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Interoffice Communication

To P. C. Gowan
From G. D. Johnson
Date June 3, 1977
Subject Benzene Sampling Design Update

Attached are updated specification sheets and drawings which were affected by the decision to use high pressure piping for the fuel gas purge lines with the benzene sampling manifolds. While reviewing the vent collection design, it was noticed that should the fuel gas purge valve be left open while sampling the process stream, the fuel gas line would be overpressured. Thus high pressure piping and additional pressure gauges were added to indicate this situation to the operator. Making this change to update the benzene sampling design brings about consistency between both designs.

Anyone having questions or needing further information, please advise.

G. D. Johnson

G. D. Johnson
Environmental Health Engineer

Approved by: *W. J. Ritter (S.S.D.)*
W. J. Ritter
Chief Process Engineer

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Enclosure

CC: RDG RAC RHG WJR BRD RLP WAM SMF WWC GDO KJB
JEC PCH SFP DHS PEC File

CHANGES TO BENZENE SAMPLING

Drawing No. LCCP-734-1

1. Add pressure gauge, PG-11, on line 3/4"-FG-12-N-B2-1.

Drawing No. LCCP-734-4

1. Change specifications for fuel gas lines as follows:
 - (a) From 3/4"-FG-14-N-A2-1 to 3/4"-FG-14-N-B2-10.
 - (b) From 1/4"-FG-15-N-A2-1 to 1/4"-FG-15-N-A2-1.
 - (c) From 3/4"-FG-16-N-A2-1 to 3/4"-FG-16-N-B2-2.
 - (d) From 1/4"-FG-17-N-A2-1 to 1/4"-FG-17-N-B2-2.
2. Add pressure gauge, PG-8, on line 3/4"-FG-14-N-B2-10.
3. Add pressure gauge, PG-9, on line 3/4"-FG-16-N-B2-2.

Drawing No. LCCP-734-5

1. Change specifications for fuel gas lines as follows:
 - (a) From 3/4"-FG-18-N-A2-1 to 3/4"-FG-18-N-B2-2.
 - (b) From 1/4"-FG-19-N-A2-1 to 1/4"-FG-19-N-B2-2.
2. Add pressure gauge, PG-10, on line 3/4"-FG-18-N-B2-2.

