

New CP Installation setup for Single Well Casing associated with flowline to save the cost and avoid copper cable theft

1-INTRODUCTION

As part of continuous efforts to provide a solution to chronic industrial problem, this idea was introduced. Below are description of the current problem and the proposed setup. Problems (theft & vandalisms) in addition to cost saving This new innovative setup for the cathodic protection system for onshore Well casing.

2-EXISTING SETUP

2.1-General:

A minimum of 150 meters distance must be maintained between the anode bed and the bare well casing as per our company CP standard, accordingly 150 meters of negative cable is connected from the rectifier to the wellhead.in addition to that, deep anode beds must be located remotely from any buried metallic structure. For example, a distance of 35 meters is required for deep anode bed with a design current output of 35 amperes or less. A distance of 75 meters is required for anode bed with capacities between 36 and 50 amperes.

2.2-Current problem:

Thefts and vandalism of CP system negative copper cables have been increased dramatically with the increase of CP systems through the scattered areas and consequently thousands of meters of copper cables that are laid under the ground became exposed to thieves, and indeed Hundreds of thefts cases reported during past years. This leads to losing of the protection system, higher maintenance cost (Labor& material) in addition to the time and effort consumption to restore the damaged system.

3-PROPOSED SETUP

3.1General Design Requirements:

3.1.1 Flowline must be installed above grade for at least 185 meters for a CP system with rating of 35 A, and as the CP system rating increases the above grade flowline length will increase.

3.1.2 Install the CP system and the anode bed at the location 150 m away from the Well and adjacent to the flowline 10 m and Connecting the negative cable from the rectifier to the above grade flowline to keep the required distance stated on the CP standard, and this will reduce the cable length from a minimum of 150 m to a maximum of 10 m.

3.1.3 Maintain the required distance from the Anode bed to the flowline transition as follows:

3.1.2.1 CP System rating 35 (Amps) the minimum distance is 35m

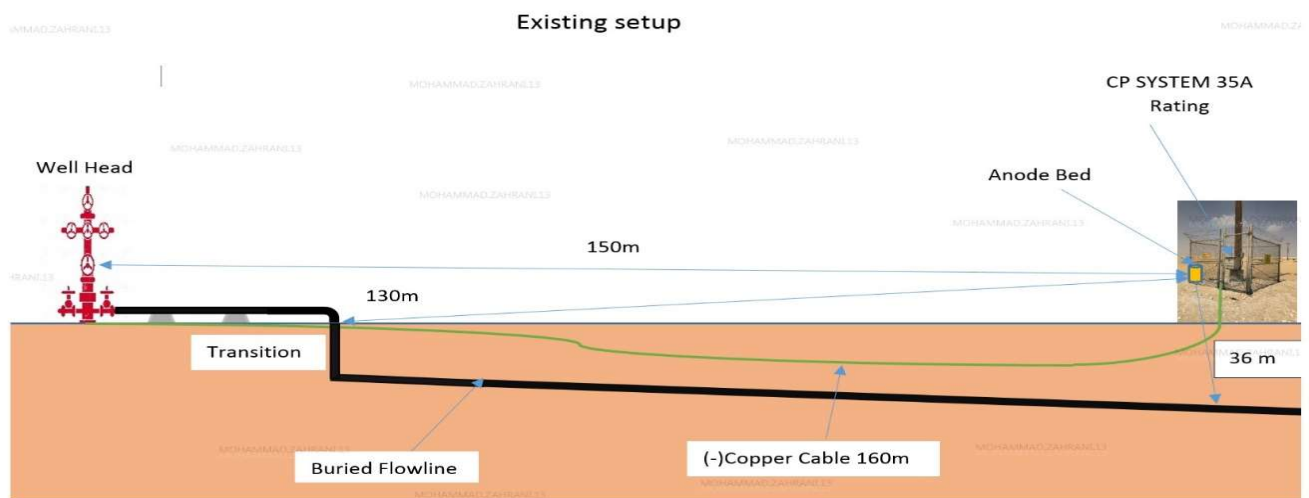
3.1.2.2 CP System rating 50 (amps) the minimum distance is 75m

3.1.2.3 CP System rating 75 (Amps) the minimum distance is 125m.

3.1.3 Installing the anode bed inside the rectifier fence

4 Innovation Benefit:

- 4.1 Avoid excavation a long trench for the negative cable.
- 4.2 Reduce the material cost since the cable length will be reduced.
- 4.3 Decrease the installation time and efforts.
- 4.4 The thieves will not find tempted or attractive copper cable quantity that worth stealing.
- 4.5 The 10 meters cable will be installed inside PVC pipe and fill it with mortar.
- 4.6 Avoid breaking the negative cable for any future Rig workover activities.
- 4.7 Save the CP operation time for their normal daily activities.
- 4.8 Less maintenance cost and effort.



Proposal setup

