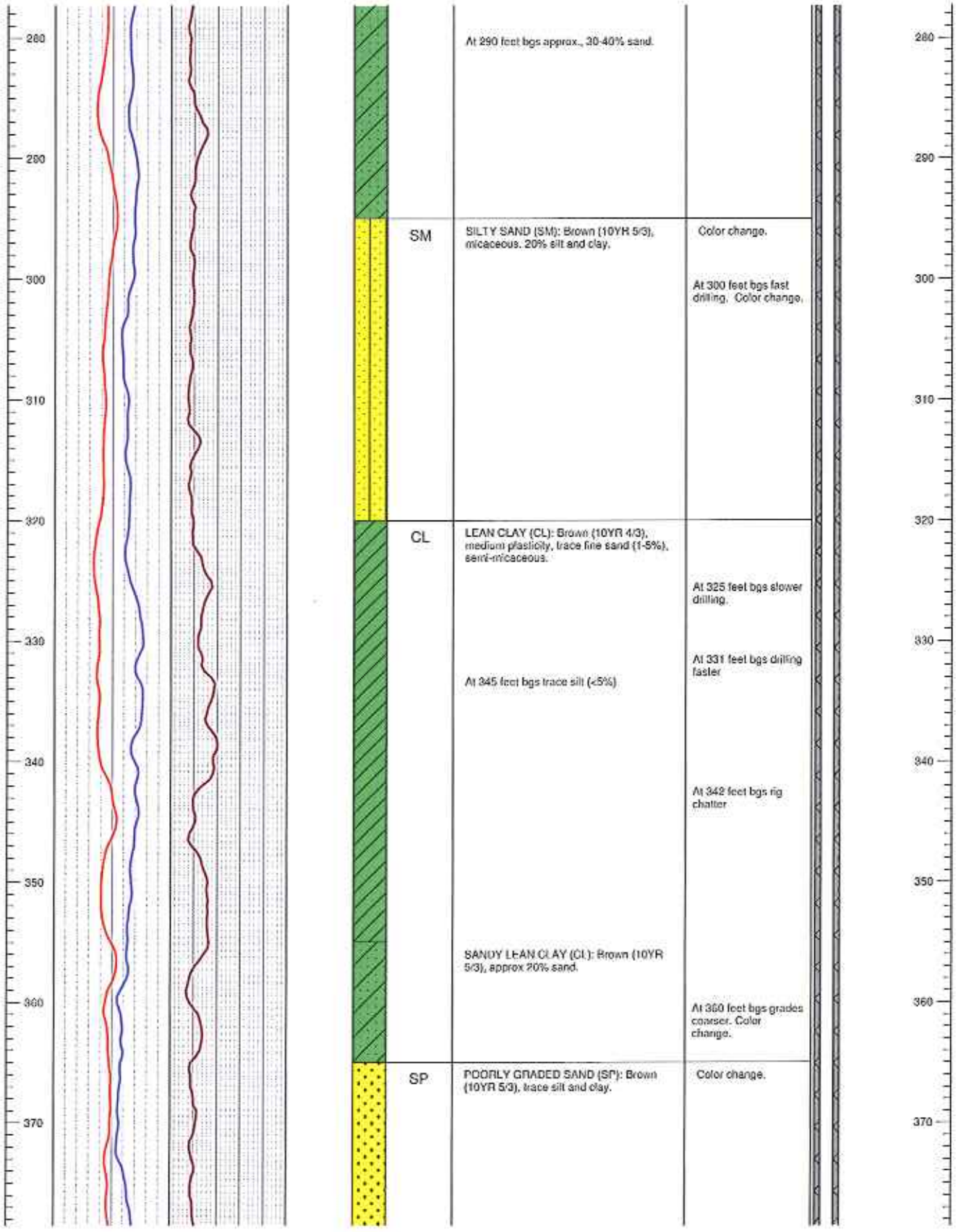
Draft Lithologic Logs and Well Completation Details for TW-2

Genesis Solar, LLC
Project Number: 52004617



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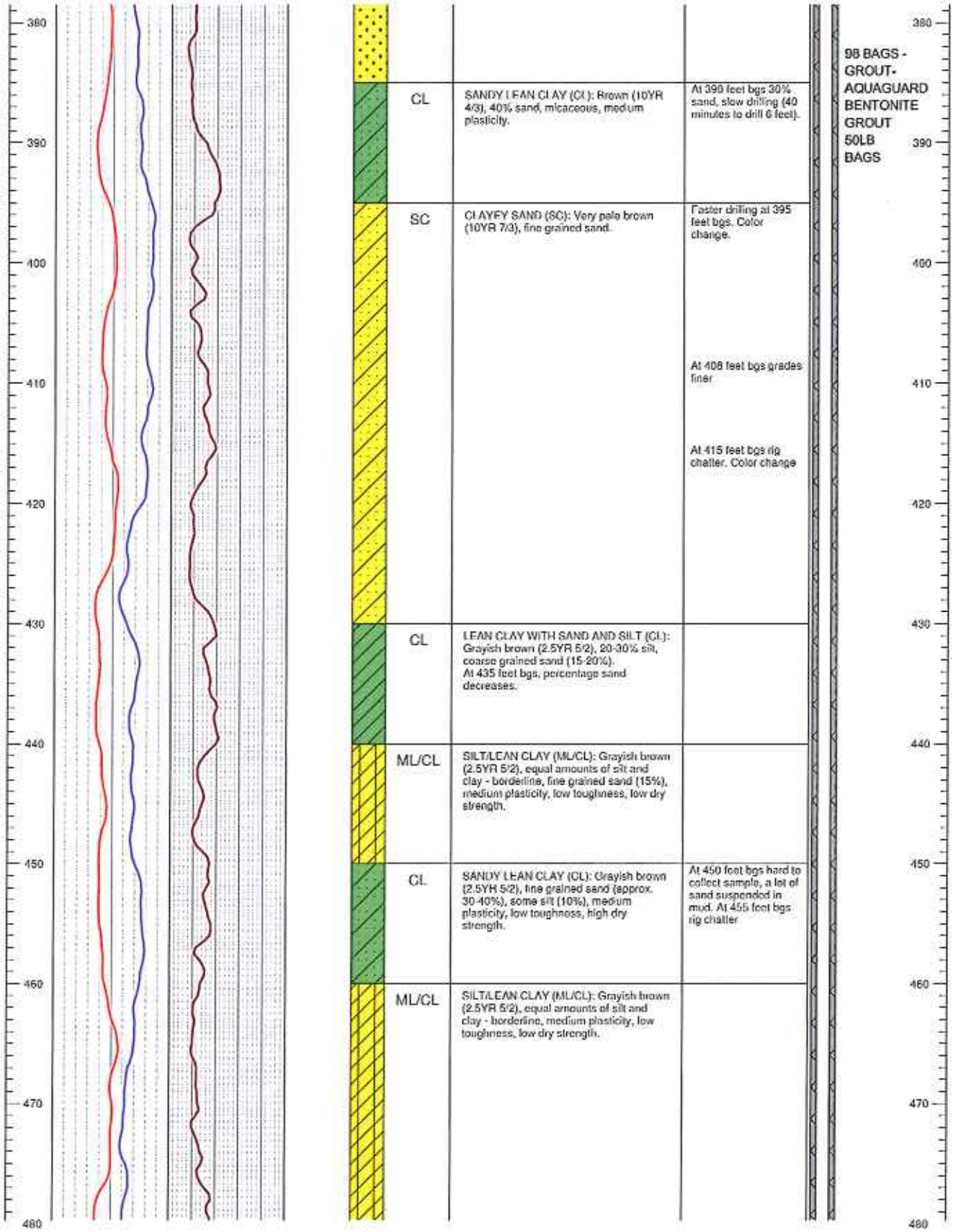
Draft Lithologic Logs and Well Completation Details for TW-2

