

ATTACHMENT K

CONSTRUCTION DETAILS

1. FACILITY INFORMATION

Facility Name: Aera CCS

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Well Information:

Well Number	County, State	Latitude	Longitude
CI1-64Z-27N	Kern County, CA	35°33'9.4877"N	119°48'26.3702"W
CI2-64Z-35N	Kern County, CA	35°32'32.6713"N	119°47'37.0682"W
CI3-64Z-35N	Kern County, CA	35°32'11.6457"N	119°47'7.5912"W
CI4-64Z-35N	Kern County, CA	35°31'55.4154"N	119°46'51.7864"W
27R-27N	Kern County, CA	35°33'2.4280"N	119°48'28.6103"W
55-26N	Kern County, CA	35°32'43.2520"N	119°47'32.7755"W
64-35N	Kern County, CA	35°31'44.3600"N	119°46'44.9788"W
9-1N	Kern County, CA	35°31'31.6480"N	119°46'37.0154"W
64-27N	Kern County, CA	35°32'41.1707"N	119°47'52.2726"W

The construction details for the following wells are described in this attachment:

- New injection wells:
 - CI1-64Z-27N
 - CI2-64Z-35N
 - CI3-64Z-35N
 - CI4-64Z-35N
- Repurposed injection wells:
 - 27R-27N
 - 55-26N
 - 64-35N
 - 9-1N
 - 64-27N
- Repurposed monitoring wells:
 - 1-28N
 - 25-26N
 - 27-1N
 - 39-26N

Plan revision number: 0

Plan revision date: December 2022

2. WELL CONSTRUCTION DETAILS – NEW INJECTION WELLS

The well construction diagram for new injection wells (CI1-64Z-27N, CI2-64Z-35N, CI3-64Z-35N, and CI4-64Z-35N) is shown in **Figure 1**. **Tables 1.a, 1.b, 1.c, and 1.d** show the respective well construction details.

Table 1.a. Open Hole Diameters and Intervals – New Injection Wells

Name	Depth Interval (ft)	Open Hole Diameter (in.)	Comment
Conductor	Surface – 50	26	New drilled hole and casing
Surface	Surface – 1,000	17.5	New drilled hole and casing
Intermediate	Surface – 6,100	12.25	New drilled hole and casing
Long-string section 1	Surface – 6,000	8.5	New drilled hole and casing
Long-string section 2	6,000 – 8,000	8.5	New drilled hole and casing
Liner	7,700 – 8,500	6	New drilled hole and casing

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Table 1.b. Casing Specifications – New Injection Well

Name	Depth Interval (ft)	Outside Diameter (in.)	Inside Diameter (in.)	Weight (ppf)	Grade (API)	Design Coupling (Short or Long Threaded)	Thermal Conductivity @68°F (BTU/ft hr, °F)	Burst Strength (psi)	Collapse Strength (psi)
Conductor	Surface – 50	20	19.124	94	H40	Short	26.2	1,530	520
Surface	Surface – 1,000	13.375	12.615	54.5	K55	Short	26.2	2,730	1,130
Intermediate	Surface – 6,100	9.625	8.835	40	K55	Long	26.2	3,950	2,570
Long-string section 1	Surface - 6,000	7	6.276	26	L80	Long	26.2	7,240	5,410
Long-string section 2	6,000 - 8,000	7	6.276	26	Modified 13Cr110	Long	15.0	9,960	6,230
Liner	7,700 – 8,500	4.5	3.958	12.6	Modified 13Cr95	Long	15.0	10,010	6,350

Table 1.c. Tubing Specifications – New Injection Well

Name	Depth Interval (ft)	Outside Diameter (in.)	Inside Diameter (in.)	Weight (ppf)	Grade (API)	Design Coupling (Short or Long Threaded)	Burst strength (psi)	Collapse strength (psi)	Tensile strength (lbf)
Injection tubing	Surface - 7,300	4.5	4.000	11.6	Modified 13Cr80	Long	7,780	6,350	267,040

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Table 1.d. Packer Specifications – New Injection Well

Packer Type and Material	Packer Setting Depth (ft)	Length (in.)	Nominal Casing Weight (ppf)	Packer Main Body Outer Diameter (in.)	Packer Inner Diameter (in.)
Permanent or retrievable with latched seal assembly – Alloy 718 or equivalent	7,300	74	23-32	5.937	3.875 in. (based on tubing drift ID)

Tensile Rating (lbs)	Burst Rating (psi)	Collapse Rating (psi)	Max. Casing Inner Diameter (in.)	Min. Casing Inner Diameter (in.)
151,585	10,000	9,676	6.276 in. (nominal ID for 7 in. 26-ppf casing)	6.151 in. (drift diameter for 7-in. 26-ppf casing)

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3. WELL CONSTRUCTION DETAILS – 27R-27N

The well construction diagram for well 27R-27N is shown in **Figure 2**. **Tables 2.a, 2.b, 2.c, and 2.d** show the respective well construction details.

Table 2.a. Open Hole Diameters and Intervals – 27R-27N

Name	Depth Interval (ft)	Open Hole Diameter (in.)	Comment
Conductor	Surface – 90	Not reported	Existing casing
Surface	Surface – 805	22-in. hole	Existing casing
Long-string	Surface – 7,789	10.625-in. hole	Existing casing
Cutoff Casing	7,775 – 8,820	7.875-in. hole	Existing casing
Liner	8,800 – 8,940	5.625-in. hole	Existing liner
Long-string section 1	Surface – 7,220	8.032 (ID of 9-in. casing)	New inner casing
Long-string section 2	7,220 – 7,693	8.032 (ID of 9-in. casing)	New inner casing
Liner	7,630 – 8,250	5.855 (ID of 6.625-in. liner)	New inner liner

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Table 2.b. Casing Specifications – 27R-27N

Name	Depth Interval (ft)	Outside Diameter (in.)	Inside Diameter (in.)	Weight (ppf)	Grade (API)	Design Coupling (Short or Long Threaded)	Thermal Conductivity @68°F (BTU/ft hr, °F)	Burst Strength (psi)	Collapse Strength (psi)
Conductor	Surface – 90	20	Not reported	Not reported	Not reported	Short	26.2	Not reported	Not reported
Surface	Surface – 805	16	15.124	72.72	Not reported	Short	26.2	Not reported	Not reported
Long-string	Surface – 7,789	9	8.032	45	J55	Long	26.2	5,180	4,670
Cutoff casing	7,775 – 8,820	6.625	5.885	26	N80	Long	26.2	8,140	6,980
Liner	8,800 – 8,940	4.75	4.082	16	J55	Long	26.2	6,770	7,190
Long-string section 1	Surface – 7,220	7	6.276	26	L80	Long	26.2	7,240	5,410
Long-string section 2	7,220 – 7,693	7	6.276	26	Modified 13Cr80	Long	15.0	7,240	5,410
Liner	7,630 – 8,250	4.5	3.958	12.6	Modified 13Cr95	Long	15.0	10,010	8,410

Table 2.c. Tubing Specifications – 27R-27N

Name	Setting Depth (ft)	Outside Diameter (in.)	Inside Diameter (in.)	Weight (ppf)	Grade (API)	Design Coupling (Short or Long Threaded)	Burst strength (psi)	Collapse strength (psi)	Tensile strength (lbf)
Injection tubing	Surface - 7,570	4.5	4.000	11.6	Modified 13Cr80	Long	7,780	6,350	267,040

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Table 2.d. Packer Specifications – 27R-27N

Packer Type and Material	Packer Setting Depth (ft)	Length (in.)	Nominal Casing Weight (ppf)	Packer Main Body Outer Diameter (in.)	Packer Inner Diameter (in.)
Permanent or retrievable with latched seal assembly – Alloy 718 or equivalent	7,570	74	23-32	5.937	3.875 in. (based on tubing drift ID)

Tensile Rating (lbs)	Burst Rating (psi)	Collapse Rating (psi)	Max. Casing Inner Diameter (in.)	Min. Casing Inner Diameter (in.)
151,585	10,000	9,676	6.276 in. (nominal ID for 7-in. 26-ppf casing)	6.151 in. (drift diameter for 7-in. 26-ppf casing)

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4. WELL CONSTRUCTION DETAILS – 55-26N

The well construction diagram for well 55-26N is shown in **Figure 3**. **Tables 3.a, 3.b, 3.c, and 3.d** show the respective well construction details.

