

# START

18

Mr. Mike Gordon  
State of Washington  
Department of Ecology (PV-11)  
Olympia, WA 98504-8711

FLUOR DANIEL, INC.

0012737

Date: February 11, 1991

Reference: Hanford Waste Vitrification Plant  
DOE Contract DE-AC06-86RL10838  
Fluor Contract 8457

Transmittal No.: WDOE-043

Dear Mr. Gordon:

### TRANSMITTAL

We enclose 2 copies of the items listed below. These are issued per US-DOE request.

Response due to Fluor: n/a  
Responds to: n/a

Number	Rev.	Date	Title
CONTROLLED COPIES 25 & 26			PIPING & INSTRUMENT DIAGRAMS
H-2-123350 SHT. 7 OF 8	2	02/01/91	SYSTEM 41 INSTRUMENT AIR DISTRIBUTION
H-2-123351 SHT. 1 OF 1	2	02/01/91	SYSTEM 42 MED PRESS STEAM DISTRIBUTION VIT BLDG SERVICE BLDG, AND MANIPULATOR REPAIR BUILDING
H-2-123358 SHT. 1 OF 2	2	02/01/91	SYSTEM 50 RAW WATER AND FIRE WATER SYSTEMS
H-2-123358 SHT. 2 OF 2	2	02/01/91	SYSTEM 50 FIRE AND PROCESS WATER STORAGE
H-2-123359 SHT. 1 OF 1	2	02/01/91	SYSTEM 49 SANITARY WATER SYSTEM
H-2-123361 SHT. 7 OF 9	2	02/01/91	SYSTEM 53 NONHAZARDOUS WASTE WATER DISPOSAL

PLEASE REMOVE OLD REVISIONS IN YOUR PROCESS  
P&ID BOOK AND REPLACE WITH THE ATTACHED.



Distribution:  
Reference: FRP-210, FUP-025  
WPO/AME Corresp Cntrl Cntr, MSIN A5-10  
SYSTEMS 41,42,49,50,53 P&IDs),w/0  
P. Felise, WHC-RL (MSIN G6-16) w/1 cc #30  
Environmental Data Management Center  
MSIN H4-51)w/1 cc #31  
D. Duncan, US EPA, Region X w/0

Very truly yours,

*R. N. Gibbons*  
R. N. Gibbons  
Project Director

RMG:KM:rc

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PROCESS PIPING AND INSTRUMENT DIAGRAMS  
VOLUME 1B  
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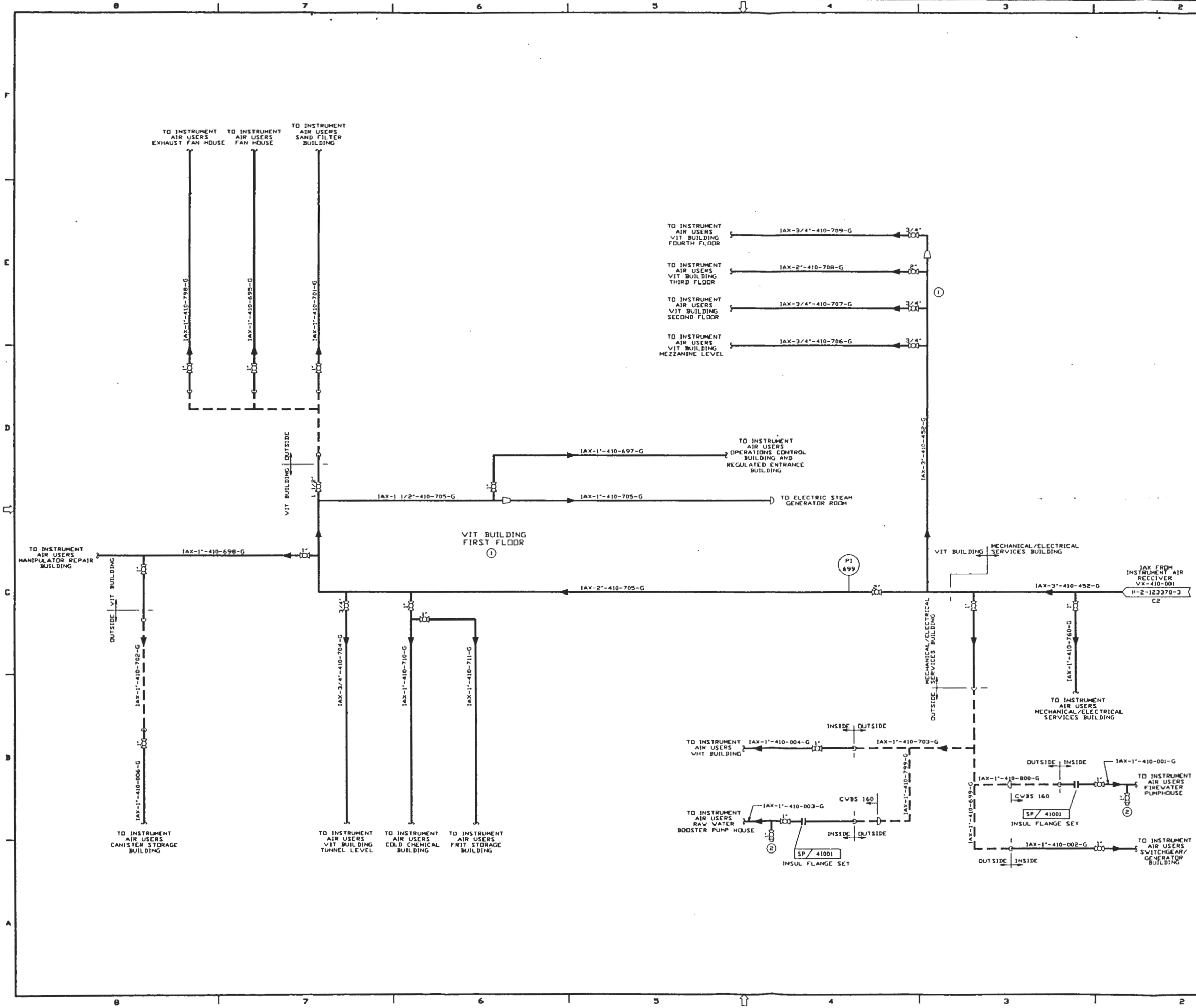
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H-2-123370	02	0	SYSTEM 62 HPS VACUUM COLLECTION VIT BUILDING, TUNNEL LEVEL, MEZZ. LEVEL, FIRST AND SECOND FLOORS	3227
H-2-123370	03	0	SYSTEM 62 HPS VACUUM COLLECTION VITRIFICATION BUILDING THIRD & FOURTH FLOORS	3227
H-2-123370	04	0	SYSTEM 62 HPS VACUUM COLLECTION MRB, FRIT ST/COLD CHEM, CMR, OC/REB & SHIPPING/RECEIVING BUILDINGS	3227
H-2-123370	05	0	SYSTEM 62 HPS VACUUM SYSTEM CANISTER STORAGE BUILDING	3227
H-2-123370	06	0	SYSTEM 62 HPS VACUUM SYSTEM FAN HOUSE	3227
H-2-123370	07	0	SYSTEM 62 HPS VACUUM SYSTEM WHT BUILDING	3227
H-2-123370	08	01	SYSTEM 62 DECON HOOD, SAMPLE PREPARATION HOOD AND SINK	3227