Genesis Solar, LLC
Project Number: 52004617



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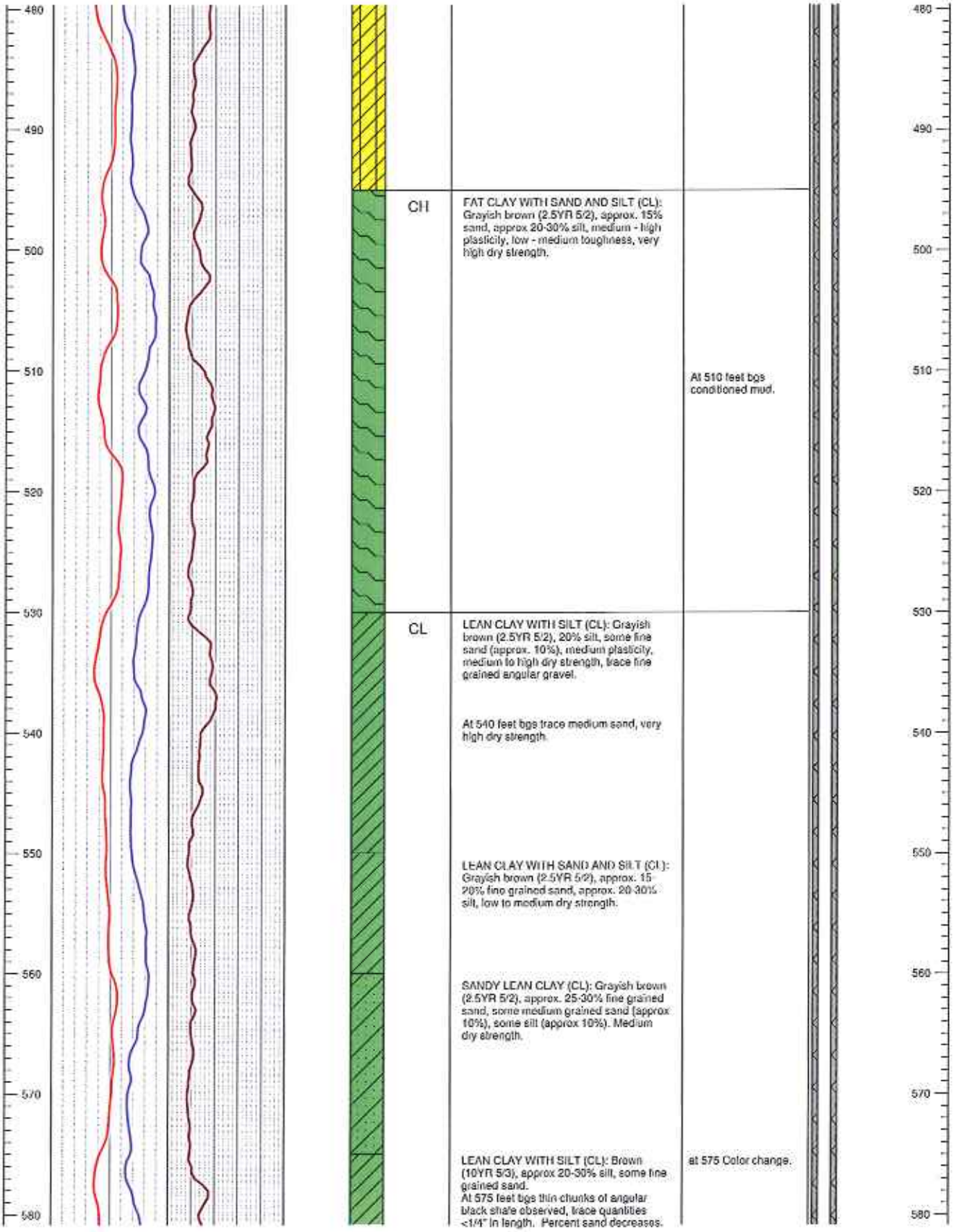
Draft Lithologic Logs and Well Completation Details for TW-2

Genesis Solar, LLC
Project Number: 52004617



Draft Lithologic Logs and Well Completation Details for TW-2

Genesis Solar, LLC
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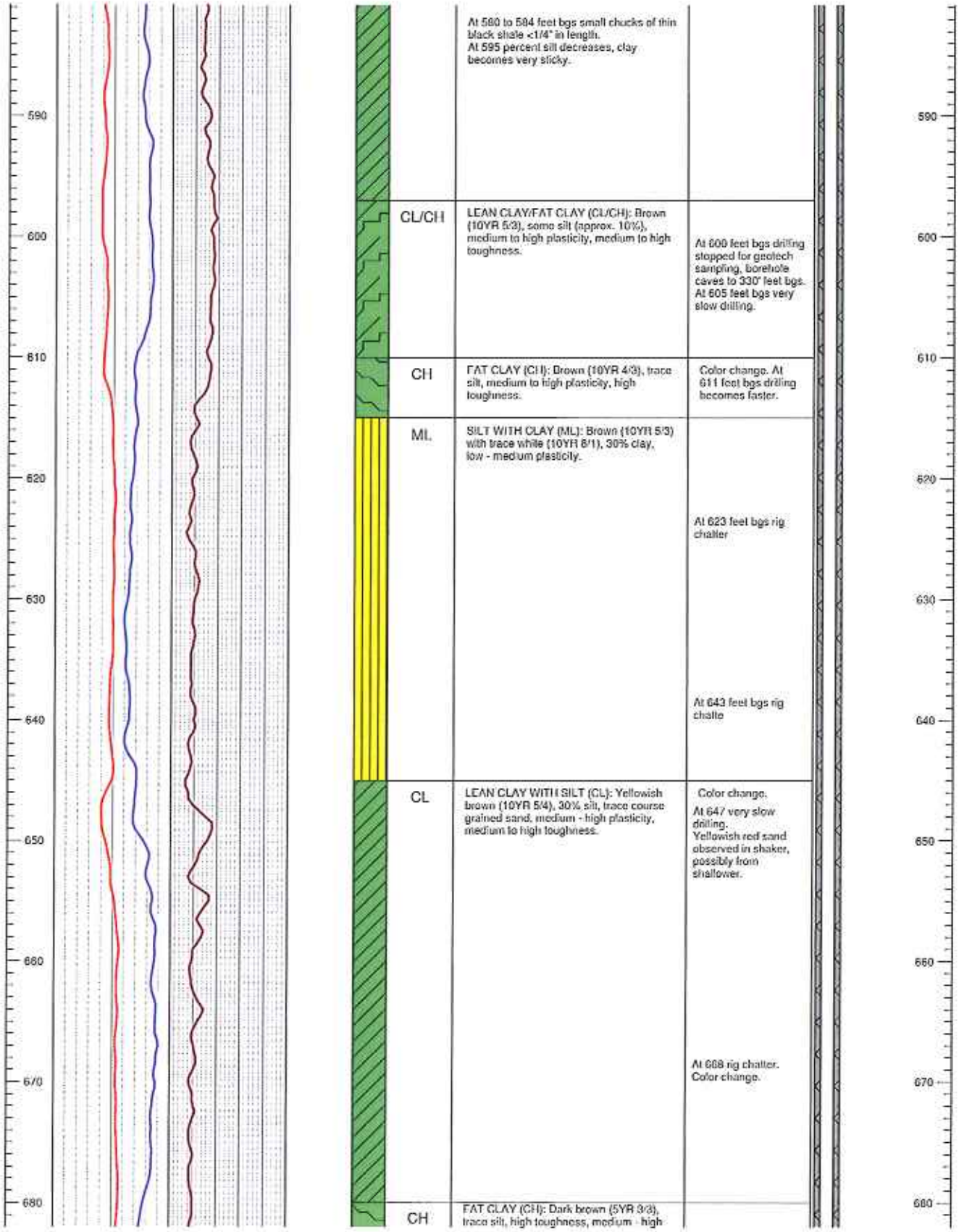
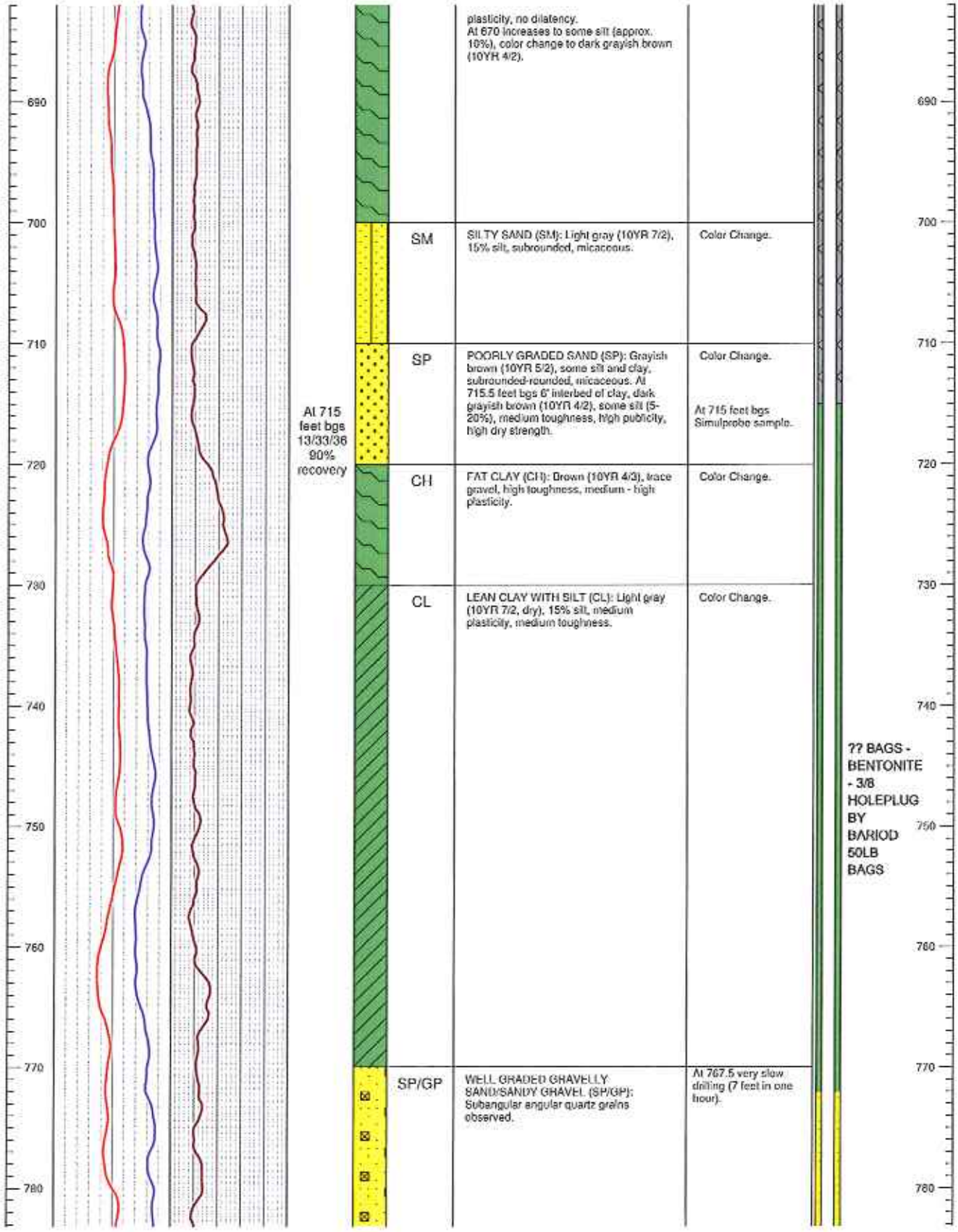