Table 3.a. Open Hole Diameters and Intervals – 55-26N

Name	Depth Interval (ft)	Open Hole Diameter (in.)	Comment
Conductor	Surface – 48	Not reported	Existing casing
Surface	Surface – 812	22-in. hole	Existing casing
Intermediate	Surface – 5,700	14 3/4-in. hole	Existing casing
Long string	Surface – 8,230	10 5/8-in. hole	Existing casing
Cutoff casing	8,260 – 9,442	7 7/8 -in. hole	Existing casing
Liner	9,340 – 10,800	5 5/8-in. hole	Existing liner
Long-string section 1	Surface – 7,260	8.032 (ID of 9-in. casing)	New inner casing
Long-string section 2	7,260 – 7,630	8.032 (ID of 9-in. casing)	New inner casing
Liner	7,575 – 8,161	8.032 (ID of 9-in. casing)	New liner

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Table 3.b. Casing Specifications – 55-26N

Name	Depth Interval (ft)	Outside Diameter (in.)	Inside Diameter (in.)	Weight (ppf)	Grade (API)	Design Coupling (Short or Long Threaded)	Thermal Conductivity @68°F (BTU/ft hr, °F)	Burst Strength (psi)	Collapse Strength (psi)
Conductor	Surface – 48	30	Not reported	Not reported	Not reported	Short	26.2	Not reported	Not reported
Surface	Surface – 812	16	15.124	72.72	Not reported	Short	26.2	Not reported	Not reported
Intermediate	Surface – 5,700	11.75	10.772	61	J55	Long	26.2	4,010	2,670
Long-string	Surface – 8,230	9	8.032	45	J55	Long	26.2	5,180	4,670
Cutoff casing	8,260 – 9,442	6.625	5.855	26	N80	Long	26.2	10,250	10,690
Liner	9,340 – 10,800	4.75	4.082	16	J55	Long	26.2	6,770	7,190
Long-string section 1	Surface - 7,260	7	6.276	26	L80	Long	26.2	7,240	5,410
Long-string section 2	7,260 - 7,630	7	6.276	26	Modified 13Cr80	Long	15.0	7,240	5,410
Liner	7,575 - 8,161	4.5	3.958	12.6	Mod 13Cr95	Long	15.0	10,010	8,410

Table 3.c. Tubing Specifications – 55-26N

Name	Depth Interval (ft)	Outside Diameter (in.)	Inside Diameter (in.)	Weight (ppf)	Grade (API)	Design Coupling (Short or Long Threaded)	Burst strength (psi)	Collapse strength (psi)	Tensile strength (lbf)
Injection tubing	Surface - 7,510	4.5	4.000	11.6	Modified 13Cr80	Long	7,780	6,350	267,040

Table 3.d. Packer Specifications – 55-26N

Packer Type and Material	Packer Setting Depth (ft)	Length (in.)	Nominal Casing Weight (ppf)	Packer Main Body Outer Diameter (in.)	Packer Inner Diameter (in.)
Permanent or retrievable with latched seal assembly – Alloy 718 or equivalent	7,510	74	23-32	5.937	3.875 in. (based on tubing drift ID)

Tensile Rating (lbs)	Burst Rating (psi)	Collapse Rating (psi)	Max. Casing Inner Diameter (in.)	Min. Casing Inner Diameter (in.)
151,585	10,000	9,676	6.276 in. (nominal ID for 7-in. 26-ppf casing)	6.151 in. (drift diameter for 7-in. 26-ppf casing)

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5. WELL CONSTRUCTION DETAILS – 64-35N

The well construction diagram for well 64-35N is shown in **Figure 4**. **Tables 4.a, 4.b, 4.c, and 4.d** show the respective well construction details.

Table 4.a. Open Hole Diameters and Intervals – 64-35N

Name	Depth Interval (ft)	Open Hole Diameter (in.)	Comment
Conductor	Surface – 89	Not reported	Existing casing
Surface	Surface – 870	22-in. hole	Existing casing
Intermediate	Surface – 5,683	14.75-in. hole	Existing casing
Long-string	Surface – 7,820	10.625-in. hole	Existing casing
Liner	7,787 – 8156	7.875-in. hole.	Uncemented liner to be removed.
Long-string section 1	Surface – 7,220	8.032 (ID of 9-in. casing)	New inner casing
Long-string section 2	7,220 – 7,630	8.032 (ID of 9-in. casing)	New inner casing
Liner	7,580 – 8,151	6.276 (ID of 7-in. casing)	New liner

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Table 4.b. Casing Specifications – 64-35N

Name	Depth Interval (ft)	Outside Diameter (in.)	Inside Diameter (in.)	Weight (ppf)	Grade (API)	Design Coupling (Short or Long Threaded)	Thermal Conductivity @68°F (BTU/ft hr, °F)	Burst Strength (psi)	Collapse Strength (psi)
Conductor	Surface – 89	20	Not reported	Not reported	Not reported	Short	26.2	Not reported	Not reported
Surface	Surface – 870	16	15.124	72.72	Not reported	Short	26.2	Not reported	Not reported
Intermediate	Surface – 5,683	11.75	10.772	61	J55	Long	26.2	4,010	2,670
Long-string	Surface - 5,631	9	8.032	46.1	J55	Long	26.2	5,180	4,670
Long-string	5631 – 7,820	9	8.032	45	J55	Long	26.2	5,180	4,670
Long-string 1	Surface - 7,220	7	6.276	26	L80	Long	26.2	7,240	5,410
Long-string 2	7,220 - 7,630	7	6.276	26	13Cr80	Long	15.0	7,240	5,410
Liner	7,580 - 8,151	4.5	3.958	12.6	13Cr95	Long	15.0	10,010	8,410

Table 4.c. Tubing Specifications – 64-35N

Name	Depth Interval (ft)	Outside Diameter (in.)	Inside Diameter (in.)	Weight (ppf)	Grade (API)	Design Coupling (Short or Long Threaded)	Burst strength (psi)	Collapse strength (psi)	Tensile strength (lbf)
Injection tubing	Surface - 7,530	4.5	4.000	11.6	13Cr80	Long	7,780	6,350	267,040

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Table 4.d. Packer Specifications – 64-35N

Packer Type and Material	Packer Setting Depth (ft)	Length (in.)	Nominal Casing Weight (ppf)	Packer Main Body Outer Diameter (in.)	Packer Inner Diameter (in.)
Permanent or retrievable with latched seal assembly – Alloy 718 or equivalent	7,530	74	23-32	5.937	3.875 in. (based on tubing drift ID)

Tensile Rating (lbs)	Burst Rating (psi)	Collapse Rating (psi)	Max. Casing Inner Diameter (in.)	Min. Casing Inner Diameter (in.)
151,585	10,000	9,676	6.276 in. (nominal ID for 7-in. 26-ppf casing)	6.151 in. (drift diameter for 7-in. 26-ppf casing)

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6. WELL CONSTRUCTION DETAILS – 9-1N

The well construction diagram for well 9-1N is shown in **Figure 5**. **Tables 5.a, 5.b, 5.c, and 5.d** show the respective well construction details.

Table 5.a. Open Hole Diameters and Intervals – 9-1N

Name	Depth Interval (ft)	Open Hole Diameter (in.)	Comment
Conductor	Surface – 52	Not reported	Existing casing
Surface	Surface – 815	22-in. hole	Existing casing
Intermediate	Surface – 5,855	14-3/4-in. hole	Existing casing
Long string	Surface – 7,985	10-5/8-in. hole	Existing casing
Liner	7,935 – 8,455	7-5/8-in. hole	Existing liner
Long-string	Surface – 7,390	8.032 (ID of 9-in. casing)	New inner casing
Long-string	7,390 – 7,840	8.032 (ID of 9-in. casing)	New inner casing
Liner	7,780 – 8,374	4.892 (ID of 5-1/2-in. liner)	New inner liner

