AR TARGET SHEET

The following document was too large to scan as one unit; therefore, it has been broken down into sections.

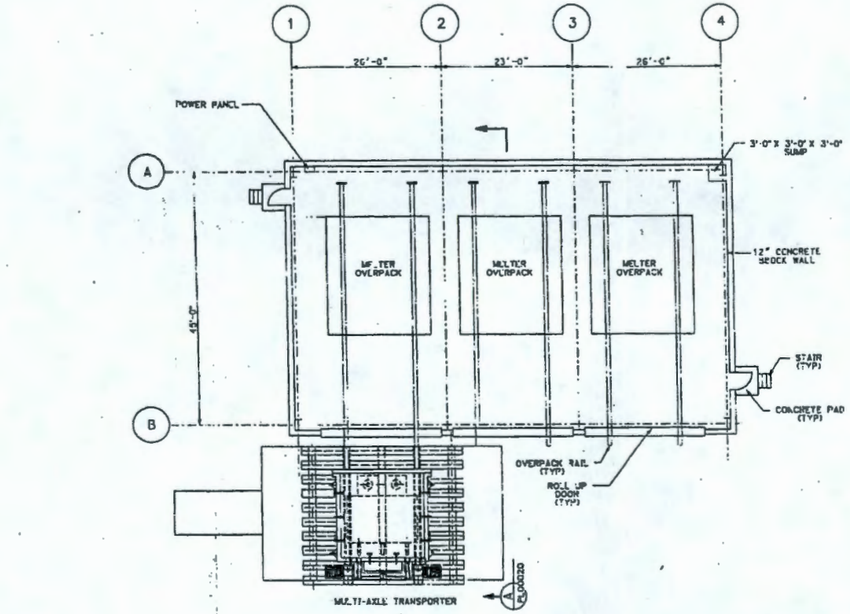
DOCUMENT#	BNFL-5193-RCRA-01
TITLE	River Protection Project Waste Treatment Plant Dangerous Waste Permit Application (5 volumes)
EDMC#	0053076
SECTION	11 of 11

53076
6/6

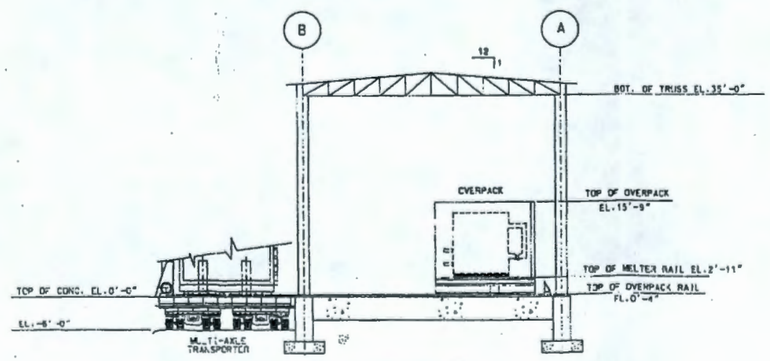
Supplement 9
Engineering Drawings

DWG No. DWG-W375 BF-PL00020

NOTE:
1. FLOOR SLOPE IS 1/8" PER FOOT.



PLAN



SECTION A PL00020

PRELIMINARY

REV	DESCRIPTION	DRAWN: CHKD	APVD	DATE
A	ISSUED PHASE I GENERAL ARRANGEMENT AND FOR APRIL 24, 2000 BASELINE	VLL		

REVISION HISTORY

BNFL INC.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No: DE-AC06-96RL13308

	BY	DATE
ORIGINATOR		3-7-00
CHECKED		3-7-00
APPROVED		3-7-00

BOF FAILED MELTER STORAGE
PLAN @ EL.0'-0"
GENERAL ARRANGEMENT

PROJECT No. W375
SITE HANFORD
AREA 200E
BUILDING No. 0

SCALE 1/8"=1'-0" | DWG No. DWG- W375 BF-PL00020 | REV A

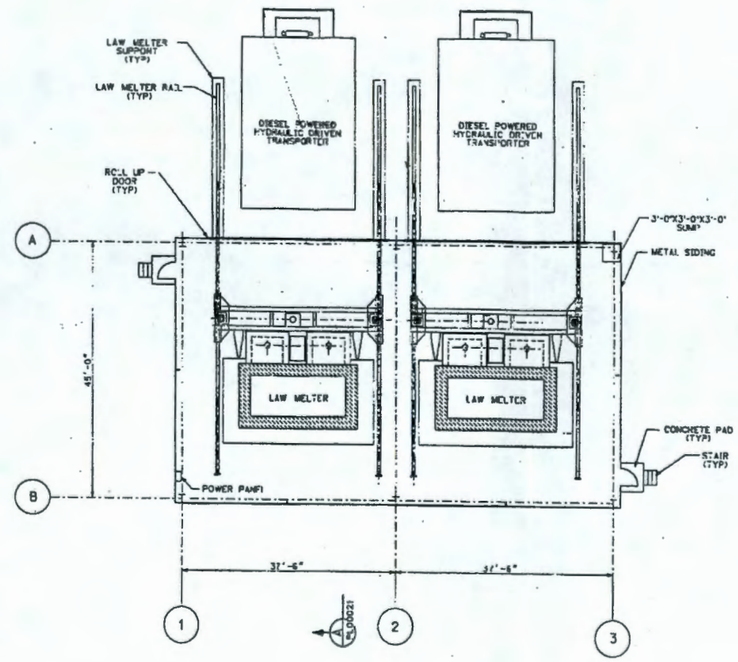
BNF REFERENCE No. DWG W375-00-DW75 REV A

"C" SIZE - 44x34

DATE 10 MAR 2000 13:42:54

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375 BF-PL00021



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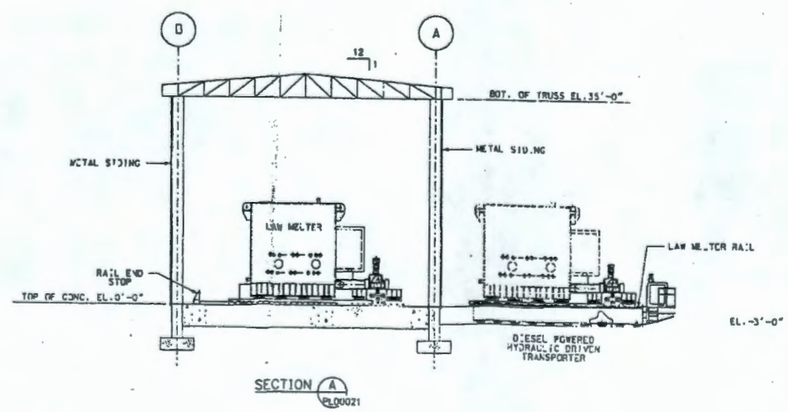


SECTION A PL00021

NOTE:

1. FLOOR SLOPE IS 1/8" PER FOOT.

PRELIMINARY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
A	ISSUED PHASE 1 GENERAL ARRANGEMENT AND FOR APRIL 24, 2000 BASELINE	VGL			

REVISION HISTORY

PROJECT No. 9375
SITE HANFORD
AREA 200E
P.O./SPEC No. 0

	BY	DATE
DRAWN BY		
CHECKED		
APPROVED		

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13358

BOF MELTER STAGING AREA
PLAN @ EL.0'-0"
GENERAL ARRANGEMENT

SCALE: 1/8"=1'-0"

DWG No. DWG- W375 BF-PL00021

REV A

DWG REFERENCE No. DWG-W375-00-01423 REV 1

"C" SIZE - 44x34

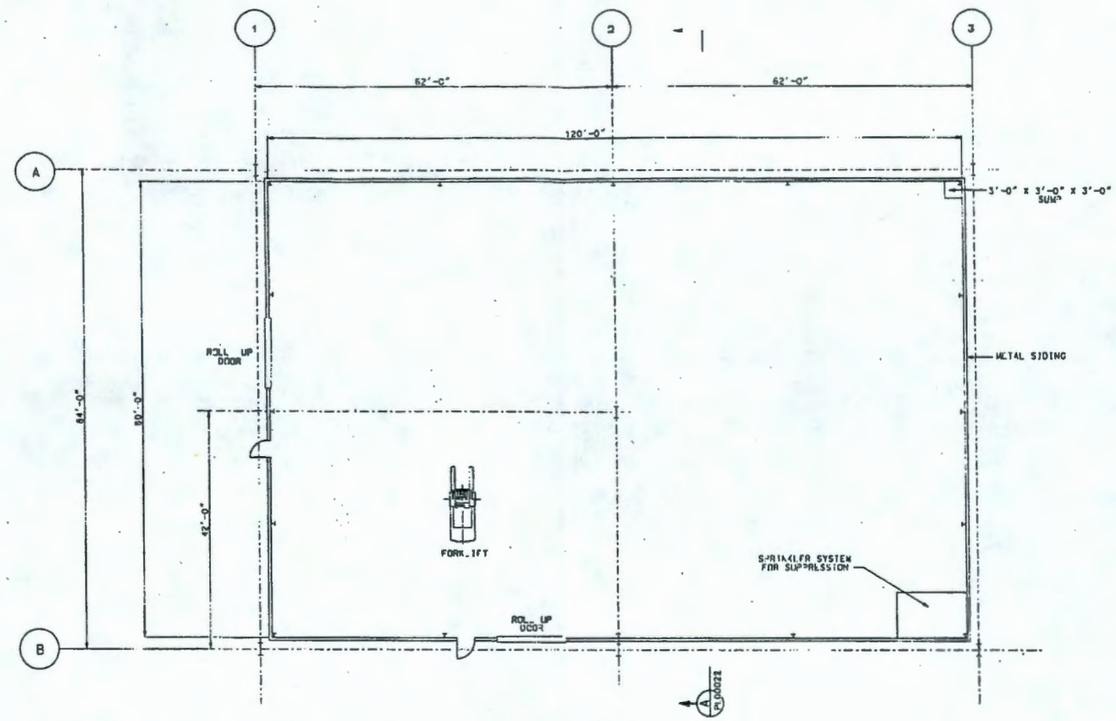
07 MAR 2000 12:31:04

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375 BF-PL00022

NOTE:

1. FLOOR SLOPE IS 1/8" PER FOOT.



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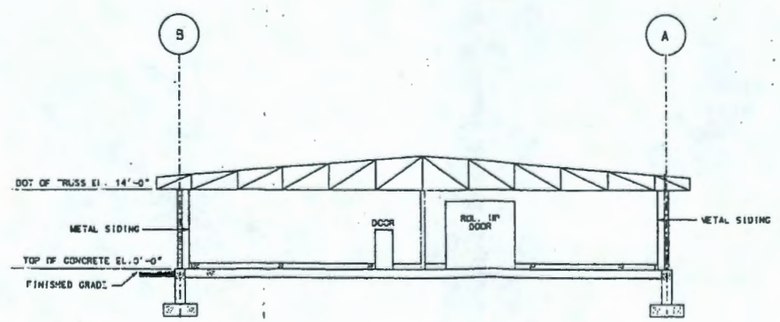


SECTION A/PL00022

PRELIMINARY

REV	DESCRIPTION	DRAWN	CHK'D	APV'D	DATE
A	REVISED PHASE I GENERAL ARRANGEMENT AND FOR EPRB 24,2000 BASELINE	VLL	CMP	RKK	3-9-00

REVISION HISTORY

PROJECT No.	9375	
SITE	HANFORD	
AREA	200E	
BUILDING No.	0	
	BY	DATE
ORIGINATOR	[illegible]	3-7-00
CHECKER	[illegible]	3-7-00
APPROVED	[illegible]	3-9-00

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-84RL13308

BOF CENTRAL WASTE STORAGE
PLAN @ EL. 0'-0"
GENERAL ARRANGEMENT

CSM REFERENCE No. DN-9375-00-01434 REV A

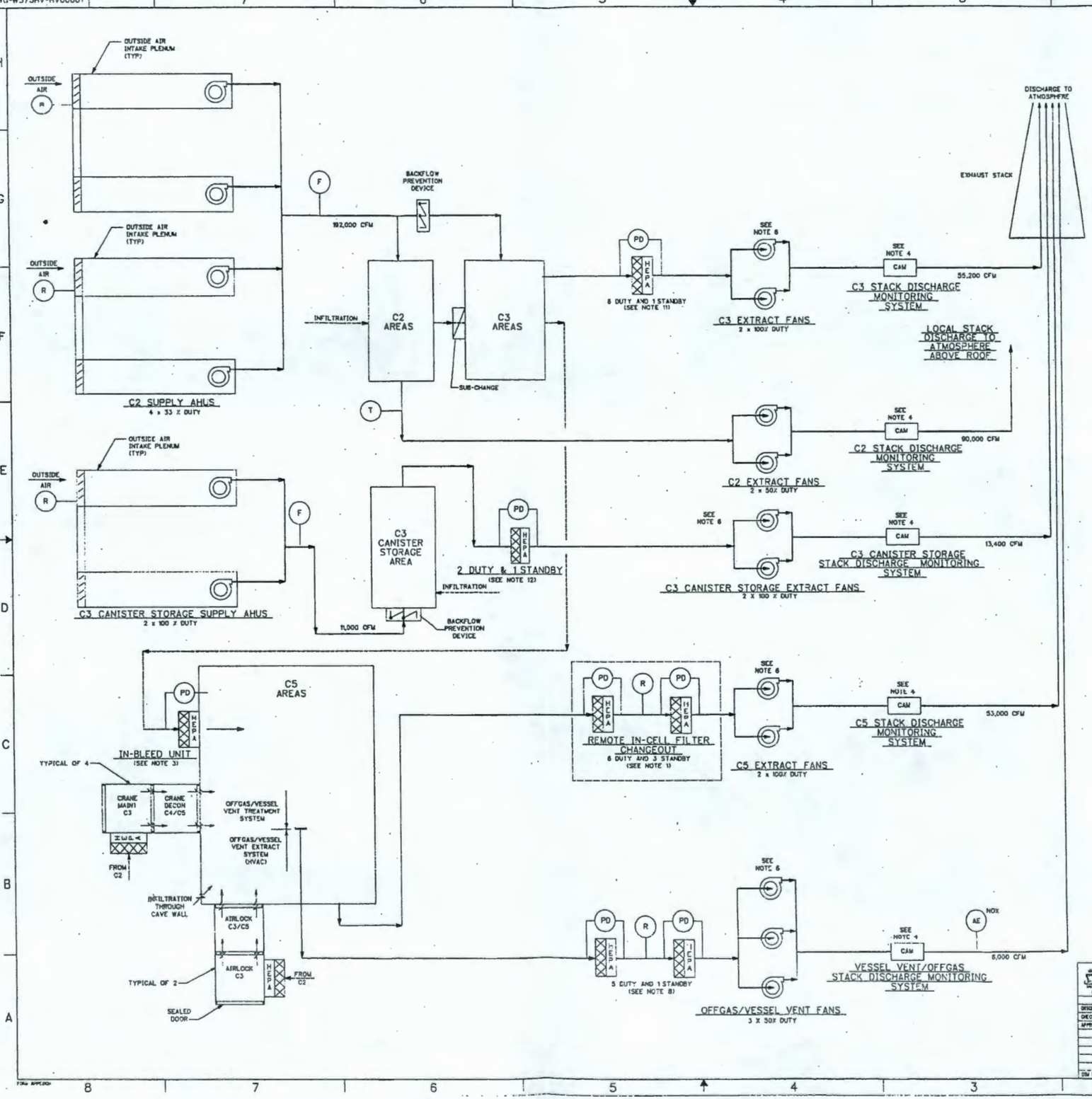
SCALE: 1/8"=1'-0"

DWG No. DWG- W375 BF-PL00022 REV A

17 MAR 2000 09:09

SUPPLIER GENERATED - WORK CANNOT BE PERFORMED

DWG No. DWG-W375HV-HV00001



NOTES:

1.) FOR C5 FILTER CONFIGURATION SEE DWG-W375HV-HV00030 THRU -34.

2.) TO ENSURE THE INTEGRITY OF THE VENTILATION SYSTEM CONFINEMENT BARRIERS, THE USE OF FIRE DAMPERS WILL BE RE-EVALUATED DURING B2 DESIGN PHASE.

3.) DAMPERS AND COOLING COILS, WHERE REQUIRED FOR IN BLEED UNITS ARE SHOWN ON DWG-W375HV-HV00033.

