

## PUBLIC UTILITIES COMMISSION

505 VAN NESS AVENUE  
SAN FRANCISCO, CA 94102-3298



December 15, 2023

EA2023-1167

Juan Sandoval P.E., Deputy General Manager  
Energy Resources  
Merced Irrigation District  
3321 Franklin Rd. Merced, CA95348

**SUBJECT:** Electric Audit of Merced Irrigation District

Mr. Sandoval:

On behalf of the Electric Safety and Reliability Branch (ESRB) of the California Public Utilities Commission (CPUC), Emiliano Solorio of ESRB staff conducted an electric distribution, transmission and substation audit of Merced Irrigation District (MID) from October 9 to October 12, 2023. During the audit, ESRB staff conducted field inspections of MID's distribution facilities, transmission facilities, substations and equipment and reviewed pertinent documents and records.

As a result of the audit, ESRB staff identified violations of one or more General Orders (GOs). A copy of the audit findings itemizing the violations is enclosed. Please provide a response no later than January 31, 2024, by electronic copy of all corrective actions and preventive measures taken by MID to correct the identified violations and prevent the recurrence of such violations. Please note that ESRB will be posting the audit report and your response to the audit on the CPUC website. If there is any information in your response that you want us to consider as confidential, we request that in addition to your confidential response, you provide us with a public version (a redacted version of your confidential response) to be posted on our website.

If you have any questions concerning this audit, please contact Emiliano Solorio at (916) 216-0249 or [Emiliano.Solorio@cpuc.ca.gov](mailto:Emiliano.Solorio@cpuc.ca.gov).

Sincerely,

A handwritten signature in blue ink, appearing to read "Rickey Tse".

Rickey Tse, P.E.  
Program and Project Supervisor, Electric Safety and Reliability Branch  
Safety and Enforcement Division, California Public Utilities Commission

Enclosure: CPUC Electric Distribution Audit Report for Merced Irrigation District.

Cc: Lee Palmer, Director, Safety and Enforcement Division (SED), CPUC  
Nika Kjensli, Program Manager, ESRB, SED, CPUC  
Fadi Daye, Program and Project Supervisor, ESRB, SED, CPUC  
Nathan Sarina, Senior Utilities Engineer (Supervisor), ESRB, SED, CPUC  
Emiliano Solorio, Utilities Engineer, ESRB, SED, CPUC  
Dave Haubrich, Line Supervisor, Electric Services, MID

**MERCED IRRIGATION DISTRICT**  
**ELECTRIC AUDIT FINDINGS**  
**October 9 – October 12, 2023**

**I. Records Review**

During the audit, ESRB staff reviewed the following procedures and records for Merced Irrigation District transmission and distribution facilities:

- Electric T&D Inspection and Maintenance Program Manual, January 1, 2012
- Distribution facilities statistics
- Patrol and Inspection Records list, August 2018 – July 2023
- Electric Corrective Notifications list, August 2018 – July 2023
- Reliability Indexes and Outage list, August 2018 – July 2023
- MID new projects list, July 2022 – June 2023
- Inspector training records, August 2018 – July 2023

During the audit, ESRB staff reviewed the following procedures and records for Merced Irrigation District substations:

- List of all MID substations
- Map showing all MID substations
- Single-line diagrams of substations
- List of previous 5 years substation inspections
- Monthly Substation Inspection Procedure
- Substation Infrared Camera Inspection Procedures
- Substation Oil Testing Procedures
- Substation Maintenance and Testing Procedures
- Substation Equipment Counter Readings Procedures
- Substation Battery Testing Procedures
- Substation Fire System Inspection Procedures
- List of substation work orders
- Infrared testing records for the substations in the last 24 months
- Most recent oil sample test results for substations
- Most recent electric test results for substations

## II. Records Violations

ESRB staff observed the following violations during the record review portion of the audit:

### 1. Late Work Orders

**General Order (GO) 95, Rule 18-B, Maintenance Programs, (1)(a)** states in part:

*“Each company (including electric utilities and communications companies) shall establish and implement an auditable maintenance program for its facilities and lines for the purpose of ensuring that they are in good condition so as to conform to these rules.*

*Each company must describe in its auditable maintenance program the required qualifications for the company representatives who perform inspections and/or who schedule corrective actions. Companies that are subject to GO 165 may maintain procedures for conducting inspections and maintenance activities in compliance with this rule and with GO 165.*

