

DECONTAMINATION FACTORS

	<u>Iodine</u>	<u>Cesium & Rubidium</u>	<u>Other Nuclides</u>
1. Mixed Bed Demineralizers	10	2	10
2. Cation Bed Demineralizer	1	10	10
3. Reactor Coolant Filter	1	1	1
4. Volume Control Tank ^(a)	—	—	—
System DF	10	20	10 ²

(a) For noble gases, a value of 0.25 is built into the GALE code for the y parameter for the case of continuous VCT purging.

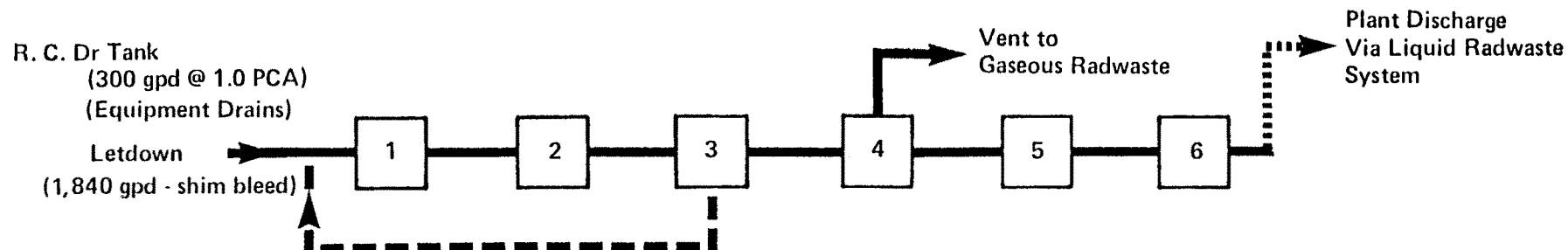
Chemical and Volume Control
System

CALLAWAY PLANT

Figure 11.1A-2
(Sheet 1)

System Decontamination
Factors

HISTORICAL



DECONTAMINATION FACTORS

	Iodine	Cesium & Rubidium	Other Nuclides
1. Recycle Evaporator Demineralizer (a)	10	2	10
2. Recycle Evaporator Feed Filter	1	1	1
3. Recycle Holdup Tank	—	—	—
4. Recycle Evaporator	10^2	10^3	10^3
5. Recycle Evaporator Condensate Demineralizer (b)			
Anion Bed	10^2	1	1
Mixed Bed	10	10	10
6. Recycle Evaporator Condensate Filter	1	1	1
System DF (with anion bed in item 5)	10^5	2×10^3	10^4
(with mixed bed in item 6)	10^4	2×10^4	10^5

Decay Time

Boron Recycle Holdup Tank #2, Collection Time

$$T_c = \frac{0.8 \times 56,000}{2,140} = 20.9 \text{ days}$$

Recycle Process Time

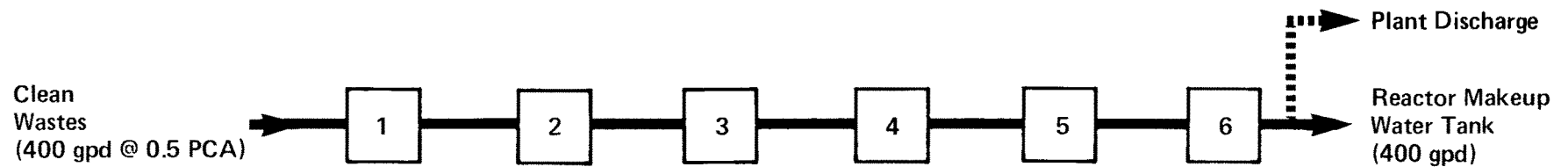
$$T_p = \frac{0.8 \times 56,000}{21,600} = 2 \text{ days}$$

Boron Recycle System

- a. Mixed Bed
b. Anion Bed or Mixed Bed Optional. See Chapter 11.0 of Each Site Addendum.

CALLAWAY PLANT
Figure 11.1A-2 (Sheet 2)
System Decontamination Factors

HISTORICAL



DECONTAMINATION FACTORS			
	<u>Iodine</u>	<u>Cesium & Rubidium</u>	<u>Other Nuclides</u>
1. Waste Holdup Tank			
2. Waste Evaporator Feed Filter	1	1	1
3. Waste Evaporator	10^3	10^4	10^4
4. Liquid Waste Charcoal Adsorber	1	1	1
5. Waste Evaporator Condensate Demineralizer	10	10	10
6. Waste Evaporator Condensate Filter	<u>1</u>	<u>1</u>	<u>1</u>
System DF	10^4	10^5	10^5

Decay Time

Waste Holdup Tank #1
Collection Time

$$T_c = \frac{0.4 \times 10,000}{400} = 10 \text{ days}$$

Waste Process
Time

$$T_p = \frac{0.4 \times 10,000}{21,600} = 0.185 \text{ day}$$

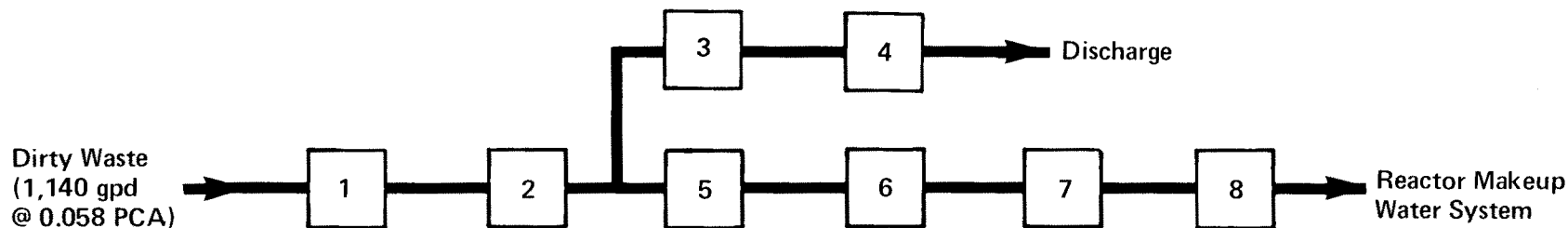
Liquid Radwaste
Train "A" - Clear Waste

CALLAWAY PLANT

Figure 11.1A-2
(Sheet 3)

System Decontamination Factors

HISTORICAL



DECONTAMINATION FACTORS

	<u>Iodine</u>	<u>Cesium & Rubidium</u>	<u>Other Nuclides</u>
1. Floor Drain Tank	—	—	—
2. Floor Drain Tank Filter	1	1	1
3. Waste Monitor Tank Demineralizer (a)	—	—	—
4. Waste Monitor Tank Filter (a)	1	1	1
5. Waste Evaporator (b)	10^3	10^4	10^4
6. Liquid Waste Charcoal Adsorber	1	1	1
7. Waste Evaporator Condensate Demineralizer	10	10	10
8. Waste Evaporator Condensate Filter	<u>1</u>	<u>1</u>	<u>1</u>
System DF (c)	10^4	10^5	10^5

Decay Times

Floor Drain Tank #2,
Collection Time

$$T_c = \frac{0.8 \times 10,000}{1,140} = 7 \text{ days}$$

Waste Processing Time

$$T_p = \frac{0.8 \times 10,000}{21,600} = 0.37 \text{ day}$$

a) Used only when influent activity $< 10^{-5} \mu\text{Ci/cc}$

b) Used when influent activity $\geq 10^{-5} \mu\text{Ci/cc}$

c) Assumes evaporator path

Liquid Radwaste
Train "B" - Dirty Waste

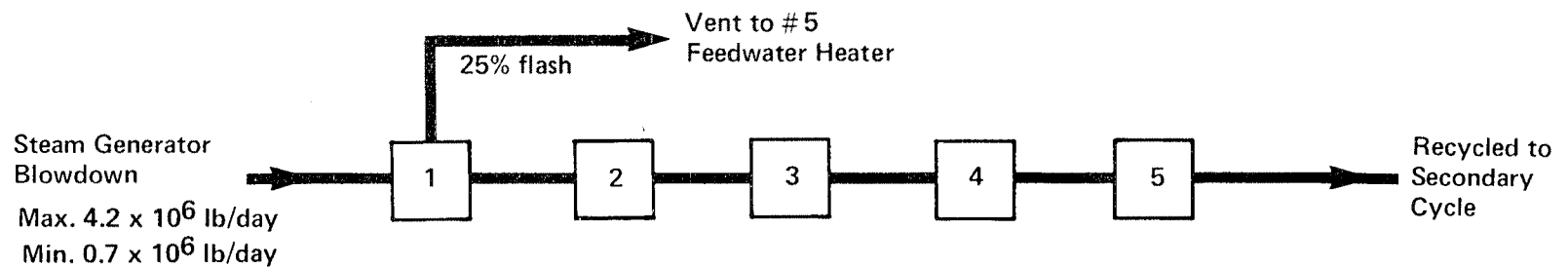
CALLAWAY PLANT

Figure 11.1A-2
(Sheet 4)

System Decontamination Factors

HISTORICAL

Figure 11.1A-2 Sheet 5 is deleted.



DECONTAMINATION FACTORS

	<u>Iodine</u>	<u>Cesium & Rubidium</u>	<u>Other Nuclides</u>
1. Steam Generator Blowdown Flashtank	—	—	—
2. Steam Generator Blowdown Regenerative Heat Exchanger	—	—	—
3. S.G. Blowdown Nonregenerative Heat Exchanger	—	—	—
4. S.G. Blowdown Filters	1	1	1
5. S.G. Blowdown Demineralizers	<u>10²(10)</u>	<u>10(10)</u>	<u>10²(10)</u>
System DF	10 ³	10 ²	10 ³

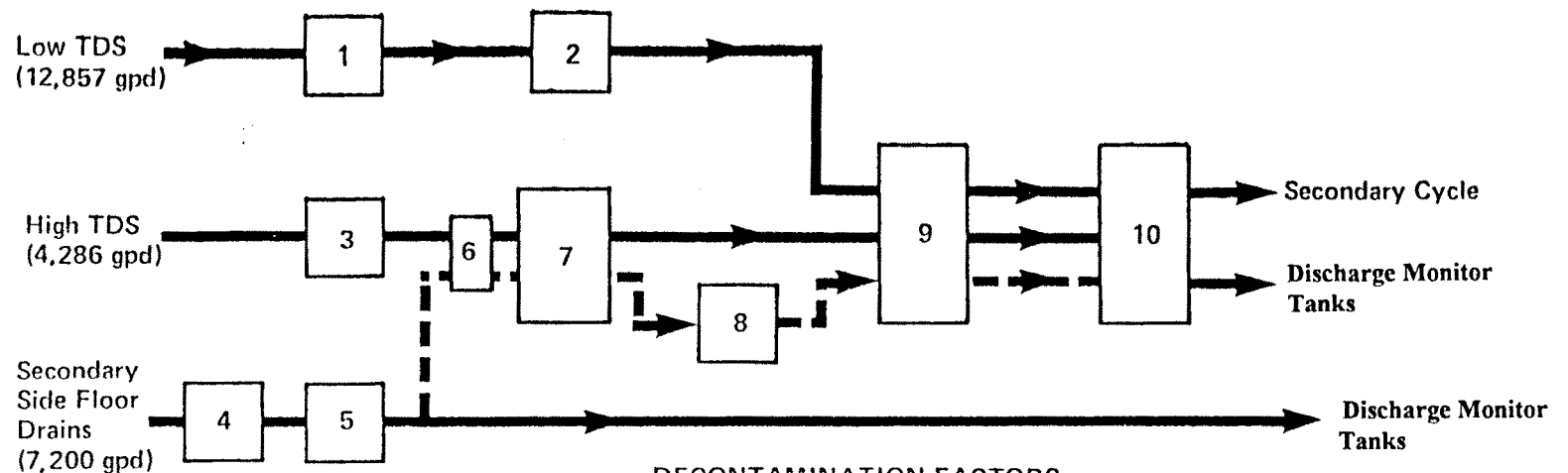
Steam Generator
Blowdown

CALLAWAY PLANT

Figure 11.1A-2
(Sheet 6)