4.) FOR STACK DISCHARGE MONITORING, SEE DWG-W375HV-HV00022.

5.) INTERLOCKS ARE PROVIDED TO PREVENT STARTING THE C2 SUPPLY FANS WITHOUT THE EXTRACT FANS RUNNING. THE C2 SUPPLY FANS ARE INTERLOCKED TO SHUTDOWN IN THE EVENT A COMPLETE LOSS OF ALL C5 EXTRACT FANS OR ALL C3 EXTRACT FANS.

6.) C3, C5 & VESSEL VENT/OFFGAS EXTRACT FANS ARE PROVIDED WITH VARIABLE FREQUENCY DRIVES (VFD).

7.) FAILURE OF A FAN IS DETERMINED BY LOW PRESSURE DIFFERENTIAL ACROSS THE FAN, OR LOSS OF FAN SPEED OR LOSS OF DISCHARGE FLOW AND RESULTS IN A FAN SHUTDOWN AND A FAN FAILURE ALARM.

8.) SINGLE UNSHIELDED CANISTER TYPE HOUSING ARE PROVIDED FOR VESSEL VENT/OFFGAS SYSTEM. FOR FILTER CONFIGURATION SEE DWG-W375HV-HV00035 THRU DWG-W375HV-HV00037.

9.) THE FIRE SUPPRESSION SYSTEM FOR HEPA FILTERS WILL BE EVALUATED DURING THE FIRE HAZARD ANALYSIS.

10.) STACK HEIGHT IS TO BE DETERMINED BY AIR DISPERSION MODELING (LATER). IT IS TENTATIVELY ESTIMATED AT 200FT.

11.) FOR C3 FILTER CONFIGURATION, SEE DWG-W375HV-HV00038 THRU DWG-W375HV-HV00041.

12.) FOR C3 CANISTER STORAGE SYSTEM FILTER CONFIGURATION, SEE DWG-W375HV-HV00049.

PRELIMINARY

REFERENCE DRAWINGS

DWG NO	TITLE
DWG-W375-M00001	P&ID SYMBOLS AND LEGEND 1 OF 5
DWG-W375-M00002	P&ID SYMBOLS AND LEGEND 2 OF 5
DWG-W375-M00003	P&ID SYMBOLS AND LEGEND 3 OF 5
DWG-W375-M00004	P&ID SYMBOLS AND LEGEND 4 OF 5
DWG-W375-M00005	P&ID SYMBOLS AND LEGEND 5 OF 5
DWG-W375HV-HV00045	HLW VIT BLDG SYS 720 PLANT ROOM V&ID C2 SUPPLY 1 OF 2
DWG-W375HV-HV00046	HLW VIT BLDG SYS 720 PLANT ROOM V&ID C2 SUPPLY 2 OF 2
DWG-W375HV-HV00047	HLW VIT BLDG SYS 720 PLANT ROOM V&ID C2 EXTRACT
DWG-W375HV-HV00048	HLW VIT BLDG SYS 731 PLANT ROOM V&ID C3 C5 SUPPLY
DWG-W375HV-HV00030	HLW VIT BLDG SYS 750 PLANT ROOM V&ID C5 EXTRACT 1 OF 5
DWG-W375HV-HV00031	HLW VIT BLDG SYS 750 PLANT ROOM V&ID C5 EXTRACT 2 OF 5
DWG-W375HV-HV00032	HLW VIT BLDG SYS 750 PLANT ROOM V&ID C5 EXTRACT 3 OF 5
DWG-W375HV-HV00033	HLW VIT BLDG SYS 750 PLANT ROOM V&ID C5 EXTRACT 4 OF 5
DWG-W375HV-HV00034	HLW VIT BLDG SYS 750 PLANT ROOM V&ID C5 EXTRACT 5 OF 5
DWG-W375HV-HV00035	HLW VIT BLDG SYS 770 PLANT ROOM V&ID VV SYS 1 OF 4
DWG-W375HV-HV00036	HLW VIT BLDG SYS 770 PLANT ROOM V&ID VV SYS 2 OF 4
DWG-W375HV-HV00037	HLW VIT BLDG SYS 770 PLANT ROOM V&ID VV SYS 3 OF 4
DWG-W375HV-HV00038	HLW VIT BLDG SYS 770 PLANT ROOM V&ID VV SYS 4 OF 4
DWG-W375HV-HV00039	HLW VIT BLDG SYS 730 PLANT ROOM V&ID C3 EXTRACT 1 OF 4
DWG-W375HV-HV00040	HLW VIT BLDG SYS 730 PLANT ROOM V&ID C3 EXTRACT 2 OF 4
DWG-W375HV-HV00041	HLW VIT BLDG SYS 730 PLANT ROOM V&ID C3 EXTRACT 3 OF 4
DWG-W375HV-HV00042	HLW VIT BLDG SYS 730 PLANT ROOM V&ID C3 EXTRACT 4 OF 4
DWG-W375HV-HV00049	HLW VIT BLDG SYS 731 PLANT RM V&ID C3 C5 EXTRACT 1 OF 2
DWG-W375HV-HV00051	HLW VIT BLDG SYS 731 PLANT RM V&ID C3 C5 EXTRACT 2 OF 2
DWG-W375HV-PL00015	HLW VIT BLDG GENERAL ARRANGEMENT PLAN AT -18'-0"
DWG-W375HV-PL00016	HLW VIT BLDG GENERAL ARRANGEMENT PLAN AT 0'-0"
DWG-W375HV-PL00017	HLW VIT BLDG GENERAL ARRANGEMENT PLAN AT 17'-0"
DWG-W375HV-PL00018	HLW VIT BLDG GENERAL ARRANGEMENT PLAN AT 32'-0"
DWG-W375HV-PL00019	HLW VIT BLDG GENERAL ARRANGEMENT PLAN AT 48'-0"
DWG-W375HV-PL00020	HLW VIT BLDG GENERAL ARRANGEMENT PLAN AT 62'-0"
DWG-W375HV-PL00021	HLW VIT BLDG GENERAL ARRANGEMENT PLAN AT 76'-0"
DWG-W375HV-PL00022	HLW VIT BLDG GENERAL ARRANGEMENT SECT A-A, B-B, C-C
DWG-W375HV-PL00023	HLW VIT BLDG GENERAL ARRANGEMENT SECT D-D, E-E
DWG-W375HV-PL00024	HLW VIT BLDG GENERAL ARRANGEMENT SECT F-F, G-G, H-H
DWG-W375HV-PL00025	HLW VIT BLDG GENERAL ARRANGEMENT SECT J-J, SECT K-K
DWG-W375HV-PR00010	HLW VIT BLDG OFFGAS/VESSEL VENT TREATMENT SYSTEM

REVISION HISTORY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
C	ISSUED FOR STAGE "B"	[illegible]	[illegible]	[illegible]	3/25/00
B	ISSUED FOR STAGE "B" USE BYGONES PROPRIETARY NOTE	RWG	KTY	RF	10/1/99
A	ISSUED FOR STAGE "A" USE	RWG	KTY	RF	10/18/99

ISSUED BY: BNFL INC. ISSUE STAMP

		DATE
	PROJECT No. W375	
	SITE HANFORD	
	AREA 3000	
	B.B.DWG No.	
	BY	DATE
DESIGNATOR	RF GOURLEY	10/18/99
CHECKER	KT YU	10/18/99
APPROVED	P PURTHASAMUTHY	10/18/99

DW REFERENCE No. DW-W375-00-DH05 REV C

BNFL INC.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No/ DE-AC06-96RL13308

HLW VITRIFICATION BUILDING
HVAC
OVERALL PLANT DIAGRAM

SCALE: NONE | DWG No. DWG-W375HV-HV00001 | REV C

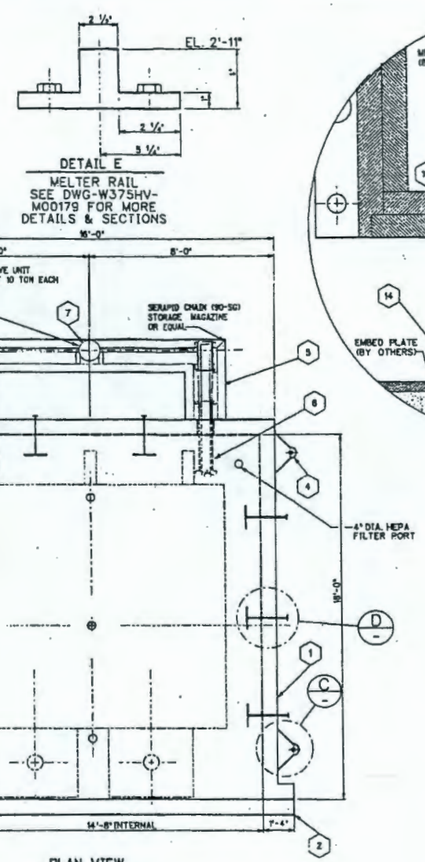
"B" SIZE - 44x34

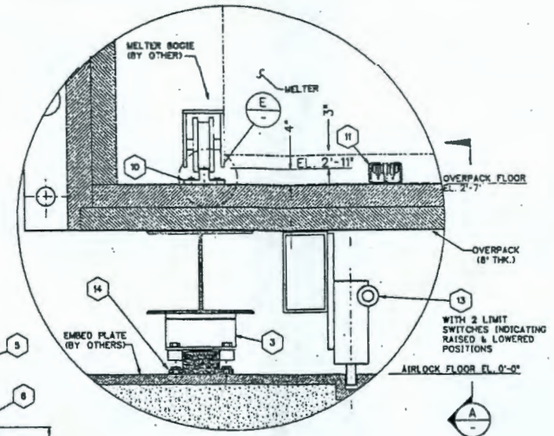
15 MAR 2000 08:47:42

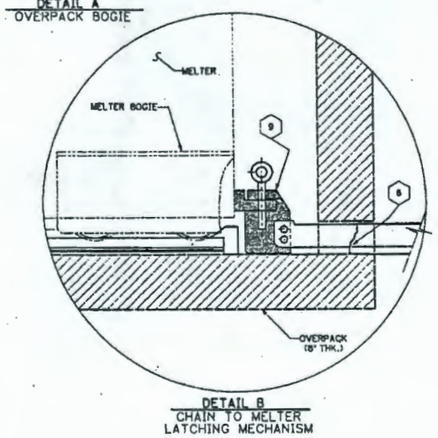
COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

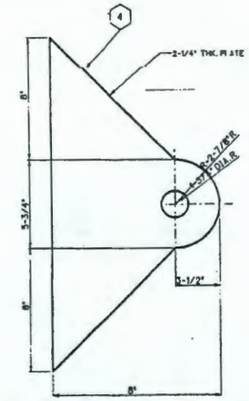
LAST PLOTTED BY: [illegible]

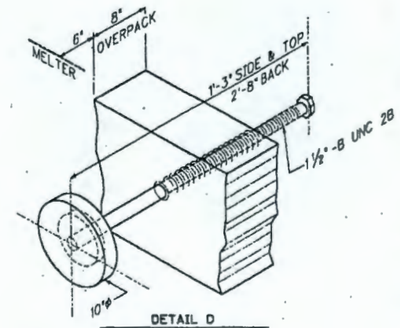
DWG No. DWG-W375HV-M00105











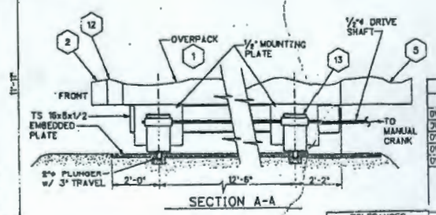
MATERIAL LIST

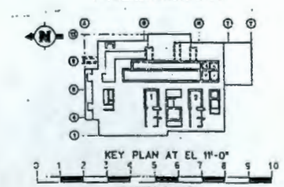
ITEM No.	PLANT ITEM No.	MATL	QUAN	DESCRIPTION	ORDER No. or SUPPLIER
1		ASTM-A36	1	OVERPACK	
2		ASTM-A36	2	OVERPACK DOOR	
3		S.S.	12	HILLMAN ROLLER 75 METRIC TON	HILLMAN
4		ASTM-A36	4	HORIZONTAL RIGGING POINT	
5		S.S.	2	CHAIN DRIVE STORAGE MAGAZINE	SERAPID
6			2	DRIVE CHAIN, RATED @ 10 TON x 55' LONG OR EQUAL	SERAPID 90 SG
7			1	DRIVE CHAIN MOTOR (5HP) & GEAR UNIT	SERAPID
8			1	ELECTRICAL JUNCTION BOX CHAIN DRIVE UNIT	SERAPID
9			2	DRIVE CHAIN LATCHING MECHANISM	SERAPID
10		S.S. A900	2	MELTER RAILS INSIDE OVERPACK 17-4 PH	
11			2	CHAIN GUIDE TRACK 90 SG O EQUAL INSIDE OVERPACK	SERAPID
12			2	OVERPACK DOOR FLANGE	
13			4	LOCKING BOLT & ASSEMBLY w/2 LIMIT SWITCHES	
14			2	OVERPACK RAILS	
15			2	ALIGNMENT PINS	
16			12	OVERPACK DOOR TO SHIELD DOOR BOLT ASSY	
17			14	OVERPACK DOOR TO FLANGE BOLT ASSY.	
18			28	MELTER RESTRAINT ASS'Y	

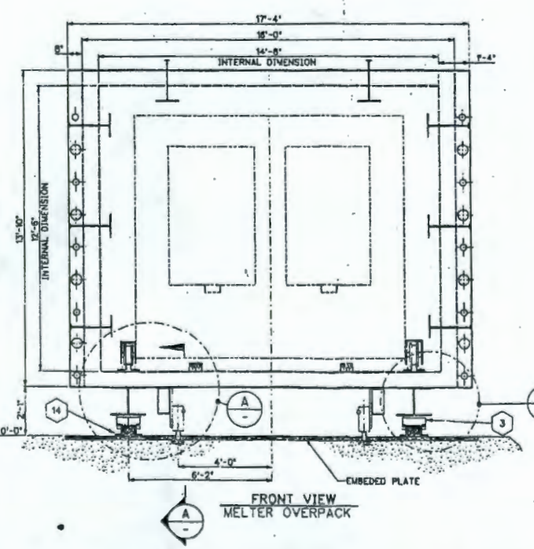
NOTES:

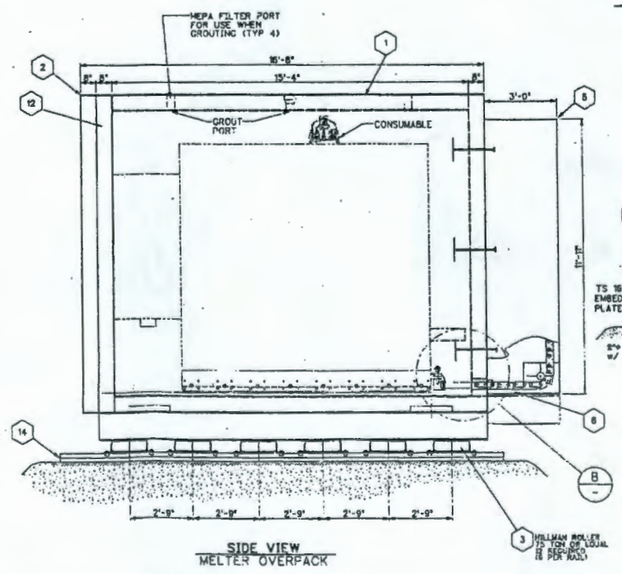
1. CHAIN DRIVE TRAVEL SPEED 5 FEET PER MINUTE (MAX). ESTIMATED LOAD REQUIRED TO MOVE MELTER INTO AND OUT OF OVERPACK: 5.5 TONS.
2. APPROXIMATE WEIGHTS:
   - OVERPACK ASSEMBLY w/DOOR - 227TONS
   - OVERPACK ASSEMBLY CARRYING SPENT HLW MELTER - 327 TONS
3. OVERPACK FABRICATED USING CARBON STEEL MATERIALS.
4. RAILS INSIDE OVERPACK TO BE FABRICATED FROM STAINELSS STEEL WITH A MINIMUM YIELD STRENGTH OF 50,000 PSI.
5. RAIL TOLERANCES APPLIES TO RAILS IN OVERPACK AND RAILS THAT CARRY THE OVERPACK.
   a. EACH RAIL MUST BE LEVEL TO WITHIN 0.04 INCHES PER EACH 16 ft NON-CUMULATIVE.
   b. MAXIMUM PERMITTED DIFFERENCE IN LEVEL BETWEEN EACH RAIL IS 0.080 INCHES.
   c. PARALLELISM OF RAILS IN HORIZONTAL PLANE TO BE ± 0.04 INCHES PER 16 ft NON-CUMULATIVE.
   d. THE HORIZONTAL LATERAL DEVIATION SHALL NOT EXCEED ± 0.04" OVER A 8 ft LENGTH OF RAIL.
   e. FINISHED LEVEL AT RAIL DATUM TO BE WITHIN 0.04" OF THE THEORETICAL LEVEL.
   f. THE TRAVERSE INCLINATION OF THE RAIL RUNNING SURFACE FROM THE HORIZONTAL DATUM SHALL NOT EXCEED A SLOPE OF 1 IN 30.
   g. THE SURFACE FINISH OF THE TOP OF THE RAIL SHALL BE 250 MICRO INCHES RMS OR BETTER.
6. CHAIN GUIDE TRACK SHALL BE A SERAPID 90-SG OR EQUAL.
7. SELECTION OF COMMERCIAL COMPONENTS ON THIS DRAWING IS BNFL INC PROPOSAL ONLY. THE VENDOR IS RESPONSIBLE FOR FULL VALIDATION OF THE COMPONENTS SELECTED FOR THE CONTRACTED APPLICATION WHETHER IDENTICAL TO THE BNFL PROPOSAL OR OTHERWISE.
8. ESTIMATED FORCE TO MOVE OVERPACK THROUGH THE AIRLOCK: 16 TONS.