Draft Lithologic Logs and Well Completation Details for TW-2

Genesis Solar, LLC
Project Number: 52004617



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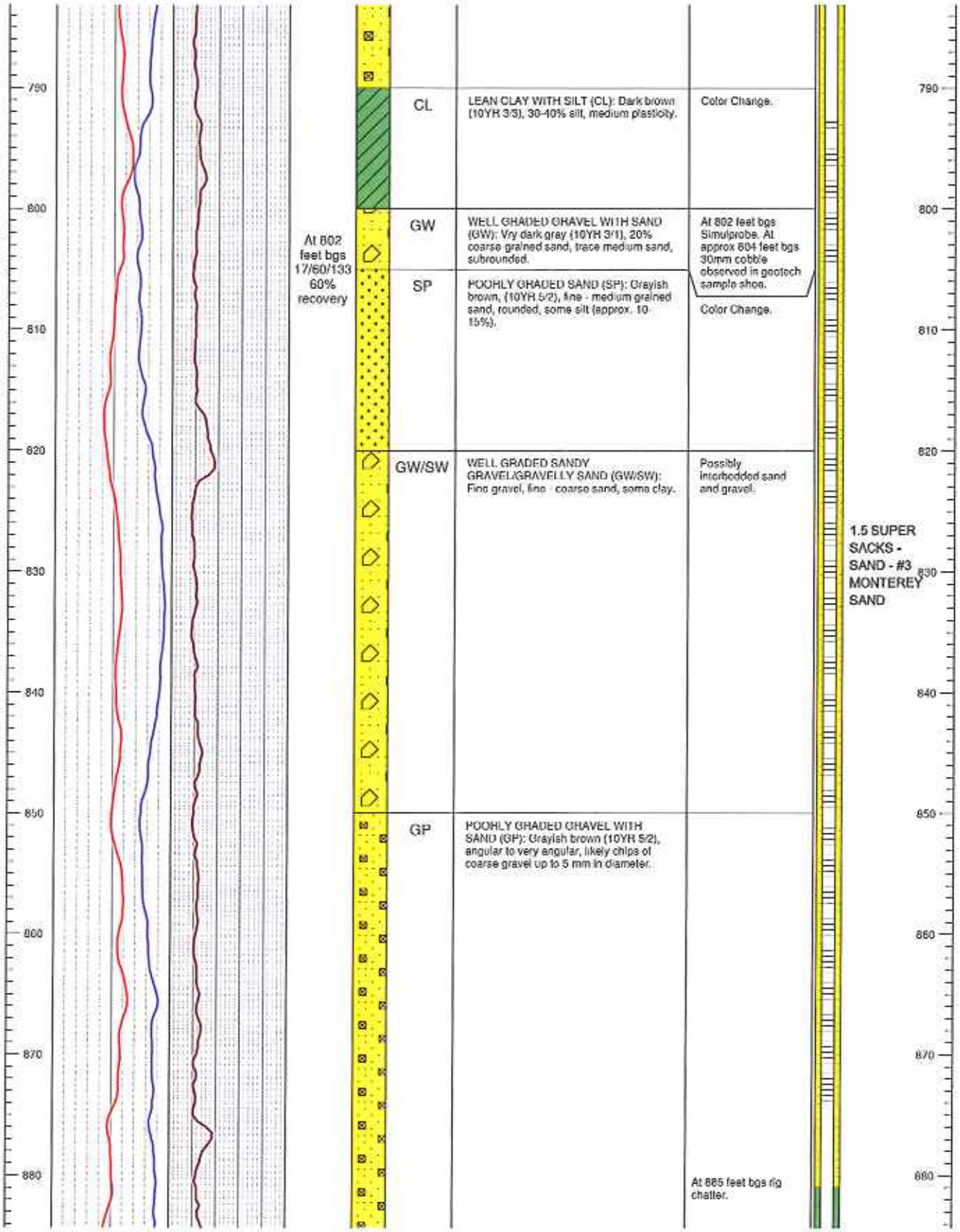
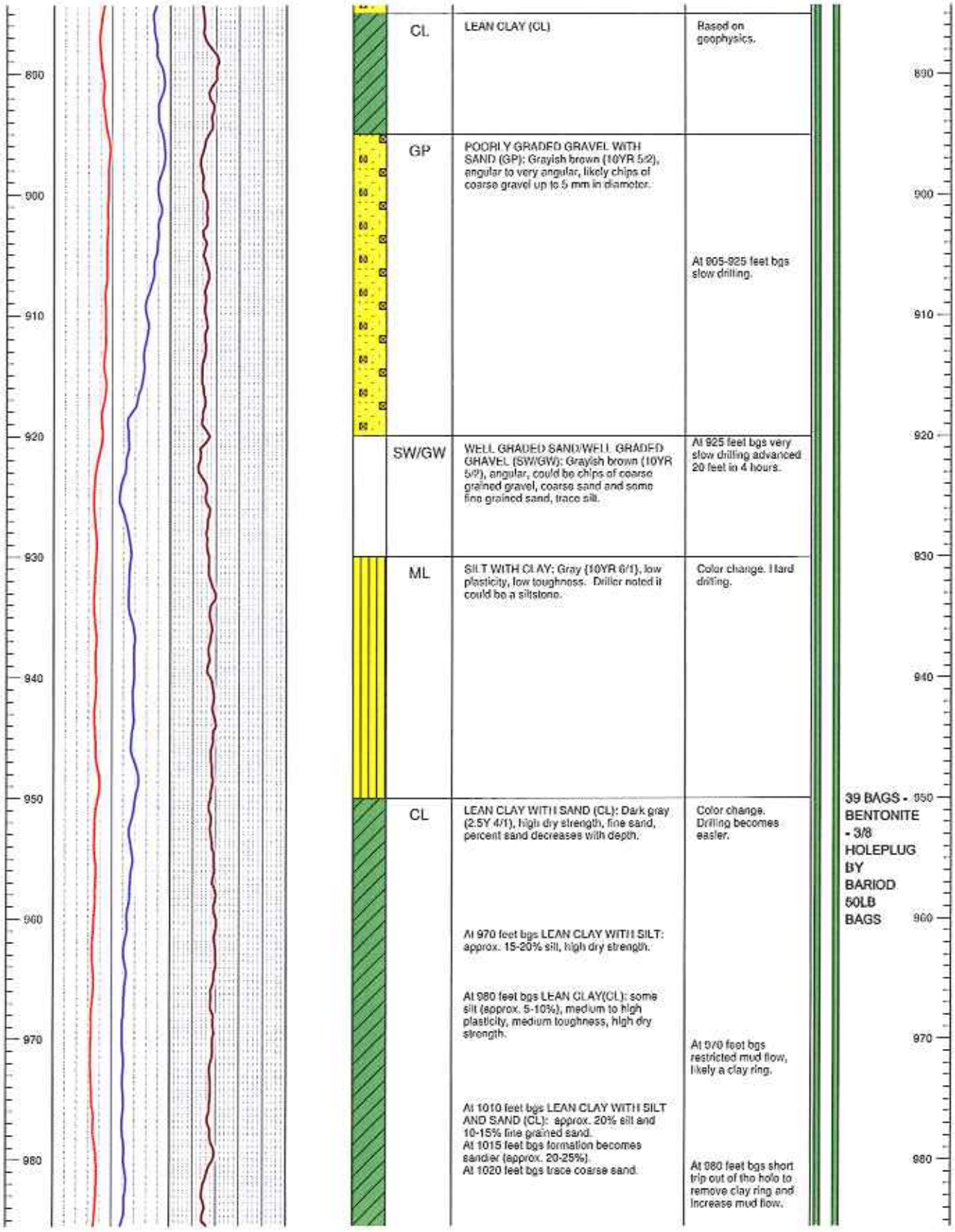