System Decontamination Factors

HISTORICAL



DECONTAMINATION FACTORS

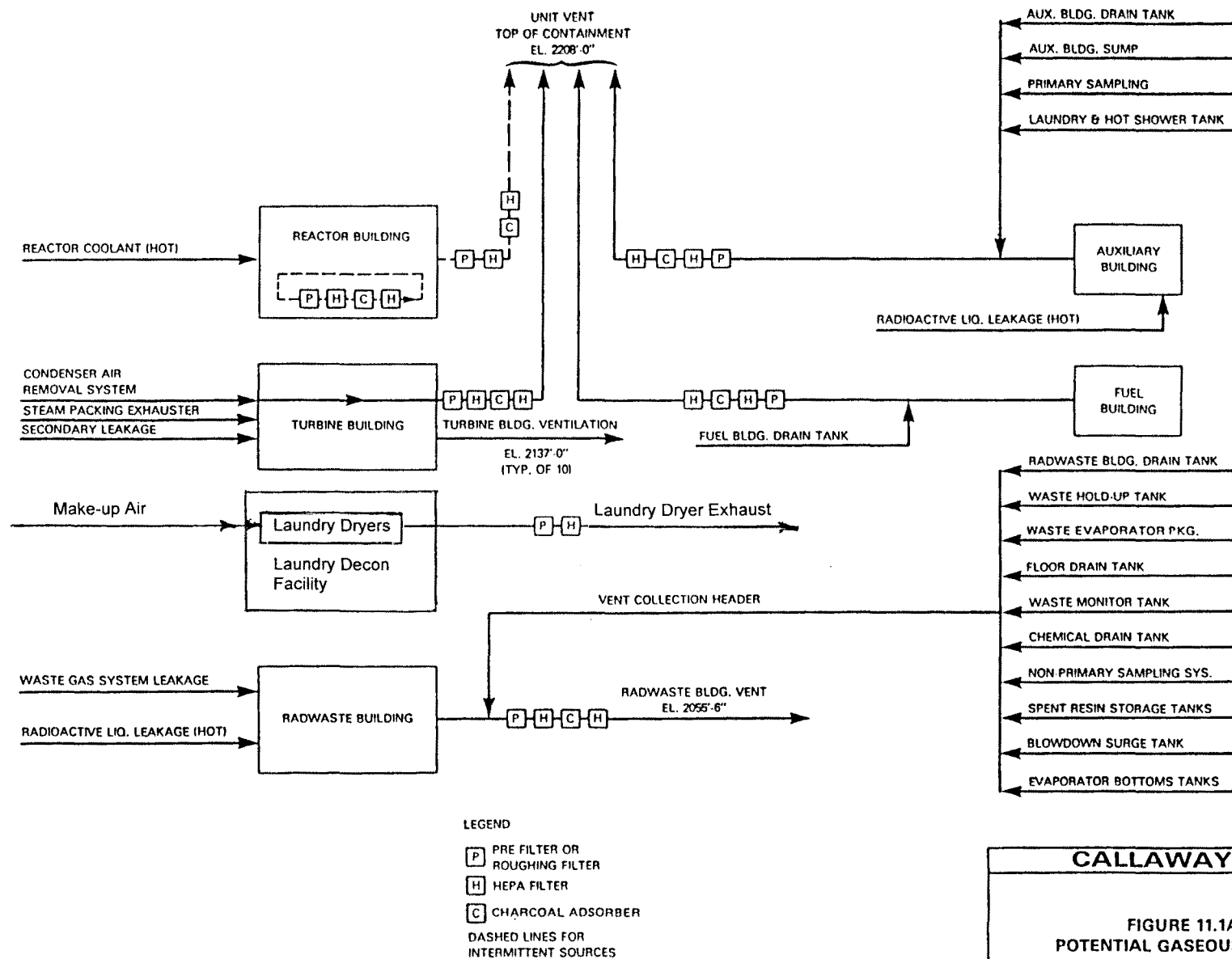
	<u>Iodine</u>	<u>Cesium & Rubidium</u>	<u>Other Nuclides</u>
1. Low TDS Collector Tank	—	—	—
2. Low TDS Filter	1	1	1
3. High TDS Collector Tank	—	—	—
4. Oil Interceptor	—	—	—
5. SLW Drain Collector Tank	—	—	—
6. SLW Filter	1	1	1
7. SLW Evaporator (available only for high TDS)	10^3	10^4	10^4
8. SLW Charcoal Adsorber	—	—	—
9. SLW Demineralizer (C)	$10(10^2)$	$10(2)$	$10(10^2)$
10. SLW Monitor Tank (Low TDS)	—	—	—
System DF - High TDS	10^4	10^5	10^5
Low TDS	10^2	2	10^2

Secondary Liquid
Waste System

- (a) Processing will be subject to chemistry requirements.
 (b) No credit is taken for collection and processing times.
 (c) Second number indicates Low TDS DF.

CALLAWAY PLANT
Figure 11.1A-2 (Sheet 7)
System Decontamination Factors

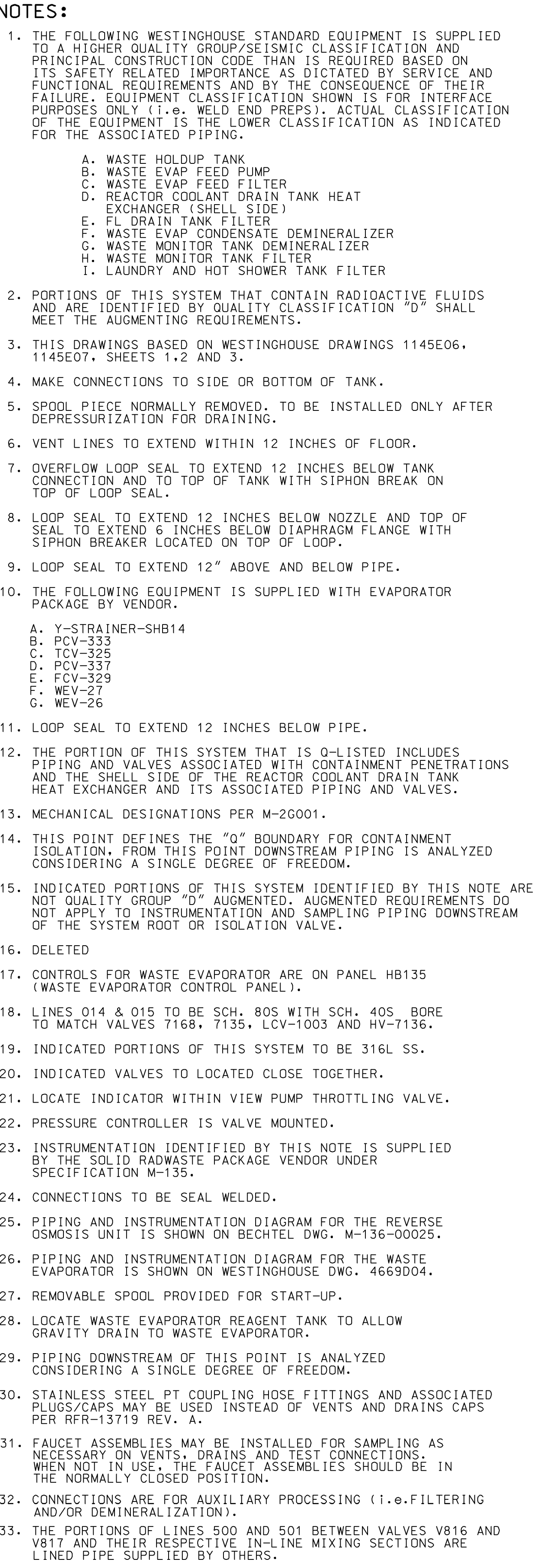
HISTORICAL



CALLAWAY PLANT

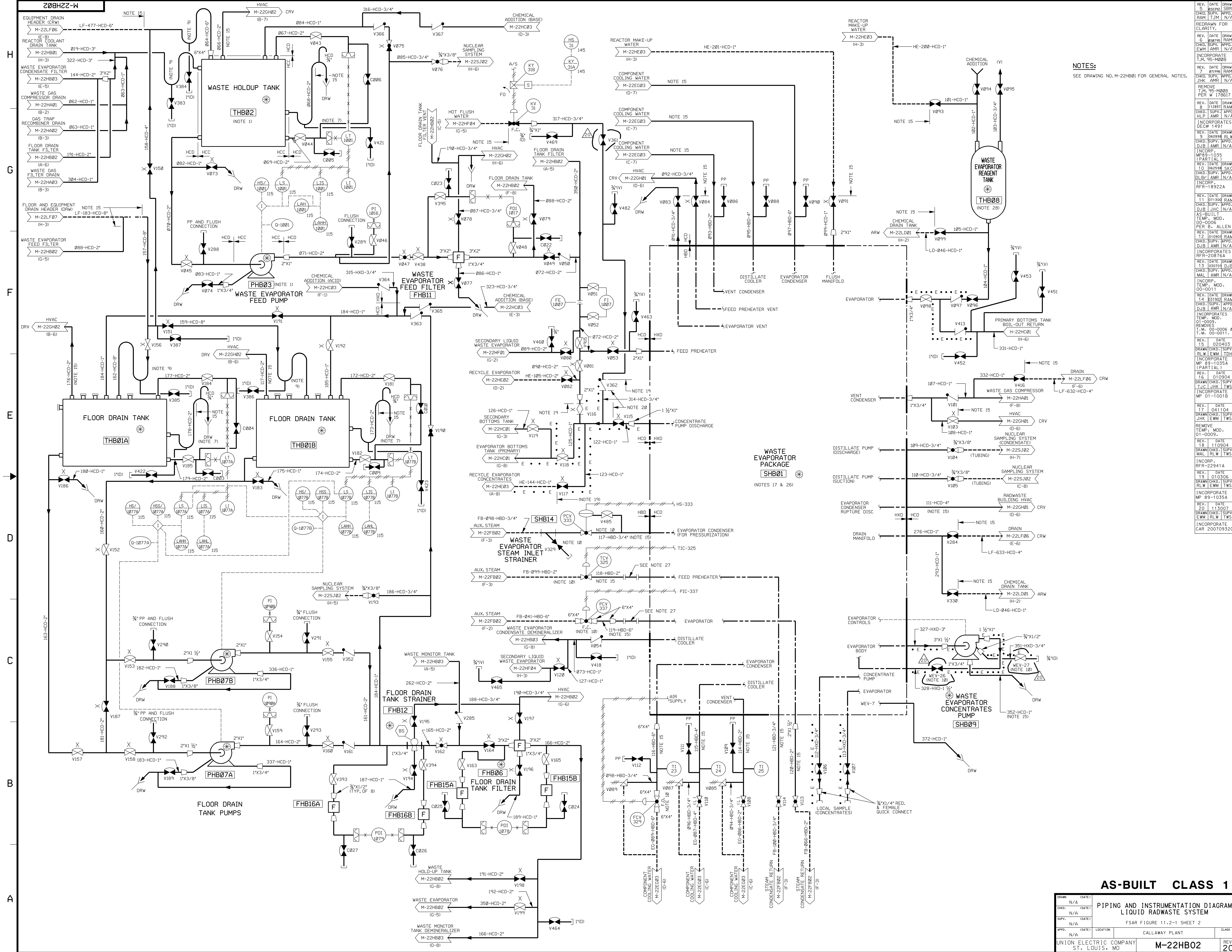
**FIGURE 11.1A-3
POTENTIAL GASEOUS RELEASE**

