HVC Aardwarmte Maasdijk B.V.

energie en hergebruik

End of Job Report

MSD-GT-01 – ESP installation

September 2024

Conform Mijnbouwregeling article 8.2.2.2 and Bijlage 12

Authorisation

Function	Name	Date	Signature
Drilling Manager	B.J. Koers	10-10-2024	
Production Engineer	S. Maat	10-10-2024	

colofon.

kenmerk	EOJR MSD-GT-01 ESP installation
status	Final
versie	V1
auteur(s)	B.J. Koers
datum	10 oktober 2024

Contents

1 Project Details

1.1 Organisation

Project Director	Marco van Soerland
Project Manager	Geert van Ek
Drilling Manager	Gerrit Schurink
Plaatsvervangend Drilling Manager	Bert Jan Koers
Production Engineer	Sander Maat
HSE Manager	Peter v.d. Burg

Drilling Supervisors on 2-week rotational scheme:

Well Site Supervisor (day)	Axel Sanden	03-09-2024 / 06-09-2024

1.2 Operational summary

Field	Maasdijk	
Well Number:	MSD-GT-01	
Well Name	MAASDIJK-GT-01	
Well Type	Geothermal producer	
Start operations **End of operations**	03-09-2024; 07:00 hr till 06-09-2024 15:30	
Days Operational	4 days	
Operator	HVC Aardwarmte Maasdijk B.V.	
Surface coordinates	X: 73.456,45 (RD) Y: 442.449,68 (RD)	N 51° 57.869 (ETRS89) E 004° 12.040 (ETRS89)
Surface elevation (Ground level)	+1.40 m above NAP	

1.3 Equipment & Contractors

Main Contractors

Odfjell	:	Rigless intervention unit
Baker Hughes	:	ESP supplier
Liberty	:	Wellhead supplier
Boekestijn	:	Crane

1.4 Objectives

Project objectives:

- Install ESP on 7” tubing.

1.5 Summary of operations

On the first day the ESP was assembled in the ESP-mouse hole consisting out of Lower and upper tandem motors, seal and lower tandem pump section. Next day the Odfjell rigless skid was assembled, meanwhile the MLE (motor lead extension) was spliced to the ESP cable. Around noon the ESP was lifted in the well and the pothead connecteor was installed. The MLE clamps did not fit to the MLE cable. The new MLE cable was provided by Baker Hughes due to issues with the previous batch of MLE’s of which the original MLE was also part. Decided to modify one MLE clamp (seal-motor) to protect the pothead. Installed 14x bandits in total on ESP assembly. Started RIH ESP on 7” 26# L80 13Cr VAMTOP tubing. On the 3rd day the remaining tubing joints were RIH and the tubing hanger was made up including the tri-lock connector. On the 4th day the tubing hanger was successfully landed with ESP intake at 848.3mGL, bottom gauge at 871.5mGL. Pressure tested seals to 25/207bar 5/10min. Removed tubing hanger running tool and rigged down Odfjell rigless unit. Performed final electrical measurements which were all good. Installed hanger top plug and pressure tested to 25/207bar 5/10min.

Lessons learned

- Check if MLE clamps fit before job starts. Although the new MLE-cable was discussed in a pre-job meeting and we were told that it should be equal to the original MLE-cable it was slightly wider. Therefore a “fit test” should be done.

2 Well data

2.1 Depth reference and total depth

Used depth reference	: Ground Level
Elevation: Ground level – NAP	: +1.40 m (ground level lays above NAP)
Well total depth	: 3297mMD / 2917mTVD

2.2 Deviation plots

See drilling EOWR.

2.3 Casing scheme

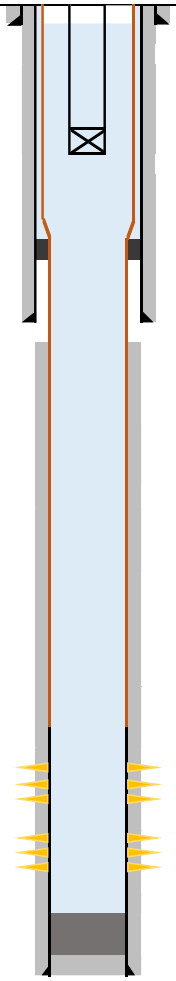
Table 1. Casing details

Item OD [in]	Top (m MD)	Bottom (m MD)	Weight	Grade	Connection
24" conductor	0	146	0,5" WT	S355	Welded
13 ⅜" Casing	0	1143	68 #	L80	VAM TOP
10 ¾" GRE lined csg	0	949	51/57.4 #	L80	VAM TOP
9 ⅝" GRE lined csg	949	2830	47/51,9 #	L80	VAM TOP
9 ⅝" Cr13 casing	2830	3272	47#	L8013Cr	VAM TOP
9 ⅝" L80 casing	3272	3295	47#	L80	VAM TOP