Draft Lithologic Logs and Well Completation Details for TW-2

Genesis Solar, LLC
Project Number: 52004617



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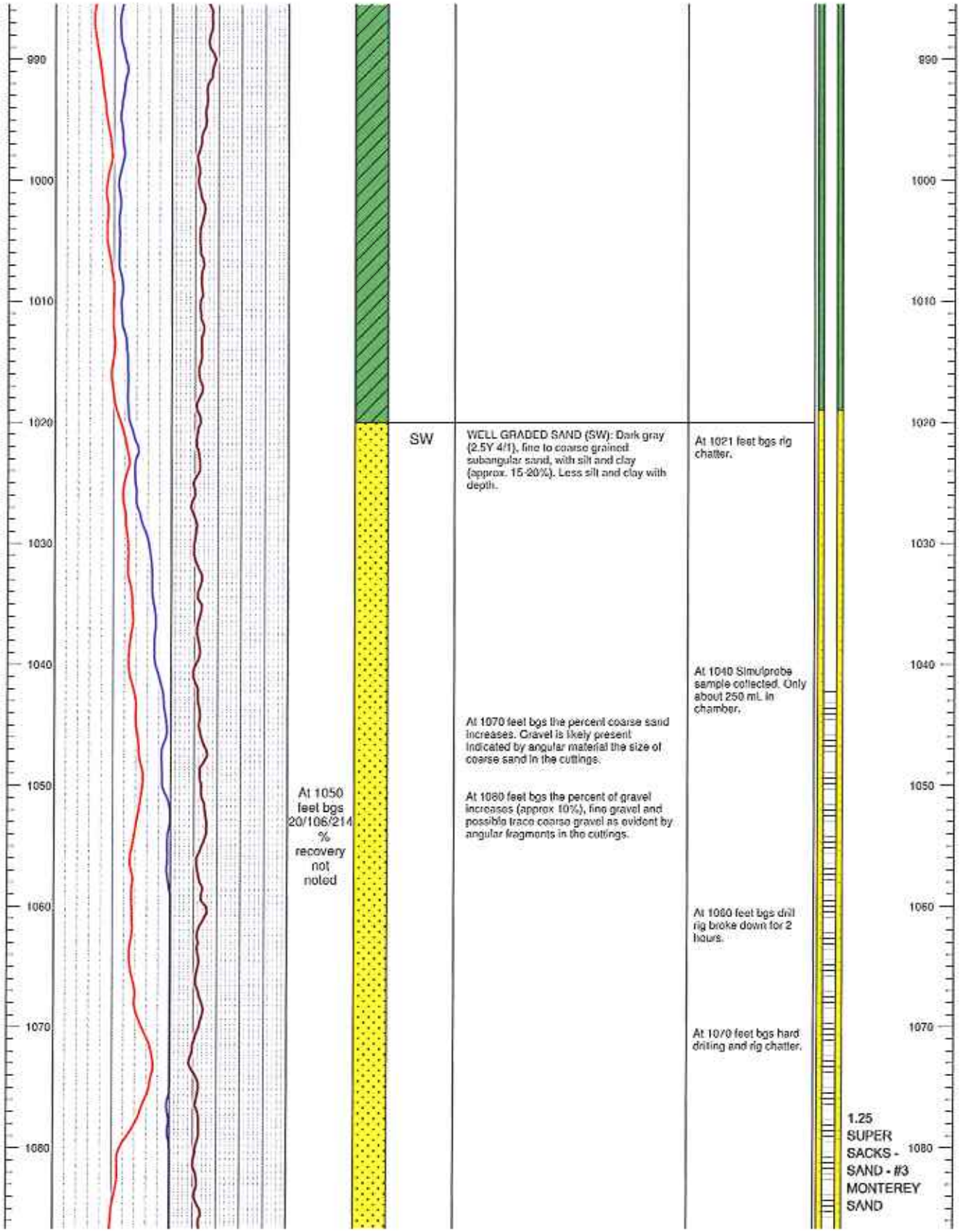
Draft Lithologic Logs and Well Completation Details for TW-2

Genesis Solar, LLC
Project Number: 52004617



WorleyParsons
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Draft Lithologic Logs and Well Completation Details for TW-2