Table 5.b. Casing Specifications – 9-1N

Name	Depth Interval (ft)	Outside Diameter (in.)	Inside Diameter (in.)	Weight (ppf)	Grade (API)	Design Coupling (Short or Long Threaded)	Thermal Conductivity @68°F (BTU/ft hr, °F)	Burst Strength (psi)	Collapse Strength (psi)
Conductor	Surface – 52	20	Not reported	Not reported	Not reported	Short	26.2	Not reported	Not reported
Surface	Surface – 815	16	15.124	72.72	Not reported	Short	26.2	Not reported	Not reported
Intermediate	Surface – 5,855	11.75	10.772	61	J55	Long	26.2	4,010	2,670
Long-string	Surface – 7,985	9	8.032	45	J55	Long	26.2	5,180	4,670
Liner	7,935 – 8,455	5.5	4.892	17	K55	Long	26.2	5,320	4,910
Long-string section 1	Surface – 7,390	7	6.276	26	L80	Long	26.2	7,240	5,410
Long-string section 2	7,390 – 7,840	7	6.276	26	Modified 13Cr80	Long	15.0	7,240	5,410
Liner	7,780 – 8,374	3.5	2.992	9.2	Modified 13Cr80	Long	15.0	10,160	10,540

Table 5.c. Tubing Specifications – 9-1N

Name	Depth Interval (ft)	Outside Diameter (in.)	Inside Diameter (in.)	Weight (ppf)	Grade (API)	Design Coupling (Short or Long Threaded)	Burst strength (psi)	Collapse strength (psi)	Tensile strength (lbf)
Injection tubing	Surface - 7,720	4.5	4.000	11.6	Modified 13Cr80	Long	7,780	6,350	267,040

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Table 5.d. Packer Specifications – 9-1N

Packer Type and Material	Packer Setting Depth (ft)	Length (in.)	Nominal Casing Weight (ppf)	Packer Main Body Outer Diameter (in.)	Packer Inner Diameter (in.)
Permanent or retrievable with latched seal assembly – Alloy 718 or equivalent	7,720	74	23-32	5.937	3.875 in. (based on tubing drift ID)

Tensile Rating (lbs)	Burst Rating (psi)	Collapse Rating (psi)	Max. Casing Inner Diameter (in.)	Min. Casing Inner Diameter (in.)
151,585	10,000	9,676	6.276 in. (nominal ID for 7-in. 26-ppf casing)	6.151 in. (drift diameter for 7-in. 26-ppf casing)

Plan revision number: 0

Plan revision date: December 2022

7. WELL CONSTRUCTION DETAILS – 64-27N

The well construction diagram for well 64-27N is shown in **Figure 6**. **Tables 6.a, 6.b, 6.c, and 6.d** show the respective well construction details.

Table 6.a. Open Hole Diameters and Intervals – 64-27N

Name	Depth Interval (ft)	Open Hole Diameter (in.)	Comment
Surface	Surface – 1,045	Not reported	Existing casing
Intermediate	Surface – 4,929	Not reported.	Existing casing
Long-string	Surface – 7,450	Not reported.	Existing casing
Long string	Surface – 8,060	Not reported.	Uncemented long string to be removed.
Long-string 1	Surface – 7,050	7.285 in. (ID of 8-1/8-in. casing)	New inner casing
Long-string 2	7,050 – 7,538	7.285 in. (ID of 8-1/8-in. casing)	New inner casing
Liner	7,480 – 8,038	5.921 in. (ID of 6-5/8-in. casing)	New liner

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Table 6.b. Casing Specifications – 64-27N

Name	Depth Interval (ft)	Outside Diameter (in.)	Inside Diameter (in.)	Weight (ppf)	Grade (API)	Design Coupling (Short or Long Threaded)	Thermal Conductivity @68°F (BTU/ft hr, °F)	Burst Strength (psi)	Collapse Strength (psi)
Surface	Surface – 1,045	16	15.124	75	Not reported	Short	26.2	Not reported	Not reported
Intermediate	Surface – 4,929	10.75	9.950	45.5	D	Long	26.2	3,580	2,090
Long-string	Surface – 7,450	8.125	7.285	35.5	D	Long	26.2	4,980	4,320
Long-string 1	Surface – 7,050	6.625	5.921	24	L80	Long	26.2	7,440	5,760
Long-string 2	7,050 – 7,538	6.625	5.921	24	Mod 13Cr80	Long	15.0	7,440	5,760
Liner	7,480 – 8,038	4.5	3.958	12.6	Mod 13Cr95	Long	15.0	10,010	8,410

Table 6.c. Tubing Specifications – 64-27N

Name	Depth Interval (ft)	Outside Diameter (in.)	Inside Diameter (in.)	Weight (ppf)	Grade (API)	Design Coupling (Short or Long Threaded)	Burst strength (psi)	Collapse strength (psi)	Tensile strength (lbf)
Injection tubing	Surface - 7,420	4.5	4.000	11.6	Mod 13Cr80	Long	7,780	6,350	267,040

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Table 6.d. Packer Specifications – 64-27N

Packer Type and Material	Packer Setting Depth (ft)	Length (in.)	Nominal Casing Weight (ppf)	Packer Main Body Outer Diameter (in.)	Packer Inner Diameter (in.)
Permanent or retrievable with latched seal assembly – Alloy 718 or equivalent	7,420	62.876	24	5.656	3.875 in. (based on tubing drift ID)

Tensile Rating (lbs)	Burst Rating (psi)	Collapse Rating (psi)	Max. Casing Inner Diameter (in.)	Min. Casing Inner Diameter (in.)
187,175	7,500	7,000	5.901 in. (nominal ID for 6.625 in. 24.6-ppf casing)	5.776 in. (drift diameter for 6.625 in. 24.6-ppf casing)

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8. WELL CONSTRUCTION DETAILS – 1-28N

The well construction diagram for well 1-28N is shown in **Figure 7**. **Tables 7.a, 7.b, 7.c, and 7.d** show the respective well construction details.

Table 7.a. Open Hole Diameters and Intervals – 1-28N

Name	Depth Interval (ft)	Open Hole Diameter (in.)	Comment
Surface	Surface – 807	22-in. hole	Existing casing
Intermediate	Surface – 5,930	14.75-in. hole	Existing casing
Long-string	Surface – 8,000	10.625-in. hole	Existing casing
Liner	7,972 – 8,450	7.875	Existing liner
Long-string section 1	Surface – 7,400	8.032 in. (ID of 9-in. casing)	New inner casing
Long-string section 2	7,400 – 7,972	8.032 in. (ID of 9-in. casing)	New inner casing
Liner	7,900 – 8,450	4.082 (ID of 4.75-in. Liner)	New liner

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Plan revision date: December 2022

Table 7.b. Casing Specifications – 1-28N

Name	Depth Interval (ft)	Outside Diameter (in.)	Inside Diameter (in.)	Weight (ppf)	Grade (API)	Design Coupling (Short or Long Threaded)	Thermal Conductivity @68°F (BTU/ft hr, °F)	Burst Strength (psi)	Collapse Strength (psi)
Surface	Surface – 807	16	15.124	72.72	C	Short	26.2	Not reported	Not reported
Intermediate	Surface – 5,930	11.75	10.772	61	D	Long	26.2	4,010	2,670
Long-string	Surface - 5,929	9	8.032	46.1	D	Long	26.2	5,180	4,670
Long-string	5,929 – 8,000	9	8.032	45	D	Long	26.2	5,180	4,670
Long-string section 1	Surface - 7,400	7	6.276	26	L80	Long	26.2	7,240	5,410
Long-string section 2	7,400 – 7,972	7	6.276	26	Modified 13Cr80	Long	15.0	7,240	5,410
Liner	7,900 – 8,450	3.5	2.992	9.2	Modified 13Cr80	Long	15.0	10,160	10,540

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Table 7.c. Tubing Specifications – 1-28N

Name	Depth Interval (ft)	Outside Diameter (in.)	Inside Diameter (in.)	Weight (ppf)	Grade (API)	Design Coupling (Short or Long Threaded)	Burst strength (psi)	Collapse strength (psi)	Tensile strength (lbf)
Tubing	7,475	2.375	1.995	4.60	Modified 13Cr80	Long	11,200	11,780	104.350
Tubing	7,850	2.375	1.995	4.60	Modified 13Cr80	Long	11,200	11,780	104.350

Table 7.d. Packer Specifications – 1-28N

Packer Type and Material	Packer Setting Depth (ft)	Length (in.)	Nominal Casing Weight (ppf)	Packer Main Body Outer Diameter (in.)	Packer Inner Diameter (in.)
Permanent or retrievable with latched seal assembly – Alloy 718 or equivalent	Packer 1 - 7,475 Packer 2 - 7,850	74 74	23-32 23-32	5.937 5.937	1.995 in. (for both, based on tubing drift ID)

Tensile Rating (lbs)	Burst Rating (psi)	Collapse Rating (psi)	Max. Casing Inner Diameter (in.)	Min. Casing Inner Diameter (in.)
187,175 187,175	8,750 8,750	8,500 8,500	6.276 in. (for both, nominal ID for 7-in. 26-ppf casing)	6.151 in. (for both, drift diameter for 7-in. 26-ppf casing)

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9. WELL CONSTRUCTION DETAILS – 25-26N

The well construction diagram for well 25-26N is shown in **Figure 8**. **Tables 8.a, 8.b, 8.c, and 8.d** show the respective well construction details.

