| 9/ | ARC ² | Design & for natural built asset | Consultancy al and ets | | Well Const | ruction Log | ; | Sheet: 1 of 15 |
|-----------------|----------------------|----------------------------------|------------------------------|-----------------|---|--|--------------------------------|--|
| | Started: | 11/14/2019 | | | _Surface Elevation: | 538.53 ft amsl | Well ID: M\ | W-70BR-287 |
| Date 0 | Completed | : 07/07/2020 | | | _Shallow Well Elevation: | NA ft amsl | | |
| Drilling | g Co.: | Cascade | | | _Deep Well Elevation: | 538.28 ft amsl | Client: PG&I | <u> </u> |
| Drilling | Method: | Sonic Drilling | | | _Northing (NAD83): | 2100512.18 | Project: Final | GW Remedy Phase 1 |
| Driller | Name: | E. Ramos / J. | Hernar | ndez | _Easting (NAD83): | 7615832.54 | Location: PG&I | E Topock, Needles, California |
| Drilling | g Asst: | FS/JC/JS | | | _Borehole Diameter: | 3.8-12 inches | | |
| Logge | er: | GW / RC / SM | Л | | _Static Water Level: | See Log for Depths | Project Numbe | er: RC000753.0051 |
| Editor | | Sean McGrar | ne | | Development End Date | - | | |
| Total I | Depth: | 287 ft bgs | | | Well Completion: | | To Be Completed | in Well Vault |
| Depth (ft) | Groundwa Sample I | | USCS | USCS Class | Well C | onstruction | Calculated Material Volumes | Material Volumes Installed Note: percentages are the actual volume vs the calculated volume |
| 0 | | | | | (+0.8 - 2.1') Surface completion (+0.4 - 240.1') 4.5" PVC Sch 80 Inner Sleeve Casing | (+0.4 - 237.0') 5.5" PVC Sch 80 Conductor Casing | | (+0.8 - 2.1') 15 bags Note: 30" diameter concrete pad with 18" diameter lockable vault, King Kon-Crete 4000 PSI. Gravel was used to raise and regrade ground surface around surface completion. (0.3') 12 gallons |
| 90:51 ZXX | _ | | NR | $ \bigvee $ | (2.1 - 5.0') Bentonite seal chips | | | Note: Topped off grout between annulus space of the sleeve and conductor casing on 7/7/20. |
| 4 _ 4 _ 5 _ 5 _ | - | | IVIC | $ \bigwedge $ | Puregold medium chips | 1 | (2.1 - 5.0') 4.31 bag | (2.1 - 5.0') 5 bag (116%) Note: Bentonite seal, partial removed during installation of the surface completion. |
| 10 | | | | | | (0.0 - 32.0') 12.0" Borehole = below ground surface, an | | |
|) | | | | | | | | |
| · — | | R = no recovery 70BR-287 | , inote | s: plue v | water table symbol repres | ents depth to water measur | ea auring before th | ie specific capacity test; |

ä

| ARC4 | Design 8 for nature built ass | Consultancy al and ets | | Well Const | ruction Log | ; | Sheet: 2 of 15 |
|--|--|------------------------------|---------------|---|--|--------------------------------|---|
| Date Started: | 11/14/2019 | | | _Surface Elevation: | 538.53 ft amsl | Well ID: MV | N-70BR-287 |
| Date Completed | | | | _Shallow Well Elevation: | | | |
| Drilling Co.: | Cascade | | | _Deep Well Elevation: | 538.28 ft amsl | Client: PG&E | |
| Drilling Method: | • | | | _Northing (NAD83): | 2100512.18 | • | GW Remedy Phase 1 |
| Driller Name: | E. Ramos / J. | Hernand | dez | _Easting (NAD83): | 7615832.54 | Location: PG&E | <u> E Topock, Needles, California</u> |
| Drilling Asst: | FS/JC/JS | | | _Borehole Diameter: | 3.8-12 inches | | |
| Logger: | GW / RC / SI | | | _Static Water Level: | See Log for Depths | Project Numbe | r: RC000753.0051 |
| Editor: | Sean McGrar | ne | | _Development End Date: | | | |
| Total Depth: | 287 ft bgs | | | _Well Completion: | | To Be Completed | in Well Vault |
| ft (t) Groundwa Sample II | | USCS | USCS Class | | onstruction | Calculated Material Volumes | Material Volumes Installed Note: percentages are the actual volume vs the calculated volume |
| | Topock - Alluvium Deposits | SM | | (+0.4 - 240.1') 4.5" PVC Sch 80 Inner Sleeve Casing | (+0.4 - 237.0') 5.5" PVC Sch 80 Conductor Casing | | |
| BASE FOR PLOS. GPT TEMPLAITE FOR PLOS. GDT TEMPLAITE F | Topock - Alluvium Deposits | SM | | (5.0 - 75.0') Portland Cement | (0.0 - 32.0') 12.0" Borehole | (5.0 - 75.0') | (5.0 - 75.0') 385 gallons (156%) Note: Grout seal, used >20% of |
| CUDETRISHMEGRAMEIDOCUMENT SPICESE TOPOCKIDRAFT BORRING LOGS/GIMT FILES/2021-01-26 LUSTOPOCK DATA 30 | Topock - Alluvium Deposits | SM | | 5% Bentonite Type I, II, and V with Hydrogel | | 247.5 gallons | the calculated volume due to potential migration of the grout into the formation. |
| | Topock - Alluvium Deposits Topock - Alluvium Deposits | SM : | | (34.5 - 35.5') Centralizer | (32.0 - 237.0') 10.0" Borehole | | |
| Abbreviations: U | | | | | | | |
| Ŏ. | | | | | = below ground surface, a | | |
| 3 | | y; Notes: | : blue v | vater table symbol repres | ents depth to water measur | red during before th | ne specific capacity test; |
| installed in MW- | 70BR-287 | | | | | | |
| BED | | | | | | | |

| 9/- | \RC^ | DIS Design & for natur built ass | Consultancy ral and ets | | Well Const | ruction Log | 5 | Sheet: 3 of 15 |
|-----------------------------|------------------------|----------------------------------|-------------------------------|---------------|--|--|--------------------------------|--|
| | tarted: | 11/14/2019 | | | _Surface Elevation: | 538.53 ft amsl | Well ID: MV | V-70BR-287 |
| | - | 07/07/2020 | | | _Shallow Well Elevation: | NA ft amsl | | |
| rilling | | Cascade | | | _Deep Well Elevation: | 538.28 ft amsl | Client: PG&E | |
| - | Method: | Sonic Drilling | | | _Northing (NAD83): | 2100512.18 | • | GW Remedy Phase 1 |
| | Name: | E. Ramos / J. | . Herna | ndez | _Easting (NAD83): | 7615832.54 | Location: <u>PG&E</u> | Topock, Needles, Californ |
| _ | Asst: | FS/JC/JS | | | _Borehole Diameter: | 3.8-12 inches | | |
| oggei | | GW/RC/SM | | | _Static Water Level: | See Log for Depths | Project Numbe | r: RC000753.0051 |
| ditor: | | Sean McGrar | ne | | _Development End Date: | | | |
| otal L | epth: | 287 ft bgs | <u> </u> | | _Well Completion: | | To Be Completed | in Weii Vauit |
| Depth (ft) | Groundwat Sample II | | USCS | USCS Class | Well C | onstruction | Calculated Material Volumes | Material Volumes Installed Note: percentages are the actua volume vs the calculated volume |
| .404142434445 | | Topock - Alluvium Deposits | SW-SM | | (+0.4 - 240.1') 4.5" PVC Sch 80 Inner Sleeve Casing | (+0.4 - 237.0') 5.5" PVC Sch 80 Conductor Casing | | |
| | | Topock - Alluvium Deposits | SM | | (5.0 - 75.0') Portland Cement 5% Bentonite Type I, II, and V with Hydrogel | (32.0 - 237.0') 10.0" Borehole | (5.0 - 75.0') 247.5 gallons | (5.0 - 75.0') 385 gallons (156%) Note: Grout seal, used >20% of the calculated volume due to potential migration of the grout int the formation. |
| 3 — - 4 — - 5 — | | Topock - Alluvium Deposits | SC | | | | | |
| _ 56 _ 57 | | Topock - Alluvium Deposits | SM | | | | | |
| _ .58 _ _ .59 | | Topock - Alluvium Deposits | SM | | | | | |
| bbre | <i>i</i> ations: U | ISCS = Unified | Soil C | lassifica | tion System, ft = feet, bas | = below ground surface, a | msl = above mean | sea level, GW = |
| | | | | | | ents depth to water measur | | |
| | | 70BR-287 | ,, | | | _Г | | |
| | - 4 III IVIVV | . 351201 | | | | | | |

| 9/ | 4RC4 | DIS Design & for nature built asso | Consultancy ral and ets | | Well Cons | truc | ion Log | | Sheet: 4 of 15 |
|---------------|------------------------|------------------------------------|-------------------------------|--------------------------------|---|-----------------|--|--------------------------------|---|
| Date S | Started: | 11/14/2019 | | | _Surface Elevation: | <u>538.</u> | 53 ft amsl | Well ID: M | W-70BR-287 |
| Date 0 | Completed: | 07/07/2020 | | | _Shallow Well Elevatior | n: <u>NA f</u> | : amsl | | |
| Drilling | g Co.: | Cascade | | | _Deep Well Elevation: | <u>538.</u> | 28 ft amsl | Client: PG& | <u>E</u> |
| Drilling | Method: | Sonic Drilling | | | _Northing (NAD83): | 2100 |)512.18 | Project: <u>Final</u> | GW Remedy Phase 1 |
| Driller | Name: | E. Ramos / J. | . Hernande | ez | Easting (NAD83): | | 832.54 | Location: <u>PG&</u> | E Topock, Needles, California |
| Drilling | g Asst: | FS/JC/JS | | | _Borehole Diameter: | <u>3.8-</u> 1 | 2 inches | | |
| Logge | er: | GW/RC/SM | <u>M</u> | | _Static Water Level: | See | Log for Depths | Project Numbe | er: RC000753.0051 |
| Editor: | : | Sean McGrar | ne | | _Development End Dat | te: <u>7/24</u> | 2020 | | |
| Total [| Depth: | 287 ft bgs | | | _Well Completion: | × F | lush 🗌 Stick-up 🔲 | To Be Completed | l in Well Vault |
| Depth (ft) | Groundwat Sample II | | USCS Code | Class | Well | Construc | tion | Calculated Material Volumes | Material Volumes Installed Note: percentages are the actual volume vs the calculated volume |
| 60 | | Topock - Alluvium Deposits | SM | | (+0.4 - 240.1') 4.5" PVC Sch 80 Inner Sleeve Casing | | (+0.4 - 237.0') 5.5" PVC Sch 80 Conductor Casing | | |
| | | Topock - Alluvium Deposits | GM 0 | | | | | | |
| | | Deposits | | | | % | | | |
| 62 | | Topock - | sw-sc | | | | | | |
| | | Alluvium Deposits | SW-SC | | | % | | | |
| 63 | | | | | | | | | |
| | - | | *: | | | | | | |
| 64 | | | | | | \mathbb{X} | | | |
| - 04 - | | | | | | | | | |
| | - | Topock - | | | | | | | |
| 65 | 1 | Alluvium Deposits | SW-SM | | | | 3 | | |
| | - | | | | | | | | |
| 66 | - | | | | | | | | |
| <u> </u> | - | | | | (5.0 - 75.0') Portland Cement | | | | (5.0 - 75.0') 385 gallons (156%) Note: Grout seal, used >20% of |
| 67_ | | | | न्त्र) | 5% Bentonite Type | | | (5.0 - 75.0') 247.5 gallons | the calculated volume due to |
| <u> </u> | - | | | | I, II, and V with Hydrogel | | À | 247.0 gallons | potential migration of the grout into |
| 68 | | | | | riyaroger | \gg | | | |
| | - | | | | | | | | |
| 69 | | | | | | | (32.0 - 237.0') | | |
| <u> </u> | | | | 12.4 | | \mathbb{X} | 10.0" Borehole | | |
| _70_ | | Topock - Bedrock - | | | | | | | |
| | - | Metadiorite | | ` | | % | | | |
| _71_ | | | | | | | 3 | | |
| | | | | ```. | | | | | |
| 72 | | | | | | \otimes | | | |
| <u> </u> | | | | : | | | | | |
| _73_ | | | | | | \gg | | | |
| | | | | 12.1 | | | 3 | | |
| 74 | | | | | | | $\langle \rangle$ | | |
| | | | | | | \varnothing | \$ | | |
| 75 | | | \ | \ | | | \geq | | |
| | | | NR | $V \mid$ | | | | | |
| 76 | | | | \wedge L | | | | | |
| | | | / | ′\ | | | | | (75.0 - 114.0') 25.5 bags (124%) |
| | | | / | _ \ | (75.0 - 114.0') | | i | (75.0 - 114.0') | Note: Bentonite seal across screer intervals of existing wells. Used |
| | | | | 37 | Bentonite seal chips Puregold medium | | i | 20.6 bags | >20% of the calculated volume due |
| | 1 | | | 1 | chips | | i | | to potential voids forming during drilling. |
| -10- | 1 | Topock - Bedrock - | | | | | 1 | | 9. |
| 70 | 1 | Metadiorite | (4) | (,); | | | i | | |
| 79 | 1 | | | <u>کرکر)</u> - ن د : | Since Countries 50 5 5 5 | | <u> </u> | | |
| | | | | | tion System, ft = feet, bo | | | | |
| : = | | | y, inoles: I | uue V | vater table symbol repre | senis a | epin to water measur | eu duning before ti | ne specific capacity test; |
| ınstalle | ed in MW-7 | /UBK-28/ | | | | | | | |

| ARCADIS Design & Consultancy for natural and built assets | | | | | Well Const | ruction Log | | Sheet: 5 of 15 | | |
|---|-----------------------|--|--------|---------------|---|--|--------------------------------|---|--|--|
| l l | Started: | 11/14/2019 | | | _Surface Elevation: | 538.53 ft amsl | Well ID: M | W-70BR-287 | | |
| | | 07/07/2020 | | | _Shallow Well Elevation: | | | | | |
| Drilling | - | Cascade | | | _Deep Well Elevation: | 538.28 ft amsl | Client: PG& | | | |
| _ | - | Sonic Drilling | | | _Northing (NAD83): | 2100512.18 | · · | GW Remedy Phase 1 | | |
| | Name: | E. Ramos / J. | Herna | ndez | _Easting (NAD83): | 7615832.54 | Location: <u>PG&</u> | E Topock, Needles, California | | |
| Drilling | = | FS/JC/JS | | | _Borehole Diameter: | 3.8-12 inches | | | | |
| Logge | | GW / RC / SN | | | _Static Water Level: | See Log for Depths | Project Numbe | er: RC000753.0051 | | |
| Editor: | | Sean McGran | ie | | _Development End Date: | | | | | |
| Total [| Depth: | 287 ft bgs | 1 | | _Well Completion: | | ☐ To Be Completed | d in Well Vault | | |
| Depth (ft) | Groundwa Sample II | | USCS | USCS Class | Well C | onstruction | Calculated Material Volumes | Material Volumes Installed Note: percentages are the actual volume vs the calculated volume | | |
| | | Topock - Bedrock - Metadiorite Topock - Bedrock - Metadiorite Topock - Metadiorite | NR NR | | (+0.4 - 240.1') 4.5" PVC Sch 80 Inner Sleeve Casing (84.5 - 85.5') Centralizer (75.0 - 114.0') Bentonite seal chips Puregold medium chips | — (+0.4 - 237.0') 5.5" PVC Sch 8 Conductor Casir | (75.0 - 114.0') | (75.0 - 114.0') 25.5 bags (124%) Note: Bentonite seal across screen intervals of existing wells. Used >20% of the calculated volume due to potential voids forming during drilling. | | |
| 99 | 1 | | | | | | | | | |
| | | | | | ion System, ft = feet, bgs | - | | | | |
| | | | ; Note | s: blue v | vater table symbol represe | ents depth to water mea | asured during before t | he specific capacity test; | | |
| install | ed in MW- | 70BR-287 | | | | | | | | |

| 9/ | ARC ⁴ | Design & for nature built asse | Consultancy al and ets | | Well Const | ruction Log | : | Sheet: 6 of 15 |
|---------------|-------------------------|--|------------------------------|---------------|---|--|------------------------------------|---|
| | Started: | 11/14/2019 | 200 | | _Surface Elevation: | 538.53 ft amsl | Well ID: MI | W-70BR-287 |
| Date 0 | Completed | : 07/07/2020 | | | _Shallow Well Elevation: | NA ft amsl | VVenib. ivi | VV-7 0DIX-207 |
| Drilling | Co.: | Cascade | | | _Deep Well Elevation: | 538.28 ft amsl | Client: PG&I | <u>E</u> |
| Drilling | Method: | Sonic Drilling | | | _Northing (NAD83): | 2100512.18 | Project: Final | GW Remedy Phase 1 |
| Driller | Name: | E. Ramos / J. | Hernan | dez | _Easting (NAD83): | 7615832.54 | Location: PG&I | E Topock, Needles, California |
| Drilling | Asst: | FS/JC/JS | | | _Borehole Diameter: | 3.8-12 inches | <u></u> | • |
| Logge | | GW / RC / SN | Л | | Static Water Level: | See Log for Depths | Project Numbe | er: RC000753.0051 |
| Editor: | | Sean McGran | | | | | | |
| | Fotal Depth: 287 ft bgs | | | | _Well Completion: | | To Be Completed | l in Well Vault |
| Depth (ft) | Groundwa Sample II | | USCS | USCS Class | Well C | onstruction | Calculated Material Volumes | Material Volumes Installed Note: percentages are the actual volume vs the calculated volume |
| | | Topock - Bedrock - Metadiorite Topock - Bedrock - Metadiorite | R N | | (+0.4 - 240.1') 4.5" PVC Sch 80 Inner Sleeve Casing (75.0 - 114.0') Bentonite seal chips Puregold medium chips | — (+0.4 - 237.0') 5.5" PVC Sch 80 Conductor Casing — (32.0 - 237.0') 10.0" Borehole | (75.0 - 114.0') 20.6 bags | (75.0 - 114.0') 25.5 bags (124%) Note: Bentonite seal across screen intervals of existing wells. Used >20% of the calculated volume due to potential voids forming during drilling. |
| Name | | Topock - Bedrock - Metadiorite | | | (114.0 - 235.0') Bentonite seal pellets Pel-Plug (TR30) 3/8" | | (114.0 - 235.0') 105.54 buckets | (114.0 - 235.0') 94 buckets (89%) Note: Bentonite seal across screen intervals of existing wells. |
| Abbre | viations: L | JSCS = Unified | Soil Cla | ssificat | tion System, ft = feet, bas | = below ground surface, a | msl = above mean | sea level, GW = |
| 5 | | | | | | ents depth to water measur | | |
| ≥ = | | 70BR-287 | ,, | V | | aspan to mator modour | | p oapaony toot, |

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| 9/ | 4RC4 | Design & for natura built asse | Consultancy I and ts | | Well Const | ruction Log | 5 | Sheet: 7 of 15 |
|---------------|------------------------|--|----------------------------|----------------------|---|--|------------------------------------|---|
| Date S | Started: | 11/14/2019 | | | _Surface Elevation: | 538.53 ft amsl | Well ID: MV | N-70BR-287 |
| Date 0 | Completed: | 07/07/2020 | | | _Shallow Well Elevation: | NA ft amsl | | TODIC 201 |
| Drilling | g Co.: | Cascade | | | _Deep Well Elevation: | 538.28 ft amsl | Client: PG&E | <u> </u> |
| Drilling | g Method: | Sonic Drilling | | | _Northing (NAD83): | 2100512.18 | Project: <u>Final (</u> | GW Remedy Phase 1 |
| Driller | Name: | E. Ramos / J. | Hernaı | ndez | _Easting (NAD83): | 7615832.54 | Location: <u>PG&E</u> | <u> Topock, Needles, California</u> |
| Drilling | g Asst: | FS/JC/JS | | | _Borehole Diameter: | 3.8-12 inches | | |
| Logge | er: | GW / RC / SM | | _Static Water Level: | See Log for Depths Project Number: RC000753.0051 | | r: RC000753.0051 | |
| Editor | : | Sean McGran | е | | _Development End Date: | | | |
| Total [| Depth: | 287 ft bgs | | | _Well Completion: | | To Be Completed | in Well Vault |
| Depth (ft) | Groundwat Sample II | | USCS | USCS | | onstruction | Calculated Material Volumes | Material Volumes Installed Note: percentages are the actual volume vs the calculated volume |
| | | Topock - Bedrock - Metadiorite Topock - Bedrock - Metadiorite Topock - Metadiorite | | | (114.0 - 235.0') Bentonite seal pellets Pel-Plug (TR30) 3/8" (134.5 - 135.5') Centralizer | — (+0.4 - 237.0') 5.5" PVC Sch 80 Conductor Casing — (32.0 - 237.0') 10.0" Borehole | (114.0 - 235.0') 105.54 buckets | (114.0 - 235.0') 94 buckets (89%) Note: Bentonite seal across screen intervals of existing wells. |
| 139 | 1 | 000 11 15 | 0 " " | <u> ``````\</u> | . 0 | | <u> </u> | 1 1 6'4' |
| | | | | | | = below ground surface, ar | | |
| | | | ; Note | s: blue w | vater table symbol represe | ents depth to water measur | ed during before th | ne specific capacity test; |
| install | ed in MW- | 70BR-287 | | | | | | |

| 9/ | ARC | DIS Design & for natura built asset | Consultancy Il and ts | | Well Const | ruction Log | : | Sheet: 8 of 15 |
|---------------|------------------------|-------------------------------------|-----------------------------|---------------|---|--|------------------------------------|---|
| Date S | Started: | 11/14/2019 | | | _Surface Elevation: | 538.53 ft amsl | Well ID: M\ | N-70BR-287 |
| | - | 07/07/2020 | | | _Shallow Well Elevation: | | | |
| Drilling | | Cascade | | | _Deep Well Elevation: | 538.28 ft amsl | Client: PG&I | |
| _ | | Sonic Drilling | | | _Northing (NAD83): | 2100512.18 | • | GW Remedy Phase 1 |
| | Name: | E. Ramos / J. | Herna | ndez | _Easting (NAD83): | 7615832.54 | Location: <u>PG&I</u> | E Topock, Needles, California |
| Drilling | | FS/JC/JS | _ | | _Borehole Diameter: | 3.8-12 inches | | |
| Logge | | GW/RC/SN | | | _Static Water Level: | See Log for Depths | Project Numbe | r: RC000753.0051 |
| Editor: | | Sean McGran | ie | | _Development End Date: | | | :- \\/-!!\/!4 |
| Total D | Jeptn: | 287 ft bgs | | | _Well Completion: | | To Be Completed | in vveii vauit |
| Depth (ft) | Groundwat Sample II | | USCS | USCS Class | Well C | onstruction | Calculated Material Volumes | Material Volumes Installed Note: percentages are the actual volume vs the calculated volume |
| 140 | | | | | (+0.4 - 240.1') — 4.5" PVC Sch 80 Inner Sleeve Casing | — (+0.4 - 237.0') 5.5" PVC Sch 80 Conductor Casing | | |
| 141 | | | | | | | | |
| 142 | | Topock - Bedrock - | | | | | | |
| 143 | | Metadiorite | | | | | | |
| 144 | | | | | | 0,0 | | |
| 145 | | | | | | | | |
| 146 | | | | | | | | |
| | | | NR | X | | | | |
| 147 | | | | | | | | |
| | | | | | | | | |
| 148 | | | | | | | | |
| | | | | | (114.0 - 235.0') | (22.2.2.2.2) | | (114.0 - 235.0') 94 buckets (89%) |
| | | | | | Bentonite seal pellets Pel-Plug | (32.0 - 237.0') 10.0" Borehole | (114.0 - 235.0') 105.54 buckets | Note: Bentonite seal across screen intervals of existing wells. |
| | | | | | (TR30) 3/8" | | | intervals of existing wells. |
| | | Topock - | | | | | | |
| 151 | | Bedrock - | | | | | | |
| | | Metadiorite | | | | | | |
| 152 | | | | | | | | |
| | | | | | | | | |
| 153 | | | | | | | | |
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| 154 | | | | | | | | |
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| 155 | | | | | | | | |
| 156 | | | | | | | | |
| 156 | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| 158 | | Topock - | | | | | | |
| | | Bedrock - Metadiorite | | | | | | |
| 159 | | | | | | | | |
| Abbrev | viations: U | ISCS = Unified | Soil C | lassificat | ion System, ft = feet, bgs | = below ground surface, | amsl = above mean | sea level, GW = |
|) | | | | | | ents depth to water measu | | |
| installe | ed in MW- | 70BR-287 | | | | | | |