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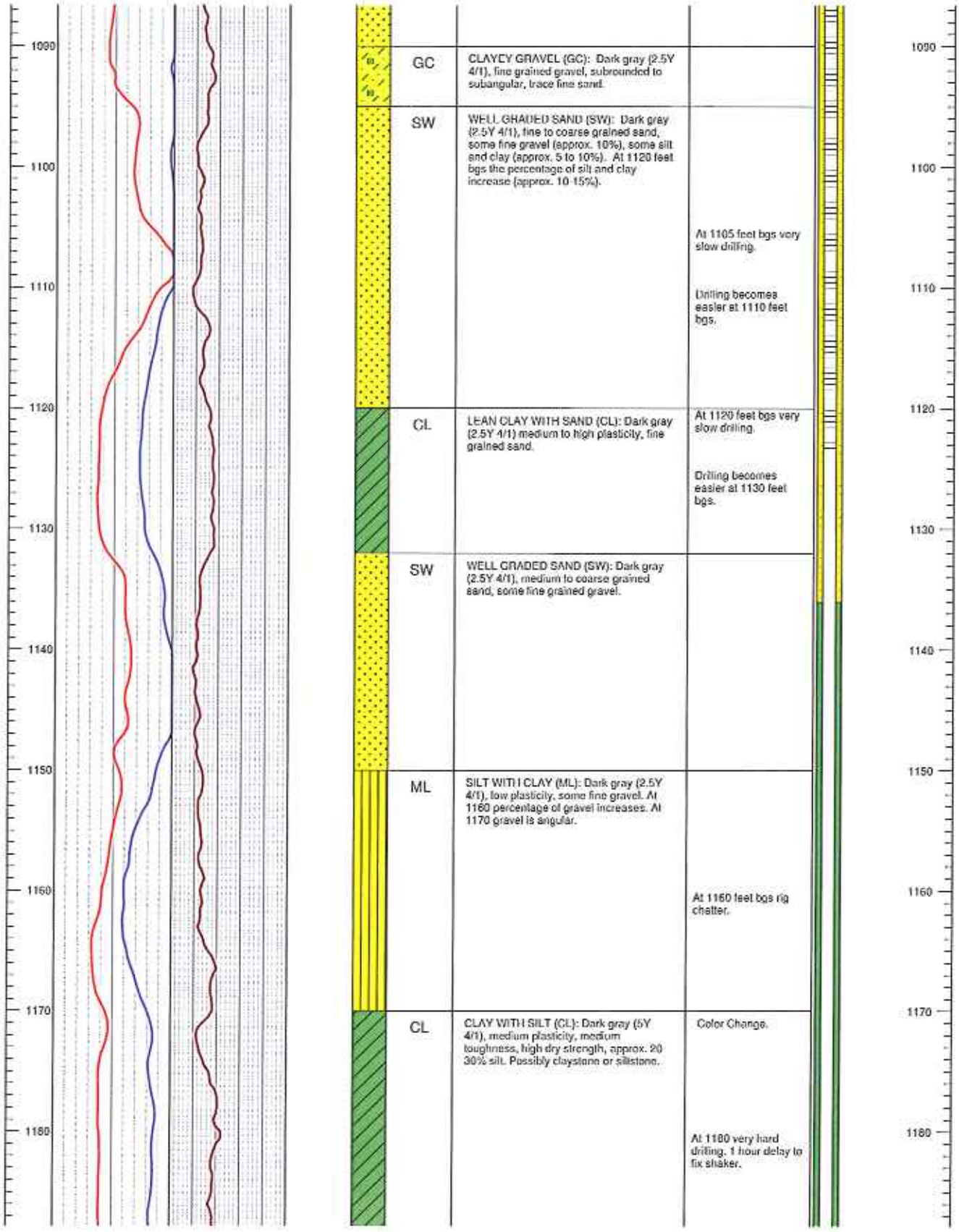
Project Number: 52004617



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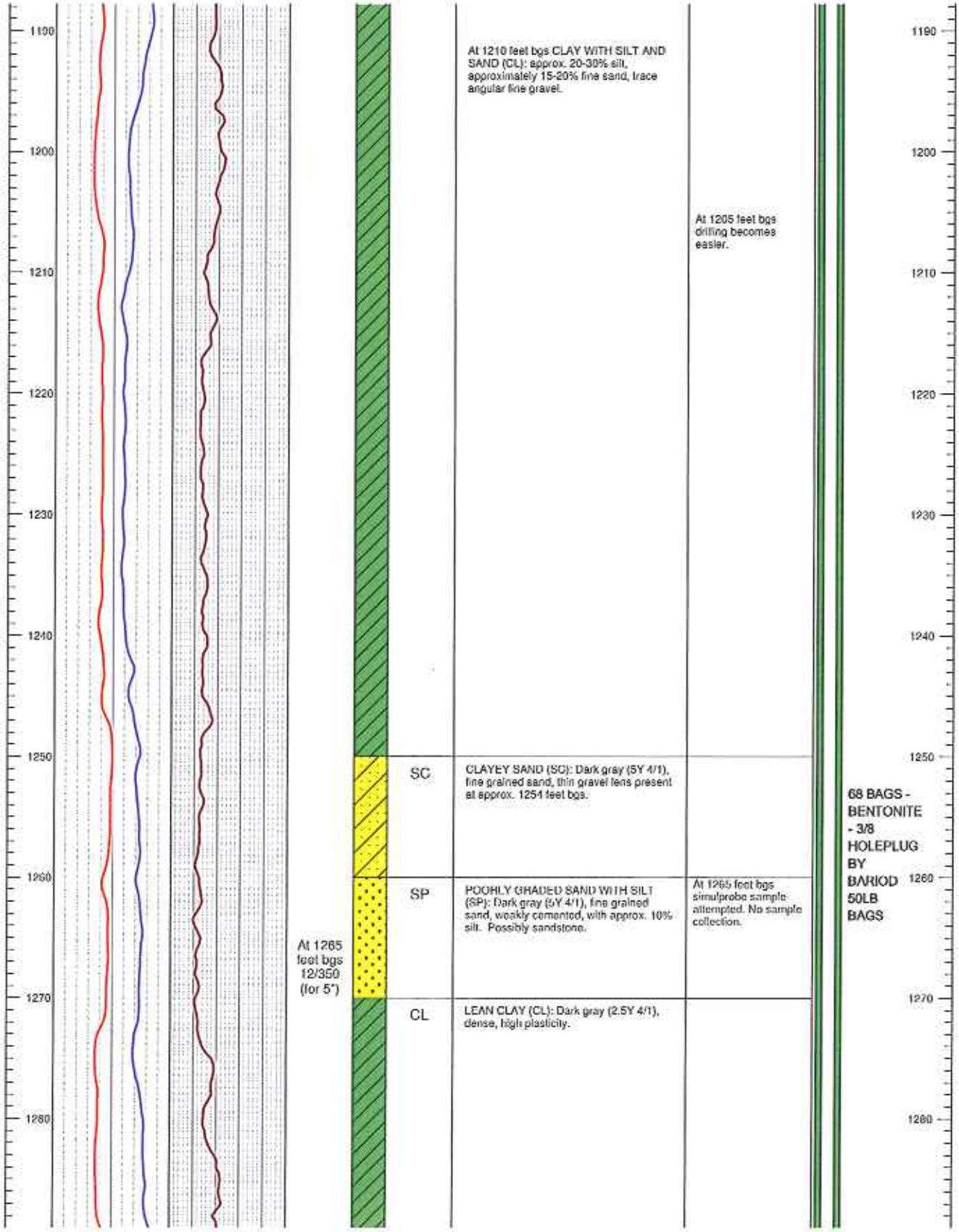