Table 2. Cement details

Item	TOC (m MD)	Lead Slurry Volume (m^3)	Lead Slurry Weight (s.g.)	Tail Slurry Volume (m^3)	Tail Slurry Weight (s.g.)	Type
13 ⅜" Casing	Surface	103.5	1,35	14.7	1,60	HOZ Lite lead and HOZ tail
10 ¾" x 9⅝" Casing	1218 (confirmed by RBT log)	61.7	1,35	20.4	1,84	HOZlite lead HMR+ tail

2.4 Well schematic – post job

Nr.	Item Description All depths from GROUND LEVEL *ORT= +9,34m above ground level* *RT= +10,72m above NAP*	**MSD-GT-01 Geothermal Producer**	Depth m tvd	Depth m ah	Hole ID in	Pipe OD in	Collar OD in (nom)	Pipe ID in	Pipe ID in (drift)	Geology m tvd	Geology m ah	Geology
1	24" Conductor		146	146		24,000	welded	23,000	-			North Sea Group
	Static fluid level @84m *Density formation fluid: 1,08 s.g.*											
			848,3	848,3	ESP intake							
	ESP on 7" 26# L80 13Cr VAMTOP tubing		871,5	871,5	(btm sensor)	7,000	7,565	6,276	6,151			
	Kick-off point		891	891								
										898	898	Chalk Group
3d	10 3/4" 51# L80 VAMTOP - GRE Lined (57.4#) 2x Swell packers		949	949 1044		10,750	11,488	**9,350**	**9,225**			
2	13 3/8" 68# L80 VAMTOP Casing		1142	1143	16,00	13,375	14,176	12,415	12,259			
	Top of cement		1214	1218								
										1660	1700	KN (Holland)
	End of build at 40 ° inclination		2037	2174								
										2056	2199	KN (Vlieland)
										2489	2772	Schieland Group
3c	9 5/8" 47# L80 VAMTOP - GRE Lined (51.9#)		2534	2830	12 1/4"	9,625	10,396	**8,250**	**8,125**			
										Top Alblasserdam		
			2552	2854	Top Perforations (run 2)					2553	2855	
			2601	2917	Bottom Perforations (run 2)							
			2728	3075	Top Perforations (run 1)							
			2837	3205	Bottom Perforations (run 1)							
3b	9 5/8" 47# L80 VAMTOP 13%Chrome											
			2847	*3218*	*HUD (Coil tubing - 18-04-2024)*					2880	3256	Altena
	Top of float collar		2870	3272	12 1/4"	9,625	t.b.d.	8,681	8,525			
3a	9 5/8" 47# L80 VAMTOP (2 joint shoetrack)		2900	3295	12 1/4"	9,625	10,396	8,681	8,525			
*Not in scale.			2917	3297	TD							

3 Drilling fluid summary

Not applicable. Well filed with 1.08s.g. brine.

4 Geology

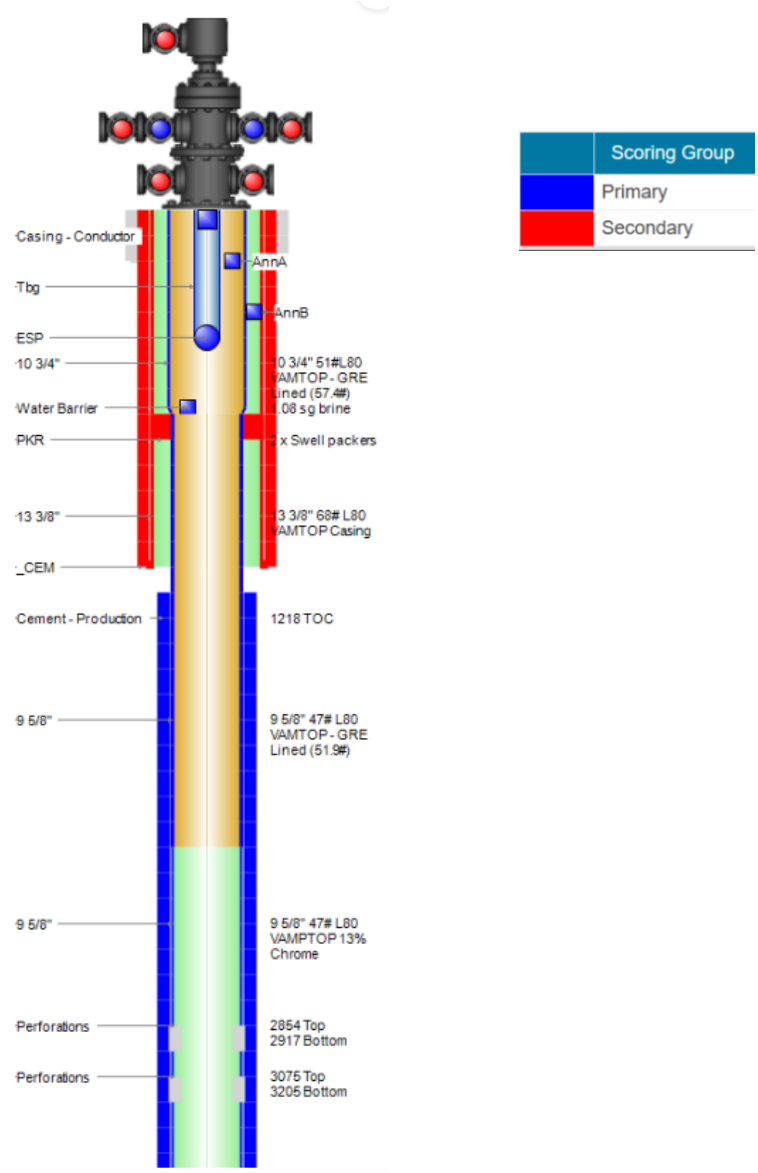
Not applicable – refer to drilling end of well report.

