

- NOTES**
1. THE FOLLOWING MENTIONED STANDARD EQUIPMENT IS CONSIDERED TO BE STANDARD EQUIPMENT UNLESS OTHERWISE SPECIFIED. THE FOLLOWING LISTED EQUIPMENT IS NOT TO BE INSTALLED UNLESS OTHERWISE SPECIFIED. THE FOLLOWING LISTED EQUIPMENT IS TO BE INSTALLED UNLESS OTHERWISE SPECIFIED.
 2. FLOOR AND EQUIPMENT DRAINS ARE TO BE INSTALLED AS SHOWN IN THE DRAWING UNLESS OTHERWISE SPECIFIED.
 3. FLOOR AND EQUIPMENT DRAINS ARE TO BE INSTALLED AS SHOWN IN THE DRAWING UNLESS OTHERWISE SPECIFIED.
 4. MAKE CONNECTION TO SIDE OR BOTTOM OF TANK.
 5. AFTER DISCHARGE TO SIDE OR BOTTOM OF TANK, THE DISCHARGE LINE SHALL BE INSTALLED TO THE SIDE OR BOTTOM OF TANK.
 6. DISCHARGE LINE SHALL BE INSTALLED TO THE SIDE OR BOTTOM OF TANK.
 7. DISCHARGE LINE SHALL BE INSTALLED TO THE SIDE OR BOTTOM OF TANK.
 8. DISCHARGE LINE SHALL BE INSTALLED TO THE SIDE OR BOTTOM OF TANK.
 9. DISCHARGE LINE SHALL BE INSTALLED TO THE SIDE OR BOTTOM OF TANK.
 10. DISCHARGE LINE SHALL BE INSTALLED TO THE SIDE OR BOTTOM OF TANK.
 11. LEAD TO, TO EXCEED 12 INCHES BELOW PIPE.
 12. THE FOLLOWING LISTED EQUIPMENT IS NOT TO BE INSTALLED UNLESS OTHERWISE SPECIFIED.
 13. MECHANICAL RESISTANCE PER M-I-MAN.
 14. DISCHARGE LINE SHALL BE INSTALLED TO THE SIDE OR BOTTOM OF TANK.
 15. DISCHARGE LINE SHALL BE INSTALLED TO THE SIDE OR BOTTOM OF TANK.
 16. DISCHARGE LINE SHALL BE INSTALLED TO THE SIDE OR BOTTOM OF TANK.
 17. DISCHARGE LINE SHALL BE INSTALLED TO THE SIDE OR BOTTOM OF TANK.
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 20. DISCHARGE LINE SHALL BE INSTALLED TO THE SIDE OR BOTTOM OF TANK.
 21. DISCHARGE LINE SHALL BE INSTALLED TO THE SIDE OR BOTTOM OF TANK.
 22. PRESSURE CONTROLLER IS TO BE INSTALLED AS SHOWN IN THE DRAWING UNLESS OTHERWISE SPECIFIED.
 23. DISCHARGE LINE SHALL BE INSTALLED TO THE SIDE OR BOTTOM OF TANK.
 24. DISCHARGE LINE SHALL BE INSTALLED TO THE SIDE OR BOTTOM OF TANK.
 25. DISCHARGE LINE SHALL BE INSTALLED TO THE SIDE OR BOTTOM OF TANK.
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 28. DISCHARGE LINE SHALL BE INSTALLED TO THE SIDE OR BOTTOM OF TANK.
 29. DISCHARGE LINE SHALL BE INSTALLED TO THE SIDE OR BOTTOM OF TANK.
 30. DISCHARGE LINE SHALL BE INSTALLED TO THE SIDE OR BOTTOM OF TANK.
 31. DISCHARGE LINE SHALL BE INSTALLED TO THE SIDE OR BOTTOM OF TANK.
 32. DISCHARGE LINE SHALL BE INSTALLED TO THE SIDE OR BOTTOM OF TANK.

USAR FIG. 11.2-1-01

ESSENTIAL DRAWING

DATE: 11/19/2015

PROJECT: M-121B01

SCALE: 1/8"