MCD 000012224

PIP SCHEDULE

DESIGNATION	Flowing Fluid	SERVICE		NORMAL				DESIGN				Flow	Phase	PSI @ 100
		From	To	Temp.	Press.	Temp.	Press.	Temp.	Press.	Temp.	Press.			
				°F.	PSIG	°F.	PSIG	°F.	PSIG	°F.	PSIG			
1/4" H-01-P-2-1	DETERMINED BOTTOMS	2" V.C. H-16	MANIFOLD	205	160	400	180	—	—	—	—	—	—	—
1/4" H-02-P-2-1	—	SAMPLE BOMB	3/4" VALVE	205	170	400	180	—	—	—	—	—	—	—
3/4" H-03-P-2-1	—	SAMPLE BOMB	2" V.C. H-21	205	170	400	180	—	—	—	—	—	—	—
1/4" H-04-C-2-1	DETERMINED BOTTOMS	2" V.C. H-01	SAMPLE BOMB	29	445	475	720	—	—	—	—	—	—	—
1/4" H-05-C-2-10	—	SAMPLE BOMB	3/4" VALVE	29	420	475	720	—	—	—	—	—	—	—
1/4" H-06-P-2-2	DETERMINED BOTTOMS	1" CV-43	SAMPLE BOMB	185	395	700	710	—	—	—	—	—	—	—
1/4" H-07-P-2-2	—	SAMPLE BOMB	1" CV-43	185	395	700	710	—	—	—	—	—	—	—
1/4" H-08-P-2-2	—	SAMPLE BOMB	1" CV-43	185	200	500	720	—	—	—	—	—	—	—
3/4" H-09-P-2-2	—	SAMPLE BOMB	2" V.C. H-20	185	ATMOS.	200	720	—	—	—	—	—	—	—
1/4" H-10-N-2-2	DETERMINED BOTTOMS	SAMPLE BOMB	MANIFOLD	60	515	200	720	—	—	—	—	—	—	—
3/4" H-11-N-2-2	—	SAMPLE BOMB	2" V.C. H-20	60	ATMOS.	200	720	—	—	—	—	—	—	—
3/4" H-12-N-2-1	DETERMINED BOTTOMS	SAMPLE BOMB	3/4" VALVE	90	325	100	720	—	—	—	—	—	—	—
1/4" H-13-N-2-1	—	PC-400	SAMPLE BOMB	90	454.50	100	275	—	—	—	—	—	—	—
3/4" H-14-P-2-10	DETERMINED BOTTOMS	SAMPLE BOMB	2" V.C. H-20	100	425	200	720	—	—	—	—	—	—	—
1/4" H-15-N-2-10	—	SAMPLE BOMB	2" V.C. H-20	100	425	200	720	—	—	—	—	—	—	—
1/4" H-16-P-2-2	—	SAMPLE BOMB	2" V.C. H-20	100	425	200	720	—	—	—	—	—	—	—
3/4" H-17-P-2-2	—	SAMPLE BOMB	2" V.C. H-20	100	425	200	720	—	—	—	—	—	—	—
3/4" H-18-N-2-2	—	SAMPLE BOMB	2" V.C. H-20	100	425	200	720	—	—	—	—	—	—	—
1/4" H-19-N-2-2	—	SAMPLE BOMB	2" V.C. H-20	100	425	200	720	—	—	—	—	—	—	—

MCD 000012225

PIPE SCHEDULE

DESIGNATION	Flowing Fluid	SERVICE		NORMAL		DESIGN		Phase	PSI @ 100
		From	To	Temp. °F.	Press. PSIG	Temp. °F.	Press. PSIG		
2"-HM-20-N-A13-AM	LT. HYCARBON	LINE 2"-HM-12-10-N-A15-AM	NORTH END OF FRICTION/INITIAL SIC	-113 TO 175	12	-151	275	-	-
2"-HM-21-N-A2-1	C3+ HYCARBON	LINE 2"-HM-12-10-N-A13-AM	SOUTH END OF FRICTION/INITIAL SIC	105 TO 205	12	100	275	-	-
1/4"-HM-22-P-2-1	DEETHAN. BOTTOMS	SAMPLING MANIFOLD	LINE 3/4"-HM-03	205	160	100	275	-	-
1/4"-HM-25-P-2-10	DEETHAN. BOTTOMS	SAMPLING MANIFOLD	LINE 3/4"-HM-06	29	145	+29 TO -20	720	-	-
1/4"-HM-24-P-2-2	DEETHAN. BOTTOMS	SAMPLING MANIFOLD	LINE 3/4"-HM-09	185	395	200	720	-	-
1/4"-HM-25-N-B2-2	CAUSTIC TWC. CNVD	SAMPLING MANIFOLD	LINE 3/4"-HM-11	60	515	200	720	-	-
3/4"-HM-23-C-2-1	DEETHAN. REFLUX	GA-2012-1015	LINE 2"-HM-20	-113	140	-150	720	-	-
3/4"-HM-25-P-2-10	DEETHAN. BOTTOMS	SAMPLING MANIFOLD	LINE 2"-HM-20	29	145	+29 TO -20	720	-	-
3/4"-HM-27-N-A13-1	PROPANE PROPANE	F.I.T.O. VAPORIZER EA-303 FEA-316	LINE 2"-HM-20	-12	175	-151	275	-	-
3/4"-HM-28-P-2-2	DEETHAN. BOTTOMS	DEETH. REBOILERS EA-201 FEA-2045	LINE 2"-HM-20	175	395	200	720	-	-
3/4"-HM-29-N-A2-1	DEETHAN. REFLUX	REFLUX PUMPS GA-209 FGA-2099	LINE 2"-HM-21	105	55	100	275	-	-
3/4"-HM-30-N-A2-1	GIGG'S HYDRAULIC	SV-1	LINE 3/4"-HM-03	90	12 TO 18	100	275	-	-

