



**GULF STATES UTILITIES COMPANY**

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AREA CODE 713 838-6631

February 2, 1984  
RBG -16,933  
File Code No. G9.5  
G9.8.6.2

Mr. Harold R. Denton, Director  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Dear Mr. Denton:

River Bend Station Units 1 and 2  
Docket Nos. 50-458/50-459

Enclosed for your review are Gulf States Utilities Company responses to the open items identified in the Draft Safety Evaluation Report by the Auxiliary Systems Branch and responses to the request for additional information identified in part by Staff letters dated August 5, 1981 and December 31, 1981. This letter supplements docketed correspondences from Mr. Booker to Mr. Denton dated December 1, 1983 and December 30, 1983. Attachment 1 summarizes the open items and indicates changes to be made in the River Bend Station FSAR. Attachment 2 provides a brief discussion of each open item, the response and reference material for each item. Where indicated, these responses will be provided in a future amendment to the FSAR.

Sincerely,

J. E. Booker  
Manager-Engineering,  
Nuclear Fuels and Licensing  
River Bend Nuclear Group

*WJ, ERG, JEP*  
JEB/WJR/ERG/JEP  
Enclosures

*15001*  
*1/19*

8402080125 840202  
PDR ADOCK 05000458  
E PDR

## ATTACHMENT 1

| <u>Item<br/>NUMBER</u> | <u>DSER<br/>SECTION</u> | <u>SUBJECT</u>                          | <u>FSAR REVISION</u> |
|------------------------|-------------------------|---|----------------------|
| 6a                     | 6.7.3 Pg 6-73           | MSIV Leak Rate                          | N/A                  |
| 8                      | 9.1.2 Pg 9-10,11        | S F Racks Criticality<br>Analysis       | Enclosure 1          |
| 9c                     | 9.1.3 Pg 9-17           | RHR and FPC Interconnection             | Enclosure 2          |
| 16c                    | 9.3.1 Pg 9-73,76        | Compressed Air Supply<br>Testing        | N/A                  |
| 17a                    | 9.3.3 Pg 9-80,83        | Equipment and Floor Drainage<br>Systems | Enclosure 3          |

ATTACHMENT 2

- 6a Specify the maximum allowable leakage rate of the MSIVs

Response

The maximum allowable leakage rate across the main steam isolation valves (MSIVs) will be specified in the plant Technical Specifications (STS Section 3/4.6.1). This leakage limit is proposed to be 720 scfh and is based on the following criteria.

1. Inleakage of air when the PVLCS and MS-PLCS are in operation does not overpressurize the containment or drywell.
2. Contribution to offsite dose is not evaluated in accordance with NUREG-0800 (SRP) Section 15.6.5 Appendix D. As stated in paragraph III.5, "No release of activity from the MSIVLCS is assumed up to the time of system actuation."

- 8 The applicant has not provided sufficient information to confirm the criticality limits to be attained in the spent fuel storage facility.

Response

A summary of the criticality analysis is provided in Enclosure 1. This information will be incorporated into the FSAR in a future amendment. Because of its proprietary classification, the analysis will be submitted to the Staff under separate cover.

- 9c The applicant should show the interconnection of the RHR system with the fuel pool cooling system.

Response

The interconnection is shown on revised FSAR Figures 9.1-23a and 5.4-12 sheet 2 of 3 (Enclosure 2)

- 16c The applicant should specify the frequency of the test assuring high quality instrument air in meeting the requirements of ANSI MC11.1-1976.

Response

Testing to assure high quality instrument air meets the requirements of ANSI MC11.1-1976 and will be performed at each refueling interval.

- 17a The applicant should provide drawings of the equipment and floor drainage systems.

Response

Floor drainage drawings of the piping tunnel, services building, control building, electric tunnels, and the makeup water pumphouse are provided in Enclosure 3. Floor drainage drawings of the turbine building, reactor building, radwaste building, and fuel building are provided in Section 9.3. The drawings in Enclosure 3 will be incorporated into the FSAR in a future amendment.

ENCLOSURE 1

## 2.5 SUMMARY OF CRITICALITY ANALYSIS

Criticality of fuel assemblies in the spent fuel storage rack is prevented by the design of the rack which limits fuel assembly interaction. This is done by fixing the minimum separation between assemblies and inserting neutron poison between assemblies.

The design basis for preventing criticality outside the reactor is that, including uncertainties, there is a 95 percent probability at a 95 percent confidence level that the effective multiplication factor ( $K_{eff}$ ) of the fuel assembly array will be less than 0.95 as recommended in ANSI N210-1976<sup>(1)</sup> and in the NRC position letter.<sup>(2)</sup>

In meeting this design basis, some of the conditions assumed are: General Electric 6 x 8 BWR/6 fuel with an enrichment of 3.80 w/o U-235 are stored, the pool water has a density of 1.0 gm/cm<sup>3</sup>, the storage array is infinite in lateral and axial extent which is more reactive than the actual finite array, mechanical and method biases and uncertainties are included, the minimum poison loading is used, and no credit is taken for any burnable poison in the fuel assemblies.

The design method which determines the criticality safety of fuel assemblies in the spent fuel storage rack uses the AMPX system<sup>(3)</sup> of codes for cross-section generation and the KENO IV Code<sup>(4)</sup> for reactivity determination. A set of 27 critical experiments<sup>(5,6,7)</sup> has been analyzed using the above method to demonstrate its applicability to criticality analysis and to establish the method bias and variability which are then included in reactivity analysis of the rack.

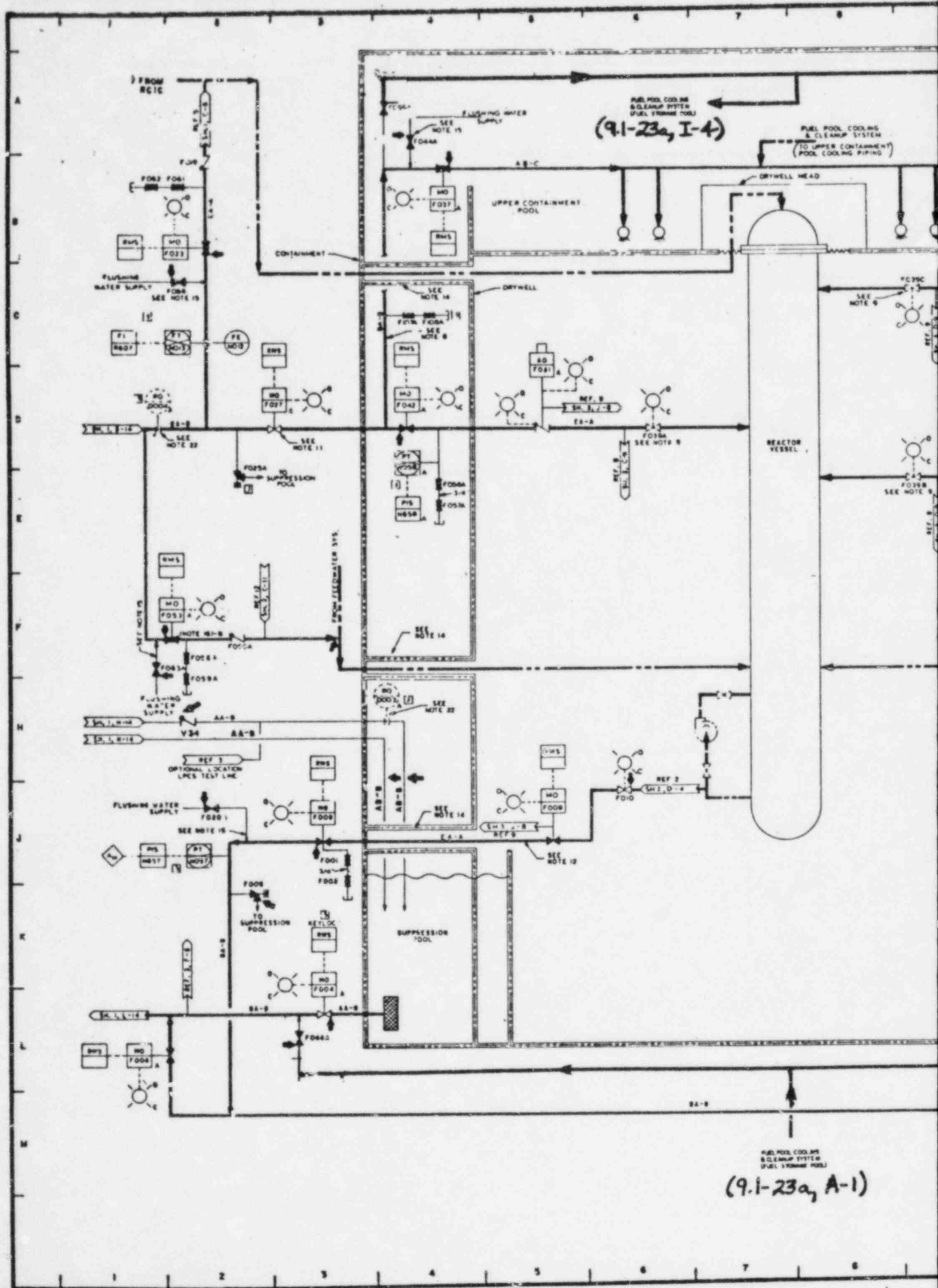
The result of the above considerations is that the nuclear design of the River Bend rack will meet the requirements of the Stone and Webster Specification No. RBS-223.321<sup>(8)</sup> as well as U.S. Nuclear Regulatory Commission guidelines<sup>(2)</sup> and criteria.<sup>(9)</sup>