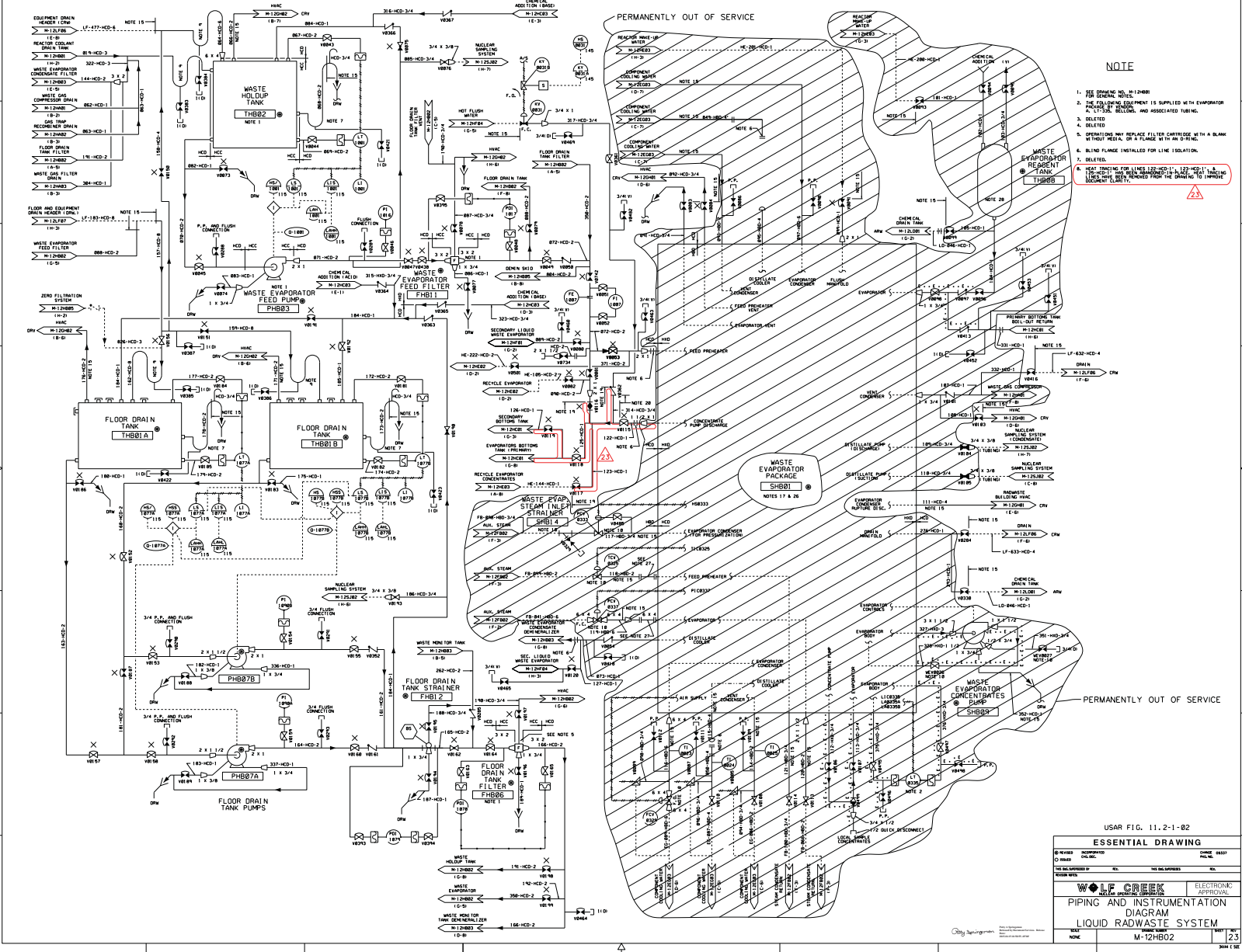
REVISION: 16

APPROVAL: ELECTRONIC

PIPING AND INSTRUMENTATION DIAGRAM

LIQUID RADWASTE SYSTEM

8 7 6 5 4 3 2 1



- NOTE**
1. SEE DRAWING NO. M-12H80 FOR GENERAL NOTES.
 2. THE CO. DRUM EQUIPMENT IS SUPPLIED WITH EVAPORATOR PACKAGE, BELLOWS, AND ASSOCIATED PIPING.
 3. OLEATED.
 4. OLEATED.
 5. OPERATING AND REPLACEMENT FILTER CARTRIDGE WITH A BLANK WITHOUT MEDIA, OR A FLANGE IN AN O-RING.
 6. BLIND FLANGE INSTALLED FOR LINE ISOLATION.
 7. OLEATED.
 8. HEAT TREATING FOR LINES 122-HCD-11, 122-HCD-12, AND 122-HCD-13 SHOULD BE OBTAINED FROM THE DRAWING TO IMPROVE OCCASIONAL CLARITY.