HISTORICAL



REV. DATE
32 111105
DRAIN CHKD, SUPV.
RLW EWM LMR
INCORPORATE
MP 89-1035A
(PARTIAL)
REV. DATE
35 005070
DRAIN CHKD, SUPV.
RLW EWM SKC
INCORPORATE
MP 89-1035A
(PARTIAL)
REV. DATE
34 040407
DRAIN CHKD, SUPV.
RLW EWM TWS
INCORPORATE
MP 89-1035A
(PARTIAL)
REV. DATE
35 001008
DRAIN CHKD, SUPV.
RLW EWM TWS
INCORPORATE
CAR 200804353
REV. DATE
36 102808
DRAIN CHKD, SUPV.
RLW EWM LMR
INCORPORATE
MP 89-1035A
(PARTIAL)
REV. DATE
32 292908
DRAIN CHKD, SUPV.
RLW EWM LMR
INCORPORATE
MP 89-1035A
(PARTIAL)
REV. DATE
38 042610
DRAIN CHKD, SUPV.
RLW EWM LMR
INCORPORATE
MP 89-1035A
(PARTIAL)
REV. DATE
39 001008
DRAIN CHKD, SUPV.
MAL TJC LMP
[NORP.
CAR 201004346

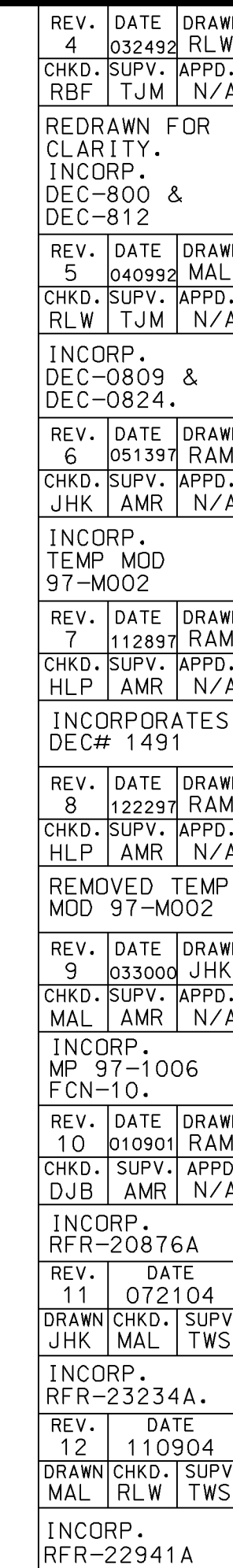
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N/A																			
CHD.	(DATE)																		
N/A																			
SUPV.	(DATE)																		
N/A																			
APPD.	(DATE)																		
N/A																			
LOCATION CALLAWAY PLANT	COMPANY M-22HB01 (Q)		REV. 39																
UNION ELECTRIC COMPANY ST. LOUIS, MO																			



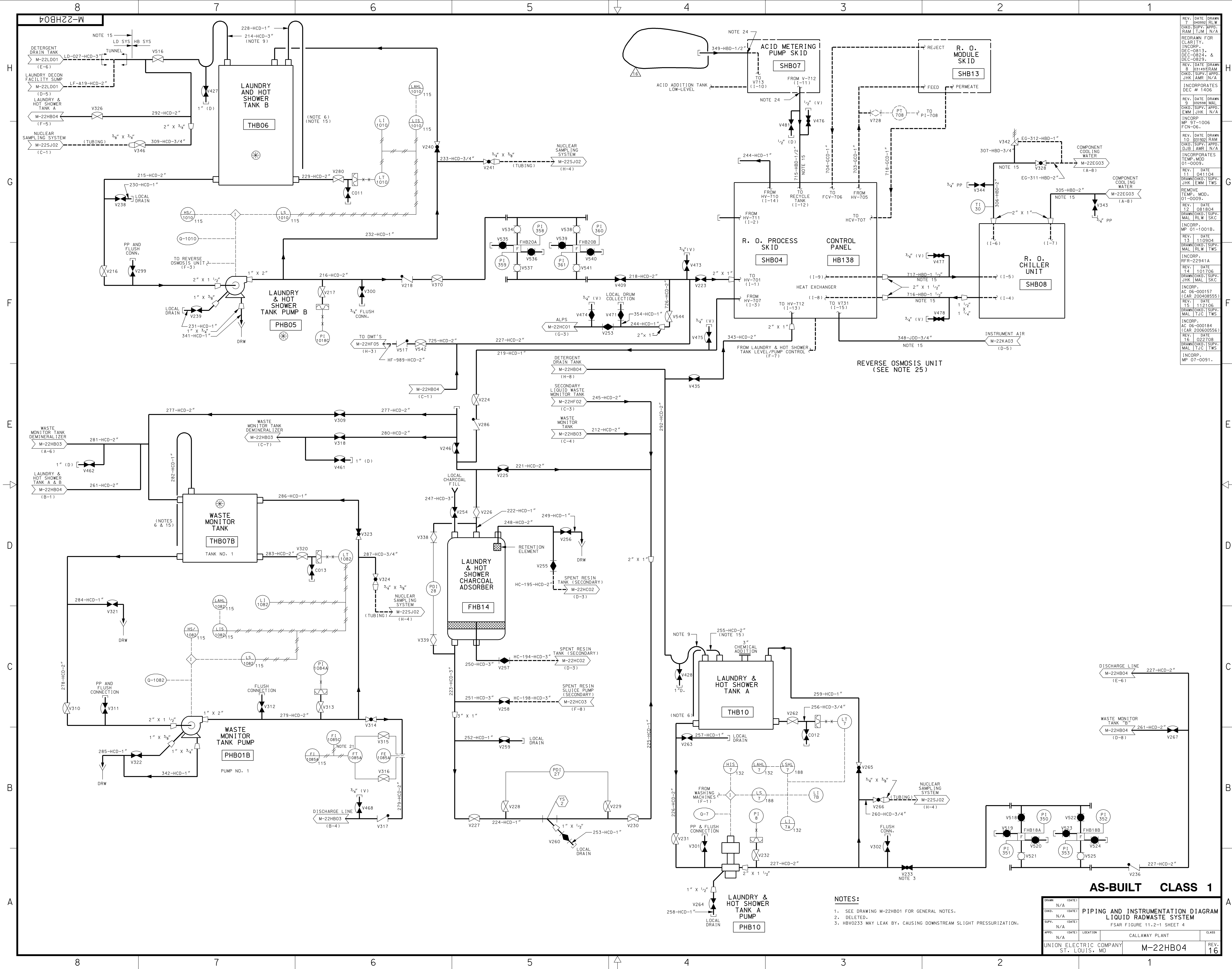
NOTES:
SEE DRAWING NO. M-22HB01 FOR GENERAL NOTES.

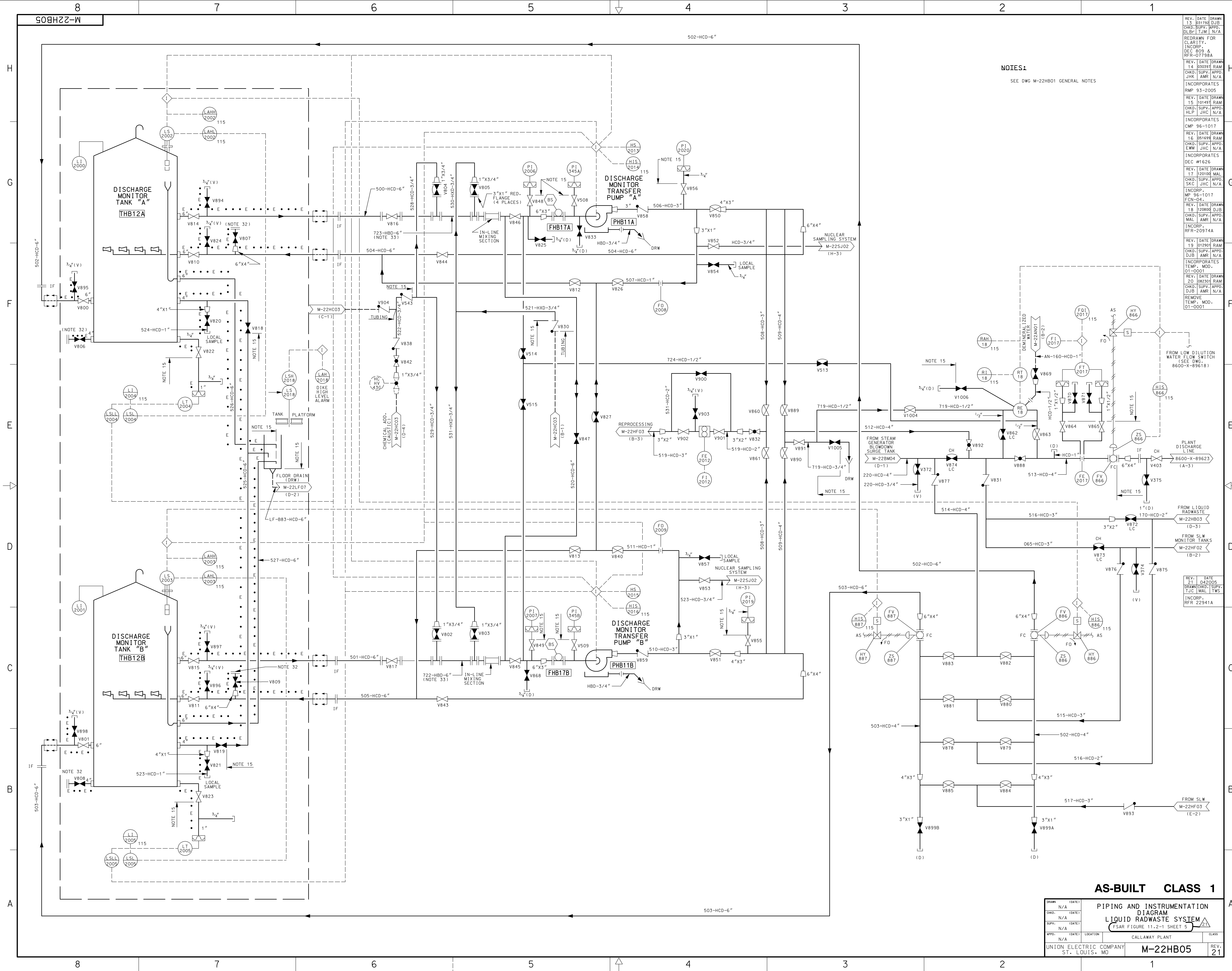
AS-BUILT CLASS 1

DRAWING INFORMATION				PROJECT INFORMATION			
DRAWN	N/A	DATE		PIPING AND INSTRUMENTATION DIAGRAM			
CHKD.	N/A	DATE		LIQUID RADWASTE SYSTEM			
SUPV.	N/A	DATE		FSAR FIGURE 11.2-1 SHEET 2			
APPD.	N/A	DATE		CALLAWAY PLANT			
UNION ELECTRIC COMPANY ST. LOUIS, MO				M-22HB02		REV. 20	



DESIGN	N/A		PIPING & INSTRUMENTATION DIAGRAM LIQUID RADWASTE SYSTEM <div style="border: 1px solid black; border-radius: 50%; padding: 5px; display: inline-block;"> FSAR FIGURE 11.2-1 SHEET 3 </div> <div style="border: 1px solid black; border-radius: 50%; padding: 5px; display: inline-block; margin-left: 20px;"> 12 </div>		
CHKD.	N/A				
SUPV.	N/A				
APPR.	N/A				
	LOCATION	CALLAWAY PLANT			CLASS
UNION ELECTRIC COMPANY ST. LOUIS, MO			M-22HB03		REV 12





