The Dow Chemical Company
2301 N Brazosport Blvd
Freeport, Texas 77541-3257

January 3, 1996

Elain Haun, 3601, Plaquemine

copy: Gretchen LeBlanc, 3601, Plaquemine

CHLORINE LOSS OF CONTAINMENT ASSESSMENT CLOSURE

After reviewing the chlorine loss of containment data for Plaquemine Chlor-Alkali II, Bill Cook and I have agreed to support your conclusion. The recommendation of no further actions necessary is based on your calculations and discussions of worst case scenarios showed to be less than the release threshold limit. As future projects being implemented at CA II, we do ask that you will conduct chlorine loss of containment assessment as appropriate.

The Chlor-Alkali Technology Center would also like to take this opportunity to thank you for your outstanding efforts in leading this study for CA II. The assessment results have enabled us to thoroughly understand the chlorine loss of containment potentials at the plant.

RK Tran
Rachel K. Tran

WH Cook Jr
William H. Cook, Jr.

November 20, 1995

Rachel Tran
C/A Tech Center

copy: Monty Heins
Allan Sandow
Gretchen LeBlanc
Harold Mellieon
John Young

CHLORINE LOSS OF CONTAINMENT ASSESSMENT

The following is in response to the CATC's request for the chlorine loss of containment study. CA II has completed all steps outlined in the letters sent by the Tech Center. Please review the Excel spreadsheet for details on the calculations and results. The spreadsheet is on \\TXUS05\PCCOMMON\Temp\Chloralk The file is titled CA2VOL.XLS. I am also sending a hardcopy through Dow mail to you.

The spreadsheet shows that CA II does not have any vessels or areas of the plant where greater than 1000 pounds of chlorine would be released when considering realistic worst case scenarios. On the spreadsheet, there are 3 columns to view showing total pounds of chlorine. One column shows pounds of chlorine contained between auto valves and manual block valves. Another column shows how much of this total amount would flash off in all these areas before reaching equilibrium with atmospheric conditions. A third column takes mitigation factors into account and shows a more realistic amount of chlorine that could be released. Mitigation factors were assigned based on sniff header systems, manual block valves, draining systems, Mod 5 control, emergency procedures and training, etc...

T' 's third mitigation column shows that only 1 area in evaporation (531 Shell side and D-511) would release greater than 1000 pounds if only relying on automatic valves. However, manual block valves are available between these 2 vessels for total isolation of these vessels greatly reducing the amount of chlorine that would be released. We believe operations could safely and quickly be able to stop flow to evaporation, decrease pressure inside the vessels and piping, and close all manual block valves needed to contain the chlorine. The sniff header systems would remove chlorine gas and chlorine liquid could be slowly transferred to the purification area through the "popping line" (heavies removal drain line from evaporation to purification). Therefore the amount of 2,113 pounds can be greatly reduced bringing the total to well below 1000 pounds.

Conclusion:
Because our calculations and discussions of worst case scenarios show that a release of greater than 1000 pounds is not realistic, CA II does not feel it is necessary to take any further action with this study.

Side Note:
The Liquefaction and Evaporation areas at CA II may no longer exist after the CFCR conversion project is completed at Chlorine I. This project should to be completed by late 1996 or early 1997. CA II is not considering implementing any projects in these areas unless they are absolutely necessary for safety or environmental reasons due to the possible consolidation.

Elaine Haun
Chlorine Area Engineer
LA 'A II

From: LACSDC::U243319 "SCOTT J DAIGLE - CHLORINE I - (504)389-8752" 19-NO
To: U089795
CC: U243319
Subj: LOC calculation description

Elaine,

I have typed up a description of the spill size equation that I used in the LOC calculations. I have tried to state what I'm trying to do by corresponding my calculation parts with brief description. I hope this give you a better idea of how I derive the total pounds released number. If you have any further questions please give me, my phone mail, or the control room (and have them page me) a call.