**GENERAL NOTES:**  
 A. FOR GENERAL NOTES REFER TO DRAWING H-2-123350-1.

- NOTES:**
- DURING DETAIL DESIGN IAX DISTRIBUTION HEADERS WITH MULTIPLE USERS WILL BE LOOPED AND SECTIONALIZING ISOLATION VALVES WILL BE ADDED.
  - A 1 INCH CONNECTION IS PROVIDED FOR DRY COMPRESSED AIR (50 SCFM @ 80 PSIG, -40°F DEW POINT, <1 ppm OIL) FROM PORTABLE AIR COMPRESSOR (EQUIPPED WITH A DRYER) UNTILL AIR SUPPLY FROM HVVP AIR COMPRESSORS IS AVAILABLE.

**SAFETY CLASS 3**

REV	DATE	DESCRIPTION	APPROVAL
2	02/01/91	GENERAL REVISIONS PER DCN-0005	KJM SSL RGT MF
1	01/10/91	RELEASED FOR PROJECT BASELINE CONTROL WITHDRAWN PER CR-465	KJM SSL RGT MF
0	03/30/90	RELEASED FOR PROJECT BASELINE CONTROL PER CR HVVP-0442	KJM BGI RGT MF
00	09/12/90	RELEASED FOR DETAILED DESIGN	ERP FGB DPC RRG
			KJM SSL RGT KJM