| 9/ | ARC | DIS Design & for natural built asset | Consultancy al and ets | | Well Const | ruction L | og | | Sheet: | 9 of | 15 |
|--|------------------------|--|------------------------------|--|---|-----------------|---|--------------------------------------|------------|------------------|--|
| Date S | Started: | 11/14/2019 | | | _Surface Elevation: | 538.53 ft amsl | | Well ID: | MW-70 | 3R-287 | |
| Date (| Completed: | 07/07/2020 | | | _Shallow Well Elevation: | NA ft amsl | | | | | |
| Drilling | g Co.: | Cascade | | | _Deep Well Elevation: | 538.28 ft amsl | | Client: <u>F</u> | G&E | | |
| Drilling | g Method: | Sonic Drilling | | | _Northing (NAD83): | 2100512.18 | | Project: F | inal GW R | <u>temedy Pl</u> | hase 1 |
| Driller | Name: | E. Ramos / J. | Herna | ndez | _Easting (NAD83): | 7615832.54 | | Location: <u>F</u> | G&E Topo | ock, Need | <u>lles, California</u> |
| Drilling | g Asst: | FS/JC/JS | | | _Borehole Diameter: | 3.8-12 inches | | | | | |
| Logge | | GW / RC / SN | Λ | | _Static Water Level: | See Log for De | epths | Project Number: <u>RC000753.0051</u> | | | |
| Editor | : | Sean McGran | | | Development End Date: 7/24/2020 | | | | | | |
| Total I | Depth: | 287 ft bgs | | | _Well Completion: | | Stick-up 🗌 | To Be Compl | eted in We | ll Vault | |
| Depth (ft) | Groundwat Sample II | | USCS | USCS Class | Well C | onstruction | | Calculated Material Volum | Note: | : percentage | mes Installed es are the actual Iculated volume |
| | | Topock - Bedrock - Metadiorite | | | (+0.4 - 240.1') — 4.5" PVC Sch 80 Inner Sleeve Casing (114.0 - 235.0') Bentonite seal pellets Pel-Plug (TR30) 3/8" | 5.5" P\ Conduc | 4 - 237.0') VC Sch 80 ctor Casing | (114.0 - 235.105.54 bucke | Note: | Bentonite se | 4 buckets (89%) eal across screen kisting wells. |
| 172_ 173_ 174_ 175_ 176_ 176_ 177_ 178_ 4 hhre | eviations: II | Bedrock - Metadiorite Topock - Bedrock - Metadiorite | NR Soil C | la selficial de la selficial d | ion System, ft = feet, bgs | = below ground | d surface an | nsl = above m | ean sea le | vel GW = | |
| | | | | | lion System, π = teet, bgs vater table symbol represe | | | | | | |
| : - | | | , NOLE | s. piue V | valer lable symbol represe | ans achin io Ma | ater medsuff | za aumiy belc | ie nie spe | опо сара | oily i c si, |
| Justall | ed in MW- | UDR-20/ | | | | | | | | | |

| 9/ | ARC4 | DIS Design & for natura built asset | Consultancy al and ts | | Well Const | ruction L | _og | | She | et: 10 d | of 15 |
|---------------|-----------------------------|--|-----------------------------|---------------|---|--------------------------------------|---|------------------------------|------------|-----------------|---|
| Date S | Started: | 11/14/2019 | | | _Surface Elevation: | 538.53 ft ams | sl | - Well ID | : MW-7 | 70BR-287 | |
| Date C | Completed: | 07/07/2020 | | | _Shallow Well Elevation: | NA ft amsl | | | | | |
| Drilling | g Co.: | Cascade | | | _Deep Well Elevation: | 538.28 ft ams | sl | Client: <u>I</u> | PG&E | | |
| Drilling | Method: | Sonic Drilling | | | _Northing (NAD83): | 2100512.18 | | Project: <u>I</u> | Final GW | / Remedy F | Phase 1 |
| Driller | Name: | E. Ramos / J. | Herna | ndez | _Easting (NAD83): | 7615832.54 | | Location: <u>l</u> | PG&E To | opock, Nee | dles, California |
| Drilling | | FS/JC/JS | | | _Borehole Diameter: | 3.8-12 inches | | | | | |
| | .ogger: <u>GW / RC / SM</u> | | _Static Water Level: | See Log for D | Depths | Project Number: <u>RC000753.0051</u> | | | | | |
| Editor: | | Sean McGran | | | _Development End Date: | | | | | | |
| Total [| Depth: | 287 ft bgs | ı | | _Well Completion: | | Stick-up | To Be Comp | leted in \ | Well Vault | |
| Depth (ft) | Groundwat Sample II | | Code | USCS Class | Well C | onstruction | | Calculated Material Volum | | ote: percentag | umes Installed ges are the actual alculated volume |
| 180 | | Topock - Bedrock - Metadiorite Topock - Bedrock - Metadiorite | NR | | (+0.4 - 240.1') 4.5" PVC Sch 80 Inner Sleeve Casing (184.5 - 185.5') Centralizer (114.0 - 235.0') Bentonite seal pellets Pel-Plug (TR30) 3/8" | 5.5" f Condi | .4 - 237.0') PVC Sch 80 uctor Casing .0 - 237.0') " Borehole | (114.0 - 235 105.54 buck | .U) Nia | te: Bentonite s | 94 buckets (89%) seal across screen existing wells. |
| ; | | Metadiorite | | 137 | | | | | | | |
| 199 | | | | | | | | | | | |
| | viations: U | SCS = Unified | Soil C | lassificat | tion System, ft = feet, bgs | = below aroun | id surface, an | nsl = above n | nean sea | level. GW | = |
| | | | | | vater table symbol represe | | | | | | |
| | ed in MW- | - | , | | | | | | | , oup | ,, |
| riscand | III IVIVV | JD: (-201 | | | | | | | | | |

| 9/ | \RC^ | Design & for natura built asse | Consultancy Land | | Well Const | ruction Log | ; | Sheet: 11 of 15 |
|---------------|----------------------|--|---------------------|-----------|---|--|------------------------------------|---|
| Date S | | 11/14/2019 | | | _Surface Elevation: | 538.53 ft amsl | Well ID: M\ | W-70BR-287 |
| | | : 07/07/2020 | | | _Shallow Well Elevation: | NA ft amsl | | |
| Drilling | | Cascade | | | _Deep Well Elevation: | 538.28 ft amsl | Client: PG&I | |
| _ | Method: | Sonic Drilling | | | _Northing (NAD83): | 2100512.18 | | GW Remedy Phase 1 |
| Driller I | | E. Ramos / J. | Hernai | ndez | _Easting (NAD83): | 7615832.54 | Location: <u>PG&</u> | E Topock, Needles, California |
| Drilling | | FS/JC/JS | | | _Borehole Diameter: | 3.8-12 inches | | |
| Logger | | GW/RC/SN | | | _Static Water Level: | See Log for Depths | Project Numbe | r: RC000753.0051 |
| Editor: | | Sean McGran | <u>e</u> | | _Development End Date: | | | : \A/- \ / 4 |
| Total D | epin: | 287 ft bgs | | | _Well Completion: | | To Be Completed | in weii vauit |
| Depth (ft) | Groundwa Sample I | | USCS Code | USCS | | onstruction | Calculated Material Volumes | Material Volumes Installed Note: percentages are the actual volume vs the calculated volume |
| 201 | | Topock - Bedrock - Metadiorite Topock - Bedrock - Metadiorite | NR | | (+0.4 - 240.1') 4.5" PVC Sch 80 Inner Sleeve Casing (114.0 - 235.0') Bentonite seal pellets Pel-Plug (TR30) 3/8" | — (+0.4 - 237.0') 5.5" PVC Sch 80 Conductor Casing — (32.0 - 237.0') 10.0" Borehole | (114.0 - 235.0') 105.54 buckets | (114.0 - 235.0') 94 buckets (89%) Note: Bentonite seal across screen intervals of existing wells. |
| 218 | | Bedrock - | | 1551 | | | | |
| | | Metadiorite | | | | | | |
| | | | | 於為 | | | | |
| <u> </u> | /iations: I | ISCS = Unified | Soil CI | assificat | ion System ft = feet has | = below ground surface, ar | msl = ahove mean | sea level GW = |
|) | | | | | • | = below ground surface, ar ents depth to water measur | | |
| ≥ = | | R = no recovery 70BR-287 | , NOIE | s. DIUE V | vater table symbol represe | ento ueptir to water measur | ed duning belore th | ie specific capacity test, |
| Sin Stalle | a iii ivivv- | 10011-201 | | | | | | |
| # [| | | | | | | | |
| | | | | | | | | |

| 9/ | 4RC4 | DIS Design & for natura built asse | Consultancy l and ts | | Well Const | ruction Log | ; | Sheet: 12 of 15 |
|---------------|------------------------|--|----------------------------|-----------|---|---|--|--|
| Date S | Started: | 11/14/2019 | | | _Surface Elevation: | 538.53 ft amsl | Well ID: MI | W-70BR-287 |
| Date 0 | Completed: | 07/07/2020 | | | _Shallow Well Elevation: | NA ft amsl | | |
| Drilling | Co.: | Cascade | | | _Deep Well Elevation: | 538.28 ft amsl | Client: PG&E | Ξ |
| _ | = | Sonic Drilling | | | _ Northing (NAD83): | 2100512.18 | | GW Remedy Phase 1 |
| _ | - | E. Ramos / J. | Hernar | ndez | _Easting (NAD83): | 7615832.54 | | E Topock, Needles, California |
| Drilling | | FS /JC / JS | rioiriai | 1402 | _Borehole Diameter: | 3.8-12 inches | 200410111. <u>1 041</u> | <u> </u> |
| Logge | | GW / RC / SN | 1 | | Static Water Level: | See Log for Depths | — Project Numbe | r: RC000753.0051 |
| Editor: | | Sean McGran | | | _Otatic vvater Level. _Development End Date: | | i iojectivanibe | 1. 1.0000733.0031 |
| | Depth: | | C | | _Development End Date. _Well Completion: | | To Be Completed | in Wall Vault |
| TOTAL | Јерин. | 287 ft bgs | | | _ well Completion. | △ Flusii | To be Completed | III VVEII Vault |
| Depth (ft) | Groundwat Sample ID | | Code | USCS | | onstruction | Calculated Material Volumes | Material Volumes Installed Note: percentages are the actual volume vs the calculated volume |
| | | Topock - Bedrock - Metadiorite Topock - Bedrock - Metadiorite Topock - Bedrock - Metadiorite | | | (114.0 - 235.0') 4.5" PVC Sch 80 Inner Sleeve Casing (114.0 - 235.0') Bentonite seal pellets Pel-Plug (TR30) 3/8" (232.0 - 233.0') Centralizer (236.0 - 237.0') Shale Trap (235.0 - 240.1') Portland Cement 5% Bentonite Type I, II, and V with Hydrogel | (32.0 - 237.0') 5.5" PVC Sch 80 Conductor Casing (32.0 - 237.0') 10.0" Borehole (238.0 - 238.5') 4.62" Borehole (238.0 - 238.5') | (114.0 - 235.0') 105.54 buckets (235.0 - 240.1') 60 gallons | (235.0 - 240.1') 60 gallons (100%) Note: Bentonite seal across screen intervals of existing wells. (235.0 - 240.1') 60 gallons (100%) Note: The 60 gallons of grout was installed in the 4" inch PVC sleeve. The grout was then pressurized to push the grout out into the formation and annulus space between the sleeve and the bottom. |
| 239 |] | | | 1 | | (238.5 - 240.1') 4.62" Borehole | | |
| | viations: II | SCS - Unified | Sail O | ossificat | ion System ft - feet has | 2 V//AL | mel = above mess | soa lovol GW = |
| 5 | | | | | | = below ground surface, a | | |
| : — | | | ; Notes | s: blue v | vater table symbol represe | ents depth to water measu | red during before th | ne specific capacity test; |
| install | ed in MW-7 | 70BR-287 | | | | | | |

| 9/ | 4RC4 | Design & for natura built asset | Consultancy all and ts | | Well Const | ruction Log | | Sheet: 13 of 15 |
|---------------|-----------------------|--------------------------------------|------------------------------|---|---|---|--------------------------------|---|
| Date S | Started: | 11/14/2019 | | | _Surface Elevation: | 538.53 ft amsl | Well ID: M | W-70BR-287 |
| Date 0 | Completed: | 07/07/2020 | | | _Shallow Well Elevation: | NA ft amsl | | |
| Drilling | g Co.: | Cascade | | | _Deep Well Elevation: | 538.28 ft amsl | Client: PG& | E |
| _ | g Method: | _ | | | _Northing (NAD83): | 2100512.18 | • | GW Remedy Phase 1 |
| | Name: | E. Ramos / J. | <u>Herna</u> | ndez | _Easting (NAD83): | 7615832.54 | Location: <u>PG&</u> | <u>E Topock, Needles, California</u> |
| _ | g Asst: | FS/JC/JS | _ | | _Borehole Diameter: | 3.8-12 inches | <u> </u> | |
| Logge | | GW/RC/SN | | | _Static Water Level: | See Log for Depths | Project Numbe | er: RC000753.0051 |
| Editor | | Sean McGran | ie | | _Development End Date | | | 1 · AA7 HA7 H |
| lotali | Depth: | 287 ft bgs | | | _Well Completion: | | To Be Completed | i in vveii vauit |
| Depth (ft) | Groundwa Sample II | | OSCS Code | USCS | Well C | Construction | Calculated Material Volumes | Material Volumes Installed Note: percentages are the actual volume vs the calculated volume |
| 240 | | | | | | (238.5 - 240.1') 4.62" Borehole | (235.0 - 240.1') 60 gallons | |
| 241 | | | | | | ; (2); (3); (3); | | |
| | _ | Topock - Bedrock - Metadiorite | | | | (240.1 - 258.0') 4.62" Open Borehole | | |
| 243 | | | | | | * | | |
| 244 | - - | | | | | | | |
| 245 | | | NR | | | | | |
| 246 | | | | | | | | |
| 247 | | | | | | | | |
| 248 | 1 | | | | | | | |
| 249 | | | | | | | | |
| | | | | | (240.1 - 287.0') Metadiorite bedrock | | | |
| | - | Topock - Bedrock - Metadiorite | | | | | | |
| | _ | | | | | | | |
| | | | | | | | | |
| 254 | | | | | | | | |
| | | | | | | | | |
| | 1 | | | | | | | |
| | - | | | | | | | |
| | | | | | | | | |
| 258 | 1 | | | | | (258.0 - 287.0') 3.8" Open Borehole | | |
| _259_ | - | 1000 - 11-:5 | 0-::0 | <u> \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\</u> | lian Contam # = f= t ! | 2 2 2 2 2 | | and lavel CW = |
| | | | | | | = below ground surface, am ents depth to water measure | | |
| | ed in MW- | | , 11016 | o. Diue V | vator table symbol repres | onto dopar to water measure | od during belore th | to opcome eapaoity test, |

| 9 | ARC ⁴ | Design & for natura built asset | Consultancy al and ets | | Well Const | ruction Log | 5 | Sheet: 14 of 15 |
|------------------|------------------------|---------------------------------|------------------------------|-----------|---------------------------|-----------------------------|--------------------------------|---|
| Date | Started: | 11/14/2019 | | | _Surface Elevation: | 538.53 ft amsl | Well ID: MV | N-70BR-287 |
| Date | Completed: | 07/07/2020 | | | _Shallow Well Elevation: | NA ft amsl | VVeil ib. iviv | V-70DIX-207 |
| Drillin | g Co.: | Cascade | | | _Deep Well Elevation: | 538.28 ft amsl | _ Client: PG&E | <u> </u> |
| Drillin | g Method: | Sonic Drilling | | | _Northing (NAD83): | 2100512.18 | _ Project: Final | GW Remedy Phase 1 |
| Drille | r Name: | E. Ramos / J. | Herna | ndez | _Easting (NAD83): | 7615832.54 | Location: PG&E | E Topock, Needles, California |
| Drillin | g Asst: | FS/JC/JS | | | _Borehole Diameter: | 3.8-12 inches | | |
| Logg | er: | GW/RC/SM | Л | | _Static Water Level: | See Log for Depths | Project Number | r: RC000753.0051 |
| Edito | r: | Sean McGran | <u>ie</u> | | _Development End Date: | | | |
| Total | Depth: | 287 ft bgs | | | _Well Completion: | | To Be Completed | in Well Vault |
| Depth (ft) | Groundwar Sample II | | USCS | USCS | Well C | onstruction | Calculated Material Volumes | Material Volumes Installed Note: percentages are the actual volume vs the calculated volume |
| 260_ 261_ | | | | | | | | |
| 262_ | | | | | | | | |
| | | | | | | | ▼ | |
| | | | | | | | | |
| _265_ | | | | | | | | |
| | | | | | | | | |
| _266_ | | | | | | | | |
| <u>.</u> | | | | | | 2 2 2 2 | | |
| 267_ | | | | 於為 | | | | |
| <u>.</u> | | | | | | | | |
| _268_ | | | | | | | | |
| | | Topock - | | 1331 | | | | |
| _269_ | | Bedrock - | | | (240.1 - 287.0') | (258.0 - 287.0') | | |
| - | _ | Metadiorite | | | Metadiorite bedrock | 3.8" Open Borehole | | |
| _270_ | _ | | | 333 | | | | |
| - | _ | | | | | | | |
| _271_ | | | | | | | | |
| | | | | | | ; (() | | |
| _272_ | - | | | | | | | |
| 273_ | | | | | | | | |
| <u> </u> | - | | | | | | | |
| _274_ | - | | | | | | | |
| <u> </u> | - | | | | | : 512 | | |
| _275_ | - | | | | | | | |
| | - | | | | | | | |
| _276_ | - | | | | | | | |
| | \dashv | | | | | 1.22 | | |
| _277_ | \dashv | | | | | | | |
| | \dashv | | | | | 1 3 4 | | |
| _278_ | - | | | | | | | |
| - | \dashv | | | | | : 334 (334 | | |
| _279_ | _ | | | | | | | |
| | | | | | | = below ground surface, am | | |
| | | | /; Note | s: blue v | vater table symbol repres | ents depth to water measure | ed during before th | e specific capacity test; |
| ınstal | lled in MW- | /UBK-287 | | | | | | |

| 9/ | \RC^ | DIS Design & for natural built ass | Consultancy ral and ets | | Well Consti | ruction Log | | Sheet: 15 of 15 |
|---------------|------------------------|------------------------------------|-------------------------------|---------------|---------------------------------------|--|--------------------------------|---|
| Date S | | 11/14/2019 | | | _Surface Elevation: | 538.53 ft amsl | Well ID: MI | N-70BR-287 |
| Date C | completed: | 07/07/2020 | | | _Shallow Well Elevation: | NA ft amsl | | |
| Drilling | Co.: | Cascade | | | _Deep Well Elevation: | 538.28 ft amsl | Client: PG&I | <u> </u> |
| Drilling | Method: | Sonic Drilling | | | _Northing (NAD83): | 2100512.18 | Project: Final | GW Remedy Phase 1 |
| Driller I | Name: | E. Ramos / J | . Hernar | ndez | _Easting (NAD83): | 7615832.54 | Location: PG&I | E Topock, Needles, California |
| Drilling | Asst: | FS/JC/JS | | | _Borehole Diameter: | 3.8-12 inches | | |
| Logge | | GW / RC / SI | М | | _Static Water Level: | See Log for Depths | Project Numbe | r: RC000753.0051 |
| Editor: | | Sean McGrai | ne | | | | • | |
| Total D | Depth: | 287 ft bgs | | | Well Completion: | ⊠ Flush ☐ Stick-up ☐ | To Be Completed | in Well Vault |
| Depth (ft) | Groundwat Sample II | | USCS | USCS Class | Well Co | onstruction | Calculated Material Volumes | Material Volumes Installed Note: percentages are the actual volume vs the calculated volume |
| | | | | 7,7,7,7,7 | | | | |
| 281 | | | | | | | | |
| | | | | | | | | |
| 300 | | Topock - Bedrock - | | | | | | |
| 283 | | Metadiorite | | | (240.1 - 287.0') Metadiorite bedrock | (258.0 - 287. <mark>0'</mark>) 3.8" Open Borehol | е | |
| 284 | | | | | | | | |
| _285 | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| 2 | | | | | Tagged Total Depth After | 7.1 | | 1 |
| _288 | | | | | Clean Out 287 ft.bgs | | | |
| 289 | | | | | | | | |
| | | | | | | | | |
| _290 | | | | | | | | |
| _291 | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| _294_ | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| _296 | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| <u> </u> | /iations: U | ISCS = Unified | Soil Cl | assificat | ion System. ft = feet. bas | = below ground surface, a | msl = above mean | sea level. GW = |
|) | | | | | | ents depth to water measu | | |
| : - | | 70BR-287 | ,, | | , | , | | 1 |

| 9/ | ARC | ADIS | Design & Co for natural a built assets | onsultancy and | | Ro | ck C | Corin | ng Log | She | eet: 1 of | 20 |
|----------------------|-----------------|--|--|-----------------------|----------------------------------|---------------------|-------------------|-----------------------------|---|---------------------------------------|---|--------------------------------|
| Date S | Started: | 10/23/2 | | | | Surface | | | 538.53 ft amsl | Boring No.: | MW-70B | R-D |
| | - | ted: <u>11/19/</u> 2 | | | | Northing | | | 2100512.18 | - | | |
| Drilling | | <u>Casca</u> | | | | Easting | • | 33): | 7615832.54 | Client: PG&E | A/ Damadı / Di | 1 |
| _ | Metho g Type | | - | ar Trac | | Total De Borehol | - | otor. | 288.7 ft bgs 3.8-12 inches | Project: Final G\ Location: PG&E | N Remedy Pl | |
| | Name: | | | | | | | | 79.6 ft bgs | Californ | - | 1100, |
| Drilling | | FS/JC | | 1101110 | ITIGOL | Sonic D | | vvator. | 10 ft Core Barrel | Project Number: | |)51 |
| Logge | | GW / F | | Л | | Samplin | - | val: | Continuous | Bedrock Sampling | | |
| Editor: | | Sean N | /lcGrar | ne | | Convert | ed to V | Vell: | | | | |
| Depth (ft) | Recovery | Drilling Run and Average Penetration Rate | RQD (%) | Fractures Per Foot | Geologic Formation | USCS | USCS Class | | Soil Description | | Drilling Notes | Drilling Fluid and Properties |
| 1 | 0.0 in. 0.0% | | | | Topock - Alluvium Deposits | NR | | (0.0 - 7 | .0') Topock - Alluvium Deposits; No re | covery (NR) | (0.0 - 7.0') Very soft drilling with 9" core barrel. Very loose material fell out of core barrel once brought up to the drill deck for sample retrieval. (0.0 - 190.0') Rough drilling advancing 10" casing | (0.0 - 27.0') No water used |
| 7 8 9 10 11 12 13 14 | 120 in. 100% | | | | Topock - Alluvium Deposits | SM | | (SM); p angula subang | 4.0") Topock - Alluvium Deposits; Silty ale yellow (2.5Y 7/4); very fine grained ros ubround; some granules to very la gular to subround; little silt; trace clay; og; some red staining on gravel clasts | I to coarse grained, arge pebbles, | (7.0 - 17.0') Normal drilling with 9" core barrel. | |
| _15_ | | | | | | | <u> : : : </u> | | | | | |

| 9/ | ARC | A | DIS | Design & Co for natural a built assets | nsultancy and | | Ro | ck Corii | ng Log | | Sheet: 2 of | 20 |
|--------------------|-----------------|---------|--|--|-----------------------|-----------------------|----------|------------------|--|------------------------|--|----------------------------------|
| | Started: | | 10/23/2 | | | | | Elevation: | 538.53 ft amsl | Boring N | o.: <u>MW-70E</u> | BR-D |
| | • | ted: | <u>11/19/2</u> | | | | | g (NAD83): | 2100512.18 | | | |
| _ | Co.: | | Cascac | | | | Easting | (NAD83): | 7615832.54 | Client: PG8 | | |
| _ | Metho | | Sonic [| | | | Total D | • | 288.7 ft bgs | - | l GW Remedy P | |
| | д Туре | | Boart L | | | | | e Diameter: | 3.8-12 inches | | <u> RE Topock, Need</u> | dles, |
| | Name: | | E. Ram | | Herna | | | o First Water: | _ | | fornia | |
| _ | Asst: | | FS/JC | | | | Sonic D | - | 10 ft Core Barrel | - | er: RC000753.00 | |
| ogge | | | GW / F | | | | • | ig Interval: | Continuous | Bedrock Sam | oling: <u>HQ3 Core</u> | Barrel |
| Editor: | | | Sean N | /lcGrar | | | Conver | ed to Well: | | | | |
| Depth (ft) | Recovery | and Pen | ing Run Average etration Rate | RQD (%) | Fractures Per Foot | Geologic Formation | USCS | USCS | Soil Description | | Drilling Notes | Drilling Fluid and Properties |
| _16 _17 | 120 in. 100% | | | | | | | | | | (17.0 - 27.0') Rough drilling with 9" core | |
| _18 | | | | | | | | | 106/ | | barrel. | |
| _ | | | | | | Topock - Alluvium | SM | | | | | |
| _20 | | | | | | Deposits | | | | | | |
| | | | | | | | | | | | | |
| _ | | | | | | | | | | | | |
| _21 | | | | | | | | | | | | |
| _ | | | | | | | | | | | | |
| 22 | 120 in. | | | | | | | | | | | |
| | 100% | | | | | | | | | | | |
| - | | | | | | | | | | | | |
| _23 | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| _ | | | | | | | | | | | | |
| _24 | | | | | | | | | 29.0') Topock - Alluvium Deposits; Silt | | | |
| _ | | | | | | | | (SM), I | ght olive brown (2.5Y 5/3) some light y 6/4); very fine grained to coarse graine | ellowish brown | | |
| _25 | | | | | | | | ∷ ∷ subrou | nd; some granules to very large pebble nd; little silt; trace small cobbles, angu | es, angular to | | |
| | | | | | | | | stainin | g; some red staining on gravel clasts | ,, | | |
| - | | | | | | | | | | | | |
| _26 | | | | | | | | | | | | |
| _ | | | | | | Topock - Alluvium | SM | | | | | |
| 27 | | | | | | Deposits | Civi | | | | | |
| _27 | | | | | | | | | | | (27.0 - 35.0') | (27.0 - 77.0') |
| - | | | | | | | | | | | Tight drilling with 9" core | 55 gallons of water used; 0 |
| _28 | | | | | | | | | | | barrel. Soil inside core | gallons of water |
| | 96 in. | | | | | | | | | | barrel swelled up. | recovered; 55 |
| _ | 100% | | | | | | | | | | | water lost |
| _29 | | | | | | | | (29.0 - | 35.0') Topock - Alluvium Deposits; Silt | y sand with gravel | | |
| _ | | | | | | Topock - Alluvium | SM | ∴ ∴ (SM), I | ght olive brown (2.5Y 5/3) some pink (I to very coarse grained, angular to sub | 7.5YR 7/3); very fine | e | |
| 30 | | | | | | Deposits | | granule | es to large pebbles, angular to subangu | ular; some silt; trace | • | |
| bbre | viations | s: US | SCS = L | Inified | Soil Cla | assification | Systen | n, ft = feet, bg | s = below ground surface, ams | sl = above mear | sea level, GW = | : |
| roun | dwater | NR | = no red | covery; | Notes | s: blue wat | er table | symbol repre | sents depth to water measured | prior to well rep | pair; wells MW-70 | 0BR-287 |
| 4 - 11 - | d in bo | reho | le | | | | | | | | | |