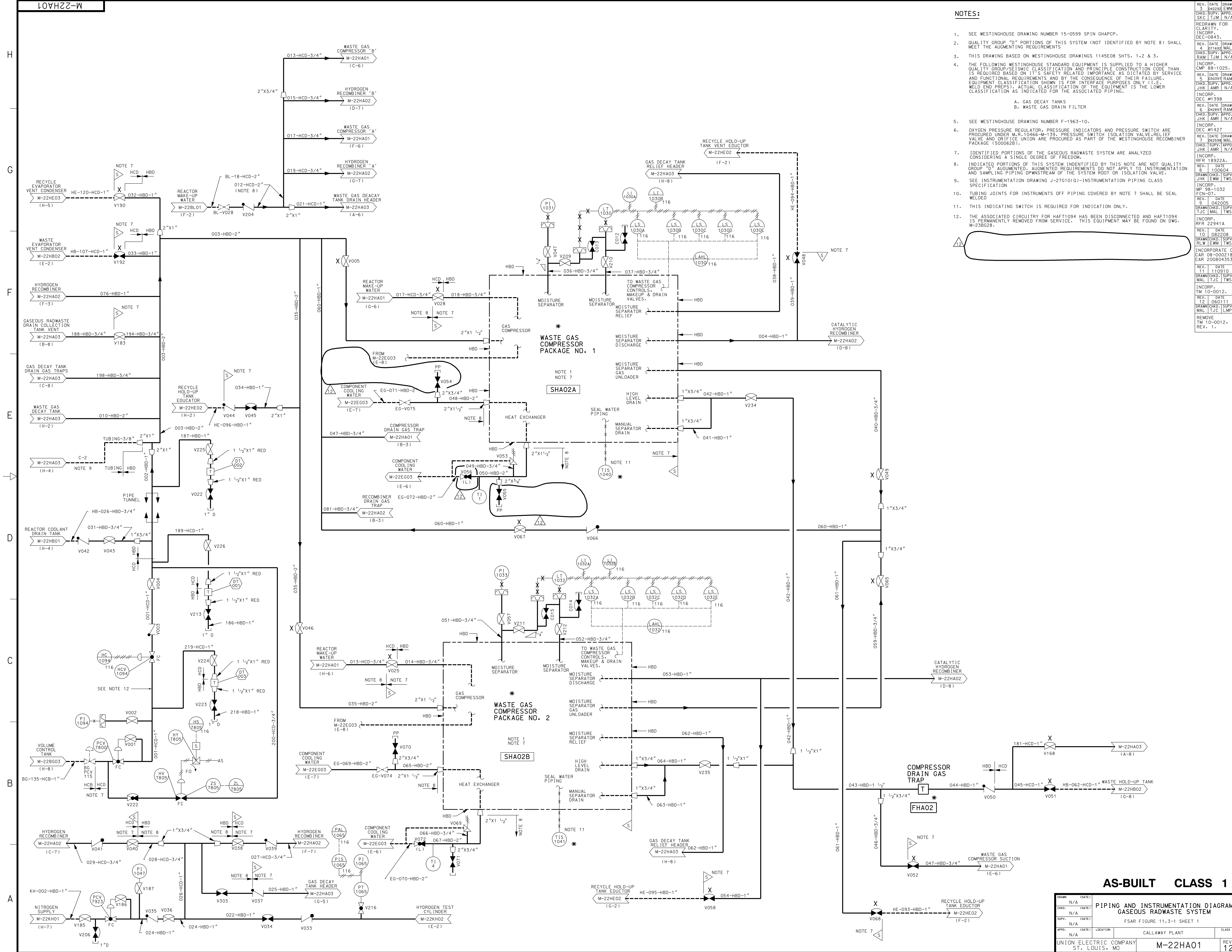
NOTES:

SEE DWG M-22HB01 GENERAL NOTES

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13	031792	DJB						
REDRAWN FOR CLARITY.								
INCORP. DEC 805 & RFR-07798A								
REV.	DATE	DRAWN	CHKD.	SUPV.	APPD.	DLB	TJM	N/A
14	030397	RAM						
INCORPORATES RMP 93-2005								
REV.	DATE	DRAWN	CHKD.	SUPV.	APPD.	DLB	TJM	N/A
15	101497	RAM						
INCORPORATES RMP 96-1017								
REV.	DATE	DRAWN	CHKD.	SUPV.	APPD.	DLB	TJM	N/A
16	051699	RAM						
INCORPORATES DEC #1626								
REV.	DATE	DRAWN	CHKD.	SUPV.	APPD.	DLB	TJM	N/A
17	120100	MAL						
INCORP. RFR-20974A								
REV.	DATE	DRAWN	CHKD.	SUPV.	APPD.	DLB	TJM	N/A
18	120800	DJB						
INCORPORATES TEMP. MOD. 01-0001								
REV.	DATE	DRAWN	CHKD.	SUPV.	APPD.	DLB	TJM	N/A
19	012901	RAM						
REMOVE TEMP. MOD. 01-0001								
REV.	DATE	DRAWN	CHKD.	SUPV.	APPD.	DLB	TJM	N/A
20	082301	RAM						
REMOVE TEMP. MOD. 01-0001								

AS-BUILT CLASS 1

DRAWN	N/A	DATE						
CHKD.	N/A	DATE						
SUPV.	N/A	DATE						
APPD.	N/A	DATE	LOCATION					
UNION ELECTRIC COMPANY				ST. LOUIS, MO				
M-22HB05				REV. 21				



- NOTES:
- SEE WESTINGHOUSE DRAWING NUMBER 15-0999 SPIN GHAPCP.
 - QUALITY GROUP "D" PORTIONS OF THIS SYSTEM (NOT IDENTIFIED BY NOTE 8) SHALL MEET THE AUGMENTING REQUIREMENTS.
 - THIS DRAWING BASED ON WESTINGHOUSE DRAWINGS 1145E08 SHTS. 1,2 & 3.
 - THE FOLLOWING WESTINGHOUSE STANDARD EQUIPMENT IS SUPPLIED TO A HIGHER QUALITY GROUP/SEISMIC CLASSIFICATION AND PRINCIPLE CONSTRUCTION CODE THAN IS REQUIRED BASED ON IT'S SAFETY RELATED IMPORTANCE AS DICTATED BY SERVICE AND FUNCTIONAL REQUIREMENTS AND BY THE CONSEQUENCE OF THEIR FAILURE. EQUIPMENT CLASSIFICATION SHOWN IS FOR INTERFACE PURPOSES ONLY (I.E. WELD END PREPS). ACTUAL CLASSIFICATION OF THE EQUIPMENT IS THE LOWER CLASSIFICATION AS INDICATED FOR THE ASSOCIATED PIPING.
 - A. GAS DECAY TANKS
 - B. WASTE GAS DRAIN FILTER
 - SEE WESTINGHOUSE DRAWING NUMBER F-1963-10.
 - OXYGEN PRESSURE REGULATOR, PRESSURE INDICATORS AND PRESSURE SWITCH ARE PROCURED UNDER M.R.10466-M-139. PRESSURE SWITCH ISOLATION VALVE,RELIEF VALVE AND ORIFICE UNION ARE PROCURED AS PART OF THE WESTINGHOUSE RECOMBINER PACKAGE (500062B).
 - IDENTIFIED PORTIONS OF THE GASEOUS RADWASTE SYSTEM ARE ANALYZED CONSIDERING A SINGLE DEGREE OF FREEDOM.
 - INDICATED PORTIONS OF THIS SYSTEM IDENTIFIED BY THIS NOTE ARE NOT QUALITY GROUP "D" AUGMENTED. AUGMENTED REQUIREMENTS DO NOT APPLY TO INSTRUMENTATION AND SAMPLING PIPING DOWNSTREAM OF THE SYSTEM ROOT OR ISOLATION VALVE.
 - SEE INSTRUMENTATION DRAWING J-27G10(Q)-INSTRUMENTATION PIPING CLASS SPECIFICATION
 - TUBING JOINTS FOR INSTRUMENTS OFF PIPING COVERED BY NOTE 7 SHALL BE SEAL WELDED
 - THIS INDICATING SWITCH IS REQUIRED FOR INDICATION ONLY.
 - THE ASSOCIATED CIRCUITRY FOR HAF1094 HAS BEEN DISCONNECTED AND HAF1094 IS PERMANENTLY REMOVED FROM SERVICE. THIS EQUIPMENT MAY BE FOUND ON DWG. M-23B628.

AS-BUILT CLASS 1

PIPING AND INSTRUMENTATION DIAGRAM
GASEOUS RADWASTE SYSTEM

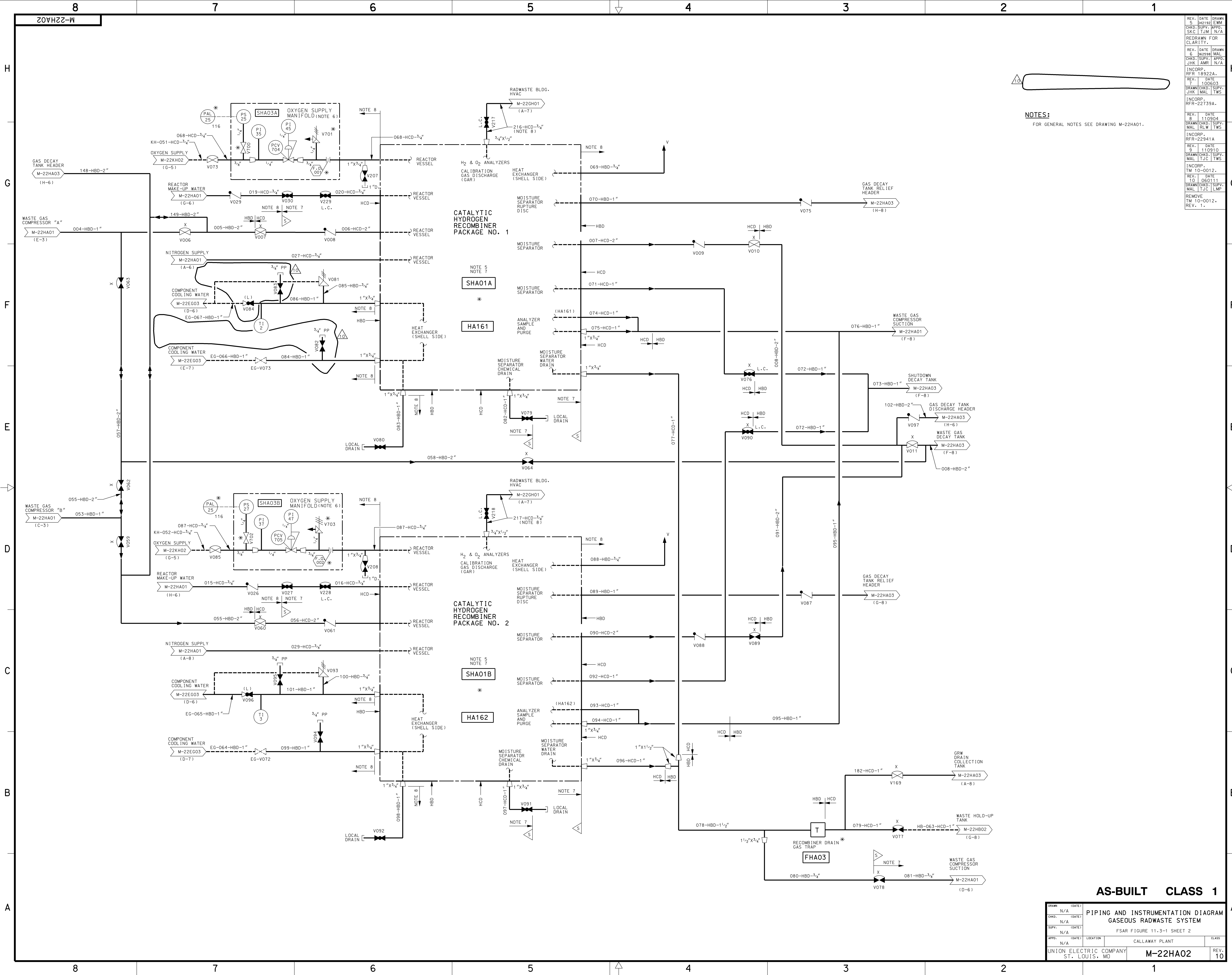
FSAR FIGURE 11.3-1 SHEET 1

DATE	LOCATION	CLASS
REV. 12	CALLAWAY PLANT	
REV. 11		
REV. 10		
REV. 9		
REV. 8		
REV. 7		
REV. 6		
REV. 5		
REV. 4		
REV. 3		
REV. 2		
REV. 1		