ENGINEERING RELEASE  
 REV. DATE  
 ERD

**U.S. DEPARTMENT OF ENERGY**  
 Richland Operations Office  
 DE - AC06-86RL10838

**FLUOR DANIEL, INC.**  
 ADVANCED TECHNOLOGY DIVISION

PROJECT TITLE  
 HANFORD WASTE VITRIFICATION PLANT

PROJECT NO.  
 B-595

FLUOR CONTRACT NO.  
 B457

DATE  
 08/22/90

REV. NO.  
 3223

DESIGNED BY  
 S LEE

CHECKED BY  
 P HOLLSTEIN

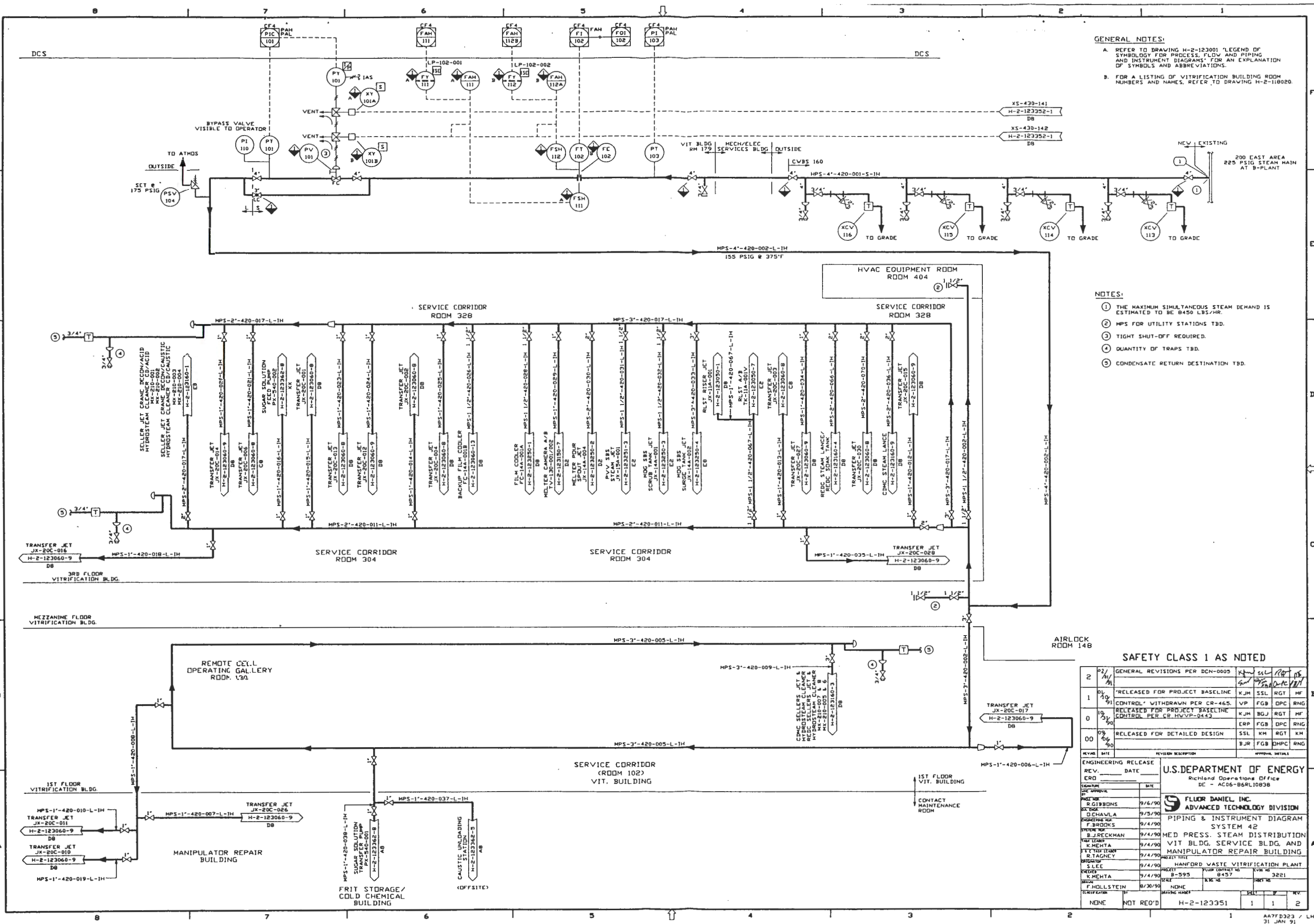
DATE  
 08/17/90

SCALE  
 NONE

REVISIONS

NO.	DATE	DESCRIPTION	BY	CHKD
1				
2				

NOT REQ'D H-2-123350 7 8 2



**GENERAL NOTES:**

- REFER TO DRAWING H-2-123001 'LEGEND OF SYMBOLS FOR PROCESS, FLOW AND PIPING AND INSTRUMENT DIAGRAMS' FOR AN EXPLANATION OF SYMBOLS AND ABBREVIATIONS.
- FOR A LISTING OF VITRIFICATION BUILDING ROOM NUMBERS AND NAMES, REFER TO DRAWING H-2-118020.

**NOTES:**

- THE MAXIMUM SIMULTANEOUS STEAM DEMAND IS ESTIMATED TO BE 8450 LBS/HR.
- MPS FOR UTILITY STATIONS TBD.
- TIGHT SHUT-OFF REQUIRED.
- QUANTITY OF TRAPS TBD.
- CONDENSATE RETURN DESTINATION TBD.

**SAFETY CLASS 1 AS NOTED**

REV. NO.	DATE	REVISION DESCRIPTION	APPROVAL
2	02/19/91	GENERAL REVISIONS PER DCN-0005	KJM SSL RGT MF
1	01/19/91	'RELEASED FOR PROJECT BASELINE CONTROL' WITHDRAWN PER CR-465.	KJM SSL RGT MF
0	10/30/90	RELEASED FOR PROJECT BASELINE CONTROL PER CR HWVP-0443	KJM BOJ RGT MF
00	09/06/90	RELEASED FOR DETAILED DESIGN	ERP FGB DPC RGT
			SSL KM RGT KM
			BJR FGB DMPC RGT

ENGINEERING RELEASE		U.S. DEPARTMENT OF ENERGY	
REV. DATE		Richland Operations Office	
ERO		DE - AC06-B6RL10838	
SIGNATURE	DATE	FLUOR DANIEL INC.	
		ADVANCED TECHNOLOGY DIVISION	
PROJECT MGR	9/16/90	PIPING & INSTRUMENT DIAGRAM	
DESIGNER	9/5/90	SYSTEM 42	
PROGRAMMER	9/4/90	MED PRESS. STEAM DISTRIBUTION	
INSTRUMENT	9/4/90	VIT BLDG, SERVICE BLDG, AND	
FIELD LEADER	9/4/90	MANIPULATOR REPAIR BUILDING	
FIELD TEAM	9/4/90	PROJECT TITLE	
MANAGER	9/4/90	HANFORD WASTE VITRIFICATION PLANT	
CLIENT	9/4/90	PROJECT NO.	8-595
ISSUE	8/30/90	FLUOR CONTRACT NO.	8457
		REV. NO.	3221
		DATE	
		REV. NO.	
		DATE	
NONE	NOT REQ'D	H-2-123351	1 1 2



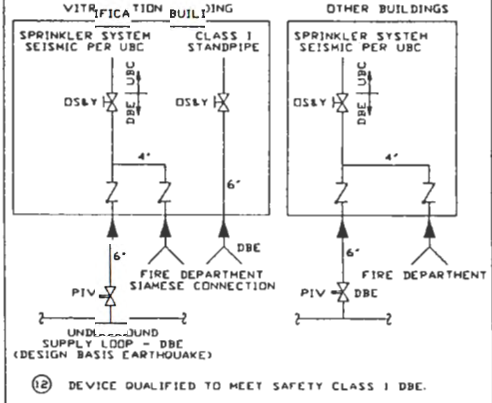
PX-500-001A/B  
 RAW WATER  
 BOOSTER PUMP  
 DESIGN: 1500 GPM EACH  
 ΔP: 95 PSI  
 SPGR: 1.0  
 INSULATION: NONE  
 (VWD 100% UNITS)

GENERAL NOTES:

- A. REFER TO DWG. H-2-123358-1 LEGEND OF SYMBOLLOGY FOR PROCESS FLOW AND INSTRUMENT DIAGRAMS FOR AN EXPLANATION OF SYMBOLS AND ABBREVIATIONS.
- B. THREE DIGIT INSTRUMENT TAG NUMBERS ARE SHOWN WITH 500 UNLESS A SIX DIGIT NUMBER IS SHOWN TO INDICATE ANOTHER SYSTEM.
- C. FOR DEFINITION OF LOGIC CONTAINED IN DIAMOND SYMBOLS AND LOGIC SYMBOLS, SEE PROCESS CONTROL DESIGNATION (PCD) SPECIFICATION B-595-C-17500-DS-500.
- D. SYSTEM 50 IS SAFETY CLASS 3. HOWEVER, CERTAIN EQUIPMENT, PIPING AND THEIR SUPPORT SYSTEMS SHALL REMAIN IDENTICAL AFTER THE SAFETY CLASS 1 DESIGN BASIS (EARTHQUAKE) (DBE).