| Drilling Co.: Cascade | חפ |
|--|--|
| Date Completed: 11/19/2019 Northing (NAD83): 7615832_54 Client: PG&E Drilling Method: Sonic Drilling Total Depth: 288.7.ft bgs Project: Einal GW. Remedy. Pha Boart Longvear Track Borehole Diameter: 3.8-12 inches Location: PG&E Toppock, Needle California Drilling Asst: FS./J.C./J.S Sonic Drilling: 10 ft Core Barrel Project Number: RC000753.005 Seam McGrane Converted to Well: Yes No Drilling Notes Indiang Indiang Notes Indiang Indiang Notes Indiang Indiang Notes Indiang Indiang Indiang Notes Indiang In | \- D |
| Drilling Method: Drill Rig Type: Boart Longvear Track Borehole Diameter: 3.8-12 inches Location: PG&E Topock, Needle California Project: Final GW Remedy Pha Borehole Diameter: 3.8-12 inches Location: PG&E Topock, Needle California Project Number: RC000753.005 California Project Number: RC000753.005 California Project Number: RC000753.005 California Project Number: RC000753.005 Bedrock Sampling: HQ3 Core Bi Sampling Interval: Converted to Well: Yes No Soil Description Drilling Run Project Number: RC000753.005 Drilling Run Project Number: RC000753.005 Bedrock Sampling: HQ3 Core Bi Sampling Interval: Converted to Well: Yes No Soil Description Drilling Notes Bedrock Sampling: HQ3 Core Bi Soil Description Drilling Notes Bedrock Sampling: HQ3 Core Bi Soil Description Drilling Notes Bedrock Sampling: HQ3 Core Bi Soil Description Drilling Notes Bedrock Sampling: HQ3 Core Bi Soil Description Drilling Notes Bedrock Sampling: HQ3 Core Bi Soil Description Drilling Notes Bedrock Sampling: HQ3 Core Bi Soil Description Drilling Notes Bedrock Sampling: HQ3 Core Bi Soil Description Drilling Notes Bedrock Sampling: HQ3 Core Bi Soil Description Drilling Notes Bedrock Sampling: HQ3 Core Bi Soil Description Drilling Notes Bedrock Sampling: HQ3 Core Bi Soil Description Drilling Notes Bedrock Sampling: HQ3 Core Bi Soil Description Drilling Notes Bedrock Sampling: HQ3 Core Bi Soil Description Drilling Notes Bedrock Sampling: HQ3 Core Bi Soil Description Drilling Run Bedrock Sampling: HQ3 Core Bi Soil Description Drilling Run Bedrock Sampling: HQ3 Core Bi Soil Description Drilling Run Bedrock Sampling: HQ3 Core Bi Soil Description Drilling Run Bedrock Sampling: HQ3 Core Bi Soil Description Drilling Run Bedrock Sampling: HQ3 Core Bi Soil Description Drilling Run Bedrock Sampling: HQ3 Core Bi Soil Description Drilling Run Bedrock Sampling: HQ3 Core Bi Soil Description Drilling Run Bedrock Sampling: HQ3 Core Bi Soil Description Bedrock Sampling: HQ3 Core Bi Soil Description Bedrock Sampling: | <u> </u> |
| Drill Rig Type: Driller Name: Driller Name: Driller Name: Driller Start Longver Track Depth to First Water: Driller Asst: Degger: GW / RC / SM Sampling Interval: Converted to Well: Sean McGrane Converted to Well: Sean McGrane Drilling Run and Average Penetration Rate Drilling Run and Average Penetration Rate Topock-Alluvium Deposits: SIM Deposits SM Deposits SM Deposits SM Deposits Drilling Name Similar Simil | 4 |
| Driller Name: E. Ramos / J. Hernandez Depth to First Water: 79.6 ft bgs California Drilling Asst: FS: /J.C. / J.S. Sonic Drilling: 10 ft Core Barrel Project Number: Rc000753.005 Logger: GW / RC / SM Sampling Interval: Continuous Bedrock Sampling: HQ3 Core Barrel Ecition: Sean McGrane Converted to Well: ☑ Yes ☐ No Fig. 2 Drilling Run and Average Penetration Sampling Interval: Soli Description Drilling Notes | |
| Drilling Asst: | , , , , , , , , , , , , , , , , , , , |
| Sampling Interval: Continuous Bedrock Sampling: HQ3 Core Bare Editor: Sean McGrane Converted to Well: Yes No No | 51 |
| Solid Description Drilling Notes Drilling Run and Average Penetration Rate Drilling Notes Solid Description Drilling Notes Dri | |
| Clay, dry, mottled; strong cementation; iron oxide staining; gravel clasts predominantly metadiorite, metadiorite partially weathered with red staining on most clasts Topock-Alluvium Deposits SM Dep | |
| clasts predominantly metadiorite, metadiorite partially weathered with red staining on most clasts Topock-Alluvium Deposits SM Deposits SM Deposits SM Deposits SM Deposits (35.0 - 37.0') Topock - Alluvium Deposits; Silty sand with gravel (SM); brown (7.5YR 5/4); very fine grained to very coarse grained; little granules to large pebbles, angular to subround; little silt; trace clay, dry; weak cementation; iron oxide staining (37.0 - 45.0') Topock - Alluvium Deposits; Well graded sand with percentage of the percentage of th | Drilling Fluid and Properties |
| Topock - Alluvium Deposits SM SM Core Deposits Core Deposits SM Core Deposits SM Core Deposits SM Core Deposits SM Core Deposits Core Deposite Deposits Core Deposite Deposits Core Deposi | |
| 38 | (35.0 - 160.0') 3750 gallons of water used; 5500 gallons of water recovered; 3250 gallons of water lost |
| | |
| 45 | |

| 9/ | ARC | ADIS | Design & Co for natural a built assets | nsultancy and | | Ro | ck C | Corir | ng Log | S | heet: 4 of | 20 |
|---------------|--------------|--|--|-----------------------|--|----------|---------------|--|---|---|---|----------------------------------|
| Date S | Started: | 10/23/2 | 2019 | | | Surface | Elevat | ion: | 538.53 ft amsl | Boring No. | .: <u>MW-70B</u> | R-D |
| Date 0 | Comple | ted: <u>11/19/2</u> | 2019 | | | Northing |) (NAD | 83): | 2100512.18 | Borning 140 | <u>IVIVV-70D</u> | <u>11-D</u> |
| Drilling | Co.: | Cascac | de | | | Easting | (NAD8 | 33): | 7615832.54 | Client: PG&E | | |
| Drilling | Metho | od: <u>Sonic [</u> | Drilling | | | Total De | epth: | | 288.7 ft bgs | Project: Final 0 | GW Remedy Pl | nase 1 |
| Drill Ri | ід Туре | : <u>Boart L</u> | ongye | ar Trac | <u>k</u> | Borehol | e Diam | eter: | 3.8-12 inches | Location: PG&E | Topock, Need | les, |
| Driller | Name: | E. Ram | <u>nos / J.</u> | Herna | ndez | Depth to | First \ | Water: | 79.6 ft bgs | Çalifo | rnia | |
| Drilling | Asst: | FS/JC | /JS | | | Sonic D | rilling: | | 10 ft Core Barrel | Project Number | : RC000753.00 |)51 |
| Logge | r: | <u>GW / F</u> | RC/SN | / | | Samplin | g Inter | val: | Continuous | Bedrock Sampli | ng: <u>HQ3 Core</u> | Barrel |
| Editor: | | Sean M | <u>/IcGran</u> | ie | | Convert | ed to V | Vell: | Yes □ No | | | |
| Depth (ft) | Recovery | Drilling Run and Average Penetration Rate | RQD (%) | Fractures Per Foot | Geologic Formation | Code | USCS Class | | Soil Description | | Drilling Notes | Drilling Fluid and Properties |
| 46 | 138 in. 115% | Rate | | | Topock - Alluvium Deposits Topock - Alluvium Deposits Topock - Alluvium Deposits | SM SM | | (53.0 - (SC); bi subrour subrour subrour subrour subrour subrour subrour subrour weak co (55.0 - (5M); regrained angular cobbles to very | 53.0') Topock - Alluvium Deposits; Siltyrown (7.5YR 5/3); very fine grained to rice subround; little granules to large pend; little coarse to very coarse grained ad; little silt; trace small to large cobble and; trace clay; dry; weak cementation and; trace clay; dry; weak cementation are compared to recommend to the compared to recommend to subround; little granules to large cobbles; little clay; trace small to large pebbles, signated to recommend the granules to large cobbles, angular to very coarse grained sand; trace clay attory coarse grained sand, angular to subround; little clay; trace sand and coarse grained sand, angular to subround; iron oxide staining | yey sand with gravel medium grained, subles, angular to sand, angular to sand, angular to sand; angular to sand; angular to sand; angular to sand; trace silt; dry; y sand (SM); reddish grained, subround to round; to subround; trace y; dry; weak y sand with gravel sed to medium olarge pebbles, small to large round; trace coarse | (47.0 - 57.0') Normal drilling with 9" core barrel. | |
| 60 | | | | | | | | | | | | |

| / | | | DIS | Design & Co for natural a built assets | | | | | oring Log | | 3116 | et: 5 of | 20 |
|---------------|----------------|------------|---|--|-----------------------|--------------------------|----------|---------------|---|------------------|------------------|----------------------------------|----------------------------|
| | started: | | 10/23/2 | | | | Surface | | | Boring | No.: | MW-70B | R-D |
| | • | ted: | 11/19/2 | | | | Northing | | • | | | 1 | |
| _ | Co.: | | Cascac | | | | Easting | • | | | PG&E | | |
| _ | Metho | | Sonic [| • | | | Total De | • | 288.7 ft bgs | - | | N Remedy P | |
| | g Type | | Boart L | | | | Borehol | | | | | opock, Need | lles, |
| | Name: | | E. Ram | | Herna | <u>indez</u> | Depth to | First \ | Vater: 79.6 ft bgs | | <u>Çaliforni</u> | | |
| rilling | Asst: | | FS/JC | | | | Sonic D | _ | 10 ft Core Barrel | • | | RC000753.00 | |
| ogge | | | GW/F | | | | Samplin | - | | Bedrock S | ampling | : HQ3 Core | Barrel |
| ditor: | | | Sean M | /lcGrar | ne | | Convert | ed to V | ′ell: ⊠ Yes □ No | | | | |
| Depth (ft) | Recovery | and Pen | ing Run Average letration Rate | RQD (%) | Fractures Per Foot | Geologic Formation | USCS | USCS | Soil Description | | | Drilling Notes | Drilling Flu and Proper |
| | | | | | | Tanaak | SM | | (60.3 - 61.0') Topock - Alluvium Deposits; We | ell graded grave | اد | | |
| - | | | | | | Topock - Alluvium | GM | | (GM); boulder | graueu grav | J1 | | |
| .61 | | | | | | Deposits | | | (04.0, 02.01) Tar. II. All. II. D. III. | | | | |
| | | | | | | | | | (61.0 - 63.0') Topock - Alluvium Deposits; Cla (SW-SC); reddish brown (5YR 5/4); medium | pebbles to med | dium | | |
| - | | | | | | Topock - | | | grained, angular to subround; some granules angular to subround; little clay; trace small to | to large pebble | es, | | |
| 62 | | | | | | Alluvium | SW-SC | | angular to subround; trace boulders, round; tr | ace coarse to | | | |
| | | | | | | Deposits | | | coarse grained sand, angular to subround; tra moderate cementation; iron oxide staining | ice silt; dry; | | | |
| | | | | | | | | | | | | | |
| 63 | | | | | | | | | (63.0 - 67.0') Topock - Alluvium Deposits; We | ell graded sand | with | | |
| | 120 in. | | | | | | 1 | | gravel (SW-SM); reddish brown (5YR 5/4); ve | ry fine grained | to | | |
| | 100% | | | | | | | | medium grained, angular to subround; some pebbles, angular to subround; trace small to l | arge cobbles, | | | |
| 64 | | | | | | | | | angular to subround; trace boulders, round; tr coarse grained sand; dry; moderate cementa | ace coarse to | | | |
| _ | | | | | | | | | staining | iion, iion oxide | | | |
| | | | | | | Topock - | | | | | | | |
| 35 | | | | | | Alluvium Deposits | SW-SM | | | | | | |
| _ | | | | | | Deposits | | | | | | | |
| 00 | | | | | | | | | | | | | |
| 66 | | | | | | | | | | | | | |
| _ | | | | | | | | | | | | | |
| .67 | | | | | | | | | | | | | |
| .07 | | | | | | | | | (67.0 - 74.0') Topock-metadiorite; GLEY1 2.5 | | | (67.0 - 72.0') | |
| _ | | | | | | | | 12/2/3 | slightly to moderately weathered; hard to very grained to very coarse grained; massive; fractions | | | Core barrel filled with soil | |
| .68 | | | | | | | | | close to close; iron oxide staining; = 1 mm</td <td>green/black ma</td> <td>atrix</td> <td>from moving</td> <td></td> | green/black ma | atrix | from moving | |
| .00 | | | | | | | | | with zones of 1 to 4 mm white phenocrysts ar white phenocrysts, intensely fractured, intens | ely veined | nm | casing down 10'. Only able | |
| _ | | | | | | | | | | | | to proceed 5' in drilling. | |
| 69 | | | | | | · · | | | | | | Potential | |
| 00 | | | | | | | | | | | | bedrock contact. | |
| _ | 60 in. 100% | | | | | | | | | | | | |
| 70 | 10070 | | | | | | | 1 | | | | | |
| | | | | | | | | | | | | | |
| - | | | | | | Topock - | | | | | | | |
| 71 | | | | | | Bedrock - Metadiorite | | | | | | | |
| | | | | | | ivietadionte | 1 | | | | | | |
| - | | | | | | | | | | | | | |
| 72_ | | | | | | | | | | | | | |
| | | | | | | | | | | | | (72.0 - 77.0') Rough drilling | |
| - | | | | | | | 1 | | | | | with 9" core | |
| 73 | | | | | | | 1 | | | | | barrel. Drilled through and | |
| | 24 in | | | | | | 1 | 1500 | | | | pulverized | |
| - | 24 in. 40% | | | | | | 1 | | | | | rock poor recovery. | |
| 74 | | | | | | | -L | | | | | | |
| | | | | | | | | \setminus / | (74.0 - 77.0') No recovery; see drilling notes | | | | (74.0 - 77. 5 gallons |
| - | | | | | | | NR | X | | | | | water used |
| 75 | | | | | | | | $V \setminus$ | | | | | gallons o |
| | | | | | | | | | et, bgs = below ground surface, ams | | | | |
| | ducator | NR | = no red | coverv: | Notes | s: blue wat | er table | symbo | represents depth to water measured | prior to we | Il repair: | wells MW-70 |)BR-287 |
| ound | ıwater | , 1411 | 110 100 | , , | | o. 10.1010 1.1011 | | • | [| | <u>'</u> | | |

| 9/ | \R C | | <u>DIS</u> | Design & Co for natural a built assets | nsultancy and | | Ro | ck C | Cori | ng Log | <u> </u> | | | She | eet: 6 of | 20 |
|------------------|-----------------|-------|---------------------------------------|--|-----------------------|--------------------------------------|----------|---------------|---|---|--|---|---|----------------|--|--|
| | started | | 10/23/2 | | | | Surface | | | 538.53 ft a | | | Borin | g No.: | MW-70B | R-D |
| | • | | <u>11/19/2</u> | | | | Northin | | | 2100512. | | | | | | |
| Orilling | | | <u>Cascac</u> | | | | Easting | • | 33): | <u>7615832.</u> | | | Client: | PG&E | | |
| | Metho | | Sonic [| • | | | Total D | • | | 288.7 ft bo | • | | Project: | | N Remedy P | |
| | д Туре | | <u>Boart L</u> | ٠. | | | Boreho | | | 3.8-12 inc | | | Location: | | Гороск, Need | lles, |
| | Name: | | E. Ram | | Herna | | - | | Water: | 79.6 ft bgs | | | | Californ | | |
| rilling | Asst: | | FS /JC | | | | Sonic D | • | | 10 ft Core | | | • | | RC000753.00 | |
| .ogge | | | <u>GW / F</u> | | | | Samplir | • | | Continuou | | | Bedrock | Sampling | g: <u>HQ3 Core</u> | Barrel |
| ditor | | | Sean N | <u>/IcGran</u> | | | Conver | ted to V | Vell: | × Yes | No | | | | | 1 |
| Depth (ft) | Recovery | and A | ng Run Average etration Rate | RQD (%) | Fractures Per Foot | Geologic Formation | USCS | USCS Class | | | Soil Des | scription | | | Drilling Notes | Drilling Fluid and Properties |
| _ _76 | 24 in. 40% | | | | | | NR | | | | | | <u> </u> | | | water recovered; 5 gallons of water lost |
| _77 | | | | | | | | | sliahtly | 82.0') Topock to moderately to very coars | weathered: | hard to very | hard: very fir | ie i | (77.0 - 82.0') Rough drilling, refusal with 9" | (77.0 - 127.0') 7880 gallons of water used; |
| .78_ <u>_</u> | | | | | | | | | close to with zo | o close; iron on nes of 1 to 4 no henocrysts, in | xide stai <mark>nin</mark> g nm wh <mark>ite</mark> ph | j; = 1 mm g<br enocrysts an | reen/black n d 0.25 to 1.0 | natrix | core barrel, switch to 8" core barrel and 9" casing. | 7630 gallons of water recovered; 250 gallons of |
| 79 | | | | | | Topock - Bedrock - Metadiorite | | | | | | | | • | , | water lost |
| 30 | | | | | | Wordanie | | | | | | | | | | |
| - 81 | | | | | | | | | | | | | | | | |
| _82 | 84 in. 70% | | | | | | | | (82.0 - | 85.0') No reco | overy; see dr | illing notes | | | (82.0') Normal drilling | |
| _83 | | | | | | | | | | | | | | | with 8" core barrel. Material washout from 82' to 85' as | |
| _84 | | | | | | | NR | | | | | | | | noted by driller, explains no recovery. (84.0 - 87.0') | |
| _85 | | | | | | | | | (85.0 - | 87.0') Topock | -metadiorite | ; GLEY1 2.5/ | 6 and GLEY | 1 8/1; | Rough drilling with 8" core barrel. | |
| _ _86 _ | | | | | | Topock - Bedrock - Metadiorite | | | grained close to with zo white p | to moderately to very coars o close; iron on nes of 1 to 4 n thenocrysts, in ance of iron ox | e grained; m xide staining nm white ph itensely fract | nassive; fract ı; = 1 mm ç<br enocrysts an | ure spacing v green/black n d 0.25 to 1.0 | very natrix | | |
| _87 - _88_ | | | | | | | NR | | (87.0 - | 89.0') No reco | overy; see dr | illing notes | | | (87.0 - 89.0') Bedrock pulverized and washed out to surface in | |
| 89 | 96 in. 80% | | | | | | INIX | | | | | | | | order to advance bit. | |
| 69 | | | | | | Topock - Bedrock - Metadiorite | | | slightly grained | 97.0') Topock to moderately to very coars o close; iron o | weathered; e grained; m | hard to very nassive; fract | hard; very fir ure spacing | very | | |
| Abbre | | | | | | | | | | | | | | | a level, GW = | |
| | | | | covery; | Notes | s: blue wate | er table | symbo | l repre | sents depth | to water | measured | prior to w | ell repair; | wells MW-70 |)BR-287 |
| nstalle | ed in bo | oreho | le | | | | | | | | | | | | | |

| 9/- | ۱RC | ADIS | Design & Co for natural a built assets | ensultancy and | | Ro | ck C | Corin | ng Log | Sh | eet: 7 of | 20 |
|--|---------------|--|--|-----------------------|--------------------------------------|----------|---------------|--|---|---|-----------------------|-------------------------------|
| Date S | | | 2019 | | | Surface | Elevat | ion: | 538.53 ft amsl | Boring No. | MW-70B | R-D |
| | - | ted: <u>11/19/2</u> | | | | Northing | - ' | | 2100512.18 | _ | 10.000 | |
| Drilling | | Cascac | | | | Easting | • | 33): | 7615832.54 | Client: PG&E | | |
| Drilling | | | _ | | | Total De | - | 4 | 288.7 ft bgs | • | W Remedy Pl | |
| Drill Ri Driller l | | | | | | Borehol | | | 3.8-12 inches 79.6 ft bgs | Location: <u>PG&E</u> Califorr | - | iles, |
| Drilling | | E. Raii FS/JC | | Пента | inuez | Sonic D | | vval e i. | 10 ft Core Barrel | _ | |)51 |
| Logge | | <u>10730</u> GW / F | | / | | Samplin | - | val· | Continuous | _ Project Number. _ Bedrock Samplin | | |
| Editor: | | Sean M | | | | Convert | - | | | _ Bodrook Gampiiin | g. <u></u> | |
| Depth (ft) | Recovery | Drilling Run and Average Penetration Rate | RQD (%) | Fractures Per Foot | Geologic Formation | USCS | USCS Class | | Soil Description | | Drilling Notes | Drilling Fluid and Properties |
| 91 92 93 94 95 96 97 | 96 in. 80% | | | | Topock - Bedrock - Metadiorite | | | white p | nes of 1 to 4 mm white phenocrysts ar henocrysts, intensely fractured, intens | ely veined | | |
| 98 | 96 in. 80% | | | | Topock - Bedrock - Metadiorite | | | slightly grained close to with zo | 105.0') Topock-metadiorite; GLEY1 2. to moderately weathered; hard to very to very coarse grained; massive; fractoclose; iron oxide staining; = 1 mm enes of 1 to 4 mm white phenocrysts are the neocrysts, intensely fractured, very in the neocrysts are the neocrysts.</td <td>hard; very fine ture spacing very green/black matrix nd 0.25 to 1.0 mm</td> <td></td> <td></td> | hard; very fine ture spacing very green/black matrix nd 0.25 to 1.0 mm | | |

| 9/ | AR(| CADIS | Design & Co for natural a built assets | onsultancy and | | Ro | ck C | oring Log | S | heet: 8 of | 20 |
|---------------|-----------------|--|--|-----------------------|--------------------------------------|----------|-----------------|---|---|---|----------------------------------|
| Date S | Started | 10/23/2 | 2019 | | | Surface | Elevat | on: <u>538.53 ft amsl</u> | Boring No | .: <u>MW-70B</u> | R-D |
| Date (| Comple | eted: 11/19/2 | 2019 | | | Northing | g (NAD | 83): <u>2100512.18</u> | Borning 110 | <u></u> | <u> </u> |
| Drilling | g Co.: | Casca | de | | | Easting | (NAD8 | 3): <u>7615832.54</u> | Client: PG&E | <u> </u> | |
| Drilling | g Metho | od: <u>Sonic [</u> | Drilling | | | Total De | epth: | 288.7 ft bgs | Project: Final 0 | GW Remedy Pl | nase 1 |
| Drill R | ig Type | e: <u>Boart L</u> | <u>ongye</u> | ar Trad | ck | Borehol | le Diam | eter: 3.8-12 inches | Location: PG&E | Topock, Need | lles, |
| Driller | Name: | E. Ran | <u>nos / J.</u> | Herna | andez | Depth to | o First \ | Vater: 79.6 ft bgs | <u>Çalifo</u> ı | <u>nia</u> | |
| Drilling | g Asst: | FS /JC | /JS | | | Sonic D | _ | 10 ft Core Barrel | Project Number | RC000753.00 |)51 |
| Logge | er: | <u>GW / F</u> | | | | Samplin | ng Inter | | Bedrock Sampli | ng: <u>HQ3 Core</u> | Barrel |
| Editor | : | Sean N | <u>/lcGran</u> | | | Convert | ed to V | Vell: ⊠ Yes □ No | | | |
| Depth (ft) | Recovery | Drilling Run and Average Penetration Rate | RQD (%) | Fractures Per Foot | Geologic Formation | Code | USCS Class | Soil Description | | Drilling Notes | Drilling Fluid and Properties |
| 106 | 96 in. 80% | | | | | NR | | (105.0 - 107.0') No recovery; see drilling notes | | (105.0 - 107.0') Bedrock pulverized and washed out to surface in order to advance bit. | |
| 108 | - | | | | | | | (107.0 - 112.0') Topock-metadiorite, GLEY1 2 slightly to moderately weathered; hard to very grained to coarse grained; massive; fracture sclose; iron oxide staining; = 1 mm green/bla of 1 to 4 mm white phenocrysts and 0.25 to 2. phenocrysts, intensely fractured, intensely vein</td <td>hard; very fine spacing very close to ck matrix with zones 0 mm white</td> <td>(107.0 - 117.0') Dry drilled for bottom 2 ft to get full recovery for run, resulted in sluff in</td> <td></td> | hard; very fine spacing very close to ck matrix with zones 0 mm white | (107.0 - 117.0') Dry drilled for bottom 2 ft to get full recovery for run, resulted in sluff in | |
| 109 | - | | | | Topock - Bedrock - Metadiorite | | | | | bottom 2 ft of core. | |
| 111 | 120 in. | | | | | | | | | | |
| 113 | 100% | | | | | | | (112.0 - 117.0") Topock-metadiorite; GLEY1 2 slightly to moderately weathered; hard to very grained to coarse grained; massive; fracture s close; iron oxide staining; = 1 mm green/bla to 2.0 mm white phenocrysts, intensely fracture veined</td <td>hard; very fine spacing very close to lck matrix with 0.25</td> <td></td> <td></td> | hard; very fine spacing very close to lck matrix with 0.25 | | |
| 114 | - | | | | Topock - Bedrock - Metadiorite | | | | | | |
| 116 | - | | | | | | | | | | |
| 117118119 | 120 in. 100% | | | | Topock - Bedrock - Metadiorite | | 1 | (117.0 - 121.0') Topock-metadiorite; GLEY1 2 slightly to moderately weathered; hard to very grained to coarse grained; massive; fracture s close; iron oxide staining; = 1 mm green/bla to 2.0 mm white phenocrysts, intensely fracture veined</td <td>hard; very fine spacing very close to lick matrix with 0.25</td> <td>(117.0 - 127.0') Dry drilled for bottom 2 ft to get full recovery for run, resulted in sluff in bottom 2 ft of core.</td> <td></td> | hard; very fine spacing very close to lick matrix with 0.25 | (117.0 - 127.0') Dry drilled for bottom 2 ft to get full recovery for run, resulted in sluff in bottom 2 ft of core. | |
| 120 Abbro | viation | . USCS - I | Inified | Sail Cl | assification | System | 1555 2 # = f | et has = helow around surface ams | l = abovo moon o | les level CW = | |