PRELIMINARY









REFERENCE DRAWINGS	
DWG NO	TITLE
DWG-W375HV-M00178	HLW MELTER OVERPACK, DETAILS & SECT. SH. 2
DWG-W375HV-M00176	HORIZONTAL SHIELD DOOR INTO MELT. 1 CELL PI# P34003 SH.1/3
DWG-W375HV-M00130	HORIZONTAL SHIELD DOOR INTO MELT. 1 CELL PI# P34144 SH.2/3
DWG-W375HV-M00176	HORIZONTAL SHIELD DOOR INTO MELT. 1 CELL PI# P34144 SH.3/3
DWG-W375HV-M00179	RAILS IN MELTER 1 CELL, PLANT ITEM # H34128

TOLERANCES	
.XX	±.030
.XXX	±.010
FRACTION	± 1/16"
ANGLE	± 1°

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
A	ISSUED FOR FPE				11-19-99

REVISION HISTORY

PROJECT No. 9375
SITE HANFORD
AREA 200E
BUILDING No.

BNFL INC.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

	BY	DATE
ORIGINATOR		9-21-99
CHECKER		11-19-99
APPROVED		11-19-99

HLW VITRIFICATION SYSTEM 420
DESIGN PROPOSAL DRAWING
HLW MELTER OVERPACK
PLANT ITEM # H34131
SHEET 1 OF 2

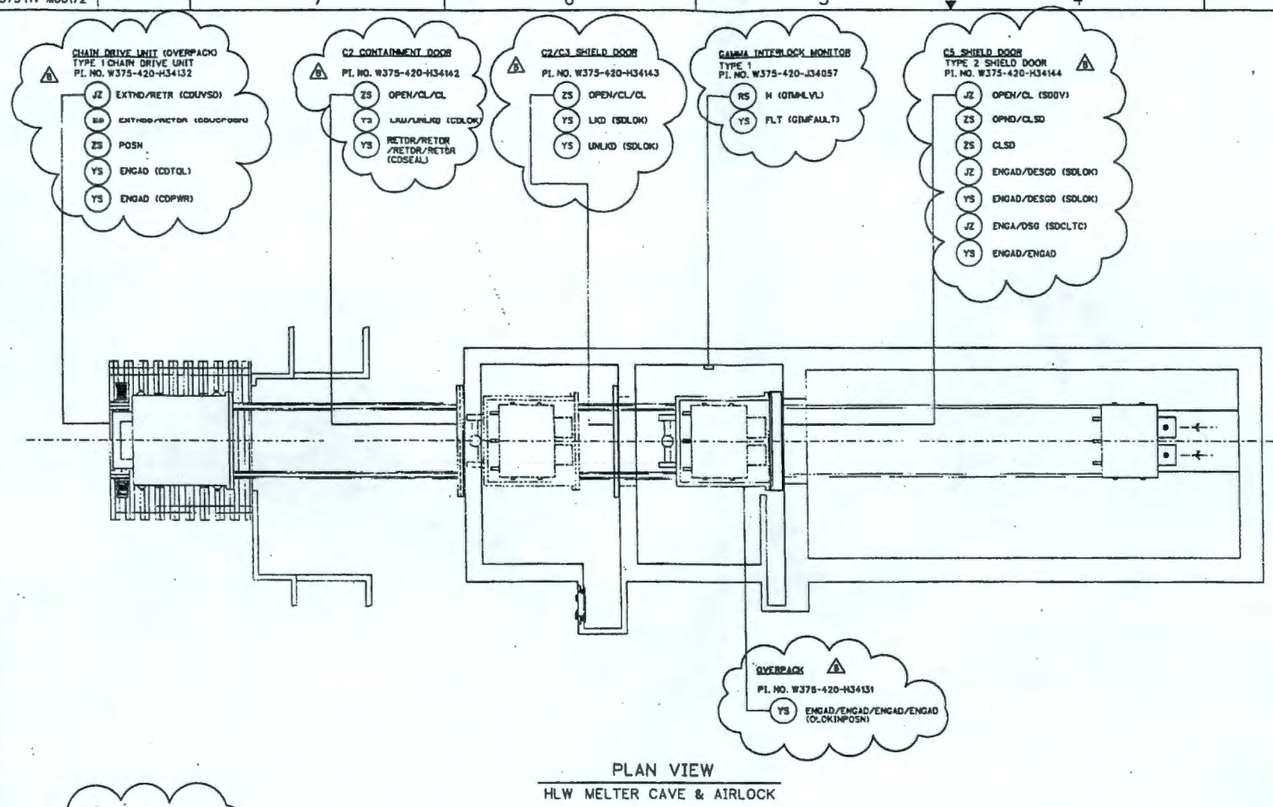
SCALE: 1/2"=1'-0" | DWG No. DWG- W375 HV-M00105 | REV A

THIRD ANGLE PROJECTION

'E' SIZE - 44x34

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375 HV-M00172

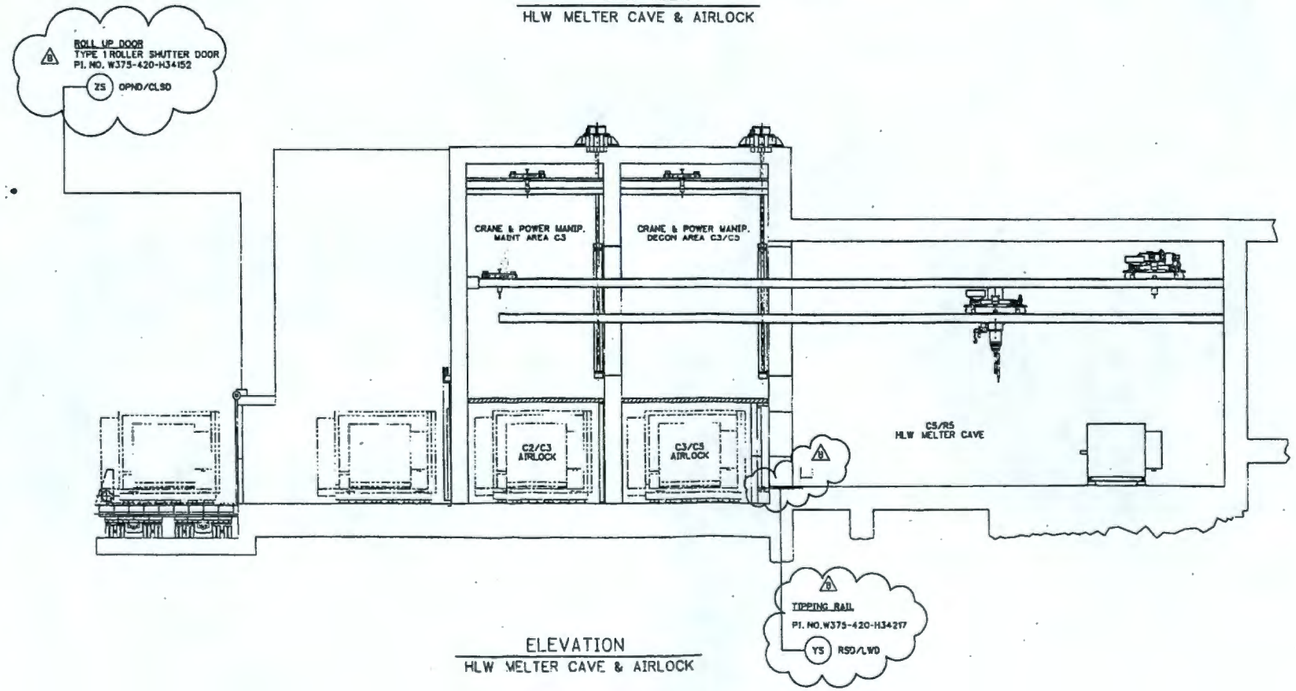


PLAN VIEW

HLW MELTER CAVE & AIRLOCK

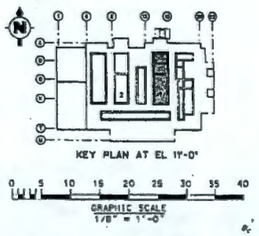
REVISION INFORMATION NOTE

REFORMATTED ALL PLANT ITEM NUMBERS AND TITLES. REMOVED "XXXXXX" PI. NUMBERS. REVISED TO INCORPORATE CURRENT BUILDING LAYOUT. ELIMINATED MOTOR DRIVE ON H34142(G7), AND H34143(H6). OVERPACK WINCH POSITION(G7) AND (G2). REVISED OVERPACK POSITION (H5). ADDED GAMMA INTERLOCK(C8). TIPPING RAIL(B5). DELETED NOTES 1-4.



ELEVATION

HLW MELTER CAVE & AIRLOCK



PRELIMINARY

REFERENCE DRAWINGS	
DWG NO	TITLE
DWG-W375HV-M00082	HLW SYSTEM 420, MFD LEVEL 1, MELTER TRANSPORT, SH 1 OF 1
DWG-W375HV-M00097	HLW SYSTEM 420, MFD LEVEL 2, MELTER TRANSPORT, SH 1 OF 7
DWG-W375HV-M00030	HLW SYSTEM 420, MFD LEVEL 2, MELTER TRANSPORT, SH 2 OF 7
DWG-W375HV-M00104	HLW SYSTEM 420, MFD LEVEL 2, MELTER TRANSPORT, SH 3 OF 7
DWG-W375HV-M00102	HLW SYSTEM 420, MFD LEVEL 2, MELTER TRANSPORT, SH 4 OF 7
DWG-W375HV-M00100	HLW SYSTEM 420, MFD LEVEL 2, MELTER TRANSPORT, SH 5 OF 7
DWG-W375HV-M00092	HLW SYSTEM 420, MFD LEVEL 2, MELTER TRANSPORT, SH 6 OF 7
DWG-W375HV-M00096	HLW SYSTEM 420, MFD LEVEL 2, MELTER TRANSPORT, SH 7 OF 7
DWG-W375SH-H00001	MECHANICAL HANDLING SYMBOLS AND LEGENDS

THIRD ANGLE PROJECTION

TOLERANCES	
.00	±0.030
.000	±0.010
FRACTION	± 1/64"
ANGLE	± 1°

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
B	ISSUED FOR DESIGN DEVELOPMENT	GB	SE	JC	3-7-00
A	INITIAL ISSUE	JFB	JK	GC	10-27-99

REVISION HISTORY

	BY	DATE
ORIGINATOR	JAMES F BROWER	10-27-99
CHECKER	IAN KETTLE	10-27-99
APPROVED	G CRAWFORD	10-27-99

PROJECT No. W375
SITE HANFORD
AREA 200E
BUILDING No.

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

HLW SYSTEM 420
MHD LEVEL 1
MELTER 1 AIRLOCK
SHEET 1 OF 1

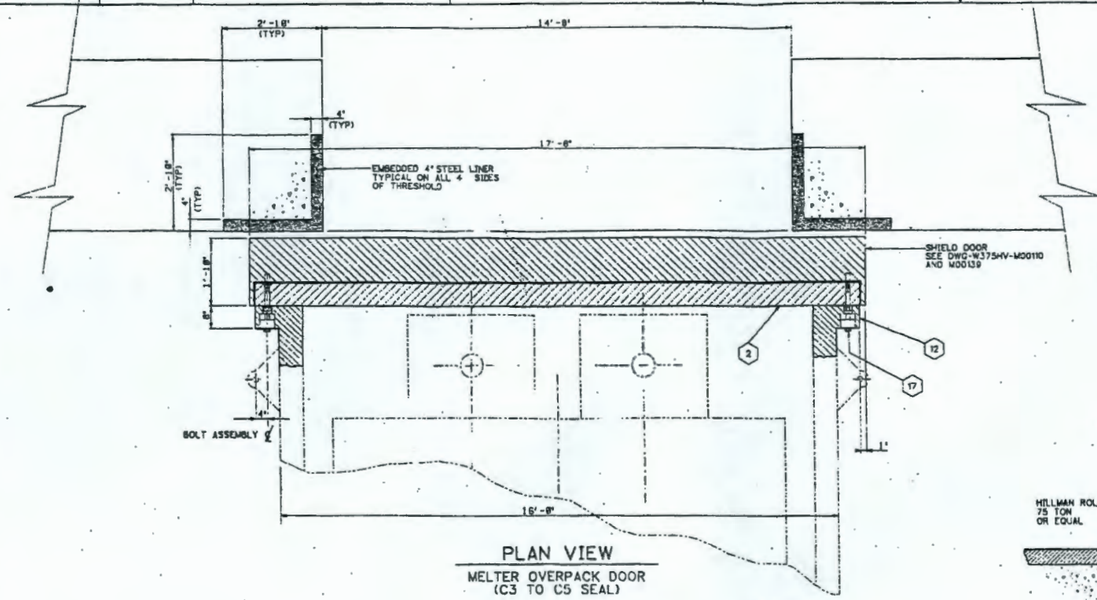
SCALE: NONE | DWG No. DWG- W375 HV-M00172 | REV B

DBI REFERENCE No. 1 DBI-W375-00-00412 REV B

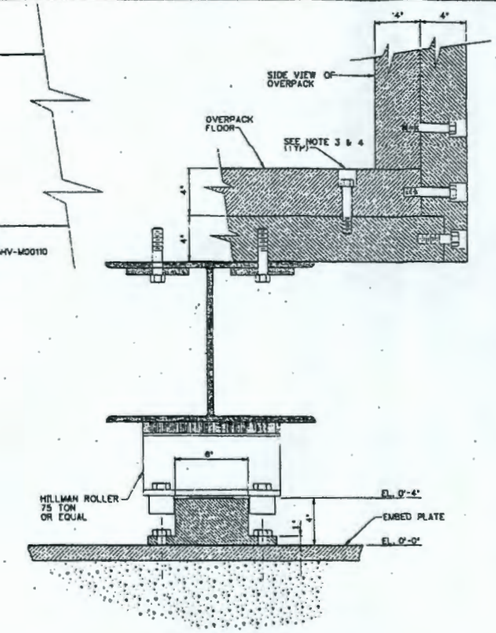
T-SIZE - 44x34

08 MAR 2000 09:31:05

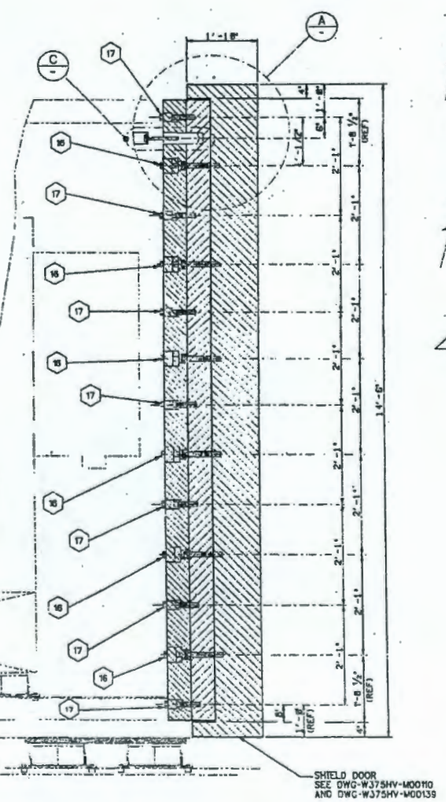
DWG No. DWG-W375 HV-M00178



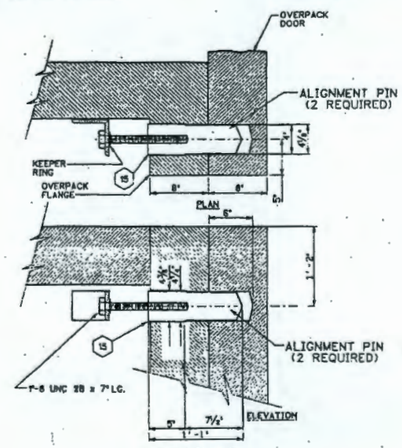
PLAN VIEW
MELTER OVERPACK DOOR
(C3 TO C5 SEAL)