USAR FIG. 11. 2-1-82

ESSENTIAL DRAWING

DESIGNED BY	APPROVED BY	DATE	SCALE
DRAWN BY	CHECKED BY		
REVISIONS	NO.	DATE	DESCRIPTION

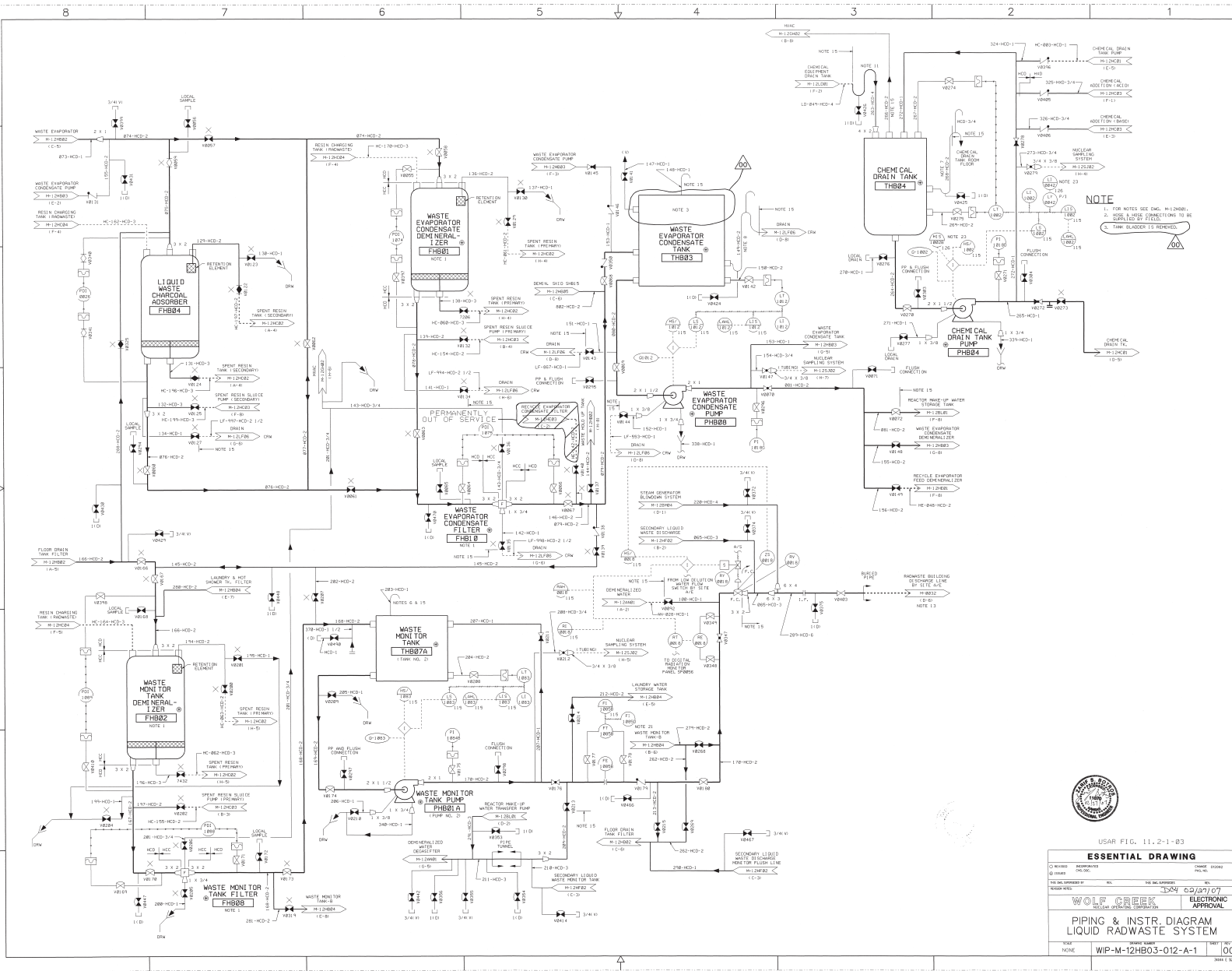
WILCOCK ELECTRONIC APPROVAL

PIPING AND INSTRUMENTATION DIAGRAM

LIQUID RADWASTE SYSTEM

M-12H802

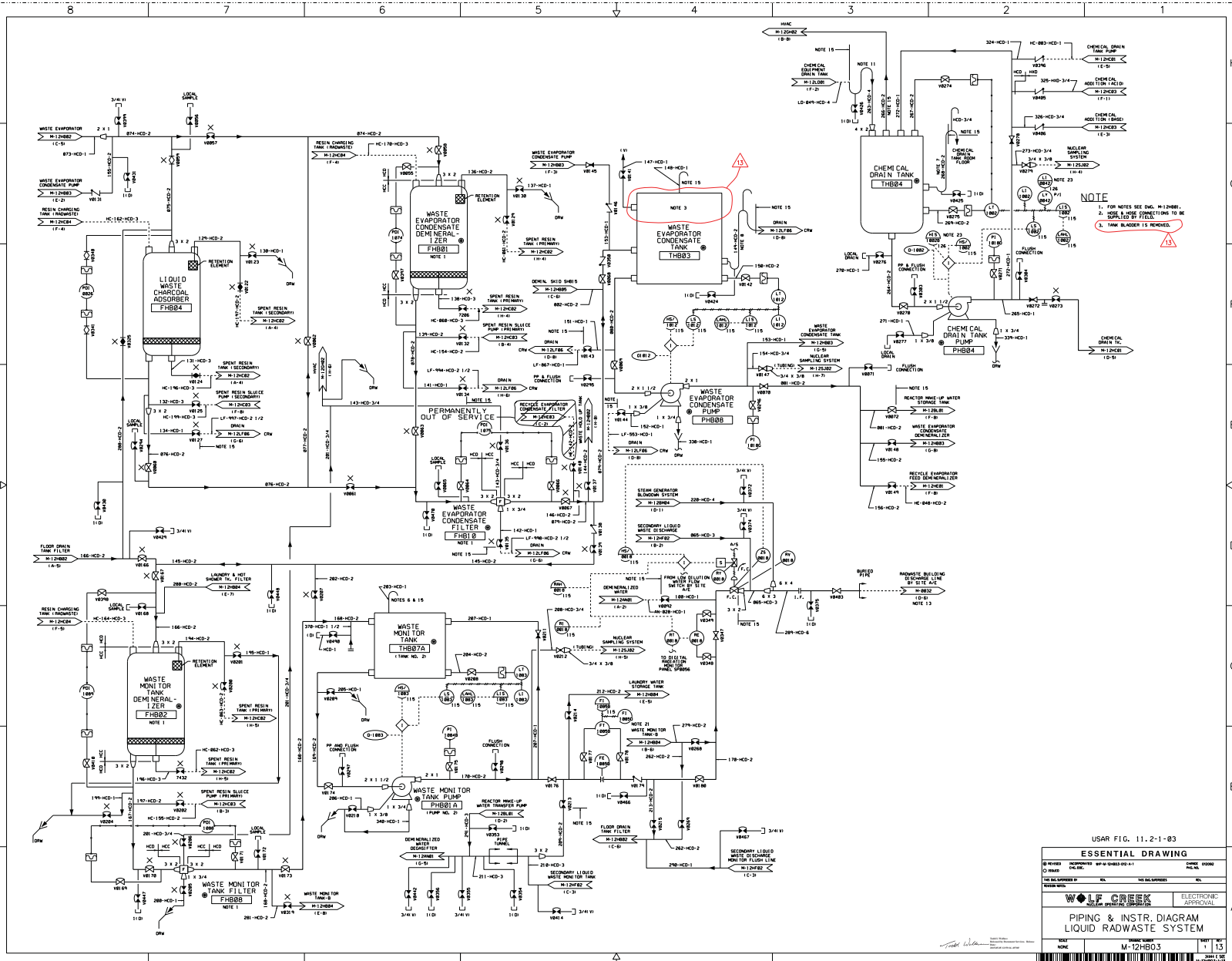
23



NOTE
 1. FOR NOTES SEE ENG. W-12881.
 2. LOCAL WASTE CONNECTIONS TO BE MADE AT THE TIME OF INSTALLATION.
 3. TANK BLASDER IS REMOVED.



USAR FIG. 11.2-1-83			
ESSENTIAL DRAWING			
DESIGNED BY	APPROVED BY	DATE	CHANGE NUMBER
WOLF CREEK		09/27/07	
WOLF CREEK			
PIPING & INSTR. DIAGRAM			
LIQUID RADWASTE SYSTEM			
SCALE	DATE	PROJECT NUMBER	FIG. NO.
1:1	09/27/07	WIP-M-12HB03-012-A-1	00