MCD 000012226

Pressure Schedule

Designation	Flowing Fluid	Service		Normal		Design		Flow lb./hr.	Phase	PSI
		From	To	Temp. °F.	Press. PSIG	Temp. °F.	Press. PSIG			
1" NM-31-P-A2-1	Exhausting Bottoms	DEAROR REBOILER EA-414 & CN-415	LINE 2" NM-21	205	160	100	275			
3/4" NM-32-P-A2-1	DEAROR Bottoms	DEAROR REBOILER EA-423 & EA-425	LINE 2" NM-21	249	65	100	275			
3/4" NM-33-P-A2-1	LT. AROM. PRODUCT	GA-413 & GA-415	LINE 3/4" NM-03	249	65	100	275			
NOTES:										
(1) The Flow, Phase, and DP data have not been tabulated because these values vary with Venting (depressuring) operations.										
(2) Specification A13-4M above is a modification of Conoco Specification A13-A. It is the same specification, except extended valve stem bonnets are not required.										

MCD 000012227



ENGINEERING CENTER

PONCA CITY, OKLAHOMA
SPECIFICATION SHEET
PRESSURE GAGES

A.F.E. NO. _____
DATE 4-21-77 W.O. NO. _____
MADE BY GDU INQ. NO. _____
APP'D BY WJR REQ. NO. _____
B.M. NO. _____ P.O. NO. _____

PLANT LAKE CHARLES CHEMICAL PLANT PROJECT ETHYLENE UNIT VENT COLLECTION SYSTEM

1 2 3	TAG NO.	REV	QUAN.	RANGE		MAX. OPER. PRESS	SERVICE	ACCESSORIES REMARKS	NOT
				TUBE	DIAL				
4	PG-8		1		0-600	145	METHANE OFF-GAS	NORMAL PRESS: 100 PSIG	
5	PG-9		1		0-600	395	METHANE OFF-GAS	" " " "	
6	PG-10		1		0-600	515	METHANE OFF-GAS	NORMAL PRESS: 35 PSIG	
7	PG-11		1		0-300	165	GILLIS METHANE	NORMAL PRESS: 45-50 PSIG	
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NOTES