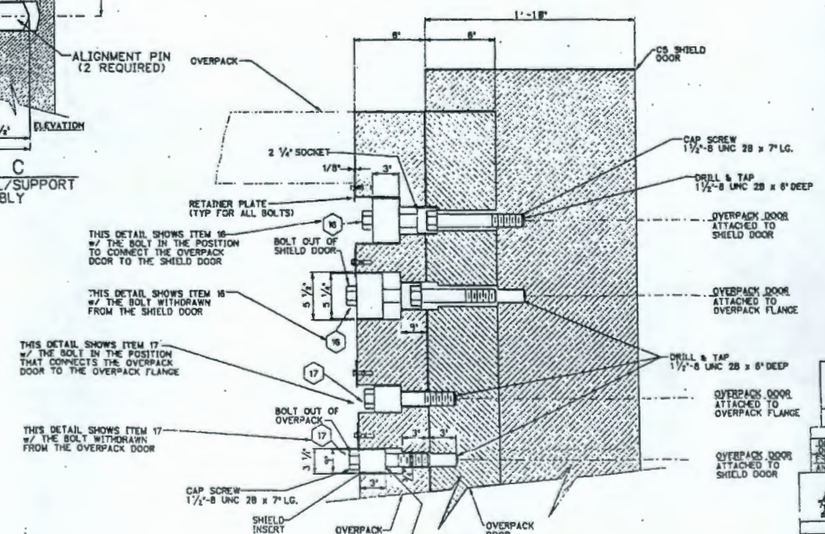
DETAIL E
(FROM DWG-W375HV-M00105)
DETAIL FOR PLATE ASSEMBLY OF OVERPACK SHIELDING



FRONT VIEW
MELTER OVERPACK



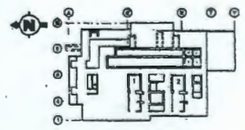
DETAIL C
ALIGNMENT DOWEL/SUPPORT PIN ASSEMBLY



DETAIL A
OVERPACK TO SHIELD DOOR ATTACHEMENT
(ENLARGED FOR CLARITY)

NOTES:

1. BOLT SHALL CONFORM TO ASTM A193 GR-B7.
2. OVERPACK SHIELD WALLS SHALL BE FABRICATED FROM 3" & 4" THICK PLATE WHERE POSSIBLE. OTHER THICKNESSES ARE PERMITTED.
3. SHIELD PLATES SHALL BE JOINED USING 1" BOLTS & 1 1/4" DOWELS, PLACED AS REQUIRED TO ASSURE STRUCTURAL INTEGRITY.
4. VOID OPENINGS SHALL BE FILLED WITH EPOXY IRON FILLING MIXTURE DURING ASSEMBLY.
5. "SELECTION OF COMMERCIAL COMPONENTS ON THIS DRAWING IS BNFL DWG PROPOSAL ONLY. THE VENDOR IS RESPONSIBLE FOR FULL VALIDATION OF THE COMPONENTS SELECTED FOR THE CONTRACTED APPLICATION WHETHER IDENTICAL TO THE BNFL PROPOSAL OR OTHERWISE".
6. SEE DWG-W375HV-M00105 FOR ALL BILL OF MATERIALS.
7. OVERPACK DOOR ALIGNMENT CAN BE ADJUSTED USING JACKS LOCATED AT C/S SHIELD DOOR.



KEY PLAN AT EL 1'-0"

PRELIMINARY

GRAPHIC SCALE
3/4" = 1'-0"

REFERENCE DRAWINGS

DWG NO	TITLE
DWG-W375HV-M00110	HORIZONTAL SHIELD DOOR INTO MELT. CELL PI# H34003 SH.1/3
DWG-W375HV-M00139	HORIZONTAL SHIELD DOOR INTO MELT. CELL PI# H34144 SH.2/3
DWG-W375HV-M00178	HORIZONTAL SHIELD DOOR INTO MELT. CELL PI# H34144 SH.3/3
DWG-W375HV-M00105	HLW MELTER OVERPACK PI #H34131 SH. 1 OF 2
DWG-W375HV-M00179	RAILS IN MELTER CELL & PLANT ITEM # H34128

THIRD ANGLE PROJECTION

TOLERANCES
DIA ± 0.010
LOCO ± 0.010
FRACTION ± 1/16"
ANGLE ± 1°

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
A	ISSUED FOR FPE				11-19-99

REVISION HISTORY

PROJECT No. W375
SITE HANFORD
AREA 200E
BUILDING No.

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No DE-AC06-96RL13308

	BY	DATE
ORIGINATOR		11-19-99
CHECKER		11-19-99
APPROVED		11-19-99

HLW VITRIFICATION SYSTEM 420
DESIGN PROPOSAL DRAWING
HLW MELTER OVERPACK
DET. & SECT. PLANT ITEM # H34131
SHEET 2 OF 2

SCALE 3/4"=1'-0" | DWG No. DWG-W375 HV-M00178 | REV A

SYSTEM 420

C SIZE = 44x34

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375 HV-M00180

GENERAL NOTES:

1. THE FOLLOWING INTERLOCKS PERTAIN TO THE OVERHEAD BRIDGE CRANE, POWER MANIPULATOR AND THE TRANSPORTER. ZONING OF THE CRANES / POWER MANIPULATORS DURING TRAVEL TO PRESENT ACCESS INTO THE IMMEDIATE AREA OF THE MELTER FEED LINE OR FEED VESSEL INTERCONNECTING LINES DURING MONITOR OPERATIONS.

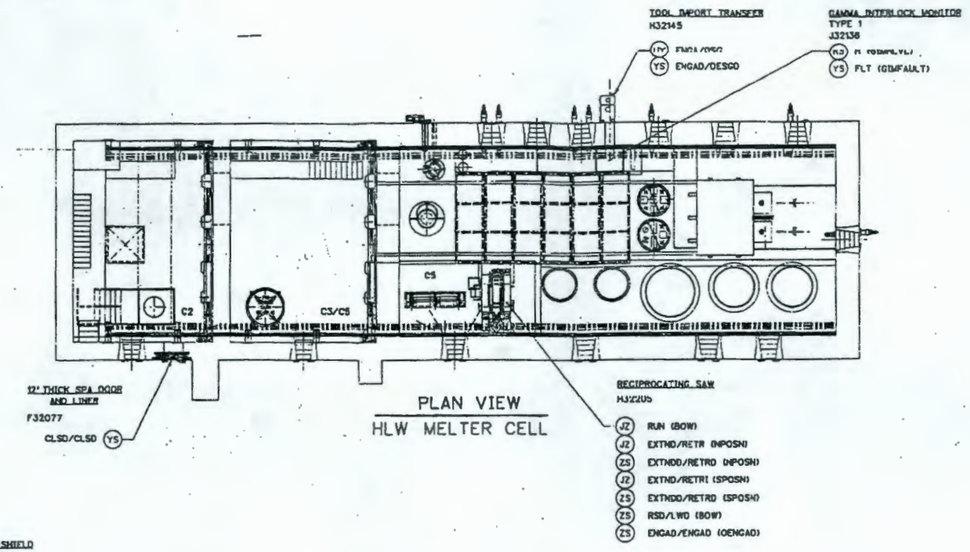
   * REQUIREMENT OF CRANE HOOK/ POWER MANIPULATOR TO BE AT TRANSPORT HEIGHT TO PREVENT INTERFERENCE BEFORE DECONTAMINATION / MAINTENANCE AREA SHIELD DOORS CAN OPEN

   * CRANE / POWER MANIPULATOR INTERLOCKED WITH SHIELD DOORS TO PREVENT INTERFERENCE.

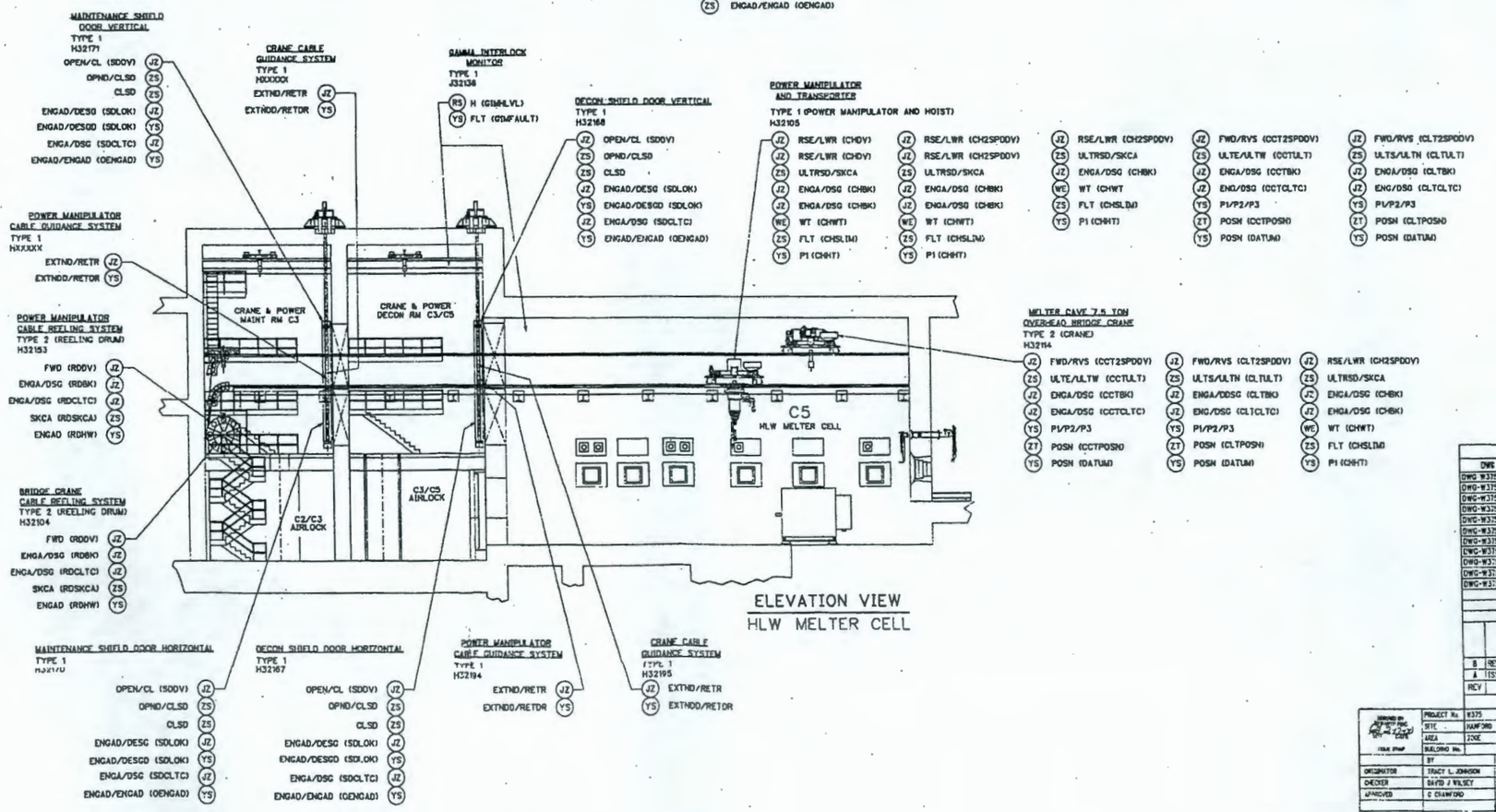
2. DECON SHIELD DOORS CAN NOT BE OPENED UNLESS MAINTENANCE SHIELD DOOR IS CLOSED AND VISA VERSA.

3. ENTIRE DRAWING WAS REVISED TO INCORPORATE CHANGES MADE TO PLANT LAYOUT.

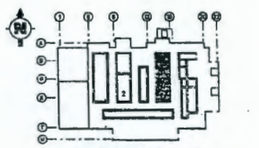
4. MECHANICAL HANDLING SYMBOLS WERE MODIFIED TO AGREE WITH DRAWINGS DWG-W375SH-J00001 THROUGH DWG-W375SH-J00008.



PLAN VIEW
HLW MELTER CELL



ELEVATION VIEW
HLW MELTER CELL



KEY PLAN AT EL 19'-0"

GRAPHIC SCALE 1/8" = 1'-0"

PRELIMINARY

REFERENCE DRAWINGS

DWG NO	TITLE
DWG-W375HV-M00018	HLW VIT SYS 241, MFD LEVEL 1, MELTER IMPORT OVERVIEW
DWG-W375HV-M00036	HLW VIT SYS 241, MFD LEVEL 1, CRANE MAINTENANCE OVERVIEW
DWG-W375HV-M00060	HLW VIT SYS 241, MFD LEVEL 1, SHIELD DOOR OVERVIEW
DWG-W375HV-M00035	HLW VIT SYS 241, MFD LEVEL 1, POUR SPOUT MAINTENANCE
DWG-W375HV-M00067	HLW VIT SYS 241, MFD LEVEL 1, VESSEL REPLACEMENT OVERVIEW
DWG-W375HV-M00030	HLW VIT SYS 241, MFD LEVEL 1, MELTER EXPORT OVERVIEW
DWG-W375HV-M00020	HLW VIT SYS 241, MFD LEVEL 1, CONSUMABLE REPLACEMENT
DWG-W375HV-M00078	HLW VIT SYS 241, MFD LEVEL 1, SPENT MELTER GLASS DISPOSAL
DWG-W375HV-M00228	HLW SYS 241, MFD L. 1, MELTER AND CONSUMABLE CAVE OVERVIEW
DWG-W375HV-M00443	HLW VIT SYS 241, MFD LEVEL 1, MSWF FILTER REPLACEMENT
DWG-W375HV-M00044	HLW VIT SYS 241, MFD LEVEL 1, FEED COOLER MECH CLEANER

REVISION HISTORY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
B	REVISED PER BREAKDOWN CHANGES				2/16/00
A	ISSUED FOR DWPA	MJW	DW	GC	11/2/99

PROJECT No.	W375	
SITE	HANFORD	
AREA	200E	
BUILDING No.		
	BY	DATE
ORIGINATOR	TRACY L. JOHNSON	9-1-99
CHECKER	DAVID J WILSEY	9-1-99
APPROVED	C CRAWFORD	9-2-99
DBI REFERENCE No.	DBI-W375-00-00036	

