

PROJECT NUMBER	2.KVAL	MANUFACTURER	Siemens
STATION NAME	SERE Substation	TYPE	Transformer
PROJECT MANAGER	Dimpho Sekhwacha	RATING (MVA)	2.6
ENGINEERING	Yvonne Mkhize	RATIO (kV)	33/0.69
CUSTOMER	GX Peaking	SERIAL NUMBER	111780
DATE ARRIVED	2026/03/27	SCOPE OF WORK	Rewind

ACTION	DESIGNATION	NAME	SIGNATURE	DATE
COMPILED BY:	Senior Technician Investigatio n Engineering	Yvonne Mkhize		2026/06/19
REVIEWED BY:	Senior Engineer	David Hayes	<i>D W Hayes</i>	
ACCEPTED BY:	Project Manager	Dimpho Sekhwacha	<i>Sekhwacha.</i>	2026/06/23
APPROVED BY CUSTOMER:	O&M Manager	Deon van der Merwe		2026/06/23

REMARKS / COMMENTS

		Business Management System Transformer & Switchgear Services Engineering Scope of Work	Document Identifier	240-94063834	Rev	3
			Effective date	04/10/2023		
			Review date	04/10/2028		
			Page	2 of 5		
Item	Activity Description	Reference(s)	Document(s)			
1	WINDINGS MANUFACTURE					
2	Take windings details and compile specifications					
3	Manufacture associated winding insulation as per winding specifications	240-94064354	240-94063680			
4	Manufacture 3 new HV windings as per winding specifications	240-94064354	240-94063680			
5	Manufacture 3 new LV windings as per winding specifications	240-94064354	240-94063680			
6	Place windings under hydraulic press and apply compacting pressure	240-94064354	240-94063675			
7	Take paper sample for DP analysis	F-738	cate supplied by C			
8	Test Continuity					
9	Dry out windings until < 0.8 % water is achieved	240-94064354	240-94063680			
10	Take paper sample for DP analysis	F-738	cate supplied by C			
11	Apply assembly pressure and make adjustments as per winding specifica	240-94064354	240-94063675			
12	Test continuity and parallel path on every winding	240-94064354	240-94064036			
13	Test windings resistance	240-65216748	H-876			
14	Conduct final inspection and deliver windings to the assembly section	240-94064354	240-94063680			
15	ASSEMBLE ACTIVE PART					
16	Clean core and test insulation resistance					
17	Fix the core to the turning gear	240-94065382	240-94064264			
18	Lay core flat	240-102722919	240-94064262			
19	Undo and remove core clamp	240-119806360	240-94064262 200T/6			
20	Clean and remove all copper and carbon contamination from the core	240-102722919	240-94064262			
21	Inspect, clean and/or repair core clamps	240-102722919	240-94064262			
22	Supply and fit new core insulation	240-101507295	240-94064270			
23	Apply varnish to the core laminations					
24	Refix core to turning gear, lift upright and place on suitable support	240-101507295	240-94064262 200T/6			
25	Test IR megger core insulation	240-65216748	H-919,			
26	Supply and fit new blocking, press frames and insulation	240-102722919	240-94064262 200T/6			
27	Fit bottom blocking and support structures referring to drawings	240-102722919	240-94064262			
28	Fit windings to core referring to drawings	240-102722919	240-94064262			
29	Fit top blocking and press rings referring to drawings	240-102722919	240-94064262			
30	Supply and fit new top core insulation	240-102722919	240-94064273			
31	Fit top core clamps	240-102722919	240-94064262			
32	Clean, inspect and retape Tapping leads and harnesses	240-102722919	240-94064262			
33	Pre-dry active part in vapour phase until < 0.5 % dryness is reached	240-94065380	cate supplied by C			
34	Take paper sample for DP analysis	F-738	cate supplied by C			
35	Retension windings as required for core stacking	240-102722919	240-94064262 200T/6			
36	Pack 1/3 of the top yoke	240-101507295	240-94064262 200T/6			
37	TEST ACTIVE PART AFTER PACKING 1/3 YOKE	240-65216748	917, 240-9406427			
38	Test ratio	240-65216748	917, 240-9406427			
39	Test polarity	240-65216748	917, 240-9406427			
40	Test IR megger core insulation	240-65216748	H-919,			
41	Complete packing of top core	240-102722919	240-94064262			
42	Fit harnessing and make temporary connections	240-102722919	240-94064262			