*The maximum time periods for corrective actions associated with potential violation of GO 95 or a Safety Hazard are based on the following priority levels:*

(i) *Level 1 -- An immediate risk of high potential impact to safety or reliability:*

- *Take corrective action immediately, either by fully repairing or by temporarily repairing and reclassifying to a lower priority.*

(ii) *Level 2 -- Any other risk of at least moderate potential impact to safety or reliability:*

- *Take corrective action within specified time period (either by fully repair or by temporarily repairing and reclassifying to Level 3 priority). Time period for corrective action to be determined at the time of identification by a qualified company representative, but not to exceed: (1) six months for potential violations that create a fire risk located in Tier 3 of the High Fire-Threat District; (2) 12 months for potential violations that create a fire risk located in Tier 2 of the High Fire-Threat District; (3) 12 months for potential violations that compromise worker safety; and (4) 36 months for all other Level 2 potential violations.*

(iii) *Level 3 -- Any risk of low potential impact to safety or reliability:*

- *Take corrective action within 60 months subject to the exception specified below.”*

**GO 95, Rule 31.1, Design, Construction and Maintenance** states in part:

*“Electrical supply and communication systems shall be designed, constructed, and maintained for their intended use, regard being given to the conditions under which they are to be operated, to enable the furnishing of safe, proper, and adequate service.*

*For all particulars not specified in these rules, design, construction, and maintenance should be done in accordance with accepted good practice for the given local conditions known at the time by those responsible for the design, construction, or maintenance of communication or supply lines and equipment.”*

**GO 128, Rule 17.1, Design, Construction and Maintenance** states in part:

*“Electrical supply and communication systems shall be designed, constructed, and maintained for their intended use, regard being given to the conditions under which they are to be operated, to enable the furnishing of safe, proper, and adequate service.*

*For all particulars not specified in these rules, design, construction, and maintenance should be done in accordance with accepted good practice for the given local conditions known at the time by those responsible for the design, construction, or maintenance of [the] communication or supply lines and equipment.”*

ESRB staff reviewed late work orders completed within the Merced Irrigation District for the past 60 months (August 2018 – July 2023), shown in Table 1. MID’s Electric T&D Inspection and Maintenance Program Manual, published on January 1, 2012, defines the priority codes and associated time frames for the response/repair action as follows:

- *Grade 1 – (Urgent and immediate) response requiring continued action until the condition is repaired or no longer presents a potential hazard. The probability of personal injury to third parties, MeID employees, property damage or service interruptions to customers is high.*
- *Grade 2 – (1-6 Months) Requires timely corrective action to mitigate an existing condition which, at the time of identification, does not present an immediate hazard to third parties, MeID employees or property. The probability of personal injury to third parties or MeID employees, property damage or service interruption to customers is low and is expected to remain so in the future.*
- *Grade 3 – (7-12 Months) Requires no corrective action at the time of initial identification. However, monitoring of a time frame shorter than the normal periodic or condition-based inspection period is deemed warranted.*

ESRB staff reviewed late work orders and determined that MID did not address a total of 325 work orders by their assigned due date. Table 1 below breaks down the 325 late work orders by their given priority, including the total number of late work orders completed which are included in the total.

**Table 1: Late Work Orders in Merced Irrigation District**

<b>Priority Code</b>	<b>Late Work Orders Completed</b>	<b>Late Work Orders Pending</b>	<b>Late Work Orders Cancelled</b>	<b>Total</b>
<b>Grade 1</b>	18	0	0	<b>18</b>
<b>Grade 2</b>	282	0	0	<b>282</b>
<b>Grade 3</b>	25	0	0	<b>25</b>
<b>Total</b>	325	0	0	<b>325</b>

MID shall provide ESRB with its corrective action plan and preventive measures to prevent any work orders from being addressed late in the future.

Table 2 below identifies the most overdue non-exempt work orders for each priority.

**Table 2: Most Overdue Work Orders**

<b>Priority Code</b>	<b>Most Overdue Work Orders (WO#s)</b>	<b>Number of Days Past Assigned Due Date</b>
<b>Grade 1</b>	3400	348
<b>Grade 2</b>	4784	610
<b>Grade 3</b>	3308	889

MID identified work order #3400 on September 26, 2018, with a required end date of September 26, 2018. MID did not complete the work until September 9, 2019.