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No: DE-AC06-96WL13308

HLW VITRIFICATION SYSTEM 241
MECH HANDLING DIAGRAM
LEVEL 1
MELTER CAVE 1

SCALE: NONE | DWG No. DWG- W375HV-M00180 | REV B

FORM APPROVED

18 FEB 2000 14:38:24

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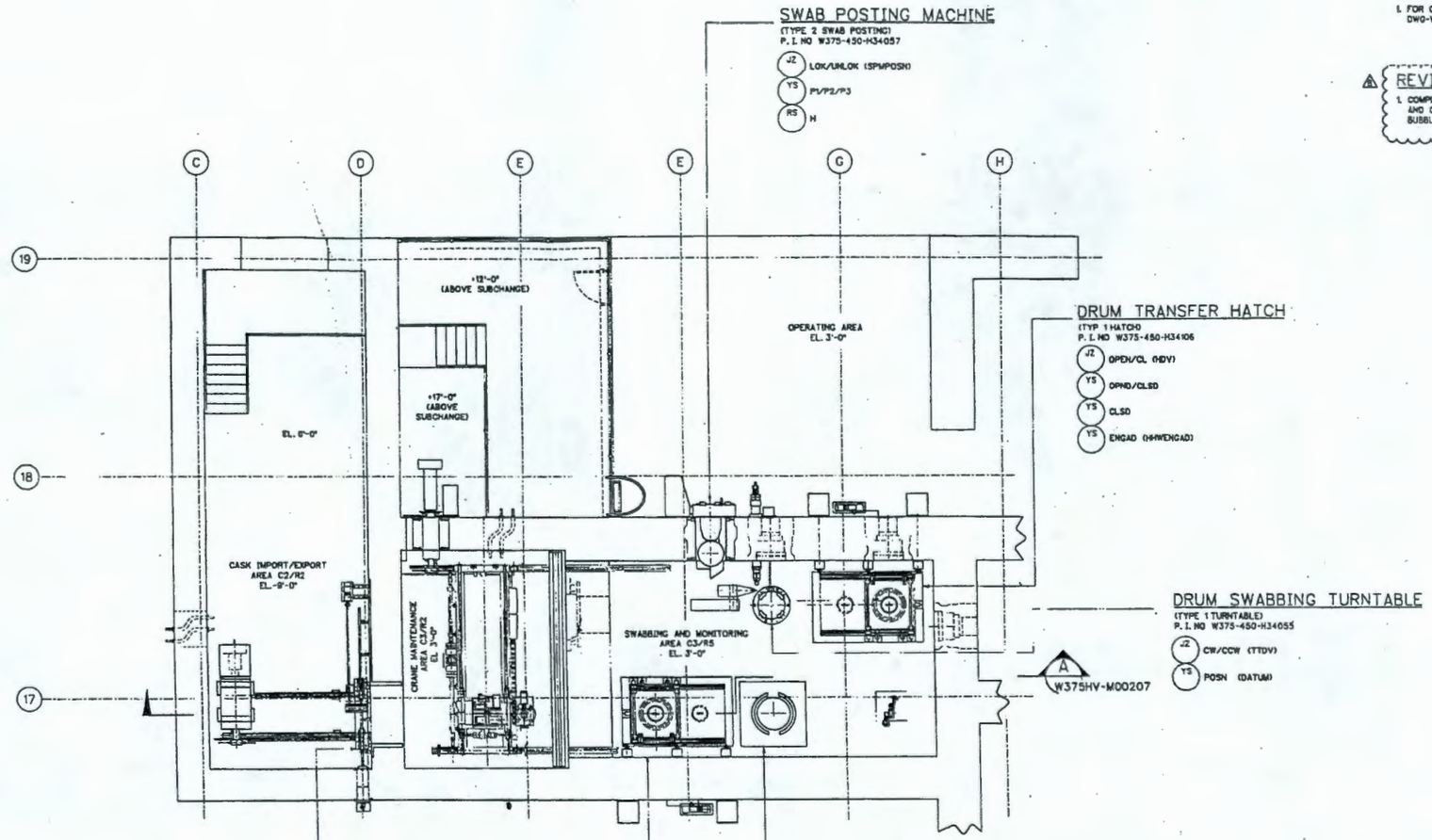
DWG No. DWG-W375 HV-M00206

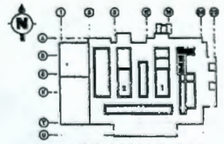
GENERAL NOTES:

1. FOR CONTINUATION SHEET REFER TO DWG-W375HV-M00207.

REVISION NOTES:

1. COMPLETE REDRAW DUE TO CHANGES IN BUILDING LAYOUT AND COMBINING SYSTEMS 450 AND 460. ALL INSTRUMENT BUBBLES UPDATED AS REQUIRED.





KEY PLAN AT EL 1'-0"

PRELIMINARY

REFERENCE DRAWINGS	
DWG NO	TITLE
DWG-W375HV-M00207	HLW SYSTEM 450 MHD LEVEL 1 SH 2 OF 2
DWG-W375HV-M00224	HLW SYSTEM 450 MFD LEVEL 1
DWG-W375HV-M00238	HLW SYSTEM 450 MFD LEVEL 2
DWG-W375HV-M00229	HLW SYSTEM 450 MFD LEVEL 2 SH 1 OF 3
DWG-W375HV-M00230	HLW SYSTEM 450 MFD LEVEL 2 SH 2 OF 3
DWG-W375HV-M00231	HLW SYSTEM 450 MFD LEVEL 2 SH 3 OF 3
DWG-W375HV-J00001	MECHANICAL HANDLING SYMBOLS AND LEGENDS SHEET 1

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
B	ISSUED FOR DESIGN DEVELOPMENT				
A	ISSUED FOR DWPA	MJW	DW		11-2-99

REVISION HISTORY

PROJECT No.	W375	
SITE	HANFORD	
AREA	200E	
BUILDING No.		
SI		DATE
ORIGINATOR	TRACY L JOHNSON	10-1-99
CHECKER	DAVID J WELSH	11-1-99
APPROVED	C CRAWFORD	11-2-99

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

HLW VITRIFICATION SYSTEM 450
MECH HANDLING DIAGRAM LEVEL 1
SOLID WASTE CONTAINER
SWABBING AND MONITORING,
STORAGE AND EXPORT SH 1 OF 2

SCALE: NONE | DWG No. DWG- W375HV-M00206 | REV B

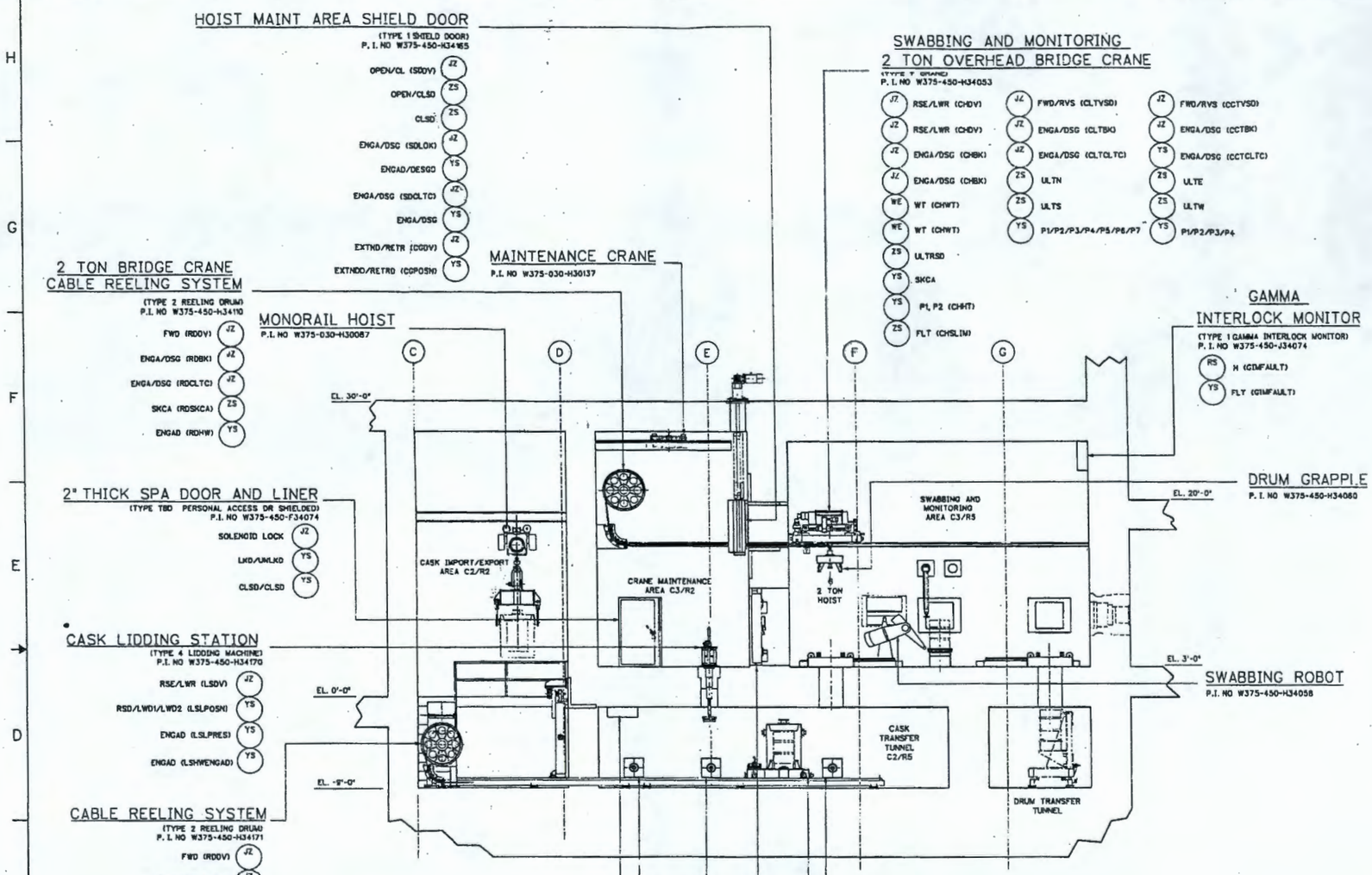
CSM REFERENCE No. DW-W375-00-00001 REV B

"E" SIZE - 44x34

07 MAR 2000 09:12:01

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375 HV-M00207



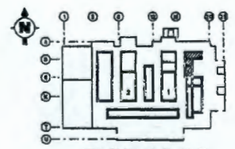
SECTION A-A
FROM DWG-W375HV-M00206

GENERAL NOTES:

1. FOR CONTINUATION SHEET REFER TO DWG-W375HV-M00209.

REVISION NOTES:

1. COMPLETE REDRAW DUE TO CHANGES IN BUILDING LAYOUT AND COMBINING SYSTEMS 450 AND 480. ALL INSTRUMENT BUBBLES UPDATED AS REQUIRED.



KEY PLAN AT EL 11'-0"

PRELIMINARY

REFERENCE DRAWINGS	
DWG NO	TITLE
DWG-W375HV-M00206	HLW SYSTEM 450 MCHD LEVEL 1 SH 1 OF 2
DWG-W375HV-M00214	HLW SYSTEM 450 MFD LEVEL 1
DWG-W375HV-M00238	HLW SYSTEM 450 MFD LEVEL 2
DWG-W375HV-M00219	HLW SYSTEM 450 MFD LEVEL 2 SH 1 OF 3
DWG-W375HV-M00220	HLW SYSTEM 450 MFD LEVEL 2 SH 2 OF 3
DWG-W375HV-M00221	HLW SYSTEM 450 MFD LEVEL 2 SH 3 OF 3
DWG-W375HV-J00001	MECHANICAL HANDLING SYMBOLS AND LEGENDS SHEET 1

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
B	ISSUED FOR DESIGN DEVELOPMENT	[illegible]		LC	3/1/00
A	ISSUED FOR DWPA	DJW	DW	CC	11-2-99

REVISION HISTORY

		BY	DATE
PROJECT No.	W375		
SITE	HANFORD		
AREA	200E		
BUILDING No.			
ORIGINATOR	TRACY L. JOHNSON		11-1-99
CHECKER	DAVID J. WILSET		11-1-99
APPROVED	C. CRAWFORD		11-2-99

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
PTC-4 AND, WA 99352

CONTRACT No. DE-AC06-96RL13305

HLW VITRIFICATION SYSTEM 450 MECH HANDLING DIAGRAM LEVEL 1 SOLID WASTE CONTAINER SWABBING AND MONITORING, STORAGE AND EXPORT SH 2 OF 2

DWG No. DWG- W375 HV-M00207 REV B

SCALE NONE

DOM REFERENCE No. : DOM-W375-00-00291 REV B

"E" SIZE - 44x34

07 MAR 2000 09:47:30

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

LAST PLOTTED BY: [illegible]

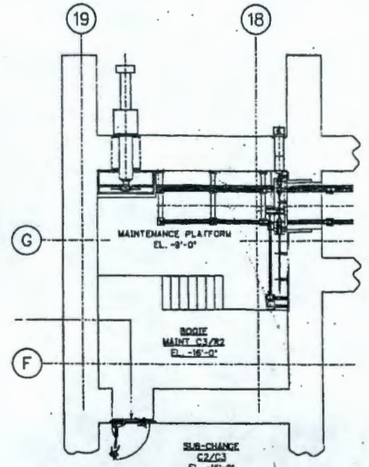
DWG No. DWG-W375 HV-M00325

GENERAL NOTES:

1. FOR CONTINUATION SHEET, REFER TO DWG-W375HV.M00335

REVISION NOTE:

A. 1. COMPLETE REDRAW DUE TO CHANGES IN BUILDING LAYOUT AND SYSTEM REQUIREMENTS. ADDITIONAL DRAWING ADDED DWG-W375HV-M00335.



SECTION A-A

PERSONAL ACCESS DOOR

(TYPE 2 PERSONAL ACCESS OR SHIELDED)
P.I. NO W375-440-F34153

- SOLENOID LOCK (J2)
- LKD/UNLKD (YS)
- CLSD/CLSD (YS)

BOGIE MAINTENANCE AREA SHIELD DOOR

(TYPE 1 SHIELD DOOR)
P.I. NO W375-440-H34200

- OPEN/CL (SDOV) (J2)
- OPND/CLSD (ZS)
- CLSD (ZS)
- ENGA/DSG (SDLOK) (J2)
- ENGAD/DESGD (YS)
- ENGA/DSG (SDCLTC) (J2)
- ENGAD/DESGD (YS)
- EXTND/RETR (CGDV) (J2)
- EXTNDD/RETRD (CGPOSN) (YS)

DRUM LIDDING STATION

(TYPE 3 LIDDING MACHINE)
P.I. NO W375-440-H34049

- CW/CCW (LSDV) (J2)
- ADV/RETR (LINACTR) (J2)
- ADVD/RETRD (CRPOSN) (YS)
- CLPD/UNCLPD (LSLCLP) (YS)
- RSD/LWD (LSLPRES) (YS)

DRUM TRANSFER BOGIE

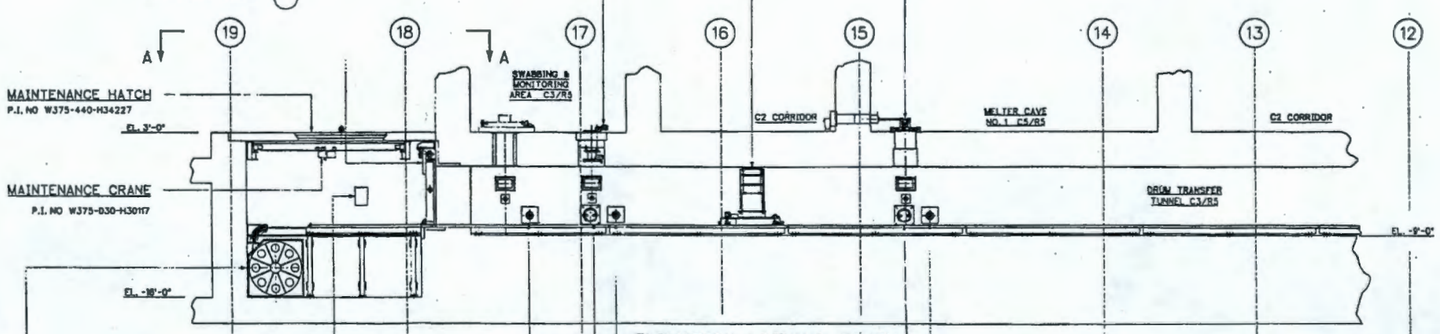
(TYPE 10 BOGIE)
P.I. NO W375-440-H34046

- POSN (BCPRES) (YS)
- CNT1/CNT2 (SPCTRL) (YS)
- P1/P2/P3/P4/P5 (YS)
- RSD1/RSD2/LWD (BJPOSN) (YS)
- FWD/RVS (BTVSD) (J2)
- ENGA/DSG (BTCLTC) (J2)
- ENGA/DSG (BTBK) (J2)
- ULTE/ULTW (YS)