Scott

In the "Cl2 ~~Released~~ Flashed (lbs)" column

Equation as written in Xcel
= P1 - (N1 * (1 - W1) + (G1 - N1 * (1 - W1) / AB1)
* AC1) * J1 / 100

The units on the equation work final to lbs as follows:
lbs = lbs - (lbs * (lbs/lbs) + ((ft^3 - lbs * (lbs/lbs) / lbs/ft^3)
* lbs/ft^3) * %
= lbs - (lbs + (ft^3 - lbs / lbs/ft^3) * lbs/ft^3) * %
= lbs - (lbs + (ft^3 - ft^3) * lbs/ft^3) * %
= lbs - (lbs + lbs) * %
= lbs

The column descrtions of the variables are:
P = Total system chlorine (lbs)
N = Total system liquid (lbs)
W = Fraction liquid vaporized to equilibrium (lbs/lbs)
G = Volume of system (ft^3)
A = Final liquid density (lbs/ft^3)
AC = Final vapor density
J = Chlorine percentage

The english translation of all this stuff is.....

CL2 RELEASED = ORIGINAL SYSTEM CL2 - EQUILIBRIUM SYSTEM CL2
= ORIGINAL SYTEM CL2 - (CL2 NOT VAPORIZED
+ (FINAL VAPOR VOLUME * FINAL VAPOR DENSITY))
* CL2 PERCENTAGE

ORIGINAL SYSTEM CL2 = P

CL2 NOT VAPORIRIZED = TOTAL SYSTEM LIQUID * (1 - FRAC OF LIQUID VAPORIZED)
= N * (1 - W)

FINAL VAPOR VOLUME = SYSTEM VOLUME - FINAL LIQUID VOLUME
= SYSTEM VOLUME - (TOTAL SYS LIQ * (1 - FRAC LIQ VAP))
/ FINAL LIQ DENSITY
= (G - N * (1 - W)) / AB

FINAL VAPOR DENSITY = AC

CL2 PERCENTAGE = J / 100

LAD Chlor-Alkali II Chlorine Loss of Containment Assessment Worksheet

Takes mitigation factors into account.