USAR FIG. 11.2-1-83

ESSENTIAL DRAWING

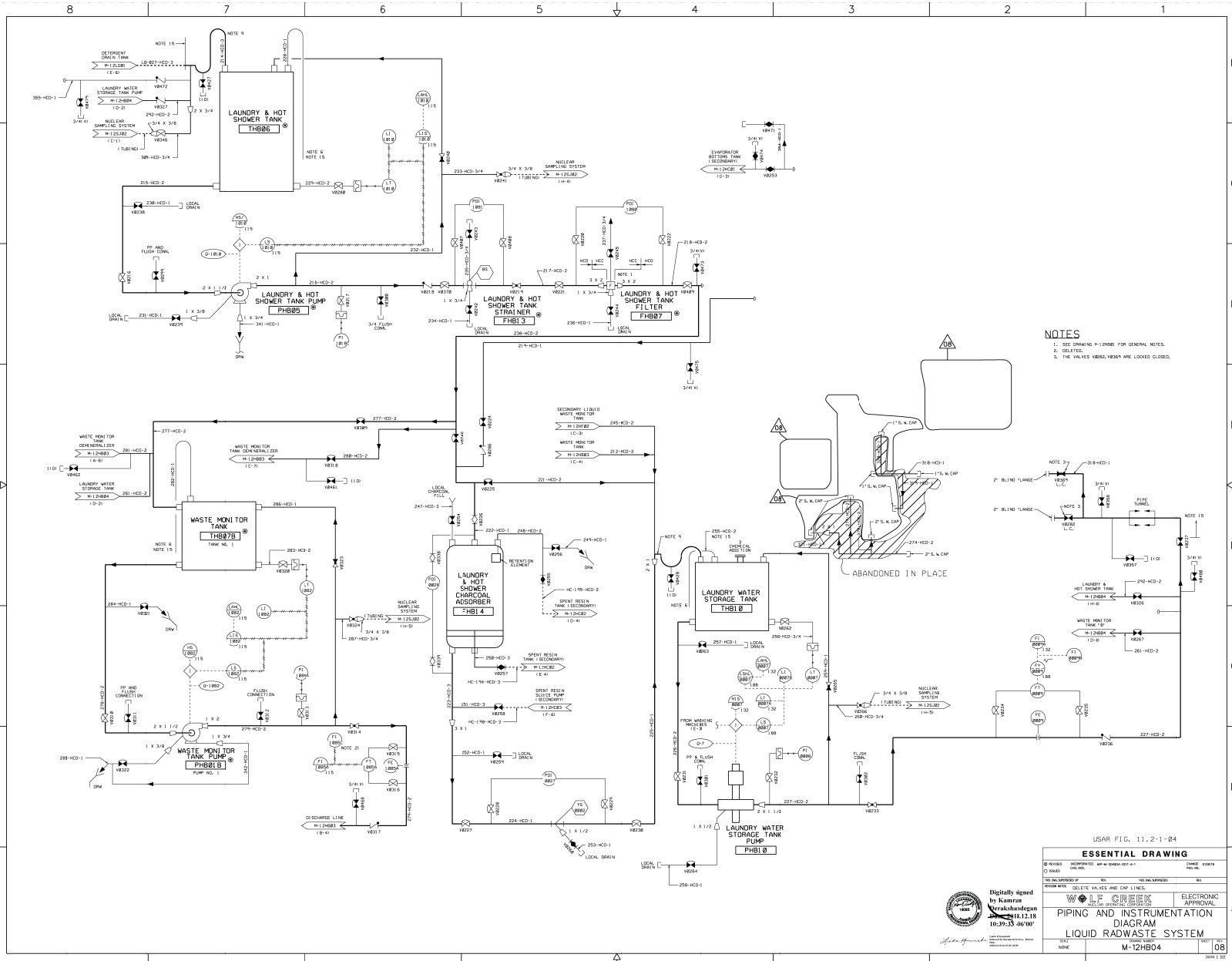
REVISION	DATE	BY	CHKD

WOLF CREEK ELECTRONIC APPROVAL

PIPING & INSTR. DIAGRAM
LIQUID RADWASTE SYSTEM

DATE: M-12HB03

13



NOTES

1. SEE DRAWING M-12H81 FOR GENERAL NOTES.
2. DELETED.
3. THE VALVES V826, V829 AND V830 ARE LOCKED CLOSED.

USAR FIG. 11.2-1-04

DESIGNED BY	DATE	CHANGED BY
DRAWN BY		
CHECKED BY		
APPROVED BY		

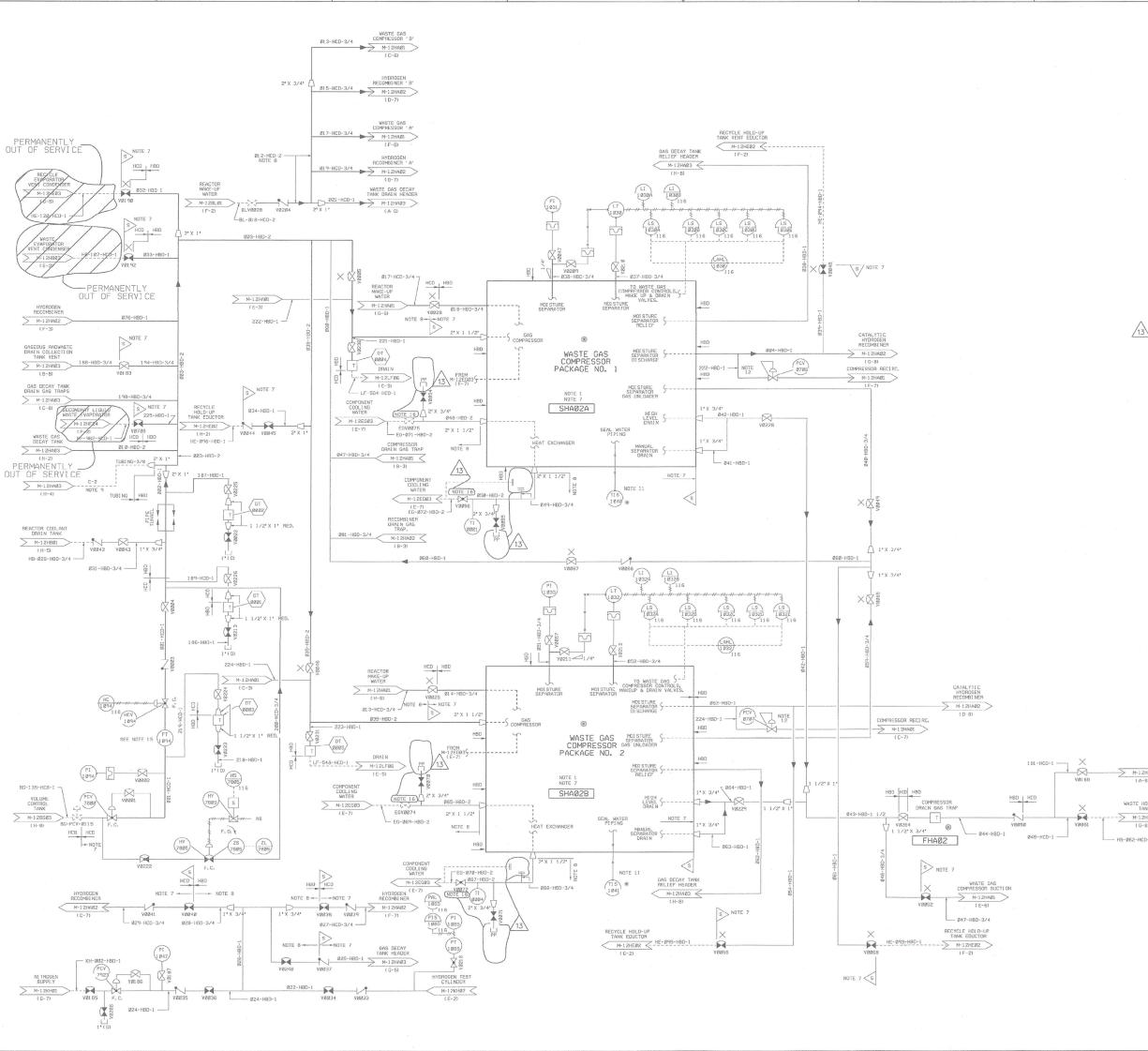
Digitally signed by Kamran
 DN: cn=Kamran, o=USAR, ou=USAR, email=kamran@usar.gov