MID identified work order #4784 on September 29, 2021, with a required end date of December 29, 2021. MID did not complete the work August 31, 2023.

MID identified work order #3308 on April 11, 2018, with a required end date of October 11, 2018. MID did not complete the work until March 18, 2021.

### III. Field Inspection

During the field inspection, ESRB inspected locations listed in Table 3:

**Table 3: List of Field Inspection Locations**

Location #	Equipment #	Structure Type	Structure Location/Address
1		Secondary Splice Box	3098 Lucich Dr. Merced, CA
2		Secondary Splice Box	3104 Lucich Dr. Merced, CA
3	T542	Pad Mount Transformer	3126 Lucich Dr. Merced, CA
4		Secondary Splice Box	3134 Lucich Dr. Merced, CA
5	T543	Pad Mount Transformer	3165 Colton Ave. Merced, CA
6		Secondary Splice Box	3165 Bea Dr. Merced, CA
7	T317	Pad Mount Transformer	3135 Bea Dr. Merced, CA
8	T315	Pad Mount Transformer	3053 Bea Dr. Merced, CA
9	J263	Junction Box	3011 Franklin Rd. Merced, CA
10	T541	Pad Mount Transformer	3036 Lucich Dr. Merced, CA
11		Secondary Splice Box	2169 Lil Sandy Dr. Merced, CA
12	T945	Pad Mount Transformer	2117 Lil Sandy Dr. Merced, CA
13	T944	Pad Mount Transformer	2684 Drake Ave. Merced, CA
14	T943	Pad Mount Transformer	2145 Granite Creek Dr. Merced, CA
15	T951	Pad Mount Transformer	2645 Big Sandy Ave. Merced, CA
16	J395	Junction Box	2697 Big Sandy Ave. Merced, CA
17	T2474	Pad Mount Transformer	1870 Wardrobe Ave. Merced, CA
18	T2775	Pad Mount Transformer	1900 Wardrobe Ave. Merced, CA

<b>Location #</b>	<b>Equipment #</b>	<b>Structure Type</b>	<b>Structure Location/Address</b>
19		Junction Box	1900 Wardrobe Ave. Merced, CA
20	J798	Junction Box	2075 Wardrobe Ave. Merced, CA
21	T2114	Pad Mount Transformer	2075 Wardrobe Ave. Merced, CA
22	J454	Junction Box	2100 Wardrobe Ave. Merced, CA
23	B278	Pad Mount Circuit Breaker	2145 Wardrobe Ave. Merced, CA
24	P572	Transmission Pole	(37.3188563, -120.5124513)
25	P573	Transmission Pole	(37.3188683, -120.5130240)
26	P574	Transmission Pole	(37.3186267, -120.5137023)
27	P577	Transmission Pole	(37.3988083, -120.7272534)
28	P4	Transmission Pole	(37.4010070, -120.7276121)
29	P5	Transmission Pole	(37.4017216, -120.7276135)
30	P6	Transmission Pole	(37.4024938, -120.7275937)
31	P2227	Transmission Pole	(37.3614921, -120.5635193)
32	P2226	Transmission Pole	(37.3616054, -120.5636393)
33	P216	Transmission Pole	(37.3619686, -120.5640094)
34	P215	Transmission Pole	(37.3626103, -120.5646662)
35	P1398	Distribution Wood Pole	6274 Gertrude Ave. Atwater, CA
36	P1396	Distribution Wood Pole	(37.3750100, -120.6000848)
37	P1395	Distribution Wood Pole	(37.3750182, -120.5997361)
38	P1394	Distribution Wood Pole	(37.3750249, -120.5988470)