#	VESSEL ID OR LINE ID	DIAM. (IN)	Length (FT.)	# TUBES OR VALVE PRE	O.D	HEAD (FT) OR VALVE POST	VOL. (ft^3)	TEMP. (F)	PRES. (PSIG)	CL2 %	Liq %	LIQ DENS.	VAP DENS	Cl2 LIQ (LBS)	Cl2 VAP (LBS)	SUB-TOTAL (LBS)	TOTAL CL2 (LBS)	Cl2 Flashed (LBS)	Cl2 Released (LBS)	Liq Mit (factor)	Vap Mit (factor)
Start-up System																					
1	Start-up Header to J-251	16	219	N		N	306	113	-0.07	95	0	83 79	0.17	0	49	49		0	0		
2	Start-up Hdr to VRD-251	12	30	N		N	24	113	-0.07	95	0	83 79	0.17	0	4	4		0	0		
3	Start-up Hdr to SP-201	12	84	N		N	66	113	-0 07	95	0	83 79	0.17	0	11	11		0	0		
4	Start-up hdr over cells	16	81	N		N	113	113	-0.07	95	0	83 79	0 17	0	18	18		0	0		
5	Cells to Start-up hdr	6	240	Y		N	47	113	-0 07	95	0	83 79	0 17	0	8	8	89	0	0		
																	89	0	0		
Cell Header/Cooling/Drying																					
6	Cell to Valve (main)	18	80	N		Y	141	113	-0 07	95	0	83.79	0 17	0	23	23		0	0		
101	Series 1						3208	113	-0 07	95	0	83 79	0 17	0	515	515	518	0	0		
102	Series 2						3208	113	-0 07	95	0	83.79	0 17	0	515	515	518	0	0		
103	Series 3						3208	113	-0.07	95	0	83 79	0 17	0	515	515	518	0	0		
104	Series 4						3208	113	-0 07	95	0	83.79	0 17	0	515	515	518	0	0		
105	Series 5						3208	113	-0 07	95	0	83.79	0 17	0	515	515	518	0	0		
106	Series 6						3208	113	-0.07	95	0	83 79	0 17	0	515	515	518	0	0		
107	Series 7						3208	113	-0 07	95	0	83 79	0 17	0	515	515	518	0	0		
108	Series 8						3208	113	-0.07	95	0	83 79	0 17	0	515	515	518	0	0		
7	Valve to Cell Header	18	86	Y		N	152	113	-0.07	95	0	83 79	0 16	0	24	24		0	0		
8	Cell Header to SP-250	42	153	N		N	1472	113	-0.07	95	0	83 79	0.17	0	236	236		0	0		
9	SP-250 to J-250	36	30	N		N	212	113	-0.07	95	0	83 79	0.17	0	34	34		0	0		
10	Cell Header to E-201	30	75	N		N	368	113	-0.07	95	0	83 79	0 16	0	57	57		0	0		
11	Cell Header to E-201	42	70	N		N	673	113	-0.07	95	0	83 79	0.16	0	101	101		0	0		
12	Cell Header to VRD-201	42	25	N		N	241	113	-0.07	95	0	83 79	0.16	0	36	36		0	0		
13	E-201 to D-208	42	10	N		N	96	90	-0.50	95	0	86 03	0.17	0	16	16		0	0		
14	D-232 to D-208	2	9	Y		N	0	57	-0.50	95	0	89 24	0 17	0	0	0		0	0		
15	D-208 to E-202	36	30	N		N	212	90	-0.60	95	0	86.03	0.16	0	33	33		0	0		
16	E-202 to D-209	36	10	N		N	71	57	-1.10	95	0	89 24	0.17	0	12	12		0	0		
17	D-209 to D-209A	30	36	N		Y/SB	177	57	-1.20	95	0	89 24	0.19	0	31	31		0	0		
109	SP-250	72	6				170	113	-0.07	95	0	83.79	0.17	0	27	27		0	0		
110	J-250	48	12				151	113	-0.07	95	0	83.79	0.17	0	24	24		0	0		
111	SP-201	36	8				57	113	-0.07	95	0	83 79	0.17	0	9	9		0	0		
112	VRD-251	36	5				35	113	-0.07	95	0	83.79	0.17	0	6	6		0	0		
113	J-251	22	7				18	113	-0.07	95	0	83 79	0.17	0	3	3		0	0		
114	VRD-201	84	7				269	113	-0.07	95	0	83 79	0.17	0	43	43		0	0		
115	E-201	42	16	811	1	0	71	101 5	-0.50	95	0	84 91	0.17	0	11	11		0	0		
116	D-232	36	8				57	57	-0.05	95	0	89 24	0.19	0	10	10		0	0		
117	D-208	78	12				398	113	-0.60	95	0	83.79	0.16	0	62	62		0	0		
118	E-202		12	579	1	0	38	73 5	-1.10	95	0	87.63	0.17	0	6	6		0	0		
119	D-209	66	10.5				249	57	-1.20	95	0	89.24	0.17	0	41	41		0	0		
120	D-209A	120	15				1178	57	-2.10	95	0	89 24	0.16	0	181	181	1002	0	0		
18	D-209A inlet	30	12	Y/SB		N	59	57	-2.10	95	0	89 24	0.16	0	9	9		0	0		
19	D-209A to T-201	30	33	Y/SB		N	162	57	-2.10	95	0	89 24	0.16	0	24	24		0	0		
20	T-201 to T-202	30	40	N		N	196	109	-2.30	95	0	84.18	0.14	0	26	26		0	0		
21	T-202 to D-213B	30	63	N		N	309	96	-2.50	95	0	85.44	0.14	0	42	42		0	0		
22	D-213 to C-201A	30	42	N		Y/AOV	206	101	-2.71	95	0	84.96	0 14	0	28	28		0	0		
121	T-201	108	26				1654	83	-2.30	95	0	86.71	0 15	0	237	237		0	0		
122	T-202	108	23				1463	102.5	-2.50	95	0	84 81	0.14	0	200	200		0	0		
123	D-213B	120	15				1178	101	-2.71	95	0	84 96	0.14	0	158	158	725	0	0		
																	5869	0	0		