5 Well completion

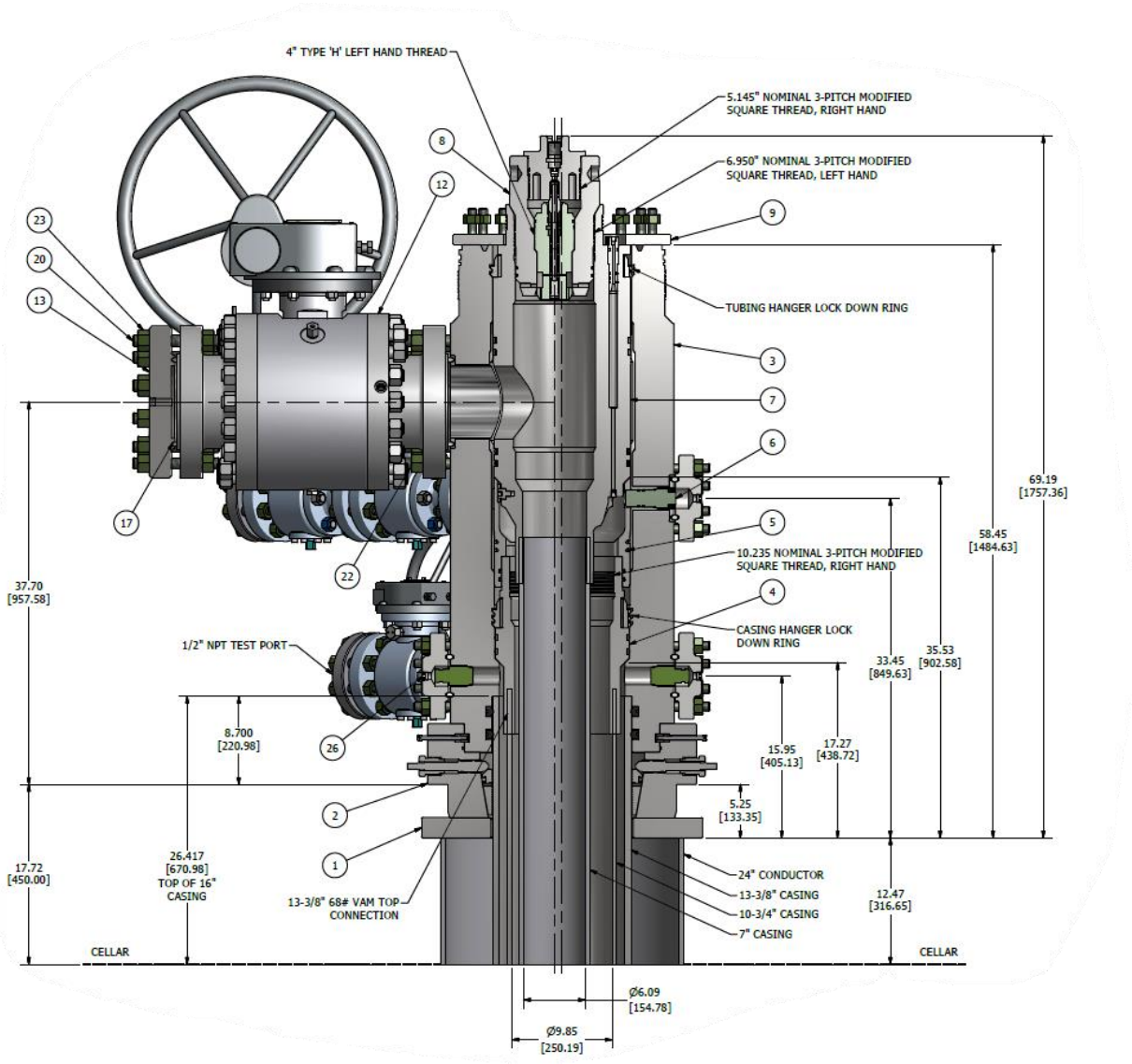
5.1 Well status

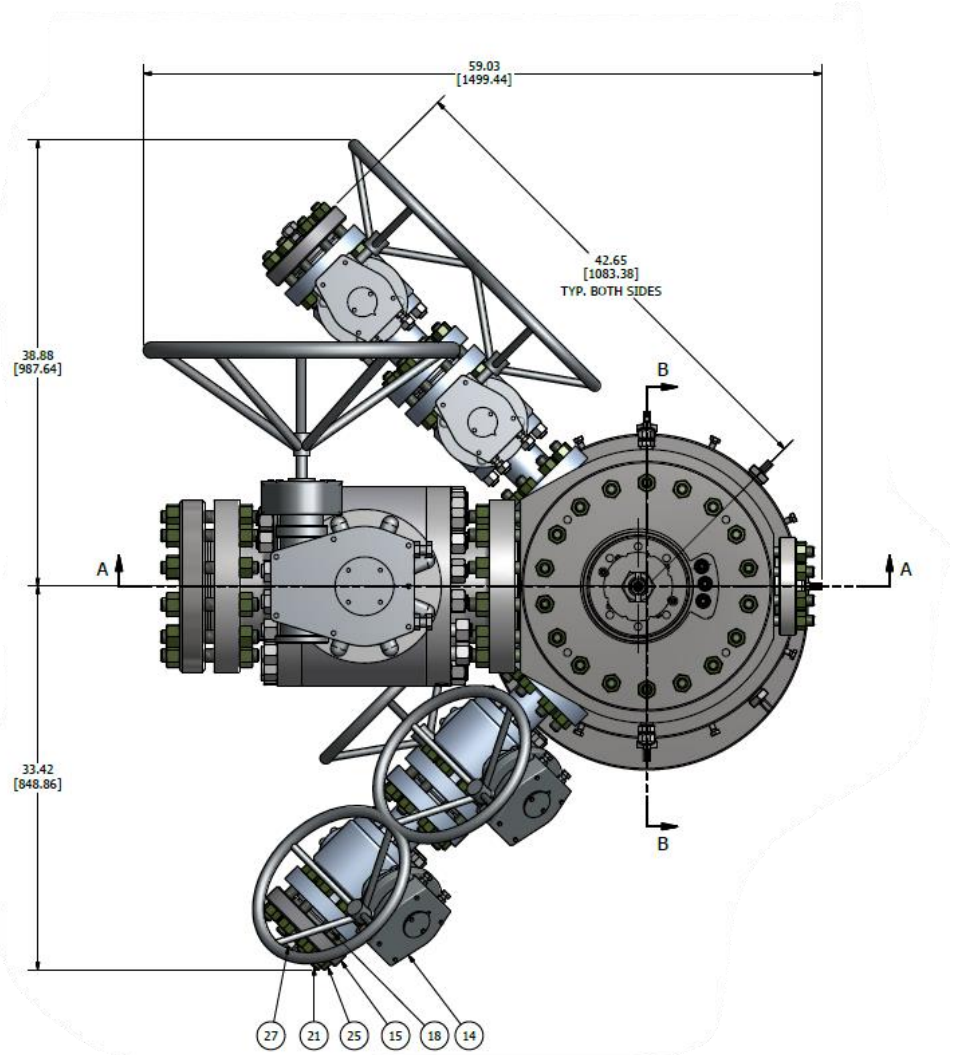
Well is suspended with 1.08 s.g. formation brine. Horizontal mastervalve (7 1/16'' 3k ball valves with blind flange) and 2 1/16'' 3k side outlet valves are installed. Tubing hanger with hanger top plug are installed and pressure tested to 3000 psi / 207bar.