WOLF CREEK ELECTRONIC APPROVAL
 PIPING AND INSTRUMENTATION DIAGRAM
 LIQUID RADWASTE SYSTEM
 M-12H04

08

NOTES

- SEE DRAWING NUMBER 11-3-1-001.
- QUALITY CHECK / PIPING REQUIREMENTS.
- THIS DRAWING BASED ON INSTRUMENTATION DRAWING 11-3-1-002.
- THE FOLLOWING INSTRUMENTATION IS TO BE PROVIDED AND CALIBRATED BY THE CONTRACTOR. THE INSTRUMENTATION IS TO BE PROVIDED AND CALIBRATED BY THE CONTRACTOR. THE INSTRUMENTATION IS TO BE PROVIDED AND CALIBRATED BY THE CONTRACTOR.
- SEE NOTE 11 FOR INSTRUMENTATION REQUIREMENTS.
- SEE NOTE 12 FOR INSTRUMENTATION REQUIREMENTS.
- SEE NOTE 13 FOR INSTRUMENTATION REQUIREMENTS.
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- SEE NOTE 99 FOR INSTRUMENTATION REQUIREMENTS.
- SEE NOTE 100 FOR INSTRUMENTATION REQUIREMENTS.



ISAR FIG. 11.3-1-01

ESSENTIAL DRAWING

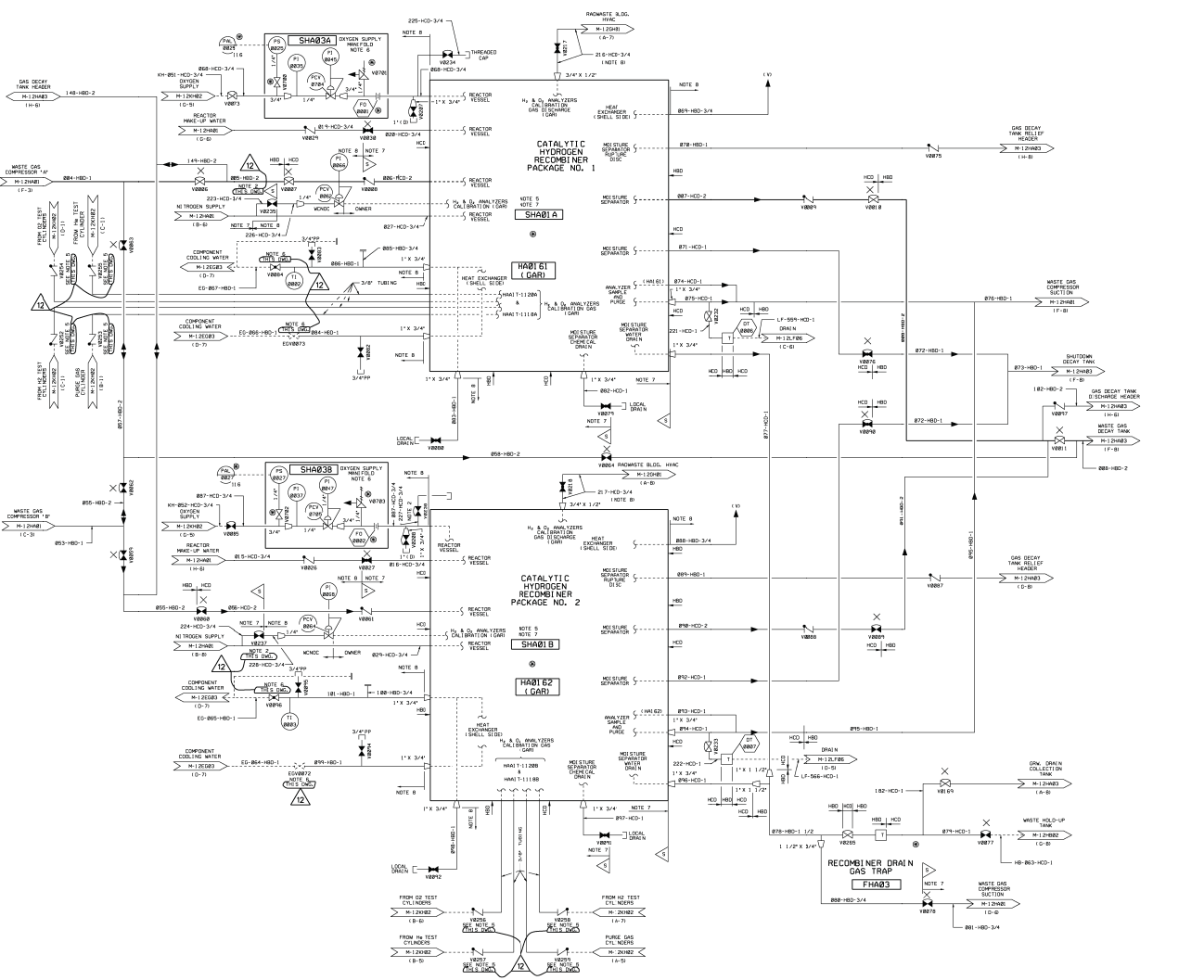
DESIGNED BY	DATE	SCALE	STATUS
REVISED BY	DATE	SCALE	STATUS
APPROVED BY	DATE	SCALE	STATUS

