



## SEAWATER ELECTROCHLORINATION PACKAGE

B	10/8/2016	JL	HH TAN	JOHN	
A	8/6/2016	JL	HH TAN	JOHN	
Rev. No.	Date	Prepared	Checked	Approved	Remarks
<div style="display: flex; align-items: center;">  <div> <p><b>Client:</b> <b>AES GENER S.A.</b> Avenida Rosario Norte 532 Piso 19, Las Condes, Santiago, Chile Tel: +56 2 2680 4885 Cell: +56 9 5226 9676 Email: <a href="mailto:Gustavo.bopp@aes.com">Gustavo.bopp@aes.com</a> Website: <a href="http://www.aes.com">www.aes.com</a></p> </div> </div>					
<div style="display: flex; align-items: center;">  <div> <p><b>EC Plant Supplier:</b> <b>KALF ENGINEERING PRIVATE LIMITED</b> 10, Science Park Road, #03-03, The Alpha Singapore Science Park II, Singapore 117684 Tel: (+65) 6449 1677 Fax: (+65) 6778 1160 <a href="http://www.kalf.sg">http://www.kalf.sg</a> Email: <a href="mailto:john@kalf.sg">john@kalf.sg</a></p> </div> </div>					
<input type="checkbox"/> A. ACCEPTED  <input type="checkbox"/> B. ACCEPTED, PROCEED WITH WORK AND INCORPORATED COMMENTS AND RE-SUBMIT  <input type="checkbox"/> C. NOT ACCEPTED, REVISE AND RE-SUBMIT  <input type="checkbox"/> D. FOR INFORMATION ONLY  NAME: _____ DATE: _____  SIGNATURE: _____			<p><b><u>RESPONSE SHEET</u></b></p>          		
<p><b>DOCUMENT TYPE / DESCRIPTION:</b></p> <p>Piping and Instrumentation Diagram</p>			<p><b>VDRL CODE:</b></p> <p>M01</p>	<p><b>DOCUMENT NO.:</b></p> <p>EC-M01-001</p>	<p><b>REV. NO.:</b></p> <p>B</p>

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The diagram illustrates a complex NaOCl dosing system with three parallel dosing lines. Each line starts with a transformer rectifier (HT-TX-05PUS02, HT-TX-05PUS03, HT-TX-05PUS04) powered by a 380VAC/24/50HZ supply. The output of the rectifiers is connected to electrochlorinators (EC-05PUS02, EC-05PUS03, EC-05PUS04). The electrochlorinators are equipped with various instrumentation, including pressure (PI), temperature (TI), flow (FI), and level (LI) sensors. The output of the electrochlorinators is connected to H2 release tanks (T-05PUS05, T-05PUS06, T-05PUS07). The H2 release tanks are also equipped with instrumentation and are connected to a common unit drain (TP-06). The system is controlled by a local control panel (LCP-00PUS01) and a common unit drain (TP-06).

**NOTE:**

1. Electrochlorination Room based on Class I Division 1 per NEC 500 (USA), Zone 1 by IEC .
2. Air blowers room based on Class I Division 2 per NEC 500 (USA), Zone 2 by IEC.
3. Local Control Panel & Transformer Rectifier Located At Safe Area.

<b>PROJECT TITLE:</b> <h2 style="margin: 0;">Seawater Electrochlorination Plant Norgener For Nueva Tocopilla Power Plant ,Tocopilla,Chile.</h2>									
<b>DRAWING TITLE:</b> <h3 style="margin: 0;">Piping and Instrumentation Diagram</h3>									
<b>SCALE</b>									
B	REVIEW	ELECTROCHLORINATION SYSTEM	10-08-16	MOHD	WOLFGANG	TAN	JOH		
A	REVIEW	ELECTROCHLORINATION SYSTEM	08-06-16	MOHD	WOLFGANG	TAN	JOH		
REV	STATUS	DESIGN & SUPPLY	DATE	DESIGN	CHECK	REVIEW	APP		
<b>KALF REF. NO. : SKFEC-S0060815</b>									
<b>CONSULTANT:</b>									
				REV			SIZE		
APPROVED BY		CHECKED BY		<b>TITLE:</b>					
REVIEWED BY		DESIGNED BY							
DATE		SCALE		DWG No.:				SHEET 1 OF 2	
<b>Sub-Contractor</b>									
DWG. No.:				<b>EC-M01-001</b>			REV.		<b>B</b>
BIDANG		DESIGNED	DESIGN	SCALE	DATE		10-08-16		
DRAWN		REVIEWED	REVIEWED		DIM		A3		
CHECKED		APPROVED	APPROVED		NUM				

ITEM	TIE-IN	APPLICATION	SIZE	MATERIAL	STANDARD	TYPE OF JOINT	LOCATION
1	TP-01	INCOMING SEAWATER SUPPLY	4"	SDSS	ANSI#150	FLANGED TYPE	WITHIN EC PLANT
2	TP-02	FRESH WATER SUPPLY	1"	UPVC	ANSI#150	FLANGED TYPE	WITHIN EC PLANT
3	TP-03	NaOCl SUPPLY FOR DOSING	4"	UPVC	ANSI#150	FLANGED TYPE	WITHIN EC PLANT
4	TP-04	NaOCl SUPPLY FOR DOSING	4"	UPVC	ANSI#150	FLANGED TYPE	WITHIN EC PLANT
5	TP-05	NaOCl SUPPLY FOR DOSING	4"	UPVC	ANSI#150	FLANGED TYPE	WITHIN EC PLANT
6	TP-06	COMMON UNIT DRAIN	2"	UPVC	ANSI#150	FLANGED TYPE	WITHIN EC PLANT
7	TP-07	WASTE WATER DISCHARGE	2.5"	UPVC	ANSI#150	FLANGED TYPE	WITHIN EC PLANT

RESIDUAL CHLORINE ANALYZER 1

SET RANGE  
0-5 PPM

DA

H

L

CL<sub>2</sub>

DA14/DA02  
CF001

CHLORINE ANALYSIS SYSTEM

SAMPLING WATER  
SUPPLY 1

Y DRAIN