Item	Activity Description	Reference(s)	Document(s)
43	TEST ACTIVE PART AFTER PACKING FULL YOKE	240-65216748	917, 240-9406427
44	Test ratio	240-65216748	917, 240-9406427
45	Test polarity	240-65216748	917, 240-9406427
46	Test magnetization	240-65216748	H-919, H-917
47	Test IR megger core to earth	240-65216748	H-919
48	Make and tape final connections	240-102722919	240-94064262
49	TEST PERMANENT HARNASS CONNECTIONS	240-65216748	917, 240-9406427
50	Test ratio	240-65216748	917, 240-9406427
51	Test polarity	240-65216748	917, 240-9406427
52	Test magnetization	240-65216748	H-919, H-917
53	Test impedance	240-65216748	H-919, H917,
54	Test resistance	240-65216748	876, 240-9406406
55	Test IR megger core insulation; core to core clamps; windings to core; wi		
56	Pre-tank active part	240-94065316	
57	Pre-fit bushings	240-94065316	
58	Resize leads		
59	Pre-fit tapchanger	240-94065316	
60	Resize tapping leads		
61	Test ratio	240-65216748	917, 240-9406427
62	Test resistance	240-65216748	876, 240-9406406
63	Remove bushings		
64	Remove tapchanger	240-94065316	240-94064264
65	Untank active part		
66	Final dry active part in vapour phase until < 0.5 % dryness is reached	240-94065380	cate supplied by C
67	Take paper sample for DP analysis	F-738	cate supplied by C
68	Final jack and tighten all parts	240-94065180	
69	Test IR megger core insulation; core to core clamps; windings to core; wi		
70	BOILERSHOP WORK		
71	Modify top cover to accommodate new earthing insulator		
72	REFURBUSH TANK AND PARTS		
73	Clean, inspect and regasket tank	240-94065180	240-94064264
74	Supply and fit new OTI	240-94065382	240-94064264
75	Supply and fit new bolts and nuts where required	240-94065180	240-94064264
76	PAINTING OF TRANSFORMER AND PARTS	240-99526023	
77	Seal all parts as required before cleaning	240-99526023	
78	Sandblast tank	240-99526023	
79	Tilt tank to enable painting the base underneath	240-99526023	240-94065316
80	Clean and abrade surfaces prior to painting	240-99526023	
81	Apply treatment and paint according to requirements for corrosive envir		
82	Paint tank base	240-99526023	
83	Test paint thicknesses	240-99526023	
84	Bring tank to upright position again	240-99526023	

Item	Activity Description	Reference(s)	Document(s)
85	Paint tank and parts cloud grey	240-99526023	
86	Apply treatment and paint according to requirements for corrosive environment		
87	Paint non-galvanized radiators cloud grey	240-94065382	
88	Test paint thicknesses	240-99526023	
89	Remove all protection applied (masking tape,etc)	240-99526023	
90	INSULATORS	240-119807551	240-94063920
91	Check and inspect insulators	240-119807551	240-94063920
92	Clean all insulator shells	240-119807551	240-94063920
93	Supply and fit new insulator seals and gaskets	Drawing Number	Drawing Number
94	Assemble insulator	240-119807551	240-94063920
95	Supply and fit new core earthing insulator	240-94065382	240-94064264
96	OFF LOAD TAPCHANGER		
97	Supply and fit new tapchanger according to engineering specification	240-94065072	240-94063690
98	Check tapchanger for correct operation	240-94065072	240-94063690
99	FINAL TANKING	240-94065180	
100	Final tank active part	240-94065180	240-94064264
101	Test IR megger core to earth	240-65216748	H-919
102	Fit parts (bushings, tapchanger, ancillary parts and connect ring type CT)	240-94065180	240-94064264
103	Bolt main cover	240-94065180	240-94064264
104	TEST TRANSFORMER AFTER FINAL TANKING	240-65216748	917, 240-94064264
105	Test ratio	240-65216748	917, 240-94064264
106	Test polarity	240-65216748	917, 240-94064264
107	Test magnetization	240-65216748	H-919, H-917
108	Test impedance	240-65216748	H-919, H917,
109	Test resistance	240-65216748	876, 240-9406406
110	Test IR megger core to earth; core to ground (tank); core to core clamps		
111	OIL FILLING		
112	Supply oil virgin uninhibited	240-119806360	cate supplied by C
113	Polish oil to Eskom specification	240-94065342	cate supplied by C
114	Take oil sample and test for quality, kV and moisture before filling transformer	240-94065342	cate supplied by C
115	Fill transformer with oil under vacuum	240-136487568	cate supplied by C
116	Circulate oil for 12 hrs	240-136487568	240-129636011
117	Allow 12 hrs standing time after oil circulation	240-136487568	240-129636011
118	Take oil sample and test do dissolved gas analysis (DGA); kV and Moisture	240-94065382	240-94063910
119	TEST TRANSFORMER AFTER OIL FILLING AND CIRCULATION	240-65216748	EC-ST-H-07
120	Test IR megger core insulation; core to core clamps; windings to core; winding to ground		
121	TEST FINAL HV	155832506, IEC 60000	240-94064260, H-919
122	Test transformer tan-delta	240-65216748	240-94063602
123	Test separate source	155832506, IEC 60000	H-919
124	Test induced overvoltage with partial discharge	155832506, IEC 60000	240-94064261, H919
125	Test no load loss	155832506, IEC 60000	H-919
126	Test full load loss	155832506, IEC 60000	H-919

	Business Management System Transformer & Switchgear Services Engineering Scope of Work	Document Identifier	240-94063834	Rev	3
		Effective date	04/10/2023		
		Review date	04/10/2028		
		Page	5 of 5		

Item	Activity Description	Reference(s)	Document(s)
127	Test temperature rise (heat run)	IEC 60076-2	To register
128	Take oil sample and test do dissolved gas analysis (DGA); kV and Moistur	240-94065382	240-94063910
129	Test SFRA	240-65216748	EE-F002
130	PREPARE FOR DISPATCH	240-94065316	
131	Fit impact recorder to transformer	240-94065180	240-94064264
132	Final inspection before dispatch	240-94065180	
133	Test IR megger core to earth before/after loading	240-65216748	H-919
134	Load transformer and parts for transportation to site	240-94065382	