NOTES:

- ① PRELIMINARY INFORMATION STATES THAT THIS RAW WATER SOURCE WOULD BE AVAILABLE AT 1300 GPM AND 100-130 PSIG.
- ② LOW PRESSURE RAW WATER SUPPLY (UP TO 3000 GPM) AT 47 PSIG. IS BOOSTED TO 130 PSIG FOR FWX USE.
- ③ ALL FWX PIPING IS DBE UNLESS OTHERWISE INDICATED. DBE CRITERIA PERTAIN TO PIPE ONLY AND NOT TO STRUCTURES.
- ④ THIS 10-INCH VALVE TO BE INSTALLED IN WEATHER PROTECTED (NON DBE) ENCLOSURES.
- ⑤ THIS PORTION OF THE SYSTEM IS SAFETY CLASS 3 BUT DESIGNED FOR THE SAFETY CLASS 1 DESIGN BASIS (EARTHQUAKE).
- ⑥ CONSTANT FLOW BYPASS.
- ⑦ THE FIRE WATER (FWX) HEADER IS A CLOSED LOOP AND FLOW IS BIDIR.
- ⑧ STRAINERS TO BE INSTALLED IN SHELTER FOR FREEZE PROTECTION.
- ⑨ YV-109 KEEPS YV-109 NORMALLY CLOSED. YV-109 OPENS YV-109 WHEN PX-500-001A/B IS RUNNING.
- ⑩ PUMPS PX-500-001A/B LOCATED IN RAW WATER PUMP HOUSE.
- ⑪ FIRE PROTECTION PIPE FEEDS TO HWVP BUILDINGS SHALL MEET THE FOLLOWING DESIGNS TO CONFORM WITH DBE CRITERIA.



SAFETY CLASS 1 DBE AS NOTED

REV#	DATE	DESCRIPTION	BY	CHKD	APPV	DETAILS
2	02/01/90	GENERAL REVISIONS PER DCN-0005	KJM	SSL	RGY	MF
1	01/19/90	RELEASED FOR PROJECT BASELINE CONTROL WITHDRAWN PER CR-465.	KJM	SSL	RGY	MF
0	10/30/89	RELEASED FOR PROJECT BASELINE CONTROL PER CR HWVP-0449	KJM	VP	RGY	MF
00	09/16/89	RELEASED FOR DETAILED DESIGN	ERP	FGD	OPC	RGY
			KJM	SSL	RGY	KJM
			BJR	FGD	OPC	RGY

ENGINEERING RELEASE REV. DATE

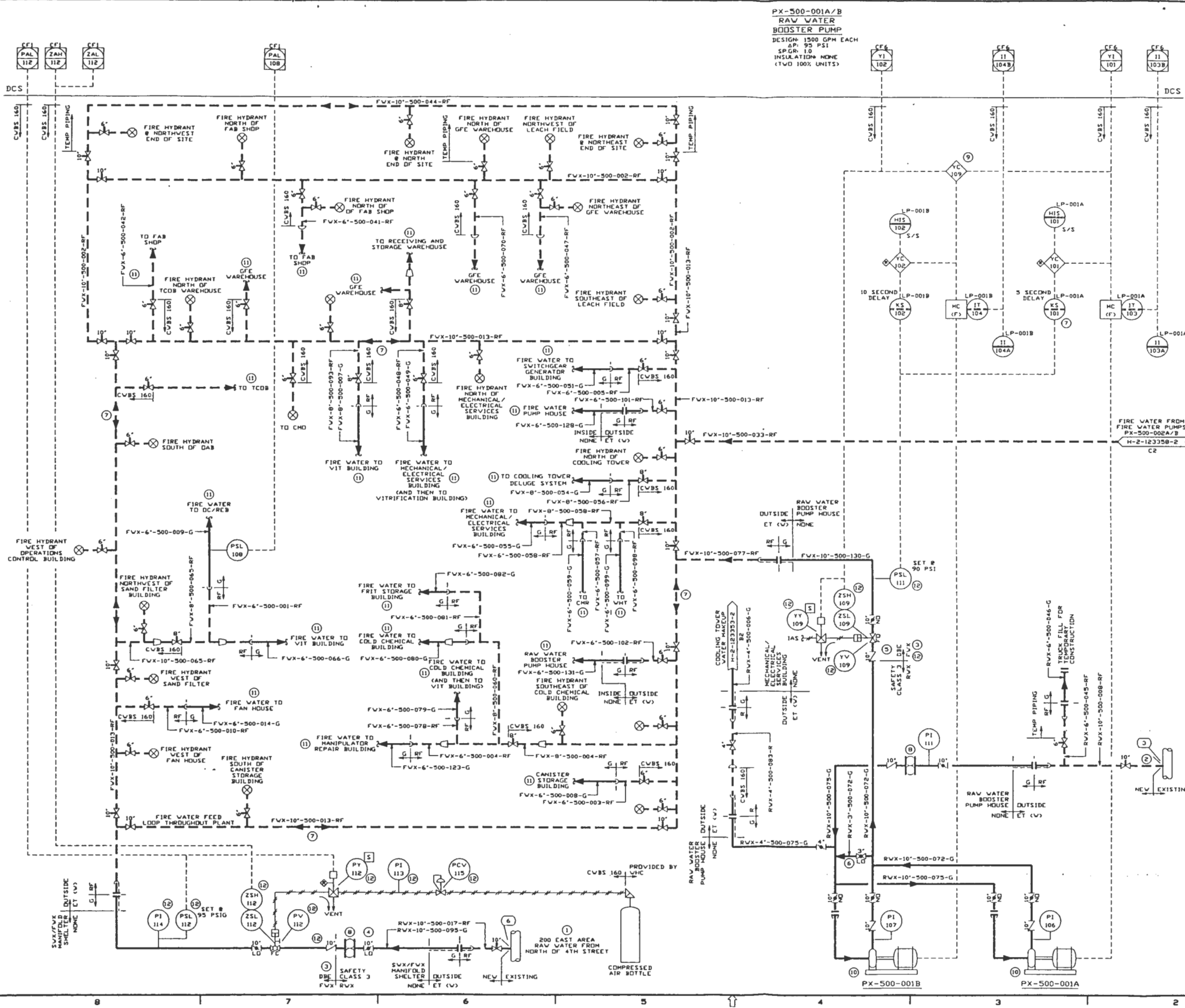
U.S. DEPARTMENT OF ENERGY  
 Richland Operations Office  
 DE - AC06-06RL10830