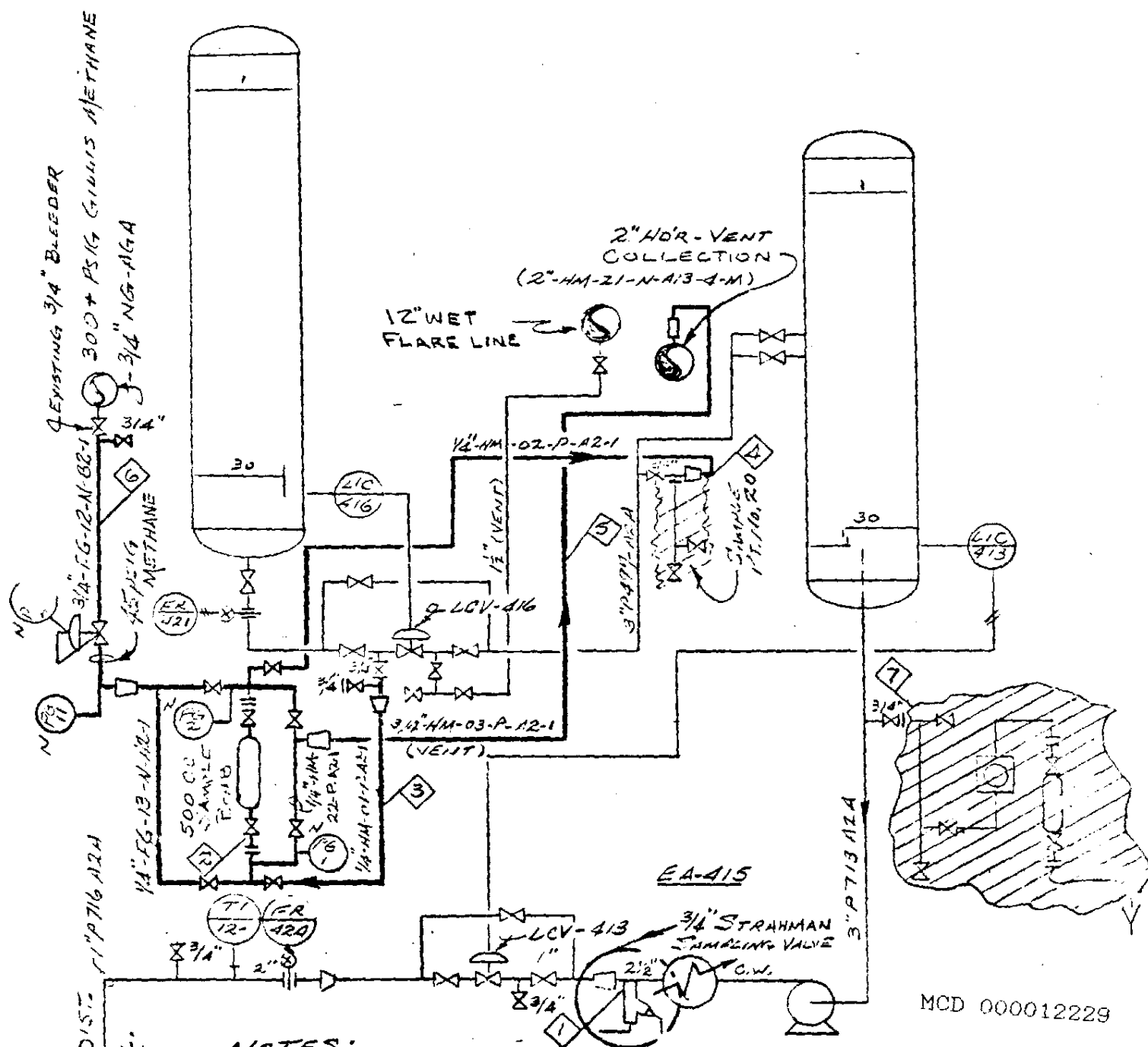
MCD 000012228

INSTRUMENT SOCIETY OF AMERICA

SHEET _____ OF _____

DA-404
DEPROPANIZER

DA-407
DEBUTANIZER



NOTES:

1. MOUNT SAMPLE BOMB MANIFOLD ON A UNISTRUT RACK OR EQUIV.

P&I DIAGRAM

CLOSED BENZENE SAMPLING SYSTEMS
FOR DEPROPANIZER BOTTOMS AND
LIGHT AROMATIC DISTILLATE STREAMS
GOU/12-21-76 DWG. NO. LCCP-734-1