Table 8.a. Open Hole Diameters and Intervals – 25-26N

Name	Depth Interval (ft)	Open Hole Diameter (in.)	Comment
Conductor	Surface – 90	32	Existing casing
Surface	Surface – 800	22	Existing casing
Intermediate	Surface – 5,900	14.75	Existing casing
Long String	Surface – 6,244	10.625	Existing casing
Long String	Surface – 8,133	7.875	Existing casing
Long-String section 1	Surface – 7,500	5.855 in. (ID of 6-5/8-in. Casing)	New inner casing
Long-string section 2	7,500 – 7,800	5.855 in. (ID of 6-5/8-in. Casing)	New inner casing

Plan revision number: 0

Plan revision date: December 2022

Table 8.b. Casing Specifications – 25-26N

Name	Depth Interval (ft)	Outside Diameter (in.)	Inside Diameter (in.)	Weight (ppf)	Grade (API)	Design Coupling (Short or Long Threaded)	Thermal Conductivity @68°F (BTU/ft hr, °F)	Burst Strength (psi)	Collapse Strength (psi)
Conductor	Surface – 90	20	Not reported	94	H-40	Short	26.2	Not reported	Not reported
Surface	Surface – 800	16	15.124	72.72	Not reported	Short	26.2	Not reported	Not reported
Intermediate	Surface – 5,900	11.75	10.772	61	C-55	Long	26.2	4,010	2,670
Long-string	Surface - 5,891	9	8.032	46.1	C-55	Long	26.2	4,460	3,450
Long-string	5,891 - 6,244	9	8.032	45	C-55	Long	26.2	4,460	3,450
Long-string	Surface – 8,133	6.625	5.855	26	J-55	Long	26.2	5,590	5,380
Long-string section 1	Surface – 7,500	4.5	4.000	11.6	L80	Long	26.2	7,780	6,350
Long-string section 2	7,500 – 7,800	4.5	4.000	11.6	Mod 13Cr95	Long	15.0	9,240	7,030

Table 8.c. Tubing Specifications – 25-26N

Name	Depth Interval (ft)	Outside Diameter (in.)	Inside Diameter (in.)	Weight (ppf)	Grade (API)	Design Coupling (Short or Long Threaded)	Burst strength (psi)	Collapse strength (psi)	Tensile strength (lbf)
Tubing	Surface - 7,600	2.375	1.995	4.60	Modified 13Cr80	Long	11,200	11,780	104,350

Plan revision number: 0

Plan revision date: December 2022

Table 8.d. Packer Specifications – 25-26N

Packer Type and Material	Packer Setting Depth (ft)	Length (in.)	Nominal Casing Weight (ppf)	Packer Main Body Outer Diameter (in.)	Packer Inner Diameter (in.)
Permanent or retrievable with latched seal assembly – Alloy 718 or equivalent	7,600	53.168	11.6-13	3.771	1.995 in. (based on tubing drift ID)

Tensile Rating (lbs)	Burst Rating (psi)	Collapse Rating (psi)	Max. Casing Inner Diameter (in.)	Min. Casing Inner Diameter (in.)
56,000	6,265	5,720	3.958 in. (nominal ID for 4.5 in. 12.6-ppf casing)	3.833 in. (drift diameter for 4.5 in. 12.6-ppf casing)

Plan revision number: 0

Plan revision date: December 2022

10. WELL CONSTRUCTION DETAILS – 27-1N

The well construction diagram for well 27-1N is shown in **Figure 9**. **Tables 9.a, 9.b, 9.c, and 9.d** show the respective well construction details.

Table 9.a. Open Hole Diameters and Intervals – 27-1N

Name	Depth Interval (ft)	Open Hole Diameter (in.)	Comment
Conductor	Surface – 95	Not reported	Existing casing
Surface	Surface – 816	22-in. hole	Existing casing
Intermediate	Surface – 6,010	14.75-in. hole	Existing casing
Long-string	Surface – 8,115	10.625-in. hole	Existing casing
Liner	8,080 – 8,440	7.875	Existing liner
Long-string section 1	Surface – 7,550	8.032 (ID of 9-in. casing)	New inner casing
Long-string section 2	7,550 – 7,981	8.032 (ID of 9-in. casing)	New inner casing
Liner	7,910 – 8,440	4.892 (ID of 5.5-in. liner)	New inner liner

Plan revision number: 0

Plan revision date: December 2022

Table 9.b. Casing Specifications – 27-1N

Name	Depth Interval (ft)	Outside Diameter (in.)	Inside Diameter (in.)	Weight (ppf)	Grade (API)	Design Coupling (Short or Long Threaded)	Thermal Conductivity @68°F (BTU/ft hr, °F)	Burst Strength (psi)	Collapse Strength (psi)
Conductor	Surface – 95	20	Not reported	Not reported	Not reported	Short	26.2	Not reported	Not reported
Surface	Surface – 816	16	15.124	72.72	Not reported	Short	26.2	Not reported	Not reported
Intermediate	Surface – 6,010	11.75	10.772	61	J55	Long	26.2	4,010	2,670
Long-string	Surface - 6,002	9	8.032	46.1	J55	Long	26.2	5,180	4,670
Long-string	6,002 – 8,115	9	8.032	45	J55	Long	26.2	5,180	4,670
Liner	8,080 – 8,440	5.5	4.892	17	K55	Long	26.2	5,320	4,910
Long-string section 1	Surface - 7,550	5.5	4.950	15.5	L80	Long	26.2	7,000	4,950
Long-string section 2	7,550 – 7,981	5.5	4.892	17	Modified 13Cr80	Long	15.0	6,290	396,990
Liner	7,910 – 8,440	3.5	2.992	9.2	Modified 13Cr80	Long	15.0	10,540	207,220

Table 9.c. Tubing Specifications – 27-1N

Name	Depth Interval (ft)	Outside Diameter (in.)	Inside Diameter (in.)	Weight (ppf)	Grade (API)	Design Coupling (Short or Long Threaded)	Burst strength (psi)	Collapse strength (psi)	Tensile strength (lbf)
Tubing	Surface - 7,850	2.375	1.995	4.60	Modified 13Cr80	Long	11,200	11,780	104,350

Table 9.d. Packer Specifications – 27-1N

Packer Type and Material	Packer Setting Depth (ft)	Length (in.)	Nominal Casing Weight (ppf)	Packer Main Body Outer Diameter (in.)	Packer Inner Diameter (in.)
Permanent or retrievable with latched seal assembly – Alloy 718 or equivalent	7,850	52.125	13-20	4.625	1.995 in. (based on tubing drift ID)

Tensile Rating (lbs)	Burst Rating (psi)	Collapse Rating (psi)	Max. Casing Inner Diameter (in.)	Min. Casing Inner Diameter (in.)
87,333	6,000	6,000	6.276 in. (nominal ID for 7-in. 26-ppf casing)	6.151 in. (drift diameter for 7-in. 26-ppf casing)

Plan revision number: 0

Plan revision date: December 2022

11. WELL CONSTRUCTION DETAILS – 39-26N

The well construction diagram for well 39-26N is shown in **Figure 10**. **Tables 10.a, 10.b, 10.c, and 10.d** show the respective well construction details.