← System under a Vacuum

← System under a vacuum

Elaine Haun
11/20/95

LAD Chlor-Alkali II Chlorine Loss of Containment Assessment Worksheet

#	VESSEL ID OR LINE ID	DIAM. (IN)	Length (FT.)	# TUBES OR VALVE PRE	O.D.	HEAD (FT) OR VALVE POST	VOL. (ft^3)	TEMP. (F)	PRES. (PSIG)	CL2 %	Liq %	LIQ DENS.	VAP DENS.	Cl2 LIQ (LBS)	Cl2 VAP (LBS)	SUB-TOTAL (LBS)	TOTAL CL2 (LBS)	Cl2 Flashed (LBS)	Cl2 Released (LBS)	Liq Mit (factor)	Vap Mit (factor)
Compression																					
23	D-213 to C-201A	30	25	Y/AOV		Y/MOV	123	101	-2 71	95	0	84.96	0 88	0	103	103	103	83	0		1.00
24	to C-201A (fr bypass)	8	18	Y		N	6	102	60	95	0	84.86	0 88	0	5	5		4	4		
25	C-201A inlet	20	18	Y/MOV		N	39	101	-2.71	95	0	84.96	0 65	0	24	24		18	17		
26	C-201A to E-213	16	100	N		N	140	285	40	95	0	67.06	0 49	0	64	64		45	44		
27	E-213 to C-201A	16	60	N		N	84	102	40	95	0	84 86	0 64	0	51	51		37	36		
28	C-201A to E-214	12	100	N		N	79	283	60	95	0	67 25	0 67	0	50	50		39	38		
29	E-214 to C-201A	12	60	N		N	47	283	60	95	0	67 25	0 67	0	30	30		23	23		
30	C-201A outlet	10	100	N		Y/AOV	55	193	80	95	0	76 01	0 96	0	50	50		41	41		
124	C-201A	60	6.33				124	193	41.65	95	0	76 01	0 57	0	67	67		48	47		
125	E-213A/B		26	600	1 5	0	383	193 5	35 00	95	0	75 96	0 50	0	183	183		125	122		
126	E-214A/B		32	470	1 5	0	369	192 5	70 00	95	0	76 06	0 86	0	301	301	826	244	241		
																	929	707	614		
Purification																					
33	C-201A to E-500A/B A	12	60	Y/AOV		Y/AOV	47	193	80	95	0	76 01	0 96	0	43	43	43	36	35		
34	C-201A to E-500A/B B	12	60	Y/AOV		Y	47	193	80	95	0	76.01	0.96	0	43	43	43	36	35		
128	E-500A		16	264	1	0	23	154	80 00	95	0	79.80	1.02	0	22	22	22	19	18		
129	E-500B		16	264	1	0	23	154	80.00	95	0	79.80	1 02	0	22	22	22	19	18		
35	E-500A/B to T-205	12	60	Y		Y	47	115	80	95	0	83.60	1 09	0	49	49	49	41	28		0.30
36	T-205 inlet	12	12	Y		N	9	115	80	95	0	83.60	1 09	0	10	10		8	6		0.30
37	T-205 bot to T-204	3	30	N		Y/AOV	1	61	40	95	100	88.85	0 69	124	0	124		27	22		0 30
46	T-205 outlet	12	75	N		Y	59	61	80	99	0	88.85	1 20	0	70	70		59	41		0 30
130	T-205	54	45				716	61	80 00	95	2 5	88 85	1 20	0	797	797	1001	659	456		0 30
48	T-205 ovhd to E-530 (SS)A	12	90	Y		Y	71	61	80	99	0	88 85	1 20	0	84	84	84	71	49		0 30
49	T-205 ovhd to E-530 (SS)B	12	39	Y		Y/EBV	31	61	80	99	0	88 85	1.20	0	36	36	36	31	21		0 30
																	1258	968	696		
38	T-204 ovhd to vlv	3	54	Y/CV		Y	3	46	40	95	0	90.31	0.72	0	2	2	2	1	1		
131	T-204	18	35.5				63	44	40.00	95	3.7	90.50	0.72	0	41	41	41	29	28		
42	T-204 bot to E-205	3	3	Y		N	0	44	40	95	100	90.50	0.72	13	0	13		2	2		
43	E-205 to T-204	4	3	N		Y	0	130	40	95	0	82.14	0.61	0	0	0		0	0		
132	E-205	16	14	51	0.75	1.33	4	160	40.00	95	60	79.22	0 58	183	1	184	1779	81	68	0.10	
																	1822	114	99		
44	E-205 to D-227 A/B	2	15	Y/CV		Y/AOV	0	40	40	95	100	90.89	0 72	28	0	28		5	4		
133	D-227A	60	5.25				103	40	40.00	95	30	90.89	0.72	2670	50	2720		504	191	0.50	0.50
134	D-227B	60	5.25				103	40	40.00	95	30	90.89	0 72	2670	50	2720	5468	504	191	0 50	0.50
																	5468	1013	386		
45	D-227A/B to T-204	2	30	Y/CV		Y	1	73	40	95	0	87 68	0 68	0	0	0	0	0	0		
39	D-227 vnt to T-201	2	45	Y		N	1	46	40	95	0	90 31	0 72	0	1	1		0	0		
40	T-204, D-227 to T-201	3	306	N		Y	15	46	40	95	0	90 31	0 72	0	10	10	11	7	7		
41	T-204, D-227 to T-201	3	18	Y		N	1	46	40	95	0	90 31	0.72	0	1	1	1	0	0		
																	12	9	9		
47	T-205 ovhd to T-201	6	168	Y/AOV		Y/AOV	33	61	80	99	0	88 85	1 20	0	39	39	39	33	33		
																	39	33	33		
Primary Liquefaction																					
50	T-205 ovhd to E-530 (SS)C	12	350	Y/EBV		Y	275	61	80	99	0	88 85	1 20	0	327	327	327	275	192		0 30

