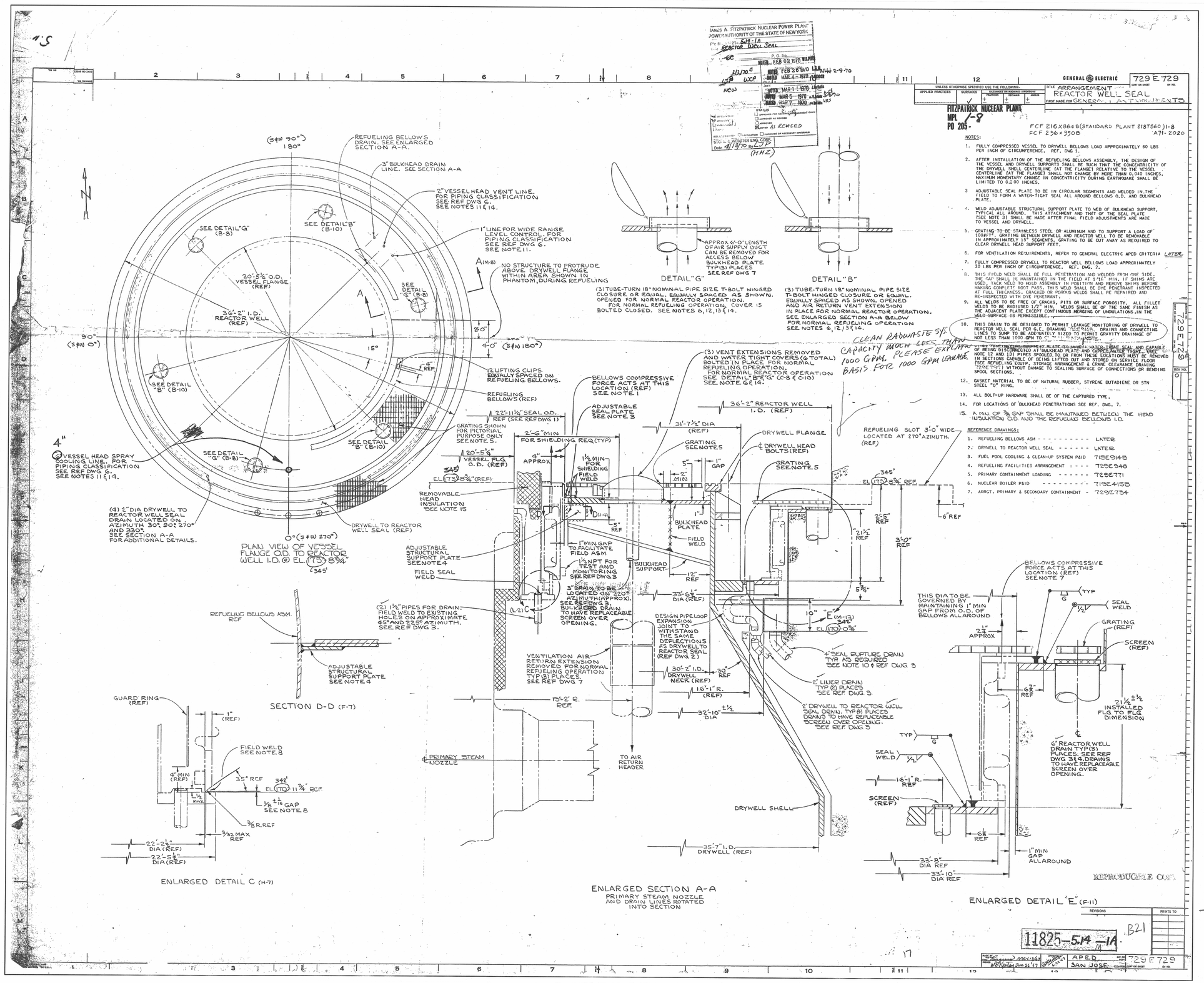
GENERAL ELECTRIC
729 E 729
TITLE ARRANGEMENT
REACTOR WELL SEAL
FITZPATRICK NUCLEAR PLANT
MPL 1-8
PO 205-
FCF 216X864B(STANDARD PLANT 218T560)1-8
FCF 236X350B
A71-2020
NOTES:
1. FULLY COMPRESSED VESSEL TO DRYWELL BELLOWS LOAD APPROXIMATELY 60 LBS PER INCH OF CIRCUMFERENCE. REF. DWG 1.
2. AFTER INSTALLATION OF THE REFUELING BELLOWS ASSEMBLY, THE DESIGN OF THE VESSEL AND DRYWELL SUPPORTS SHALL BE SUCH THAT THE CONCENTRICITY OF THE DRYWELL SHELL CENTERLINE (AT THE FLANGE) RELATIVE TO THE VESSEL CENTERLINE (AT THE FLANGE) SHALL NOT CHANGE BY MORE THAN 0.040 INCHES. MAXIMUM MOMENTARY CHANGE IN CONCENTRICITY DURING EARTHQUAKE SHALL BE LIMITED TO 0.200 INCHES.
3. ADJUSTABLE SEAL PLATE TO BE IN CIRCULAR SEGMENTS AND WELDED IN THE FIELD TO FORM A WATER-TIGHT SEAL ALL AROUND BELLOWS O.D. AND BULKHEAD PLATE.
4. WELD ADJUSTABLE STRUCTURAL SUPPORT PLATE TO WEB OF BULKHEAD SUPPORT, TYPICAL ALL AROUND. THIS ATTACHMENT AND THAT OF THE SEAL PLATE (SEE NOTE 3) SHALL BE MADE AFTER FINAL FIELD ADJUSTMENTS ARE MADE TO VESSEL AND DRYWELL.
5. GRATING TO BE STAINLESS STEEL OR ALUMINUM AND TO SUPPORT A LOAD OF 100#/FT². GRATING BETWEEN DRYWELL AND REACTOR WELL TO BE REMOVABLE IN APPROXIMATELY 15° SEGMENTS. GRATING TO BE CUT AWAY AS REQUIRED TO CLEAR DRYWELL HEAD SUPPORT FEET.
6. FOR VENTILATION REQUIREMENTS, REFER TO GENERAL ELECTRIC APED CRITERIA LATER.
7. FULLY COMPRESSED DRYWELL TO REACTOR WELL BELLOWS LOAD APPROXIMATELY 30 LBS PER INCH OF CIRCUMFERENCE. REF. DWG. 7.
8. THIS FIELD WELD SHALL BE FULL PENETRATION AND WELDED FROM ONE SIDE. THE GAP SHALL BE MAINTAINED IN THE FIELD AT 1/16" MIN. IF SHIMS ARE USED, TACK WELD TO HOLD ASSEMBLY IN POSITION AND REMOVE SHIMS BEFORE MAKING COMPLETE ROOT PASS. THIS WELD SHALL BE DYE PENETRANT INSPECTED AT FULL THICKNESS. CRACKED OR POROUS WELDS SHALL BE REPAIRED AND RE-INSPECTED WITH DYE PENETRANT.
9. ALL WELDS TO BE FREE OF CRACKS, PITS OR SURFACE POROSITY. ALL FILLET WELDS TO BE RADIUSED 1/32" MIN. WELDS SHALL BE OF THE SAME FINISH AS THE ADJACENT PLATE EXCEPT CONTINUOUS MERGING OF UNDULATIONS IN THE WELD SURFACE IS PERMISSIBLE.
10. THIS DRAIN TO BE DESIGNED TO PERMIT LEAKAGE MONITORING OF DRYWELL TO REACTOR WELL SEAL PER G.E. DRAWING 729E618. DRAINS AND CONNECTING LINES TO SUMP TO BE ADEQUATELY SIZED TO PERMIT GRAVITY DRAINAGE OF NOT LESS THAN 1000 GPM TO [illegible] WASTE.
CLEAN RADWASTE S/S
CAPACITY MUCH LESS THAN 1000 GPM. PLEASE EXPLAIN
1000 GPM BASIS FOR 1000 GPM LEAKAGE
11. [illegible] (4) 1" PIPES SPOOLED TO BE WATER-TIGHT SEAL AND CAPABLE OF BEING DISCONNECTED AT BULKHEAD PLATE AND CAPPED WATER TIGHT. (SEE NOTE 12 AND 13) PIPES SPOOLED TO OR FROM THESE LOCATIONS MUST BE REMOVED IN SECTIONS CAPABLE OF BEING LIFTED OUT AND STORED ON SERVICE FLOOR TO PERMIT REFUELING EQUIP. STORAGE ARRANGEMENT & CRANE CLEARANCE DRAWING 729E754. WITHOUT DAMAGE TO SEALING SURFACE OF CONNECTIONS OR BENDING SPOOL SECTIONS.