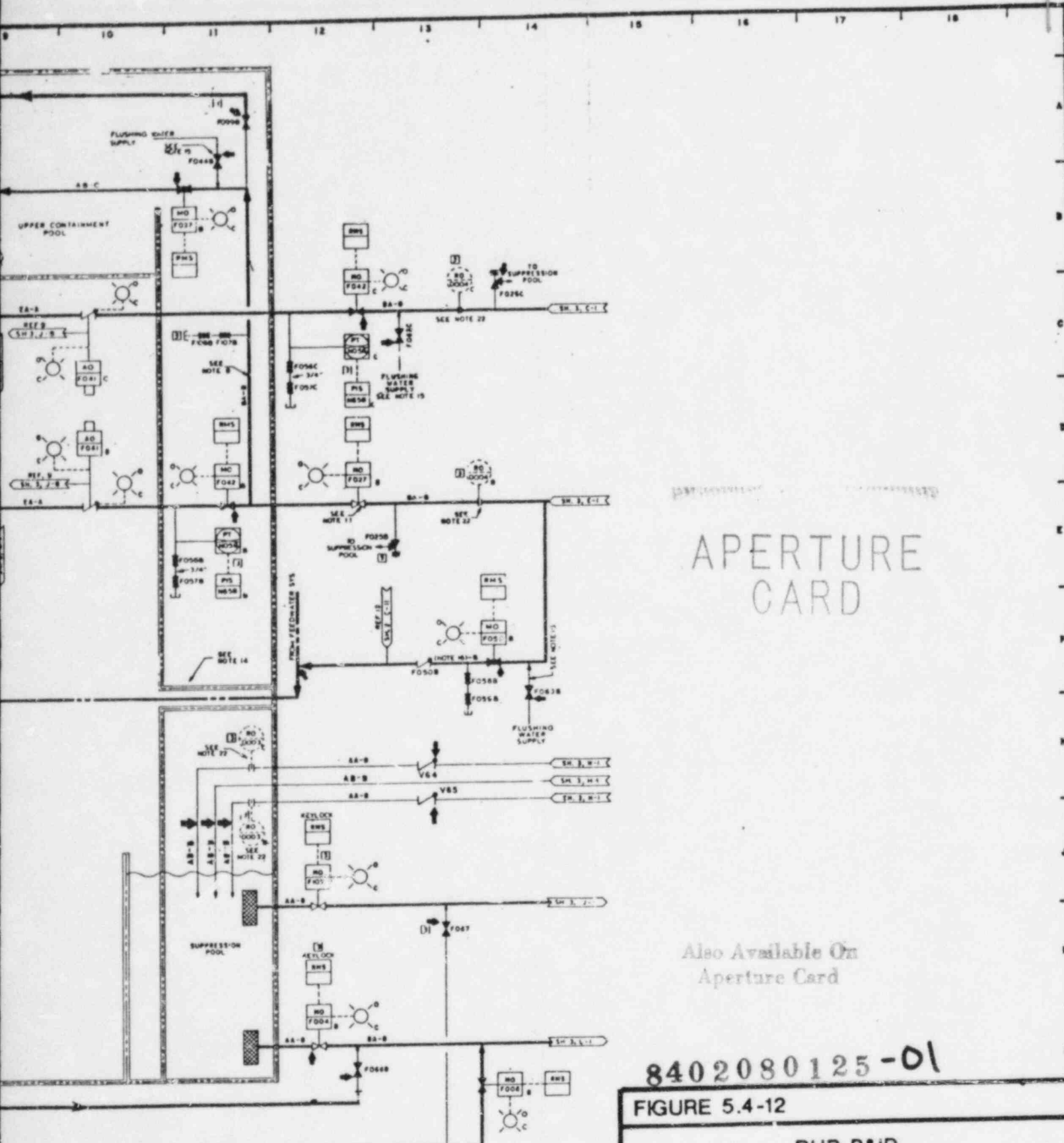
## References for Section 2.5

1. American Nuclear Society, American National Standard, "Design Objectives for Light Water Reactor Spent Fuel Storage Facilities at Nuclear Power Stations," ANS-57.2, ANSI N210-1976, April 12, 1976.
2. Nuclear Regulatory Commission, Letter to All Power Reactor Licensees, from B. K. Grimes, Assistant Director for Engineering Projects, Division of Operating Reactors, April 14, 1978, "OT Position for Review and Acceptance of Spent Fuel Storage and Handling Applications."
3. N. M. Greene, et al, "AMPX: A Modular Code System for Generating Coupled Multigroup Neutron-Gamma Libraries from ENDF/B," ORNL/TM-3706, March, 1976.
4. L. M. Petrie and N. F. Cross, "KENO IV - An Improved Monte Carlo Criticality Program," ORNL-4938, November, 1975.
5. S. R. Bierman, et al, "Critical Separation Between Subcritical Clusters of 2.35 wt %  $^{235}\text{U}$  Enriched  $\text{UO}_2$  Rods in Water with Fixed Neutron Poisons," Battelle Pacific Northwest Laboratories PNL-2438, October, 1977.
6. S. R. Bierman, et al, "Critical Separation Between Subcritical Clusters of 4.29 wt %  $^{235}\text{U}$  Enriched  $\text{UO}_2$  Rods in Water with Fixed Neutron Poisons," Battelle Pacific Northwest Laboratories PNL-2614, March, 1978.
7. J. T. Thomas, "Critical Three-Dimensional Arrays of U (93.2) - Metal Cylinders," Nuclear Science and Engineering, Volume 52, pages 350-359 (1973).
8. Specification Number RBS-223.321, "The Design and Fabrication of High Density Spent Fuel Storage Racks and Defective Fuel and Control Rod Storage Racks", Stone and Webster Engineering Corporation, August, 1979, plus Addenda.
9. Title 10, Code of Federal Regulations, Part 50, Appendix B, GDC 62, "Prevention of Criticality in Fuel Storage and Handling".