Table 10.a. Open Hole Diameters and Intervals – 39-26N

Name	Depth Interval (ft)	Open Hole Diameter (in.)	Comment
Conductor	Surface – 92	32-in. hole	Existing casing
Surface	Surface – 803	22-in. hole	Existing casing
Intermediate	Surface – 5,875	14.75-in. hole	Existing casing
Long String	Surface – 8,100	10.625-in. hole	Existing casing
Long-string section 1	Surface – 7,580	6.214 (ID of 7-in. casing)	New inner casing
Long-string section 2	7,580 – 7,955	6.214 (ID of 7-in. casing)	New inner casing
Liner	7,955 – 8,243	6.214 (ID of 7-in. casing)	New liner

Plan revision number: 0

Plan revision date: December 2022

Table 10.b. Casing Specifications – 39-26N

Name	Depth Interval (ft)	Outside Diameter (in.)	Inside Diameter (in.)	Weight (ppf)	Grade (API)	Design Coupling (Short or Long Threaded)	Thermal Conductivity @68°F (BTU/ft hr, °F)	Burst Strength (psi)	Collapse Strength (psi)
Conductor	Surface – 92	20	Not Reported	94	H40	Short	26.2	–	–
Surface	Surface – 803	16	15.124	72.72	Not Reported	Short	26.2	Not reported	Not reported
Intermediate	Surface – 5,765	11.75	10.772	61	NC55	Long	26.2	4,010	2,670
Long String	Surface – 8,100	7	6.214	28	J-55	Long	26.2	5,400	5,050
Long-string section 1	Surface – 7,580	4.5	4.000	11.6	L80	Long	26.2	7,780	6,350
Long-string section 2	7,580 – 7,955	4.5	4.000	11.6	Modified 13Cr95	Long	15.0	9,240	7,030
Liner	7,955 – 8,243	4.5	4.000	11.6	Modified 13Cr95	Long	15.0	9,240	7,030

Table 10.c. Tubing Specifications – 39-26N

Name	Depth Interval (ft)	Outside Diameter (in.)	Inside Diameter (in.)	Weight (ppf)	Grade (API)	Design Coupling (Short or Long Threaded)	Burst strength (psi)	Collapse strength (psi)	Tensile strength (lbf)
Tubing	Surface - 7,850	2.375	1.995	4.60	Modified 13Cr80	Long	11,200	11,780	104,350

Plan revision number: 0

Plan revision date: December 2022

Table 10.d. Packer Specifications – 39-26N

Packer Type and Material	Packer Setting Depth (ft)	Length (in.)	Nominal Casing Weight (ppf)	Packer Main Body Outer Diameter (in.)	Packer Inner Diameter (in.)
Permanent or retrievable with latched seal assembly – Alloy 718 or equivalent	7,850	53.168	11.6-13	3.771	1.995 in. (based on tubing drift ID)

Tensile Rating (lbs)	Burst Rating (psi)	Collapse Rating (psi)	Max. Casing Inner Diameter (in.)	Min. Casing Inner Diameter (in.)
56,000	6,265	5,720	4.000 in. (nominal ID for 4.5-in. 11.6-ppf casing)	3.875 in. (drift diameter for 4.5-in. 11.6-ppf casing)

Figures

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Figure 3. 55-26N Repurposed for CO₂ Injection

Figure 4. 64-35N Repurposed for CO₂ Injection

Figure 5. 9-1N Repurposed for CO₂ Injection

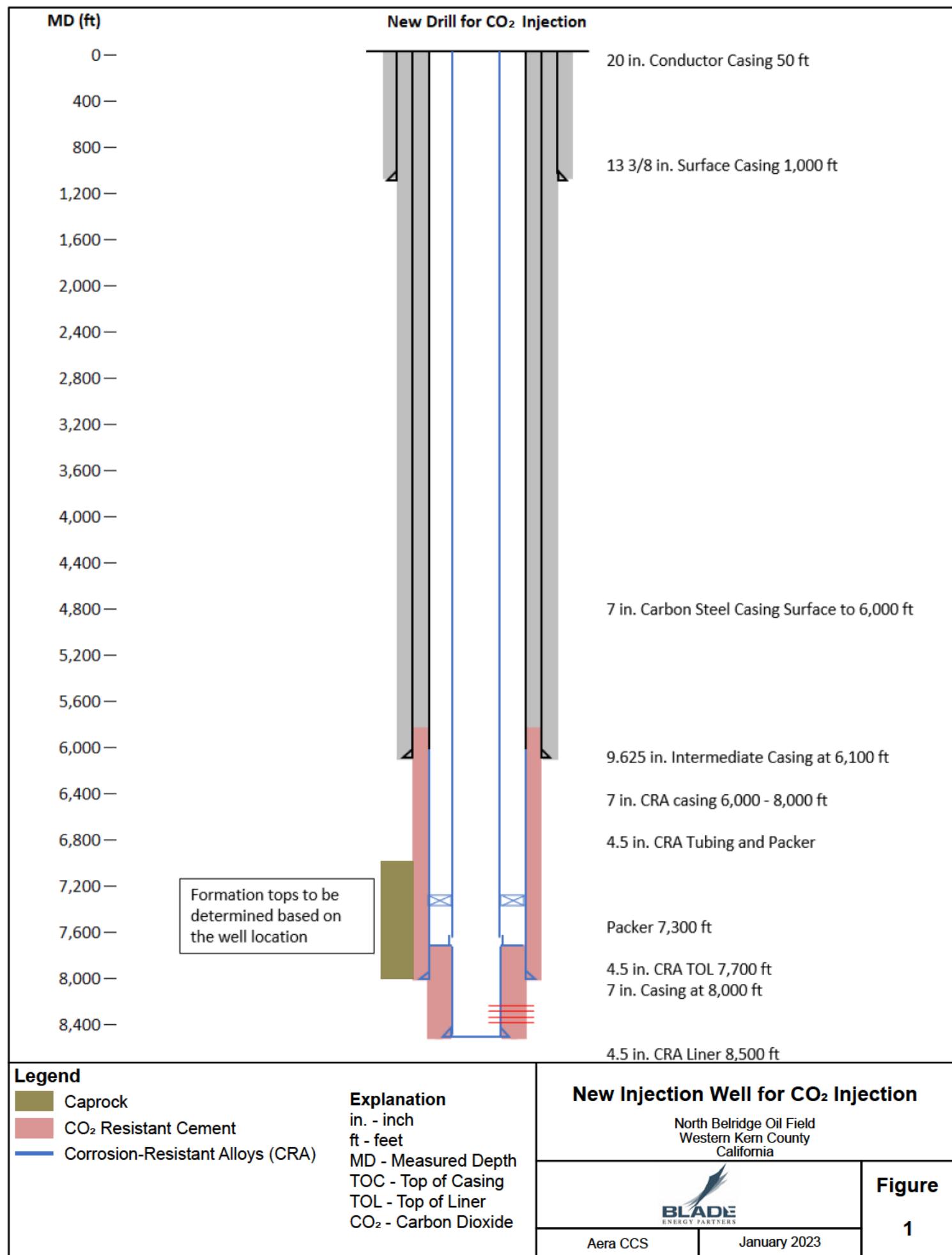
Figure 6. 64-27N Repurposed for CO₂ Injection

Figure 7. 1-28N Repurposed for Monitoring

Figure 8. 25-26N Repurposed for Monitoring

Figure 9. 27-1N Repurposed for Monitoring

Figure 10. 39-26N Repurposed for Monitoring



MD (ft)

27R-27N Repurposed for CO₂ Injection

0

400

800

1,200

1,600

2,000

2,400

2,800

3,200

3,600

4,000

4,400

4,800

5,200

5,600

6,000

6,400

6,800

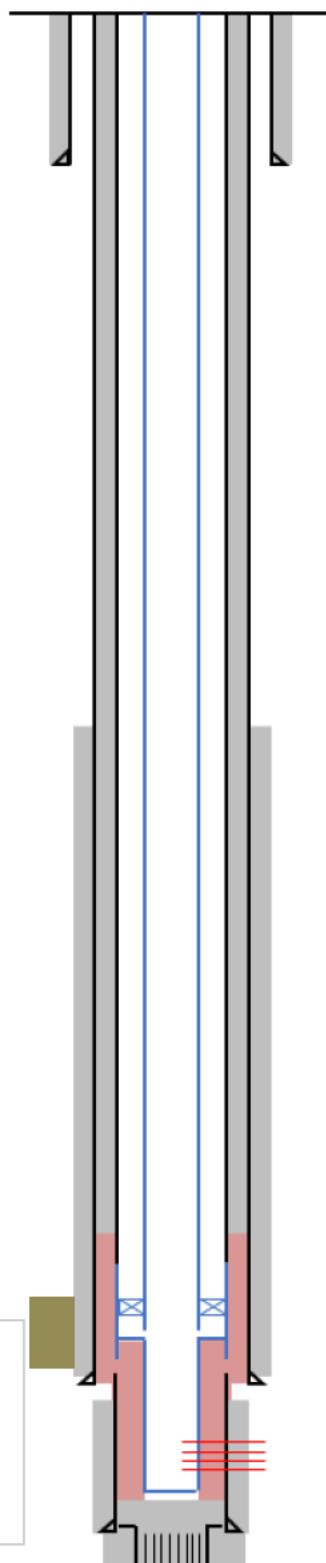
7,200

7,600

8,000

8,400

8,800



Cement to surface

16 in. Surface Casing 805 ft

9 in. Calculated TOC 4,058 ft

7 in. Carbon steel casing surface to 7,220 ft

4 1/2 in. CRA Tubing

7 in. CRA Casing 7,220 - 7,693 ft

Packer 7,570 ft

4 1/2 in. CRA TOL 7,630 ft

Cut 6 5/8 in. at 7,775 ft

9 in. Casing 7,789 ft

4 1/2 in. CRA Inner Liner 8,250 ft

4 3/4 in. TOL 8,800 ft

6 5/8 in. Casing 8,820 ft

4 3/4 in. Slotted Liner 8,940 ft

Legend

- Caprock
- CO₂ Resistant Cement
- Corrosion-Resistant Alloys (CRA)