| 9/ | \R(| ADIS | Design & Office of the Control of th | Consultancy l and ts | | Ro | ck C | Corin | ng Log | Sh | eet: 9 of | 20 |
|------------------|-----------------|---|--|----------------------------|--------------------------------------|--------------------|---------|---------------------|--|---------------------------------------|--|--|
| | Started: | | 3/2019 | | | Surface | Elevat | ion: | 538.53 ft amsl | Boring No. | · MW_70B | R-D |
| | | ted: <u>11/1</u> | 9/2019 | | | Northing | g (NAC | 83): | 2100512.18 | | . <u>14144 702</u> | |
| Drilling | | Caso | | | | Easting | • | 33): | 7615832.54 | Client: PG&E | | |
| _ | Metho | | <u>c Drilling</u> | | | Total De | • | | 288.7 ft bgs | - | W Remedy P | |
| | д Туре | | ٠. | | | Borehol | | | 3.8-12 inches | Location: PG&E | • | lles, |
| | Name: | | | . Herna | | - | | Water: | 79.6 ft bgs | Californ | | \ |
| Drilling | | | JC/JS | N / | | Sonic D | _ | | 10 ft Core Barrel | Project Number: | | |
| Logge Editor: | | | / RC / S n McGra | | | Samplin Convert | - | | Continuous | Bedrock Samplin | g: <u>HQ3 Core</u> | Barrei |
| Euiloi. | | | | | | Conven | eu io v | v en. | △ res 🗀 NO | | | |
| Depth (ft) | Recovery | Drilling Rui and Averag Penetration Rate | pe 뭐좋 | Fractures Per Foot | Geologic Formation | USCS | USCS | | Soil Description | | Drilling Notes | Drilling Fluid and Properties |
| | | | | | Topock - Bedrock - Metadiorite | | | | | | | |
| 121 | | | | | | | | slightly grained | - 127.0') Topock-metadiorite; GLEY1 2 to moderately weathered; hard to very to very coarse grained; massive; fract | hard; very fine cure spacing very | | |
| _122_ | | | | | | | | with zo white p | o close; iron oxide staining; = 1 mm ones of 1 to 4 mm white phenocrysts and henocrysts, intensely fractured, in</td <td>d 0.25 to 1.0 mm</td> <td></td> <td></td> | d 0.25 to 1.0 mm | | |
| | | | | | | | | 1 | <i>"</i> • • • • • • • • • • • • • • • • • • • | | | |
| _123_ | | | | | Topock - | | | 1 | | | | |
| | 120 in. 100% | | | | Bedrock - | | | } | | | | |
| _124 | | | | | Metadiorite | • | | 1 | | | | |
| | | | | | | | | } | | | | |
| | | | | | | | | 1 | | | | |
| _125 | | | | | | | | 1 | | | | |
| | | | | | | | | | | | | |
| _126_ | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | 12/2/ | | | | | |
| 127 | | | | | | | 777 | (127.0 | - 133.0') Topock-metadiorite; GLEY1 2 | 2.5/4 and GLEV1.8/1: | (127.0 - | (127.0 - 167.0') |
| | | | | | | | 333 | slightly | to moderately weathered; hard to very to very coarse grained; massive; fract | hard; very fine | 137.0') Dry drilled for | 4750 gallons of water used; |
| _128_ | | | | | | | | close to zones | o close; iron oxide staining; = 1 mm of<br of 1-10 mm white phenocrysts and 0.2 rysts, intensely fractured, intensely vei | green/black matrix, 5-1.0 mm white | bottom 2 ft to get full recovery for | 4000 gallons of water recovered; 750 |
| | | | | | | | | red) (127.5 | - 133.0'); 10R 6/8; Light red mineral pro | esent, coarse to very | run, resulted in sluff in | gallons of water lost |
| _129 | | | | | | | | | phenocrysts 0.5 to 5 mm | , | bottom 2 ft of core. | |
| | | | | | Topode | | |] | | | | |
| | | | | | Topock - Bedrock - | | | | | | | |
| 130 | | | | | Metadiorite | : | |] | | | | |
| | | | | | | | | | | | | |
| _131 | 120 in. | | | | | | | } | | | | |
| | 100% | | | | | | | 1 | | | | |
| | | | | | | | | 1 | | | | |
| _132_ | | | | | | | | 1 | | | | |
| | | | | | | | | } | | | | |
| _133 | | | | | | | | 1 | | | | |
| 133 | | | | | | | 1,3, | | - 137.0') Topock-metadiorite; GLEY1 2 | | | |
| - | | | | | | | | grained | to moderately weathered; hard to very to very coarse grained; massive; fract | ure spacing very | | |
| _134 | | | | | Topock - Bedrock - | | | with zo | o close; iron oxide staining; = 1 mm ones of 1 to 4 mm white phenocrysts an</td <td>d 0.25 to 1.0 mm</td> <td></td> <td></td> | d 0.25 to 1.0 mm | | |
| | | | | | Metadiorite | : | | white p | henocrysts, intensely fractured, intense | ely veined (white and | | |
| | | | | | | | | <u> </u> | | | | |
| _135_ | | | | <u> </u> | l | | 131/2 | <u> </u> | | | | l . |

| - /- | $\mathcal{A}\mathcal{H}\mathcal{C}$ | AL | 215 | Design & Co for natural a built assets | ind | | Ro | CK C | oring Log | | She | eet: 10 of | 20 |
|------------------------|-------------------------------------|---------------|------------------------------------|--|-----------------------|--------------------------------------|----------|---------------|---|--|--|---|-------------------------------|
| ate S | tarted: | - | 10/23/2 | 2019 | | | Surface | Elevation | n: <u>538.53 ft amsl</u> | Borin | a No: | MW-70B | R-D |
| | • | ted: <u>:</u> | 11/19/2 | 2019 | | | Northing | g (NAD8 | (3): <u>2100512.18</u> | | 9 | <u></u> | |
| | Co.: | | Cascac | de | | | Easting | (NAD8 | 3): <u>7615832.54</u> | Client: | PG&E | | |
| rilling | Metho | d: <u>\$</u> | Sonic D | <u>Orilling</u> | | | Total De | epth: | 288.7 ft bgs | Project: | Final G | W Remedy P | hase 1 |
| rill Ri | g Type | : <u>J</u> | <u> Boart L</u> | ongye: | ar Trac | ck | Borehol | le Diame | eter: 3.8-12 inches | Location: | PG&E | <u> Fopock, Need</u> | lles, |
| riller | Name: | j | E. Ram | <u>nos / J.</u> | Herna | ndez | Depth to | o First V | /ater: <u>79.6 ft bgs</u> | | Californ | <u>ia</u> | |
| rilling | Asst: | <u> </u> | FS /JC | /JS | | | Sonic D | rilling: | 10 ft Core Barrel | Project N | umber: | RC000753.00 | 051 |
| ogge | r: | 9 | GW/R | RC/SN | 1 | | Samplin | ng Interv | al: <u>Continuous</u> | Bedrock : | Sampling | g: HQ3 Core | Barrel |
| ditor: | | 5 | Sean M | <u>1cGran</u> | e | | Convert | ed to W | ell: 🗵 Yes 🗌 No | | | | |
| Depth (ft) | Recovery | and A Pene | ng Run verage tration ate | RQD (%) | Fractures Per Foot | Geologic Formation | USCS | USCS Class | Soil Description | | | Drilling Notes | Drilling Flui and Properti |
| _ 136 _ | 120 in. 100% | | | | | Topock - Bedrock - Metadiorite | | | | N | | | |
| 137 | | | | | | | | | (137.0 - 140.0') Topock-metadiorite; GLEY1 2 | | | | |
| - 138_ | | | | | | Topock - Bedrock - | | | slightly to moderately weathered; hard to very grained to very coarse grained; massive; fract close to close; iron oxide staining; = 1 mm with zones of 1 to 4 mm white phenocrysts are white phenocrysts, intensely fractured, intensely</td <td>ure spacing v green/black m d 0.25 to 1.0</td> <td>very natrix</td> <td></td> <td></td> | ure spacing v green/black m d 0.25 to 1.0 | very natrix | | |
| - 139 | | | | | | Metadiorite | | | | | | | |
| 140_ | | | | | | | | | (140.0 - 146.0') Topock-metadiorite; GLEY1 2 slightly to moderately weathered; hard to very grained to very coarse grained; massive; fract | hard; very fin | ie | | |
| 141 <u> </u> | | | | | | | | | with some zones of 1 to 4 mm white phenocrysts, intensely f | green/black m /sts and zone | natrix s of | | |
| 142_ - | 108 in. 90% | | | | | Topock - Bedrock - | | | | | | | |
| 143_ | | | | | | Metadiorite | | | | | | | |
| _144 _ _145_ | | | | | | | | | | | | | |
| _146 | | | | | | | | | (146.0 - 147.0') No recovery; see drilling note | . _ | | (146.0 - | |
| _ _147 | | | | | | | NR | X | (147.0 - 157.0') Topock-metadiorite; GLEY1 2 | | EV1 8/1: | 147.0') Bedrock pulverized and washed out to | |
| _ _148 _ _149 | 120 in. 100% | | | | | Topock - Bedrock - Metadiorite | | | slightly to moderately weathered; hard to very crystalline to very coarse grained; massive; fr close to close; iron oxide staining; very fine to 1 mm green/black matrix with zones of coarse 4 mm white phenocrysts and zones of mediur grained, intensely fractured, intensely veined | hard; very fin acture spacin coarse grain e to very coars | ely g very ed = se 1 to</td <td>surface in order to advance bit. (147.0 - 157.0') Dry drilled for bottom 2 ft to get full recovery for run, resulted</td> <td></td> | surface in order to advance bit. (147.0 - 157.0') Dry drilled for bottom 2 ft to get full recovery for run, resulted | |
| - 150 | | | | | | | | | | | | in sluff in bottom 2 ft of core. | |
| | /iations | : US | CS = U | Inified : | Soil Cl | assification | System | n, ft = fe | et, bgs = below ground surface, ams | sl = above i | mean se | a level, GW = | : |
| | | | | | | | | | represents depth to water measured | | | | |

| ARC | CADIS | Design & Co for natural a built assets | nsultancy and | | Ro | ck C | orii | ng Log | | She | et: 11 of | 20 |
|---------------------------|--|--|-----------------------|--------------------------------------|----------|---------------|--|--|--|-----------------------|--|--|
| Date Started | : <u>10/23/2</u> | 2019 | | | Surface | Elevati | ion: | 538.53 ft amsl | Borin | a No . | MW-70B | R-D |
| Date Comple | eted: <u>11/19/2</u> | 2019 | | | Northing | g (NAD | 83): | 2100512.18 | DOI | g 110 | INIAA-1 OD | <u> </u> |
| Drilling Co.: | Cascac | de | | | Easting | (NAD8 | 3): | 7615832.54 | Client: | PG&E | | |
| Drilling Metho | od: <u>Sonic [</u> | Drilling | | | Total De | epth: | | 288.7 ft bgs | Project: | Final G\ | N Remedy Pl | nase 1 |
| Drill Rig Type | e: <u>Boart L</u> | ongye | ar Trac | ck | Borehol | e Diam | eter: | 3.8-12 inches | Location: | PG&E 1 | Topock, Need | lles, |
| Driller Name: | E. Ram | <u>nos / J.</u> | Herna | ındez | Depth to | First V | Nater: | 79.6 ft bgs | - | <u>Californ</u> | ia | |
| Drilling Asst: | FS/JC | /JS | | | Sonic D | rilling: | | 10 ft Core Barrel | Project N | umber: <u>I</u> | RC000753.00 |)51 |
| Logger: | <u>GW / F</u> | RC/SN | / | | Samplin | g Interv | val: | Continuous | Bedrock | Sampling | g: HQ3 Core | Barrel |
| Editor: | <u>Sean M</u> | <u>/lcGran</u> | ie | | Convert | ed to V | Vell: | | | | | |
| Depth (ft) Recovery | Drilling Run and Average Penetration Rate | RQD (%) | Fractures Per Foot | Geologic Formation | USCS | USCS Class | | Soil Description | | | Drilling Notes | Drilling Fluid and Properties |
| | | | | Topock - Bedrock - Metadiorite | 1 | | | | | , | | |
| | | | | Topock - Bedrock - Metadiorite | | | slightly grained close t with so 0.25 to | - 167.0') Topock-metadiorite; GLEY1 2 to moderately weathered; hard to very d to very coarse grained; massive; fract o close; iron oxide staining; = 1 mm graph and the process of 1 to 4 mm white phenocrysts, fractured, 1.0 mm white phenocrysts, fractured, 1.0 mm white phenocrysts, fractured, 1.10 mm white phenocrysts, fractured, 1.1</td <td>hard; very fin ture spacing v green/black m ysts and zone intensely vein</td> <td>e very latrix s of ed</td> <td>(157.0 - 167.0') Dry drilled for bottom 2 fit to get full recovery for run, resulted in sluff in bottom 2 ft of core.</td> <td>(160.0 - 190.0') 3000 gallons of water used; 2000 gallons of water recovered; 1000 gallons of water lost</td> | hard; very fin ture spacing v green/black m ysts and zone intensely vein | e very latrix s of ed | (157.0 - 167.0') Dry drilled for bottom 2 fit to get full recovery for run, resulted in sluff in bottom 2 ft of core. | (160.0 - 190.0') 3000 gallons of water used; 2000 gallons of water recovered; 1000 gallons of water lost |

| | | AD | | Design & Co for natural a built assets | ind | | | ck Corir | | | She | eet: 12 of | 20 |
|---------------|-----------------|--|----------------|--|-----------------------|--|----------|---------------------------------|--|--|---------------------------|--------------------------------|--|
| | Started: | |)/23/2 | | | | | Elevation: | 538.53 ft amsl | Borin | g No.: | MW-70E | BR-D |
| | • | ted: <u>11</u> | | | | | | g (NAD83): | 2100512.18 | | | | |
| | Co.: | | ascad | | | | - | (NAD83): | 7615832.54 | _ Client: | PG&E | | _ |
| _ | Metho | | | <u>Orilling</u> | | | Total D | • | 288.7 ft bgs | Project: | | N Remedy P | |
| | g Type | | | ongye | | | | le Diameter: | 3.8-12 inches | _ Location: | | <u> Fopock, Need</u> | dles, |
| | Name: | | | | Herna | | • | o First Water: | • | - | Californ | | |
| rilling | Asst: | | S /JC | | | | Sonic D | • | 10 ft Core Barrel | - , | | RC000753.00 | |
| ogge | | | | C/SN | | | • | ng Interval: | Continuous | Bedrock | Sampling | g: HQ3 Core | Barrel |
| ditor: | | <u>Se</u> | ean M | <u>lcGran</u> | | | Conver | ted to Well: | | | | | |
| Depth (ft) | Recovery | Drilling and Ave Penetra Rate | erage ation | RQD (%) | Fractures Per Foot | Geologic Formation | USCS | USCS | Soil Description | | | Drilling Notes | Drilling Flui and Properti |
| _ _166 | 120 in. 100% | | | | | Topock - Bedrock - Metadiorite | | | | ٨ | | | |
| 167 | | | | | | | | (167.0 | - 176.0') Topock-metadiorite; GLEY1 | 2 5/4 and GLF | Y1 8/1: | | (167.0 - 207 |
| - 168 _ | | | | | | | | slightly grained close to | to moderately weathered; hard to very to very coarse grained; massive; frac o close; iron oxide staining; = 1 mm nes of 1 to 5 mm white phenocrysts al henocrysts, intensely fractured, intensely</td <td>hard; very fin ture spacing v green/black m d 0 25 to 1 0</td> <td>e /ery natrix mm</td> <td></td> <td>4333 gallons water used 2750 gallons water recovered 1583 gallons water lost</td> | hard; very fin ture spacing v green/black m d 0 25 to 1 0 | e /ery natrix mm | | 4333 gallons water used 2750 gallons water recovered 1583 gallons water lost |
| 169 <u> </u> | | | | | | | | | | | | | |
| 170 | | | | | | Topock - | | | | | | (170.0 - | (170.0 - 237 |
| | | | | | | Bedrock - | | | | | | 237.0') | 4360 gallons |
| | | | | | | Metadiorite | : | | | | | Used approximately | water used |
| 171 | | | | | | | | | | | | 90 gallons of hydrogel | water recovered |
| _ | | | | | | | | | | | | bentonite mud | 2035 gallon |
| 172_ | 108 in. | | | | | | | | | | | to flush fines out of | water los |
| .112 | 90% | | | | | | | 1920 | | | | borehole. Hydrogel was | 90 gallons |
| _ | | | | | | | | | | | | recovered during flushing | slurry used |
| 173 | | | | | | | | | | | | with clean | bentonite |
| | | | | | | | | | | | | water. | slurry recovered: |
| - | | | | | | | | | | | | | gallons o |
| 174 | | | | | | | | | | | | | bentonite slurry los |
| | | | | | | | | | | | | | |
| _ | | | | | | | | | | | | | |
| 175_ | | | | | | | | | | | | | |
| _ | | | | | | | | | | | | | |
| 176_ | | | | | | | | | | | | | |
| 170_ | | | | | | | | (176.0 | - 177.0') No recovery; see drilling note | s | | (176.0 - | 1 |
| | | | | | | | NR | $ \times $ | | | | 177.0') Bedrock | |
| 177 | | | | | | L | <u>L</u> | | | | | pulverized and washed out to | |
| | | | | | | | | | - 187.0') Topock-metadiorite; GLEY1: to moderately weathered; hard to very | | | surface in | |
| _ | | | | | | | | grained | to very coarse grained; massive; frac | ture spacing v | ery/ | order to advance bit. |] |
| 178 | | | | | | | | √ > ` with zo | o close; iron oxide staining; = 1 mm<br nes of 1 to 5 mm white phenocrysts a | nd 0.25 to 1.0 | mm | (177.0 - 187.0') | |
| | 120 in. | | | | | Topock - | | white p | henocrysts, intensely fractured, intensation | ety veined, zo | nes of | Dry drilled for bottom 2 ft to | |
| | 100% | | | | | Bedrock - Metadiorite | | | | | | get full | |
| 179 | | | | | | , ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | | | | | | recovery for run, resulted | |
| _ | | | | | | | | | | | | in sluff in bottom 2 ft of | |
| 100 | | | | | | | | | | | | core. | |
| 180 bbrev | viations | : USC | S = I I | nified : | Soil Cl | ı | Systen | n. ft = feet ba | s = below ground surface, ams | sl = above i | mean sea | a level GW = | <u> </u> |
| | | | | | | | | | sents depth to water measured | | | | |
| | | | | , | | | | · 1 - | | | , | | - |

| - /- | 4KC | Άl | DIS | Design & Co for natural a built assets | nsuttancy ind | | Ro | ck Co | ring Log | | She | et: 13 of | 20 |
|------------------|-----------------|---------------------|---------------------------------------|--|-----------------------|--------------------------------------|--------------|--|--|---|-----------------|---|---|
| | started: | | 10/23/2 | | | | | Elevation | | Borina | No.: | MW-70B | R-D |
| | | | <u>11/19/2</u> | | | | | g (NAD83 | | _ | | | <u></u> |
| Drilling | | | Cascac | | | | _ | (NAD83): | | | G&E | | |
| _ | Metho | | Sonic [| - | | | Total D | • | 288.7 ft bgs | - | | V Remedy Pl | |
| | д Туре | | Boart L | | | | | le Diamete | | | | opock, Need | les, |
| | Name: | | E. Ram | | Herna | | - | | ter: 79.6 ft bgs | | <u>aliforni</u> | | \F.4 |
| _ | Asst: | | FS /JC | | | | Sonic E | • | 10 ft Core Barrel | - | | RC000753.00 | |
| .ogge Editor: | | | GW / F | | | | - | ng Interval: ted to Wel | | _ Bedrock Sa | mpling | : HQ3 Core | Barrei |
| -allor. | | | | lcGran | | | Conver | led to vvei | i. A res I No | | | | |
| Depth (ft) | Recovery | and <i>i</i> Pen | ng Run Average etration Rate | RQD (%) | Fractures Per Foot | Geologic Formation | nscs Code | USCS | Soil Description | | | Drilling Notes | Drilling Fluid and Properties |
| 181 | | | | | | | | | 31.0 - 184.5'); Intact cores ranging from 1 | .0' to 1.25' | | | |
| _102 | | | | | | Topock - Bedrock - Metadiorite | | | | | | | |
| _183 | 120 in. 100% | | | | | | | | | ▼ | | | |
| _184 | | | | | | | | | | | | | |
| _185 | | | | | | | | | | | | | |
| _186 | | | | | | | | | | | | | |
| _187 | | | | | | | | | 37.0 - 193.5') Topock-metadiorite; GLEY' ghtly to moderately weathered; hard to ve | | 8/1; | (187.0 - 197.0') | |
| 188 | | | | | | | | gr doc wi | ginly to inductacy weathers, had to be alined to very coarse grained; massive; fir se to close; iron oxide staining; = 1 mn<br th zones of 1 to 4 mm white phenocrysts ite phenocrysts, intensely fractured, inter formation | octure spacing very n green/black matr and 0.25 to 1.0 mn | ix า | Rock core fell out of core barrel when tripping out, required | |
| _189 | | | | | | | | | | | | overdrilling for recovery, pulverized and washed away bottom of | |
| _190 | | | | | | | | | | | | core. (190.0 - 217.0') Rough drilling | (190.0 - 217.0' 3750 gallons o water used; |
| _191 | 78 in. 65% | | | | | Topock - Bedrock - Metadiorite | : | 7, | | | | advancing 10" casing | 2750 gallons of water recovered; 1000 gallons of water lost |
| _192 | | | | | | | | | | | | | |
| _193 | | | | | | | | | .= | | | | |
| _194 | | | | | | | NR | (1) | 93.5 - 197.0') No recovery; see drilling no | tes | | | |
| 195 | viationa | · 110 | CS - 1 | nified | Soil Cl | assification | Sveton | n ft – foot | bgs = below ground surface, an | nel = ahovo mo | an soc | | |
| | | | | | | | | | presents depth to water measure | | | | 1BR_227 |
| | | reho | | JO VOI Y, | 140163 | J. DIUC WA | .o. labie | Syrribor 16 | Processor deput to water measure | A PITOL TO WELL | opali, | VVOIIS IVIVV-/C | ,DI (ZUI |

| 9/ | ARC | ADIS | Design & Co for natural a built assets | ensultancy and | | Ro | ck C | orir | ng Log | Sh | eet: 14 of | 20 |
|--------------------|-----------------|--|--|-----------------------|--------------------------------------|----------|--|---|---|---|---|--|
| Date S | Started: | 10/23/2 | 2019 | | | Surface | Elevat | ion: | 538.53 ft amsl | Boring No. | : MW-70B | R-D |
| Date 0 | Comple | ted: <u>11/19/</u> 2 | 2019 | | | Northing | g (NAD | 83): | 2100512.18 | 2011119 1101 | · <u></u> | |
| Drilling | Co.: | Casca | de | | | Easting | (NAD8 | 3): | 7615832.54 | Client: PG&E | | |
| Drilling | Metho | od: <u>Sonic I</u> | Drilling | | | Total De | epth: | | 288.7 ft bgs | Project: Final G | W Remedy Pl | nase 1 |
| Drill Ri | ig Туре | : <u>Boart L</u> | _ongye | ar Trad | <u>k</u> | Borehol | e Diam | eter: | 3.8-12 inches | Location: PG&E | Topock, Need | les, |
| Driller | Name: | E. Ran | <u>nos / J.</u> | Herna | ındez | Depth to | First \ | Water: | 79.6 ft bgs | <u>Çaliforr</u> | nia | |
| Drilling | Asst: | FS/JC | /JS | | | Sonic D | rilling: | | 10 ft Core Barrel | Project Number: | RC000753.00 |)51 |
| Logge | r: | <u>GW / F</u> | RC/SN | / | | Samplin | g Inter | val: | Continuous | Bedrock Samplin | g: HQ3 Core | Barrel |
| Editor: | | <u>Sean N</u> | /lcGran | ne | | Convert | ed to V | Vell: | Yes □ No | | | |
| Depth (ft) | Recovery | Drilling Run and Average Penetration Rate | RQD (%) | Fractures Per Foot | Geologic Formation | Code | USCS Class | | Soil Description | | Drilling Notes | Drilling Fluid and Properties |
| 196 197 | 78 in. 65% | | | | | NR | | /107.0 | | ELGA O FOLONA | (407.0 | |
| 198 | | | | | | | \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\ | slightly grained close to with zo 0.25 to veined | - 207.0') Topock-metadiorite; GLEY1 2 to moderately weathered; hard to very 4 to very coarse grained; massive; fraction close; iron oxide staining; <!--= 1 mm 9 nes of 1 to 4 mm white phenocrysts and 1.0 mm white phenocrysts, intensely from 207.0'); Intact cores ranging from 0.25</li--> | hard; very fine ure spacing very reen/black matrix d some zones of actured, intensely | (197.0 - 207.0') Rough drilling, 9" casing difficult to reach depth, bit teeth might be worn. | |
| 200 | | | | | | | | | | | | |
| 202 | 120 in. 100% | | | | Topock - Bedrock - Metadiorite | | | | - 207.0'); 10R 6/8; Light red mineral pre phenocrysts 0.5 to 5 mm | esent, coarse to very | | |
| | | | | | | | | | | | | |
| 207 | | | | | | | | | | | (22 | |
| _ 208 | 108 in. 90% | | | | Topock - Bedrock - Metadiorite | | | slightly grained close to with zo | - 216.0') Topock-metadiorite; GLEY1 2 to moderately weathered; hard to very d to very coarse grained; massive; fraction close; iron oxide staining; <!--= 1 mm g<br-->nes of 1 to 4 mm white phenocrysts and thenocrysts, intensely fractured, intense ation | hard; very fine ure spacing very reen/black matrix d 0.25 to 1.0 mm | (207.0 - 217.0') Dry drilled for bottom 2 ft to get full recovery for run, resulted in sluff in bottom 1 ft of core, 216-217' washed out. | (207.0 - 237.0') 3750 gallons of water used; 3500 gallons of water recovered; 250 gallons of water lost |
| - | | | | | | | | } | | | | |
| 210 Abbre | viations | . 11606 - 1 | Inified | S011 C1 | | Systom | <u>〜〜〜〜</u> # = # | ent ha | s = below ground surface, ams | I = ahove moon oo | | |