ENCLOSURE 2







APERTURE  
CARD

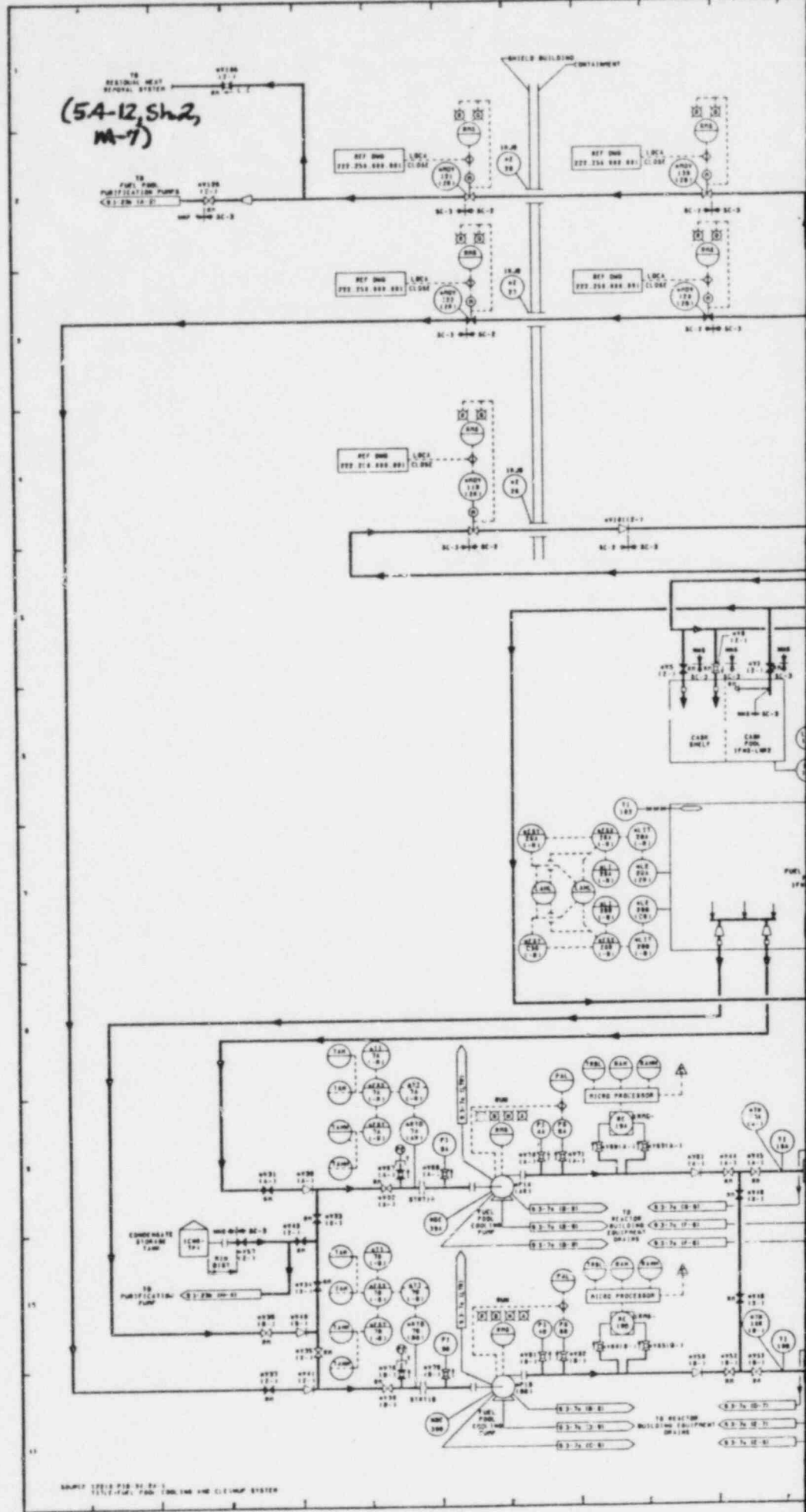
Also Available On  
Aperture Card

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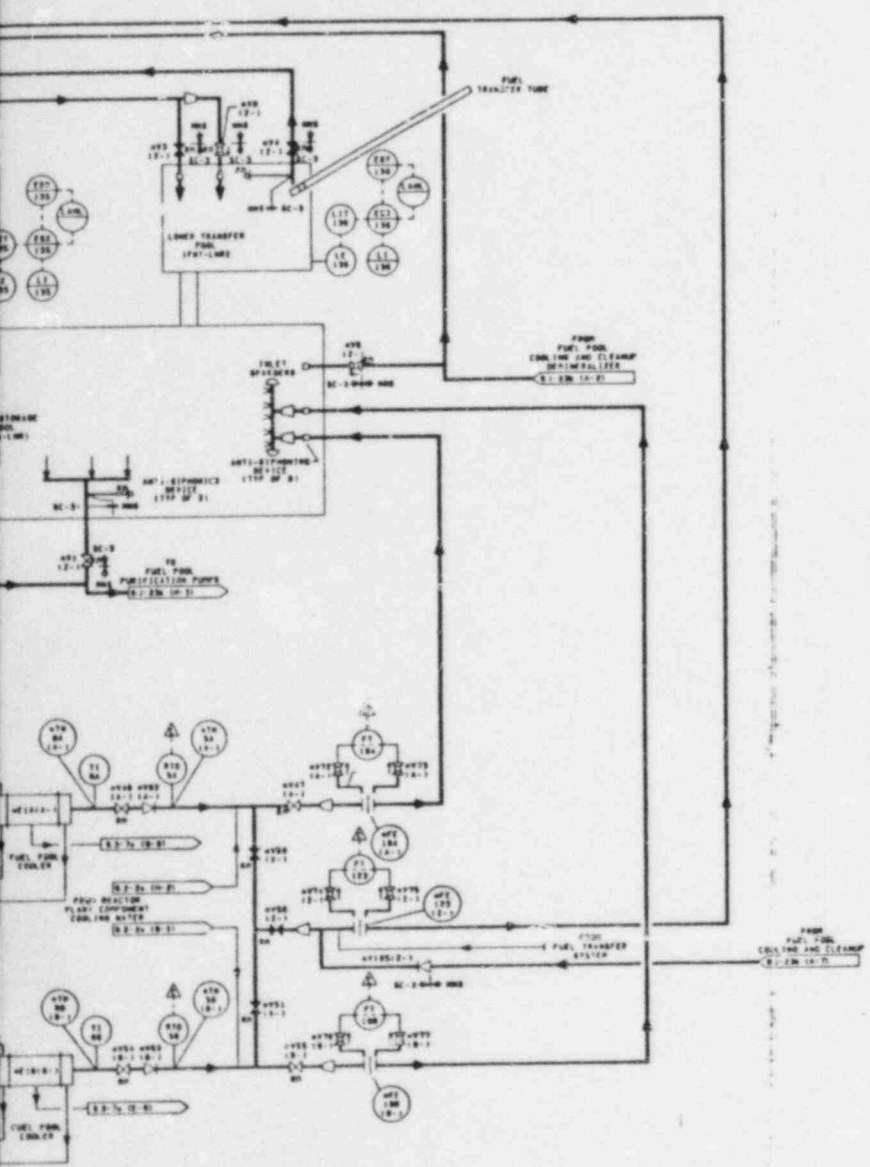
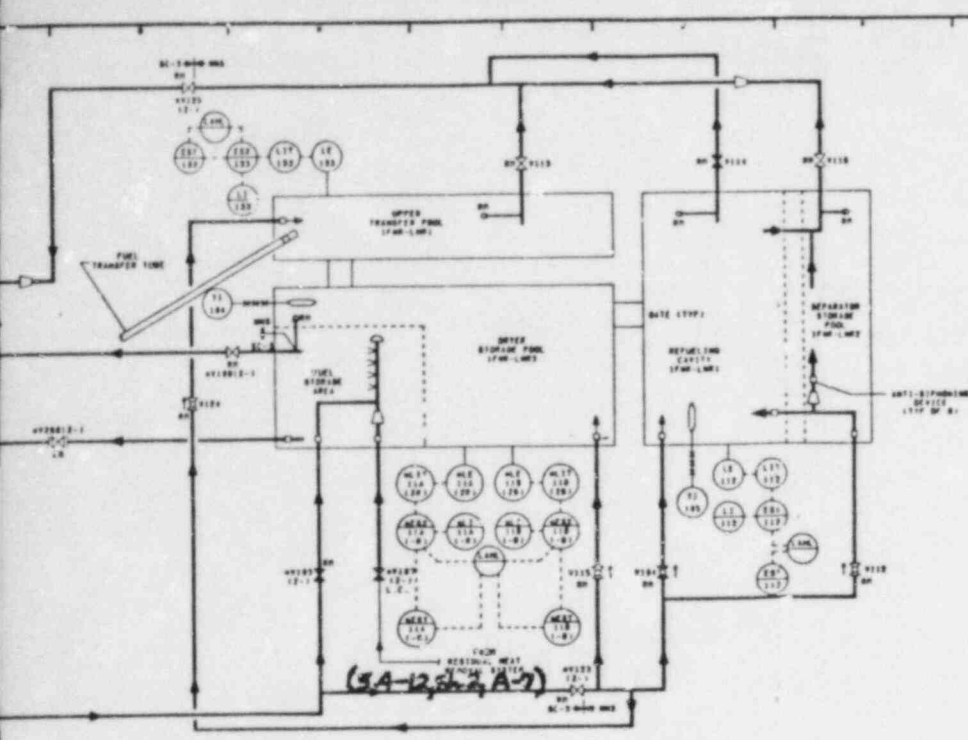
FIGURE 5.4-12  
RHR P&ID  
SHEET 2 OF 3  
RIVER BEND STATION  
FINAL SAFETY ANALYSIS REPORT

SOURCE: 762E 424AA, SHT. 2, REV. 3

(54-12, Sh 2,  
M-7)



