

الآية

بسم الله الرحمن الرحيم

﴿ فَاعْلَمْ أَنَّهُ لَا إِلَهَ إِلَّا اللَّهُ وَاسْتَغْفِرْ
لِدُنْيِكَ ﴾

سورة محمد-آية رقم (19)

قال : قال رسول الله ﷺ : ﴿ إن مثل ما بعثني الله به عز وجل من الهدى والعلم كمثل غيث أصاب أرضاً فكانت منها طائفة طيبة – وعند مسلم - نقيه ، قبلت الماء فأنبت الكلاً والعشب الكثير ، وكان منها أجادب أمسكت الماء ، فنفع الله بها الناس فشربوا منها وسقوا وزرعوا ، وأصاب طائفة منها أخرى إنما هي قيعان لا تمسك ماء ولا تنبت كلاً ، فذلك مثل من فقه في دين الله ونفعه بما بعثني الله به فعلم وعلم ، ومثل من لم يرفع بذلك رأساً ولم يقبل هدى الله الذي أرسلت به ﴾

أخرجه الشيخان

DEDICATION

I would like to dedicate this M.Sc dissertation to **my parents**, who they taught me that the best kind of knowledge to have is that, which is learned for its own sake, there is no doubt in my mind that without their continued support and counsel, I could not have begun and completed this process. It is also dedicated to **my wife**

and **my children**, who taught me that even the largest task can be accomplished if it is done one step at a time

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مستخلص

هذه الدراسة عبارة عن محاولة للتركيز علي النقاط المتعلقة بتكنولوجيا نظم عرض المعلومات عن بعد، خاصة فيما يتعلق بنظم الحماية الكاثودية والتي تستخدم لمعالجة (الصدأ) التآكل في المواد. بالرغم من أن نظام المراقبة (العرض) للحماية الكاثودية عن بعد ليست حديثة، إلا أن هذه الدراسة هدفت إلى جذب الإنتباه إلى الجانب الأكتريحيوية في كل الصناعة، والطب و كل جوانب الحياة المختلفة ذات الأصول الحديدية للتربة ومكوناتها. وبأخذ شركة بترودار لعمليات التشغيل، كدراسة حالة لتطبيق نظام العرض عن بعد. ومحاولة ملء الفراغ بين عرض نظم الحماية الكاثودية وكمال (سلامة) التحكم.

إن مفهوم التآكل (الصدأ) في المواد يمثل الجزء الأهم لتحديد الطرق المثلى لتخفيف التأثير المترتب عن تآكل المواد، وذلك باستخدام التقنية الفعالة لإدارة التآكل مثل غلاف المادة وتقنيات الحماية الكاثودية المتعددة.

فالحاجة لمعدات (أجهزة) التشغيل للحماية الكاثودية قادت لإستخدام نظم التحكم الإشرافي وتجميع البيانات (SCADA) لمستوياتها وفعاليتها ومميزاتها. بالإضافة لأن نظم الإتصال التليفوني والوسائط المتعددة ونظم الإشراف عن بعد صارت أكثر واقعية. يمكن تفعيل إستعمال نظام لعب التآكل في تكنولوجيا الاتصالات دورا هاما في تطبيق نظم التحكم وعرض البيانات.

عند دراسة شركة بترولدار لعمليات التشغيل كحالة دراسة، وتقييم الوضع الجاري لنظم الحماية الكاثودية ووضع مقترح لإمكانية أن تقود للتكاملية بين نظم الحماية الكاثودية ونظم التحكم الإشرافية. وعبر هذه الدراسة كانت المحافظة على الخيار الأجد والمتموفر لإختيار خبرات نظم الإشراف عن بعد ومميزاتها بلغة الواقعية والوجودية و قلة التكلفة.

ABSTRACT

This study is an endeavor to highlight spot points on remote monitoring system technology, especially with regard to the Cathodic protection (CP) system, which is normally utilized to treat the metallic corrosion. Though Cathodic protection remote

monitoring system (RMS) isn't new, this study aimed to draw attention to the most vital part in all industrial, medical and all different life aspects, in terms of all metallic assets soil-contact. Taking Petrodar operating company (PDO) as case study for application of remote monitoring system and trying to fill the gap . between Cathodic protection monitoring and control integrity

The corrosion concept of material is representing important part for determining the best method of mitigating the effect of corrosion materials by using proactive techniques of corrosion management .like material coating and various Cathodic protection techniques

The need of monitoring Cathodic protection operational devices lead to utilize Supervisory Control And Data Acquisition (SCADA) hierarchy levels, functions and characteristic. With advance on telecommunication systems and media, remote monitoring system .(RMS) become realistic

Studying PDO case, and assess the current situation can be realize the application of RMS of Cathodic protection. Throughout this study the greatest aim is to taking care of the best choice and available to selection options of RMS systems properties in terms of .reliability, availability and cost effectiveness point of view

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LIST OF ABBREVIATIONS

Abbreviation	Term
Alternative Current	A.C
American Standard Code For Information Exchange	ASCII
Block Valve	B.V
Close Interval Potential Survey	CIP
Cathodic Protection	CP
Central Processing Facility	CPF
Central Processing Unit	CPU
Direct Current	D.C
Distributed Control System	DCS
Digital Subscriber Line	DSL
External Current Protection Systems	ECPS
Field Processing Facility	FPF
Fiber Optic Cable	FOC
German Cathodic Protection	GCP
Global System for Mobile Communication	GSM
Human Machine Interface	HMI
Intelligent Electronic Device	IED
Intrinsic Safety	IS
Integrated Services Digital Network	ISDN
Kilo Point	KP
Leak Detection System	LDS
Main Control Center	MCC
Multi node (DUR) –Dynamic User Region	MDUR
Melut Basin Oil Development Project	MEBOD
Management Information System	MIS
Abbreviation	Term
Man Machine Interface	MMI
Marine Terminal	MT
Nile Upstream Block Valve	NUBV
Object Linking & Embedding) For Process Control)	OPC

Petrodar Operating Company	PDOC
Proportional Integral and Derivative	PID
Programmable Logic Controller	PLC
.Pumping Station Number	.P.S No
Random Access Memory	RAM
Report By Exception	RBE
Relational Data Base Management Systems	RDBMS
Remote monitoring system	RMS
Read Only Memory	ROM
Recommended Standard	RS
Remote Terminal Unit	RTU
Supervisory Control And Data Acquisition	SCADA
Synchronous Digital Hirechary	SDH
Structured Query Language	SQL
Transformer Rectifier	T.R
Ultra High Frequency	UHF
United State	U.S
Very High Frequency	VHF
Very Small Aperture Terminal	VSAT

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