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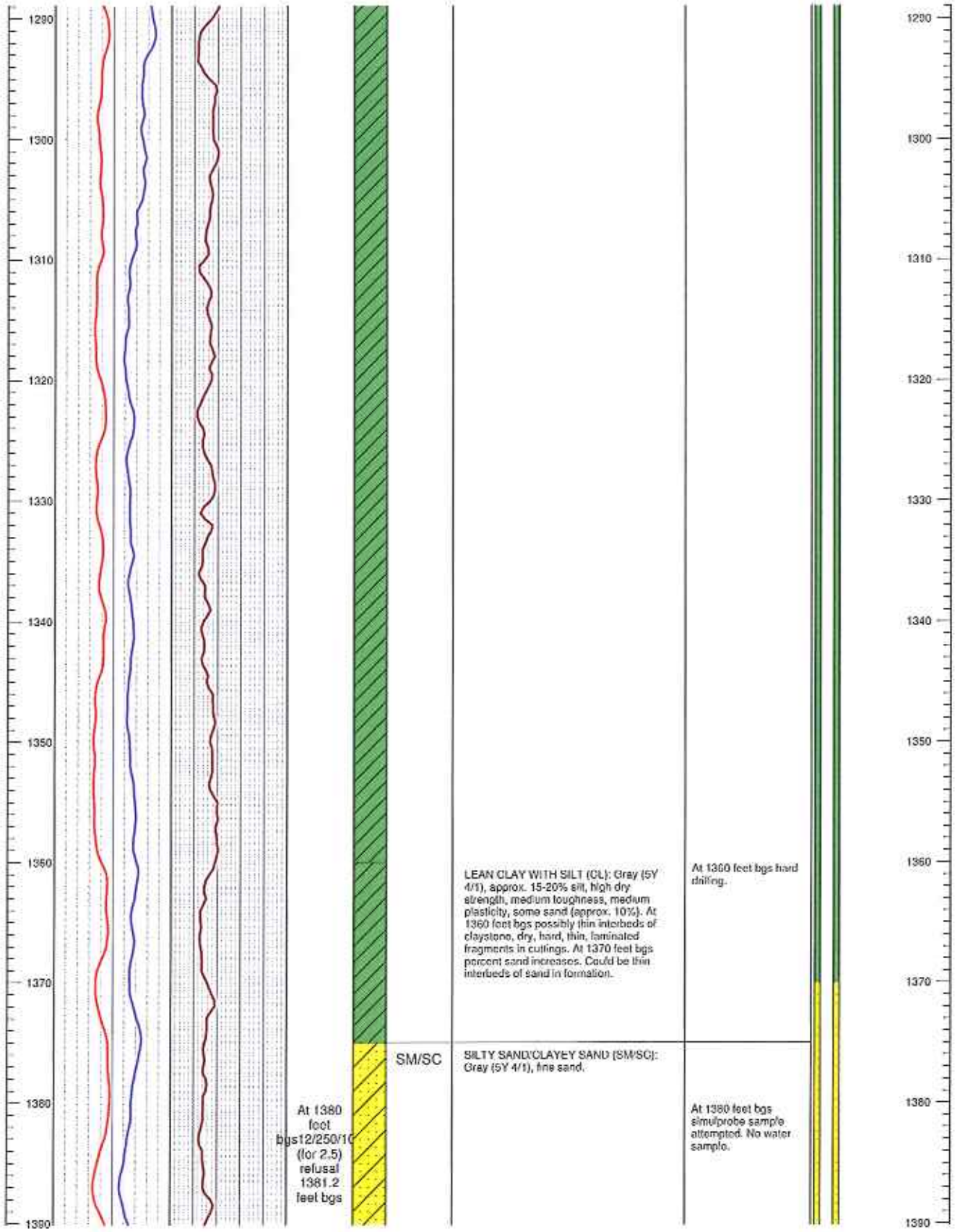

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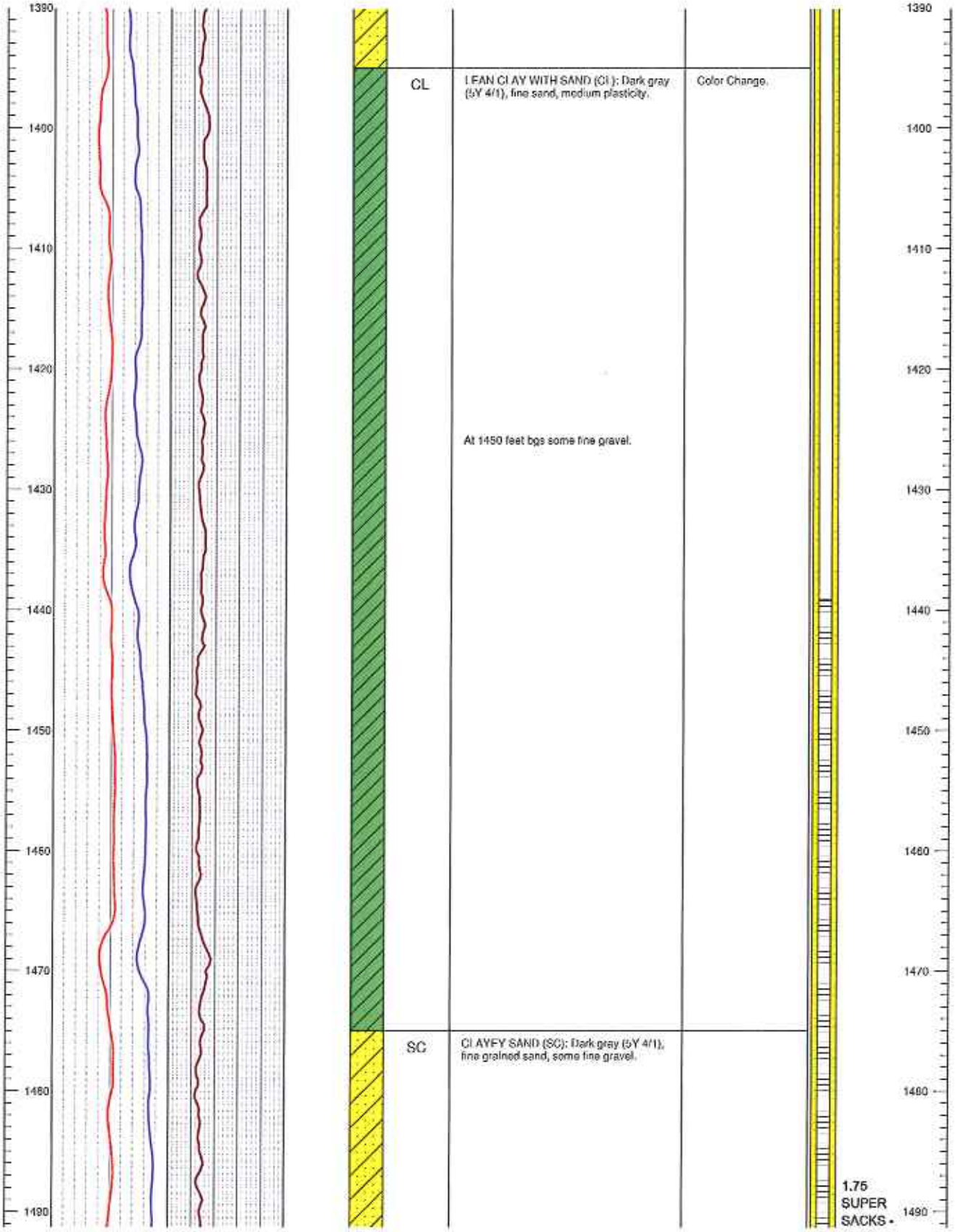