Explanation

in. - inch

ft - feet

MD - Measured Depth

TOC - Top of Casing

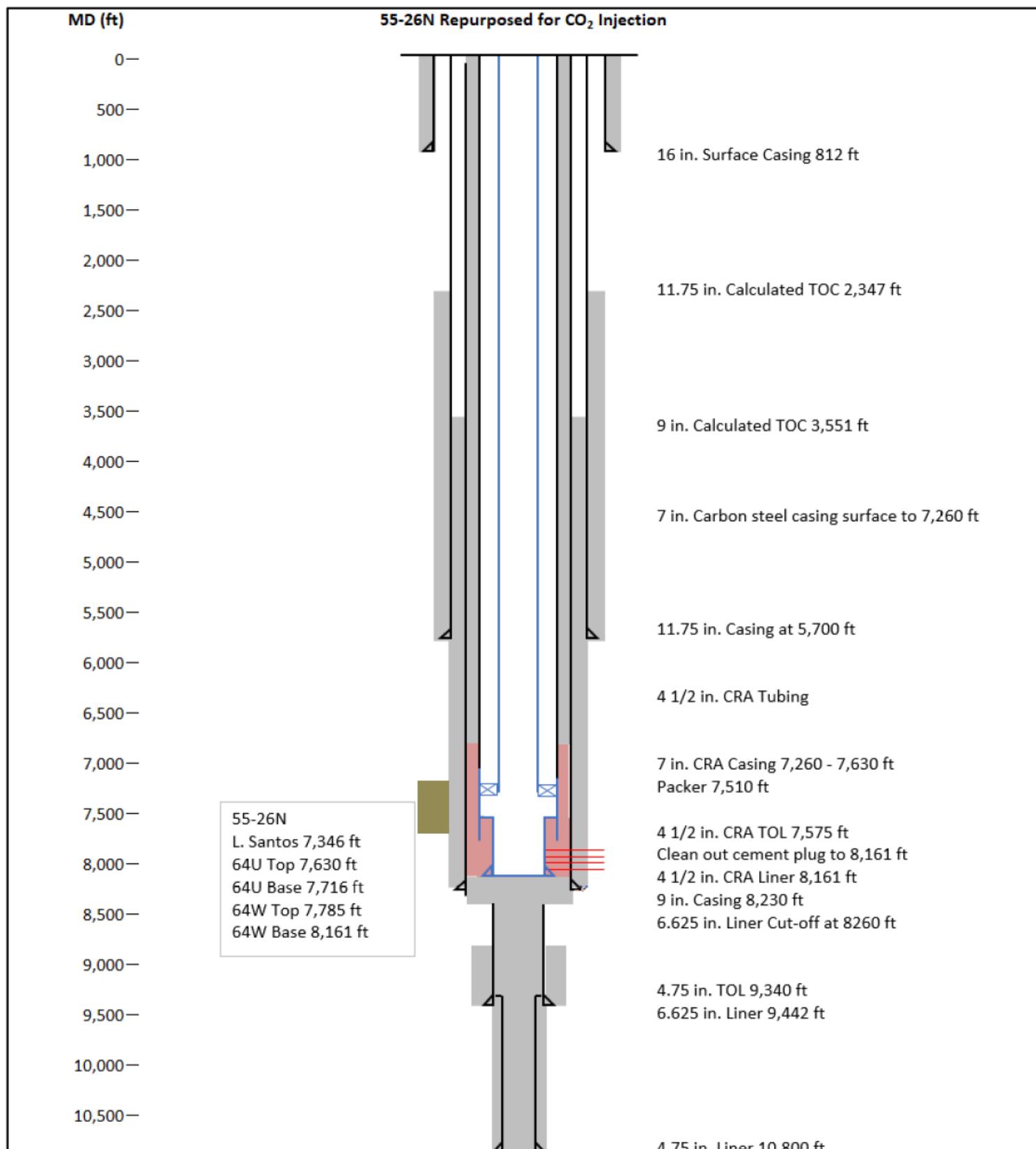
TOL - Top of Liner

CO₂ - Carbon Dioxide**27R-27N Repurposed for CO₂ Injection**North Belridge Oil Field
Western Kern County
California

Aera CCS

January 2023

Figure**2**



55-26N Repurposed for CO₂ Injection

North Belridge Oil Field
Western Kern County
California

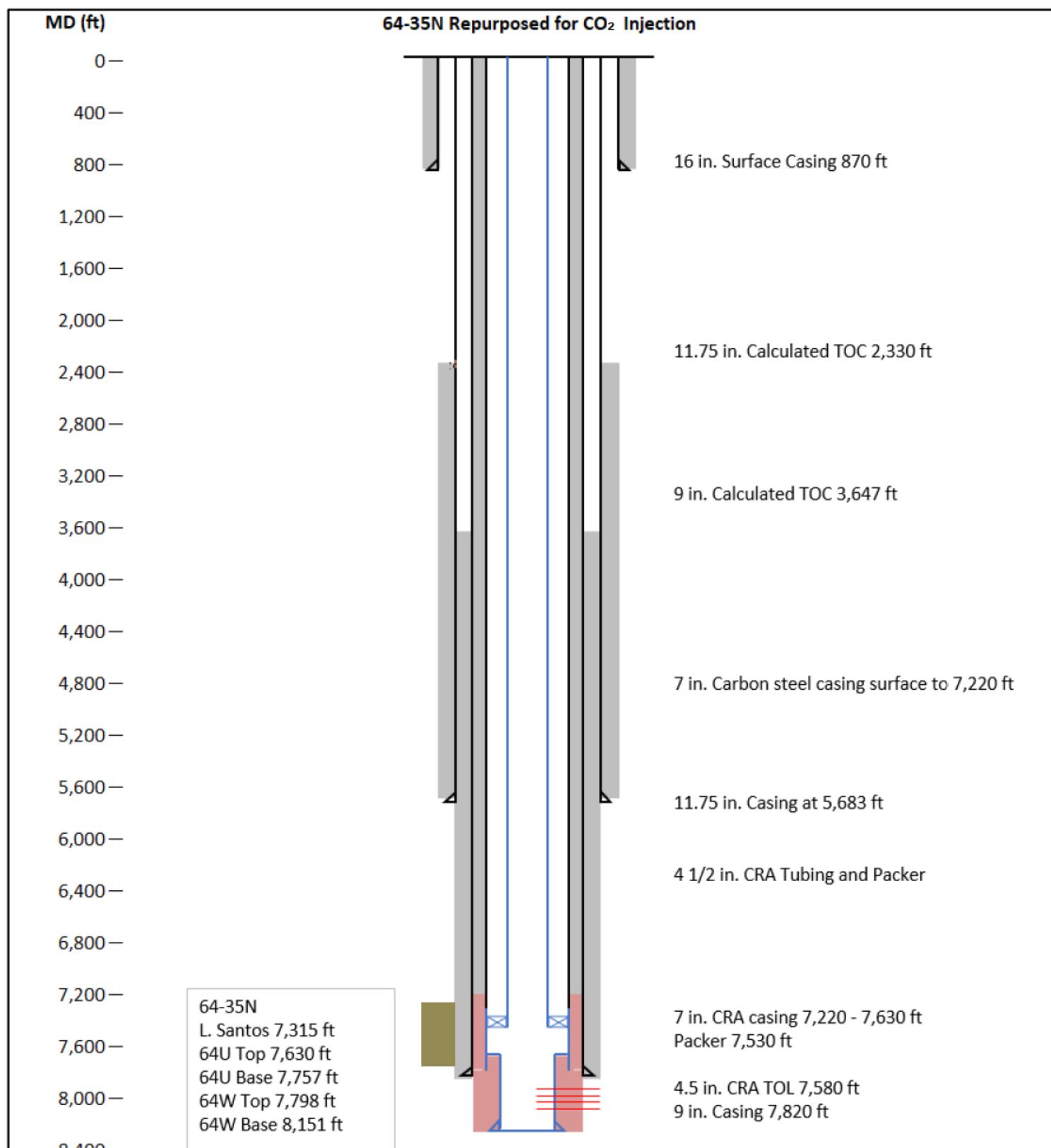


Figure

3

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64-35N Repurposed for CO₂ Injection