<b>Location #</b>	<b>Equipment #</b>	<b>Structure Type</b>	<b>Structure Address/GPS Coordinates</b>
39	P1393	Distribution Wood Pole	(37.3750318, -120.5979478)
40	J472	Junction Box	3431 Outrigger Ave. Atwater, CA
41		Junction Box	3431 Outrigger Ave. Atwater, CA
42		Secondary Box	168 Spinnaker Dr. Atwater, CA
43	T417	Pad Mount Transformer	(37.3621882, -120.5956407)
44		Junction Box	(37.3621170, -120.5956491)
45	T416	Pad Mount Transformer	2720 Shaffer Rd. Atwater, CA
46	B105	Pad Mount Circuit Breaker	2720 Shaffer Rd. Atwater, CA
47	T1360	Pad Mount Transformer	483 Joseph Gallo Ct. Livingston, CA
48	T781	Pad Mount Transformer	443 Joseph Gallo Ct. Livingston, CA
49	T206	Pad Mount Transformer	401 Joseph Gallo Ct. Livingston, CA
50	T403	Pad Mount Transformer	400 Joseph Gallo Ct. Livingston, CA
51		Junction Box	(37.3875370, -120.7369767)
52	J207	Junction Box	(37.3882917, -120.7361821)
53	P1435	Distribution Wood Pole	(37.3861254, -120.7307644)
54	P1433	Distribution Wood Pole	(37.3862488, -120.7305233)
55	P1432	Distribution Wood Pole	(37.3868178, -120.7299466)
56	P1431	Distribution Wood Pole	(37.3874108, -120.7293995)
57	P1430	Distribution Wood Pole	(37.3880006, -120.7287829)
58	P1429	Distribution Wood Pole	(37.3881785, -120.7286444)



<b>Location #</b>	<b>Equipment #</b>	<b>Structure Type</b>	<b>Structure Address/GPS Coordinates</b>
59	T851	Pad Mount Transformer	964 Mori Ct. Livingston, CA
60	P1559	Distribution Wood Pole	(37.3931732, -120.7093241)
61	P1560	Distribution Wood Pole	(37.3931769, -120.7087170)
62	P1532	Distribution Wood Pole	(37.3931622, -120.7081876)
63	P1218	Distribution Wood Pole	(37.3931652, -120.7081218)
64	P1217	Distribution Wood Pole	(37.3932600, -120.7081064)
65	P1216	Distribution Wood Pole	(37.3935850, -120.7080830)
66	P1215	Distribution Wood Pole	(37.3942365, -120.7080591)
67	J686	Junction Box	2213 Natsu Rd. Livingston, CA
68	T1468	Pad Mount Transformer	989 Mori Ct. Livingston, CA
69		Junction Box	2133 Wakami Dr. Livingston, CA
70	T1466	Pad Mount Transformer	2194 Wakami Dr. Livingston, CA
71	J687	Junction Box	2214 Wakami Dr. Livingston, CA
72	T120	Pad Mount Transformer	1015 Dallas Dr. Livingston, CA
73		Pad Mount Transformer	742 Mount Cliff Way Livingston, CA
74	J591	Junction Box	1042 Briarwood Dr. Livingston, CA
75	T1734	Pad Mount Transformer	1012 Briarwood Dr. Livingston, CA
76	T1207	Pad Mount Transformer	951 Spring Brook Dr. Livingston, CA
77	T1493	Pad Mount Transformer	1841 Wells Ave. Livingston, CA

<b>Location #</b>	<b>Equipment #</b>	<b>Structure Type</b>	<b>Structure Address/GPS Coordinates</b>
78	T1475	Pad Mount Transformer	1870 Sun Valley Ave. Livingston, CA
79	J703	Junction Box	1001 Gold Leaf Dr. Livingston, CA
80	T1476	Pad Mount Transformer	1089 Gold Leaf Dr. Livingston, CA
81	T1477	Pad Mount Transformer	1896 Ives Ave. Livingston, CA
82	T1478	Pad Mount Transformer	1092 Newcastle Dr. Livingston, CA
83	T1497	Pad Mount Transformer	1008 Newcastle Dr. Livingston, CA
84	P554	Transmission Pole	Yamato Rd. & Olive Ave. Livingston, CA
85	P553	Transmission Pole	(37.3967177, -120.6949274)
86	P552	Transmission Pole	(37.3967086, -120.6938951)
87	P551	Transmission Pole	(37.3967513, -120.6929137)
88	P555	Transmission Pole	(37.3967284, -120.6970178)
89	P556	Transmission Pole	(37.3967603, -120.6978262)
90	T2824	Pad Mount Transformer	882 S Coffee St. Merced, CA
91	J1160	Junction Box	(37.2734386, -120.4327740)
92	J1161	Junction Box	(37.2737361, -120.4331180)
93	T2846	Pad Mount Transformer	856 S Coffee St. Merced, CA
94	T2724	Pad Mount Transformer	810 S Coffee St. Merced, CA
95	T2725	Pad Mount Transformer	810 S Coffee St. Merced, CA
96	T2831	Pad Mount Transformer	3140 Campus Pkwy Merced, CA
97	P1117	Distribution Wood Pole	46 Hartley Ct. Merced, CA

