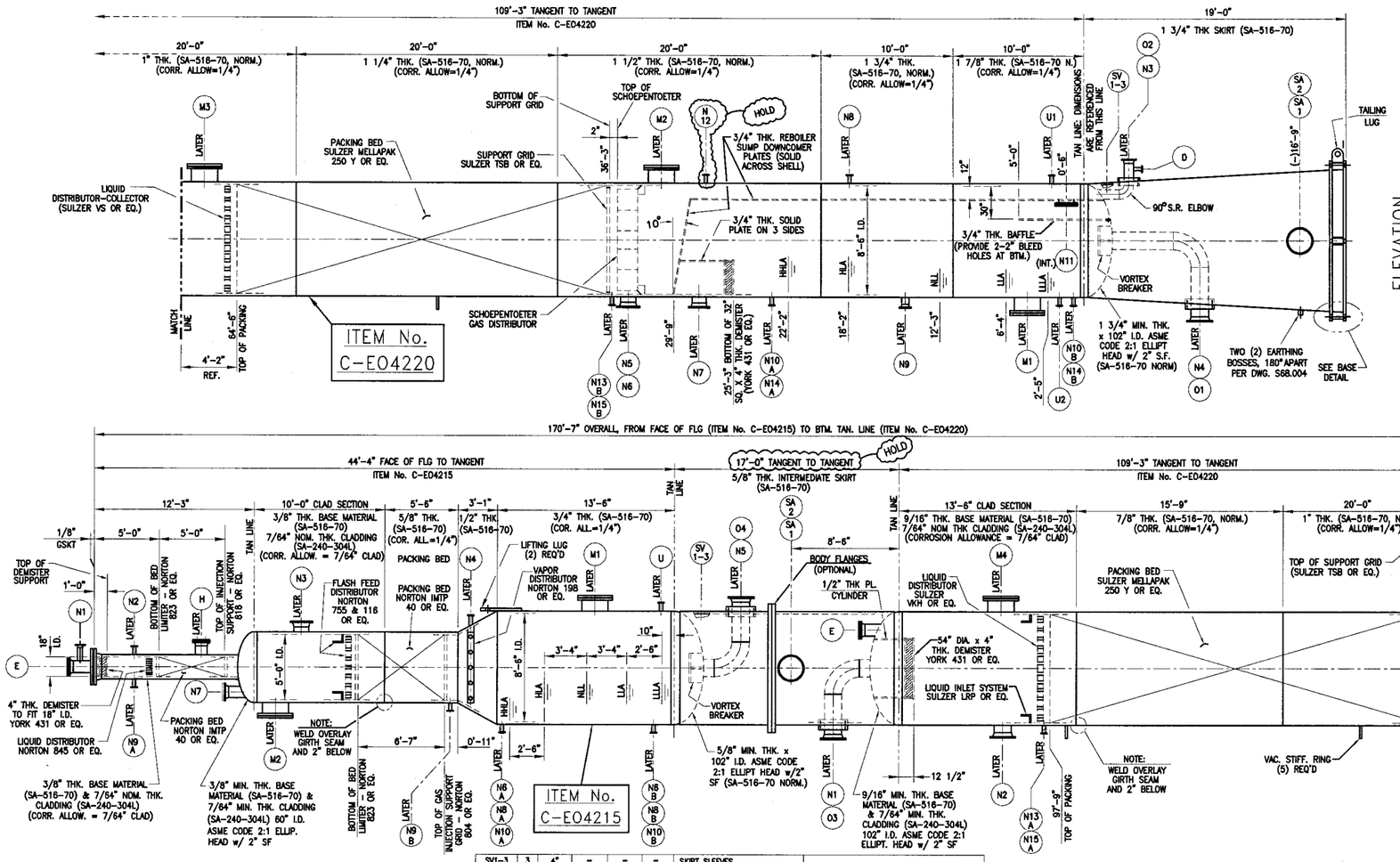


DESIGN DATA		
DESIGN CODE: ASME CODE SECTION VIII, DIVISION 1, LATEST EDITION AND ADDENDUM		
CODE STAMP REQD.: YES		
NATIONAL BOARD REGISTRATION REQD.: NO		
SHELL VESSEL CATEGORY: 1		
WIND DESIGN: IBC 2009 110 MPH EXPOSURE "C" I =1.15		
SEISMIC DESIGN: IBC 2009 SITE CLASS E Sa=11.8%g S1=5%g I =1.25 R=3		
SNOW DESIGN: -		
INTERNAL DESIGN CONDITIONS	SEE ⑤	
EXTERNAL DESIGN CONDITIONS	F.V. @ 300°F (BOTH VESSELS)	
INTERNAL OPERATING CONDITIONS	C-E04215: 17.3 PSIG @ 208°F C-E04220: 7.3 PSIG @238.4°F	
MIN. DESIGN METAL TEMP.	10 °F	
IMPACT TEST	PER CODE	
CORROSION ALLOWANCE	HEAD/SHELL (SEE ELEV.) NOZZLES (SEE ELEV.)	
DESIGN LIQUID LEVEL	H.H.L.A. – SEE ELEVATION	
SPECIFIC GRAVITY	1.2 (BOTH VESSELS)	
RADIOGRAPHY	100% RT OR UT LONGITUDINAL & CIRCUMFERENTIAL BUTT JOINTS AND NOZZLE ATTACHMENT WELDS	
POST WELD HEAT TREATMENT	YES – CARBON STEEL SECTIONS (FOR SERVICE) SEE NOTE 18	
M.A.W.P. / M.A.P. (NEW & COLD)	BY VENDOR	
SHOP HYDROTEST PRESSURE	BY VENDOR	
FIELD HYDROTEST PRESSURE	BY VENDOR	
INSULATION (BY OTHERS)	HEAD/SHELL 1 1/2" EC (BOTH VESSELS)	