WOLF CREEK ELECTRONIC APPROVAL

PIPING & INSTRUMENTATION DIAGRAM
GASEOUS RADWASTE SYSTEM

DATE: 11/12/01

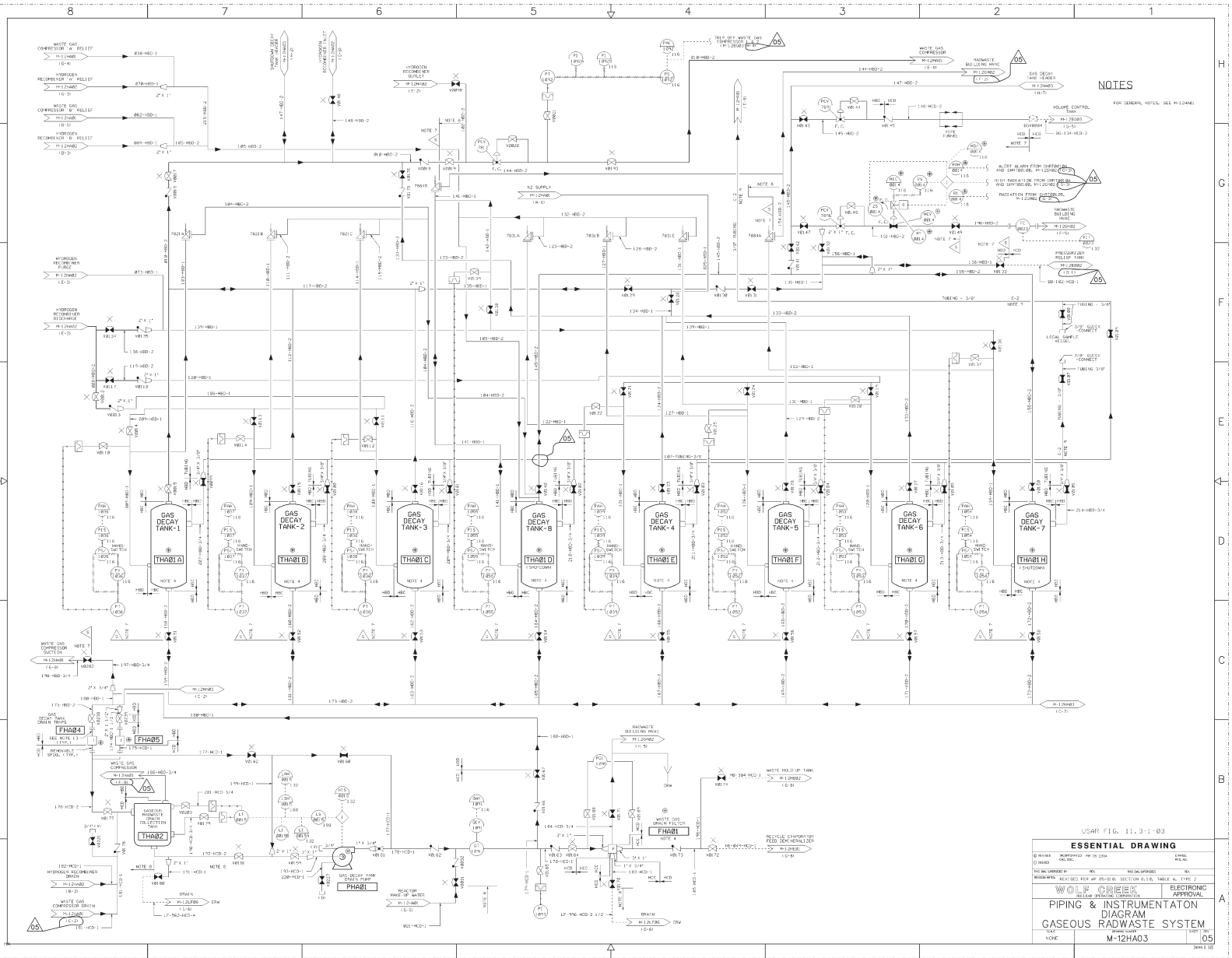
SHEET 13



- NOTES**
1. FOR GENERAL NOTES, SEE DWG. M-12400-1.
 2. GAS SUPPLY SHALL BE ESTABLISHED IN THE FOLLOWING ORDER OF PRIORITY:
 - a. FROM THE HYDROGEN RECOMBINER PACKAGE.
 - b. FROM THE HYDROGEN RECOMBINER PACKAGE.
 - c. FROM THE HYDROGEN RECOMBINER PACKAGE.
 3. DELETED.
 4. ALL PRESSURE INDICATORS SHALL BE INSTALLED TO MEASURE PRESSURE TO THE ANALYZER PACK AT 25 PSIG.
 5. LEAKY CHECK VALVES OR CHECK VALVES ARE PROVIDED TO GAS ANALYZERS TO PREVENT GAS BACKFLOW.
 6. IF BOTH INLET AND OUTLET HEAT EXCHANGER VALVES ARE CLOSED THEN OPEN AT LEAST ONE OF THE TOP OR REAR VALVES IN-BETWEEN THEM TO RELIEVE ANY POSSIBLE THERMAL EXPANSION.