this can vary based on temp. in taffy pots.

LAD Chlor-Alkali II Chlorine Loss of Containment Assessment Worksheet

#	VESSEL ID OR LINE ID	DIAM. (IN.)	Length (FT.)	# TUBES OR VALVE PRE	O.D.	HEAD (FT) OR VALVE POST	VOL. (ft^3)	TEMP. (F)	PRES. (PSIG)	CL2 %	Liq %	LIQ DENS.	VAP DENS.	Cl2 LIQ (LBS)	Cl2 VAP (LBS)	SUB-TOTAL (LBS)	TOTAL CL2 (LBS)	Cl2 Flashed (LBS)	Cl2 Released (LBS)	Liq Mit (factor)	Vap Mit (factor)
51	E-530 (SS) inlet	12	8	Y		N	6	61	80	99	0	88.85	1.20	0	7	7		6	4		0.30
52	E-530 (SS) to E-531 (TS)	12	30	N		Y	24	61	80	99	0	88.85	1.20	0	28	28		24	16		0.30
135	E-530 (SS)	32.25	7.75	184	1		36	61	78.00	99	0	88.85	1.18	0	42	42	78	35	25		0.30
136	E-531 (TS)	42	15	1406	0.75	3.833	102	40	76.00	99	0	90.89	1.20	0	121	121	121	101	81		0.20
53	E-531 (TS) to E-501	12	112	Y		N	68	61	75	99	0	88.85	1.14	0	99	99		83	66		0.20
54	E-501 to D-501	12	3	N		N	2	8	73	99	100	94.00	1.24	219	0	219		17	12	0.20	
137	E-501	42	15	1406	0.75	3.333	97	23.6	73.00	99	0	92.49	1.20	0	.115	115		96	77		0.20
138	D-501	48	11				138	7.3	73.00	99	50	94.07	1.24	6437	85	6522	6955	567	370	0.25	0.25
55	D-501 ovhd to E-526	4	131	Y		Y	11	8	73	99	0	94.00	1.24	0	14	14	14	12	9		0.20
59	E-526 to D-526	4	15	N		N	1	2	71	99	100	94.59	1.23	123	0	123		8	5	0.20	
61	D-526 ovhd to PCV	4	63	N		Y/EBCV	5	2	71	99	0	94.59	1.23	0	7	7		6	3		0.40
139	E-526	17.25	15.5	168	0.75	1.833	11	5	71.00	99	0	94.30	1.22	0	13	13		11	9		0.20
140	D-526	35.25	9.5				64	2	71.00	99	25	94.59	1.23	1534	58	1592	1735	151	102	0.25	0.20
56	D-501 bot to T-503 A	4	10	Y		Y/EBV	1	8	73	99	100	94.00	1.24	81	0	81	81	6	3	0.50	
																	9311	1398	975		
Light Ends Stripper																					
57	D-501 bot to T-503 B	4	6	Y/EBV		Y	1	8	73	99	100	94.00	1.24	49	0	49	49	4	3		
58	D-501 bot to T-503 C	4	132	Y		N	12	8	73	99	100	94.00	1.24	1072	0	1072		84	72		
65	T-503 bot to RE-503	6	15	N		N	3	40	47	100	100	90.89	0.82	268	0	268		35	35		
66	RE-503 to T-503	12	2	N		N	2	100	47	100	0	85.06	0.73	0	1	1		1	1		
142	T-503	30	56				275	40	47.00	99	2.9	90.89	0.82	721	216	937		262	254		
143	RE-503 (TS)	24	8	280	1	5	28	70	47.00	99	50	87.97	0.77	1216	11	1227	3505	255	243		
