

Cathodic Protection Design & Analysis Data

Doc No.

LPP-TS-PUM-STR-CAL-3001

Rev. 1





Leviathan Production Platform

				I	I	T	
1	20-AUG-2018	For Constructio	or Construction		MG	BB/NE	
Α	11-JUL-2018	Issued for Revie	sued for Review		MG	BB/NE	
REV	DATE	DESCRIPTION	DESCRIPTION		CHECKER	APPROVER	
Fluid-P 6305 C	Firewater Designer: Fluid-Power Equipment, Inc. 6305 Cunningham Rd Houston, TX 77041			Noble Energy Mediterranean Ltd.			
N. ELI	Cathodic Protection Designer: N. ELIAV Infrastructure & Corrosion Engineering Ltd			Cathodic Protection Design & Analysis Data			
22 Sokolov St, Kfar Yona 40300 Israel			Client Doc. No.: LPP-TS-PUM-STR-CAL-3001				
Vendo	or Doc. No. (if differe	ent) N/A	1				
Vendo	or Name:	Fluid-Power	Fluid-Power Equipment				
Purch	ase Order Number:	LPP-PM-NEW	LPP-PM-NEM-SCM-AGM-0036				
Equip	ment Name:	Firewater Pu	Firewater Pumps				
Equip	ment Tag Number(s	s): ZZZ-8860 / ZZ	ZZZ-8860 / ZZZ-8870 / ZZZ-8880				
VDRL	Code(s):	F23					

Email: etihilae@gmail.com Mobile: + 972 52 6413651, + 972 52 3554322 Address: 22 Sokolov St, POB 7087, Kfar Yona 40300, Israel.

Document Control Sheet

Client:	FLUID-POWER EQUIPMENT, INC.			
Doc ID:	LPP-TS-PUM-STR-CAL-3001	Rev.	1	
Project	Leviathan Production Platform			
Title	CP Design for Firewater Pumps and Caissons			
Date	20-Aug-18			

1	For Construction	MT	MG	ВВ	Noam Eliav	20-AUG-2018
Α	Issue for approved	MT	MG	ВВ	Noam Eliav	11-JUL-2018
R0	Issue for comments	MT	MG	ВВ	Noam Eliav	29-JUN-2018
REV.	DESCRIPTION	COMP.	VERIF.	APPR.	APPR.	DATE

Intellectual property

This document has been prepared by: N. ELIAV Infrastructure & Corrosion Engineering Ltd in connection with a contract with the main designer for the client.

This document has been prepared based on available knowledge, technology and/or information at the time of issued, and is reflect the best of contemporary technology practices available.

Comments may be address to Mr. Noam Eliav.

Comprehensive information can be obtained from N. ELIAV Infrastructure & Corrosion Engineering Ltd:

22 Sokolov St, POB 7087, Kfar Yona 40300, Israel

Tel: ++ 972-9-8987759 Mob: ++ 972-52-3554322

This document and the information therein are the exclusive property of N. ELIAV Infrastructure & Corrosion Engineering Ltd. It shall not be disclosed, in whole or in part, to any third party or utilized for any purpose other than the express purpose for which it has been provided.

© N. ELIAV Infrastructure & Corrosion Engineering Ltd All Rights Reserved.

TABLE OF CONTENTS

1	GE	NERAL	4
	1.1	Scope of work	4
	1.2	Reference documents	4
	1.3	Project drawings	4
	1.4	International standards	4
	1.5	Symbols and abbreviations	5
2	DE	SIGN DATA FOR CATHODIC PROTECTION SYSTEM	6
	2.1	Characteristics of the structures to be protected	
	2.2	Coating	6
	2.3	Design Life	6
3	DE	SIGN PARAMETERS FOR CATHODIC PROTECTION SYSTEM	7
	3.1	Protection Current Densities	
	3.2	Seawater Resistivity	
	3.3	Cathodic Protection Potential	
4	CA	LCULATION OF SURFACE AREA TO BE PROTECTED	8
5	A١	IODE PROPERTIES	9
	5.1	Type and Sizes	9
	5.2	Electrochemical Properties	9
	5.3	Anode Material Chemical Composition	9
6	GA	ALVANIC ANODE SYSTEM DESIGN	10
	6.1	Calculation Procedure	10
	6.2	Protection Current Requirements	10
	6.3	Anode Resistance	
	6.4	Anode Current Output	
	6.5	Anode Number Calculation	11
7	FEM ANALYSIS		
	7.1	Premise	13
	7.2	Introduction	13
	7.3	Study cases	13
	7.4	Model description	
		4.1 Models domain	13
		4.2 Environmental parameters	15
		4.4 Mesh and solving	
	7.5		17
8	CC	DNCLUSIONS	20