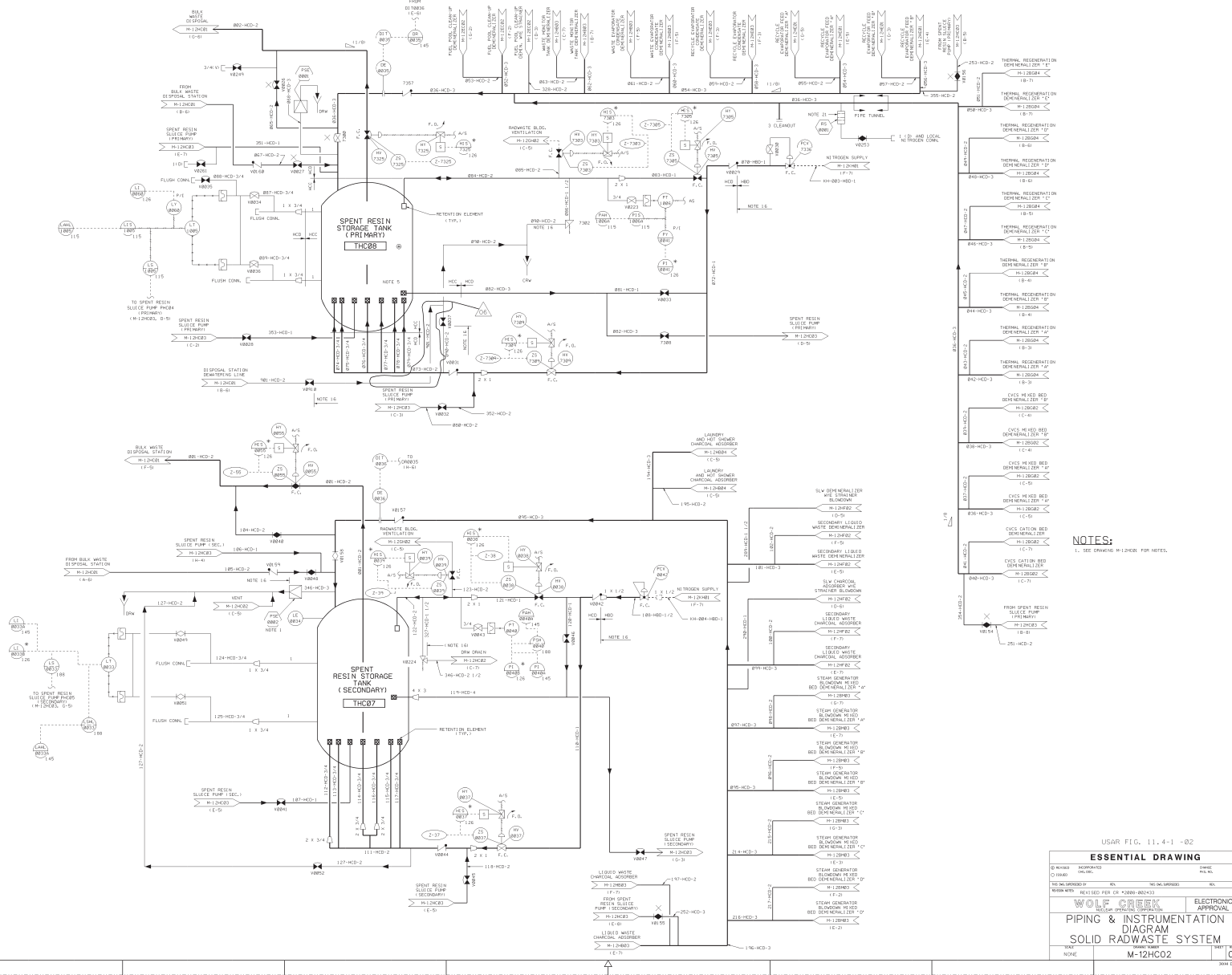
USAR FIG. 11.3-1-02

ESSENTIAL DRAWING			
DESIGNED BY	INCORPORATED	DATE	SCALE
DESIGNED BY	DATE	SCALE	SCALE
DESIGNED BY	DATE	SCALE	SCALE
DESIGNED BY	DATE	SCALE	SCALE
WOLF CREEK		ELECTRONIC APPROVAL	
PIPING & INSTRUMENT DIAGRAM			
GASEOUS RADWASTE SYSTEM			
N.T.S.		M-124002	
		12	



NOTES
FOR GENERAL NOTES, SEE P-12400

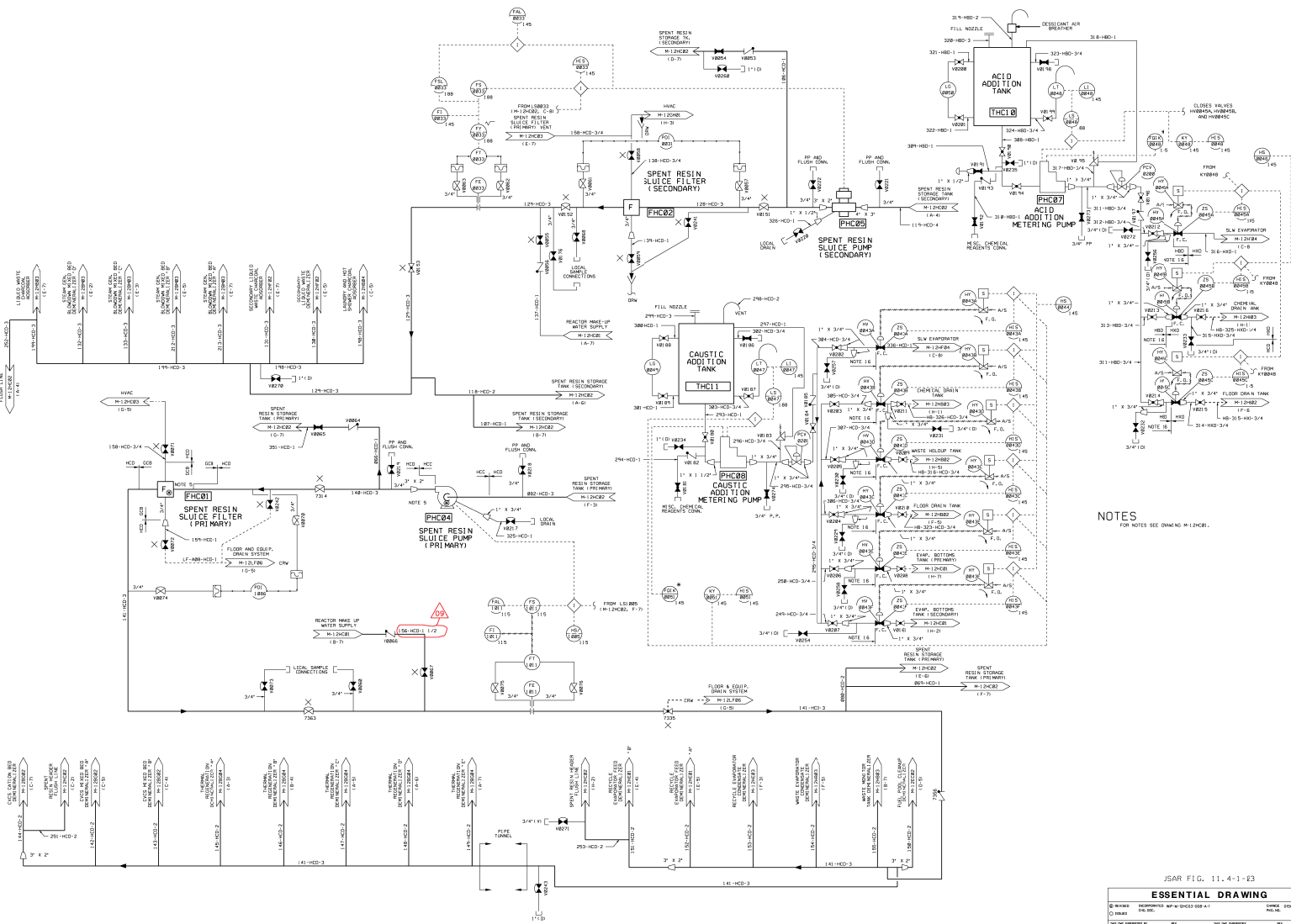
ESSENTIAL DRAWING
WORLDWIDE ENGINEERING CORPORATION
PIPING & INSTRUMENTATION
DIAGRAM
GASEOUS RADWASTE SYSTEM
NO. M-12403
05



NOTES:
 1. SEE DRAWING M-12HC01 FOR NOTES.

USAR FIG. 11.4-1 -02
ESSENTIAL DRAWING

DATE	REVISION	BY	CHKD
WOLF CREEK NUCLEAR ENERGY CORPORATION PIPING & INSTRUMENTATION DIAGRAM SOLID RADWASTE SYSTEM NONE M-12HC02 06			



NOTES
FOR NOTES SEE DRAWING M-12HC1.