60	D-526 bot to T-503	3	29	Y/EBV/CV		Y	1	2	71	99	100	94.59	1.23	133	0	133		9	7		
67	T-503 bot to E-510	4	54	Y		N	5	36	47	100	100	91.28	0.82	430	0	430		53	53		
68	E-510 to E-510A	4	6	N		N	1	17	45	100	100	93.13	0.83	49	0	49		4	4		
146	E-510	15.25	16	148	0.75	1.667	9	26.5	47.00	100	100	92.21	0.84	865	0	865		91	89		
147	E-510A	15.25	16	148	0.75	1.667	9	5.5	41.00	100	100	94.25	0.79	884	0	884	2361	57	55		
69	T-503 ovhd to E-529	3	78	Y		N	4	28	41	99	0	92.06	0.76	0	3	3		2	2		
70	E-529 to D-529	4	5	N		N	0	-13	41	99	100	96.05	0.82	41	0	41		2	1		
72	D-529 ovhd to AOV	2	9	N		Y/EBV	0	-13	41	99	0	96.05	0.82	0	0	0		0	0		
144	E-529	15.25	15.5	124	0.75	1.667	8	7.5	41.00	99	0	94.05	0.79	0	6	6		5	5		
145	D-529	24	7				22	-13	41.00	99	4.9	96.05	0.82	102	17	119	169	16	15		
71	D-529 bot to T-503	2	75	Y		Y	2	-13	41	99	100	96.05	0.82	156	0	156	156	6	4		
																	6240	887	845		
Tail Gas Removal																					
62	PCV to loop	4	19	Y/EBCV		Y	2	2	71	99	0	94.59	1.23	0	2	2	2	2	2		
63	Loop to E-530	4	123	Y		Y	11	2	71	99	0	94.59	1.23	0	13	13	13	11	11		
64	E-530 Inlet	4	33	Y		N	3	2	71	99	0	94.59	1.23	0	4	4		3	3		
74	D-529 PCV to E-530	2	56	Y/CV		N	1	-13	41	99	0	96.05	0.82	0	1	1		1	1		
75	E-530 Outlet	4	33	N		Y	3	60	22	99	0	88.95	0.47	0	1	1		1	1		
141	E-530 (TS)	32.25	6	184	1	2.083	18			99	0	91.67	0.20	0	3	3	9	0	0		
76	E-530 to T-505	4	165	Y		Y	14	60	22	99	0	88.95	0.47	0	7	7	7	4	4		
149	T-505	72	40				1131	60	22.00	20	1.9	88.95	0.47	0	104	104	104	58	58		
73	D-529 AOV to PCV	2	48	Y/EBV		Y/CV	1	-13	41		0	96.05	0.82	0	0	0	0	0	0		
																	135	79	79		
Storage/Distribution																					
77	E-510A to T-35	4	96	Y/CV		Y/EBV	8	-25	6	100	100	97.21	0.32	814	0	814	814	6	4		

Close to 1000 lbs, between auto valves, but system can be isolated in smaller sections using manual block valves. Therefore, realistic number is much less than 1000 lbs.

Bold type indicates sections between automated valves.

Plain type indicates sections isolated by manual block valves or other means besides auto valves.

B. Pankow / E. Haun
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LAD Chlor-Alkali II Chlorine Loss of Containment Assessment Worksheet