UNION ELECTRIC COMPANY
ST. LOUIS, MO

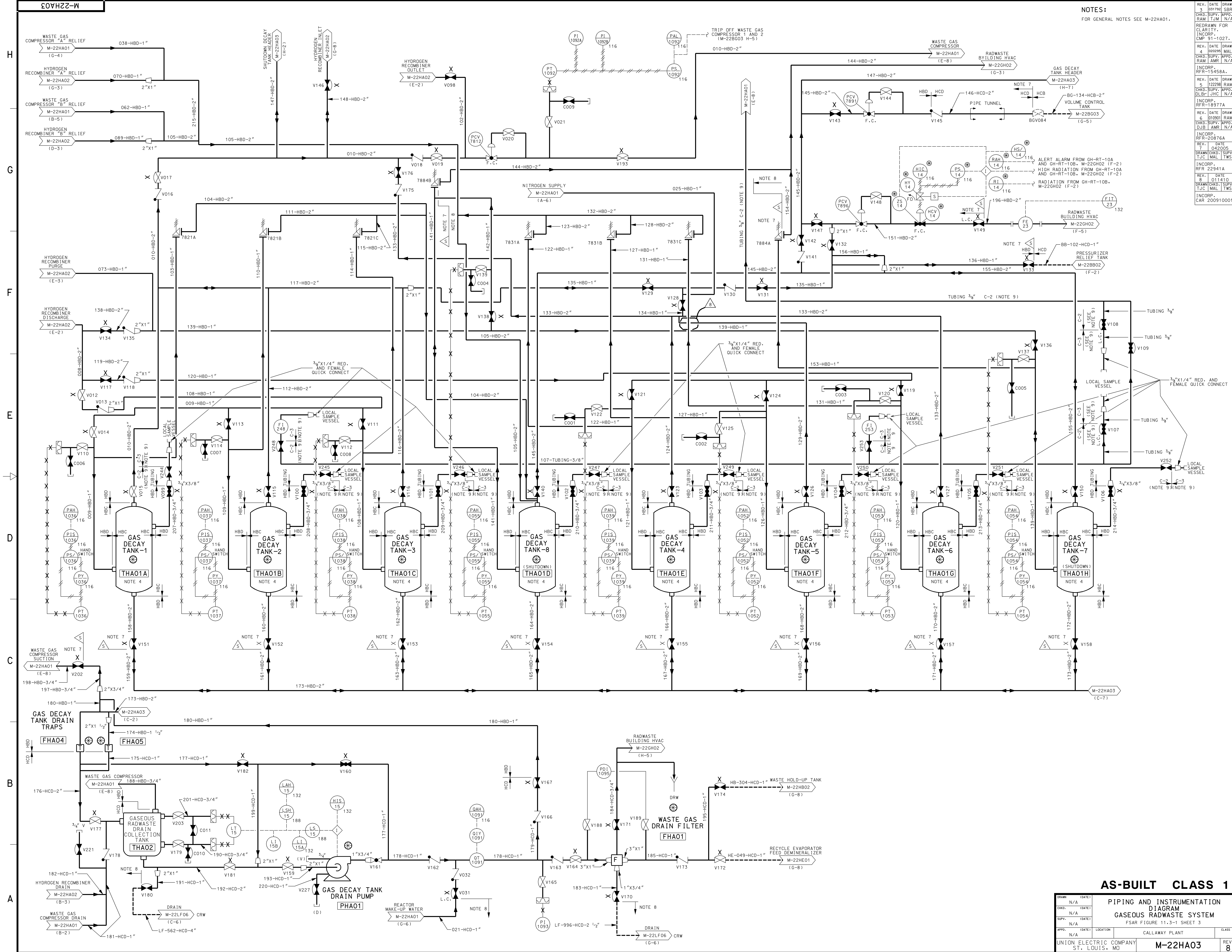
M-22HA01

REV. 12



NOTES:
FOR GENERAL NOTES SEE DRAWING M-22HA01.

AS-BUILT CLASS 1		DRAWING		DATE	
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CHKD.		N/A		(DATE)	
SURV.		N/A		(DATE)	
APPR.		N/A		(DATE)	
UNION ELECTRIC COMPANY		ST. LOUIS, MO		REV. 10	
M-22HA02		CALLAWAY PLANT		CLASS	
FSAR FIGURE 11.3-1 SHEET 2		GASEOUS RADWASTE SYSTEM		PIPING AND INSTRUMENTATION DIAGRAM	



NOTES:
FOR GENERAL NOTES SEE M-22HA01.

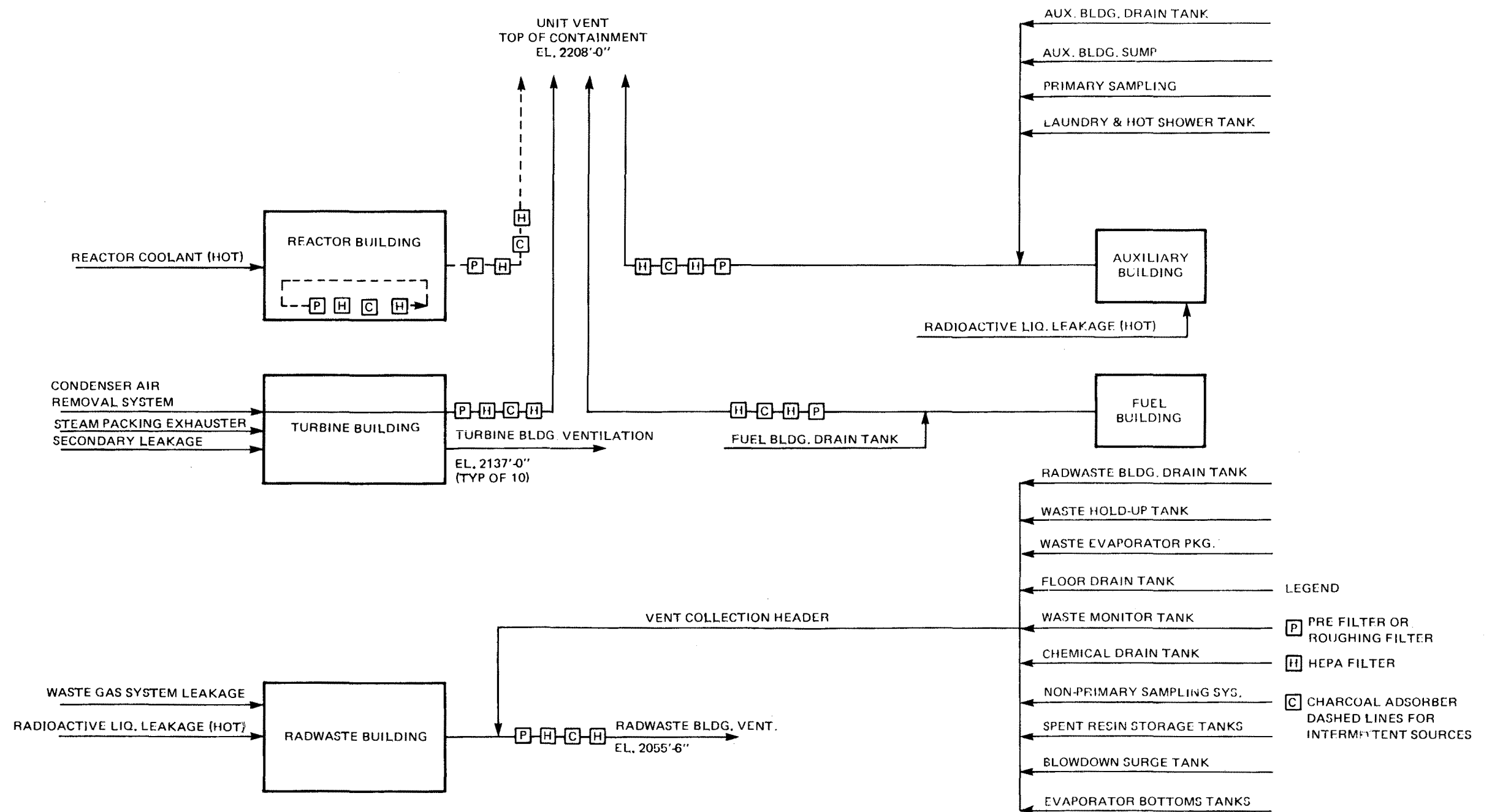
AS-BUILT CLASS 1

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4	03/19/82	RAM					
5	03/19/82	RAM					
6	03/19/82	RAM					
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UNION ELECTRIC COMPANY
ST. LOUIS, MO