<b>Location #</b>	<b>Equipment #</b>	<b>Structure Type</b>	<b>Structure Address/GPS Coordinates</b>
98	P1116	Distribution Wood Pole	92 Hartley Ct. Merced, CA
99	P1115	Distribution Wood Pole	140 Sable St. Merced, CA
100	P1114	Distribution Wood Pole	176 Sable St. Merced, CA
101	P1113	Distribution Wood Pole	(37.2917161, -120.4246030)
102	P1112	Distribution Wood Pole	(37.2924605, -120.4245852)
103	P1111	Distribution Wood Pole	(37.2931961, -120.4245782)
104	P1110	Distribution Wood Pole	(37.2939307, -120.4245902)
105	P1104	Distribution Wood Pole	(37.2953446, -120.4245651)
106	P1103	Distribution Wood Pole	(37.2960845, -120.4245443)
107	P1102	Distribution Wood Pole	(37.2967849, -120.4245312)
108	P1101	Distribution Wood Pole	(37.2974778, -120.4245155)
109	P1100	Distribution Wood Pole	(37.2981408, -120.4245041)
110	P1099	Distribution Wood Pole	(37.2987959, -120.4244977)
111	P310	Transmission Pole	(37.3167839, -120.5289476)
112	P311	Transmission Pole	Fern St. & Ashby Rd. Merced, CA
113	P312	Transmission Pole	2020 Ashby Rd. Merced, CA
114	P313	Transmission Pole	(37.3178892, -120.5318581)
115	P312	Transmission Pole	(37.3182190, -120.5328140)
116	P321	Transmission Pole	2250 Ashby Rd. Merced, CA
117	P322	Transmission Pole	(37.3211442, -120.5405699)
118	P323	Transmission Pole	(37.3214647, -120.5415037)

During the field inspection, ESRB inspected the substations listed in Table 4:

**Table 4: List of Inspected Substations**

Substation	City
Pioneer	Livingston
Castle	Atwater
Cooper	Merced

**IV. Field Inspection – Transmission & Distribution Violations List**

ESRB observed the following violations during the field inspection:

**1. GO 95, Rule 31.1, Design, Construction, and Maintenance** states in part:

*"Electrical supply and communications systems shall be designed, constructed, and maintained for their intended use, regard being given to the conditions under which they are to be operated, to enable the furnishing of safe, proper, and adequate service."*

ESRB’s finding is listed in Table 5.

**Table 5: GO 95, Rule 31.1 Finding**

Location	Finding
58	Ground wire on pole is broken.

**2. General Order 95, Rule 34 – Foreign Attachments** states:

*"Nothing in these rules shall be construed as permitting the unauthorized attachment, to supply, streetlight or communication poles or structures, of antennas, signs, posters, banners, decorations, wires, lighting fixtures, guys, ropes and any other such equipment foreign to the purposes of overhead electric line construction.*

*Nothing herein contained shall be construed as requiring utilities to grant permission for such use of their overhead facilities; or permitting any use of joint poles or facilities for such permanent or temporary construction without the consent of all parties having any ownership whatever in the poles or structures to which attachments may be made; or granting authority for the use of any poles, structures or facilities without the owner’s or owners’ consent."*

ESRB’s finding is listed in Table 6:

**Table 6: GO 95, Rule 34 Finding**

Location	Finding
115	Foreign attachment found on pole.

**3. General Order 95, Rule 51.6-A – High Voltage Marking** states in part:

*“Poles which support line conductors of more than 750 volts shall be marked with high voltage signs. This marking shall consist of a single sign showing the words “HIGH VOLTAGE”, or pair of signs showing the words “HIGH” and “VOLTAGE”, not more than six (6) inches in height with letters not less than 3 inches in height. Such signs shall be of weather and corrosion–resisting material, solid or with letters cut out therefrom and clearly legible.”*

ESRB’s findings are listed in Table 7:

**Table 7: GO 95, Rule 51.6-A Findings**

Location	Finding
27	High Voltage sign was missing.
33	High Voltage was faded.
88	High Voltage sign was broken.
111	High Voltage sign was broken.
118	High Voltage sign was broken.