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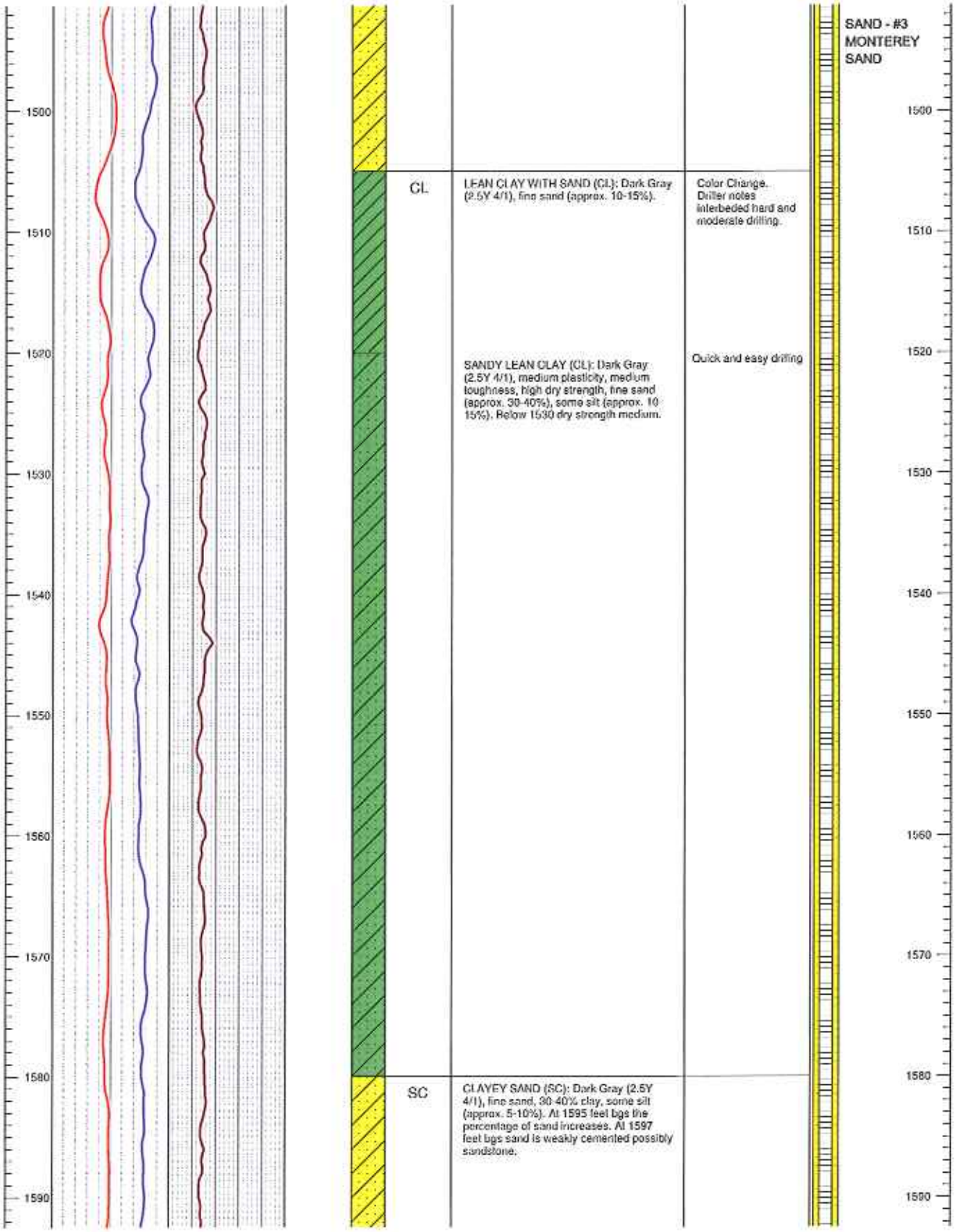

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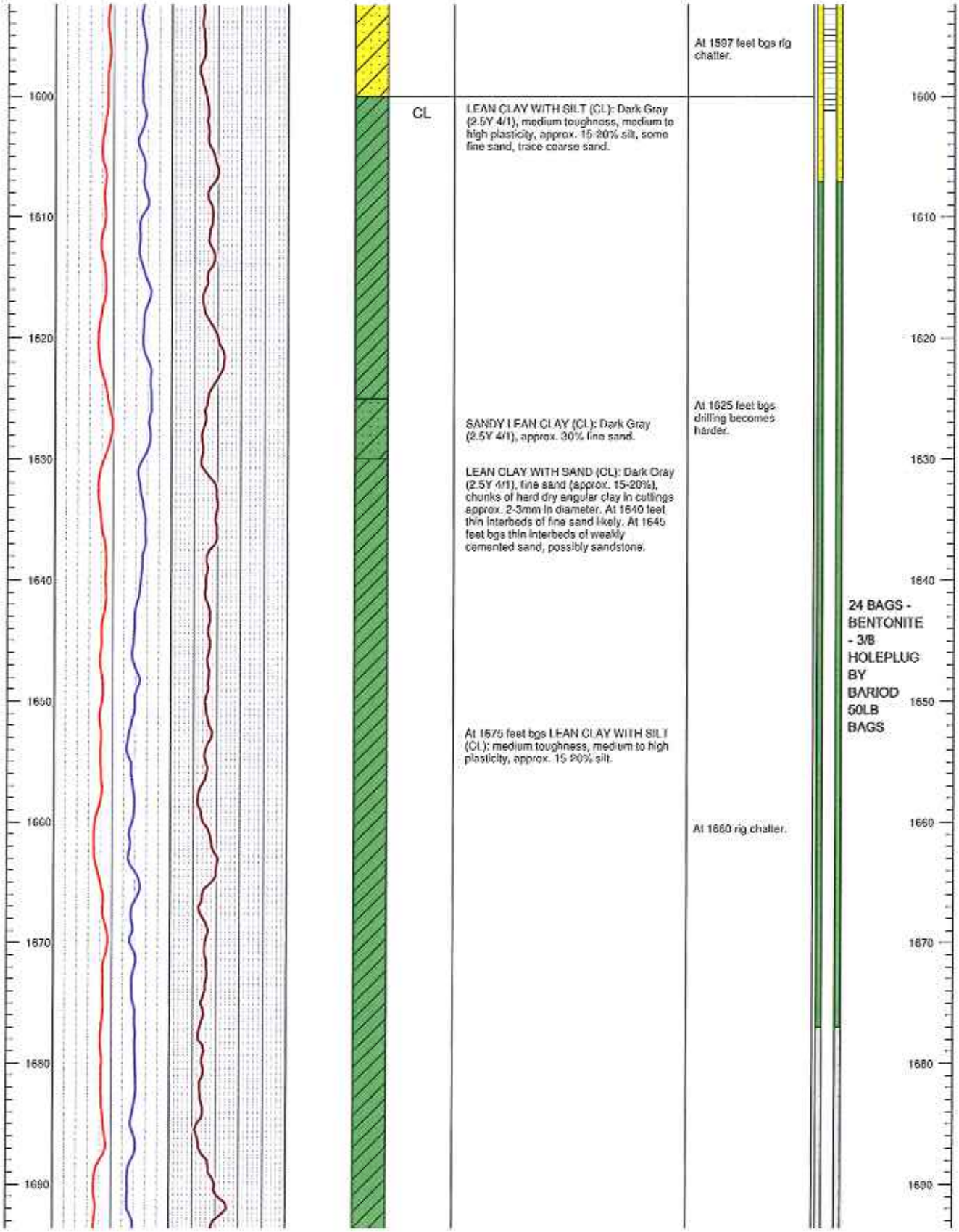