M-22HA03

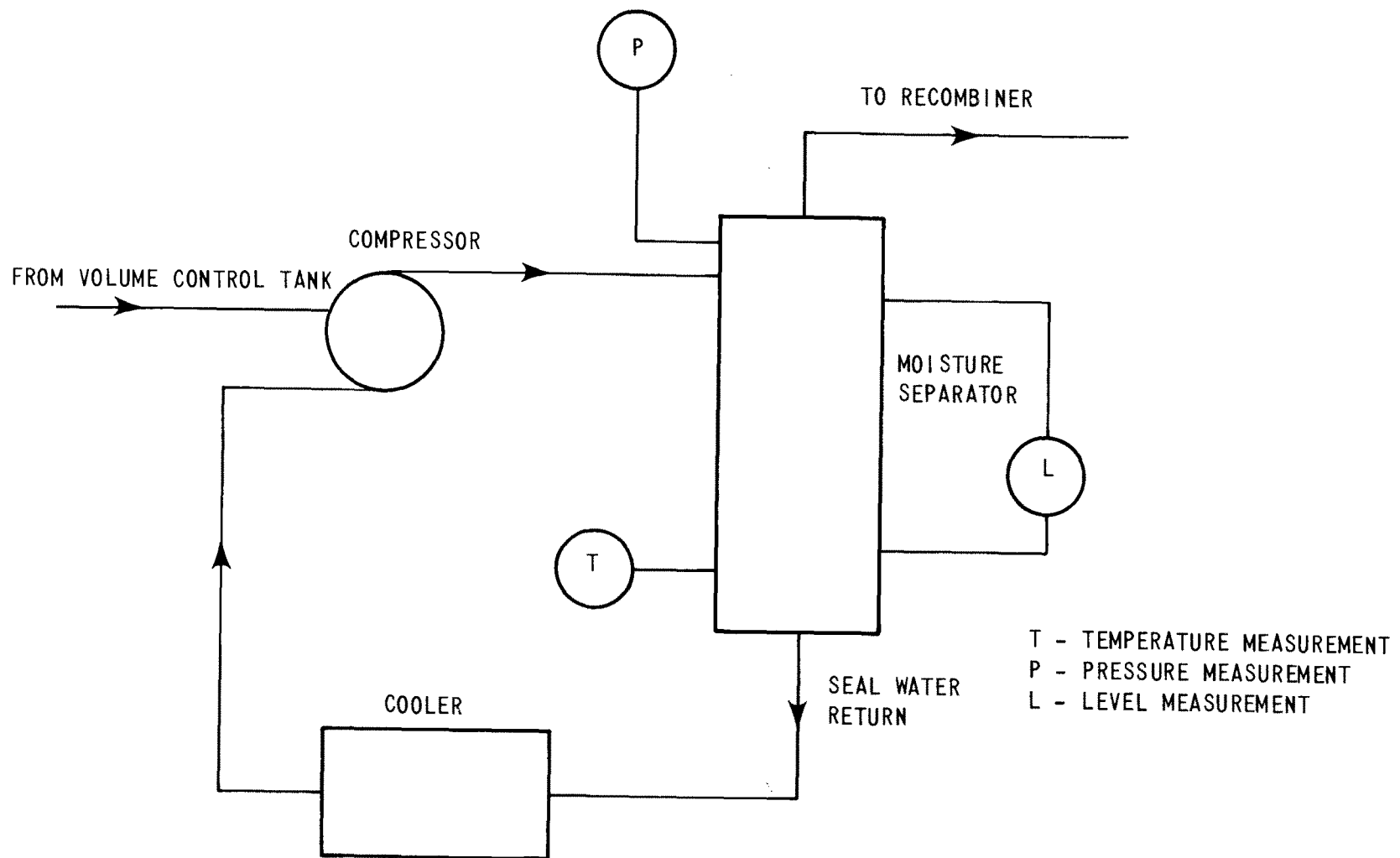
REV. 8



Rev. OL-0
6/86

CALLAWAY PLANT

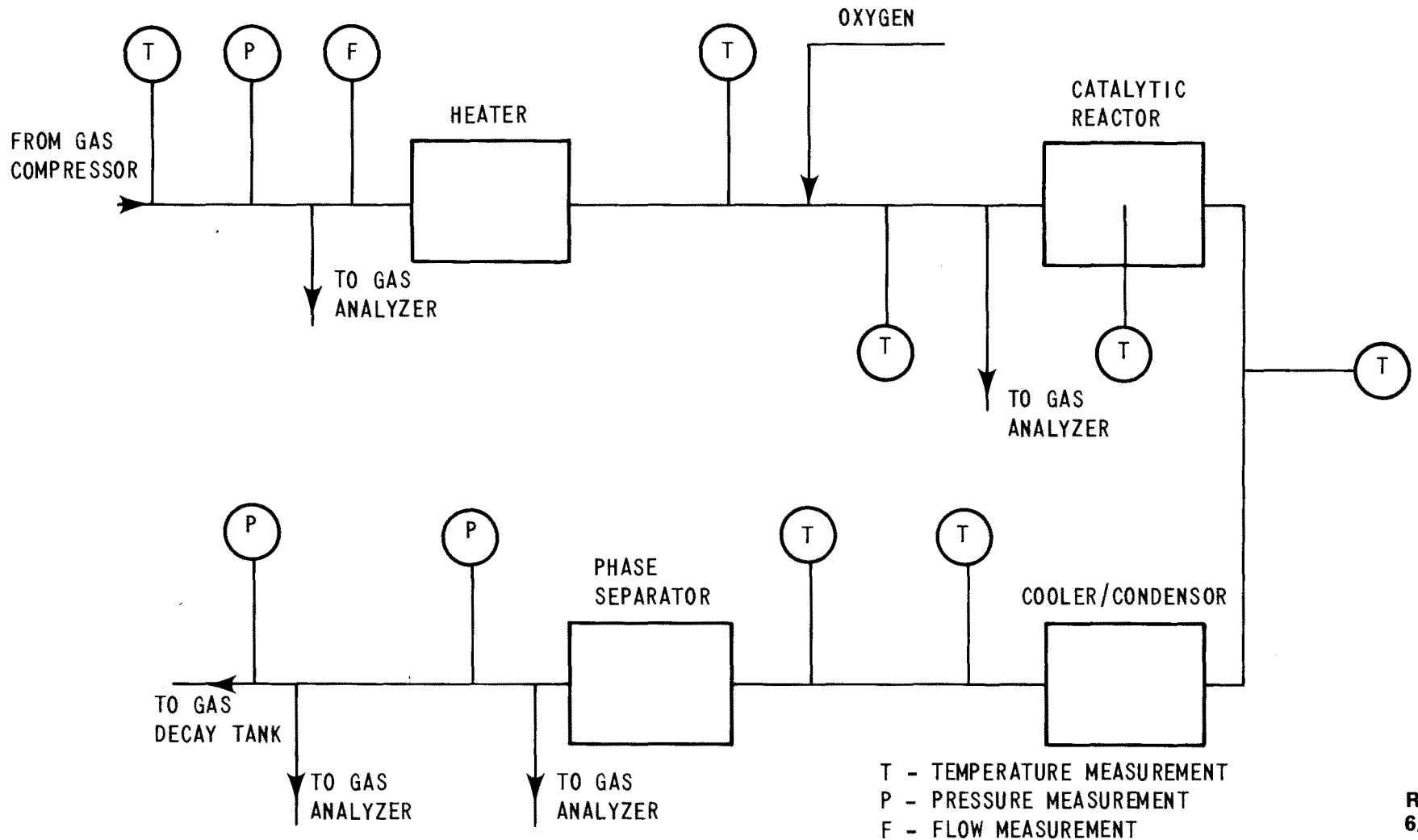
FIGURE 11.3-2
POTENTIAL GASEOUS RELEASE



Rev. OL-0
6/86

CALLAWAY PLANT

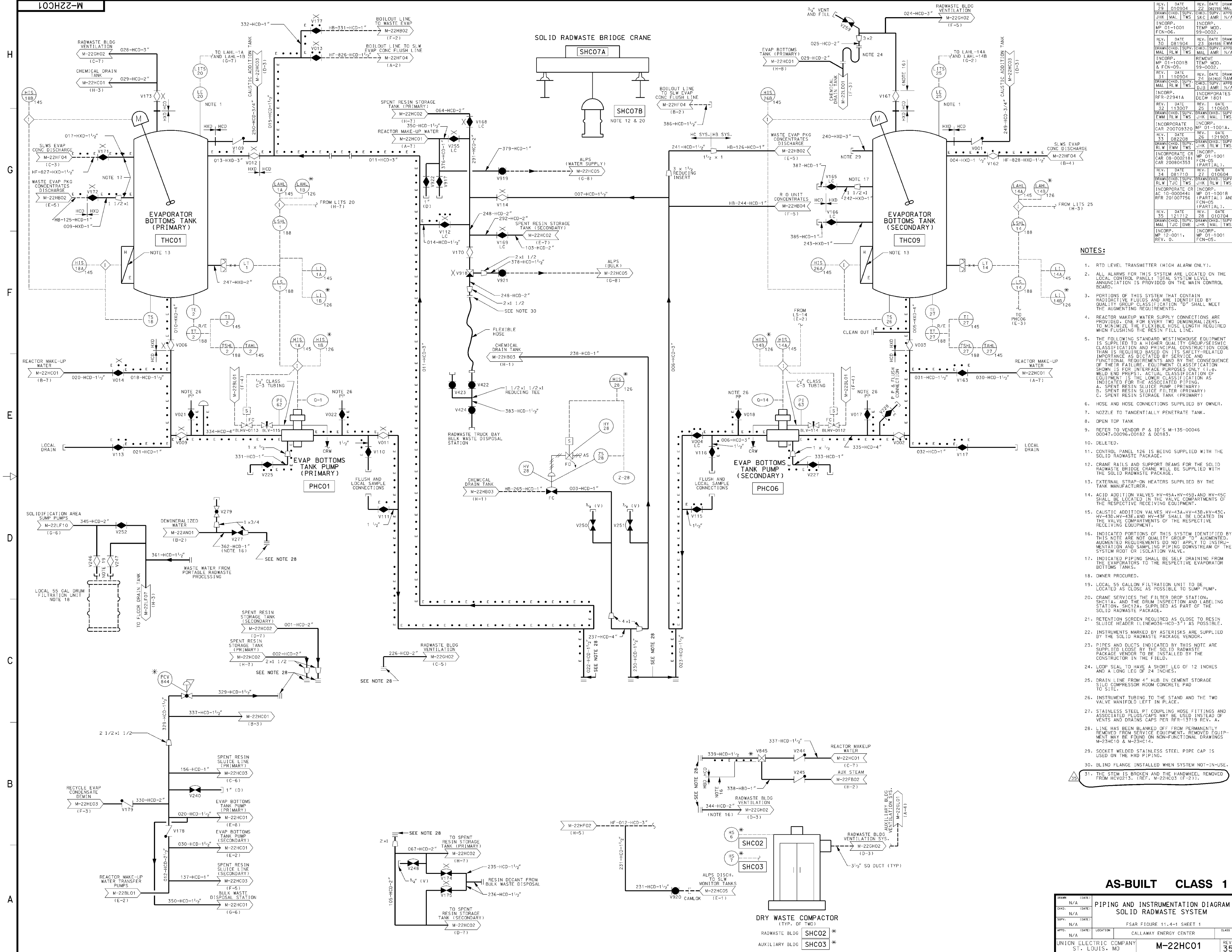
FIGURE 11.3-3
COMPRESSOR PACKAGE INSTRUMENTS



Rev. OL-0
6/86

CALLAWAY PLANT

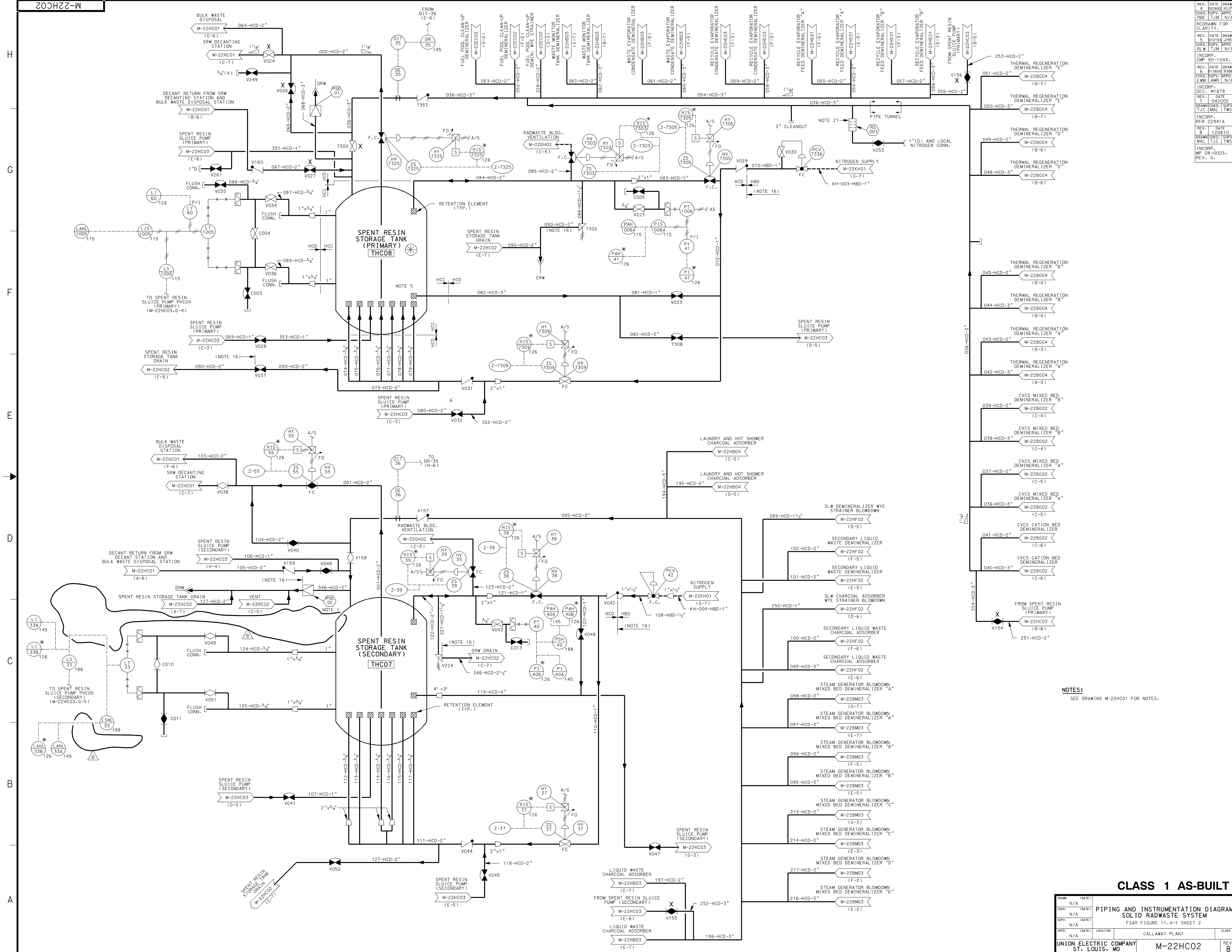
FIGURE 11.3-4
HYDROGEN RECOMBINER INSTRUMENTS