SHIELD STEEL PIPING TO  
FUEL PUMP, PURIFICATION AND COOLING SYSTEM



# APERTURE GARD

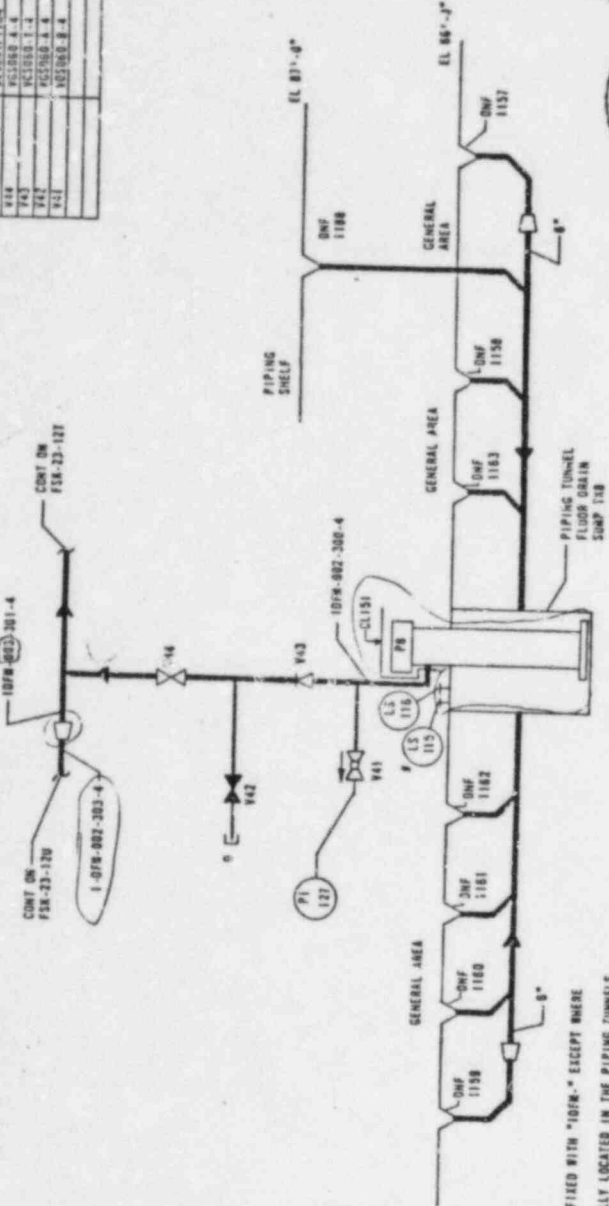
NOTES:  
 1. ALL INSTRUMENTS AND EQUIPMENT NUMBERS TO BE PREFIXED WITH "17M-10M" UNLESS SHOWN AS OTHERWISE. THIS WILL REPLACE THE "5A-12" OF THE INSTRUMENT OR EQUIPMENT IS PART OF THE NUCLEAR SAFETY SYSTEM.

Also Available On  
 Aperture Card

FIGURE 9.1-23a  
 SPENT FUEL POOL COOLING  
 AND CLEANUP SYSTEM  
 P41D  
 RIVER BEND STATION  
 FINAL SAFETY ANALYSIS REPORT

ENCLOSURE 3

| WAVE NUMBER | VAL. DESCRIPTION | SIZE | NO. OF VALVES |
|-------------|------------------|------|---------------|
| V42         | 951060 A-A       | 2"   | 1             |
| V43         | 951060 B-B       | 2"   | 1             |
| V44         | 951060 C-C       | 3.5" | 1             |
| V45         | 951060 D-D       | 3.5" | 1             |



- NOTES:
1. ALL INSTRUMENT AND EQUIPMENT NUMBERS TO BE PREFIXED WITH "107R-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN.
  2. EQUIPMENT AND PIPING ON THIS SHEET ARE PHYSICALLY LOCATED IN THE PIPING TUNNELS UNLESS OTHERWISE NOTED.
  3. PIPING IS CLASS 123 UNLESS OTHERWISE NOTED.
  4. PITCH FLOOR DRAIN PIPING TO SUMP.
  5. FLOOR DRAINS (DNF) AND DRAIN PIPING ARE TO BE 4" SIZE UNLESS OTHERWISE NOTED.
  6. CLEANOUTS ARE NOT SHOWN IN DRAINAGE PIPING.
  7. LOCAL DRAIN AND PRESSURE CONNECTIONS 2/4".
  8. \* INDICATES FURNISHED BY SUMP VENDOR.
  9. DESIGN CONDITIONS (FLOOR DRAIN LINES):  
CLASS TEMP PRESS  
123 150°F 50 PSIG
  10. CLEANNESS CLASSES FOR PIPING SHALL BE IN ACCORDANCE WITH THE LINE RECTIFICATION TABLES AND SPEC. NO. 218-710.
  11. SYSTEM DESIGN PRESSURES AND TEMPERATURES ARE GIVEN IN THE CONTROLLED LINE REGISTRATION TABLE.



APPROVER: *William S. Stark*  
 CERTIFIED PROFESSIONAL ENGINEER NO. 1115  
 STATE OF LOUISIANA

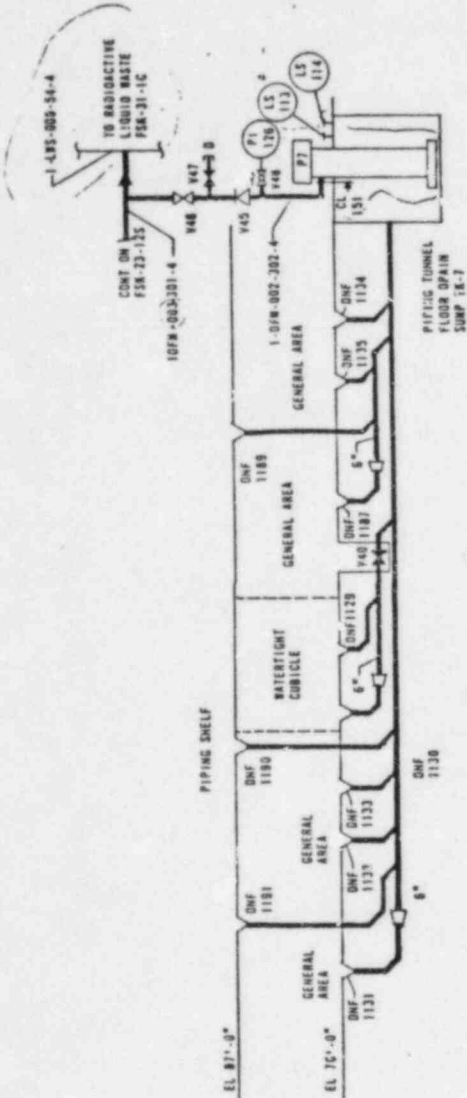
FLOW DIAGRAM  
 MISCELLANEOUS RIDG FLOOR DRAIN  
 RIVER ROAD STATION - UNIT 1  
 GULF STATES UTILITIES COMPANY  
 ENGINE & MECHANICAL ENGINEERING CORPORATION  
 12210-F SK-23-125  
 GA CAT II

| CLASS | TEMP  | PRESS   | NO. | DATE   | BY         | CHKD |
|-------|-------|---------|-----|--------|------------|------|
| C     | 150°F | 50 PSIG | 1   | 5/1/62 | W.S. Stark |      |
| P     | 150°F | 50 PSIG | 2   | 5/1/62 | W.S. Stark |      |
| E     | 150°F | 50 PSIG | 3   | 5/1/62 | W.S. Stark |      |
| L     | 150°F | 50 PSIG | 4   | 5/1/62 | W.S. Stark |      |
| M     | 150°F | 50 PSIG | 5   | 5/1/62 | W.S. Stark |      |

1 2 3 4 5 6 7 8 9 10 11 12

A B C D E F G H I J K L M

| PIPE NUMBER | VALVE DESCRIPTION | SIZE | NUMBER OF VALVES |
|-------------|-------------------|------|------------------|
| V40         | 10" 120-135       | 8"   | 1                |
| V45         | 6" 100-114        | 2"   | 1                |
| V47         | 6" 100-114        | 2"   | 1                |
| V48         | 12" 100-114       | 3/4" | 1                |



NORTH SOUTH PIPING TUNNEL  
WEST OF AUXILIARY BUILDING

NOTES:

1. ALL INSTRUMENT AND EQUIPMENT NUMBERS TO BE PREFIXED WITH "10FM."
2. EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN, EQUIPMENT AND PIPING ON THIS SHEET ARE PHYSICALLY LOCATED IN THE PIPING TUNNELS UNLESS OTHERWISE NOTED.
3. PIPING IS CLASS 125 UNLESS NOTED OTHERWISE.
4. PITCH FLOOR DRAIN PIPING TO SUMP.
5. FLOOR DRAINS (DNF) AND DRAIN PIPING ARE TO BE 4" SIZE UNLESS OTHERWISE NOTED.
6. CLEARDOUTS ARE NOT SHOWN IN DRAINAGE PIPING.
7. LOCAL DRAIN & PRESSURE CONNECTIONS 3/4".
8. DESIGN CONDITIONS (TEMPERATURES & PRESSURES):  
CLASS TEMP PRESS  
122 150°F 50 PSIG  
151 150°F 150 PSIG
9. P indicates SUPPLIED BY SUMP PUMP VENDOR.
10. CLEARNESS CLASSES FOR PIPING SHALL BE IN ACCORDANCE WITH THE LINE DESIGNATION TABLES AND SPEC NO. 218-710.
11. SYSTEM DESIGN PRESSURES AND TEMPERATURES ARE GIVEN IN THE CONTROLLED LINE DESTINATION TABLES.