LEGEND

— EXISTING

— NEW

REMOVE & PLUG

- WORK LIST ITEM

MCD 000012229

GA-413 & 5

DA-401
DEMETHANIZER

DA-402
DEETHANIZER

P. & I. DIAGRAM

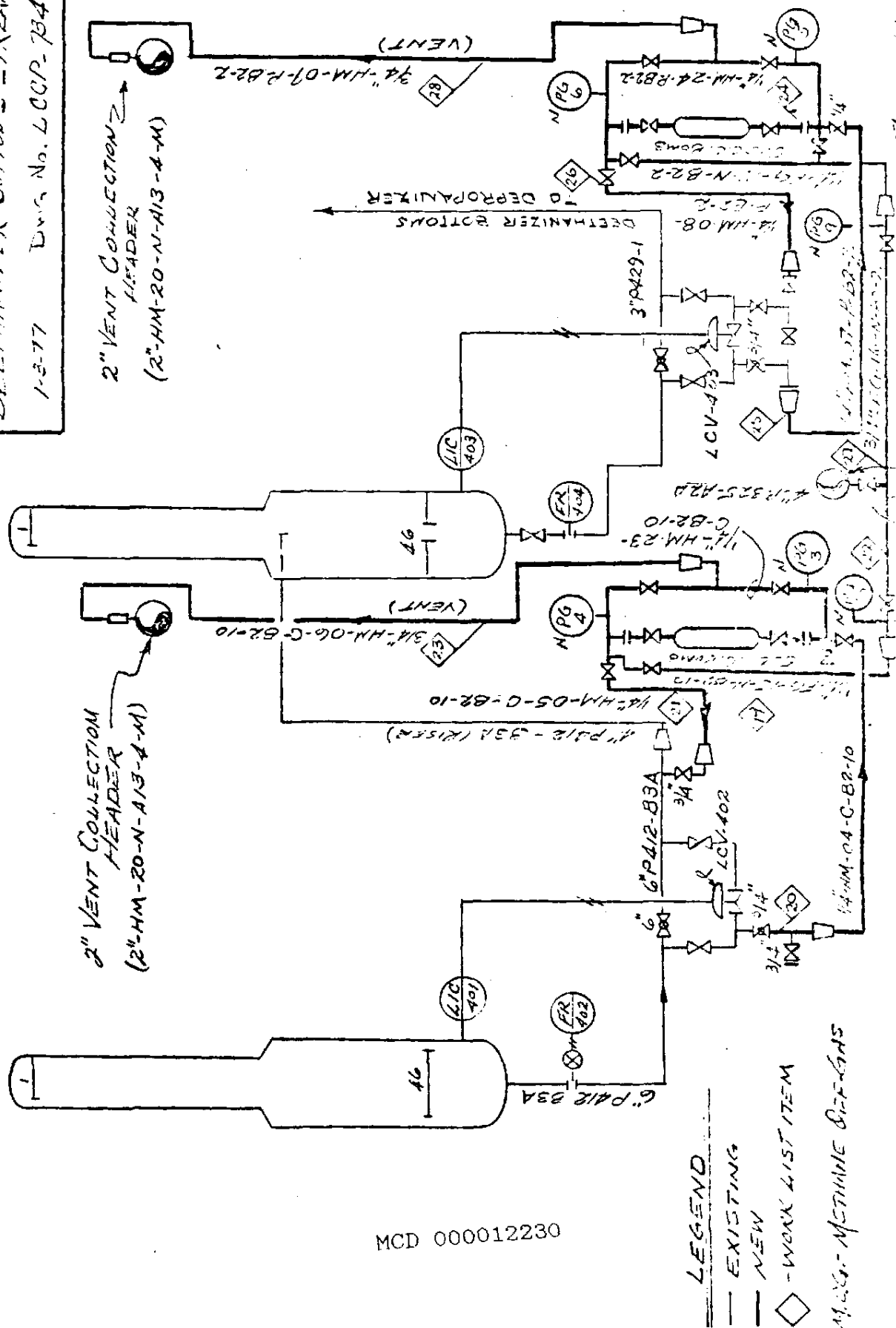
CLOSED BENZENE CHAINING SYS.
DEPLETHANER BOTTOMS AND
DEPLETHANER BOTTOMS STREAM

1-2-77 Doc. No. LCCP-734-4

2" VENT COLLECTION
HEADER
(2"-HM-20-N-A/E-A-M)

2" VENT CONNECTION -
HEADER
(2"-HM-20-N-A13-A-M)