| 9/ | ۱RC | ADIS | Design & Co for natural a built assets | ensultancy and | | Ro | ck C | orir | ng Log | She | eet: 15 of | 20 |
|---|-----------------|--|--|-----------------------|--|---------------------|---------------|--|---|--|---------------------------------------|----------------------------------|
| Date S | tarted: | | | | | Surface Northing | | | 538.53 ft amsl 2100512.18 | Boring No.: | MW-70B | R-D |
| Drilling | | Casca | | | | Easting | - ' | , | 7615832.54 | Client: PG&E | | |
| Drilling | Metho | d: Sonic | Drilling | | | Total De | epth: | | 288.7 ft bgs | Project: Final G | W Remedy Pl | hase 1 |
| Drill Ri | д Туре | : <u>Boart I</u> | _ongye | ar Trac | <u>k</u> | Borehol | e Diam | eter: | 3.8-12 inches | Location: PG&E | Topock, Need | lles, |
| Driller I | Name: | E. Rar | <u>nos / J.</u> | Herna | ndez | Depth to | First V | Nater: | 79.6 ft bgs | Çaliforn | ia | |
| Drilling | Asst: | FS/JC | :/JS | | | Sonic D | rilling: | | 10 ft Core Barrel | Project Number: | RC000753.00 | 051 |
| Loggei | r: | | RC/SN | | | Samplin | • | | Continuous | Bedrock Sampling | g: HQ3 Core | Barrel |
| Editor: | | | <u>McGran</u> ⊤ | 1 | | Convert | ed to V | Vell: | | | | I |
| Depth (ft) | Recovery | Drilling Run and Average Penetration Rate | RQD (%) | Fractures Per Foot | Geologic Formation | USCS | USCS Class | | Soil Description | | Drilling Notes | Drilling Fluid and Properties |
| 211 212 213 214 215 216 217 | 108 in. 90% | | | | Topock - Bedrock - Metadiorite | NR | | (216.0 | 217.0') No recovery; see drilling note: | s | | |
| 217 218 219 220 221 221 222 223 224 | 120 in. 100% | | | | Topock - Bedrock - Metadiorite Topock - Bedrock - Metadiorite | | | slightly grainec close to with zoo white p deform (221.0 slightly grainec close to with zoo white p intense | 221.0') Topock-metadiorite; GLEY1 2 to moderately weathered; hard to very to very coarse grained; massive; fract or close; iron oxide staining; = 1mm graines of 1 to 4 mm white phenocrysts are henocrysts, intensely fractured, intense ation 224.0') Topock-metadiorite; GLEY1 2 to moderately weathered; hard to very to very coarse grained; massive; fract or close; iron oxide staining; </= 1 mm graines of 1 to 4 mm white phenocrysts are nenocrysts, some outsized 5 to 10 mm by fractured, intensely veined, zones of 1 to 4 mm white phenocrysts are nenocrysts, intensely veined, zones of 1 to 4 mm white phenocrysts are nenocrysts, some outsized 5 to 10 mm by fractured, intensely veined, zones of 1 to 4 mm white phenocrysts are nenocrysts, some outsized 5 to 10 mm by fractured, intensely veined, zones of 1 to 4 mm white phenocrysts are nenocrysts, some outsized 5 to 10 mm by fractured, intensely veined, zones of 1 to 4 mm white phenocrysts are nenocrysts, some outsized 5 to 10 mm by fractured, intensely veined, zones of 1 to 4 mm white phenocrysts are nenocrysts, some outsized 5 to 10 mm by fractured, intensely veined, zones of 1 to 4 mm white phenocrysts are nenocrysts, some outsized 5 to 10 mm by fractured, intensely veined, zones of 1 to 4 mm white phenocrysts are nenocrysts, some outsized 5 to 10 mm by fractured, intensely veined, zones of 1 to 4 mm white phenocrysts are nenocrysts, some outsized 5 to 10 mm by fractured, intensely veined, zones of 1 to 4 mm white phenocrysts are nenocrysts, and 1 to 2 mm by fractured, intensely veined, zones of 1 to 4 mm white phenocrysts are nenocrysts.</td <td>2.5/4 and GLEY1 8/1; thard; very fine ture spacing very green/black matrix d 0.25 to 1.0 mm ely veined, zones of 2.5/4 and GLEY1 8/1; thard; very fine ture spacing very green/black matrix d 0.25 to 1.0 mm n phenocrysts, f deformation</td> <td>(217.0 - 227.0') Rough drilling</td> <td></td> | 2.5/4 and GLEY1 8/1; thard; very fine ture spacing very green/black matrix d 0.25 to 1.0 mm ely veined, zones of 2.5/4 and GLEY1 8/1; thard; very fine ture spacing very green/black matrix d 0.25 to 1.0 mm n phenocrysts, f deformation | (217.0 - 227.0') Rough drilling | |
| 225 | | | | | | | | grained | to very coarse grained; massive; fract to very coarse grained; massive; fract o close; iron oxide staining; = 1 mm (</td <td>ture spacing very</td> <td></td> <td></td> | ture spacing very | | |

| 9/ | ARC | | <u>DIS</u> | Design & Co for natural a built assets | insultancy and | | Ro | ck Cc | ring Log | | Sheet: 16 of | 20 |
|-----------------------------|-----------------|-------------|--|--|-----------------------|--------------------------------------|--------------|---------------------|---|---|--|--|
| | Started | | 10/23/2 | | | | | Elevation | <u></u> | Borina Na | o.: <u>MW-70E</u> | BR-D |
|)ate C | Comple | eted: | 11/19/2 | 2019 | | | Northin | g (NAD83 |): <u>2100512.18</u> | | <u> </u> | |
| _ | Co.: | | Casca | de | | | Easting | (NAD83) | 7615832.54 | Client: PG&I | E | |
| rilling | Metho | od: | Sonic I | <u>Drilling</u> | | | Total D | epth: | 288.7 ft bgs | Project: <u>Final</u> | GW Remedy P | hase 1 |
| rill Ri | ід Турє | e : | Boart L | ongye | ar Trad | <u>ck</u> | Boreho | le Diamet | er: 3.8-12 inches | Location: <u>PG&I</u> | <u>E Topock, Need</u> | dles, |
| riller | Name: | | E. Ran | | Herna | andez l | Depth to | o First Wa | ter: 79.6 ft bgs | Califo | | |
| rilling | Asst: | | FS /JC | :/JS | | ; | Sonic D | rilling: | 10 ft Core Barrel | Project Number | r: RC000753.0 | 051 |
| ogge | r: | | GW / F | RC/SN | / | ; | Samplir | ng Interval | Continuous | Bedrock Sampl | ing: <u>HQ3 Core</u> | Barrel |
| ditor: | | | Sean N | <u>//cGran</u> | | | Conver | ted to We | l: ⊠ Yes □ No | | 1 | |
| Depth (ft) | Recovery | and and Pen | ing Run Average etration Rate | RQD (%) | Fractures Per Foot | Geologic Formation | USCS Code | USCS | Soil Description | | Drilling Notes | Drilling Flui |
| - 226_ - 227_ - | 120 in. 100% | | | | | | | to | th zones of 1 to 4 mm white phenocrysts 1.0 mm white phenocrysts, intensely frac ghly deformed zones 24.1 - 225.0'); banded | | (227.0 - 237.0') Rough drilling, had to extend | |
| 228 _ - 229 _ - | | | | | | Topock - Bedrock - Metadiorite | | | 176 | | to 237' because of 10' casing lengths, would be unable to disconnect joints at 235'. | |
| 230 | | | | | | | | | | | | |
| 231 <u> </u> | | | | | | | | | | | | |
| 232_ | 120 in. 100% | | | | | | | | | | | |
| 233_ - 234_ | | | | | | | | sl gl cl w | 33.0 - 237.0') Topock-metadiorite; GLEY ghtly to moderately weathered; hard to wained to very coarse grained; massive; frose to close; iron oxide staining; = 1 mith zones of 1 to 4 mm white phenocrysts inte phenocrysts, intensely fractured, intensely fractured, intensely fractured.</td <td>ery hard; very fine acture spacing very m green/black matrix and 0.25 to 1.0 mm</td> <td></td> <td></td> | ery hard; very fine acture spacing very m green/black matrix and 0.25 to 1.0 mm | | |
| - 235_ - | | | | | | Topock - Bedrock - Metadiorite | | | 34.5 - 236.0'); 5GY 4/4; highly altered zo loration, frequent iron oxide staining | ne, olive green | | |
| 236 237 | | | | | | | | | | | | |
| - 238_ | 24 : | (23 | 7.0 - | | 3 | Topock - | | G Ve Sp bl | 37.0 - 239.8') Topock-metadiorite; RQD LEY1 2.5/1; moderately to highly weather ry finely crystalline to coarsely crystalline acing close; wet; iron oxide staining; gro ack and greenish gray minerals white pho oughout. Numerous chlorite and calcite | red; hard to very hard; e; massive; fracture und mass composed of enocrysts 1-4 mm | | (237.0 - 240. 1035.84 gallons of water used 637.44 gallo of water |
| - 239_ | 34 in. 100% | 23 | 9.8) mins/ft | 40 | 4 | Bedrock - Metadiorite | | (2 m | 37. 1 - 237.5'); Broken zone 37.5 - 238.0'); Joint 80 degree fracture, in neralization, unfoliated 38.0 - 238.2'); Joint 55 degree fracture, in neralization, unfoliated | • | | recovered; 398.4 gallor of water los (237.0 - 288. 557.8 gallor |
| - | | | | 00 | 2 | | | ドラン 4 (2 | 38.3 - 238.4'); Joint 35 degree fracture, in ineralization, unfoliated | ron, calcite secondary | | of water use 358.6 gallor |
| 240 bbre | viations | s: US | SCS = L | 83 Jnified | Soil Cl | assification | Systen | n, ft = feet | , bgs = below ground surface, ar | msl = above mean | sea level, GW = | of water |
| | | | | | | | | | presents depth to water measur | | | |
| | al in the | oreho | lo | | | | | | | | | |

| 9/ | AR(| | DIS | Design & Co for natural a built assets | ensultancy and | | Ro | ck C | Coring Log | | Sh | eet: 17 of | 20 |
|---------------|------------------|---------------|-----------------------------|---|-----------------------|-----------------------|----------|----------|--|---------------|-------------------------------|---------------------------------|--|
| Date S | Started | : | 10/23/2 | | | | Surface | | | Borir | ng No.: | : <u>MW-70B</u> | R-D |
| | | | <u> 11/19/</u> | | | | Northin | | | | | | |
| | Co.: | | Casca | | | | Easting | • | | Client: | PG&E | | |
| _ | Meth | | | Drilling | | | Total D | • | 288.7 ft bgs | Project: | | W Remedy Pl | |
| | g Type Name | | | | | | Boreho | | | Location | : <u>PG&E</u> Califorr | Topock, Need | lles, |
| | ivame i Asst: | | E. Ran FS /JC | | пента | | Sonic D | | Water: 79.6 ft bgs 10 ft Core Barrel | Project N | | RC000753.00 | 151 |
| ogge. | | | | RC / SN | / | | Samplir | • | | - | | g: <u>HQ3 Core</u> | |
| Editor: | | | | <u>//cGrar</u> | | | Conver | • | | Dodrook | ou.np | g. <u> </u> | |
| |) S | Drilli | ng Run | | | on Jic | (0 = | (0, 10 | | | | | |
| Depth (ft) | Recovery | Pene | Average etration late | RQD (%) | Fractures Per Foot | Geologic Formation | Code | USCS | Soil Description | | | Drilling Notes | Drilling Fluid and Properties |
| _ | | | - 1 | | 2 | | | | (238.6 - 239.0'); Joint 70 degree fracture, iron mineralization, unfoliated (239.0 - 239.4'); Joint 70 degree fracture, iron | • | | | recovered; 199.2 gallons of water lost |
| 241_ | | | - 1 | | | | | | mineralization, unfoliated (239.5 - 239.7'); Joint 60 degree | | | | (240.0 - 245.0 717.12 gallons |
| _ | | | - 1 | | 2 | Tanaak | | | (239.8 - 244.3') Topock-metadiorite; RQD 839 GLEY1 2.5/1; slightly weathered; hard; fracture | %; GLEY1 6/ | 1 some edium: | | of water used; 159.36 gallons |
| 242 | | | - 1 | | | Topock - Bedrock - | | (2) | iron oxide staining; 243.1-244.8 ft. bgs thin ch show evidence of faulting; offset by approx. 5 | orite minera | l veins | | of water recovered; |
| -74 | 54 in. | (239 | | 83 | 2 | Metadiorite | | | (239.801'); Mechanical fracture (239.8 - 240.1'); Broken zone | | | | 557.76 gallons of water lost |
| - | 90% | 244 2.88 n | nins/ft | | _ | | | | (240.05'); Horizontal joint | | | | |
| 243_ | | | - 1 | | | | | | (240.5 - 240.9'); Joint 55 degree fracture, iron mineralization, unfoliated | secondary | | | |
| _ | | | - 1 | | 1 | | | | (240.8'); Vug (241.7 - 242.0'); Joint 70 degree fracture, iron | secondary | | | |
| 244 | | | - 1 | | | | | | mineralization, unfo <mark>liated</mark> (241.71'); Horizontal joint, iron secondary min | - | | | |
| 244 | | | - 1 | | 1 | L | L | | (242.4'); Joint 10 degree fracture, iron, second unfoliated | dary mineral | ization, | | |
| - | | | - 1 | | ' | | NR | \sum | (242.8 - 243.0'); Joint 30 degree fracture, iron | secondary | | | |
| 245_ | | | _ | | | | <u> </u> | | mineralization (243.7 - 243.7'); Mechanical fracture | | i | | (0.45.0050.0) |
| | | | - 1 | | 1 | | | | (243.8 - 244.3'); Joint 70 degree fracture | | ! | | (245.0 - 250.0) 298.8 gallons |
| _ | | | - 1 | | | | | 13/3 | (244.8 - 250.0') Topock-metadiorite; RQD 90% | 6; GLEY1 6/ | | (245.5') Very soft | of water used 398.4 gallons |
| 246 | | | - 1 | | | | | 777 | GLEY1 2.5/1; freshly weathered; very hard; iro (244.8 - 245.1'); Parallel joints 45 degrees frac | | | drilling. Very | of water recovered; |
| _ | | | - 1 | | 1 | | | ****Y | secondary mineralization, unfoliated (245.9 - 245.9'); Joint 65 degree, fracture, iron | . calcite sec | ondary | loose material fell out of core | 99.6 gallons o water gained |
| 247 | | | - 1 | | | - | | | mineralization, unfoliated (246.4 - 246.6'); Joints 45 degrees fractures, i | | , | barrel once brought up to | water gamed |
| | 62 in. | (244 250 | | 90 | 1 | | | | secondary mineralization, unfoliated | ion, calone | | the drill deck for sample | (247.0 - 258.0' 816.72 gallons |
| - | 100% | 6.25 n | nins/ft | 30 | | | | | (047.71). 55 dames 6 | : !: | | retrieval. | of water used |
| 248 | | | - 1 | | | | | () () | (247.7'); 55 degree fracture, iron secondary m unfoliated | | | | of water recovered; |
| _ | | | - 1 | | 3 | | | | (248.0 - 248.2'); Joint 55 degree fracture, iron, mineralization, unfoliated | , calcite sec | ondary | | 597.6 gallons |
| 249 | | | - 1 | | | - | 1 | 1333 | (248.2'); Joint 70 degree fracture, iron second unfoliated | ary minerali | zation, | | of water lost |
| 0 | | | - 1 | | 1 | | | | (248.25'); Joint 25 degree fracture, iron secon unfoliated | dary minera | lization, | | |
| - | | | - 1 | | | | | | (248.3 - 248.5'); Joint | | | | |
| 250_ | | | _ | | | Topock - Bedrock - | | | (250.0 - 255.1') Topock-metadiorite; RQD 85% | /· fraably to | | (250.0 - | (250.0 - 255.0' |
| _ | | | - 1 | | 1 | Metadiorite | | 12/2/ | moderately weathered; very hard to very soft; is coarsely crystalline; fracture spacing medium; | microcrystal | line to | 255.0') Water | 298.5 gallons of water used |
| 251 | | | - 1 | | | | | | 251.65-255.1 ft. bgs aphanitic-porphyritic crys | tal size. | | pressure add | 179.28 gallons |
| ZJ I | | | - 1 | | | _ | | | soft/moderately to highly weathered at 252.9, 2 254-254.3 ft. bgs | · | ' | rpms stayed constant | of water recovered; |
| - | | | - 1 | | 3 | | | | (250.5 - 250.6'); Joint 45 degree fracture, iron, mineralization | secondary | | during run. | 119.22 gallons of water lost |
| 252_ | | | - 1 | | | | | | (251.1 - 251.2'); Joint 15 degree fracture (251.3 - 251.5'); Joint 40 degree fracture, iron, | calcite sec | ondary | (252.0 - | |
| | 61 in. | (250 |).0 - 5.1) | 85 | 2 | | | 13/3/ | mineralization, unfoliated (251.5 - 251.7'); Joint 45 degree fracture, iron, | | | 253.0') | |
| 050 | 100% | 4.14 n | | 65 | | | | | mineralization, unfoliated | | Jildary | Water pressure add | |
| 253 | | | - 1 | | | | | 2,7,7, | (251.9 - 252.1'); Joint 45 degree fracture, iron mineralization, unfoliated | - | | rpms stayed constant | |
| - | | | - 1 | | 2 | | | | (252.2 - 252.2'); Joint 10 degree fracture, iron mineralization, unfoliated | | | during run. | |
| 254 | | | | | | | | | (253.2 - 253.2'); Joint 30 degree fracture, iron, mineralization, unfoliated | | _ | | |
| | | | | | _ | | | | (253.8 - 253.9'); Joint 30 degree fracture, iron, mineralization, unfoliated | , calcite sec | ondary | | |
| _ | | | | | 1 | | | (2) | (254'); Horizontal joint | | | (254.7 - | |
| 255 bbre | viati∩n | s: US | CS = I | ∥ Jnified | L Soil Cl | l lassification | Systen | <u> </u> | l eet, bgs = below ground surface, ams | I = above | mean se | , | |
| | | | | | | | | | I represents depth to water measured | | | | BR-287 |
| | ed in b | | | <u>, , , , , , , , , , , , , , , , , , , </u> | | | | - | • | - | • | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

| 9 | AR(| CADIS | Design & Co for natural a built assets | nsultancy and | | Ro | ck C | Corir | ng Log | S | Sheet: 18 of | 20 |
|---------------|----------------|--|--|-----------------------|--------------------------------------|-------------|---------------|-----------------------------|---|---|--|--|
| | Started | | | | | Surface | Elevat | ion: | 538.53 ft amsl | Boring No | .: <u>MW-70E</u> | R-D |
| Date 0 | Comple | eted: <u>11/19/</u> | 2019 | | | Northing | y (NAD | 83): | 2100512.18 | Borning No. | <u>IVIVV-70</u> L | <u> </u> |
| Drilling | Co.: | <u>Casca</u> | de | | | Easting | (NAD8 | 3): | 7615832.54 | Client: PG&E | = | |
| Drilling | g Metho | od: <u>Sonic</u> | Drilling | | | Total De | epth: | | 288.7 ft bgs | Project: Final | GW Remedy P | hase 1 |
| Drill R | ig Туре | e: <u>Boart</u> | Longye | ar Trac | ck | Borehol | e Diam | eter: | 3.8-12 inches | Location: PG&E | E Topock, Need | lles, |
| Driller | Name: | E. Rar | <u>nos / J.</u> | Herna | ındez | Depth to | First \ | Water: | 79.6 ft bgs | <u>Çalifo</u> | rnia | |
| Drilling | g Asst: | FS/JC | C/JS | | | Sonic D | rilling: | | 10 ft Core Barrel | Project Number | : RC000753.00 | 051 |
| Logge | er: | GW / | RC/SN | / | | Samplin | g Inter | val: | Continuous | Bedrock Sampli | ing: <u>HQ3 Core</u> | Barrel |
| Editor | : | <u>Sean I</u> | <u>McGran</u> | <u>ie</u> | | Convert | ed to V | Vell: | | | _ | |
| Depth (ft) | Recovery | Drilling Run and Average Penetration Rate | RQD (%) | Fractures Per Foot | Geologic Formation | USCS | USCS Class | | Soil Description | | Drilling Notes | Drilling Fluid and Properties |
| | | | | >10 | | | | (255.1 GLEY1 crystall | - 256.0'); Broken zone - 260.1') Topock-metadiorite; RQD 87% 2.5/1; freshly to slightly weathered; ver ine to coarsely crystalline; fracture space ; phanaritic 257.1-258.1 ft bgs | y hard; very finely | 259.5') Water pressure and RPMs stayed consistent. | (255.0 - 260.0') 368.45 gallons of water used; 313.07 gallons of water |
| | _ | | | 2 | | | | (256.2 minera | g, phanantic 237:1-236:1 trogs - 256.4'); Joint 30 degree fracture, iron, lization, unfoliated - 256.9'); Joint 30 degree fracture, iron, | | | recovered; 55.38 gallons of water lost |
| _257_ | 60 in. | (255.1 - 260.1) 2.96 mins/ft | 87 | 0 | | | | | lization, unfoliated | | | |
| _ 258 _ | - | 2.90 mms/it | | 4 | | | | minera | - 258.3'); Joint 30 degree fracture, iron, | • | | |
| _259_ | | | | | | | | minera (258.4 minera | - 258.5'); Joint 75 degree fracture, iron, lization, unfoliated - 258.6'); Joint 40 degree fracture, iron, lization, unfoliated | calcite secondary | | |
| _260_ | | | ┡ | 1 | | | | minera (259.4 minera | - 259.1'); Joint 40 degree fracture, iron, ization, unfoliated - 254.5'); Joint 25 degree fracture, iron, lization, unfoliated - 260.7'); Broken zone | • | | (260.0 - 265.0') 390.43 gallons |
| 261 | | | | >10 | | | | (260.1 GLEY1 spacing | - 265.1') Topock-metadiorite; RQD 53% 2.5/1; slightly to moderately weathered medium to very close; iron oxide stain | l; very hard; fracture | | of water used; 340.96 gallons of water recovered; |
| | | | | 4 | . | | | (260.7 minera (261.3) | ; Horizontal joint, iron secondary miner | • | | 49.47 gallons of water lost |
| | 60 in. 100% | (260.1 - 265.1) 2.19 mins/ft | 53 | 0 | Topock - Bedrock - Metadiorite | | | (261.5 | - 261.6'); Two vertical joints - 261.7'); Joint 40 degree fracture, iron, lization | secondary | | |
| | | | | 6 | | | | (263.3 | - 264.0'); Broken zone | | | |
| 264 | - | | | 0 | | | | | | | | |
| 265 | | | H | 0 | | | | GLEY1 crystall | - 268.5') Topock-metadiorite; RQD 90% 2.5/1; freshly to slightly weathered; ver ine to medium crystalline; hard; fracture e; slight gneissic texture 267.7-268.5 ft. | y hard; very finely e spacing medium | | (265.0 - 268.0') 597.6 gallons of water used; 380.57 gallons |
| _266_ | 41 in. | (265.1 - 268.5) | 90 | 1 | | | | (265.6 (265.8 minera | - 265.7'); Mechanical fracture - 266.0'); Joint 40 degree fracture, calci lization, unfoliated - 267.1'); Joint 50 degree fracture, iron, | ite secondary | | of water recovered; 217.03 gallons of water lost |
| 267 | 100% | 7.64 mins/ft | | 2 | | | | minera (267.0 | lization, unfoliated - 267.1'); Joint 30 degree fracture, iron, lization unfoliated | • | | |
| 268 | 6.0 in. | (268.5 - | | 1 | | | | minera | - 268.2'); Joint 75 degree fracture, iron, lization, unfoliated - 268.5'); Mechanical 5 degree fracture | calcite secondary | (268.0') Core barrel stopped | (268.0 - 269.2') 509.95 gallons of water used; |
| 269_ | 100% | 269.0) 40.07 mins/ft/ | 0 | 2 | | | 12/2/2 | (268.5 | - 268.7'); Joint 40 degree fracture, unfo - 269.0') Topock-metadiorite; RQD 0%; | | penetrating stopped | 353 gallons of water |
| 270 | 12 in. 100% | (269.0 - 270.0) 4.90 mins/ft | 40 | 4 | | | | GLEY1 (268.8 | - 269.0°) Topock-metadiorite; RQD 0%; 2.5/1; slightly weathered; very hard; fra- - 269.0°); Joint 40 degree fracture, calci lization, unfoliated | cture spacing close | drilling break core will go back to retreive last | recovered; 156.95 gallons of water lost (269.2 - 270.0') |
| _//U_ | | | | | | | r. 1 1 | · | | | - 1 | 1,, |