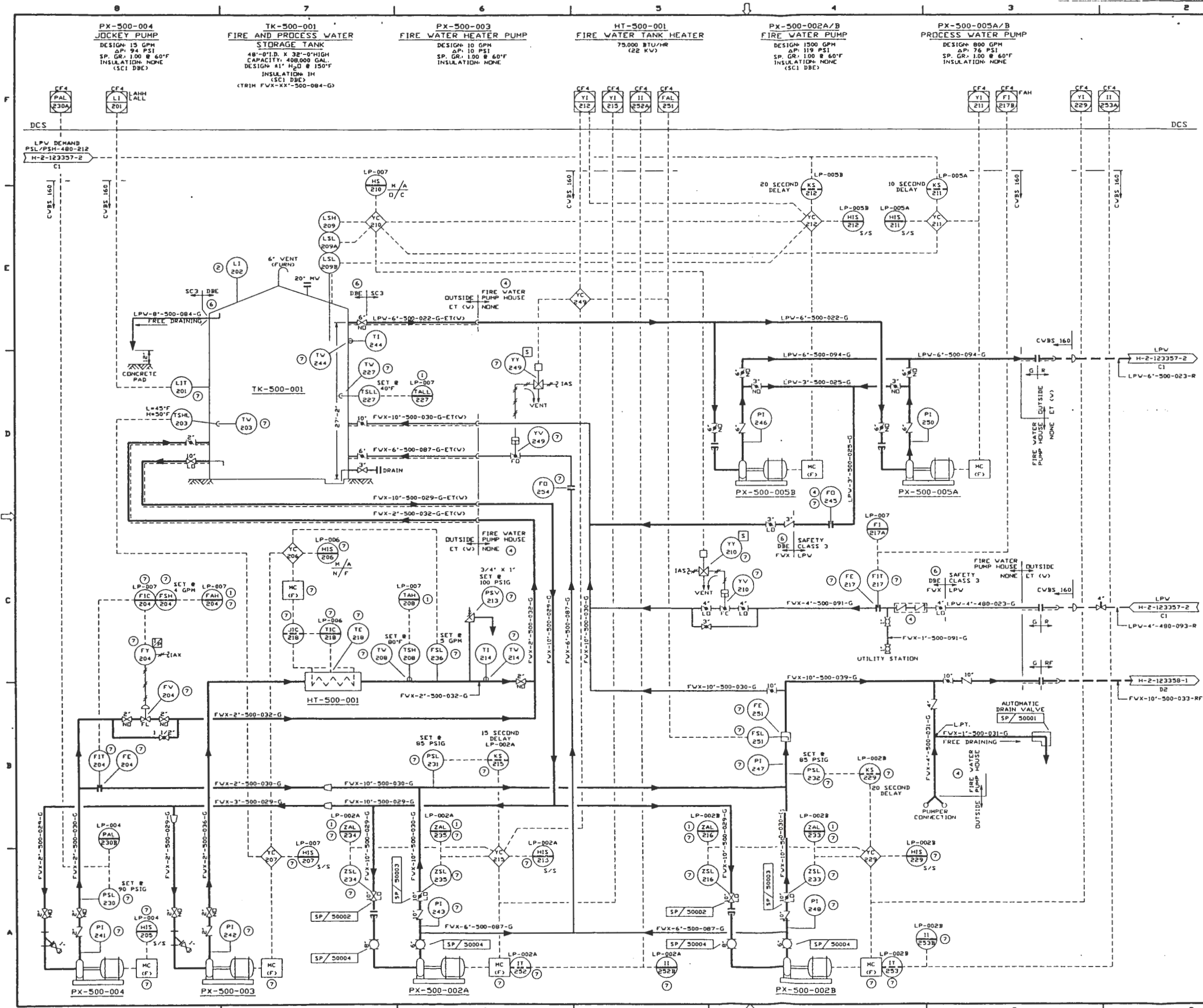
FLUOR DANIEL INC.  
 ADVANCED TECHNOLOGY DIVISION