APPROVED: *William S. Stahl*  
CERTIFIED PROFESSIONAL ENGINEER NO. 15740  
STATE OF LOUISIANA

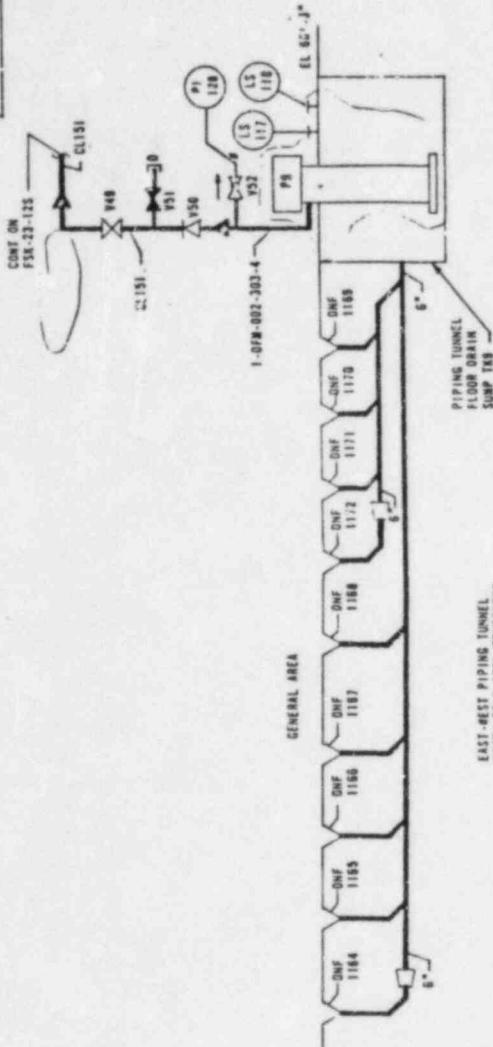
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| FLOW DIAGRAM                        |  |
| MISCELLANEOUS BUILDING FLOOR DRAINS |  |
| RIVER HEAD STATION - UNIT 1         |  |
| STATE OF LOUISIANA                  |  |
| PROFESSIONAL ENGINEER               |  |
| 17210-F SK-23-121                   |  |
| QA CAT 11                           |  |

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12

A B C D E F G H I J K L M N O P Q R S T U V T



| WALK NUMBER | VALVE DESCRIPTION | SIZE INCHES | NUMBER OF INCHES |
|-------------|-------------------|-------------|------------------|
| 449         | 652088 A-0        | 3"          | 1                |
| 450         | 652088 A-1        | 3"          | 1                |
| 451         | 652088 A-2        | 3"          | 1                |
| 452         | 652088 A-3        | 3"          | 1                |



- NOTES:
1. ALL INSTRUMENT AND EQUIPMENT NUMBERS TO BE PREFIXED WITH "107N-"
  2. EQUIPMENT WHERE A DIFFERENT PREFIX IS SHOWN.
  3. PIPING TUNNELS UNLESS OTHERWISE NOTED.
  4. PIPING IS CLASS 123 UNLESS NOTED OTHERWISE.
  5. FLOOR DRAIN (DNF) AND DRAIN PIPING ARE TO BE 4" SIZE UNLESS OTHERWISE NOTED.
  6. CLEANOUTS ARE NOT SHOWN IN DRAINAGE PIPING.
  7. LOCAL DRAIN AND PRESSURE CONNECTIONS 3/4".
  8. DESIGN CONDITIONS (FLOOR DRAIN LINES):  
CLASS 123  
TEMP PRESS 150°F 30 PSIG
  9. CLEANNESS CLASSES FOR PIPING SHALL BE IN ACCORDANCE WITH THE LINE DESIGNATION TABLES AND SPEC. NO. 226.710.
  10. 4' SPANISHED BY SUMP PUMP VENDOR.
  11. SYSTEM DESIGN PRESSURES AND TEMPERATURES ARE GIVEN IN THE CONTROLLED LINE DESIGNATION TABLES.



APPROVED: *William G. Stank*  
 CERTIFIED PROFESSIONAL ENGINEER NO. 18790  
 STATE OF LOUISIANA

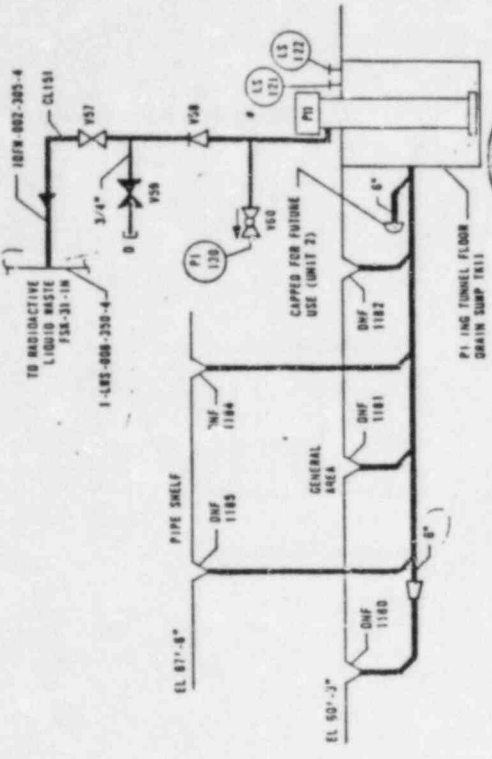
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| FLOD 01-02-01M                          |
| MISCELLANEOUS BUILDINGS FLOOR DRAINS    |
| RIVER BEND STATION - UNIT 1             |
| GULF STATES UTILITIES COMPANY           |
| WISDOM & WARDEN ENGINEERING CONSULTANTS |
| 17210-F SK-23-120                       |
| 04 CAT 11                               |

|          |             |   |
|----------|-------------|---|
| P-74-75  | 1/2" x 3/4" | 1 |
| P-74-76  | 1/2" x 3/4" | 1 |
| P-74-77  | 1/2" x 3/4" | 1 |
| P-74-78  | 1/2" x 3/4" | 1 |
| P-74-79  | 1/2" x 3/4" | 1 |
| P-74-80  | 1/2" x 3/4" | 1 |
| P-74-81  | 1/2" x 3/4" | 1 |
| P-74-82  | 1/2" x 3/4" | 1 |
| P-74-83  | 1/2" x 3/4" | 1 |
| P-74-84  | 1/2" x 3/4" | 1 |
| P-74-85  | 1/2" x 3/4" | 1 |
| P-74-86  | 1/2" x 3/4" | 1 |
| P-74-87  | 1/2" x 3/4" | 1 |
| P-74-88  | 1/2" x 3/4" | 1 |
| P-74-89  | 1/2" x 3/4" | 1 |
| P-74-90  | 1/2" x 3/4" | 1 |
| P-74-91  | 1/2" x 3/4" | 1 |
| P-74-92  | 1/2" x 3/4" | 1 |
| P-74-93  | 1/2" x 3/4" | 1 |
| P-74-94  | 1/2" x 3/4" | 1 |
| P-74-95  | 1/2" x 3/4" | 1 |
| P-74-96  | 1/2" x 3/4" | 1 |
| P-74-97  | 1/2" x 3/4" | 1 |
| P-74-98  | 1/2" x 3/4" | 1 |
| P-74-99  | 1/2" x 3/4" | 1 |
| P-74-100 | 1/2" x 3/4" | 1 |





| BASE NUMBER | VALVE DESCRIPTION | SIZE | NUMBER OF VALVES |
|-------------|-------------------|------|------------------|
| V57         | V55668 A-4        | 2"   | 1                |
| V58         | V55668 F-4        | 3"   | 1                |
| V59         | V55668 A-4        | 3"   | 1                |
| V60         | V55668 B-4        | 3"   | 1                |



STATE OF LOUISIANA  
 WILLIAM B. STANLEY  
 LICENSE NO. 12345  
 PROFESSIONAL ENGINEER  
 EAST-BEST ELECTRICAL TUNNEL  
 SOUT. OF MADRAS BUILDING  
 APPROVED *William B. Stanley*  
 REGISTERED PROFESSIONAL ENGINEER NO. 12345  
 STATE OF LOUISIANA

STATE OF LOUISIANA  
 THOMAS S. STANLEY  
 LICENSE NO. 12345  
 PROFESSIONAL ENGINEER  
 APPROVED *Thomas S. Stanley*  
 REGISTERED PROFESSIONAL ENGINEER NO. 12345  
 STATE OF LOUISIANA