BAGLESS TRANSFER PORT

(TYPE 1 BAGLESS TRANSFER PORT)
P.I. NO W375-440-H34092

- OPEN/CLOSE (BTPORT) (J2)
- LOK/UNLOK (BTLR) (UY)
- LOK/UNLOK (BTLR) (UY)
- ENGA/DSG (BTLL) (UY)
- OPND/CLSD (BTPORT) (YS)
- LKD/UNLKD (BTLR) (YS)
- LKD/UNLKD (BTLR) (YS)
- ENGAD/DSG (BTLL) (YS)
- POSN (BTLPOSN) (YS)



ELEVATION LOOKING SOUTH

CABLE REELING SYSTEM

(TYPE 2 REELING DRUM)
P.I. NO W375-440-H34048

- FWD (RDDV) (J2)
- ENGA/DSG (RDBK) (J2)
- ENGA/DSG (RDCLTC) (J2)
- SKCA (ROSKCA) (ZS)
- ENGAD (RDHW) (YS)

THROUGH WALL LOCATION BOLT

(TYPE 2 THROUGH WALL LOACTION BOLT)
P.I. NO W375-440-H34096

- ENGA/DSG (BLOKB) (J2)
- ENGAD/DESGD (BLOKB) (YS)

GAMMA INTERLOCK MONITOR

(TYPE 1 GAMMA INTERLOCK MONITOR)
P.I. NO W375-440-H34065

- H (GIMHLVL) (YS)
- FLT (GIMFAULT) (YS)

THROUGH WALL LOCATION BOLT

(TYPE 2 THROUGH WALL LOCATION BOLT)
P.I. NO W375-440-H34097

- ENGA/DSG (BLOKB) (J2)
- ENGAD/DESGD (BLOKB) (YS)

THROUGH WALL DRIVE

(TYPE 1 THROUGH WALL DRIVE)
P.I. NO W375-440-H34100

- RSE/LWR (BJDV) (J2)
- ADV/RETR (LINACTR) (J2)
- ADVD/RETRD (LINACTRPOSN) (YS)
- FLT (TROLIN) (YS)

THROUGH WALL LOCATION BOLT

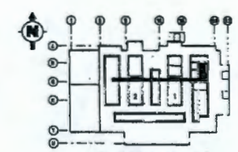
(TYPE 2 THROUGH WALL LOCATION BOLT)
P.I. NO W375-440-H34098

- ENGA/DSG (BLOKB) (J2)
- ENGAD/DESGD (BLOKB) (YS)

THROUGH WALL DRIVE

(TYPE 1 THROUGH WALL DRIVE)
P.I. NO W375-440-H34101

- RSE/LWR (BJDV) (J2)
- ADV/RETR (LINACTR) (J2)
- ADVD/RETRD (LINACTRPOSN) (YS)
- FLT (TROLIN) (YS)



KEY PLAN AT EL 11'-0"

PRELIMINARY

REFERENCE DRAWINGS

DWG NO	TITLE
DWG-W375HV-M00335	HLW SYSTEM 440 MFD LEVEL 1 SHEET 2 OF 2
DWG-W375HV-M00273	HLW SYSTEM 440 MFD LEVEL 1
DWG-W375HV-M00253	HLW SYSTEM 440 MFD LEVEL 2 DETAIL
DWG-W375HV-M00218	HLW SYSTEM 440 MFD LEVEL 2 DETAIL
DWG-W375HV-M00239	HLW SYSTEM 440 MFD LEVEL 2 DETAIL
DWG-W375HV-J00001	MECHANICAL HANDLING SYMBOLS AND LEGEND SHEET 1

REVISION HISTORY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
B	ISSUED FOR DESIGN DEVELOPMENT		SE		3/7/99
A	ISSUED FOR FPE	WN	SB	CC	11/23/98

	BY	DATE
ORIGINATOR	N. MONACO	11/23/98
CHECKER	S. MADDRAN	11/23/98
APPROVED	C. CRAWFORD	11/23/98

PROJECT No. W375
SITE HANFORD
AREA 200E
BUILDING No.

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

HLW VITRIFICATION SYSTEM 440
MECH HANDLING DIAGRAM LEVEL 1
SOLID WASTE CONTAINER PACKAGING
SHEET 1 OF 2

DSV REFERENCE No. DWG-W375-00-00000 REV B

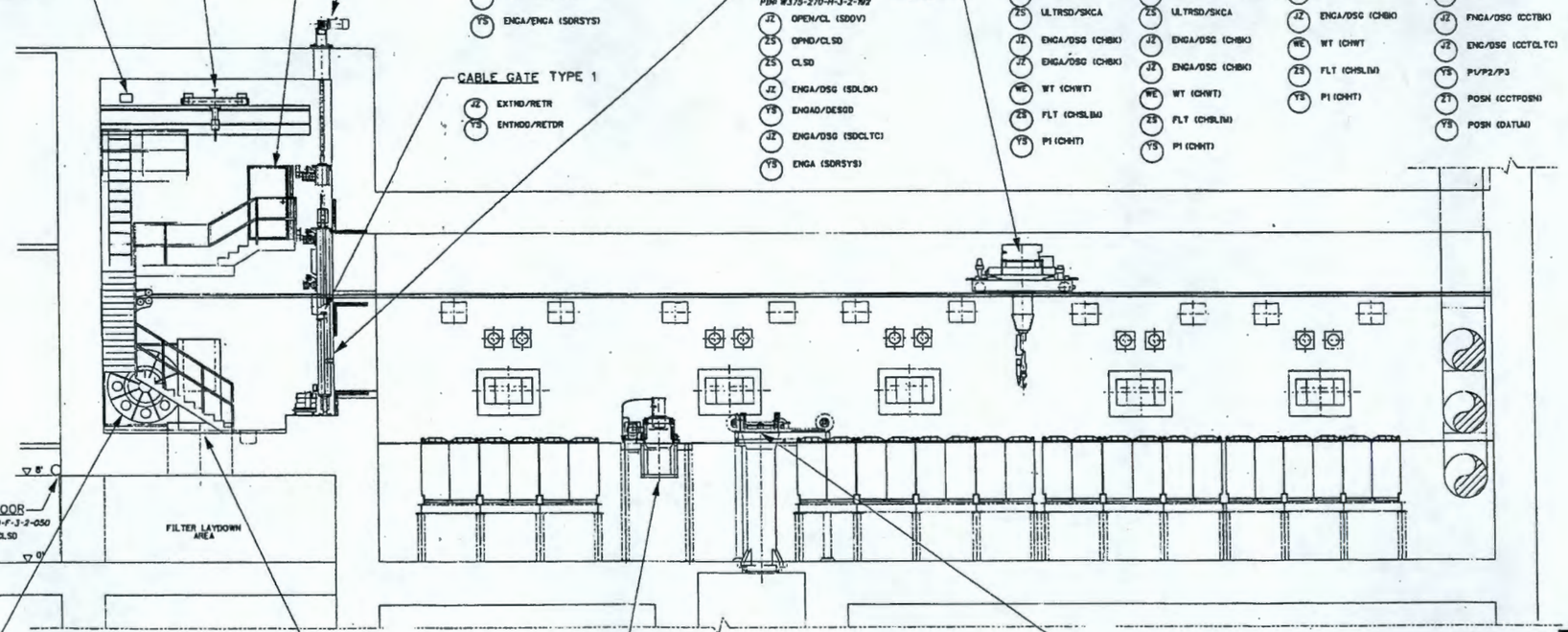
SCALE: NONE
DWG No. DWG- W375 HV-M00325
REV B

% SIZE - 44x34

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375 HV-M00430

1. COMPLETE REDRAW DUE TO CHANGES IN BUILDING LAYOUT ALL INSTRUMENT BUBBLES UPDATED AS REQUIRED.



SHIELD DOOR (VERTICAL 4 JACK) TYPE 3
P.I.N: W375-270-H-J-2-193
- JZ RSE/LWR (SDDV)
- ZS RSD/LWD
- ZS LWD
- JZ ENGA/DSG (SDJBK)
- JZ ENGA/DSG (SDJBK)
- JZ ENGA/DSG (SDJBK)
- JZ ENGA/DSG (SDJBK)
- JZ ENGA/DSG (SDLOK)
- YS ENGAD/DESGD (SDLOK)
- JZ ENGA/DSG (SDLOK)
- YS ENGAD/DESG (SDLOK)
- DT POSN/POSN/POSN/POSN (SDJPOSN)
- WC WT/WT/WT/WT (SDJWT)
- ZS P1-P8 (SDBMLIM)
- YS ENGA/ENGA (SDRSYS)

PERSONAL ACCESS DR.
P.I.N: W375-270-F-J-2-196
- ZS CL/CL

CRANE (MONORAIL)

GAMMA INTERLOCK MONITOR TYPE 1
P.I.N: W375-270-J-J-2-140
- RS H (GIMHLVL)
- YS FLT (GIMFAULT)

SHIELD DOOR (HORIZONTAL) TYPE 1
P.I.N: W375-270-H-J-2-192
- JZ OPEN/CL (SDDV)
- ZS OPND/CLSD
- ZS CLSD
- JZ ENGA/DSG (SDLOK)
- YS ENGAD/DESGD
- JZ ENGA/DSG (SDCLTC)
- YS ENGA (SDRSYS)

CABLE GATE TYPE 1
- JZ EXTND/RETR
- YS ENTNDD/RETDR

POWER MANIPULATOOR AND HOIST (3 HOISTS/1 AUXILIARY) TYPE 1
P.I.N: W375-270-H-J-2-158

JZ RSE/LWR (CHDV)	JZ RSE/LWR (CH2SPDDV)	JZ RSE/LWR (CH2SPDDV)	JZ FWD/RVS (CCT2SPDDV)	JZ FWD/RVS (CLT2SPDDV)
JZ RSE/LWR (CHDV)	JZ RSE/LWR (CH2SPDDV)	ZS ULTRSD/SKCA	ZS (CCTULT)	ZS (CLTULT)
ZS ULTRSD/SKCA	ZS ULTRSD/SKCA	JZ ENGA/DSG (CHBK)	JZ ENGA/DSG (CCTBK)	JZ ENGA/DSG (CLTBK)
JZ ENGA/DSG (CHBK)	JZ ENGA/DSG (CHBK)	WC WT (CHWT)	JZ ENG/DSG (CCTCLTC)	JZ ENG/DSG (CLTCLTC)
JZ ENGA/DSG (CHBK)	JZ ENGA/DSG (CHBK)	ZS FLT (CHSLIM)	YS P1/P2/P3	YS P1/P2/P3
WC WT (CHWT)	WC WT (CHWT)	YS P1 (CHHT)	ZT POSN (CCTPOSN)	ZT POSN (CLTPOSN)
ZS FLT (CHSLIM)	ZS FLT (CHSLIM)		YS POSN (DATUM)	YS POSN (DATUM)
YS P1 (CHHT)	YS P1 (CHHT)			

BOLLER DOOR
P.I.N: W375-270-F-J-2-050
- ZS OPEN/CLSD

REELING DRUM TYPE 1
P.I.N: W375-270-H-J-2-159
- JZV FWD (RDDV)
- JZ ENGA/DSG (RDBK)
- JZ ENGA/DSG (RDCLTC)
- ZS SKCA (RDSKCA)
- YS ENGAD (RDHW)

HATCH
P.I.N: W375-270-H-J-2-248
- YS OPEN/CL

FILTER COMPACTOR
P.I.N: W375-270-H-J-2-185

JZ FWD/RVS (FCHDV)	JS FWD/RVS (FCVDV)	JS FWD (FCFAN)
PS H/L (FCULT)	PS H/L (FCULT)	YS H
FS RATE (FCHPOSN)	FS RATE (FCFPOSN)	LE H/L (FCRES)
FS SPEED (FCHSPEED)	FS SPEED (FCFSPEED)	
	PS (FCVCRUSHF)	

HATCH (FILTER CAVE TO SOLID WASTE CONTAINER SWABBING & MONITORING)
P.I.N: W375-270-H-J-2-248
- JZ OPEN/CL (HDV)
- YS OPEN/CLSD
- YS ENGAD (HHWENCAD)

PRELIMINARY

REFERENCE DRAWINGS

DWG NO	TITLE
DWG-W375HV-M00422	HWL SYSTEM 270 MFD LEVEL 1
DWG-W375HV-M00457	HWL SYSTEM 270 MFD LEVEL 1
DWG-W375HV-M00443	HWL SYSTEM 270 MFD LEVEL 1
DWG-W375HV-M00423	HLW SYSTEM 270 MFD LEVEL 2 DETAIL
DWG-W375HV-M00424	HLW SYSTEM 270 MFD LEVEL 2 DETAIL
DWG-W375HV-M00436	HLW SYSTEM 270 MFD LEVEL 2 DETAIL
DWG-W375HV-M00446	HLW SYSTEM 270 MFD LEVEL 2 DETAIL
DWG-W375HV-M00447	HLW SYSTEM 270 MFD LEVEL 2 DETAIL
DWG-W375HV-M00448	HLW SYSTEM 270 MFD LEVEL 2 DETAIL
DWG-W375HV-X00001	MECHANICAL HANDLING SYMBOLS AND LEGENDS SHEET 1

REVISION HISTORY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
B	ISSUED FOR DESIGN DEVELOPMENT	DB	DK	CC	3/7/00
A	ISSUED FOR DWPA	DB	DK	CC	11/5/99

PROJECT No.	1375	
SITE	HANFORD	
AREA	200E	
BUILDING No.		
	BY	DATE
ORIGINATOR	DAVID BARTON	9/1/99
CHECKER	I KETTLE	11/1/99
APPROVED	C CRAWFORD	11/5/99

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000C GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No: DE-AC06-96RL13336