JSAR FIG. 11.4-1-E3

ESSENTIAL DRAWING

DESIGNED BY	REVIEWED BY	DATE	SCALE
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CHECKED BY	DATE	REVISED BY	REVISION

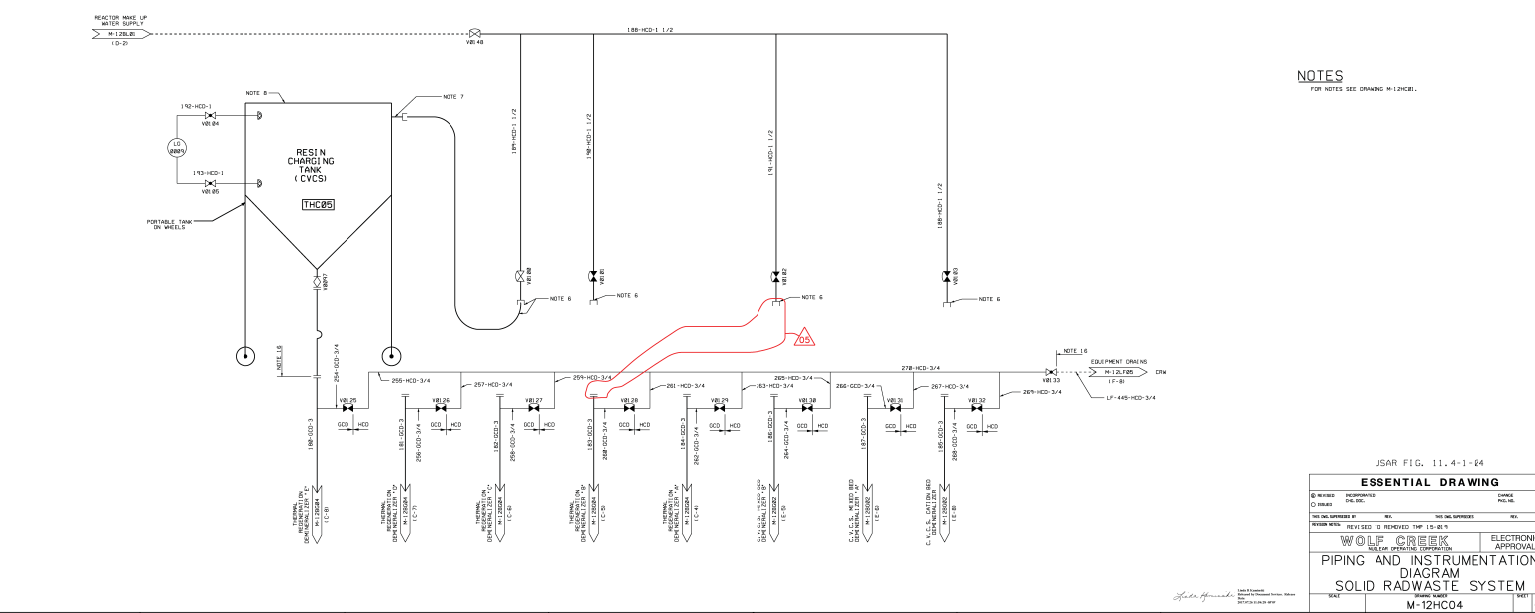
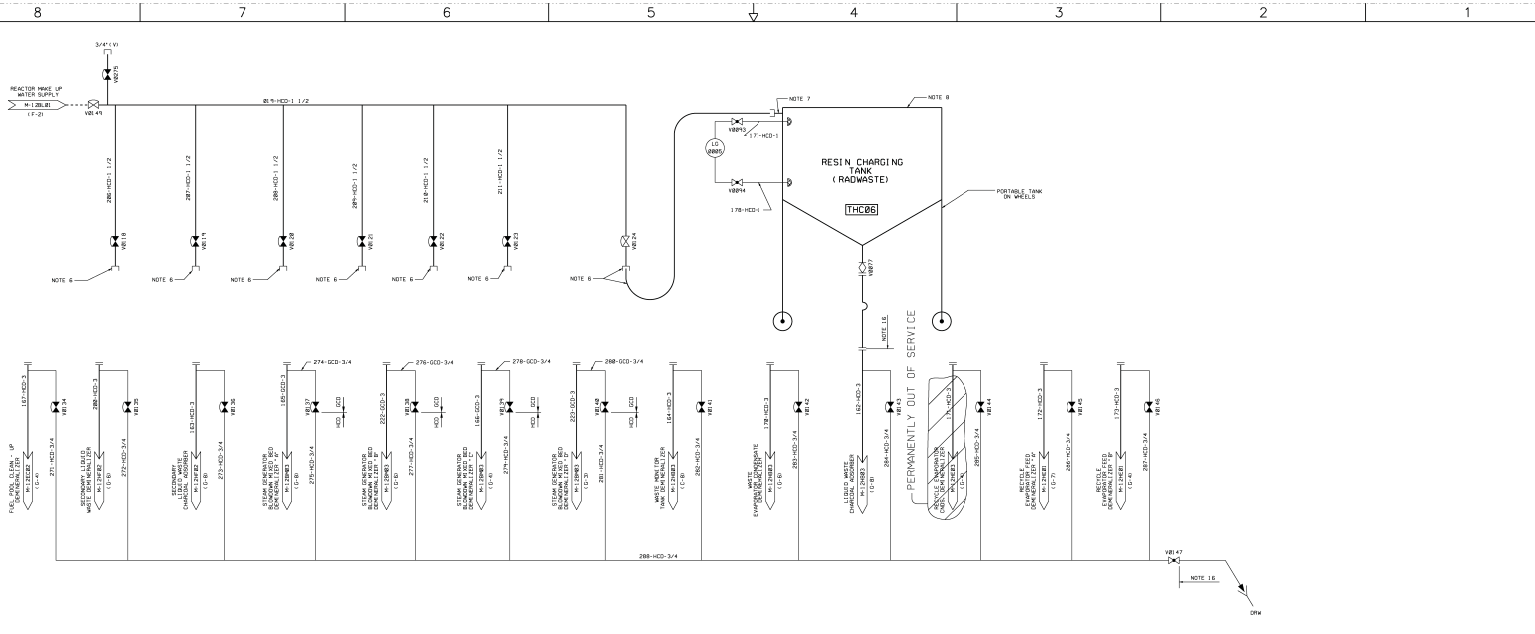
WOLF CREEK ELECTRONIC APPROVAL

PIPING AND INSTRUMENTATION DIAGRAM

SOLID RADWASTE SYSTEM

DATE: M-12HC03

REV: 09



NOTES
FOR NOTES SEE DRAWING M-12HC01.

JSAR FIG. 11, 4-1-84

ESSENTIAL DRAWING			
DESIGNED BY	ENGINEER	DRAWN BY	DATE
CHECKED BY	DESIGN	DATE	PROJECT
THIS DRAWING IS TO REMAIN THE PROPERTY OF WOLFF CREEK			
WOLFF CREEK		ELECTRONIC APPROVAL	
PIPING AND INSTRUMENTATION			
DIAGRAM			
SOLID RADWASTE SYSTEM			
M-12HC04			DS