MCD 000012230



LEGEND

EXISTING

MEW

-WORK 4/5/17E-M

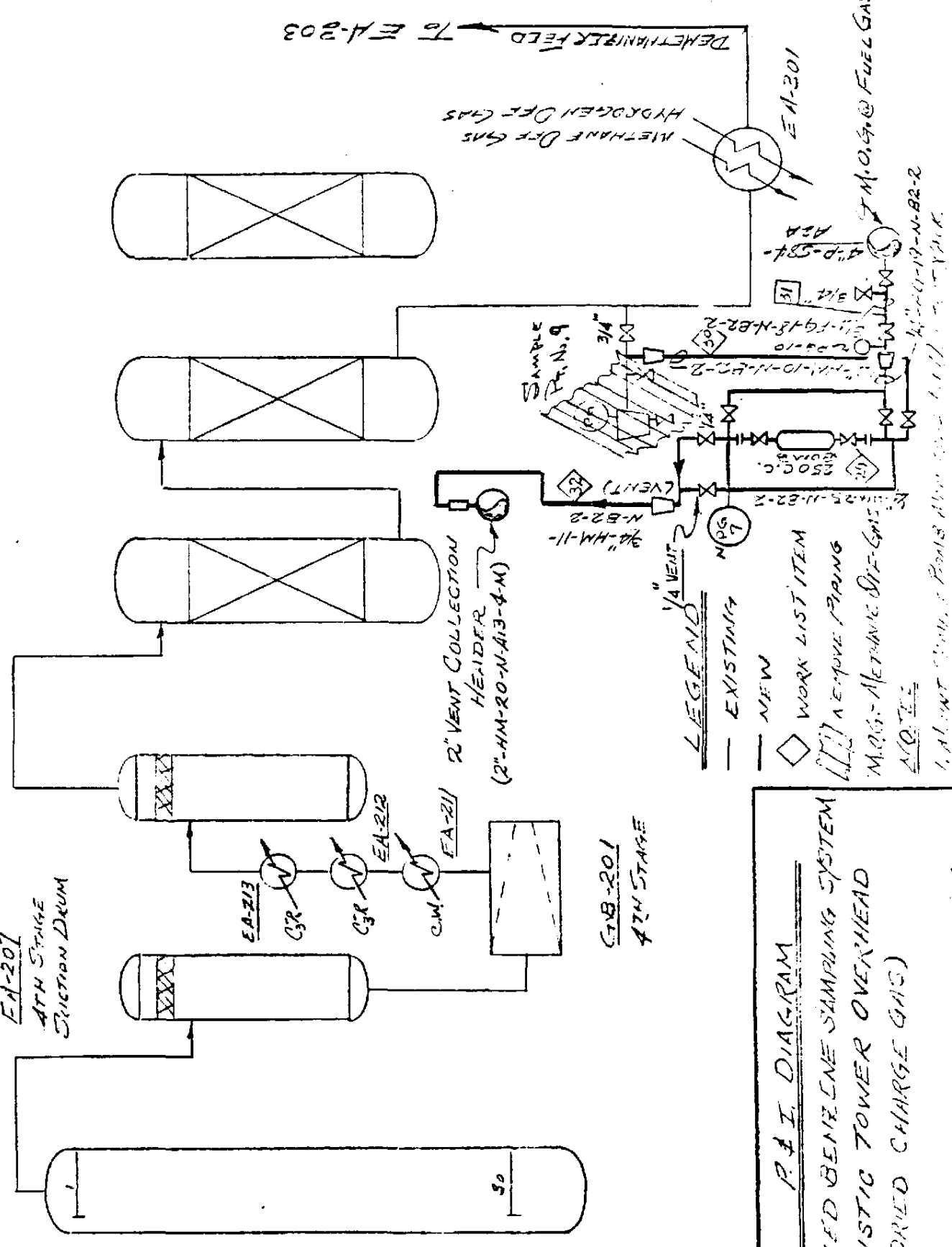
ANAL. - Methylene Dithiols

DA-203
CAUSTIC WATER
WASH TOWER

EA-207
4TH STAGE
SUCTION DRUM

EA-208
4TH STAGE
DISCHARGE DRUM

EA-201A,B,C
CHARGE GAS DRYERS



MCD 000012231

P & I DIAGRAM
CLOSED BENZENE SAMPLING SYSTEM
CAUSTIC TOWER OVERHEAD
(DRIED CHARGE GAS)

LEGEND
— EXISTING
— NEW
◇ WORK LIST ITEM
[] TEMPER. PIPING
M.O.G. = MECHANIC DRUG-GAS
N.O.T.E.