North Belridge Oil Field
Western Kern County
California

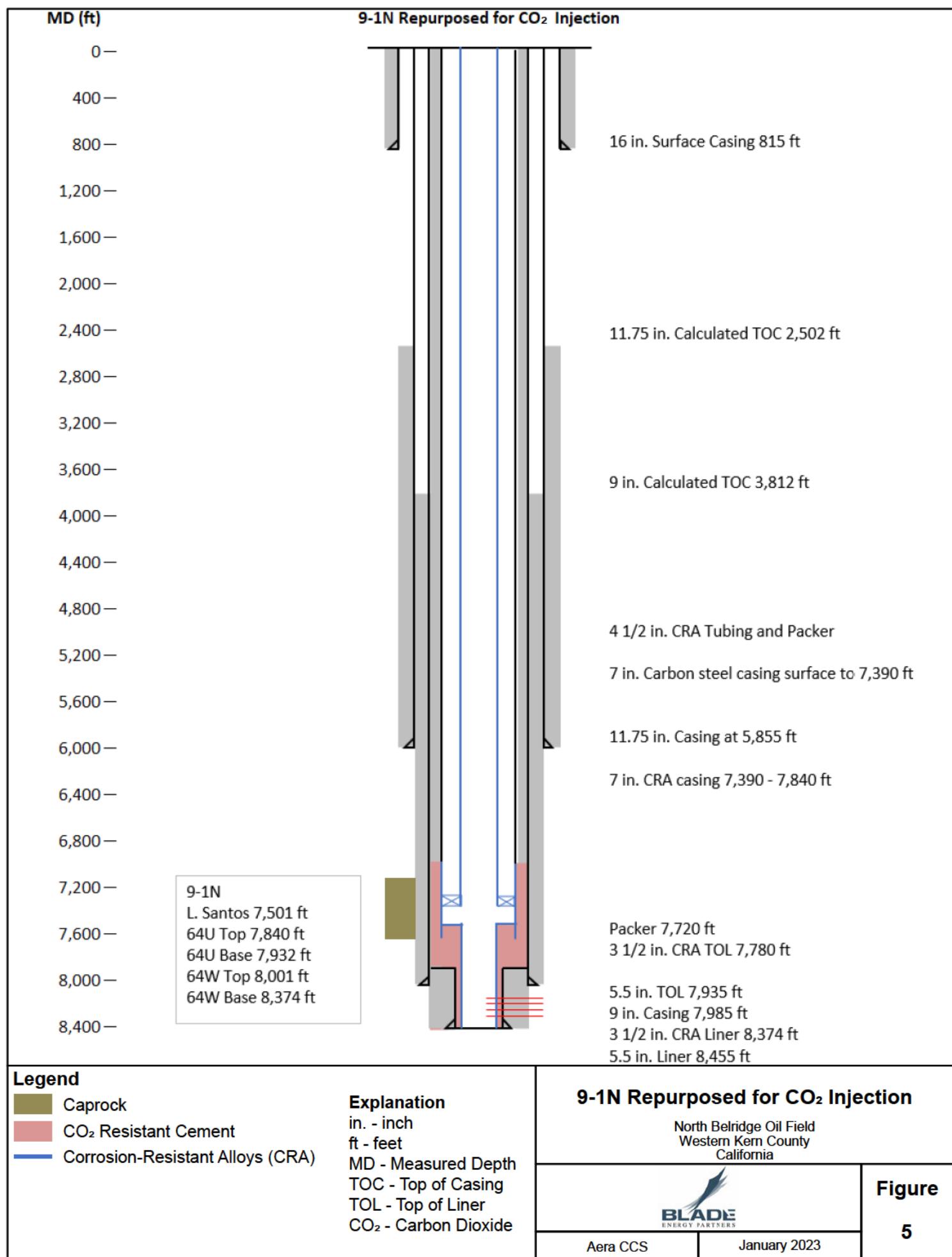


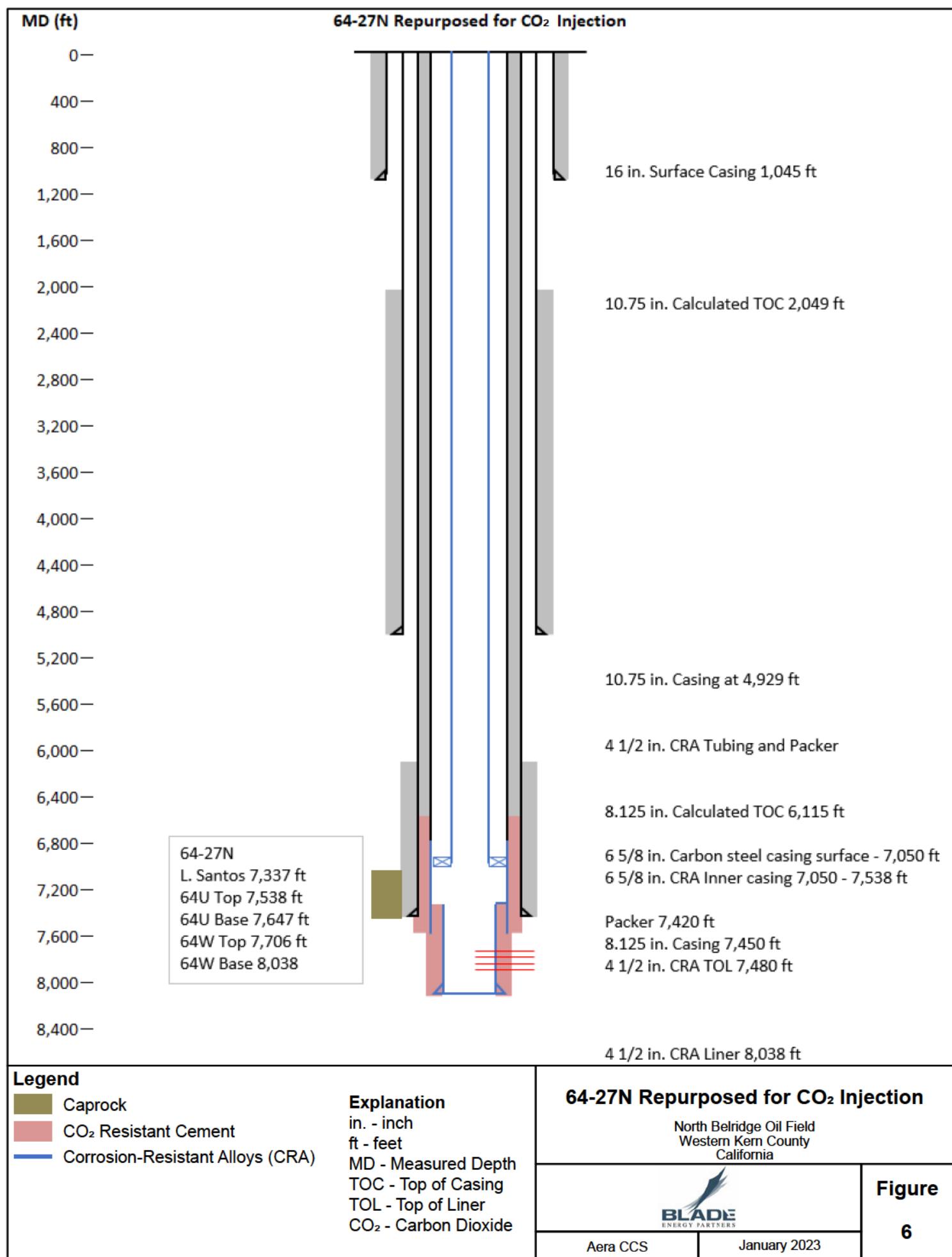
Figure

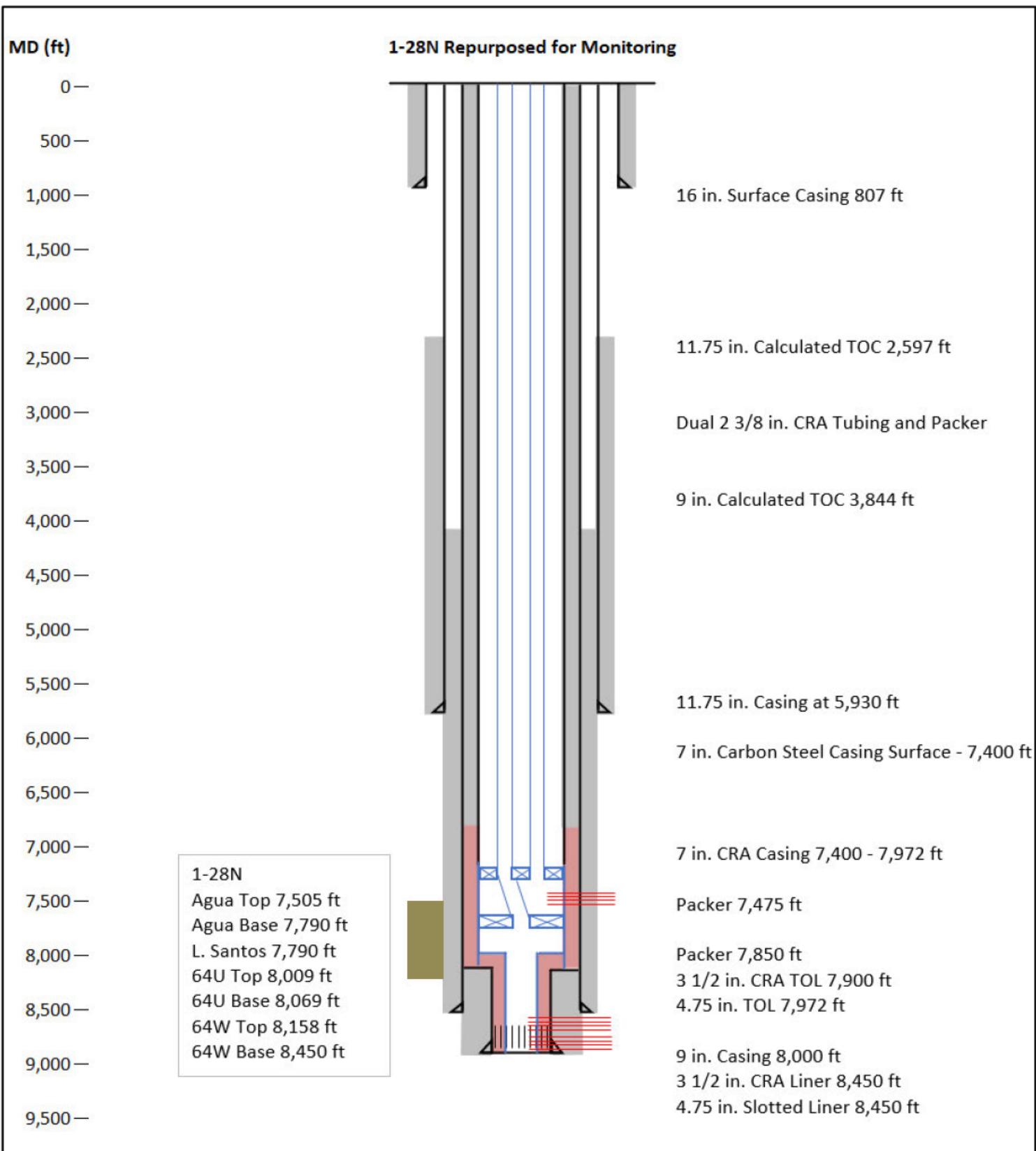
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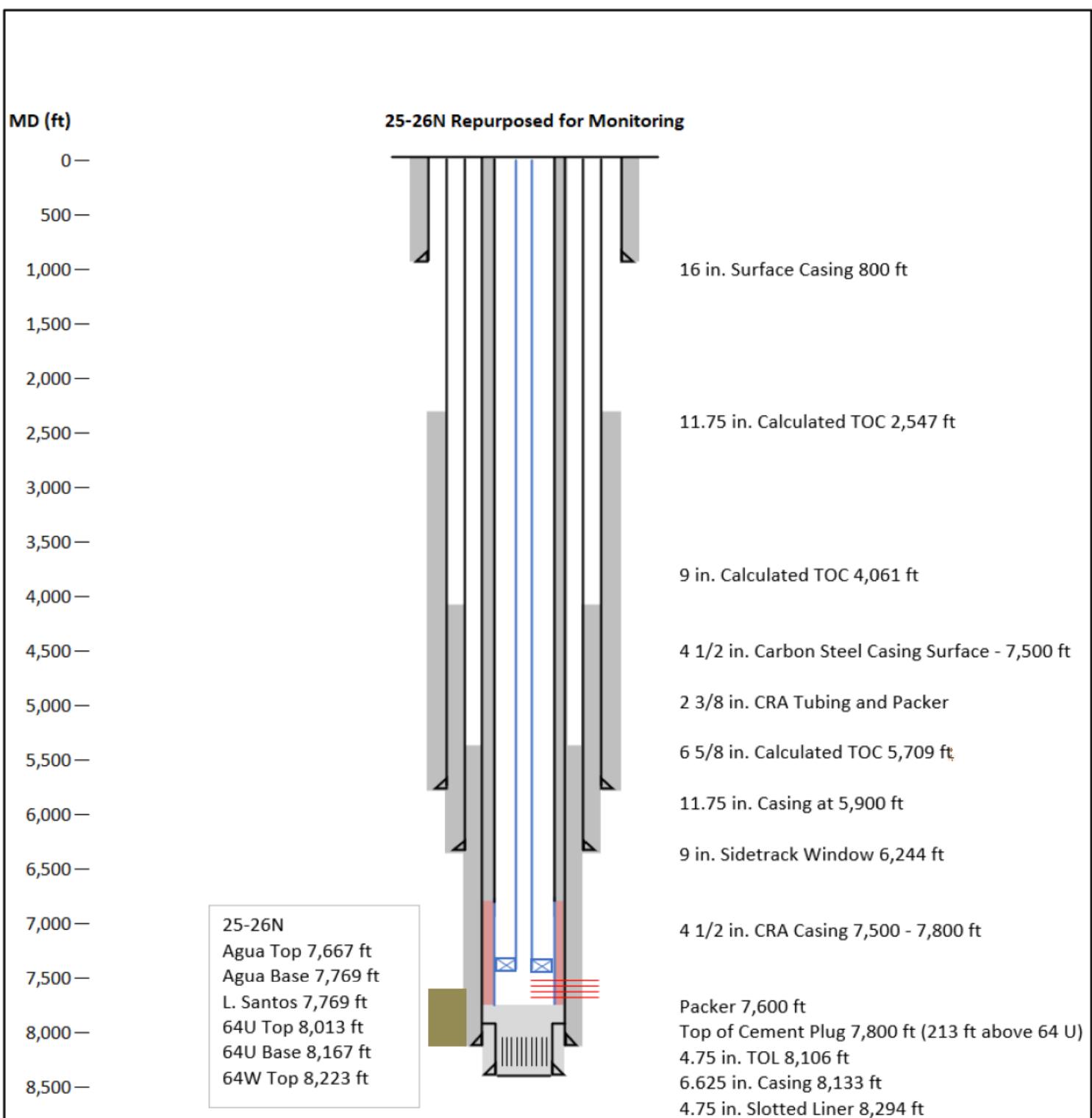
January 2023







Legend	Explanation	1-28N Repurposed for Monitoring	
 Caprock CO ₂ Resistant Cement Corrosion-Resistant Alloys (CRA)	in. - inch ft - feet MD - Measured Depth TOC - Top of Casing TOL - Top of Liner CO ₂ - Carbon Dioxide	North Belridge Oil Field Western Kern County California	Figure
		 Aera CCS	7
			January 2023



Legend

- Caprock
- CO₂ Resistant Cement
- Corrosion-Resistant Alloys (CRA)

Explanation

in. - inch
ft - feet
MD - Measured Depth
TOC - Top of Casing
TOL - Top of Liner
CO₂ - Carbon Dioxide

25-26N Repurposed for Monitoring

North Belridge Oil Field
Western Kern County
California



Figure

8

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