PIPING & INSTRUMENT SYSTEM 50  
 RAW WATER AND FIRE WATER SYSTEMS

NAME	DATE	REV	DESCRIPTION
R. GIBBONS	9/18/90	1	REVISED
D. CHAVLA	9/18/90	2	REVISED
F. BROOKS	9/18/90	3	REVISED
B. JRECKMAN	9/18/90	4	REVISED
K. MEHTA	9/18/90	5	REVISED
R. TAGNEY	9/18/90	6	REVISED
S. STRAUSBERG	9/18/90	7	REVISED
S. LEE	9/18/90	8	REVISED
F. HOLLSTEIN	9/18/90	9	REVISED
NONE	NOT OCCURRED		

PROJECT TITLE: MANFORD WASTE VITRIFICATION PLANT  
 SHEET NO: B-595  
 DRAWING NO: H-2-123358  
 DATE: 9-18-90  
 SCALE: AS SHOWN





**GENERAL NOTES:**  
 A. FOR GENERAL NOTES REFER TO DRAWING H-2-123358-1.

- NOTES:**
- ALARM IS ANNUNCIATED THROUGH A HORN LOCATED OUTSIDE THE FIRE WATER PUMP HOUSE.
  - LOCATE VISIBLE FROM FIRE WATER PUMP HOUSE.
  - DELETED.
  - PUMPS, HEATER AND LOCAL INSTRUMENTATION ARE LOCATED IN FIRE WATER PUMP HOUSE.
  - FOR INFREQUENT TESTING OF FIRE WATER PUMPS, FLOW ORIFICE SHOULD BE USED WITH A DIFFERENTIAL PRESSURE HANDMETER.
  - THIS PORTION OF THE SYSTEM IS SAFETY CLASS 3, BUT DESIGNED FOR THE SAFETY CLASS 1 DESIGN BASIS EARTHQUAKE (DBE).
  - DEVICE QUALIFIED TO MEET SAFETY CLASS 1 DBE.
  - THE FIREWATER SYSTEM IS REQUIRED TO BE OPERATIONAL DURING THE CONSTRUCTION PERIOD. THE PROCESS WATER SYSTEM IS NOT REQUIRED TO BE OPERATIONAL DURING CONSTRUCTION. THE DCS SYSTEM IS NOT REQUIRED TO BE OPERATIONAL DURING CONSTRUCTION. CONSTRUCTION AND STANDBY POWER WILL BE REQUIRED FOR THE FIREWATER PUMPS DURING CONSTRUCTION.

**SAFETY CLASS 1 DBE AS NOTED**

REV#	DATE	REVISION DESCRIPTION	APPROVAL INITIALS
2	02/09/91	GENERAL REVISIONS PER DCN-0005	KJM, SSL, RGT, MF
1	01/19/91	RELEASED FOR PROJECT BASELINE	KJM, SSL, RGT, MF
0	10/23/90	CONTROL WITHDRAWN PER CR-465. REVISED FOR PROJECT BASELINE CONTROL PER CR HVVP-0443	VJ, FGB, DPC, RRG, ERP, FGB, DPC, RRG
00		RELEASED FOR DETAILED DESIGN	KJM, SSL, RGT, MF, BJR, FGB, DPC, RRG

ENGINEERING RELEASE  
 REV. DATE  
 ERD

**U.S. DEPARTMENT OF ENERGY**  
 Richland Operations Office  
 DC - AC05-B6RL10838

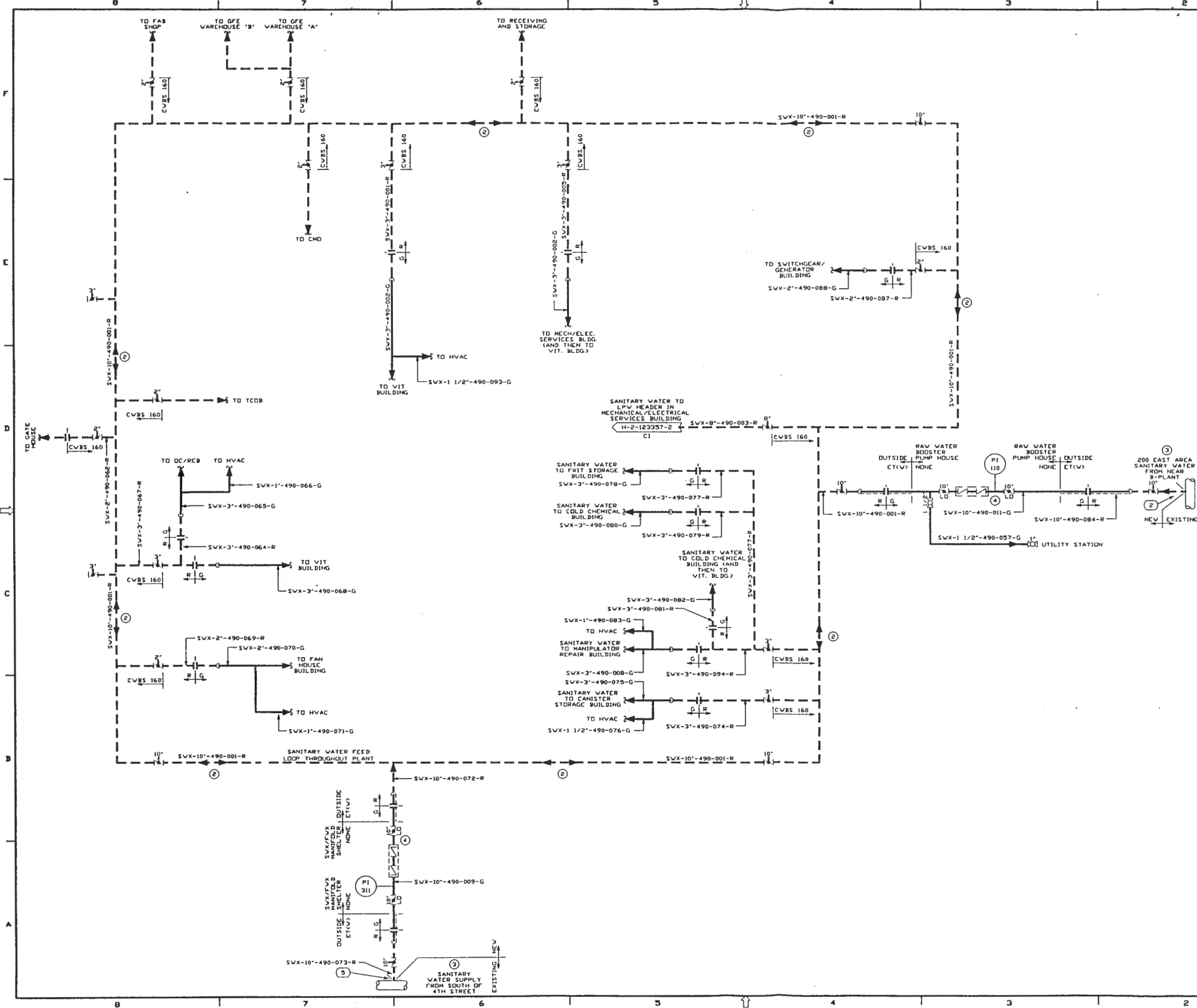
**FLUOR DANIEL, INC.**  
 ADVANCED TECHNOLOGY DIVISION