12. GASKET MATERIAL TO BE OF NATURAL RUBBER, STYRENE BUTADIENE OR STN STEEL "O" RING.
13. ALL BOLT-UP HARDWARE SHALL BE OF THE CAPTURED TYPE.
14. FOR LOCATIONS OF BULKHEAD PENETRATIONS SEE REF. DWG. 7.
15. A MIN. OF 3/8 GAP SHALL BE MAINTAINED BETWEEN THE HEAD INSULATION O.D. AND THE REFUELING BELLOWS I.D.
REFERENCE DRAWINGS:
1. REFUELING BELLOWS ASM - - - - - - - - - - LATER
2. DRYWELL TO REACTOR WELL SEAL - - - - - - LATER
3. FUEL POOL COOLING & CLEAN-UP SYSTEM P&ID 718E514B
4. REFUELING FACILITIES ARRANGEMENT - - - - 729E948
5. PRIMARY CONTAINMENT LOADING - - - - - - 729E771
6. NUCLEAR BOILER P&ID - - - - - - - - - 718E415B
7. ARRGT. PRIMARY & SECONDARY CONTAINMENT - 729E754
REFUELING BELLOWS DRAIN. SEE ENLARGED SECTION A-A.
3" BULKHEAD DRAIN LINE. SEE SECTION A-A
2" VESSEL HEAD VENT LINE. FOR PIPING CLASSIFICATION SEE REF DWG 6. SEE NOTES 11 & 14.
1" LINE FOR WIDE RANGE LEVEL CONTROL. FOR PIPING CLASSIFICATION SEE REF DWG 6. SEE NOTE 11.
NO STRUCTURE TO PROTRUDE ABOVE DRYWELL FLANGE WITHIN AREA SHOWN IN PHANTOM, DURING REFUELING
20'-5 5/8" O.D. VESSEL FLANGE (REF)
36'-2" I.D. REACTOR WELL (REF)
12 LIFTING CLIPS EQUALLY SPACED ON REFUELING BELLOWS.
REFUELING BELLOWS (REF)
4" VESSEL HEAD SPRAY COOLING LINE. FOR PIPING CLASSIFICATION SEE REF DWG 6. SEE NOTES 11 & 14.
(4) 2" DIA DRYWELL TO REACTOR WELL SEAL DRAIN LOCATED ON AZIMUTH 30°, 90°, 270° AND 330°. SEE SECTION A-A FOR ADDITIONAL DETAILS.
PLAN VIEW OF VESSEL FLANGE O.D. TO REACTOR WELL I.D. @ EL. (173) 8 3/4"
DETAIL "G"
DETAIL "B"
APPROX 6'-0" LENGTH OF AIR SUPPLY DUCT CAN BE REMOVED FOR ACCESS BELOW BULKHEAD PLATE. TYP (3) PLACES. SEE REF DWG 7
(3) TUBE-TURN 18" NOMINAL PIPE SIZE T-BOLT HINGED CLOSURE OR EQUAL. EQUALLY SPACED AS SHOWN. OPENED FOR NORMAL REACTOR OPERATION. FOR NORMAL REFUELING OPERATION, COVER IS BOLTED CLOSED. SEE NOTES 6, 12, 13 & 14.
(3) TUBE-TURN 18" NOMINAL PIPE SIZE T-BOLT HINGED CLOSURE OR EQUAL. EQUALLY SPACED AS SHOWN. OPENED AND AIR RETURN VENT EXTENSION IN PLACE FOR NORMAL REACTOR OPERATION. SEE ENLARGED SECTION A-A BELOW FOR NORMAL REFUELING OPERATION SEE NOTES 6, 12, 13 & 14.
(3) VENT EXTENSIONS REMOVED AND WATER-TIGHT COVERS (6 TOTAL) BOLTED IN PLACE FOR NORMAL REFUELING OPERATION. FOR NORMAL REACTOR OPERATION SEE DETAIL "B" & "G" (C-8 & C-10) SEE NOTE 6 & 14.