#	VESSEL ID OR LINE ID	DIAM. (IN.)	Length (FT.)	# TUBES OR VALVE PRE	O.D.	HEAD (FT) OR VALVE POST	VOL. (ft^3)	TEMP. (F)	PRES. (PSIG)	CL2 %	Liq %	LIQ DENS.	VAP DENS.	Cl2 LIQ (LBS)	Cl2 VAP (LBS)	SUB-TOTAL (LBS)	TOTAL CL2 (LBS)	Cl2 Flashed (LBS)	Cl2 Released (LBS)	Liq Mlt (factor)	Vap Mlt (factor)
																	814	**6**	**4**		
78	T-35 to P-510's	4	30	Y/EBV		Y	3	-17	157	100	100	96 44	2.57	252	0	252	252	6	5		
79	P-510's to AOV	4	24	Y		Y/EBV	2	-17	157	100	100	96 44	2.57	202	0	202	202	4	4		
																	454	**10**	**9**		
148	T-35 (Run tank)	120	40				3142	-25	6 30	100	40	97 21	0 32	122164	602	122766	122766	1108	642	0 20	
																	122766	**1108**	**642**		
80	P-510's AOV to meter	4	975	Y/EBV		Y	85	-17	157	100	100	96.44	2 57	8205	0	8205	8205	183	146	0 10	
81	Meter to CL2	4	270	Y		Y/EBV	24	-17	157	100	100	96.44	2 57	2272	0	2272	2272	51	40	0 10	
	EBV to T35 CV	4	150	Y/EBV			13	-17	157	100	100	96.44	2 57	1262	0	1262	1262	26	22	0.10	
																	11740	**261**	**209**		
82	T-35 to E-531 (SS)	4	141	Y/EBV		Y/CV	12	-17	157	100	100	96.44	2 57	1187	0	1187	1187	26	24		
																	1187	**26**	**24**		
Vaporization/Distribution																					
150	E-531 (SS)	72	17	1406	0.75		407	24	80.00	100	63	92 45	1.30	23724	195	23919	23919	2543	825	0.70	
84	E-531 vapor to D-511	8	60	Y		Y	21	65	79	100	0	88 46	1.18	0	25	25	25	21	10		0.50
85	E-531 liquid to D-511	4	60	Y		Y	5	65	79	100	100	88 46	1.18	463	0	463	463	85	42	0.50	
86	D-511 to E-513	10	12	N		N	7	65	79	100	100	88.46	1.18	579	0	579		107	52	0.50	
87	D-511 to E-511	14	12	N		N	13	65	79	100	100	88.46	1.18	1135	0	1135		209	102	0.50	
88	D-511 to E-512	6	8	N		N	2	90	79	100	100	86.03	1 13	135	0	135		32	16	0 50	
89	E-511 to D-511	20	3	N		N	7	90	79	100	0	86 03	1 13	0	7	7		6	3		0 50
90	E-512 to D-511	8	4	N		N	1	90	79	100	0	86 03	1.13	0	2	2		1	1		0 50
91	E-513 to user header	12	40	N		Y/EBV	31	115	77	100	0	83 60	1.06	0	33	33		28	14		0.50
151	D-511	72	12.667				358	65	79 00	100	27	88 46	1.18	8504	310	8814		1825	866	0.60	
152	E-511	62	8	2073	1	10.333	307	65	78 00	100	0	88 46	1 17	0	359	359		301	150		0 50
153	E-512	17 25	8	112	1	7	16	65	78 00	100	0	88.46	1 17	0	19	19		16	8		0 50
154	E-513	33	10	820	0 75	5	55	115	77.00	100	0	83.60	1 06	0	58	58	11141	48	24		0 50
																	35548	**5222**	**2113**		
83	P-510's to T-205/204	2	510	Y/EBV		Y/AOV	11	-17	157	100	100	96.44	2 57	1073	0	1073	1073	24	21		
																	1073	**24**	**21**		
92	E-513 to user header	10	669	Y/EBV		Y (orange	365	115	77	100	0	83 60	1.06	0	385	385	385	320	320		
																	385	**320**	**320**		
Miscellaneous																					
93	D-252 to J-252	12	339	N		N	266	113	-0 07	40	0	83.79	0.17	0	18	18		0	0		
155	D-252	60	12				236	113	-0 07	40	0	83.79	0.17	0	16	16		0	0		
156	T-252	48	46				578	113	-0.07	40	0	83.79	0 17	0	39	39	73	0	0		
																	73	0	0		

Largest potential problem areas for CA 2

system under a vacuum.

2,113 lbs. is just relying on isolation with auto valves. This system can be isolated in smaller sections using manual block valves. Therefore, released amount is much less than 2,113 lbs, and lower than 1,000 lbs.

11/17/95

letter sent on 1/20/95 [illegible]

DO A 046519
CONFIDENTIAL

Bold type indicates sections between automated valves.

Plain type indicates sections isolated by manual block valves or other means besides auto valves

B Pankow / E. Haun

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