PIPING & INSTRUMENT DIAGRAM  
 SYSTEM 50  
 FIRE AND PROCESS WATER  
 STORAGE

DESIGNED BY	CHECKED BY	DATE
R. GIBBONS		9/18/90
D. CHAVLA		9/18/90
F. BROOKS		9/18/90
B. RECKMAN		9/18/90
K. MEHTA		9/17/90
R. TAGNEY		9/17/90
S. STRAUSBERG		9/17/90
S. LEE		9/17/90
F.L. HOLLSTEIN		9/17/90

PROJECT TITLE: WASTE VITRIFICATION PLANT  
 PROJECT NO: S-595  
 DRAWING NO: H-2-123358  
 SHEET NO: 2 OF 2





**GENERAL NOTES:**

- REFER TO DWG. H-2-123001 "LEGEND OF SYMBOLS FOR PROCESS FLOW AND PIPING AND INSTRUMENT DIAGRAMS" FOR AN EXPLANATION OF SYMBOLS AND ABBREVIATIONS.
- THREE DIGIT INSTRUMENT TAG NUMBERS ARE PREFIXED WITH 490 UNLESS A SIX DIGIT NUMBER IS SHOWN TO INDICATE ANOTHER SYSTEM.

**NOTES:**

- DELETED
- THE SANITARY WATER (SWX) HEADER IS A CLOSED LOOP AND FLOW IS BIDIRECTIONAL.
- BASED UPON INFORMATION AVAILABLE FROM VHC, THE SANITARY WATER SOURCE NEAR B PLANT WOULD SUPPLY A MAXIMUM OF 800 GPM AT 70 PSIG AND ANOTHER SOURCE NEAR 4TH STREET WOULD SUPPLY 1000 GPM AT 65 PSIG. HOWEVER, VHC SUGGESTED TO USE TOTAL SUPPLY OF 1200 GPM FOR SANITARY WATER (SWX) SYSTEM DESIGN DUE TO UNKNOWN VARIABLES SUCH AS SPECIFIC DURATION AND FREQUENCY OF OTHER SWX USERS.
- THE REDUCED PRESSURE BACKFLOW ASSEMBLY (RPBA) AND 10-INCH ISOLATION VALVE TO BE INSTALLED IN WEATHER PROTECTED (NON DBE) ENCLOSURES.

**SAFETY CLASS 3**

REV. NO.	DATE	REVISION DESCRIPTION	APPROVAL
2	02/26/91	GENERAL REVISIONS PER DEN-0005	KJM SSS RGT MF
1	01/10/91	"RELEASED FOR PROJECT BASELINE"	KJM SSS RGT MF
0	03/31/90	"CONTROL" WITHDRAWN PER CR-465	KJM VP RGT MF
00	08/31/90	RELEASED FOR DETAILED DESIGN	ERP FGB OPC RNG

**ENGINEERING RELEASE**  
 REV. \_\_\_\_\_ DATE \_\_\_\_\_  
 ERO \_\_\_\_\_

**U.S. DEPARTMENT OF ENERGY**  
 Richland Operations Office  
 DC - AC06-B6RL10030

**FLUOR DANIEL, INC.**  
 ADVANCED TECHNOLOGY DIVISION

**PIPING & INSTRUMENT DIAGRAM SYSTEM 49 SANITARY WATER SYSTEM**

REV. NO.	DATE	BY	CHKD BY
02/21/90	02/21/90	R. GIBBONS	
02/27/90	02/27/90	D. CHAVILA	
02/27/90	02/27/90	F. BROOKS	
02/22/90	02/22/90	B. J. RECKMAN	
02/24/90	02/24/90	K. MEHTA	
02/22/90	02/22/90	R. TAGNEY	
02/22/90	02/22/90	S. STRAUSBERG	
02/22/90	02/22/90	S. LEE	
08/21/90	08/21/90	F. HOLLSTEIN	

PROJECT TITLE: HANFORD WASTE VITRIFICATION PLANT  
 PROJECT NO: B-595  
 FLUOR CONTRACT NO: B457  
 KJM NO: 3224  
 SHEET NO: \_\_\_\_\_