FIREPROOFING (BY OTHERS)	INSIDE SKIRT – NONE | OUTSIDE SKIRT – 2" CONCRETE	
PAINT	SEE NOTE #14	

MATERIALS OF CONSTRUCTION		
	CLAD SECTION	C.S. SECTION
SHELL	SEE ELEVATION & NOTE #13	SEE ELEVATION
HEADS	SEE ELEVATION & NOTE #13	SEE ELEVATION
LINING	SEE ELEVATION & NOTE #13	NONE
SKIRT	–	SA-516-70
BASE PLATE & TOP RING	–	SA-516-70
FLANGES	SEE GEN. NOTE #10	SA-105
PIPE NECKS	SEE GEN. NOTE #10	SA-106-B
PLATE NECKS	SEE GEN. NOTE #10	SA-516-70
FITTINGS	–	SA-234-WPB
EXTERNAL BOLTING	SA-193-B7/ SA-194-2H	
EXTERNAL GASKETS	316L SPIRAL WOUND, 100% GRAPHITE FILLER, C.S. CENTERING RING, 316L INNER RING	
INTERNAL BOLTING	304 SS	304 SS
PACKING INTERNALS	304 SS (304L IF WELDED)	304 SS (304L IF WELDED)
PACKING INTERNALS SUPPORTS	SA-240-304L	SA-516-70
MISC. INTERNALS	304 SS (304L IF WELDED)	SA-516-70, SA-106-B
ANCHOR BOLTS	ASTM A354, GR. BC, GALV. (BY OTHERS)	

ESTIMATED VESSEL WEIGHTS		
INTERNALS FURN. BY: NOTE 9 INSTALLED BY: NOTE 9	LATER	LBS.
FABRICATED (LESS INTERNALS)	257,000	LBS.
ERECTED (DRESSED)	335,000	LBS.
EMPTY (LESS OPERATING LIQUID)	390,000	LBS.
OPERATING (INCLUDING OPERATING LIQUID)	559,000	LBS.
FULL OF WATER	868,000	LBS.