HLW VITRIFICATION SYSTEM 270 MHD LEVEL 1 FILTER CAVE FILTER TRANSFER

CM REFERENCE No. 2N-W375-00-02908 REV 0

SCALE: NONE

DWG No. DWG- W375 HV-M00430

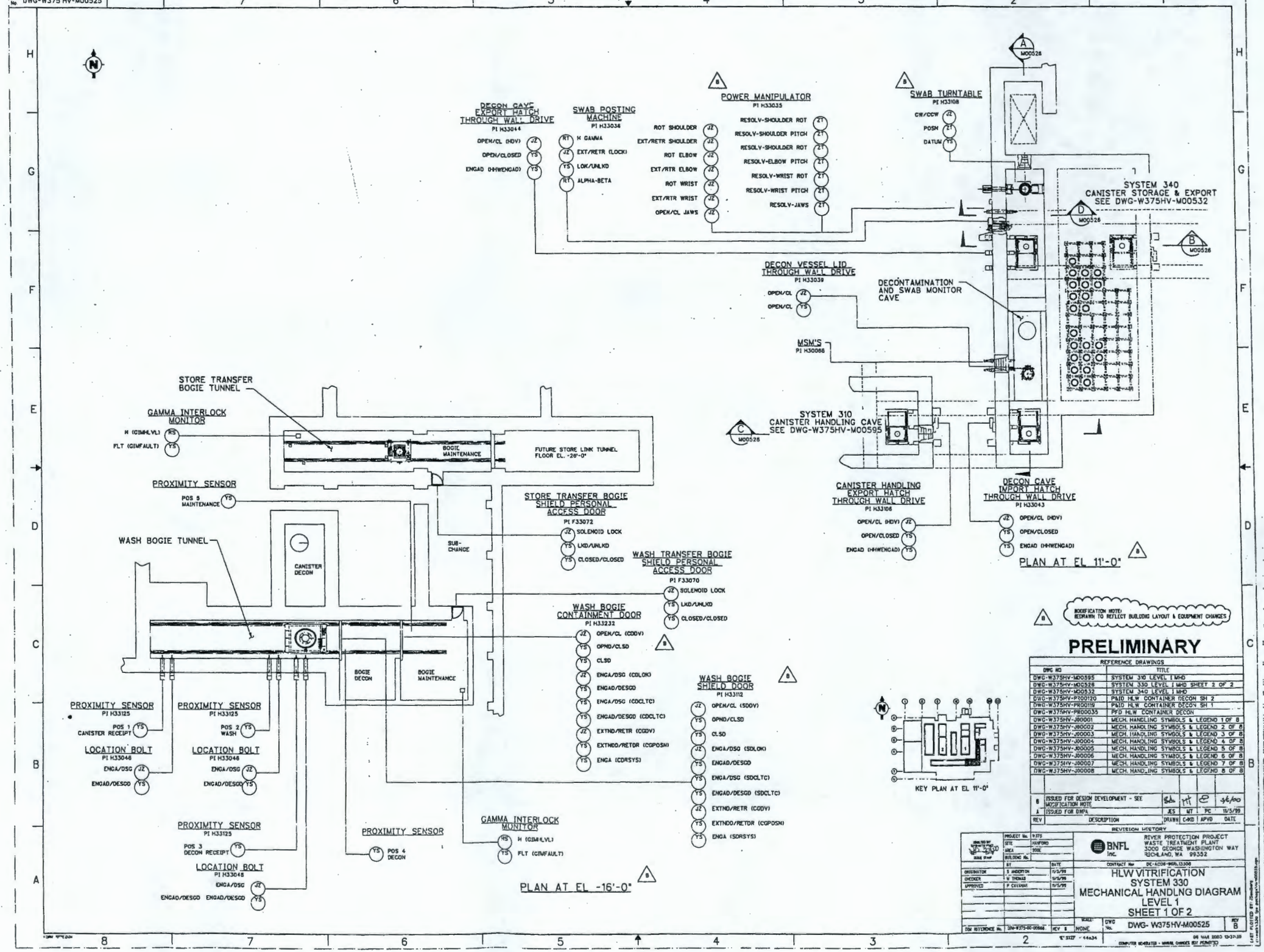
REV B

07 MAR 2000 10:28:47

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

LAST PLOTTED BY: HUDSONMC
FILE: W375HV-M00430.DWG

DWG No DWG-W375 HV-M00525



MODIFICATION NOTE: REDRAWN TO REFLECT BUILDING LAYOUT & EQUIPMENT CHANGES

PRELIMINARY

REFERENCE DRAWINGS

DWG NO	TITLE
DWG-W375HV-M00595	SYSTEM 310 LEVEL 1 MHD
DWG-W375HV-M00526	SYSTEM 330 LEVEL 1 MHD SHEET 2 OF 2
DWG-W375HV-M00532	SYSTEM 340 LEVEL 1 MHD
DWG-W375HV-PR00120	P&ID HLW CONTAINER DECON SH 2
DWG-W375HV-PR00119	P&ID HLW CONTAINER DECON SH 1
DWG-W375HV-PR00035	PFD HLW CONTAINER DECON
DWG-W375HV-J00001	MECH. HANDLING SYMBOLS & LEGEND 1 OF 8
DWG-W375HV-J00002	MECH. HANDLING SYMBOLS & LEGEND 2 OF 8
DWG-W375HV-J00003	MECH. HANDLING SYMBOLS & LEGEND 3 OF 8
DWG-W375HV-J00004	MECH. HANDLING SYMBOLS & LEGEND 4 OF 8
DWG-W375HV-J00005	MECH. HANDLING SYMBOLS & LEGEND 5 OF 8
DWG-W375HV-J00006	MECH. HANDLING SYMBOLS & LEGEND 6 OF 8
DWG-W375HV-J00007	MECH. HANDLING SYMBOLS & LEGEND 7 OF 8
DWG-W375HV-J00008	MECH. HANDLING SYMBOLS & LEGEND 8 OF 8

REVISION HISTORY

REV	DESCRIPTION	DRAWN	C-KD	APVD	DATE
B	ISSUED FOR DESIGN DEVELOPMENT - SEE MODIFICATION NOTE				11/6/00
A	ISSUED FOR DMPA	JES	MT	PC	11/5/99

PROJECT No.	9375	
SITE	HANFORD	
AREA	200E	
BUILDING No.		
BY		DATE
ORIGINATOR	S HADDITON	11/3/99
CHECKER	W THOMAS	11/5/99
APPROVED	P CAVANAH	11/5/99

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

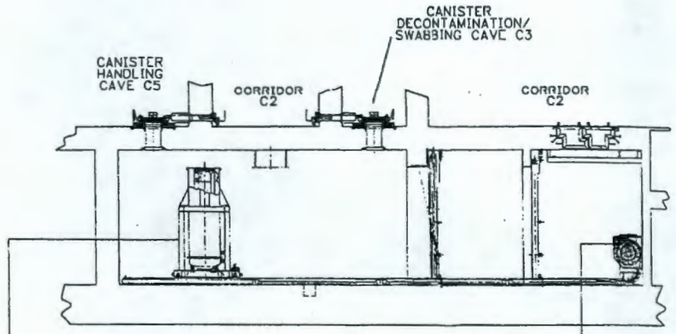
CONTRACT No. DE-AC06-96RL13308

HLW VITRIFICATION
SYSTEM 330
MECHANICAL HANDLNG DIAGRAM
LEVEL 1
SHEET 1 OF 2

DGN REFERENCE No. 3IN-W375-00-00666 REV B
SCALE: NONE
DWG No. DWG- W375HV-M00525
REV B

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375HV-M00526



CANISTER WASH BOGIE
PI H33031

- J2 FWD/REV (BTVSD)
- J2 ENGA/DSG (BTBK)
- J2 ENGA/DSG (BTCLTC)
- Z5 ULTE/ULTW
- YS CNT1/CNT2 (SPCTRL)
- J2 CW/CCW (TTDV)
- Z1 POSN

SECTION C M00525

CANISTER WASH BOGIE CABLE REEL
PI H33032

- J2 FWD (RDDV)
- J2 ENGA/DSG (RDBK)
- J2 ENGA/DSG (RDCLTC)
- Z5 SKCA (RDSKCA)
- YS ENGAD (RDHW)

DECONTAMINATION CAVE CRANE
PI H33102

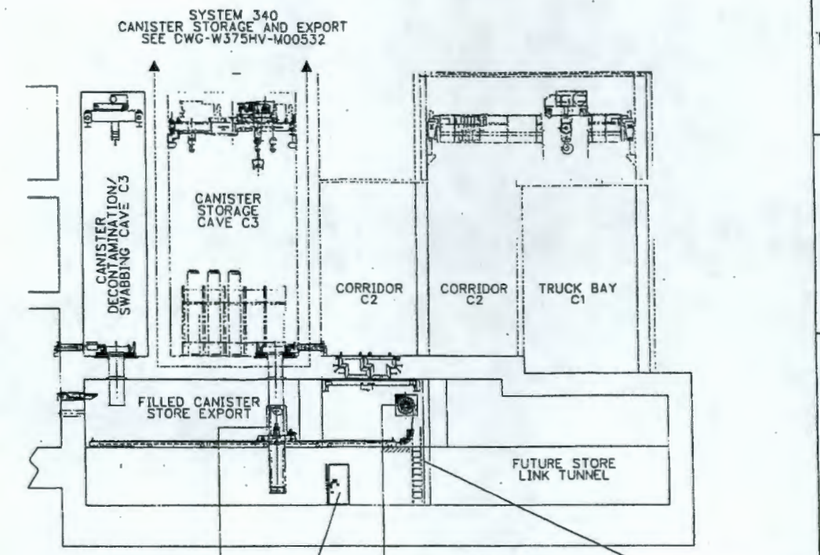
(CROSS TRAVEL)	(LONG TRAVEL)	(HOIST)
J2 FWD/RVS (CCTDV)	J2 FWD/RVS (CLTDV)	J2 RSE/LWR FAST (CHDV)
J2 ENGA/DSG (CCTBK)	J2 ENGA/DDSG (CLTBK)	J2 ENGA/DSG (CHBK)
J2 ENGA/DSG (CCTCLTC)	J2 ENG/DSG (CLTCLTC)	J2 RSE/LWR SLOW (CHDV)
Z5 ULTE/ULTW (CCTULT)	Z5 ULTH/ULTS (CCTULT)	J2 ENGA/DSG (CHBK)
Z1 POSN (CCTPOSN)	YS P1/P2/P3/P4/P5/P6	J2 ULTRSD/SKCA (CHBK)
YS POSN (DATUM)	Z1 POSN (CLTPOSN)	YS POSN
	YS POSN (DATUM)	YS PULSE COUNT
		Z5 ULT RSD/OVERTRAVEL
		WT WT (CHWT)
		Z5 FLT (CHSLDN)

CRANE MAINTENANCE SHIELD DOOR
PI H33050

- J2 RSE/LWR (SDDV)
- J2 ENGA/DSG (SDJBK)
- J2 ENGA/DSG (SDJBK)
- J2 ENGA/DSG (SDLOK)
- J2 ENGA/DSG (SDLOK)
- Q ENCDR
- Q ENCDR
- WT LOAD CELL (SDWT)
- WT LOAD CELL (SDWT)
- Z5 OPEN/CL/CL
- YS ENGAD/DESOD (SDLOK)
- YS ENGAD/DESOD (SDLOK)
- YS ENGAD (SDRSYS)
- YS ENGAD (SDRSYS)

CABLE GATE

- J2 OPN/CLS (CCDV)
- YS OPND/CLSD



CANISTER TRANSFER BOGIE
PI H33041

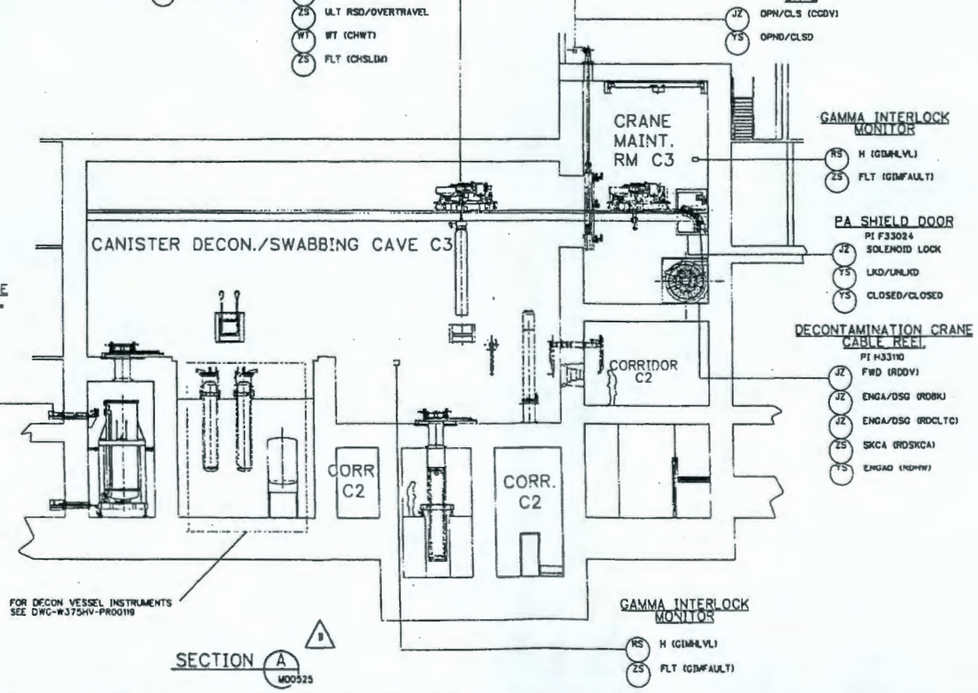
- FWD/RVS (BTVSD) J2
- ENGA/DSG (BTBK) J2
- ENGA/DSG (BTCLTC) J2
- ULTE/ULTW YS
- CNT1/CNT2 (SPCTRL) YS
- ENGA/DSG (BLOKB) J2
- ENGAD/DESOD/DESOD (BLOKB) YS
- P1/P2 YS

SECTION B M00525

CANISTER TRANSFER BOGIE CABLE REEL
PI H33042

- J2 FWD (RDDV)
- J2 ENGA/DSG (RDBK)
- J2 ENGA/DSG (RDCLTC)
- Z5 SKCA (RDSKCA)
- YS ENGAD (RDHW)

MODIFICATION NOTE: REDRAWN TO REFLECT BUILDING LAYOUT AND EQUIPMENT CHANGES



GAMMA INTERLOCK MONITOR

- RS H (GIMHLVL)
- Z5 FLT (GIMFAULT)

PA SHIELD DOOR
PI F33024

- J2 SOLENOID LOCK
- YS LKD/UNLKD
- YS CLOSED/CLOSED

DECONTAMINATION CRANE CABLE REEL
PI H33110

- J2 FWD (RDDV)
- J2 ENGA/DSG (RDBK)
- J2 ENGA/DSG (RDCLTC)
- Z5 SKCA (RDSKCA)
- YS ENGAD (RDHW)

CANISTER WASH BOGIE SERVICES THRU-WALL DRIVE
PI H33291

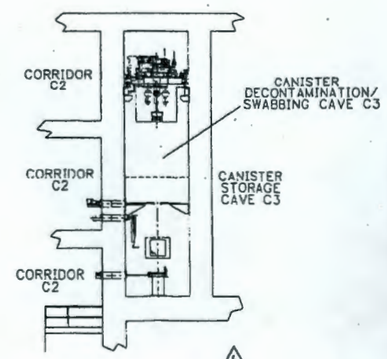
- ENGA/DSG J2
- ADVD/RETDR YS

FOR DECON VESSEL INSTRUMENTS SEE DWG-W375HV-PR00119

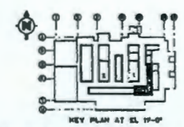
SECTION A M00525

GAMMA INTERLOCK MONITOR

- RS H (GIMHLVL)
- Z5 FLT (GIMFAULT)



SECTION D M00625



KEY PLAN AT EL 19'-0"

PRELIMINARY

REFERENCE DRAWINGS

DWG NO	TITLE
DWG-W375HV-M00524	HLW VIT SYSTEM 310 MHD LEVEL 1
DWG-W375HV-M00525	HLW VIT SYSTEM 330 MHD LEVEL 1
DWG-W375HV-M00532	HLW VIT SYSTEM 340 MHD LEVEL 1
DWG-W375HV-PR00120	HLW VIT P&ID CONTAINER DECON SH 2
DWG-W375HV-PR00119	HLW VIT P&ID CONTAINER DECON SH 1
DWG-W375HV-PR00035	HLW VIT PFD CONTAINER DECON
DWG-W375HV-J00001	MECH. HANDLING SYMBOLS AND LEGENDS 1 OF 8
DWG-W375HV-J00002	MECH. HANDLING SYMBOLS AND LEGENDS 2 OF 8
DWG-W375HV-J00003	MECH. HANDLING SYMBOLS AND LEGENDS 3 OF 8
DWG-W375HV-J00004	MECH. HANDLING SYMBOLS AND LEGENDS 4 OF 8
DWG-W375HV-J00005	MECH. HANDLING SYMBOLS AND LEGENDS 5 OF 8
DWG-W375HV-J00006	MECH. HANDLING SYMBOLS AND LEGENDS 6 OF 8
DWG-W375HV-J00007	MECH. HANDLING SYMBOLS AND LEGENDS 7 OF 8
DWG-W375HV-J00008	MECH. HANDLING SYMBOLS AND LEGENDS 8 OF 8

REVISION HISTORY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
B	ISSUED FOR DESIGN DEVELOPMENT - SEE MODIFICATION NOTE				2/4/00
A	ISSUED FOR DNPA	JES	MT	PC	11/3/99

PROJECT No.	W375	
SITE	HANFORD	
AREA	200E	
BUILDING No.		
	BY	DATE
ORIGINATOR	S. ANDERTON	11/3/99
CHECKER	M. THOMAS	11/3/99
APPROVER	P. GAVAMAN	11/3/99