**4. General Order 95, Rule 92.4.C.2.c – Grounding** states in part:

*“Ground rods shall be driven into the ground so that one end of the ground rod is at a minimum depth of 8 feet below the surface of the ground. The top end of the ground rod shall not be less than 1 foot below the surface of the ground.”*

ESRB’s finding is listed in Table 8:

**Table 8: GO 95, Rule 92.4.C.2.c Finding**

Location	Finding
53	Ground rod was found exposed at the base of pole.

**5. GO 128, Rule 17.1, Design, Construction and Maintenance** states:

*“Electrical supply and communication systems shall be designed, constructed, and maintained for their intended use, regard being given to the conditions under which they are to be operated, to enable the furnishing of safe, proper, and adequate service.”*

ESRB’s findings are listed in Table 9:

**Table 9: GO 128, Rule 17.1 Findings**

Location	Finding
9	Vault lid is missing HV marking.
50	HV warning label fading.

**6. GO 128, Rule 17.8, Identification of Manholes, Handholes, Subsurface and Self-contained Surface-mounted Equipment Enclosures** states:

*“Manholes, handholes, subsurface and self-contained surface-mounted equipment enclosures shall be marked as to ownership to facilitate identification by persons authorized to work therein and by other persons performing work in their vicinity.”*

ESRB’s finding is listed in Table 10:

**Table 10: GO 128, Rule 17.8 Finding**

Location	Finding
9	No mark of ownership found on vault cover.

## V. Field Inspection – Substation Violations List

ESRB observed the following violations during the field inspection:

**GO 174, Rule 12, General** states in part:

*“...Substations shall be designed, constructed and maintained for their intended use, regard being given to the conditions under which they are to be operated, to promote the safety of workers and the public and enable adequacy of service.*

*Design, construction, and maintenance should be performed in accordance with accepted good practices for the given local conditions known at the time by those responsible.”*

### Cooper Substation

1. Circuit Breaker 700 had a faded counter.



## Pioneer Substation

2. Grounding wire was sticking out of ground grid.



3. VCB 11 had a faded counter.



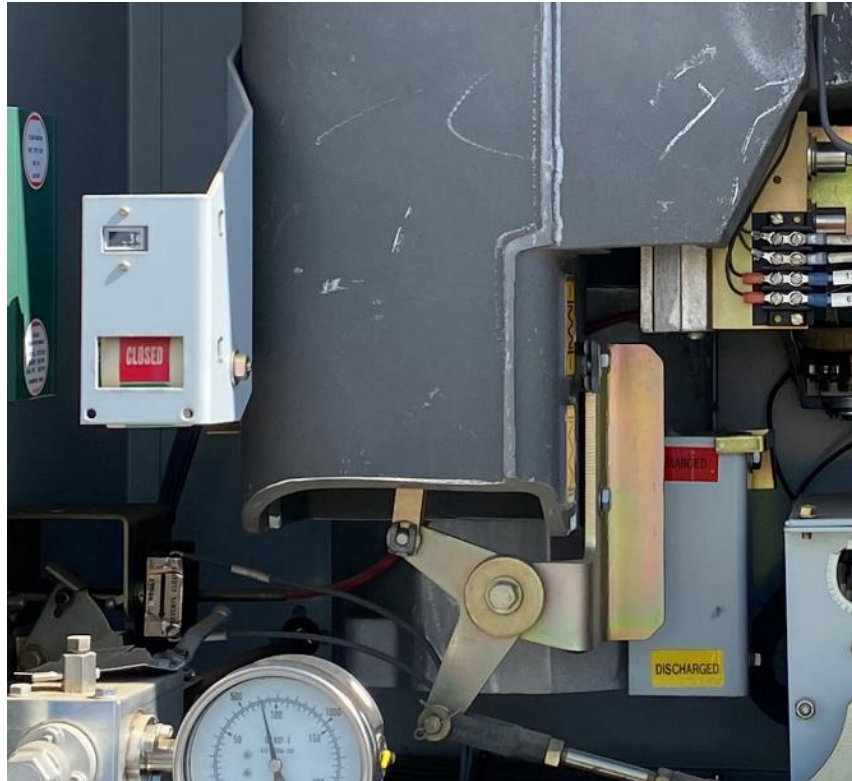


4. VCB 5 had a faded counter.



## Castle Substation

5. Circuit Breaker 710 has a faded counter.



6. Circuit Breaker 700 had a faded counter.



7. Circuit Breaker 4 had a faded counter.