5.2 Well barrier schematic



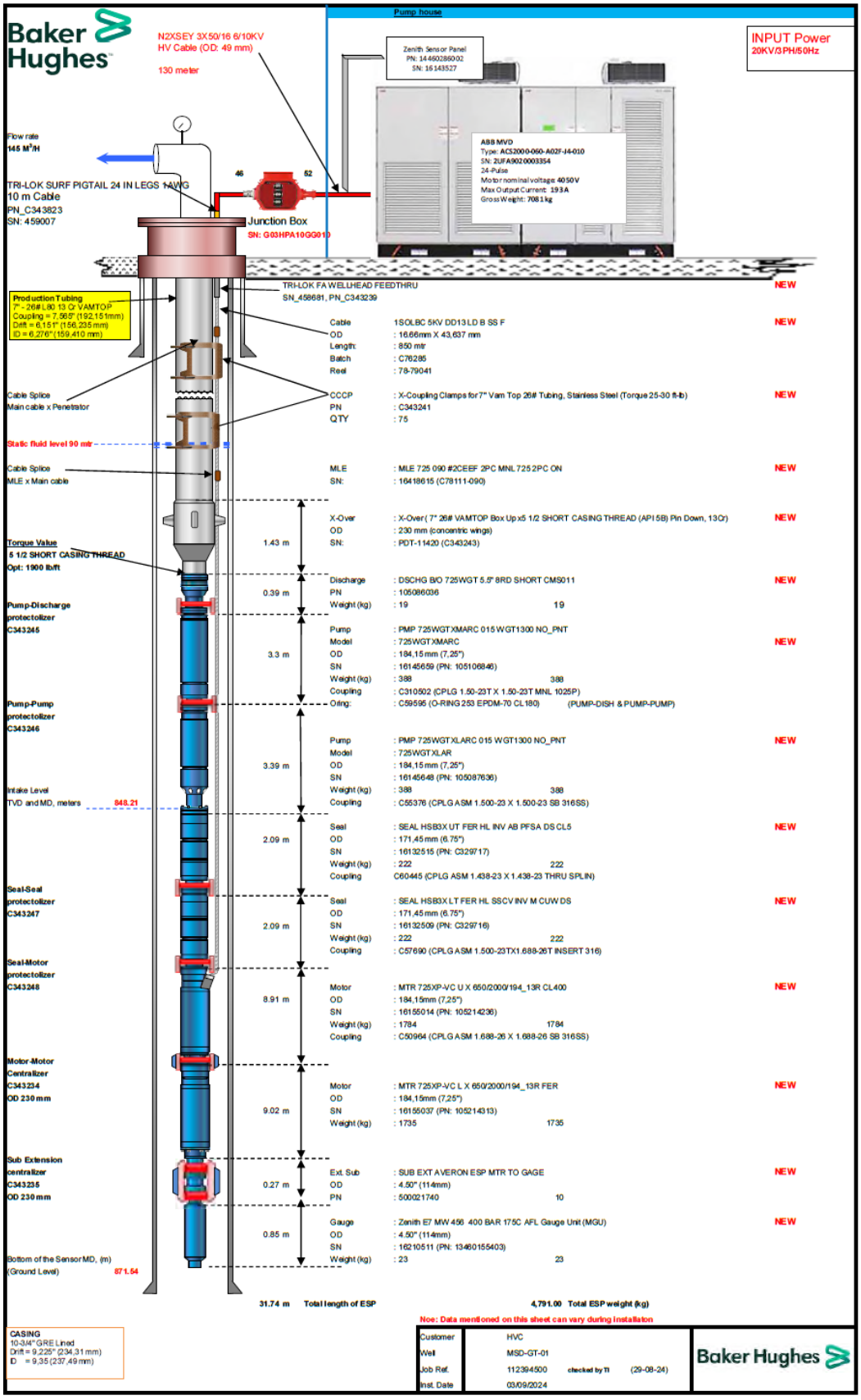
5.3 Wellhead drawing





PARTS LIST			
ITEM	PART NUMBER	DESCRIPTION	MATERIAL
1	05-101531-MA	24" x 13-5/8" Eccentric Base Plate	8630
2	05-101139-AS	13-5/8" Slip Housing	8630
3	05-10137-AS	13-5/8" Wellhead Housing	8630 with Inconel 625 Clad
4	05-101140-AS	10-3/4" Casing Hanger	F6NM
5	05-101290-AS	Landing Sub	F6NM
6	05-101336-AS	Landing Sub Anti-Rotation Plug	F6NM
7	05-101666-AS	7" Tubing Hanger	F6NM
8	05-101168-AS	Tubing Hanger Blanking Plug	F6NM
9	05-101143-FM	Wellhead Top Plate	Steel, Carbon
10	09-101313-PP	9", 3 KSI Ball Valve.	Carbon Steel with 316 Stainless Steel Clad
11	05-101324-FM	9" 3K Blind Flange	Steel, Carbon
12	09-101312-PP	7-1/16", 3 KSI Ball Valve.	Carbon Steel with 316 Stainless Steel Clad
13	05-101356-FM	7-1/16" 3K Blind Flange	Steel, Carbon
14	09-101311-PP	2-1/16", 3 KSI Ball Valve	Carbon Steel with 316 Stainless Steel Clad
15	SK20349	2.06", 3K Blind Flange for HXTS (FM)	Carbon Steel
16	SK20352-49	R49 Type R Ring Gasket (PP)	Stainless Steel
17	SK20352-45	R45 Type R Ring Gasket (PP)	Stainless Steel
18	SK20352-24	R24 Type R Ring Gasket (PP)	Stainless Steel
19	SK20304-20	All Threaded Stud Bolt 1-3/8"-8 UN x 9-1/2" Long	Steel, High Strength Low Alloy
20	SK20304-17	All Threaded Stud Bolt 1-1/8"-8 UN x 8-1/2" Long (PP)	Steel, High Strength Low Alloy
21	SK20304-03	All Threaded Stud Bolt 7/8"-9 UNC x 6-1/2" Long (PP)	Steel, High Strength Low Alloy
22	SK20306-17	Tap End Stud 1-1/8"-8 UN x 5-7/8" Long (PP)	Steel, High Strength Low Alloy
23	SK20004-11	Heavy Hex Nut 1-1/8"-8 UN (PP)	Steel, Mild
24	SK20004-15	1-3/8"-8 UN Heavy Hex Nut	Steel, Mild
25	SK20004-09	7/8 - 9 UNC HEAVY HEX NUT (PP)	Steel, Mild
26	SK20222-05	1/2" NPT LEVL Plug (PP)	Stainless Steel, Austenitic
27	SK20104	Autoclave Blow Down Plug (PP)	Carbon Steel