| 9/ | ARC | A | DIS | Design & Co for natural a built assets | nsultancy ind | | Ro | ck C | oring Log | Sh | neet: 19 of | 20 |
|------------------|------------------|-----------------|-----------------------------|--|-----------------------|--------------------------|----------|---------------|--|---|---|--|
| | started | | 10/23/2 | | | | | Elevation | | Boring No. | : MW-70B | R-D |
| | • | | 11/19/2 | | | | | g (NAD | • | | | |
| - | Co.: | | Casca | | | | - | (NAD8 | • | Client: PG&E | | |
| _ | Metho | | Sonic I | • | | | Total De | | 288.7 ft bgs | • | W Remedy P | |
| | g Type | | | | | | | le Diame | | Location: PG&E | • | lles, |
| | Name: Asst: | | FS /JC | | | | Sonic D | | /ater: 79.6 ft bgs 10 ft Core Barrel | Califor Project Number: | | 151 |
| _ | | | | | | | | ng Interv | | Bedrock Samplir | | |
| _ogge Editor: | | | Sean N | | | | • | ted to W | | Dedrock Sampli | ig. <u>1100 0010</u> | Darici |
| | | | ng Run | | | | | | | | | |
| Depth (ft) | Recovery | and A | Average etration Rate | RQD (%) | Fractures Per Foot | Geologic Formation | Code | USCS Class | Soil Description | V 01 5 V 1 0 V | Drilling Notes | Drilling Fluid and Properties |
| - 271 | | | - 1 | | 4 | | | | (269.0 - 270.0') Topock-metadiorite; RQD 40% GLEY1 2.5/1; slightly to moderately weathered spacing close to very close; iron oxide staining (269.01'); Mechanical horizontal fracture (269.2 - 269.3'); Joint 40 degree fracture, calc | l; hard; fracture | two ft. (268.5') Slow cutting rate | 509.95 gallons of water used 39.84 gallons of water recovered; |
| - | | | - 1 | | 2 | | | | nineralization, unfoliated (269.5 - 270.0'); Broken zone (270.0 - 275.0') Topock-metadiorite; RQD 66% | 6; GLEY1 6/1 some | (269.0') Slow coring had to stop for day before | 470.11 gallons of water lost (270.0 - 275.0 |
| 272 <u> </u> | 60 in. 100% | 27 | 0.0 - 5.0) | 66 | 2 | | | | GLEY1 2.5/1; slightly weathered; hard; fractur ron oxide staining; 270-270.7 ft. bgs GLEY 1 portion of rock contains more quartz, few chloveins | (light gray), rite veins no calcite | retrieving core. (269.2 - 270.0') Coring rate | 159.36 gallons of water used 92.56 gallons of water |
| 273_ - | | 1.011 | mins/ft | | 4 | | | | (270.4 - 270.5'); Joint 20 degree fracture, iron, mineralization (270.5 - 270.6'); Joint 40 degree fracture, iron, mineralization | secondary | increased, water pressure and RPMs stayed | recovered; 66.8 gallons o water lost |
| 274_ | | | - 1 | | 2 | | | | (270.5 - 270.6'); Joint 20 degree fracture, iron mineralization, unfoliated (270.8 - 270.9'); Joint 30 degree fracture, iron mineralization, unfoliated (271.0 - 271.0'); Joint 15 degree fracture, iron, | secondary | consistent. (270.0 - 275.0') Smooth coring, water | |
| 275_ | | | | - | | | | | mineralization, unfoliated (271.6 - 271.9'); Joint 50 degree fracture, calc mineralization, unfoliated (272.2 - 272.3'); Joint 15 degree fracture, iron, | - | pressure and RPMs stayed consistent. | (275.0 - 280.0 |
| - _276_ | | 27 | 5.0 - 6.3) mins/ft | | 1 | | | | mineralization, unfoliated (272.6 - 272.7'); Joint 20 degree fracture, calc mineralization, unfoliated (273.2 - 273.4'); Joint 30 degree fracture, iron, | ite secondary | (275.0 - 280.0') Water pressure and | 370.5 gallons of water used 231.1 gallons of water |
| - 277 | | | 1 | | 4 | Topock - | | | mineralization, unfoliated (273.5 - 273.7'); Joint 45 degree fracture, iron, mineralization, unfoliated (273.7 - 273.8'); Joint 20 degree fracture, iron, | calcite secondary | RPMs stayed consistent. (276.3') Pause run to | recovered; 139.4 gallons of water lost |
| - 278 | 60 in. 100% | (27) | 6.3 - | 74 | >10 | Bedrock - Metadiorite | | | nineralization, unfoliated (273.9 - 274.1'); Joint 40 degree fracture, calc marcalization, unfoliated (274.25'); Horizontal joint, iron, calcite second unfoliated | • | tighten part on head. | |
| 279_ | | `28 | 0.0) mins/ft | | 1 | | | | 275.0 - 275.2'); Mechanical degree fracture (275.0 - 280.0') Topock-metadiorite; RQD 749 GLEY1 2.5/1; slightly to moderately weathered inely crystalline to coarsely crystalline; massi | l; very hard; very | | |
| - | | | - 1 | | 2 | | | [こべ] | inely distailine to coarsery distailine, massistaining; 275-276 ft. bgs porphoritc crystal size (t. bgs, fewer phenocrysts) (279.6 - 279.6'); Joint 10 degree fracture | | | |
| 280 <u> </u> | | | 1 | | 2 | | | | (280.0 - 285.0') Topock-metadiorite; RQD 739 GLEY1 2.5/1; slightly to moderately weathered crystalline to very coarsely crystalline; massiw medium to very close; iron oxide staining; por | d; hard; very finely e; fracture spacing | | (280.0 - 285.0) 366.5 gallons of water used 223.9 gallons |
| 281 <u> </u> | | | - 1 | | 3 | | | | (280.01'); Mechanical horizontal fracture (280.0 - 280.2'); Vertical joint (280.2'); Horizontal joint, iron secondary mine (281.0 - 281.1'); Joint 10 degree fracture, iron, | ralization | | of water recovered; 142.6 gallons of water lost |
| 282 <u> </u> | 60 in. 100% | `28 | 0.0 - 5.0) | 73 | 4 | | | | nineralization, unfoliated (281.5'); Joint 5 degree fracture, iron, calcite s nineralization, unfoliated (281.9 - 282.1'); Joint 30 degree fracture, calc | • | | |
| 283_ - | | 4.011 | mins/ft | | >10 | | | | mineralization, unfoliated (282'); Two vertical joint, iron, calcite seconda unfoliated (282.2 - 282.2'); Joint 10 degree fracture, iron, mineralization, unfoliated | • | | |
| 284 <u> </u> | | | | | 2 | | | | (282.8 - 283.8'); Broken zone | | | |
| 285 | | | | | | | | | (284.7 - 284.7'); Joint 20 degree fracture, calc | ite secondary | | |
| | | | | | | | | | et, bgs = below ground surface, ams | | | |
| round | dwater | ; NR : oreho | | covery; | Notes | s: blue wat | er table | symbol | represents depth to water measured | prior to well repai | r; wells MW-70 | JBR-287 |

| 9/ | ۱RC | ADIS | Design & Co for natural a built assets | nsultancy ind | | Ro | ck C | oring Log | Sho | eet: 20 of | 20 |
|---------------|----------|--|---|-----------------------|---|-----------|---------------|--|----------------------|--|--|
| Date S | Started | 10/23/2 | 2019 | | | Surface | Elevat | on: <u>538.53 ft amsl</u> | Boring No.: | MW-70B | R-D |
| Date 0 | Comple | ted: <u>11/19/2</u> | <u>2019 </u> | | ١ | Northing | (NAD | 83): <u>2100512.18</u> | | | |
| Drilling | Co.: | Cascac | <u>le</u> | | E | Easting | (NAD8 | 3): <u>7615832.54</u> | Client: PG&E | | |
| Drilling | Metho | od: <u>Sonic [</u> | <u> Drilling</u> | | 1 | otal De | pth: | 288.7 ft bgs | Project: Final G | W Remedy Pl | hase 1 |
| Drill Ri | д Туре | : <u>Boart L</u> | ongye: | <u>ar Trac</u> | <u>k </u> | Borehole | e Diam | eter: 3.8-12 inches | Location: PG&E | Topock, Need | lles, |
| Driller | Name: | E. Ram | <u>ios / J.</u> | Herna | ndez [| Depth to | First \ | Vater: 79.6 ft bgs | Çaliforn | nia | |
| Drilling | Asst: | FS/JC | /JS | | 5 | Sonic D | rilling: | 10 ft Core Barrel | Project Number: | RC000753.00 |)51 |
| Logge | r: | <u>GW / F</u> | C/SN | 1 | 5 | Samplin | g Inter | /al: <u>Continuous</u> | Bedrock Sampling | g: HQ3 Core | Barrel |
| Editor: | | <u>Sean M</u> | <u>1cGran</u> | <u>e</u> | | Converte | ed to V | /ell: ⊠ Yes □ No | | | |
| Depth (ft) | Recovery | Drilling Run and Average Penetration Rate | RQD (%) | Fractures Per Foot | Geologic Formation | SOSO | USCS Class | Soil Description | | Drilling Notes | Drilling Fluid and Properties |
| | | | | 1 | | | | mineralization, unfoliated (284.8 - 284.5'); Joint 30 degree fracture, iron mineralization, unfoliated (285.0 - 288.7') Topock-metadiorite; RQD 939 | | (285.0 - 288.7') Water pressure and | (285.0 - 288.0') 171.3 gallons of water used; 99.3 gallons of |
| _ 286 | 44 in. | (285.0 - | 93 | 3 | Topock - Bedrock - | | | GLEY1 2.5/1; slightly to moderately weathered crystalline to coarsely crystalline; massive; framedium to close (285.0 - 285.1); Mechanical fracture | | RPMs stayed consistent. | water recovered; 72 gallons of water lost |
| 287 | 100% | 288.7) 1.86 mins/ft | 93 | 1 | Metadiorite | | | (285.7 - 286.0'); Broken zone (286.0 - 286.6'); Joint 65 degree fracture, iron mineralization, unfoliated possible slickenline (286.8 - 287.0'); Joint 25 degree fracture, calc mineralization, unfoliated | S | | |
| _ 288 _ | | | | 0 | | | | (288.2 - 288.3'); Joint 20 degree fracture, calc mineralization, unfoliated (288.4 - 288.6'); Joint 50 degree fracture, calc | | | |
| | | | | | | | | mineralization, unfoliated (288.7 - 288.8'); Mechanical fracture End of Boring at 288.7 ft bo | | | |
| _290_ | | | | | | | | | | | |
| 291_ | | | | | | | | | | | |
| 292_ | | | | | • | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| 295 | | | | | | | | | | | |
| 296_ | | | | | | | | | | | |
| _297 | | | | | | | | | | | |
| _298_ | | | | | | | | | | | |
| 299_ | | | | | | | | | | | |
| 300_ | | | | | | | | | | | |
| <u> </u> | | | | | | | | et, bgs = below ground surface, ams | | | |
| ground | dwater | NR = no red | covery; | Notes | s: blue wate | r table : | symbo | represents depth to water measured | prior to well repair | ; wells MW-70 | BR-287 |

| Date Completed: Q2012/Q202 | 9/ | ARCA | DIS | Design & Consults for natural and built assets | Di | rilling and Sle | eve Inst | allation | Log | Shee | et: | 1 of 20 |
|--|----------|------------|---------------|--|------------------------------|--|------------------------------------|---|---|--|----------------------------|---|
| Uniting Co. Cascade Easting (NAD83): 7515832.54 Client: PGAE Cascade Easting (NAD83): 7515832.54 Client: PGAE Drilling Method: Drilling Method: Sonic Drilling Asset: Conductor Casing Diameter: 12 inches Location: PGAE Topock. Needles. California Drilling Asset: E. Ramos J. J. Hernandez Drill Casing Diameter: 12 inches Tool-Pusher: E. Ramos J. J. Hernandez Drill Casing Diameter: 10 inches Tool-Pusher: Amold Lamon. Depth the First Water: 7.9.6.ft bgs. Rig Geologist: GW / RC / SM Converted to Well: Via No Descriptions from the WW-708 Totology to, entering to the description from the WW-708 Totology Geographic and Viater Personal Casing Diameter: 10 inches Description from the WW-708 Totology Geographic and Viater Personal Casing Diameter: 10 inches Description from the WW-708 Totology Geographic and Viater Personal Casing Diameter: 10 inches Description from the WW-708 Totology Geographic Advanced to Well: Was No Descriptions from the WW-708 Totology Geographic Casing Diameter: 10 inches Description from the WW-708 Totology Geographic Casing Diameter: 10 inches Description from the WW-708 Totology Geographic Casing Diameter: 10 inches Casing Diameter: | | | | | | ace Elevation: | 538.53 ft am | nsl | Borine | n No · | MV | V-70BR-287 SR |
| Drilling Method: Sonie Drilling Total Depth: 28.0.0 Hoss Project: Find GW Remety Phase 1. Drilling Asset: E Ramos / J Hemandez Drill Casing Diameter: 12 publics Location: PG&E Topock, Needles, Drilling Asset: E Ramos / J Hemandez Drill Casing Diameter: 12 publics Location: PG&E Topock, Needles, California Drilling Asset: E Ramos / J Hemandez Drill Casing Diameter: 12 publics Casing Diameter: 12 public Remeters of the Policy Remeters of the Remeters of the Policy Remeters of the | Date 0 | Completed: | 07/01/ | 2020 | Nortl | hing (NAD83): | 2100512.18 | 1 | Domi | 9 110 | 141 4 | V-70DIX-207 OIX |
| Driller Name: E. Ramos J. J. Hernandez. Drill Casing Diameter: 12 inches | Drilling | g Co.: | <u>Casca</u> | de | East | ing (NAD83): | 7615832.54 | - | Client: | | | |
| Drillery Asset: F. Ramos J. Hernandez Drill Casing Diameter: Tool-Pusher: Ameld Lamon Depth to First Water: GW / RC / SM Converted to Well: Tool-Pusher: Ameld Lamon Depth of First Water: GW / RC / SM Converted to Well: Tool-Pusher: The different form the Water of the different form the Water between the different of the different pushed before the seleve to repart conductor for the different pushed before the seleve to repart conductor of the seleve into the seleve to present control for the seleve into the seleve to the seleve to present control for the seleve to the seleve to present control for the seleve to the selece to the | _ | - | | | | · · | _ | | , | | | • |
| Deliging Rus (1) Despite of Pushers (1) Rig Geologist: SM Converted to Welt: SM Descriptions from the NW-798 Roofing log. Description First Water: Descriptions from the NW-798 Roofing log. Desc | | | | | | | | | Location: | | - | ck, Needles, |
| Tool-Pusher | | | | | | | | | | | | |
| Depth (Pilling Run (tt)) Depth (Pilling Run (| _ | | | | | | | /8" Tricone | Project Nu | ımber: <u>F</u> | RC000 | 0753.0051 |
| Depth (Ph) Diffing Run (N) and Average Penditation Rate (Code Class Code Clas | | | | | - | | | | | | | |
| Depth of which we have been a considered to the construction of th | Rig G | eologist: | <u>GW / I</u> | RC/SM | Con\ | | × Yes | No | | | | |
| recovery (NR) Substitution Subs | | and Averag | je Co | | | (Descriptions from the MW-7 | 0BR boring log, c descriptions) | the drillin | ng andinstallat | on of the | | Drilling Fluid |
| 15 | 2 | | | | 5.5" PVC Sch 80 Conductor | (0.0 - 7.0') Topock - Alluvium recovery (NR) | Deposits; No | pushed into the of the holes in the formation a between the sl were left in pla | e sleeve to pre the bottom of and up the ann eeve and cond | ssurize gro the sleeve ulus space luctor. Rod | out out into e ds | of bentonite slurry used; 39.84 gallons of bentonite slurry recovered; 20.16 gallons of bentonite slurry lost (0.1 - 240.1') 358.56 gallons of water used; 318.72 gallons of water recovered; 39.84 gallons |

Abbreviations: USCS = Unified Soil Classification System, ft = feet, bgs = below ground surface, amsl = above mean sea level, GW = groundwater, NR = no recovery, SR = Sleeve Repair; Notes: blue water table symbol represents depth to water measured prior to well repair.

Borehole was partially overdrilled to install 4.5 inch sleeve due to evidence of damage to the 5.5 inch diameter conductor casing.

| ARCA | DIS | esign & Consultar or natural and uilt assets | DI DI | rilling and Sle | eve Insta | allation | Log | She | et: 2 c | of 20 |
|---|----------------|--|---|--|------------------------------------|-------------|--|-----------------|-----------|----------------|
| Date Started: | 06/25/20 | 20 | Surfa | ace Elevation: | 538.53 ft ams | sl | Borin | a No . | MW-70 | BR-287 SR |
| Date Completed: | 07/01/20 | 20 | Nortl | hing (NAD83): | 2100512.18 | | D 01111 | 9 110 | 11111 10 | DIX 207 GIX |
| Drilling Co.: | <u>Cascade</u> | | East | ing (NAD83): | 7615832.54 | | Client: | PG&E | | |
| Drilling Method: | Sonic Dr | - | | l Depth: | 287.0 ft bgs | | Project: | | W Remedy | |
| Drill Rig Type: | Boart Lo | | | ductor Casing Diameter: | | | Location: | | Topock, N | eedles, |
| Driller Name: | | | | Casing Diameter: | 10 inches | | | <u>Californ</u> | | |
| Drilling Asst: | FS/JC/ | | Drill I | | 3 1/2" & 4 5/8 | 8" Tricone | Project No | umber: <u>F</u> | RC000753 | .0051 |
| Tool-Pusher: | Arnold La | | - | th to First Water: | 79.6 ft bgs | | | | | |
| Rig Geologist: | GW / RC | S/SM | Conv | verted to Well: | × Yes N | No | | | | |
| Depth (ft) Drilling Run and Average Penetration | ge Codo | | Casing Diameter | Description (Descriptions from the MW-7 reference log for full geologi | 0BR boring log, c descriptions) | the drillin | tes and obser g andinstallat repair conduc | ion of the | | Drilling Fluid |
| | SM | | (-0.4 - 237.0') 5.5" PVC Sch 80 Conductor Casing | | | | | | | |
| 24 25 26 27 28 29 | SM | | | (24.0 - 29.0') Topock - Alluviur Silty sand with gravel (SM); lig (2.5Y 5/3) some light yellowish 6/4) (29.0 - 35.0') Topock - Alluviur Silty sand with gravel (SM); lig (2.5Y 5/3) some pink (7.5YR 7 | m Deposits; | | | | | |
| _30 | 1000 | 1 . 1 . 1 | O' ' | System ft - feet has - | | | | | | , |

| Date Started: 06/25/2020 Surface Elevation: 538.53 ft amsl Date Completed: 07/01/2020 Northing (NAD83): 2100512.18 Drilling Co.: Cascade Easting (NAD83): 7615832.54 Client: PG&E Drilling Method: Sonic Drilling Total Depth: 287.0 ft bgs Project: Final GW Remedy Phase 1 Drill Rig Type: Boart Longyear Track Conductor Casing Diameter: 12 inches Driller Name: E. Ramos / J. Hernandez Drill Casing Diameter: 10 inches Drilling Asst: FS /JC / JS Drill Bit: 3 1/2" & 4 5/8" Tricone Tool-Pusher: Arnold Lamon Depth to First Water: 79.6 ft bgs | ARC | ADIS | Design & Consultar for natural and built assets | ncy Di | rilling and Sle | eve Inst | allation | Log | She | et: 3 | of 20 |
|--|----------------|---------------|---|-------------------------------|--|----------------------------------|-------------|-----------------|-----------------|--------|-------------------|
| Northing (Note) Cascade Easting (NADS3): 7615832.55 Client: PG&E Dilling Method: Sonic Drilling Dilling Assis: E. Ramos J. Hernandez. Drill Cesing Diameter: 12 inches Diller Name: E. Ramos J. Hernandez. Drill Cesing Diameter: 12 inches Localino: California Drilling Assis: E. Ramos J. Hernandez. Drill Cesing Diameter: 10 inches Code Collection Drilling Part (Note) | Date Started: | 06/25/2 | 020 | | ace Elevation: | 538.53 ft am | sl | Borin | a No : | MW. | -70BR-287 SF |
| Deling Name Name Drillery Type: Basart Language Track Conductor Casing Diameter: Drillery American E. Ramos JJ. Hermandez, Drill Casing Diameter: B. Ramos JJ. Hermande | - | | | | - ' | | | - L | | | |
| Doller Name: Driller Name: Driller Name: Driller Name: Driller Sand St. Driller San | | | | | | | | Client: | | | |
| Drillery Asset FS_NIC_IS Drill Bit: Tool-Pusher: Rig Geologist: GW_IRC_ISM Converted to Well: 23.12° & 4.58° Tricone Project Number: RC000753.0051 Penderfulor Rate GW_IRC_ISM Converted to Well: 29.6 Drilling Asset Sign Supplied Code Class | | | _ | | • | _ | | - | | | • |
| Delight Asst: FS_AC_/JS_Delther: Amoid Lamon Depth to First Water: 79_6 they amoid Lamon Depth to First Water: 19 No Delth Color Depth C | | | | | | | | Location: | | | <u>, Needles,</u> |
| Tool-Pusher: Amold Lamon Depth to First Water: 7.9.6 ft bgs. Rig Geologist: GW / RC / SM Converted to Well: Yes No Depth Garriag Run ftl Golden State Cale of Class Converted to Well: Yes No Description Garriag Run ftl Golden State Cale of Class Converted to Well: Secretary Converted to Well: Secretar | | | | | | | | | | | |
| Rig Geologist: GW/RC/SM Converted to Well: Yes No Description Dilling Run (1) Description From the WW/70R boring log reference log for full geologic descriptions from the will gradual conductor casing Dilling Fluid Dilling Fluid Dilling Fluid Dilling roles and observations for the dilling and installation of the slower to repair conductor casing Dilling Fluid Dilling Fluid Dilling Fluid Dilling Fluid Dilling Fluid SW SM | _ | | | | | | 8" Tricone | Project Nu | umber: <u>F</u> | RC0007 | <u>′53.0051</u> |
| Deptiling Run (II) Rin of Marker (II) Rin of Marker (II) Rin of Marker (III) Rin of Ma | | | | | | | | - | | | |
| Depth and Average and Average Periorism Ratio Code Class Disasser | Rig Geologist: | <u>GW / R</u> | C/SM | Con\ | | × Yes | No | | | | |
| 32 | and Avera | age Cod | | | (Descriptions from the MW-7 | 0BR boring log, ic descriptions) | the drillin | ng andinstallat | ion of the | | Drilling Fluid |
| | | SM | | Conductor | Silty sand with gravel (SM); bit 5/4) (37.0 - 45.0') Topock - Alluviu Well graded sand with silt and (SW-SM); brown (7.5YR 5/3) | m Deposits; | | | | | |

| 9/ | ARCA | DIS | esign & Consultar r natural and uilt assets | Dr | rilling and Slee | eve Insta | allation | Log | Shee | et: 4 | of 20 |
|--|---|-----------|---|---|--|-----------------|-------------|--|-----------------|---------------|----------------|
| Date S | Started: | 06/25/202 | 20 | Surfa | ace Elevation: | 538.53 ft ams | sl | Borine | a No . | MW- | 70BR-287 SI |
| Date C | Completed: | 07/01/202 | 20 | North | ning (NAD83): | 2100512.18 | | Domi | 9 110 | 10100 | TODIC ZOT OI |
| Drilling | Co.: | Cascade | | Easti | ing (NAD83): | 7615832.54 | | Client: | PG&E | | |
| Drilling | Method: | Sonic Dri | lling | Total | Depth: | 287.0 ft bgs | | Project: | Final G\ | W Rem | edy Phase 1 |
| Drill Ri | g Type: | Boart Lor | ngyear T | rack Cond | ductor Casing Diameter: | 12 inches | | Location: | PG&E | <u>Fopock</u> | , Needles, |
| Driller I | Name: | E. Ramos | s / J. He | <u>rnandez</u> Drill (| Casing Diameter: | 10 inches | | | <u>Californ</u> | <u>ia</u> | |
| Drilling | Asst: | FS/JC/ | JS | Drill E | Bit: | 3 1/2" & 4 5/8 | 3" Tricone | Project Nu | umber: <u>R</u> | RC0007 | 53.0051 |
| Tool-P | usher: | Arnold La | amon | Dept | h to First Water: | 79.6 ft bgs | | | | | |
| Rig Ge | eologist: | GW / RC | / SM | Conv | verted to Well: | × Yes 1 | Vo | | | | |
| Depth (ft) | Drilling Run and Averag Penetration R | ie Code | USCS Class | Casing Diameter | Description (Descriptions from the MW-7 reference log for full geologi | c descriptions) | the drillin | tes and obser g andinstallat repair conduc | ion of the | | Drilling Fluid |
| 46 47 48 49 50 51 52 52 53 | | SM | | (-0.4 - 237.0') 5.5" PVC Sch 80 Conductor Casing | (45.0 - 53.0') Topock - Alluviun Silty sand with gravel (SM); br 5/3) (53.0 - 55.0') Topock - Alluviun Clayey sand with gravel (SC); 5/4) | m Deposits; | | | | | |
| 54 | | sc | | | (FE O. EZ O') Topode Allumina | m Danasita | | | | | |
| 56 | | SM | | | (55.0 - 57.0') Topock - Alluviui Silty sand (SM); reddish browi | 1 (5YR 5/4) | | | | | |
| 57585960_ | | SM | | | (57.0 - 60.3') Topock - Alluviui Silty sand with gravel (SM); re (5YR 5/4) | | | | | | |