GENERAL NOTES

1. TWO VESSELS REQUIRED, ITEM No. 'C-E04215' AND ITEM No. 'C-E04220'.
2. NOZZLE PROJECTIONS ARE FROM OUTSIDE OF VESSEL TO EXTREME FACE OF FLANGE, EXCEPT AS NOTED: 7" FOR 6" NPS & SMALLER 8" FOR 8" NPS 9" FOR 12", 14" & 16" NPS 10" FOR 24"
3. NOZZLE BOLT HOLES SHALL STRADDLE VESSEL NORMAL CENTERLINES.
4. ALL VESSEL REMOVABLE INTERNALS SHALL PASS THROUGH 24" I.D. MANWAYS.
5. ALL MANWAYS AND BLINDED NOZZLES SHALL BE FURNISHED w/ BLIND FLANGE, STUDS, NUTS AND GASKETS.
6. THE FABRICATOR SHALL DESIGN AND PROVIDE THE ATTACHMENTS, EITHER PERMANENT OR TEMPORARY, FOR HANDLING, SHIPPING AND ERECTION.
7. ALL ATTACHMENTS WELDED TO PRESSURE PARTS SHALL BE OF SAME MATERIAL AND GRADE AS THAT OF THE PRESSURE PART.
8. REBOILER SUMP, BAFFLE, AND VORTEX BREAKERS SHALL BE FURNISHED & INSTALLED BY THE VESSEL VENDOR.
9. PACKING, PACKING SUPT PLATES, DISTRIBUTORS, GAS INJECTION SUPPORTS, BED LIMITERS, INLET SYSTEMS AND SCHOEPENTOETERS TO BE DESIGNED AND SUPPLIED BY THE PACKING VENDOR, AND INSTALLED IN THE FIELD BY OTHERS. DEMISTERS SHALL BE DESIGNED AND FURNISHED BY THE PACKING VENDOR, AND INSTALLED BY THE VESSEL VENDOR.
   ALL WELDED INTERNAL ATTACHMENTS TO THE SHELL FOR THE AFOREMENTIONED SHALL BE SUPPLIED AND INSTALLED BY THE VESSEL VENDOR, BASED ON DETAILS PROVIDED BY THE SHELL AND THE PACKING VENDOR.
10. ALL NOZZLES IN THE CLAD SECTION SHALL BE OF C.S. BASE, w/ 7/64" MIN. THK. 304L CLAD OR OVERLAY, INCLUDING THE FLG RAISED FACES.
    BASE MATERIAL – NOZZLE NECKS: SA-106-B OR SA-516-70 FLANGES: SA-105
    NOTE: SOLID ALLOY NOZZLES ARE NOT ACCEPTABLE. BLIND FLANGES SHALL BE WELD OVERLAYED AND PROVIDED WITH 1/16" RAISED FACES.
11. VESSEL VENDOR SHALL DESIGN LIFTING LUGS AND TAILING LUGS WITH AN IMPACT FACTOR OF 150% OF ERECTION WEIGHT. SKIRT BRACING SHALL BE PROVIDED IF REQUIRED.
12. INT. GRAB RUNGS & STEPS SHALL BE PROVIDED AT ALL MANWAYS PER STD DWG S10.119.
13. ALL CLAD MATERIAL SHALL BE IN ACCORDANCE WITH SA-264. SHEAR TEST IS REQUIRED. VENDOR'S PROPOSAL SHALL BE BASED ON FURNISHING EXPLOSION-BONDED CLAD MATERIAL. VENDOR SHALL ALSO PROVIDE AN ALTERNATE PROPOSAL BASED ON FURNISHING ROLL-BONDED CLAD MATERIAL.
14. PAINTING – REFER TO SCOPE OF SUPPLY IN DOCUMENT 2.0 (INDEX OF TECHNICAL DOCUMENTS).
15. VESSEL VENDOR SHALL SUPPLY INSULATION SUPPORTS PER SHELL STANDARD DRAWINGS S10.056 AND S20.003.
16. FLANGE FACE FINISH SHALL BE 125–250 MICRO-INCH Ra PER ASME B16.5.
17. N-11 SHALL BE 304L CLAD OR OVERLAYED. BLIND TO HAVE 7" DIA ORIFICE IN CENTER.
18. PWHT REQUIREMENTS: 1150 +25°F, -0°F. ONE HOUR MINIMUM OR 1 HOUR/INCH.