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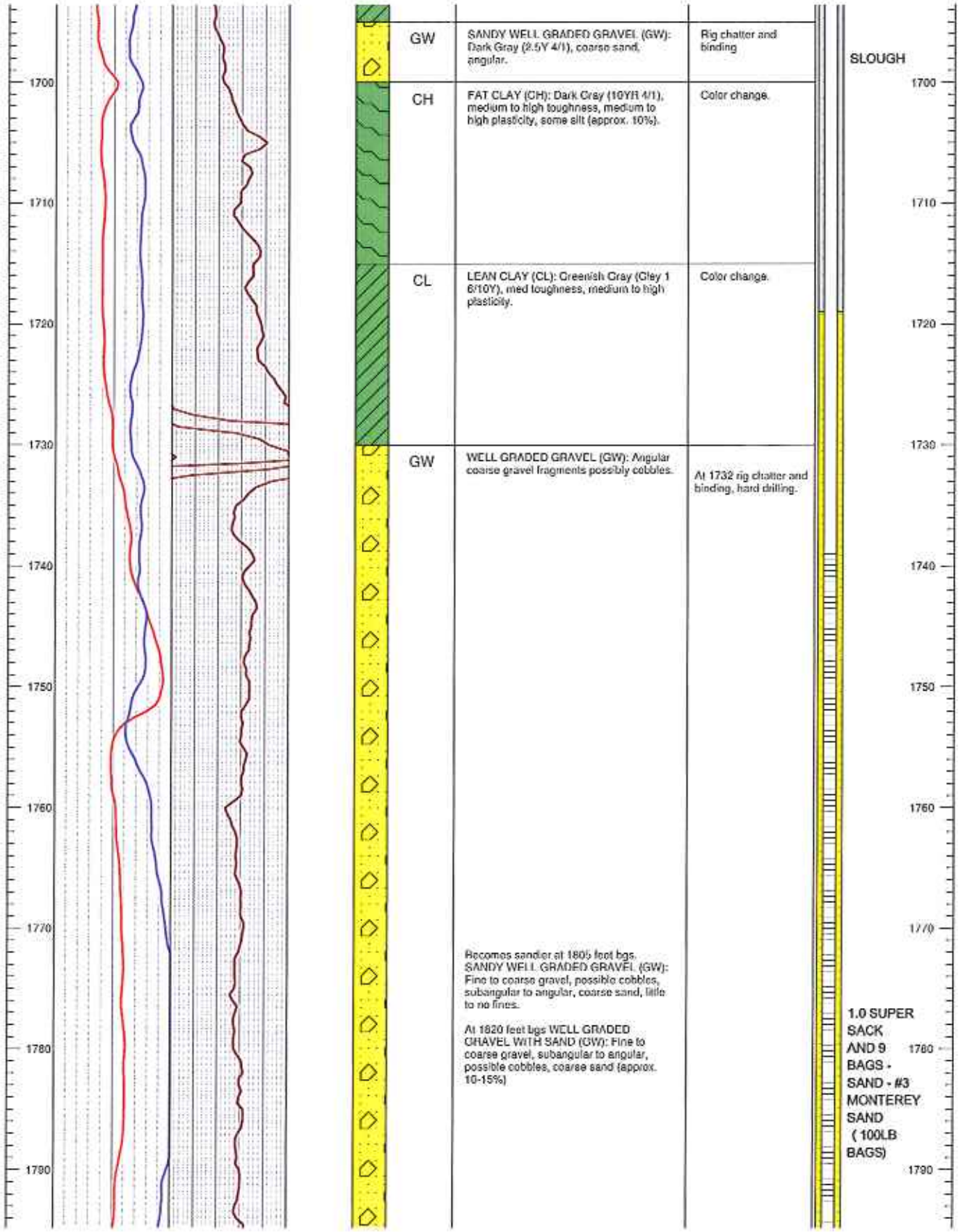

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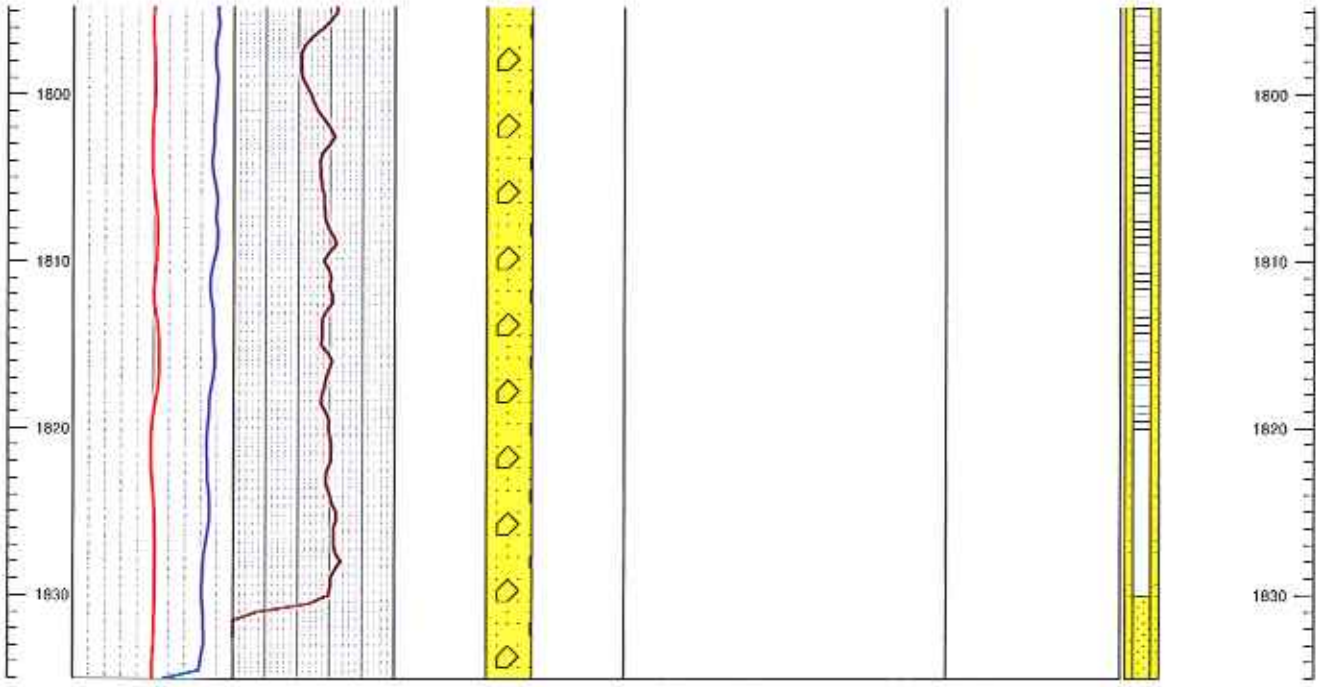

BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA
1516 NINTH STREET, SACRAMENTO, CA 95814
1-800-822-6228 – WWW.ENERGY.CA.GOV

APPLICATION FOR CERTIFICATION FOR THE *GENESIS SOLAR ENERGY PROJECT*

Docket No. 09-AFC-8

PROOF OF SERVICE
(Revised 12/22/09)

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*indicates change

DECLARATION OF SERVICE

I, Ashley Y Garner, declare that on December 23, 2009, I served and filed copies of the attached **LOW RESOULTION SCAN OF THE BOREHOLE LOGS FOR OBS-1, OBS-2, TW-1, AND TW-2 FOR GENESIS SOLAR ENERGY PROJECT** dated **December 23, 2009**. The original document, filed with the Docket Unit, is accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at: **[http://www.energy.ca.gov/sitingcases/genesis_solar].**

The document has been sent to both the other parties in this proceeding (as shown on the Proof of Service list) and to the Commission's Docket Unit, in the following manner:

(***Check all that Apply***)

For service to all other parties:

__X__ sent electronically to all email addresses on the Proof of Service list;

__X__ by personal delivery or by depositing in the United States mail at Sacramento, California with first-class postage thereon fully prepaid and addressed as provided on the Proof of Service list above to those addresses **NOT** marked "email preferred."

AND

For filing with the Energy Commission:

__**X**__ **sending an original paper copy and one electronic copy, mailed and emailed respectively, to the address below (*preferred method*);**

OR

____ depositing in the mail an original and 12 paper copies, as follows:

CALIFORNIA ENERGY COMMISSION
Attn: Docket No. 09-AFC-8
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512
docket@energy.state.ca.us

I declare under penalty of perjury that the foregoing is true and correct.

Ashley Y Garner