| 9/ | ARCA | DIS | Design & Consulta or natural and ouilt assets | Di | rilling and Slee | eve Insta | allation | Log | She | et: 5 | of 20 | |
|---------------|---|-----------|---|--------------------|--|------------------------------------|-------------|---|-----------------|---------|----------------|----------|
| Date S | Started: | 06/25/20 | 20 | Surfa | ace Elevation: | 538.53 ft ams | sl | Borine | n No · | MW_ | 70BR-287 S | `R |
| Date C | Completed: | 07/01/20 | 20 | Nortl | ning (NAD83): | 2100512.18 | | DOLLI | g 1 1 0 | 10100- | 70DIX-207 C | <u> </u> |
| Drilling | Co.: | Cascade | : | East | ing (NAD83): | 7615832.54 | | Client: | PG&E | | | |
| Drilling | Method: | Sonic Dr | • | | l Depth: | 287.0 ft bgs | | Project: | Final G | W Reme | edy Phase 1 | |
| Drill Ri | g Type: | Boart Lo | ngyear 1 | <u>Γrack</u> Conα | ductor Casing Diameter: | 12 inches | | Location: | | - | Needles, | |
| | Name: | | | | Casing Diameter: | 10 inches | | - | Californ | | | |
| Drilling | | FS/JC/ | | Drill I | | 3 1/2" & 4 5/8 | 8" Tricone | Project Nu | ımber: <u>F</u> | RC00075 | 3.0051 | |
| | usher: | Arnold La | | • | h to First Water: | 79.6 ft bgs | | - | | | | |
| Rig Ge | eologist: | GW / RC | C / SM | Conv | verted to Well: | × Yes | No | | | | | |
| Depth (ft) | Drilling Run and Averag Penetration F | ge Code | | Casing Diameter | Description (Descriptions from the MW-7 reference log for full geologi | 0BR boring log, c descriptions) | the drillin | otes and obser ng andinstallati repair conduc | on of the | | Drilling Fluid | |
| | | SM | | · <u>·</u> | (60.3 - 61.0') Topock - Alluviu | n Deposits; | | | | | | |
| 61 | | GM | | 9 | Well graded gravel (GM) | | | | | | | |
| 01 | | | | | (61.0 - 63.0') Topock - Alluviui Clayey sand with gravel (SW- | m Deposits; | | | | | | |
| | | | | 9 | brown (5YR 5/4) | 50), reddisir | | | | | | |
| 62 | | SW-S0 | | | | | | | | | | |
| | | | | Ì | | | | | | | | |
| Ī Ī | | | | 9 | | | | | | | | |
| 63 | | | | 1 | (63.0 - 67.0') Topock - Alluviui | m Deposits; | | • | | | | |
| | | | | | Well graded sand with gravel reddish brown (5YR 5/4) | (SW-SM); | | | | | | |
| 64 | | | | | , | | | | | | | |
| | | | | | | | | | | | | |
| - | | | | | | | | | | | | |
| 65 | | SW-SN | / ! ! ! ! ! ! | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| 66 | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| 67 | | L | | | | | | | | | | |
| | | | | (-0.4 - 237.0') | (67.0 - 74.0') Topock-metadio 2.5/6 and GLEY1 8/1 | rite; GLEY1 | | | | | | |
| - | | | | Conductor | | | | | | | | |
| 68 | | | | Casing | | | | | | | | |
| _ | | | | 1 | | | | | | | | |
| 00 | | | | 1 | | | | | | | | |
| 69 | | | | | | | | | | | | |
| | | | | :1 | | | | | | | | |
| 70 | | | | \$ | | | | | | | | |
| | | | | | | | | | | | | |
| - | | | | 3 | | | | | | | | |
| 71 | | | | | | | | | | | | |
| _ | | | | } | | | | | | | | |
| 72 | | | | | | | | | | | | |
| 72 | | | | 3 | | | | | | | | |
| | | | | <u>[</u>] | | | | | | | | |
| 73 | | | | 3 | | | | | | | | |
| | | | | | | | | | | | | |
| <u> </u> | | | | | | | | | | | | |
| 74 | | | £ 1.2.2 | ; | (74.0 - 77.0') No recovery | | | | | | | |
| L _ | | NR | | | | | | | | | | |
| 75 | | INFX | | | | | | | | | | |
| A hhre | viatione: 119 | SCS - Un | ified Soi | l Classification | System ft = feet has = | helow ground | curface amo | sl = abovo n | noan coa | Joyol C | ١٨/ – | |

| 9/ | ARCA | DIS | Desi for n built | i <mark>gn & Consultar</mark> natural and t assets | D _I | rilling and Slee | eve Inst | allation | Log | She | et: 6 | of 20 |
|------------------|---|---------------|------------------------|--|------------------------|--|------------------------------------|-------------|--|-----------------|--------|----------------|
| Date S | Started: | 06/25 | /202 | 0 | Surfa | ace Elevation: | 538.53 ft am | nsl | Borine | a No: | MW- | 70BR-287 SR |
| Date 0 | Completed: | 07/01 | /202 | 0 | North | ning (NAD83): | 2100512.18 | i | | 9 110 | 10.00 | TODIC ZOT CIC |
| Drilling | g Co.: | Casca | <u>ide</u> | | Easti | ng (NAD83): | 7615832.54 | | Client: | PG&E | | |
| Drilling | Method: | <u>Sonic</u> | Drilli | ing | | Depth: | 287.0 ft bgs | | Project: | Final G | W Rem | edy Phase 1 |
| Drill Ri | ig Type: | <u>Boart</u> | <u>Long</u> | gyear T | rack Cond | ductor Casing Diameter: | 12 inches | | Location: | | - | Needles, |
| Driller | Name: | E. Ra | mos | / J. He | <u>rnandez</u> Drill (| Casing Diameter: | 10 inches | | - | Californ | nia | |
| _ | g Asst: | FS/J | | | Drill B | | | /8" Tricone | Project Nu | umber: <u>F</u> | RC0007 | 53.0051 |
| | Pusher: | <u>Arnolo</u> | | | - | h to First Water: | 79.6 ft bgs | | - | | | |
| Rig G | eologist: | GW / | RC / | SM | Con\ | erted to Well: | × Yes | No | | | | |
| Depth (ft) | Drilling Run and Averag Penetration F | je C | SCS ode | USCS Class | Casing Diameter | Description (Descriptions from the MW-7) reference log for full geologi | 0BR boring log, c descriptions) | the drillin | otes and obser ng andinstallat repair conduc | ion of the | | Drilling Fluid |
| 7677787980818283 | | | √R - | | | (77.0 - 82.0') Topock-metadio 2.5/6 and GLEY1 8/1 (82.0 - 85.0') No recovery | rite; GLEY1 | | | | | |
| 848586878889 | | | NR | | | (85.0 - 87.0') Topock-metadio 2.5/6 and GLEY1 8/1 (87.0 - 89.0') No recovery (89.0 - 97.0') Topock-metadio 2.5/6 and GLEY1 8/1 | | | | | | |
| _90_ | | | | | Ol ''' '' | System ft - feet has - | | | | | | NA. |

| Date State Co. D6225/2020 Surface Elevation: S38.53 ft ams D625/2020 Surface Completed: 200512.18 D625/2020 Surface Elevation: S68.53 ft ams D625/2020 S68.53 | 9/ | ARCA | DI: | S Desi | gn & Consultar natural and t assets | cy Dr | illing and Slee | eve Inst | allation | Log | Shee | et: 7 | of 20 |
|--|----------|------------|-------|-------------|---|-----------|--|------------------------------------|-----------------|------------------|-----------------|------------|----------------|
| Northing (No.5) Project Post | | | | 25/202 | 0 | Surfa | ace Elevation: | 538.53 ft am | sl | Borine | a No . | MW. | 70BR-287 SR |
| Deling | Date C | Completed: | 07/0 | 1/202 | 0 | North | ning (NAD83): | 2100512.18 | | | 9 110 | 10100 | TODIC ZOT CIT |
| Description Part | Drilling | Co.: | Cas | <u>cade</u> | | Easti | ng (NAD83): | 7615832.54 | | Client: | | | |
| Delite Family Delite Among Delite Am | _ | | | | - | | | _ | | - | | | • |
| Description | | | | | | | | | | Location: | | - | , Needles, |
| Col- Part | | | | | | | - | | | - | | | |
| Pesto Printing Run (11) Pesto Printing Run (12) Pesto Printing Run (13) Pesto | _ | | | | | | | | 8" Tricone | Project Nu | ımber: <u>F</u> | RC0007 | 53.0051 |
| Depth of philing Run (1) USCS Code Class Class Code Class Clas | | | | | | • | | | | - | | | |
| Despit man Average (Code Class Diameter Descriptions from the MW-70BR horing log of the drilling and relatilation of the sleeve to repair conductor casing Diameter Descriptions from the MW-70BR horing log of the criptions sleeve to repair conductor casing Diameter | RIG GE | eologist: | GW | / RC / | SIVI | Conv | | × Yes | No | | | | |
| | | and Averag | e ' | | | | (Descriptions from the MW-7 | OBR boring log, c descriptions) | the drillin | ng andinstallati | on of the | | Drilling Fluid |
| | | | | | | Conductor | (97.0 - 105.0') Topock-metadi 2.5/6 and GLEY1 8/1 | prite; GLEY1 | grout was insta | alled inside the | PVC slee | ve. one | |

| 9/ | ARCA | DI | S Des | sign & Consulta natural and It assets | ncy | rilling and Slee | eve Inst | allation | Log | Shee | et: 8 | of 20 |
|---------------|---|------|----------------|---|--------------------|--|------------------------------------|-------------|--|-----------------|--------|----------------|
| Date S | Started: | 06/2 | 25/202 | 20 | Surfa | ace Elevation: | 538.53 ft am | nsl | Borine | a No . | MW | -70BR-287 SR |
| | Completed: | | | 20 | | ning (NAD83): | 2100512.18 | | | | 101.00 | TOBIC ZOT OIL |
| Drilling | | | cade | | | ng (NAD83): | <u>7615832.54</u> | | Client: | PG&E | | |
| _ ~ | g Method: | | ic Drill | • | | Depth: | 287.0 ft bgs | <u> </u> | Project: | | | nedy Phase 1 |
| | ig Type: | | | gyear T | | ductor Casing Diameter: | | | Location: | | - | k, Needles, |
| | Name: | | | | | Casing Diameter: | 10 inches | | - | <u>Californ</u> | | |
| Drilling | - | | <u>/JC / J</u> | | Drill E | | | /8" Tricone | Project Nu | ımber: <u>F</u> | RC0007 | 753.0051 |
| | Pusher: | | old La | | - | h to First Water: | 79.6 ft bgs | | - | | | |
| Rig G | eologist: | GVV | / RC | / SIVI | Con\ | verted to Well: | × Yes | No | | | | |
| Depth (ft) | Drilling Run and Averag Penetration F | je | USCS Code | USCS Class | Casing Diameter | Description (Descriptions from the MW-7 reference log for full geologi | 0BR boring log, c descriptions) | the drillir | otes and obser ng andinstallat repair conduc | ion of the | | Drilling Fluid |
| | - | | | \setminus | | (105.0 - 107.0') No recovery | | | | | | |
| 106 | | | NR | | | | | | | | | |
| | | | | $ \wedge $ | | | | | | | | |
| - | | | | / \ | | | | | | | | |
| 107 | - | | | | 1 | (107.0 - 112.0') Topock-metac | liorite; GLEY1 | | | | | |
| | - | | | | | 2.5/4 and GLEY1 8/1 | | | | | | |
| 108 | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | - | | | | | | | | | | | |
| 109 | - | | | | | | | | | | | |
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| _110_ | | | | | | | | | | | | |
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| - | - | | | | | | | | | | | |
| _111_ | - | | | | 1 | | | | | | | |
| | | | | | | | | | | | | |
| _112_ | | | | | | | | | | | | |
| 114 | • | | | | (-0.4 - 237.0') | (112.0 - 117.0') Topock-metac 2.5/4 and GLEY1 8/1 | liorite; GLEY1 | | | | | |
| | _ | | | | Conductor | 2.0/4 and GLL I T 0/ I | | | | | | |
| _113_ | | | | | Casing | | | | | | | |
| | | | | | | | | | | | | |
| 444 | | | | | | | | | | | | |
| 114 | 1 | | | | | | | | | | | |
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| 115 | | | | | | | | | | | | |
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| _116_ | 1 | | | | ŀ | | | | | | | |
| | - | | | | | | | | | | | |
| _117_ | | | | | | | | | | | | |
| | | | | | | (117.0 - 121.0') Topock-metac 2.5/4 and GLEY1 8/1 | liorite; GLEY1 | | | | | |
| - | | | | | | | | | | | | |
| 118 | - | | | | | | | | | | | |
| L - | | | | | , | | | | | | | |
| _119_ | | | | | 1 | | | | | | | |
| | 1 | | | | | | | | | | | |
| - | - | | | | | | | | | | | |
| 120 | | | | 122 |] | | | | | | | |

| 9/ | ARCA | DIS | esign & Consulta r natural and iilt assets | Di | rilling and Sle | eve Inst | allation | Log | Shee | et: 9 | of 20 |
|---|---|-----------|--|---|---|------------------------------------|-------------|--|-----------------|--------|----------------|
| Date S | Started: | 06/25/20 | 20 | Surfa | ace Elevation: | 538.53 ft am | nsl | Borine | a No: | MW. | -70BR-287 SR |
| Date 0 | Completed: | | 20 | | hing (NAD83): | 2100512.18 | | | | 10100 | TOBIC ZOT OIL |
| Drilling | | Cascade | | | ing (NAD83): | 7615832.54 | | Client: | PG&E | | |
| _ | Method: | Sonic Dri | • | | l Depth: | 287.0 ft bgs | | Project: | | | nedy Phase 1 |
| | ig Type: | Boart Lor | | | ductor Casing Diameter: | | | Location: | | - | , Needles, |
| | Name: | | | | Casing Diameter: | 10 inches | | - | Californ | | |
| Drilling | | FS/JC/ | | Drill | | | /8" Tricone | Project Nu | umber: <u>F</u> | RC0007 | 753.0051 |
| | Pusher: | Arnold La | | • | h to First Water: | 79.6 ft bgs | | | | | |
| Rig G | eologist: | GW / RC | / SM | Conv | verted to Well: | × Yes | No | | | | |
| Depth (ft) | Drilling Run and Averag Penetration F | je Code | USCS Class | Casing Diameter | Description (Descriptions from the MW-7 reference log for full geologi | 0BR boring log, c descriptions) | the drillir | ites and obser ng andinstallat repair conduc | ion of the | | Drilling Fluid |
| 121122123124125126127128129130131131132 | | | | (-0.4 - 237.0') 5.5" PVC Sch 80 Conductor Casing | (121.0 - 127.0') Topock-metac 2.5/4 and GLEY1 8/1 (121.3 - 122.3'); Highly oxidize 2.5/4 and GLEY1 8/1 (127.5 - 133.0'); 10R 6/8; Ligh present, coarse to very coarse 0.5 to 5 mm | diorite; GLEY1 | | | | | |
| 133 | | | | | (133.0 - 137.0') Topock-metad 2.5/4 and GLEY1 8/1 | diorite; GLEY1 | | | | | |
| 135 | | | | | | | | | | | |

| 9/ | ARCADIS Design & Consultancy for natural and furth seets | | | | rilling and Sle | eve Inst | allation | Log | She | et: 10 | of 20 |
|--------------------------------|--|----------|------------|---|--|------------------------------------|-------------|--|-----------------|---------|----------------|
| | Started: | 06/25/2 | | | ace Elevation: | 538.53 ft am | ısl | Borine | a No.: | MW- | 70BR-287 SR |
| Date 0 | Completed: | 07/01/2 | 020 | North | ning (NAD83): | 2100512.18 | | | 9 | 10.00 | |
| Drilling | g Co.: | Cascad | е | Easti | ng (NAD83): | 7615832.54 | | Client: | PG&E | | |
| Drilling | Method: | Sonic D | rilling | Total | Depth: | 287.0 ft bgs | | Project: | Final G | W Rem | edy Phase 1 |
| Drill R | ig Type: | Boart L | ongyear 7 | <u>rack</u> Cond | ductor Casing Diameter: | 12 inches | | Location: | PG&E | Topock, | Needles, |
| Driller | Name: | E. Ram | os / J. He | <u>rnandez</u> Drill (| Casing Diameter: | 10 inches | | | <u>Californ</u> | nia | |
| Drilling | g Asst: | FS/JC | / JS | Drill E | Bit: | 3 1/2" & 4 5/ | 8" Tricone | Project Nu | ımber: <u>F</u> | RC0007 | 53.0051 |
| Tool-F | Pusher: | Arnold | _amon | Dept | h to First Water: | 79.6 ft bgs | | | | | |
| Rig G | eologist: | GW/R | C/SM | Conv | verted to Well: | × Yes | No | | | | |
| Depth (ft) | Drilling Run and Averag Penetration R | e Cod | | Casing Diameter | Description (Descriptions from the MW-7 reference log for full geologi | 0BR boring log, c descriptions) | the drillin | tes and obser g andinstallat repair conduc | ion of the | | Drilling Fluid |
| 136137138139140141142143144145 | | | | (-0.4 - 237.0') 5.5" PVC Sch 80 Conductor Casing | (137.0 - 140.0') Topock-metad 2.5/4 and GLEY1 8/1 (140.0 - 146.0') Topock-metad 2.5/4 and GLEY1 8/1 | diorite; GLEY1 | | | | | |
| 146 | | NF | | <i>></i> | (146.0 - 147.0') No recovery | | | | | | |
| _147 | | | / | | | | | | | | |
| | | | | 7 | (147.0 - 157.0') Topock-metac 2.5/4 and GLEY1 8/1 | liorite; GLEY1 | | | | | |
| - | - | | | | 2.0/4 and GLETTO/T | | | | | | |
| 148 | | | | 4 | | | | | | | |
| | | | | _ | | | | | | | |
| - | | | | } | | | | | | | |
| _149_ | | | | | | | | | | | |
| | | | | <u> </u> | | | | | | | |
| | - | | (3) | 1 | | | | | | | |
| 150 | | | 100 | | | | | | | | |
| | viatione: 119 | SCS - 11 | nified Soi | l Classification | System ft = feet has = 1 | helow ground | surface amo | l – above n | nean cea | lovol C | 2\\\ - |

| ARC ⁴ | DIS | lesign & Consultar or natural and uilt assets | Di | rilling and Slee | eve Inst | allation | Log | Shee | et: 11 | of 20 |
|---|-----------|---|---|--|------------------------------------|-------------|--|-----------|-----------|----------------|
| Date Started: | 06/25/20 | 100000000000000000000000000000000000000 | Surfa | ace Elevation: | 538.53 ft am | ısl | Borine | . No : | M/V/_ | 70BR-287 SR |
| Date Completed: | 07/01/20 | 20 | North | ning (NAD83): | 2100512.18 | | DOLLI | j 140 | IAI A A - | TUDIN-ZUT SIN |
| Drilling Co.: | Cascade | | | ing (NAD83): | 7615832.54 | | Client: | PG&E | | |
| Drilling Method: | Sonic Dri | illing | | Depth: | 287.0 ft bgs | | Project: | Final G | W Reme | edy Phase 1 |
| Drill Rig Type: | Boart Lor | - | | ductor Casing Diameter: | _ | | Location: | PG&E | Topock, | Needles, |
| Driller Name: | | | | Casing Diameter: | 10 inches | | • | Californ | - | , |
| Drilling Asst: | FS/JC/ | | Drill E | _ | | 8" Tricone | Project Nu | | | 53.0051 |
| Tool-Pusher: | Arnold La | | | h to First Water: | 79.6 ft bgs | | , | | | |
| Rig Geologist: | GW / RC | | - | verted to Well: | | No | | | | |
| Depth (ft) Drilling Rur and Avera Penetration | ge 0303 | | Casing Diameter | Description (Descriptions from the MW-7 reference log for full geologi | 0BR boring log, c descriptions) | the drillin | otes and observing andinstallati repair conduct | on of the | | Drilling Fluid |
| | | | (-0.4 - 237.0') 5.5" PVC Sch 80 Conductor Casing | (157.0 - 167.0') Topock-metac 2.5/4 and GLEY1 8/1 | | | | | | |

| 9/ | ARCA | DIS for bu | sign & Consultar natural and ilt assets | Di | rilling and Slee | eve Inst | allation | Log | She | et: 12 | of 20 |
|---------------|---|------------|---|------------------------------------|--|------------------------------------|--------------------------------------|--|--------------------|---------|----------------|
| | Started: | 06/25/202 | | Surfa | ace Elevation: | 538.53 ft am | | Borine | a No.: | MW- | 70BR-287 SR |
| Date 0 | Completed: | 07/01/202 | 20 | North | ning (NAD83): | 2100512.18 | . | | 9 11011 | 10100 | |
| Drilling | - | Cascade | | Easti | ng (NAD83): | <u>7615832.54</u> | - | Client: | PG&E | | |
| Drilling | g Method: | Sonic Dril | ling | Total | Depth: | 287.0 ft bgs | | Project: | Final G | W Reme | edy Phase 1 |
| Drill R | ig Type: | Boart Lon | igyear T | rackCond | ductor Casing Diameter: | 12 inches | | Location: | PG&E | Topock, | Needles, |
| Driller | Name: | E. Ramos | s / J. Hei | <u>nandez</u> Drill (| Casing Diameter: | 10 inches | | - | <u>Californ</u> | nia | |
| Drilling | g Asst: | FS/JC/ | JS | Drill E | Bit: | 3 1/2" & 4 5/ | /8" Tricone | Project Nu | ımber: <u>F</u> | RC00075 | 53.0051 |
| Tool-F | Pusher: | Arnold La | mon | Dept | h to First Water: | 79.6 ft bgs | | | | | |
| Rig G | eologist: | GW / RC | / SM | Con\ | verted to Well: | × Yes | No | | | | |
| Depth (ft) | Drilling Run and Averag Penetration F | ie Codo | USCS Class | Casing Diameter | Description (Descriptions from the MW-7 reference log for full geologi | 0BR boring log, c descriptions) | the drillin | otes and obsering andinstallati repair conduc | ion of the | | Drilling Fluid |
| 166 | | | | | (167.0 - 176.0') Topock-metad 2.5/4 and GLEY1 8/1 | diorite; GLEY1 | | <u> </u> | | | |
| 169 | | | | | | 17 | (168.0') Tag lir attempting to to | ag borehole or | when n 6/26/20. | | |
| 170 | | | | | | | | | | | |
| 171 | - | | | | | | | | | | |
| 172_ | _ | | | (-0.4 - 237.0') 5.5" PVC Sch 80 | | | | | | | |
| 173 | | | | Conductor Casing | | | | | | | |
| 174 | | | | | | | | | | | |
| _175_ | | | | • | | | | | | | |
| 176 | - | NR | | | (176.0 - 177.0') No recovery | | | | | | |
| 177 | - | | | | (177.0 - 187.0') Topock-metac 2.5/4 and GLEY1 8/1 | diorite; GLEY1 | | | | | |
| 178 | | | | | | | | | | | |
| 179 | - | | | | | | | | | | |
| 180 | | | | Ol;t;t; | System ft = feet has = | h - l | | | | | 31A7 — |

| PARCADIS Design & Consultancy for natural and built assets | | | | | Dr Dr | rilling and Slee | eve Insta | allation | Log | Shee | et: 13 | of | 20 |
|--|---|------|--------------|---------------|---|--|------------------------------------|--|---|------------------------------|-------------|----------|---------|
| | Started: | | 25/202 | .0 | Surfa | ace Elevation: | 538.53 ft am | sl | Borine | . No : | N/\A/_7 | 70RP | 287 SR |
| Date 0 | Completed: | 07/0 | 01/202 | :0 | North | ning (NAD83): | 2100512.18 | | DOLIN | j 140 | IAI A A - 1 | ODIV- | 207 31 |
| Drilling | Co.: | Cas | cade | | Easti | ng (NAD83): | 7615832.54 | | Client: | PG&E | | | |
| Drilling | Method: | Son | nic Drill | ing | Total | Depth: | 287.0 ft bgs | | Project: | Final G | W Reme | dy Pha | se 1 |
| Drill Ri | g Type: | Boa | rt Lon | gyear T | | ductor Casing Diameter: | - | | Location: | PG&E | Topock, | Needle | S, |
| | Name: | | | | | Casing Diameter: | 10 inches | | | Californ | ia | | |
| Drilling | | | /JC / J | | Drill E | - | 3 1/2" & 4 5/8 | 8" Tricone | Project Nu | | | 3.0051 | |
| | usher: | | old Laı | | | h to First Water: | 79.6 ft bgs | | , | _ | | | |
| | eologist: | | / RC | | | verted to Well: | | No | | | | | |
| Depth (ft) | Drilling Run and Averag Penetration F | je | USCS Code | USCS Class | Casing Diameter | Description (Descriptions from the MW-7 reference log for full geologi | 0BR boring log, c descriptions) | the drillin | tes and observ g andinstallati repair conduct | on of the | | Drilling | g Fluid |
| - 181 182 183 184 185 186 187 188 190 191 192 193 194 194_ | | | NR | | (-0.4 - 237.0') 5.5" PVC Sch 80 Conductor Casing | (187.0 - 193.5') Topock-metac 2.5/4 and GLEY1 8/1 | | (193.0') Encourtagging after claricone bit. Couwhen attempting | ean out when ild not get tagl | drilling with ine pass 19 | 93 ft. | | |
| 195 | dotions: 11 | | _ 11-:0 | iod C = | Cloosifis - 4: - | System ft = feet has = 1 | holove sussess | ourfore | I = ab =: | | Joseph C | \\\ - | |
| " nnro | MOTIONO: III | | - 1 Ind | 100 × 01 | LIGCOTTOCATION | Sucrom II - toot hac - | COLOM/ Ground | CHITTACA ame | - anava m | 100h coo | 101/01 (-) | ··· – | |

| 9/ | ARCA | DIS | S Des for r built | ign & Consultar natural and t assets | Di Di | rilling and Slee | eve Inst | allation | Log | Shee | et: 14 | of 20 |
|---------------|---|-----------|-------------------|--|---------------------|--|---|------------|---|-----------------|---------|----------------|
| Date S | Started: | 06/2 | 5/202 | | | ace Elevation: | 538.53 ft am | ısl | Rorine | u No . | MW-7 | 70BR-287 SR |
| Date 0 | Completed: | 07/0 | 1/202 | 0 | North | ning (NAD83): | 2100512.18 | | ווווסם | 9 110 | 14144-7 | ODIN-207 OIN |
| Drilling | g Co.: | Caso | cade | | Easti | ng (NAD83): | 7615832.54 | | Client: | PG&E | | |
| _ ~ | g Method: | | c Drill | - | | Depth: | 287.0 ft bgs | | Project: | | | edy Phase 1 |
| | ig Type: | | | gyear T | | luctor Casing Diameter: | | | Location: | | - | Needles, |
| | Name: | | | | | Casing Diameter: | 10 inches | | - | <u>Californ</u> | | |
| Drilling | - | | JC / J | | Drill E | | | 8" Tricone | Project Nu | ımber: <u>F</u> | C00075 | 3.0051 |
| | Pusher: | | old La | | | h to First Water: | 79.6 ft bgs | | | | | |
| Rig G | eologist: | <u>GW</u> | / RC | / SM | Con\ | verted to Well: | × Yes | No | | | | |
| Depth (ft) | Drilling Run and Averag Penetration F | je | JSCS Code | USCS Class | Casing Diameter | | rintions from the MW-70BP boring log the drilling | | otes and obser ng andinstallati repair conduc | ion of the | | Drilling Fluid |
| 196 | | _ | NR | \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\ | | (197.0 - 207.0') Topock-metac 2.5/4 and GLEY1 8/1 | liorite; GLEY1 | | | | | |
| 199 | | | | | | | 1 | | | | | |
| 200_ | | | | | | | | | | | | |
| _201_ | | | | | | | | | | | | |
| _202_ | | | | | 5.5" PVC Sch 80 | (202.0 - 207.0'); 10R 6/8; Light present, coarse to very coarse | t red mineral phenocrysts | | | | | |
| _203_ | | | | | Conductor Casing | 0.5 to 5 mm | | | | | | |
| _204_ | | | | | | | | | | | | |
| _ 205_ | | | | | | | | | | | | |
| _206_ | | | | | | | | | | | | |
| 207 | | | | | | (207.0 - 216.0') Topock-metac 2.5/4 and GLEY1 8/1 | liorite; GLEY1 | | | | | |
| 208 | | | | | | | | | | | | |
| 209_ | | | | | | | | | | | | |
| 210 | <u> </u> | | 11.0 | | Ol ;t; +. | System ft - feet has - I | | | | | | |