CLASSIFICATION: NONE NOT REQ'D  
 H-2-123359  
 1 1 2

SU-530-003  
EFFLUENT DISCHARGE  
COLLECTION SUMP  
NOMINAL CAPACITY: 2600 GAL

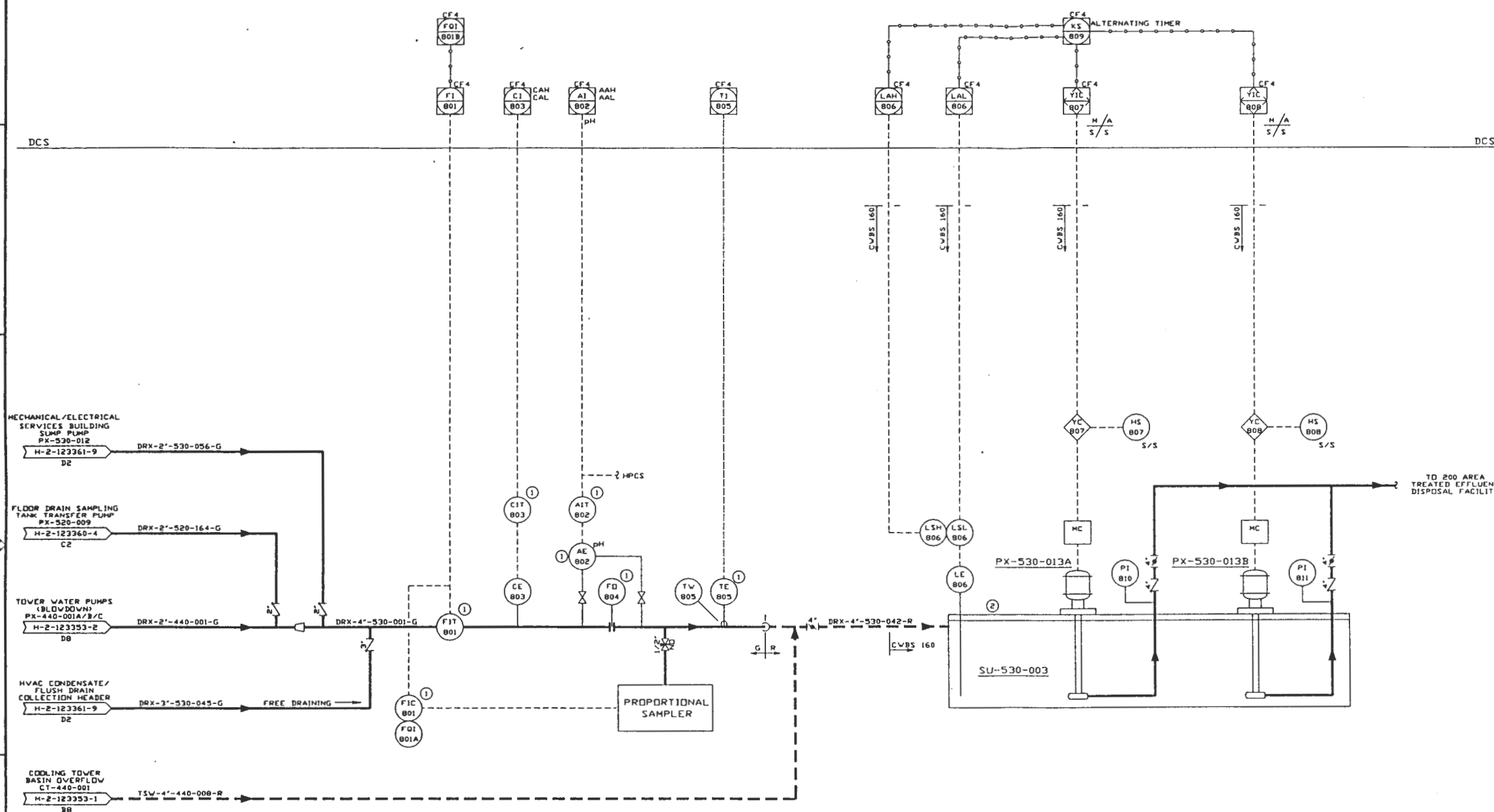
PX-530-013A/B  
EFFLUENT DISCHARGE  
SUMP PUMP  
DESIGN: 150 GPM  
ΔP: 25 PSI  
SP.GR.: 1.0  
INSULATION: NONE

GENERAL NOTES:

A. FOR GENERAL NOTES REFER TO DRAWING H-2-123361-1.

NOTES:

- ① INSTRUMENTS ARE LOCATED INSIDE MECHANICAL/ELECTRICAL SERVICES BLDG.
- ② THE EFFLUENT DISCHARGE COLLECTION SUMP AND PUMPS ARE LOCATED IN THE RAW WATER PUMP HOUSE.



SAFETY CLASS 3

REV#	DATE	DESCRIPTION	APPROVAL	INITIALS
2	02/01/91	GENERAL REVISIONS PER DGN-0005	SSL	KJM
1	01/10/91	'RELEASED FOR PROJECT BASELINE CONTROL' WITHDRAWN PER CR-465.	VP	FGB
0	10/21/90	RELEASED FOR PROJECT BASELINE CONTROL PER CR HVVP-0442	ERP	FGB
00	09/10/90	RELEASED FOR DETAILED DESIGN	SSL	SS

ENGINEERING RELEASE:

REV. DATE: \_\_\_\_\_

U.S. DEPARTMENT OF ENERGY  
Richland Operations Office  
DE - AC06-86RL10878

FLUOR DANIEL, INC.  
ADVANCED TECHNOLOGY DIVISION

PIPING & INSTRUMENTATION DIAGRAM  
SYSTEM 53  
NONHAZARDOUS WASTE WATER  
DISPOSAL

DESIGNER	CHECKED	DATE	SCALE	SHEET NO.	TOTAL SHEETS
S. LEE	S. STRAUSBERG	8/22/90	AS SHOWN	7	9

KEY FILE: HANFORD WASTE VITRIFICATION PLANT  
PROJECT: B-595  
SHEET NO: 3225  
DRAWN: F. HOLLSTEIN  
DATE: 08/12/90  
SCALE: NONE  
REV: NONE

H-2-123361 7 9 2