5.4 Completion schematic


Baker Hughes
N2XSEY 3X50/16 6/10KV
HV Cable (OD: 49 mm)
130 meter
Pump house
Zenith Sensor Panel
PN: 14460286002
SN: 16143527
INPUT Power
20KV/3PH/50Hz
ABB MVD
Type: ACS2000-060-A02F-J4-010
SN: 2UFA9020003354
24-Pulse
Motor nominal voltage: 4050 V
Max Output Current: 193 A
Gross Weight: 7081 kg
Flow rate
145 M³/H
TRI-LOK SURF PIGTAIL 24 IN LEGS 1AWG
10 m Cable
PN_C343823
SN: 459007
Junction Box
SN: G03HPA10GG010
TRI-LOK FA WELLHEAD FEEDTHRU
SN_458681, PN_C343239
NEW
Production Tubing
7" - 26# L-80 13 Cr VAMTOP
Coupling = 7,565" (192,151mm)
Drift = 6,151" (156,235 mm)
ID = 6,276" (159,410 mm)
Cable Splice
Main cable x Penetrator
Static fluid level 90 mtr
Cable Splice
MLE x Main cable
Torque Value
5 1/2 SHORT CASING THREAD
Opt: 1900 lb/ft
Pump-Discharge protectolizer C343245
Pump-Pump protectolizer C343246
Intake Level
TVD and MD, meters 849.21
Seal-Seal protectolizer C343247
Seal-Motor protectolizer C343248
Motor-Motor Centralizer C343234 OD 230 mm
Sub Extension centralizer C343235 OD 230 mm
Bottom of the Sensor MD, (m)
(Ground Level) 871.54
Cable 1SOLBC 5KV DD13 LD B SS F
OD : 16,66mm X 43,637 mm
Length: : 850 mtr
Batch : C76285
Reel : 78-79041
CCCP : X-Coupling Clamps for 7" Vam Top 26# Tubing, Stainless Steel (Torque 25-30 ft-lb)
PN : C343241
QTY : 75
MLE : MLE 725 090 #2CEEF 2PC MNL 725 2PC ON
SN: : 16418615 (C78111-090)
X-Over : X-Over (7" 26# VAMTOP Box Up x5 1/2 SHORT CASING THREAD (API 5B) Pin Down, 13Cr)
OD : 230 mm (concentric wings)
SN: : PDT-11420 (C343243)
1.43 m
Discharge : DSCHG B/O 725WGT 5.5" 8RD SHORT CMS011
PN : 105086036
Weight (kg) : 19 19
0.39 m
Pump : PMP 725WGTXMARC 015 WGT1300 NO_PNT
Model : 725WGTXMARC
OD : 184,15 mm (7,25")
SN : 16145659 (PN: 105106846)
Weight (kg) : 388 388
Coupling
Oring: : C59595 (O-RING 253 EPDM-70 CL180) (PUMP-DISH & PUMP-PUMP)
3.3 m
Pump : PMP 725WGTXLARC 015 WGT1300 NO_PNT
Model : 725WGTXLAR
OD : 184,15 mm (7,25")
SN : 16145648 (PN: 105087636)
Weight (kg) : 388 388
Coupling : C55376 (CPLG ASM 1.500-23 X 1.500-23 SB 316SS)
3.39 m
Seal : SEAL HSB3X UT FER HL INV AB PFSA DS CL5
OD : 171,45 mm (6.75")
SN : 16132515 (PN: C329717)
Weight (kg) : 222 222
Coupling C60445 (CPLG ASM 1.438-23 X 1.438-23 THRU SPLIN)
2.09 m
Seal : SEAL HSB3X LT FER HL SSCV INV M CUW DS
OD : 171,45 mm (6.75")
SN : 16132509 (PN: C329716)
Weight (kg) : 222 222
Coupling : C57690 (CPLG ASM 1.500-23TX1.688-26T INSERT 316)
2.09 m
Motor : MTR 725XP-VC U X 650/2000/194_13R CL400
OD : 184,15mm (7,25")
SN : 16155014 (PN: 105214236)
Weight (kg) : 1784 1784
Coupling : C50964 (CPLG ASM 1.688-26 X 1.688-26 SB 316SS)
8.91 m
Motor : MTR 725XP-VC L X 650/2000/194_13R FER
OD : 184,15mm (7,25")
SN : 16155037 (PN: 105214313)
Weight (kg) : 1735 1735
9.02 m
Ext. Sub : SUB EXT AVERON ESP MTR TO GAGE
OD : 4.50" (114mm)
PN : 500021740 10
0.27 m
Gauge : Zenith E7 MW 456 400 BAR 175C AFL Gauge Unit (MGU)
OD : 4.50" (114mm)
SN : 16210511 (PN: 1346015403)
Weight (kg) : 23 23
0.85 m
31.74 m Total length of ESP
4,791.00 Total ESP weight (kg)
Noe: Data mentioned on this sheet can vary during installaton
CASING
10-3/4" GRE Lined
Drift = 9,225" (234,31 mm)
ID = 9,35 (237,49 mm)
Customer HVC
Well MSD-GT-01
Job Ref. 112394500 checked by TI (29-08-24)
Inst. Date 03/09/2024
Baker Hughes