FILE NO. 12345  
 MISCELLANEOUS BUILDINGS FLOOR DRAINS  
 RIVER BEND STATION - UNIT 1  
 GULF STATES UTILITIES COMPANY  
 MISSISSIPPI  
 12310 + SK-23-12V  
 OR CAT 11

|   |   |   |   |   |   |   |   |   |   |    |    |    |
|---|---|---|---|---|---|---|---|---|---|----|----|----|
| C | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|   |   |   |   |   |   |   |   |   |   |    |    |    |

- NOTES:
- ALL INSTRUMENT AND EQUIPMENT NUMBERS TO BE PREFIXED WITH "IDFM." EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN.
  - EQUIPMENT AND PIPING ON THIS SHEET ARE PHYSICALLY LOCATED IN THE PIPING TUNNELS UNLESS OTHERWISE NOTED.
  - PIPING IS CLASS 123 UNLESS NOTED OTHERWISE.
  - PITCH FLOOR DRAIN PIPING TO SUMP.
  - FLOOR DRAINS (DNF) AND DRAIN PIPING ARE TO BE 2" SIZE UNLESS OTHERWISE NOTED.
  - CLEANOUTS ARE NOT SHOWN IN DRAINAGE PIPING.
  - LOCAL DRAINS AND PRESSURE CONNECTIONS 3/4".
  - DESIGN CONDITIONS: (FLOOR DRAIN LINES):  
 CLASS 123  
 TEMP 150°F  
 PRESS 50 PSIG
  - CLEANNESS CLASSES FOR PIPING SHALL BE IN ACCORDANCE WITH THE LINE DESIGNATION TABLES AND SPEC. NO. 228-710.
  - # INDICATES FURNISHED BY SUMP VENDOR.
  - SYSTEM DESIGN PRESSURES AND TEMPERATURES ARE GIVEN IN THE CONTROLLED LINE DESIGNATION TABLES.

1 2 3 4 5 6 7 8 9 10 11 12

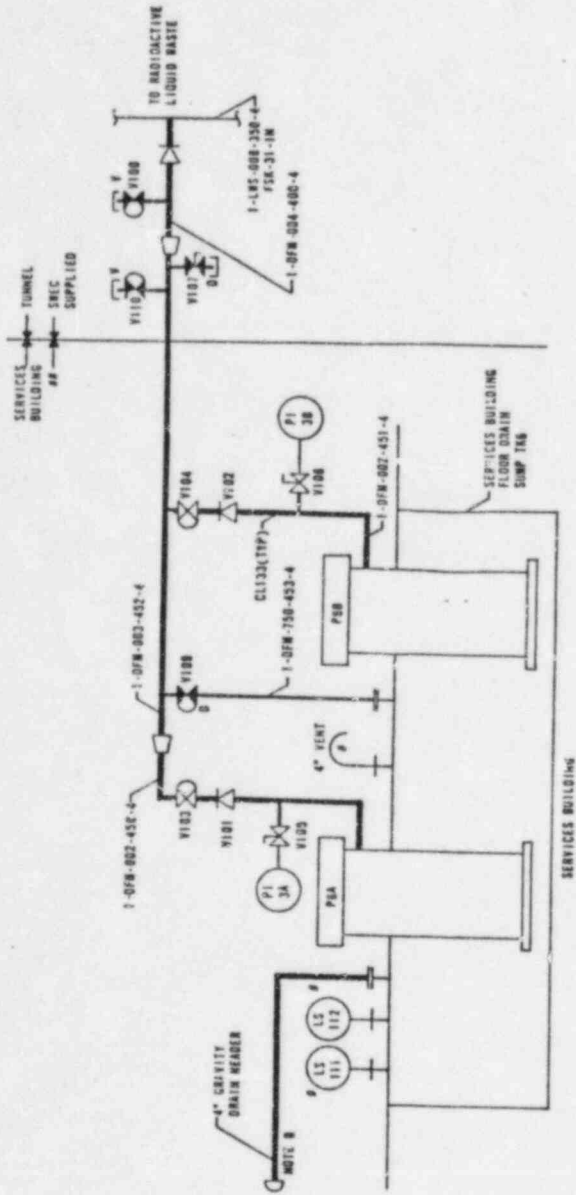
5 15 45

| VALVE NUMBER | VALVE DESCRIPTION | VALVE SIZE | NO. OF VALVES |
|--------------|-------------------|------------|---------------|
| V100         | 100-000-000-4     | 2/4"       | 2             |
| V101         | 101-000-000-4     | 2/4"       | 1             |
| V102         | 102-000-000-4     | 2/4"       | 1             |



APPROVED: *Thomas J. ...*  
 CERTIFIED PROFESSIONAL ENGINEER NO. 45923  
 STATE OF LOUISIANA

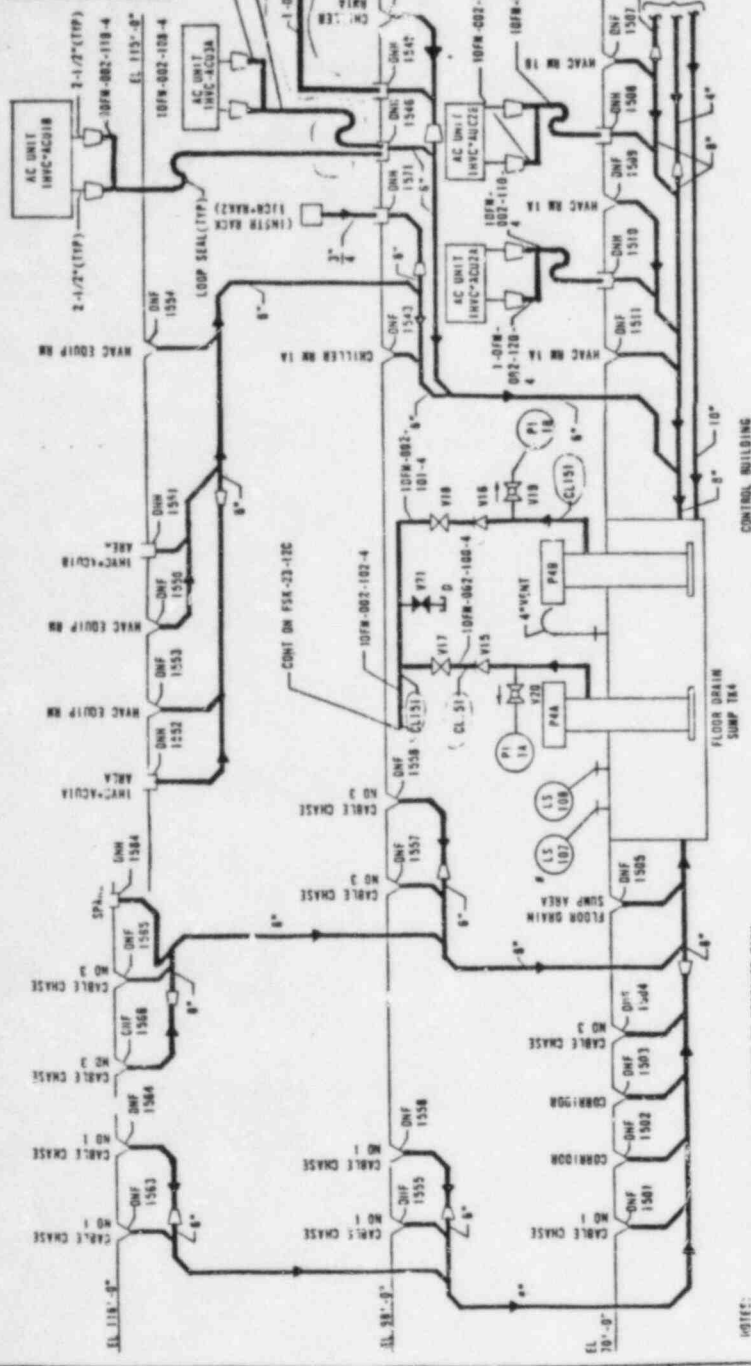
|                                       |                  |
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| FLOW DIAGRAM                          | 12210-FSK-27-12L |
| MISCELLANEOUS BUILDING FLOOD DRAINAGE | OR CAT. 11.111   |
| RIVER BOND STATION - UNIT 1           |                  |
| GULF STATES UTILITIES COMPANY         |                  |
| WISSE & WISSE ENGINEERS, CORPORATION  |                  |