BELLOWS COMPRESSIVE FORCE ACTS AT THIS LOCATION (REF) SEE NOTE 1
ADJUSTABLE SEAL PLATE SEE NOTE 3
GRATING SHOWN FOR PICTORIAL PURPOSE ONLY SEE NOTE 5.
22'-11 3/8" SEAL O.D. REF (SEE REF DWG 1)
2'-6" MIN FOR SHIELDING REQ (TYP)
20'-5 5/8" VESSEL FLG O.D. (REF)
36'-2" REACTOR WELL I.D. (REF)
31'-7 1/2" DIA (REF)
DRYWELL FLANGE
DRYWELL HEAD BOLTS (REF)
GRATING SEE NOTE 5
REFUELING SLOT 3'-0" WIDE LOCATED AT 270° AZIMUTH (REF)
EL (173) 8 3/4" REF
REMOVABLE HEAD INSULATION SEE NOTE 15
DRYWELL TO REACTOR WELL SEAL (REF)
ADJUSTABLE STRUCTURAL SUPPORT PLATE SEE NOTE 4
FIELD SEAL WELD
1" MIN GAP TO FACILITATE FIELD ASM
1 1/2" NPT FOR TEST AND MONITORING SEE REF DWG 3
3" DRAIN TO BE LOCATED ON 220° AZIMUTH (APPROX). SEE REF DWG 3. BULKHEAD DRAIN TO HAVE REPLACEABLE SCREEN OVER OPENING.
BULKHEAD PLATE
FIELD WELD
BULKHEAD SUPPORT
33'-6 1/2" DIA (REF)
(2) 1 1/2" PIPES FOR DRAIN FIELD WELD TO EXISTING HOLES ON APPROXIMATE 45° AND 225° AZIMUTH. SEE REF DWG 3.
REFUELING BELLOWS ASM. REF
ADJUSTABLE STRUCTURAL SUPPORT PLATE SEE NOTE 4
SECTION D-D (F-7)
DESIGN PIPE LOOP EXPANSION JOINT TO WITHSTAND THE SAME DEFLECTIONS AS DRYWELL TO REACTOR SEAL (REF DWG 2)
VENTILATION AIR RETURN EXTENSION REMOVED FOR NORMAL REFUELING OPERATION TYP (3) PLACES. SEE REF DWG 7
30'-2" I.D. DRYWELL NECK (REF)
16'-1" R. (REF)
18'-2" R. REF
32'-10 ± 1/2 DIA
PRIMARY STEAM NOZZLE
TO AIR RETURN HEADER
4" SEAL RUPTURE DRAIN TYP AS REQUIRED SEE NOTE 10 & REF DWG 3
2" LINER DRAIN TYP (2) PLACES SEE REF DWG 3
2" DRYWELL TO REACTOR WELL SEAL DRAIN, TYP (8) PLACES DRAIN TO HAVE REPLACEABLE SCREEN OVER OPENING. SEE REF DWG 3
DRYWELL SHELL
35'-7" I.D. DRYWELL (REF)
ENLARGED SECTION A-A
PRIMARY STEAM NOZZLE AND DRAIN LINES ROTATED INTO SECTION
BELLOWS COMPRESSIVE FORCE ACTS AT THIS LOCATION (REF) SEE NOTE 7
THIS DIA TO BE GOVERNED BY MAINTAINING 1" MIN GAP FROM O.D. OF BELLOWS ALL AROUND
SEAL WELD
GRATING (REF)
SCREEN (REF)
2 1/2 ± 1/2 INSTALLED FLG TO FLG DIMENSION
6" REACTOR WELL DRAIN TYP (3) PLACES. SEE REF DWG 3 & 4. DRAINS TO HAVE REPLACEABLE SCREEN OVER OPENING.
16'-1" R. REF
33'-8" DIA REF
33'-10" DIA REF
1" MIN GAP ALL AROUND
ENLARGED DETAIL "E" (F-11)
GUARD RING (REF)
FIELD WELD SEE NOTE 8
1/8 ± 1/16 GAP SEE NOTE 8
3/8 R. REF
3/32 MAX REF
22'-2 1/2" DIA (REF)
22'-5 1/2" DIA (REF)
ENLARGED DETAIL C (H-7)
REVISIONS
PRINTS TO
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