6 Attachments

6.1 Tally 7” production tubing

7 " ESP tally

Date : 05/09/2024
Co/man : A.Sanden
Well : MSD-GT-01p

Tubing	7,00						
Grade	L-80 13Cr						
Weight	26,0			lbs / ft			
Casing ID	6,275			inch			
Drift Dia	6,151			inch			
M/u loss	0,121			m			
Connection	VAMTOP				Mud w t ~	1,08	Production w ater
M/u Torque Min	7470			Ft/lbs	Bouyancy factor	0,862	
M/u Torque Opt	8300			Ft/lbs	Block w t	0	Klbs
M/u Torque Max	9130			Ft/lbs			
90% Burst				Bar			
90% Collapse				Bar			
Tensile Strength				psi	Reference	**GL**	
Capacity				ltr/mtr			m
Capacity Av dia				ltr/mtr			
Displacement				ltr/mtr			

Joint no	Length m	Less m/u loss	Cum m	Jt Bottom m	Jt Top m		Remarks	Block Weight tonnes	Displacement m3	Shoe to Jt bottom
Gauge	0,850	**0,85**	0,85	871,54	870,69		**S/N**			
Extension sub	0,270	**0,27**	1,12	870,69	870,42					
LTM	9,020	**9,02**	10,14	870,42	861,40		**S/N**			
UTM	8,910	**8,91**	19,05	861,40	852,49		**S/N**			
Protector	2,090	**2,09**	21,14	852,49	850,40		**S/N**			
Protector	2,090	**2,09**	23,23	850,40	848,31		**S/N**			
Pump 15WGT1300	3,390	**3,39**	26,62	**848,31**	844,92		**S/N**		**Target Intake: 850m**	
Pump 15WGT1300	3,300	**3,30**	29,92	848,31	845,01		**S/N**			
BOD	0,390	**0,39**	30,31	844,92	844,53		**S/N**			
Wing Sub	1,430	**1,43**	31,74	845,01	843,58		**ESP weight in air = 4.8**	**flat cable**	0,0	845,01
7" Pup jnt	1,620	**1,62**	33,36	844,53	842,91		**7" - 26# VAMTOP**	**4,8**	0,0	844,53
1	11,380	11,26	44,62	842,91	831,65		"	5,2	0,0	842,91
2	11,390	11,27	55,89	831,65	820,38		"	5,6	0,0	831,65
3	11,390	11,27	67,16	820,38	809,11		"	5,9	0,0	820,38
4	11,400	11,28	78,44	809,11	797,83		"	6,3	0,0	809,11
5	11,360	11,24	89,68	797,83	786,59		**7" - 26# VAMTOP**	6,7	0,0	797,83
6	11,330	11,21	100,89	786,59	775,39		"	7,1	0,0	786,59
7	11,380	11,26	112,14	775,39	764,13		"	7,4	0,0	775,39
8	11,080	10,96	123,10	764,13	753,17		"	7,8	0,0	764,13
9	11,390	11,27	134,37	753,17	741,90		"	8,2	0,0	753,17
10	10,920	10,80	145,17	741,90	731,10		**7" - 26# VAMTOP**	8,5	0,0	741,90
11	11,360	11,24	156,41	731,10	719,86		"	8,9	0,0	731,10
12	11,000	10,88	167,29	719,86	708,98		"	9,3	0,0	719,86
13	11,350	11,23	178,52	708,98	697,75		"	9,6	0,0	708,98
14	11,860	11,74	190,26	697,75	686,01		"	10,0	0,0	697,75
15	11,400	11,28	201,54	686,01	674,73		**7" - 26# VAMTOP**	10,4	0,0	686,01
16	11,380	11,26	212,80	674,73	663,47		"	10,8	0,0	674,73
17	11,330	11,21	224,01	663,47	652,26		"	11,2	0,0	663,47