- NOTES:
- ALL INSTRUMENTS AND EQUIPMENT NUMBERS TO BE PREFIXED WITH "1078-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN.
  - EQUIPMENT AND PIPING ON THIS SHEET ARE PHYSICALLY LOCATED IN THE SERVICES BUILDING UNLESS OTHERWISE NOTED.
  - PIPING IS CLASS 150 UNLESS OTHERWISE NOTED.
  - INDICATES FURNISHED BY SUMP PUMP VENDOR.
  - SYSTEM DESIGN PRESSURES AND TEMPERATURES ARE GIVEN IN THE CONTROLLED CLEANSING TABLES.
  - CLEANSING TABLES FOR PIPING SHALL BE IN ACCORDANCE WITH THE LINE DESIGNATION TABLE AND SPEC 278-710.
  - INDICATES PIPING, VALVES AND INSTRUMENTATION FURNISHED & INSTALLED BY THE SERVICES BLDG CONTRACTOR.
  - INSTRUMENTS ARE SHOWN ON S&W DRAWING 12210-EB-1200.

|   |   |   |   |   |   |   |   |   |    |    |    |
|---|---|---|---|---|---|---|---|---|----|----|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| A | B | C | D | E | F | G | H | I | J  | K  | L  |
| M | N | O | P | Q | R | S | T | U | V  |    |    |

| MARK NUMBER | VALVE DESCRIPTION | SIZE | NUMBER OF VALVES |
|-------------|-------------------|------|------------------|
| V17, 18     | VS2000 4-4        | 3"   | 2                |
| V13, 16     | VS2000 1-4        | 2"   | 2                |
| V21         | VS2000 4-4        | 3/4" | 1                |
| V19, 20     | VDS200 8-4        | 3/4" | 2                |



APPROVED: *William A. Starn*  
 REGISTERED PROFESSIONAL ENGINEER No. 10863  
 STATE OF LOUISIANA

FLOW DIAGRAM  
 MISCELLANEOUS BUILDINGS FLOOR DRAINS  
 RHYER BRID STATION - UNIT 1  
 GULF STATES UTILITIES COMPANY  
 WILLIAM A. STARN REGISTERED PROFESSIONAL ENGINEER  
 12710-FSK-23-176  
 04 CAT 11 111

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| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 | 101 | 102 | 103 | 104 | 105 | 106 | 107 | 108 | 109 | 110 | 111 | 112 | 113 | 114 | 115 | 116 | 117 | 118 | 119 | 120 | 121 | 122 | 123 | 124 | 125 | 126 | 127 | 128 | 129 | 130 | 131 | 132 | 133 | 134 | 135 | 136 | 137 | 138 | 139 | 140 | 141 | 142 | 143 | 144 | 145 | 146 | 147 | 148 | 149 | 150 | 151 | 152 | 153 | 154 | 155 | 156 | 157 | 158 | 159 | 160 | 161 | 162 | 163 | 164 | 165 | 166 | 167 | 168 | 169 | 170 | 171 | 172 | 173 | 174 | 175 | 176 | 177 | 178 | 179 | 180 | 181 | 182 | 183 | 184 | 185 | 186 | 187 | 188 | 189 | 190 | 191 | 192 | 193 | 194 | 195 | 196 | 197 | 198 | 199 | 200 | 201 | 202 | 203 | 204 | 205 | 206 | 207 | 208 | 209 | 210 | 211 | 212 | 213 | 214 | 215 | 216 | 217 | 218 | 219 | 220 | 221 | 222 | 223 | 224 | 225 | 226 | 227 | 228 | 229 | 230 | 231 | 232 | 233 | 234 | 235 | 236 | 237 | 238 | 239 | 240 | 241 | 242 | 243 | 244 | 245 | 246 | 247 | 248 | 249 | 250 | 251 | 252 | 253 | 254 | 255 | 256 | 257 | 258 | 259 | 260 | 261 | 262 | 263 | 264 | 265 | 266 | 267 | 268 | 269 | 270 | 271 | 272 | 273 | 274 | 275 | 276 | 277 | 278 | 279 | 280 | 281 | 282 | 283 | 284 | 285 | 286 | 287 | 288 | 289 | 290 | 291 | 292 | 293 | 294 | 295 | 296 | 297 | 298 | 299 | 300 | 301 | 302 | 303 | 304 | 305 | 306 | 307 | 308 | 309 | 310 | 311 | 312 | 313 | 314 | 315 | 316 | 317 | 318 | 319 | 320 | 321 | 322 | 323 | 324 | 325 | 326 | 327 | 328 | 329 | 330 | 331 | 332 | 333 | 334 | 335 | 336 | 337 | 338 | 339 | 340 | 341 | 342 | 343 | 344 | 345 | 346 | 347 | 348 | 349 | 350 | 351 | 352 | 353 | 354 | 355 | 356 | 357 | 358 | 359 | 360 | 361 | 362 | 363 | 364 | 365 | 366 | 367 | 368 | 369 | 370 | 371 | 372 | 373 | 374 | 375 | 376 | 377 | 378 | 379 | 380 | 381 | 382 | 383 | 384 | 385 | 386 | 387 | 388 | 389 | 390 | 391 | 392 | 393 | 394 | 395 | 396 | 397 | 398 | 399 | 400 | 401 | 402 | 403 | 404 | 405 | 406 | 407 | 408 | 409 | 410 | 411 | 412 | 413 | 414 | 415 | 416 | 417 | 418 | 419 | 420 | 421 | 422 | 423 | 424 | 425 | 426 | 427 | 428 | 429 | 430 | 431 | 432 | 433 | 434 | 435 | 436 | 437 | 438 | 439 | 440 | 441 | 442 | 443 | 444 | 445 | 446 | 447 | 448 | 449 | 450 | 451 | 452 | 453 | 454 | 455 | 456 | 457 | 458 | 459 | 460 | 461 | 462 | 463 | 464 | 465 | 466 | 467 | 468 | 469 | 470 | 471 | 472 | 473 | 474 | 475 | 476 | 477 | 478 | 479 | 480 | 481 | 482 | 483 | 484 | 485 | 486 | 487 | 488 | 489 | 490 | 491 | 492 | 493 | 494 | 495 | 496 | 497 | 498 | 499 | 500 |
|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|

- NOTE:**
1. INSTRUMENT & EQUIPMENT NUMBERS ARE TO BE PREFIXED WITH "107N-". EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN.
  2. EQUIPMENT & PIPING ON THIS SHEET ARE PHYSICALLY LOCATED IN THE CONTROL BUILDING UNLESS OTHERWISE NOTED.
  3. ALL PIPING IS CLASS 123 UNLESS OTHERWISE NOTED.
  4. FITCH DRAIN PIPING TO SUMP.
  5. FLOOR DRAINS (DNF), DRAIN HORNS (DNH) & DRAIN PIPING ARE TO BE 4" SIZE UNLESS OTHERWISE NOTED.
  6. DRAIN HORN (DNH) ARE TO BE OPEN CONNECTIONS, WITHOUT EXTENSIONS UP FUNNELS, UNLESS OTHERWISE NOTED.
  7. CLEANOUTS ARE NOT SHOWN IN DRAINAGE PIPING.
  8. # FURNISHED BY SUMP PUMP VENDOR.
  9. LOCAL DRAIN AND PRESSURE CONNECTIONS ARE 3/4".
10. DESIGN CONDITIONS (FLOOR DRAIN LINES):  
 CLASS TEMP PRESS  
 123 135°F 50 PSIG
11. CLEANNESS CLASSES FOR PIPING SHALL BE IN ACCORDANCE WITH THE LINE DESTINATION TABLES AND SPEC NO 228.718.
12. SYSTEM DESIGN PRESSURES AND TEMPERATURES ARE GIVEN IN THE CONTROLLED LINE DESTINATION TABLES.

| MARK NUMBER | VALUE DESCRIPTION | SIZE | NUMBER OF USES |
|-------------|-------------------|------|----------------|
| 103 81      | V51229 2-4        | 3"   | 1              |
| 103 83      | V51229 2-4        | 3"   | 1              |
| 104 65      | V51229 2-4        | 3"   | 1              |
| 104         | V51229 2-4        | 3"   | 1              |
| V51229 2-4  |                   | 3"   | 1              |
| V51229 2-4  |                   | 3"   | 1              |