| 9/ | ARCA | DI | S Desi | ign & Consultar natural and t assets | DI DI | rilling and Slee | eve Inst | allation | Log | She | et: 15 | of 2 | 20 |
|--|---|-------------|--------------|--|---|--|------------------------------------|------------------------------------|---------------------------------|--------------|---------|-------------------|----------|
| Date S | Started: | 06/ | 25/202 | 0 | Surfa | ace Elevation: | 538.53 ft am | sl | Borine | . oN | MW- | 70BR- | 287 SR |
| Date C | Completed: | 07/ | 01/202 | 0 | North | ning (NAD83): | 2100512.18 | | | <i>j</i> 110 | 10100 | - ODIX | <u> </u> |
| Drilling | Co.: | <u>Ca</u> | scade | | Easti | ng (NAD83): | 7615832.54 | | Client: | PG&E | | | |
| Drilling | Method: | Soi | nic Drill | ing | Total | Depth: | 287.0 ft bgs | | Project: | Final G | W Reme | edy Pha | se 1 |
| Drill Ri | g Type: | Boa | art Lon | gyear T | rack Cond | ductor Casing Diameter: | 12 inches | | Location: | PG&E | Topock, | Needles | 3, |
| Driller | Name: | <u>E. I</u> | Ramos | / J. He | rnandez Drill (| Casing Diameter: | 10 inches | | | Californ | nia | | |
| Drilling | Asst: | FS | /JC / J | S | Drill E | Bit: | 3 1/2" & 4 5/ | 8" Tricone | Project Nu | ımber: F | RC00075 | 3.0051 | |
| Tool-P | usher: | Arn | old Lar | mon | Dept | h to First Water: | 79.6 ft bgs | | | _ | | | |
| Rig Ge | ig Geologist: GW / RC / SM | | | erted to Well: | | No | | | | | | | |
| Depth (ft) | Drilling Run and Averag Penetration F | е | USCS Code | USCS Class | Casing Diameter | Description (Descriptions from the MW-7 reference log for full geologi | 0BR boring log, c descriptions) | the drillin | ites and obsering andinstallati | on of the | | Drilling | ı Fluid |
| | | | NR | | (-0.4 - 237.0°) 5.5" PVC Sch 80 Conductor Casing | (216.0 - 217.0') No recovery (217.0 - 221.0') Topock-metac 2.5/4 and GLEY1 8/1 | diorite; GLEY1 | | | | | | |
| 219 220 221 222 223 224 | | - | | | | (221.0 - 224.0') Topock-metac 2.5/4 and GLEY1 8/1 (224.0 - 233.0') Topock-metac 2.5/4 and GLEY1 8/1 | | (221.0') Tagge 5/8" tricone bit | d depth prior t | o installing | ; the 4 | | |
| 005 | | | | | | | | | | | | | |
| 225 | | | | · · · · · · | Ol:f:t: | System ft = feet has = 1 | | | | | | ١٨/ | |

| 9/ | ARCA | DIS | Design & Consult for natural and built assets | Di | rilling and Slee | eve Inst | allation | Log | Shee | et: 16 | of 20 |
|---------------|---|---------|--|---|---|--|--|--|---|---|---|
| Date S | | 06/25/2 | | Surfa | ace Elevation: | 538.53 ft am | ısl | Boring | ı No · | MW | 70BR-287 SR |
| Date C | ompleted: | 07/01/2 | 020 | Nortl | ning (NAD83): | 2100512.18 | | DOLLIN | J 140 | IVI V V | 10DK-201 3K |
| Drilling | Co.: | Cascad | е | East | ing (NAD83): | 7615832.54 | | Client: | PG&E | | |
| Drilling | Method: | Sonic D | rilling | Tota | l Depth: | 287.0 ft bgs | | Project: | Final G | W Rem | edy Phase 1 |
| Drill Ri | g Type: | Boart L | ongyear | <u>Track</u> Cond | ductor Casing Diameter: | 12 inches | | Location: | PG&E | <u> Fopock</u> | , Needles, |
| Driller I | | E. Ram | os / J. H | <u>ernandez</u> Drill (| Casing Diameter: | 10 inches | | | Californ | | |
| Drilling | | FS/JC | | Drill | | | 8" Tricone | Project Nu | ımber: <u>F</u> | RC0007 | 53.0051 |
| Tool-P | | Arnold | | • | h to First Water: | 79.6 ft bgs | | | | | |
| Rig Ge | eologist: | GW / R | C/SM | Con | verted to Well: | × Yes | No | | | | |
| Depth (ft) | Drilling Run and Averag Penetration F | je Coo | USCS USCS Casing Class Diameter (Descriptions from the frequency log for the following control of the following control o | | | 0BR boring log, c descriptions) | Drilling Fluid | | | | |
| | | | | (-0.4 - 237.0°) 5.5" PVC Sch 80 Conductor Casing | (233.0 - 237.0') Topock-metac 2.5/4 and GLEY1 8/1 (234.5 - 236.0'); 5GY 4/4; high olive green coloration, frequer staining (237.0 - 239.8') Topock-metac 40%; GLEY1 6/1 some GLEY (237.1 - 237.5'); Broken zone (237.5 - 238.0'); Joint 80 degriron, calcite secondary minera | diorite; GLEY1 Ily altered zone, it iron oxide diorite; RQD 1 2.5/1 ee fracture, | (236.0') The drying to put ba approximate de conductor casis blockage in we without resistation to the trying to put ba approximate de conductor casis rods back dow water to thin the could recircular recirculation of from conducto trap in mud tut | rill rods got hur ick down to 246 epth of the botten to 246 ft. bgs ie mud so the betten to 246 ft. bg | s place insing to remove the second of the sempts to ges added free pean pumpuring e of PVC tile eces of sh | ove ed (2 (2 (2 (2 (2 (2 (2 (| 236.6 - 240.0') 517.92 allons of water used; 18.72 gallons of water eccvered; 199.2 gallons water lost 237.0 - 242.7') 1115.2 allons of water |
| _239_ | | | | (237.0 - 287.0') Open borehole | unfoliated (238.0 - 238.2'); Joint 55 degration, calcite secondary mineral unfoliated (238.3 - 238.4'); Joint 35 degration, calcite secondary mineral unfoliated | ee fracture, lization, | hole. (236.6 - 240.1' drill rods inside hours. The gro removed by dri |) Tagged depthe the PVC sleed out and end PVO Illing. | n to grout v ve after 24 C end cap tion when | vith revith of were (2 | 98 gallons of water covered; 617.2 gallons f water lost 237.1 - 246.0') 885 allons of bentonite urry used; 597.6 allons of bentonite |
| 240 | | | | 건 첫 | (238.6 - 239.0'); Joint 70 degrees secondary mineralization, unfo | | material that co | | | ing sl | urry recovered; 287.4 allons of bentonite |
| | /iations: U | SCS = U | nified Sc | il Classification | System, ft = feet, bgs = | | | sl = above m | nean sea | | |

| 9/- | ARCA | DIS | lesign & Consultar or natural and uilt assets | Di | rilling and Slee | eve Inst | allation | Log | Sheet | t: 1 | 7 of 20 |
|-------------------------|---|-----------|---|--|--|--|--|---|--|---|---|
| Date S | tarted: | 06/25/20 | 20 | Surfa | ace Elevation: | 538.53 ft am | nsl | Borine | a No . | MW | /-70BR-287 SR |
| Date C | completed: | 07/01/20 | 20 | North | ning (NAD83): | 2100512.18 | i | | 9 110 | | TODIC ZOT OIL |
| Drilling | Co.: | Cascade | | Easti | ing (NAD83): | 7615832.54 | | Client: | PG&E | | |
| Drilling | Method: | Sonic Dr | lling | Total | l Depth: | 287.0 ft bgs | | Project: | Final GV | V Rer | medy Phase 1 |
| Drill Ri | g Type: | Boart Lo | <u>ngyear T</u> | rack Cond | ductor Casing Diameter: | 12 inches | | Location: | PG&E T | орос | k, Needles, |
| Driller I | Name: | E. Ramo | <u>s / J. He</u> r | <u>rnandez</u> Drill (| Casing Diameter: | 10 inches | | | <u>California</u> | a | |
| Drilling | Asst: | FS/JC/ | JS | Drill E | Bit: | 3 1/2" & 4 5/ | /8" Tricone | Project Nu | umber: Ro | C000 | 753.0051 |
| Tool-P | usher: | Arnold La | amon | Dept | h to First Water: | 79.6 ft bgs | | | | | |
| Rig Ge | eologist: | GW / RC | / SM | Con\ | verted to Well: | × Yes | No | | | | |
| Depth (ft) | Drilling Run and Averag Penetration R | e Code | | Casing Diameter | Description (Descriptions from the MW-7) reference log for full geologi | | the drillin | ites and obser ng andinstallat repair conduc | ion of the | | Drilling Fluid |
| 241 242 243 245 246 247 | | NR | | | (239.0 - 239.4'); Joint 70 degres secondary mineralization, unfor (239.5 - 239.7'); Joint 60 degres (239.8 - 244.3') Topock-metac 83%; GLEY1 6/1 some GLEY' (239.801'); Mechanical fractur (239.8 - 240.1'); Broken zone (240.05'); Horizontal joint (240.5 - 240.9'); Joint 55 degres econdary mineralization, unfor (240.8'); Vug (241.7 - 242.0'); Joint 70 degres econdary mineralization, unfor (242.4'); Joint 10 degree fracts secondary mineralization, unfor (242.4'); Joint 10 degree fracts econdary mineralization, unfor (242.8 - 243.0'); Joint 30 degres econdary mineralization (243.7 - 243.7'); Mechanical from (243.8 - 244.3'); Joint 70 degres (244.8 - 250.0') Topock-metac (248.8 - 245.1'); Parallel joints fractures, iron, calcite secondary mineralization, unfoliated (245.9 - 245.9'); Joint 65 degres iron, calcite secondary mineral unfoliated (246.4 - 246.6'); Joints 45 degres unfoliated | ee fracture, iron bliated ee diorite; RQD 1 2.5/1 ee ee fracture, iron bliated ee fracture, iron acture ee fracture diorite; RQD 1 2.5/1 45 degrees ary ee, fracture, llization, rees fractures, iron ees fracture, llization, | (237.1 - 246.0' remove rock cu (238.0') Encou with Tricone bi (238.5') Encou with Tricone bi (240.0') Obser water returns. rods rubbing o water is gray ir state it is from bentonite. (240.1 - 287.0' 1/2" tricone bit Conducted an remove any return by bailing and approximately. | intered fracture t. ntered fracture t. ntered fracture t. ved small frag Drillers think in the conducte color and fee rock flour/cutt) Cleaned out after sleeve w initial round of maining drillin pumping. Pure 40 gallons. | e during drill e during drill ments of PV t is from the or casing. Re els gritty. Dri ings not borehole wit vas installed. f of wedleylopmen g mud on 7/ ged ount was cor lrill rods back f hole. Driller ling out. Add ling out | ing ing ing //C in drill return illers th 3 1/30 rrrect k up rs | slurry lost (237.2 - 246.0') 1155.36 gallons of water used; 597.6 gallons of water recovered; 557.76 gallons of water lost (240.0 - 287.0') 350 gallons of bentonite slurry used; 350 gallons of bentonite slurry lost (240.1 - 287.0') 517.92 gallons of water used; 318.72 gallons of water used; 318.72 gallons of water lost (242.7 - 246.0') 1254.96 gallons of water lost (242.7 - 246.0') significance of water lost (242.7 - 246.0') 1254.96 gallons of water used; 318.72 gallons of water lost (242.7 - 246.0') 1254.96 gallons of water used; 318.72 gallons of water used; 318.72 gallons of water lost (246.0 - 258.0') 816.72 gallons of water used; 3219.12 gallons of water used; 3219.12 gallons of water used; 319.12 gallons of water used; 319.12 gallons of water used; 319.12 gallons of water lost |
| | | | | (237.0 - 28 7. 0') Open borehole | (247.7'); 55 degree fracture, ir mineralization, unfoliated (248.0 - 248.2'); Joint 55 degreiron, calcite secondary mineral unfoliated (248.2'); Joint 70 degree fracts secondary mineralization, unfo (248.25'); Joint 25 degree frac secondary mineralization, unfo (248.3 - 248.5'); Joint (250.0 - 255.1') Topock-metac 85% (250.5 - 250.6'); Joint 45 degreiron, secondary mineralization | ee fracture, alization, ure, iron oliated sture, iron oliated diorite; RQD ee fracture, | mud too think t Driller states th | o pump with b | ean pump. | | |
| | | | | | (251.1 - 251.2'); Joint 15 degree (251.3 - 251.5'); Joint 40 degree iron, calcite secondary mineral unfoliated (251.5 - 251.7'); Joint 45 degree iron, calcite secondary mineral unfoliated (251.9 - 252.1'); Joint 45 degree secondary mineralization, unfer (252.2 - 252.2'); Joint 10 degree secondary mineralization, unfer (253.2 - 253.2'); Joint 30 degree iron, calcite secondary mineral unfoliated (253.8 - 253.9'); Joint 30 degree iron, calcite secondary mineral unfoliated (253.8 - 253.9'); Joint 30 degree iron, calcite secondary mineral unfoliated (253.8 - 253.9'); Joint 30 degree iron, calcite secondary mineral unfoliated (254'); Horizontal joint | ee fracture, ilization, ee fracture, ilization, ee fracture, iron oliated ee fracture, iron oliated ee fracture, ilization, ee fracture, ilization, ee fracture, ilization, | (254.0') Obser and PVC in mu to sieve out PV | ud cuttings use /C and rubber | e shaker scre | een | OW |
| Abbrev | /iations: US | SCS = Un | ified Soil | Classification | System, ft = feet, bgs = I | below ground | l surface, ams | I = above n | nean sea | level. | GW = |

| 9/ | ARCA | DIS | Design & Consultation for natural and built assets | ancy Di | rilling and Slee | eve Inst | allation | Log | Shee | et: 18 | of 20 |
|--------------------|---|--------------------|--|-----------------------------------|--|--|---|---|---|--------------------------------|----------------|
| | Started: | 06/25/2 | | | ace Elevation: | 538.53 ft am | sl | Borine | a No · | MW. | 70BR-287 SR |
| Date C | Completed: | 07/01/2 | 020 | Nortl | ning (NAD83): | 2100512.18 | | Borni | 9 110 | 10100 | TODIX-207 OIX |
| Drilling | | Cascad | | | ing (NAD83): | 7615832.54 | | Client: | PG&E | | |
| _ | Method: | Sonic D | • | | I Depth: | 287.0 ft bgs | | Project: | | | edy Phase 1 |
| | g Type: | | ongyear ⁻ | | ductor Casing Diameter: | | | Location: | | • | , Needles, |
| | Name: | | | | Casing Diameter: | 10 inches | O!! T : | - | Californ | | 50.0054 |
| Drilling | | FS /JC | | Drill I | | 3 1/2" & 4 5/ | 8" Tricone | _ Project Ni | ımber: <u>F</u> | (C0007 | 53.0051 |
| | usher: eologist: | Arnold GW / R | | | h to First Water: verted to Well: | 79.6 ft bgs | No | - | | | |
| rtig Oc | Joiogist. | OW/IN | O / OIVI | | T | | INO | | | | |
| Depth (ft) | Drilling Run and Averag Penetration R | e Cod | | Casing Diameter | Description (Descriptions from the MW-7 reference log for full geologi | | the drilling | otes and obsering andinstallat repair conduc | ion of the | | Drilling Fluid |
| | Penetration F | tate out | | (237.0 - 287.0') Open borehole | | c descriptions) liorite; RQD 1 2.5/1 see fracture, alization, see fracture, see frac | (258.0') Driller 4 5/8" Tricone to go after the was unsucces bgs approxima into hole and t | s requested to bit to give any first attempt to sful. Once the ately 2.5 ft. of n | drill deepe cuttings a install slee drilled to 2 naterial fell installed | place eve 58 ft. back | |
| _265_ _266_ | | | | 7.4. | (265.1 - 268.5') Topock-metac 90%; GLEY1 6/1 some GLEY (265.6 - 265.7'); Mechanical fr (265.8 - 266.0'); Joint 40 degricalcite secondary mineralizati | 1 2.5/1 acture ee fracture, | | | | | |
| | | | | | | | | | | | |
| _267 | | | | : | (266.7 - 267.1'); Joint 50 degre | | | | | | |
| | | | | 3 | iron, calcite secondary minera unfoliated | | | | | | |
| | | | | | (267.0 - 267.1'); Joint 30 degree iron, calcite secondary mineral | | | | | | |
| _268_ | | | | <u>}</u> | unfoliated (267.8 - 268.2'); Joint 75 degre iron, calcite secondary minera | ee fracture, | | | | | |
| _ 269_ | | | | <u>}</u> | unfoliated (268.5 - 268.5'); Mechanical 5 (268.5 - 268.7'); Joint 40 degre unfoliated | | | | | | |
| 270 | | | | | (268.5 - 269.0') Topock-metac 0%; GLEY1 6/1 some GLEY1 (268.8 - 269.0'); Joint 40 degre | 2.5/1 | | | | | |
| | | 200 - 11 | -: find Cn: | .1 | Cystom ft - foot has - | | | | | 1 | 2)/// |

| 9/ | ARCA | DIS | Design & Consulta for natural and built assets | ncy Dr | rilling and Slee | eve Inst | allation | Log | Shee | et: 19 | of 20 |
|---------------|---|----------|--|-----------------------------------|--|--|---|--|---|-------------|----------------|
| | Started: | 06/25/20 | 20 | Surfa | ace Elevation: | 538.53 ft am | ısl | Borino | ı No · | MW. | 70BR-287 SR |
| Date C | Completed: | 07/01/20 | 20 | North | ning (NAD83): | 2100512.18 | | Donnie | , 140 | IVIVV | TODIX-ZOT OIX |
| Drilling | Co.: | Cascade |) | Easti | ng (NAD83): | 7615832.54 | | Client: | PG&E | | |
| Drilling | Method: | Sonic Dr | illing | Total | Depth: | 287.0 ft bgs | | Project: | Final G | W Rem | edy Phase 1 |
| Drill Ri | g Type: | Boart Lo | ngyear 1 | rack Cond | ductor Casing Diameter: | 12 inches | | Location: | | • | , Needles, |
| Driller | Name: | E. Ramo | s / J. He | | Casing Diameter: | 10 inches | | | Californ | <u>ia</u> | |
| Drilling | | FS/JC/ | | Drill E | | | 8" Tricone | Project Nu | mber: <u>F</u> | RC0007 | 753.0051 |
| | usher: | Arnold L | | • | h to First Water: | 79.6 ft bgs | | | | | |
| Rig Ge | eologist: | GW / RO | C/SM | Conv | verted to Well: | × Yes | No | | | | |
| Depth (ft) | Drilling Run and Averag Penetration F | ie Code | | Casing Diameter | Description (Descriptions from the MW-7/reference log for full geologi | OBR boring log, c descriptions) | the drillin | tes and observ g andinstallation repair conductor | on of the | | Drilling Fluid |
| | | | | (237.0 - 287.0') Open borehole | calcite secondary mineralizatic (269.0 - 270.0') Topock-metad 40%; GLEY1 6/1 some GLEY' (269.01'); Mechanical horizont (269.2 - 269.3'); Joint 40 degrecalcite, secondary mineralizatic (269.5 - 270.0'); Broken zone (270.0 - 275.0') Topock-metad 66%; GLEY1 6/1 some GLEY' (270.4 - 270.5'); Joint 20 degrecalcite, secondary mineralization (270.5 - 270.6'); Joint 20 degrecalcite, secondary mineralization (270.5 - 270.6'); Joint 20 degrecalcite, secondary mineralization, unfor (270.5 - 270.6'); Joint 30 degrecalcite secondary mineralization, unfor (271.0 - 271.0'); Joint 15 degrecalcite secondary mineralization, unfor (271.0 - 271.0'); Joint 15 degrecalcite secondary mineralization, unfor (271.0 - 271.0'); Joint 15 degrecalcite secondary mineralization, calcite secondary mineralization (273.9 - 274.1'); Joint 40 degrecalcite secondary mineralization, unfor (275.0 - 275.2'); Mechanical do (275.0 - 275.2'); Horizontal joint, iron secondary mineralization, unfor (280.0 - 280.0') Topock-metad (274.25'); Horizontal joint, iron secondary mineralization (281.0 - 281.1'); Joint 10 degrecalcite secondary mineralization, unfor (280.0 - 280.2'); Vertical joint (280.0 - 282.2'); Joint 10 degrecalcite secondary mineralization (281.9 - 282.1'); Joint 10 degrecalcite secondary mineralization (281.9 - 282.2'); Joint 10 degrecalcite secondary mineralization, unfor (281.9 - 282.2'); Joint 10 degrecalcite secondary mineralization, unfor (281.9 - 282.2'); Joint 10 degrecalcite secondary mineralization, unfor (281.9 - 282.2'); Joint 10 degrecalcite secondary mineralization, unfor (281.9 - 282.3'); Joint 10 degrecalcite secondary mineralization, unfor (281.9 - 282.3'); Joi | on, unfoliated liorite; RQD 1 2.5/1 al fracture se fracture, ion, unfoliated liorite; RQD 1 2.5/1 see fracture, ee fracture, ee fracture, ion oliated see fracture, ion, unfoliated see fracture, ilization, see fracture iliorite; RQD 1 2.5/1 see fracture iliorite; RQD 1 2.5/1 al fracture secondary see fracture, ilization, infoliated calcite oliated see fracture, on, unfoliated s | (272.0') Driller clean out with the clean out with | states hole tight with tricone by states hole lookericone bit on 6 | ntened up bit on 6/30, sened up /30/20. | /20. during | |
| 285 | | | | 4 | (284.7 - 284.7'); Joint 20 degre | ee fracture, | | | | | |

| 9/ | ARCA | DIS for but | sign & Consultar natural and It assets | ncy Di | rilling and Slee | eve Inst | allation | Log | Shee | et: 20 | of 20 |
|-------------------|---|-------------|--|-----------------------------------|--|---|-------------|--|-----------------|-------------|----------------|
| Date S | Started: | 06/25/202 | | | ace Elevation: | 538.53 ft am | ısl | Borine | n No : | MW-7 | '0BR-287 SR |
| Date C | Completed: | 07/01/202 | 20 | North | ning (NAD83): | 2100512.18 | | Богиц | g 140 | IVI V V - / | 0DN-201 3N |
| Drilling | Co.: | Cascade | | Easti | ing (NAD83): | 7615832.54 | | Client: | PG&E | | |
| Drilling | Method: | Sonic Dril | ling | Total | Depth: | 287.0 ft bgs | | Project: | | | dy Phase 1 |
| | ig Type: | Boart Lon | •• | | ductor Casing Diameter: | 12 inches | | Location: | | Topock, I | Needles, |
| Driller | Name: | | | | Casing Diameter: | 10 inches | | | Californ | | |
| Drilling | | FS/JC/J | | Drill E | | | '8" Tricone | Project Nu | ımber: <u>F</u> | C00075 | 3.0051 |
| | Pusher: | Arnold La | | • | h to First Water: | 79.6 ft bgs | | | | | |
| Rig Ge | eologist: | GW / RC | / SM | Con\ | verted to Well: | × Yes | No | | | | |
| Depth (ft) | Drilling Run and Averag Penetration F | je Code | USCS Class | Casing Diameter | Description (Descriptions from the MW-7 reference log for full geologi | OBR boring log, c descriptions) | the drillin | tes and obser g andinstallat repair conduc | on of the | | Drilling Fluid |
| 286 287 288 | | | | (237.0 - 287.0') Open borehole | calcite secondary mineralizatio (284.8 - 284.5'); Joint 30 degration, calcite secondary mineral unfoliated (285.0 - 287.0') Topock-metac 93%; GLEY1 6/1 some GLEY' (285.0 - 285.1'); Mechanical fr (285.7 - 286.0'); Broken zone (286.0 - 286.6'); Joint 65 degration, calcite secondary mineral unfoliated possible slickenline (286.8 - 287.0'); Joint 25 degraticite secondary mineralization and the sec | ee fracture, lization, liorite; RQD 1 2.5/1 acture ee fracture, lization, s ee fracture, on, unfoliated After | | | | | |
| 289 | | | | | | 17 | | | | | |
| _290_ | | | | | | | | | | | |
| _291_ | | | | | | | | | | | |
| _292_ | | | | | | | | | | | |
| 293 | | | | | | | | | | | |
| 294 | | | | | • | | | | | | |
| 295 | | | | | | | | | | | |
| _ 296_ | | | | | | | | | | | |
| 297 | | | | | | | | | | | |
| _ 298_ | | | | | | | | | | | |
| | | | | | | | | | | | |
| 300 Abbre | viations: 119 | SCS = Unit | ied Scil | Classification | System. ft = feet. bas = I | helow ground | surface amo | l = ahove n | nean sec | level C | N = |