THIS DRAWING TO BE SUPERSEDED BY VENDOR'S DRAWING

③ M2 ONLY (SEE NOTES 10 & 13)

④ SEE NOTES 10 & 13

MARK	QTY	SIZE	RATING	TYPE	FACING	SERVICE	NOTES
SV1-3	3	4"	–	–	–	SKIRT SLEEVES	
SA1-2	2	24"	–	–	–	SKIRT ACCESS OPENINGS	
O4	1	20" I.D.	–	–	–	SKIRT SLEEVE FOR NOZZLE "N5"	
M1-2	2	24" I.D.	150#	WN	RF	MANWAY w/ DAVIT	w/ BLIND, STUDS, NUTS, & GASKET ③
U	1	2"	150#	WN	RF	STEAMOUT	
H	1	10"	150#	WN	RF	HANDHOLE W/ HANDGRIP	w/ BLIND, STUDS, NUTS, & GASKET ④
E	1	10"	150#	WN	RF	EXHAUSTER	w/ BLIND, STUDS, NUTS, & GASKET ④
N10A–B	2	2"	150#	WN	RF	SPARE	w/ BLIND, STUDS, NUTS, & GASKET
N9A–B	2	2"	150#	WN	RF	P.D.I.	N9A ONLY (SEE NOTES 10 & 13)
N8A–B	2	2"	150#	WN	RF	L.I.	
N7	1	10"	150#	WN	RF	RUPTURE DISK/RELIEF	SEE NOTES 10 & 13
N6A–B	2	2"	150#	WN	RF	LEVEL BRIDLE	
N5	1	16"	150#	WN	RF	LIQUID OUT	
N4	1	2"	150#	WN	RF	METHANE IN	
N3	1	14"	150#	WN	RF	LIQUID IN	SEE NOTES 10 & 13
N2	1	2"	150#	WN	RF	COND. IN	SEE NOTES 10 & 13
N1	1	4"	150#	WN	RF	VAPOR OUT	SEE NOTES 10 & 13

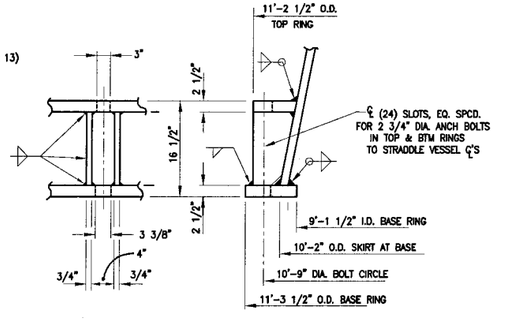
SCHEDULE OF OPENINGS (ITEM No. C-E04215)