18	10,710	10,59	234,60	652,26	641,67		"	11,5	0,0	652,26
19	11,320	11,20	245,80	641,67	630,48		"	11,9	0,0	641,67
20	11,340	11,22	257,01	630,48	619,26		**7" - 26# VAMTOP**	12,3	0,0	630,48
21	11,360	11,24	268,25	619,26	608,02		"	12,6	0,0	619,26
22	11,360	11,24	279,49	608,02	596,78		"	13,0	0,0	608,02
23	11,090	10,97	290,46	596,78	585,81		"	13,4	0,0	596,78
24	11,340	11,22	301,68	585,81	574,59		"	13,8	0,0	585,81
25	10,980	10,86	312,54	574,59	563,73		**7" - 26# VAMTOP**	14,1	0,0	574,59
26	11,400	11,28	323,82	563,73	552,45		"	14,5	0,0	563,73
27	11,380	11,26	335,08	552,45	541,19		"	14,9	0,0	552,45
28	11,240	11,12	346,20	541,19	530,07		"	15,2	0,0	541,19
29	10,790	10,67	356,87	530,07	519,40		"	15,6	0,0	530,07
30	11,380	11,26	368,13	519,40	508,14		**7" - 26# VAMTOP**	16,0	0,0	519,40
31	10,800	10,68	378,81	508,14	497,47		"	16,3	0,0	508,14
32	11,500	11,38	390,19	497,47	486,09		"	16,7	0,0	497,47
33	11,310	11,19	401,37	486,09	474,90		"	17,1	0,0	486,09
34	11,600	11,48	412,85	474,90	463,42		"	17,5	0,0	474,90
35	11,490	11,37	424,22	463,42	452,05		**7" - 26# VAMTOP**	17,8	0,0	463,42
36	11,500	11,38	435,60	452,05	440,67		"	18,2	0,0	452,05
37	11,330	11,21	446,81	440,67	429,46		"	18,6	0,0	440,67
38	11,160	11,04	457,85	429,46	418,42		"	19,0	0,0	429,46
39	11,340	11,22	469,07	418,42	407,20		"	19,3	0,0	418,42
40	11,400	11,28	480,35	407,20	395,92		**7" - 26# VAMTOP**	19,7	0,0	407,20
41	11,380	11,26	491,61	395,92	384,66		"	20,1	0,0	395,92
42	11,500	11,38	502,99	384,66	373,28		"	20,5	0,0	384,66
43	11,060	10,94	513,93	373,28	362,34		"	20,8	0,0	373,28
44	11,400	11,28	525,21	362,34	351,07		"	21,2	0,0	362,34
45	11,230	11,11	536,32	351,07	339,96		**7" - 26# VAMTOP**	21,6	0,0	351,07
46	11,500	11,38	547,69	339,96	328,58		"	22,0	0,0	339,96
47	11,300	11,18	558,87	328,58	317,40		"	22,3	0,0	328,58
48	11,500	11,38	570,25	317,40	306,02		"	22,7	0,0	317,40
49	10,980	10,86	581,11	306,02	295,16		"	23,1	0,0	306,02
50	11,500	11,38	592,49	295,16	283,78		**7" - 26# VAMTOP**	23,5	0,0	295,16
51	11,050	10,93	603,42	283,78	272,85		"	23,8	0,0	283,78
52	11,500	11,38	614,80	272,85	261,47		"	24,2	0,0	272,85
53	11,500	11,38	626,18	261,47	250,09		"	24,6	0,0	261,47
54	11,380	11,26	637,44	250,09	238,83		"	25,0	0,0	250,09
55	11,380	11,26	648,70	238,83	227,57		**7" - 26# VAMTOP**	25,3	0,0	238,83
56	11,360	11,24	659,94	227,57	216,33		"	25,7	0,0	227,57
57	11,300	11,18	671,12	216,33	205,16		"	26,1	0,0	216,33
58	10,830	10,71	681,82	205,16	194,45		"	26,4	0,0	205,16
59	11,330	11,21	693,03	194,45	183,24		"	26,8	0,0	194,45
60	11,240	11,12	704,15	183,24	172,12		**7" - 26# VAMTOP**	27,2	0,0	183,24
61	11,350	11,23	715,38	172,12	160,89		"	27,6	0,0	172,12
62	11,350	11,23	726,61	160,89	149,66		"	27,9	0,0	160,89
63	11,370	11,25	737,86	149,66	138,41		"	28,3	0,0	149,66
64	11,350	11,23	749,09	138,41	127,18		"	28,7	0,0	138,41
65	11,380	11,26	760,35	127,18	115,92		**7" - 26# VAMTOP**	29,1	0,0	127,18
66	11,380	11,26	771,61	115,92	104,66		"	29,4	0,0	115,92
67	10,830	10,71	782,32	104,66	93,95		"	29,8	0,0	104,66
68	11,370	11,25	793,57	93,95	82,70		"	30,2	0,0	93,95
69	11,110	10,99	804,56	82,70	71,71		"	30,5	0,0	82,70
70	10,870	10,75	815,31	71,71	60,97		**7" - 26# VAMTOP**	30,9	0,0	71,71
71	11,160	11,04	826,34	60,97	49,93		"	31,3	0,0	60,97

72	11,400	11,28	837,62	49,93	38,65		"	31,6	0,0	49,93
73	10,720	10,60	848,22	38,65	28,05		"	32,0	0,0	38,65
74	11,360	11,24	859,46	28,05	16,81		"	32,4	0,0	28,05
75	11,390	11,27	870,73	16,81	5,54		"	32,8	0,0	16,81
Hanger pup	1,420	1,30	872,03	5,54	4,24		**7" - 26# VAMTOP**	32,8	0,0	5,54
Hanger below HUP	0,27	0,27	872,30	4,24	3,97					4,24
HUP - GL	-0,76	-0,76	871,54	3,97	4,73		**HUP 0.765m above GL**			3,97
	0,00	0,00	871,54	4,73	4,73					4,73

					Pick up weight	**37mT**	
Bandits				**15**	**Slack of weight**	**37mT**	
ESP Cable clamps				**75**	**450mT mobile crane block**	**3,5mT incl lift equip**	
FINAL ESP checks		**1,73GΩ - 1000V - 5min**			**Wellhead adaptor / hanger seals**		
	fase to fase 1,3Ohm balanced			**Fluke**	**207bar for 10 min**		
Dope:		**API modified**					