

CALCULATION COVER SHEET

PROJECT CO2 KARSTO		JOB NO. 25474		CALC NO. Bechtel:25474-000-M4C-CN-00007 Owner:10112936-PB-P-TDO-0009		SHEET 1	
SUBJECT: HEAT EXCHANGER FOULING FACTORS				DISCIPLINE: Process			
CALCULATION STATUS		PRELIMINARY X	CONFIRMED	SUPERSEDED	VOIDED		
COMPUTER PROGRAM/TYPE	SCP		MAINFRAME PC		PROGRAM NO.	VERSION/ RELEASE NO.	
	YES	NO	YES	NO			
		X		X			
<p>Use of these calculations by persons, without access to pertinent factors and without proper regard for their purpose, could lead to erroneous conclusions. Should it become necessary to use any of these calculations in your work in the future, it is suggested that the calculations be reviewed with authorized Bechtel personnel to ensure that the purposes, assumptions, judgments and limitations are thoroughly understood. Bechtel cannot assume responsibility for the use of these calculations not under our direct control.</p> <p>Reference Data: 1. GPSA ENGINEERING DATA BOOK, 12th Edition, 2004 2. Alfa Laval proposal 08POWMKAS0222, 2008 3. Bechtel Engineering Design Guide for Shell and Tube Heat Exchangers, 3DG B10 013, Rev. 0, 1994</p> <p>Design Basis: CO2 Kårstø - Exhibit E0 - Design Basis</p> <p>Remarks: This document provides the fouling factors to be applied to the heat exchangers. The typical fouling factors applied to amine service will be used on the basis that the metallurgy selection, filtration and reclamation facilities ensure that the amine is maintained in reasonable condition.</p> <p>Comments Shell & Tube Heat Exchangers Amine service, including reboilers and overheads 0.00035 m².°K/W CO2 (gas and liquid) 0.00018 m².°K/W Steam generator blowdown 0.00035 m².°K/W Boiler Feed Water (<1m/s) 0.0002 m².°K/W (>1m/s) 0.0001 m².°K/W Steam / Sea Water 0.0001 m².°K/W</p> <p>Plate Heat Exchangers The fouling factor will be lower than a shell and tube exchanger due to higher turbulence, avoidance of dead spaces and lower surface temperatures due to high heat transfer coefficients. The vendors recommend the application of a design margin for fouling for this type of heat exchanger. A minimum design margin for fouling of 10% will be applied, and vendor experience will also be considered.</p>							
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NO.	REASON FOR REVISION	TOTAL NO. OF SHEETS	LAST SHEET NO.	BY	CHECKED	APPROVED/ ACCEPTED	DATE
RECORD OF REVISIONS							