MARK	QTY	SIZE	RATING	TYPE	FACING	SERVICE	NOTES
SV1-3	3	4"	–	–	–	SKIRT SLEEVES	
O3	1	20" I.D.	–	–	–	SKIRT SLEEVE FOR NOZZLE "N1"	
O2	1	12" I.D.	–	–	–	SKIRT SLEEVE FOR NOZZLE "N3"	
O1	1	20" I.D.	–	–	–	SKIRT SLEEVE FOR NOZZLE "N4"	
SA1-2	2	24"	–	–	–	SKIRT ACCESS OPENINGS	
M1-4	4	24" I.D.	150#	LWN	RF	MANWAY W/ DAVIT	w/ BLIND, STUDS, NUTS, & GASKET ①
U1-2	2	2"	150#	WN	RF	STEAMOUT	
E	1	10"	150#	WN	RF	EXHAUSTER	w/ BLIND, STUDS, NUTS, & GASKET ②
D	1	3"	150#	WN	RF	DRAIN	
N15A–B	2	2"	150#	WN	RF	P.D.T.	N15A ONLY (SEE NOTES 10 & 13)
N14A–B	2	2"	150#	WN	RF	L.I.	
N13A–B	2	2"	150#	WN	RF	P.D.I.	N13A ONLY (SEE NOTES 10 & 13)
N12	1	–	–	–	–	"HOLD"	
N11	1	14"	150#	PL. FLG.	FF	FLASH NOZZLE	w/ BLIND PL. FLG (SEE NOTE 17)
N10A–B	2	2"	150#	WN	RF	LEVEL BRIDLE	
N9	1	6"	150#	WN	RF	FILTER / MIN. FLOW IN	
N8	1	2"	150#	WN	RF	COND. RETURN	
N7	1	12"	150#	WN	RF	FLASH OUT	
N6	1	14"	150#	WN	RF	FLASH RETURN	w/ SHOEPENTOETER
N5	1	24"	150#	WN	RF	RBR RETURN	w/ SHOEPENTOETER
N4	1	16"	150#	WN	RF	LIQUID OUT	w/ VORTEX BREAKER
N3	1	10"	150#	WN	RF	TO REBOILER	
N2	1	16"	150#	WN	RF	LIQUID IN	SEE NOTES 10 & 13
N1	1	16"	150#	WN	RF	VAPOR OUT	SEE NOTES 10 & 13

SCHEDULE OF OPENINGS (ITEM No. C-E04220)

① M4 ONLY (SEE NOTES 10 & 13)

② SEE NOTES 10 & 13



BASE DETAIL

MK	DATE	REVISIONS	Jacobs By	Jacobs Chkd	Process Jacobs	Process Client	Client Mech.
A	12/11/2012	ISSUE FOR APPROVAL	KP	ES	VAP		
B	6/27/2013	ISSUE FOR INQUIRY	KP	ES	VAP		
C	9/09/2013	REVISED & RE-ISSUED FOR INQUIRY	KP	ES	VAP		
D	12/19/2013	REVISED & RE-ISSUED FOR INQUIRY	KP	ES	VAP		

MK	DATE	REVISIONS	Jacobs By	Jacobs Chkd	Process Jacobs	Process Client	Client Mech.

DWG. NO.	REFERENCE DRAWINGS	DWG. NO.	REFERENCE DRAWINGS
S10.010	VORTEX BREAKERS	S10.056	TYPICAL DETAILS OF INSULATION COLLAR
S68.004	EARTHING BOSS FOR STEEL STRUCTURES, TANKS, VESSELS, ETC.	S20.003	SUPPORT RINGS FOR INSULATION ON VESSELS
S10.119	GRAB RUNGS AND STEPS FOR MANWAYS		
ST-01.07-10	HEAVY LIFTING LUG STANDARD		
ST-01.07-11	VESSEL TAILING LUG DETAILS		

JACOBS
Central Region
Houston, Texas

SHELL CHEMICAL COMPANY
A DIVISION OF SHELL OIL COMPANY
GEISMAR PLANT

CARBONATE FLASHER C-E04215
CO2 STRIPPER C-E04220
VESSEL ARRANGEMENT PLAN

DES. KP	JOB NO. 58NQ0235	DATE 9/20/2012	
DR. KP	W. O.	DWG. NO. SHEET 1 OF 2	REV.
CH. ES	SCALE –	58-NQ0230-800-SK-004	D
AP.			

FIRST COORD 4 6 8 10 12 14 16 18 20 22 24 26 28 30

SECOND COORD 20 18 16 14 12 10 8 6 4