- NOTES:**
- RTD LEVEL TRANSMITTER (HIGH ALARM ONLY).
 - ALL ALARMS FOR THIS SYSTEM ARE LOCATED ON THE LOCAL CONTROL PANEL; TOTAL SYSTEM LEVEL ANNUNCIATION IS PROVIDED ON THE MAIN CONTROL BOARD.
 - PORTIONS OF THIS SYSTEM THAT CONTAIN RADIOACTIVE FLUIDS AND ARE IDENTIFIED BY QUALITY GROUP CLASSIFICATION "D" SHALL MEET THE AUGMENTED REQUIREMENTS.
 - REACTOR MAKEUP WATER SUPPLY CONNECTIONS ARE PROVIDED, ONE FOR EVERY TWO DEMINERALIZERS, TO MINIMIZE THE FLEXIBLE HOSE LENGTH REQUIRED WHEN FLUSHING THE RESIN FILL LINE.
 - THE FOLLOWING STANDARD WESTINGHOUSE EQUIPMENT IS SUPPLIED TO A HIGHER QUALITY GROUP/SEISMIC CLASSIFICATION AND PRINCIPAL CONSTRUCTION CODE THAN IS REQUIRED BASED ON ITS SAFETY RELATED IMPORTANCE AS DICTATED BY SERVICE AND FUNCTIONAL REQUIREMENTS AND BY THE CONSEQUENCE OF THEIR FAILURE. EQUIPMENT CLASSIFICATION SHOWN IS FOR INTERFACE PURPOSES ONLY (I.e. WELD END PREPS). ACTUAL CLASSIFICATION OF EQUIPMENT IS THE LOWER CLASSIFICATION AS INDICATED FOR THE APPLICABLE RECEIVING EQUIPMENT:
A. SPENT RESIN SLUICE PUMP (PRIMARY)
B. SPENT RESIN SLUICE FILTER (PRIMARY)
C. SPENT RESIN STORAGE TANK (PRIMARY)
 - HOSE AND HOSE CONNECTIONS SUPPLIED BY OWNER.
 - NOZZLE TO TANGENTIALLY PENETRATE TANK.
 - OPEN TOP TANK.
 - REFER TO VENDOR P & ID'S M-135-00046 00047, 00096, 00182 & 00183.
 - DELETED.
 - CONTROL PANEL 126 IS BEING SUPPLIED WITH THE SOLID RADWASTE PACKAGE.
 - CRANE RAILS AND SUPPORT BEAMS FOR THE SOLID RADWASTE BRIDGE CRANE WILL BE SUPPLIED WITH THE SOLID RADWASTE PACKAGE.
 - EXTERNAL STRAP-ON HEATERS SUPPLIED BY THE TANK MANUFACTURER.
 - ACID ADDITION VALVES HV-45A, HV-45B, AND HV-45C SHALL BE LOCATED IN THE VALVE COMPARTMENTS OF THE RESPECTIVE RECEIVING EQUIPMENT.
 - CAUSTIC ADDITION VALVES HV-43A, HV-43B, HV-43C, HV-43D, HV-43E, AND HV-43F SHALL BE LOCATED IN THE VALVE COMPARTMENTS OF THE RESPECTIVE RECEIVING EQUIPMENT.
 - INDICATED PORTIONS OF THIS SYSTEM IDENTIFIED BY THIS NOTE ARE NOT QUALITY GROUP "D" AUGMENTED. AUGMENTED REQUIREMENTS DO NOT APPLY TO INSTRUMENTATION AND SAMPLING PIPING DOWNSTREAM OF THE SYSTEM ROOT OR ISOLATION VALVE.
 - INDICATED PIPING SHALL BE SELF DRAINING FROM THE EVAPORATORS TO THE RESPECTIVE EVAPORATOR BOTTOMS TANKS.
 - OWNER PROCURED.
 - LOCAL 55 GALLON FILTRATION UNIT TO BE LOCATED AS CLOSE AS POSSIBLE TO SUMP PUMP.
 - CRANE SERVICES THE FILTER DROP STATION, SHC11A, AND THE DRUM INSPECTION AND LABELING STATION, SHC12A, SUPPLIED AS PART OF THE SOLID RADWASTE PACKAGE.
 - RETENTION SCREEN REQUIRED AS CLOSE TO RESIN SLUICE HEADER (LINE#036-HCD-3") AS POSSIBLE.
 - INSTRUMENTS MARKED BY ASTERISKS ARE SUPPLIED BY THE SOLID RADWASTE PACKAGE VENDOR.
 - PIPES AND DUCTS INDICATED BY THIS NOTE ARE SUPPLIED LOOSE BY THE SOLID RADWASTE PACKAGE VENDOR TO BE INSTALLED BY THE CONSTRUCTOR IN THE FIELD.
 - LOOP SEAL TO HAVE A SHORT LEG OF 12 INCHES AND A LONG LEG OF 24 INCHES.
 - DRAIN LINE FROM 4" HUB IN CEMENT STORAGE SILD COMPRESSOR ROOM CONCRETE PAD TO SITE.
 - INSTRUMENT TUBING TO THE STAND AND THE TWO VALVE MANIFOLD LEFT IN PLACE.
 - STAINLESS STEEL PT. COUPLING HOSE FITTINGS AND ASSOCIATED PLUGS/CAPS MAY BE USED INSTEAD OF VENTS AND DRAINS CAPS PER RFR-13719 REV. 4.
 - LINE HAS BEEN BLANKED OFF FROM PERMANENTLY REMOVED FROM SERVICE EQUIPMENT. REMOVED EQUIPMENT MAY BE FOUND ON NON-FUNCTIONAL DRAWINGS M-22HC10 & M-22HC14.
 - SOCKET WELDED STAINLESS STEEL PIPE CAP IS USED ON THE HXD PIPING.
 - BLIND FLANGE INSTALLED WHEN SYSTEM NOT-IN-USE.
 - THE STEM IS BROKEN AND THE HANDWHEEL REMOVED FROM HCD0213. (REF. M-22HC03 IF-21).

AS-BUILT CLASS 1

DRWN	DATE	REV.	DATE	DRWN	DATE	REV.	DATE	DRWN	DATE	REV.	DATE
N/A				N/A				N/A			
CHGO				CHGO				CHGO			
N/A				N/A				N/A			
SUPV				SUPV				SUPV			
N/A				N/A				N/A			
APPR				APPR				APPR			
N/A				N/A				N/A			
LOC				LOC				LOC			
N/A				N/A				N/A			
CLASS				CLASS				CLASS			
UNION ELECTRIC COMPANY				UNION ELECTRIC COMPANY				UNION ELECTRIC COMPANY			
ST. LOUIS, MO				ST. LOUIS, MO				ST. LOUIS, MO			
M-22HC01				M-22HC01				M-22HC01			
REV. 35				REV. 35				REV. 35			



NOTES:
SEE DRAWING M-22HC01 FOR NOTES.

CLASS 1 AS-BUILT

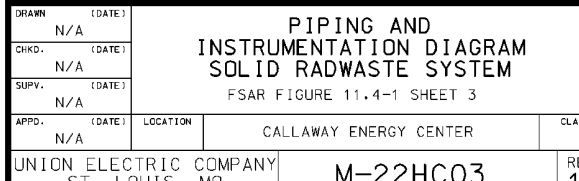
DRAWN	N/A	DATE	
CHD.	N/A	DATE	
SUPV.	N/A	DATE	
APPD.	N/A	DATE	
LOCATION	CALLAWAY PLANT		CLASS
UNION ELECTRIC COMPANY		M-22HC02	REV. 8
ST. LOUIS, MO			