DATE: 11/11/85
BY: J. L. 10002 10445

1. ALUMINUM PIPING 1/2\"/>

SAMPLING PROCEDURE FOR
DEMETHANIZER BOTTOMS AND DEETHANIZER BOTTOMS (LCCP-734-4)

(THIS PROCEDURE REQUIRES THAT ALL 1/4" VALVES BE CLOSED BEFORE STARTING)

1. Check that a 500 cc (type ICC-3E-1800) sample bomb is connected in place.
2. Open the 1/4" needle valves (2) on the sample bomb.
3. Open the 1/4" valve on the inlet line to the sample bomb. The pressure will indicate on the inlet gauge.
4. Open the 1/4" valve on the outlet line and allow the sample bomb to purge with flow for fifteen seconds.
5. Close the 1/4" needle valves (2) on the sample bomb.
6. Close the 1/4" valve on the inlet line.
7. Close the 1/4" valve on the outlet line.
8. Open 1/4" vent valves (2) on the sample manifold. Check that both pressure gauges depressure to 12 psig.
9. Open the 1/4" M.O.G. purge valves (2). Note that the pressure rises on the pressure gauge (100 psig maximum). Purge the sample bomb connections fifteen seconds.
10. Close the 1/4" M.O.G. purge valves (2). Note that the pressure gauges depressure to about 12 psig. This is the minimum pressure of the vent collection header.
11. Close the 1/4" vent valves (2).
12. Break union connections and remove sample bomb. Install a returned sample bomb in its place. This assures the system is kept completely closed at all times.

NOTE: If the fuel gas inlet pressure gauge ever reads above 100 psig, look for an open valve on the sample manifold as process gas may be depressuring into the fuel gas system.

MCD 000012232

SAMPLING PROCEDURE FOR
CAUSTIC TOWER OVERHEAD (LCCP-734-5)

(THIS PROCEDURE REQUIRES THAT ALL 1/4" VALVES BE CLOSED BEFORE STARTING)

1. Check that a 250 cc. (type ICC-3E-1800) sample bomb is connected in place. Check that the 1/4" vent valve is closed.
2. Open the 1/4" needle valves (2) on the sample bomb.
3. Open the 1/4" inlet valve. Note the pressure indicates on the inlet gauge.
4. Open the 1/4" outlet valve and let the sample bomb purge with flow for fifteen seconds.
5. Close the 1/4" needle valves (2) on the sample bomb.
6. Close the 1/4" inlet valve.
7. Close the 1/4" outlet valve.
8. Open the 1/4" vent valve on the sample manifold. Check that the pressure gauge depressure to 12 psig pressure.
9. Open the 1/4" M.O.G. purge valves (2). Note that the pressure rises on the pressure gauge (85 psig maximum). Purge the sample bomb connections fifteen seconds.
10. Close the 1/4" M.O.G. purge valves (2). Note that the pressure gauge depressures to about 12 psig. This is minimum pressure of the vent collection header.
11. Close the 1/4" vent valve.
12. Break union connections and remove the sample bomb. Install a returned sample bomb in place of the filled bomb. This keeps the system completely closed at all times.

NOTE: If the fuel gas inlet pressure gauge, PG-10, ever reads above 85 psig, look for an open valve on the sample manifold as process gas may be depressuring into the fuel gas system.

MCD 000012233