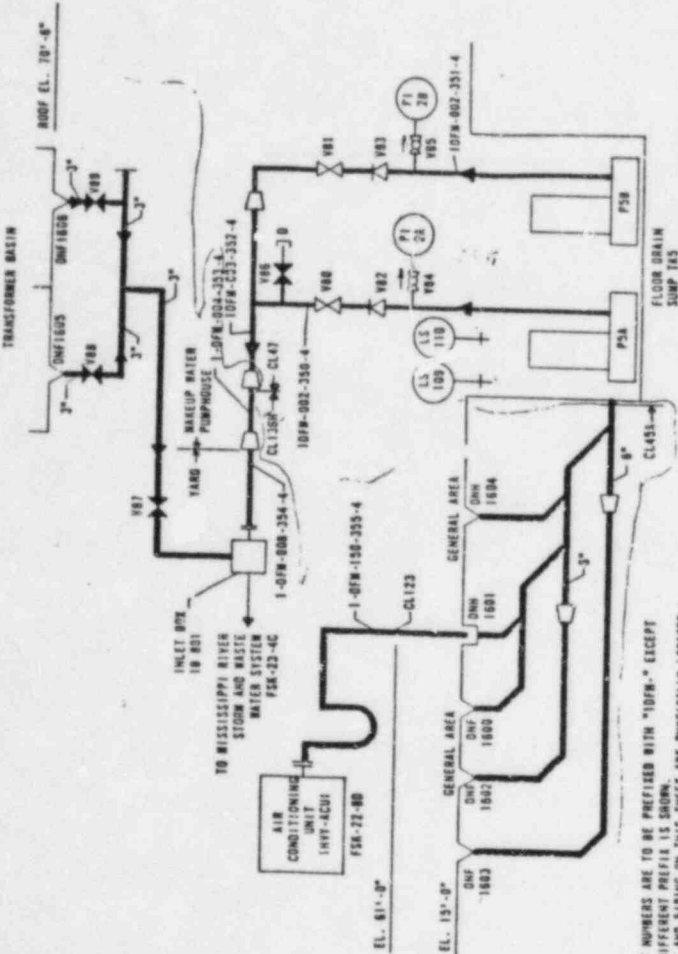


Thomas S. Starn  
4/2/79



APPROVED: *William S. Starn*  
CERTIFIED PROFESSIONAL ENGINEER, SR. 18763  
STATE OF LOUISIANA

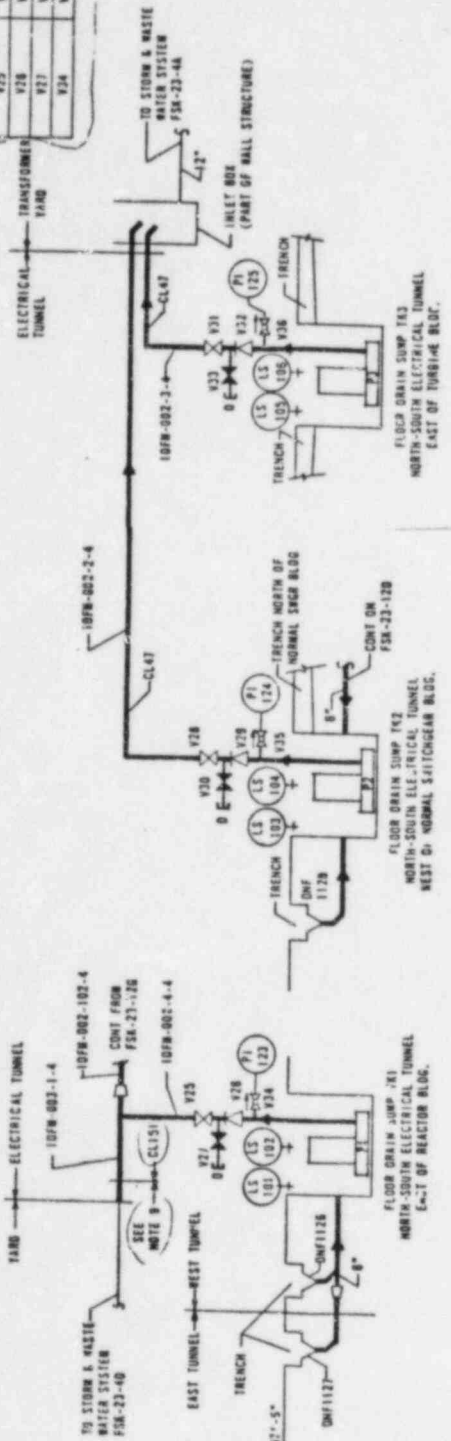
FLOU DESIGN  
RIVER BRIDGE BUILDINGS FLOOR DRAINS  
GULF STATES UTILITIES COMPANY  
HYDRA & WEATHER ENGINEERING CORPORATION  
12210-FSK-23-12F  
DA CAT 11



- NOTES:
- EQUIPMENT NUMBERS ARE TO BE PREFIXED WITH "10FM," EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN.
  - EQUIPMENT AND PIPING ON THIS SHEET ARE PHYSICALLY LOCATED AS SHOWN.
  - PIPING IS CLASS "C" UNLESS OTHERWISE NOTED.
  - LOCAL DRAIN AND PRESSURE CONNECTIONS ARE 3/4".
  - DESIGN CONDITIONS (FLOOR DRAIN LINES):  
 41 150°F 150 PSIG  
 42 150°F 30 PSIG
  - SYSTEM DESIGN PRESSURES AND TEMPERATURES ARE GIVEN IN THE CONTROLLED LINE DETONATION TABLES.
  - CLEARANCES CLASSIFIED FOR PIPING SHALL BE IN ACCORDANCE WITH LINE DETONATION TABLES AND SPEC. NO. 278-710.
  - FLOOR DRAIN (DNF) AND DRAIN PIPING ARE TO BE 4" SIZE UNLESS OTHERWISE NOTED.

|   |   |   |   |   |   |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |   |   |   |   |   |   |   |   |   |
| A | B | C | D | E | F | G | H | I | J  | K  | L  | M | N | P | Q | R | S | T | U | V |

| MARK NUMBER | VALVE DESCRIPTION | SIZE OF VALVE | NUMBER OF VALVES |
|-------------|-------------------|---------------|------------------|
| 38-31       | V61020-C-4        | 2"            | 3                |
| 39-33       | V61030-B-4        | 2"            | 3                |
| 35-38       | V61028-C-4        | 3/4"          | 3                |
| 35-38       | V61032-B-4        | 3/4"          | 3                |
| 35-38       | V61033-B-4        | 3/4"          | 3                |
| 325         | V65060-A-4        | 2"            | 1                |
| 328         | V65080-A-4        | 2"            | 1                |
| 327         | V65080-A-4        | 3/4"          | 1                |
| 324         | V65080-B-4        | 3/4"          | 1                |



18. DESIGN CONDITIONS (FLOOR DRAIN LINES):  
 CLASS TEMP PRESS  
 458 1-UP 50 PSIG  
 11. CLEANNESS CLASSES FOR PIPING SHALL BE IN ACCORDANCE WITH THE LINE DESIGNATION TABLES AND SPEC. NO. 228-710.

- NOTES:
1. ALL INSTRUMENT AND EQUIPMENT NUMBERS TO BE PREFIXED WITH "107M-" EXCEPT WHERE A DIFFERENT PREFIX IS SHOWN.
  2. EQUIPMENT AND PIPING ON THIS SHEET ARE PHYSICALLY LOCATED IN THE ELECTRIC TUNNELS UNLESS OTHERWISE NOTED.
  3. PIPING IS CLASS 458 UNLESS OTHERWISE NOTED.
  4. PITS: FLOOR DRAIN PIPING TO SUMPS.
  5. FLOOR DRAINS (DNF), AND DRAIN PIPING ARE TO BE 4" SIZE UNLESS OTHERWISE NOTED.
  6. CLEANOUTS ARE NOT SHOWN IN DRAINAGE PIPING.
  7. LOCAL DRAIN AND PRESSURE CONNECTIONS ARE 3/4".
  8. SYSTEM DESIGN PRESSURES AND TEMPERATURES ARE GIVEN IN THE CONTROLLED LINE DESIGNATION TABLES.
  9. WHERE NOTED, PIPING IS CIBAC-TELEX DUALLOT-3200 FILAMENT WOUND FIBERGLASS REINFORCED EPOXY PIPE.



APPROVED: *William C. Stein*  
 CERTIFIED PROFESSIONAL ENGINEER NO. 12710  
 STATE OF LOUISIANA

FLOOR DRAINAGE  
 MISCELLANEOUS BUILDING FLOOR DRAINS  
 RIVER WIND STATION - UNIT 1  
 GULF STATES UTILITIES COMPANY  
 WOOD & WOODMAN ENGINEERING CONSULTANTS  
 12710-FSK-23-I/C  
 ON CIV. III

| MARK NUMBER | VALVE DESCRIPTION | SIZE OF VALVE | NUMBER OF VALVES |
|-------------|-------------------|---------------|------------------|
| 38-31       | V61020-C-4        | 2"            | 3                |
| 39-33       | V61030-B-4        | 2"            | 3                |
| 35-38       | V61028-C-4        | 3/4"          | 3                |
| 35-38       | V61032-B-4        | 3/4"          | 3                |
| 35-38       | V61033-B-4        | 3/4"          | 3                |
| 325         | V65060-A-4        | 2"            | 1                |
| 328         | V65080-A-4        | 2"            | 1                |
| 327         | V65080-A-4        | 3/4"          | 1                |
| 324         | V65080-B-4        | 3/4"          | 1                |

A B C D E F G H I J K L M N O P Q R S T U V