PIPING AND INSTRUMENTATION DIAGRAM

SOLID RADWASTE SYSTEM

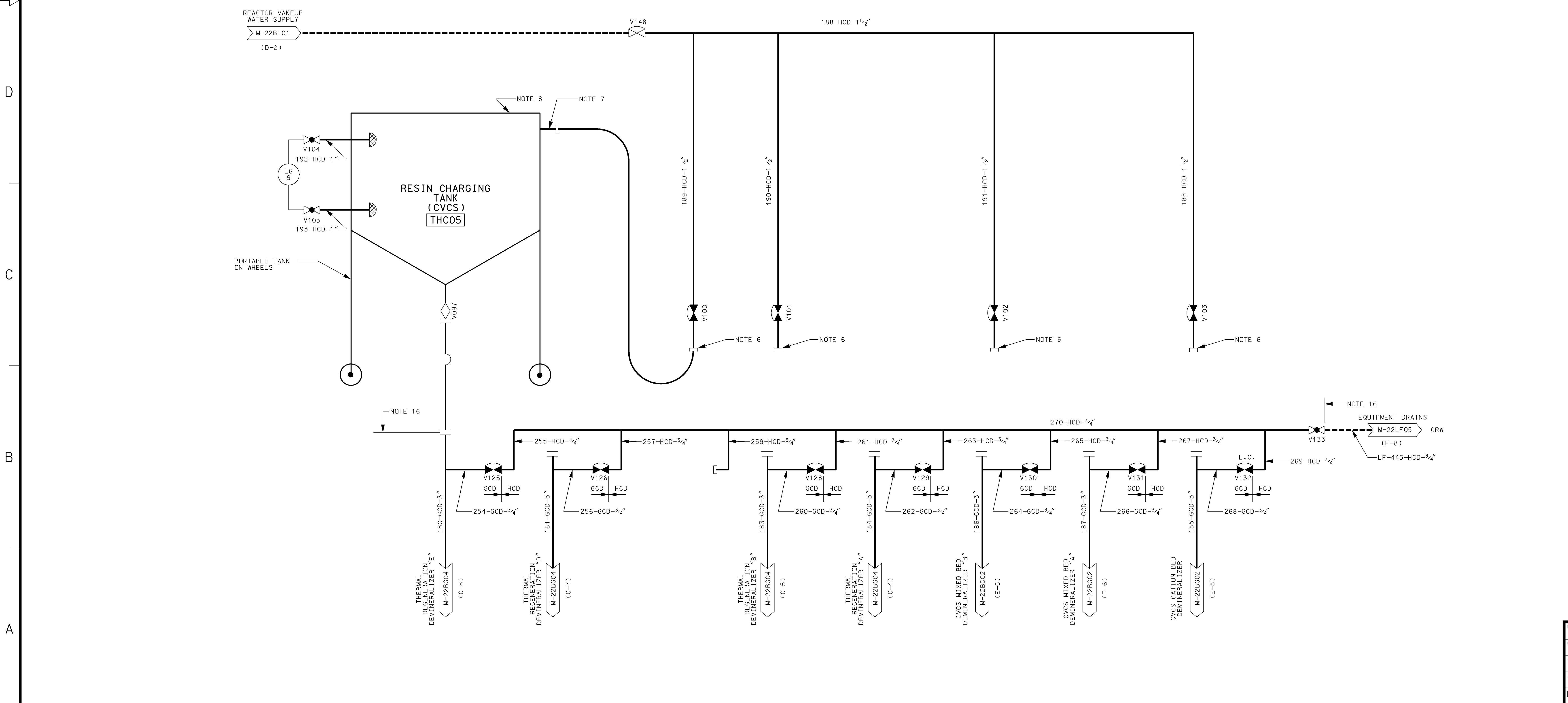
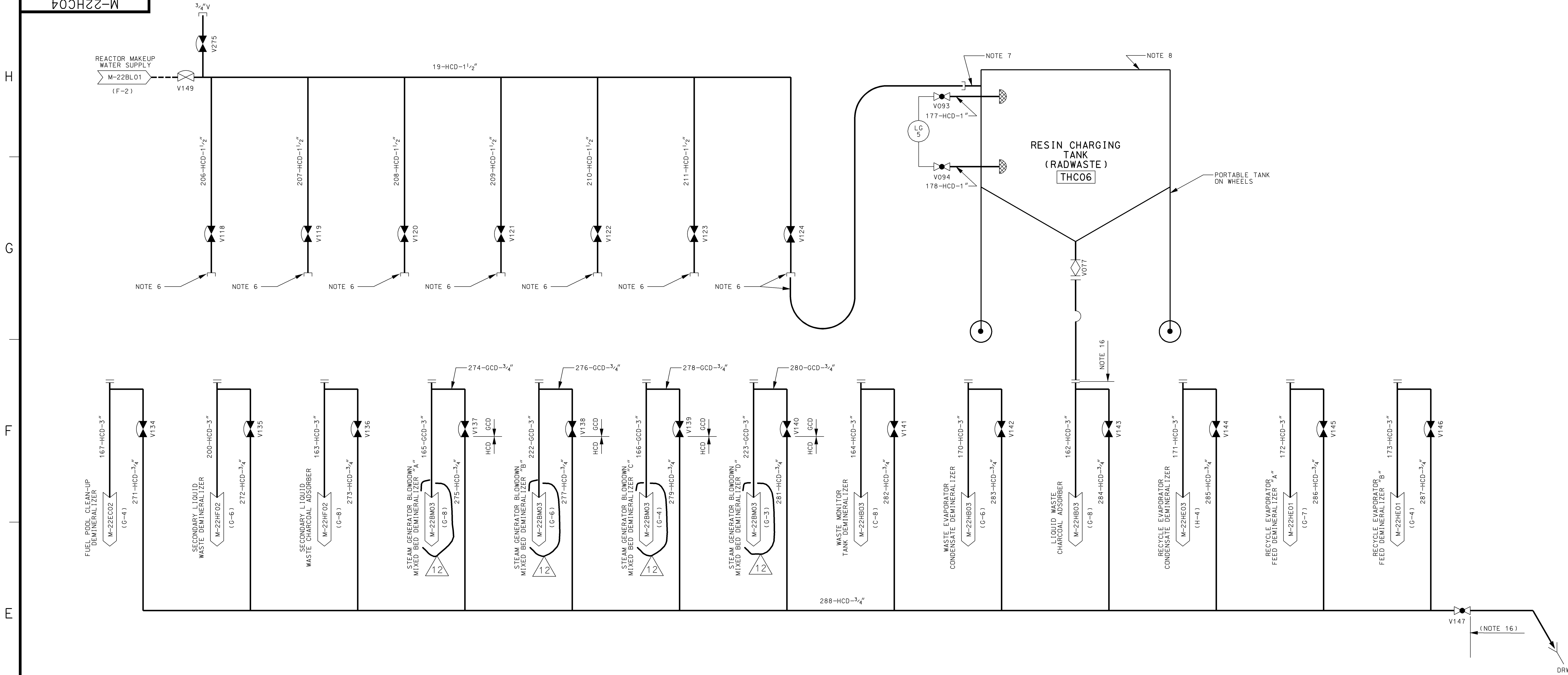
FSAR FIGURE 11.4-1 SHEET 2

REV. DATE DRAWN 2 022892 JHK
CHD. SUPV. APPD. RBF TJM N/A
REDRAWN FOR CLARITY.
REV. DATE DRAWN 5 072193 JHK
CHD. SUPV. APPD. RBF TJM N/A
INCORP. CMP 90-1044.
REV. DATE DRAWN 7 042005
CHD. SUPV. APPD. EWM JMR N/A
INCORP. DEC. #1678
REV. DATE DRAWN 1 042005
CHD. SUPV. APPD. TJC MAL TWS
INCORP. RFR 22941A
REV. DATE DRAWN 6 120810
CHD. SUPV. APPD. TJC MAL TWS
INCORP. MP 08-0003.
REV. 0.



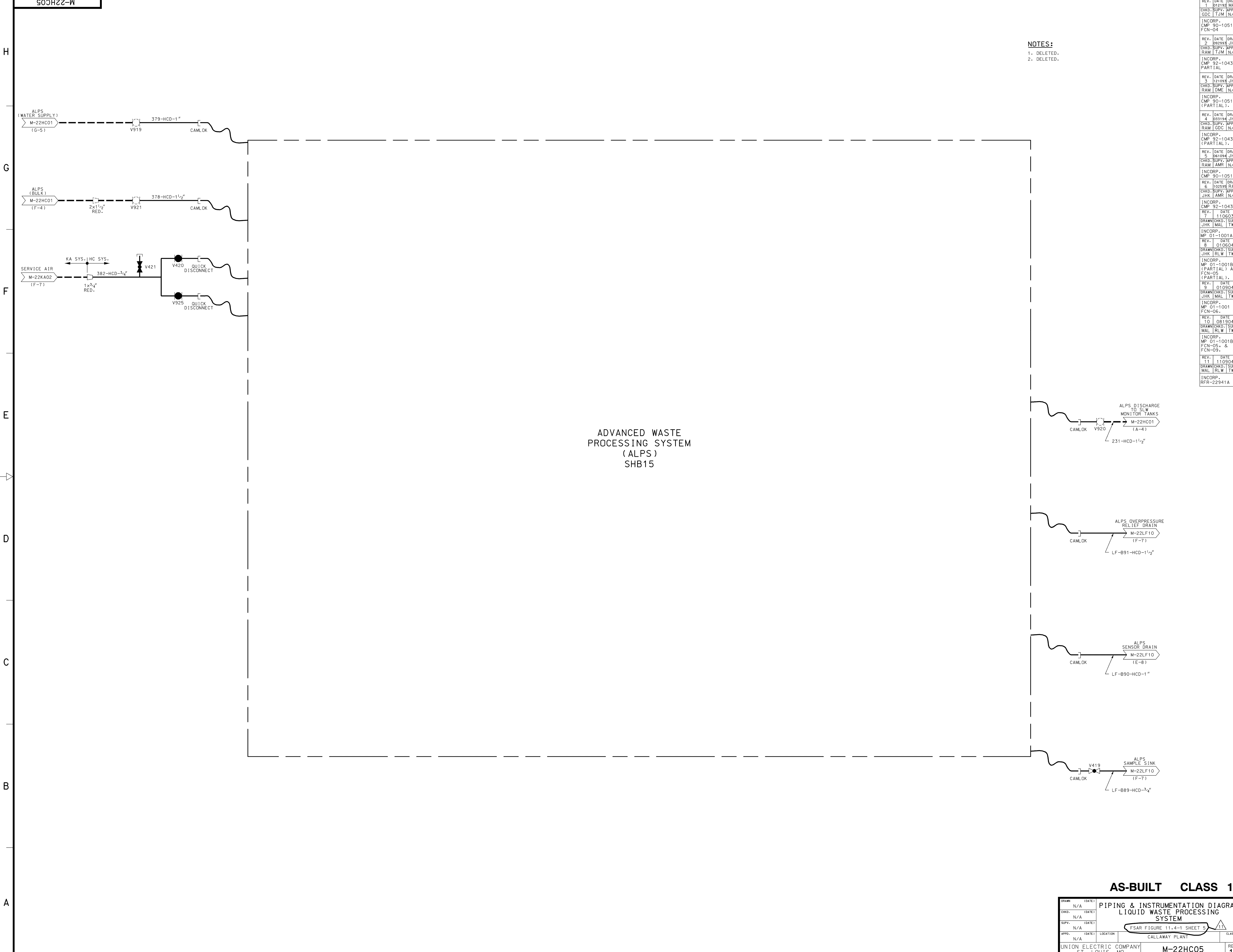
NOTES:

FOR NOTES SEE DRAWING M-22HC01.



NOTES:
FOR NOTES SEE DRAWING M-22HC01.

AS-BUILT CLASS 1			
PIPING AND INSTRUMENTATION DIAGRAM SOLID RADWASTE SYSTEM			
FSAR FIGURE 11.4-1 SHEET 4			
CALLAWAY ENERGY CENTER			
UNION ELECTRIC COMPANY ST. LOUIS, MO			
M-22HC04			
REV. 12			



NOTES:
1. DELETED.
2. DELETED.

REV.	DATE	DRAWN
012193	01/21/93	JHK
CHKD.	SUPV.	APPD.
GDC	TJM	N/A
INCORP.		
CMP	90-1051	FCN-04
REV.	DATE	DRAWN
02	092993	JHK
CHKD.	SUPV.	APPD.
RAM	TJM	N/A
INCORP.		
CMP	92-1043	PARTIAL
REV.	DATE	DRAWN
03	121093	JHK
CHKD.	SUPV.	APPD.
RAM	TJM	N/A
INCORP.		
CMP	90-1051	(PARTIAL)
REV.	DATE	DRAWN
04	031194	JHK
CHKD.	SUPV.	APPD.
RAM	TJM	N/A
INCORP.		
CMP	92-1043	(PARTIAL)
REV.	DATE	DRAWN
05	061094	JHK
CHKD.	SUPV.	APPD.
RAM	TJM	N/A
INCORP.		
CMP	90-1051	
REV.	DATE	DRAWN
06	102598	RAM
CHKD.	SUPV.	APPD.
JHK	AMR	N/A
INCORP.		
CMP	92-1043	
REV.	DATE	DRAWN
07	110503	JHK
CHKD.	SUPV.	APPD.
JHK	MAL	TWS
INCORP.		
MP	01-1001A	
REV.	DATE	DRAWN
08	070504	JHK
CHKD.	SUPV.	APPD.
JHK	RLW	TWS
INCORP.		
MP	01-1001B	(PARTIAL) AND FCN-05 (PARTIAL)
REV.	DATE	DRAWN
09	070904	JHK
CHKD.	SUPV.	APPD.
JHK	MAL	TWS
INCORP.		
MP	01-1001	FCN-06
REV.	DATE	DRAWN
10	081904	JHK
CHKD.	SUPV.	APPD.
MAL	RLW	TWS
INCORP.		
MP	01-1001B	FCN-05 & FCN-09
REV.	DATE	DRAWN
11	110904	JHK
CHKD.	SUPV.	APPD.
MAL	RLW	TWS
INCORP.		
REFR-22941A		

AS-BUILT CLASS 1

DRAWN	N/A	(DATE)	
CHKD.	N/A	(DATE)	
SUPV.	N/A	(DATE)	
APPD.	N/A	(DATE)	
LOCATION	CALLAWAY PLANT		
CLASS	CLASS 1		
UNION ELECTRIC COMPANY			
ST. LOUIS, MO			
M-22HC05			
REV.	11		

Figure 11.4-2 has been deleted.