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

HLW VITRIFICATION
SYSTEM 330
MECHANICAL HANDLING DIAGRAM
LEVEL 1
SHEET 2 OF 2

DSN REFERENCE No. DSN-W375-CD-00669 REV B

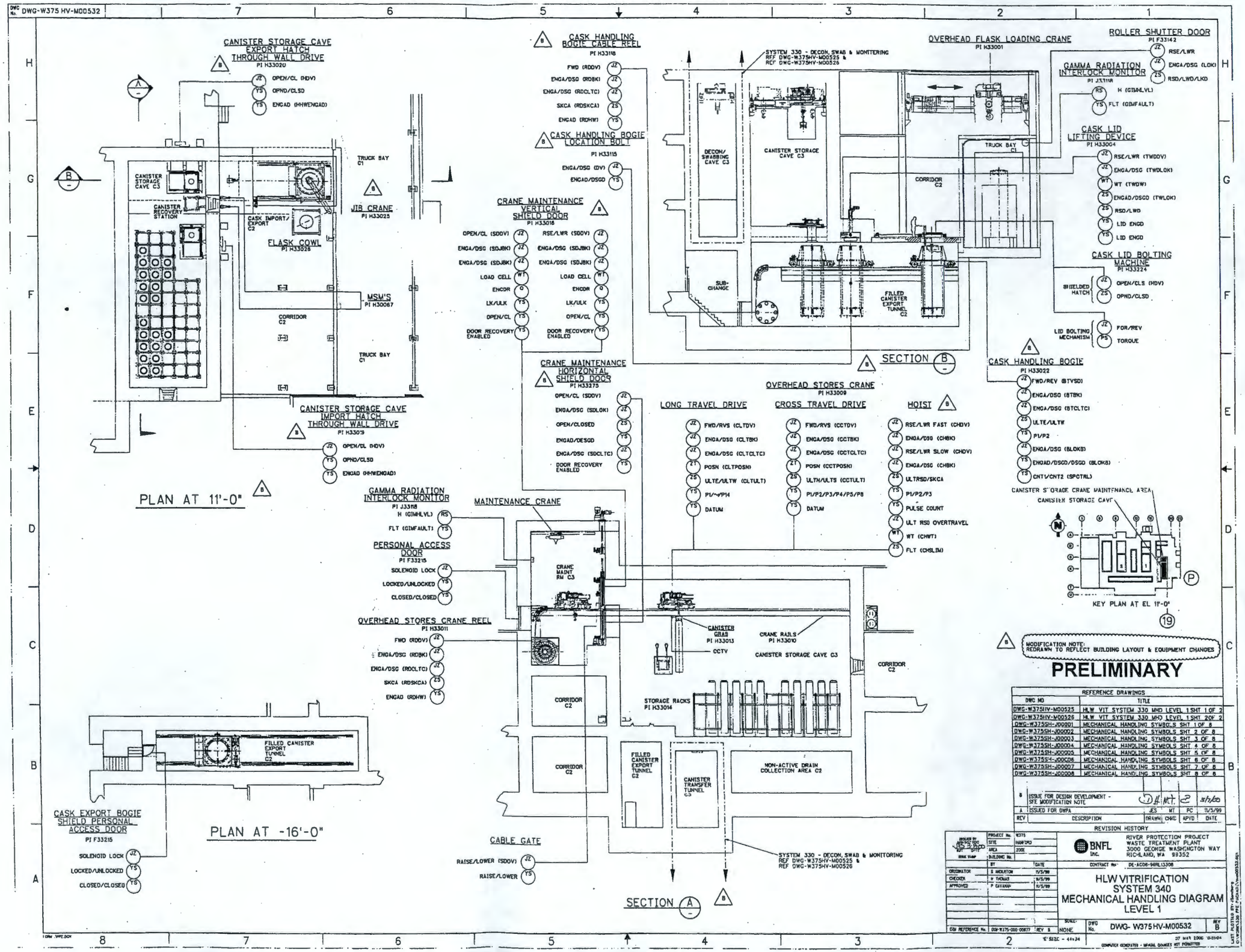
SCALE: NONE

DWG No. DWG- W375HV-M00526 REV B

'C' SIZE - 44x34

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375 HV-M00532



MODIFICATION NOTE:
REDRAWN TO REFLECT BUILDING LAYOUT & EQUIPMENT CHANGES

PRELIMINARY

REFERENCE DRAWINGS	
DWG NO	TITLE
DWG-W375HV-M00525	HLW VIT SYSTEM 330 MHD LEVEL 1 SHT 1 OF 2
DWG-W375HV-M00526	HLW VIT SYSTEM 330 MHD LEVEL 1 SHT 2 OF 2
DWG-W375SH-J00001	MECHANICAL HANDLING SYMBOLS SHT 1 OF 8
DWG-W375SH-J00002	MECHANICAL HANDLING SYMBOLS SHT 2 OF 8
DWG-W375SH-J00003	MECHANICAL HANDLING SYMBOLS SHT 3 OF 8
DWG-W375SH-J00004	MECHANICAL HANDLING SYMBOLS SHT 4 OF 8
DWG-W375SH-J00005	MECHANICAL HANDLING SYMBOLS SHT 5 OF 8
DWG-W375SH-J00006	MECHANICAL HANDLING SYMBOLS SHT 6 OF 8
DWG-W375SH-J00007	MECHANICAL HANDLING SYMBOLS SHT 7 OF 8
DWG-W375SH-J00008	MECHANICAL HANDLING SYMBOLS SHT 8 OF 8

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
B	ISSUE FOR DESIGN DEVELOPMENT - SEE MODIFICATION NOTE				
A	ISSUED FOR DWPA	JES	MT	PC	11/5/99

REVISION HISTORY

	BY	DATE
ORIGINATOR	S MIDDLETON	11/5/99
CHECKED	V THOMAS	11/5/99
APPROVED	P CAVANAH	11/5/99

PROJECT No. W375
SITE HANFORD
AREA 200E
BUILDING No.

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No: DE-AC06-96RL13308

HLW VITRIFICATION SYSTEM 340 MECHANICAL HANDLING DIAGRAM LEVEL 1

SCALE: NONE
DWG No. DWG- W375HV-M00532
REV B

DGN REFERENCE No. DGN-W375-000-00877 REV B

27 MAY 2000 08:04

"E" SIZE - 44x34

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

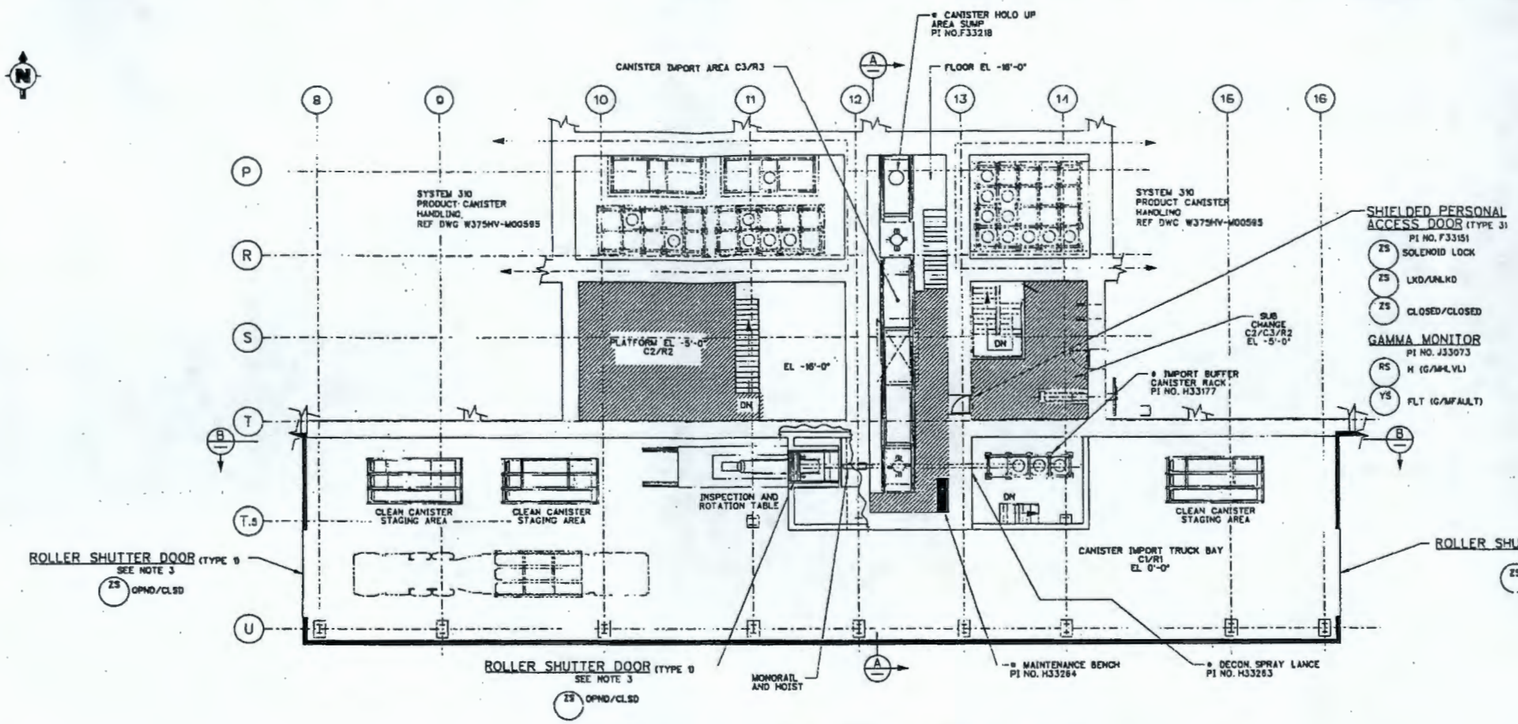
LAST PLOTTED BY: (Jonathan)
C:\PROJ\W375 PRE_PROJ\DWG\M00532.DGN

DWG No. DWG-W375HV-M00593

NOTES

1. DEVICE POSITIONS SHOWN ARE NOTIONAL, REFER TO RELEVANT D.P.D FOR TRUE POSITIONS.
2. ITEMS WITH * FOR REFERENCE ONLY AND HAVE NO CONTROLS ASSOCIATED WITH THEM.
3. ROLLER SHUTTER DOORS ARE INCLUDED ON THE CSA DOOR SCHEDULE

*. THESE DEVICES MAY NOT BE REQUIRED, AND WILL BE DETERMINED DURING ISM PROCESS

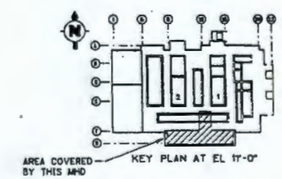


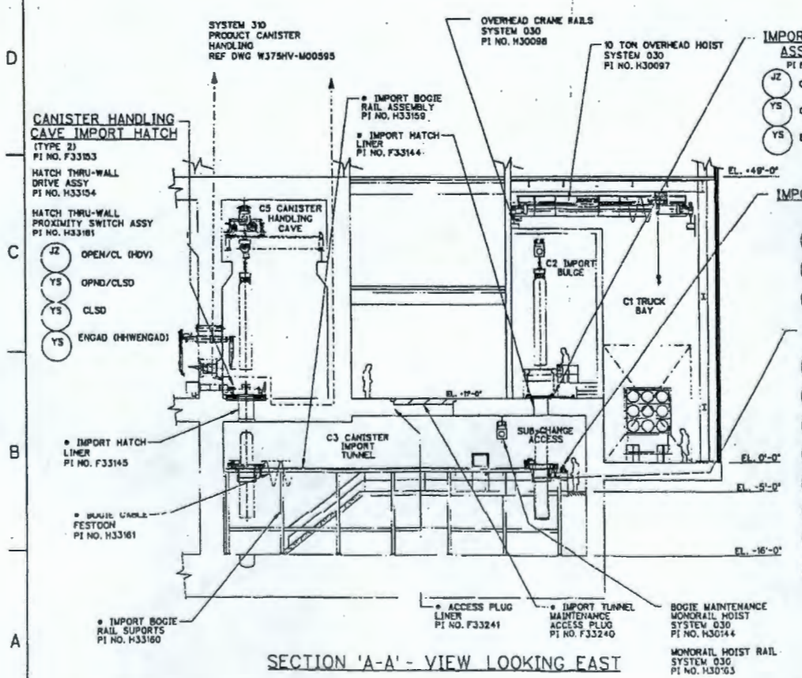
PLAN VIEW AT 0'-0" LEVEL SHOWING CANISTER IMPORT
(SEE KEY PLAN)

SHIELDED PERSONAL ACCESS DOOR (TYPE 3)
PI NO. F33151
ZS SOLENOID LOCK
ZS LKD/UNLKD
ZS CLOSED/CLOSED

GAMMA MONITOR
PI NO. J33073
RS H (G/MHLVL)
YS FLT (G/MFAULT)

MODIFICATION CHANGE NOTE
COMPLETELY REDRAWN TO COVER SYSTEM 305 AND TO MATCH REVISED LAYOUT / EQUIPMENT MODIFICATIONS



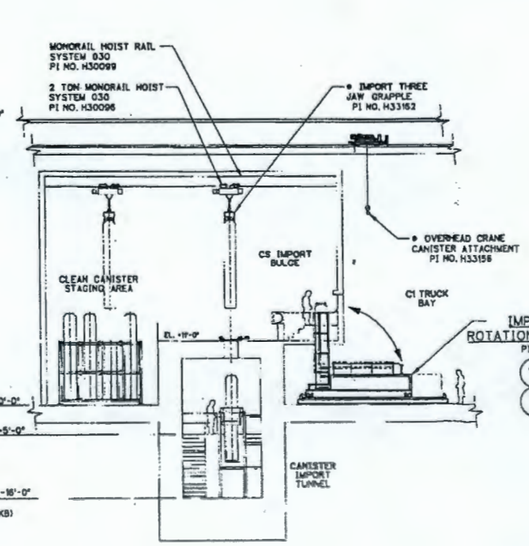


SECTION 'A-A' - VIEW LOOKING EAST

IMPORT HATCH ASSEMBLY (TYPE 1)
PI NO. H33178
JZ OPEN/CL (TDDV)
YS OPND/CLSD
YS ENGAD (HHWENGAD)

IMPORT BOGIE RECOVERY WINCH
PI NO. H33171
JZ FWD (WINDV)
JZ ENGA/DSG (WINCLTC)
YS ENGAD (WINHW)

IMPORT BOGIE (TYPE 2)
PI NO. H33158
JZ FWD/RVS (BTVSD)
JZ ENGA/DSG (BTCLTC)
JZ ENGA/DSG (BTBK)
YS ULTR/ULTS SEE NOTE 4
YS CNT1/CNT2 (SPCTRL) SEE NOTE 4
YS P1/P3 SEE NOTE 4
JZ ENGA/DSG (BLOKB) SEE NOTE 4
YS ENGAD/DESGD/DESGD (BLOKB) SEE NOTE 4



SECTION 'B-B' - VIEW LOOKING SOUTH

IMPORT CANISTER ROTATION/INSPECTION TABLE
PI NO. H33163
JZ FWD/RVS
YS P1/P2/P3/P4

PRELIMINARY

REFERENCE DRAWINGS

DWG NO	TITLE
DWG-W375HV-M00576	MLN VIT. SYSTEM 305 MFD LEVEL 1 PRODUCT CANISTER IMPORT
DWG-W375HV-M00929	MLN VIT. SYSTEM 305 MFD LEVEL 2 PRODUCT CANISTER IMPORT
DWG-W375HV-M00595	MLN VIT. SYSTEM 310 MHD LEVEL 1 PRODUCT CANISTER HANDLING
DWG-W375SH-X000001	MECHANICAL HANDLING SYSTEMS AND LEGENDS, SHEET 1 OF 8
DWG-W375SH-X000002	MECHANICAL HANDLING SYSTEMS AND LEGENDS, SHEET 2 OF 8
DWG-W375SH-X000003	MECHANICAL HANDLING SYSTEMS AND LEGENDS, SHEET 3 OF 8
DWG-W375SH-X000004	MECHANICAL HANDLING SYSTEMS AND LEGENDS, SHEET 4 OF 8
DWG-W375SH-X000005	MECHANICAL HANDLING SYSTEMS AND LEGENDS, SHEET 5 OF 8
DWG-W375SH-X000006	MECHANICAL HANDLING SYSTEMS AND LEGENDS, SHEET 6 OF 8
DWG-W375SH-X000007	MECHANICAL HANDLING SYSTEMS AND LEGENDS, SHEET 7 OF 8
DWG-W375SH-X000008	MECHANICAL HANDLING SYSTEMS AND LEGENDS, SHEET 8 OF 8

REVISION HISTORY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
B	ISSUED FOR DESIGN DEVELOPMENT (SEE MODIFICATION NOTE ABOVE)				3/9/00
A	ISSUED FOR DWPA	TH	SC	PC	11-5-99

PROJECT No.	8775	
SITE	HANFORD	
AREA	200E	
BUILDING No.		
	BY	DATE
CHECKED/DR	TRACY NAWYAHS	11-5-99
CHECKER	STAN CROW	11-5-99
APPROVED	PAUL CATANAH	11-5-99

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

HLW VITRIFICATION
SYSTEM 305
MECHANICAL HANDLING DIAGRAM
LEVEL 1
CLEAN CANISTER IMPORT

SCALE: NONE
DWG No. DWG- W375HV-M00593
REV B

DW REFERENCE No. DW-8375-00-0452 REV 8

PAPER SIZE - 44x34

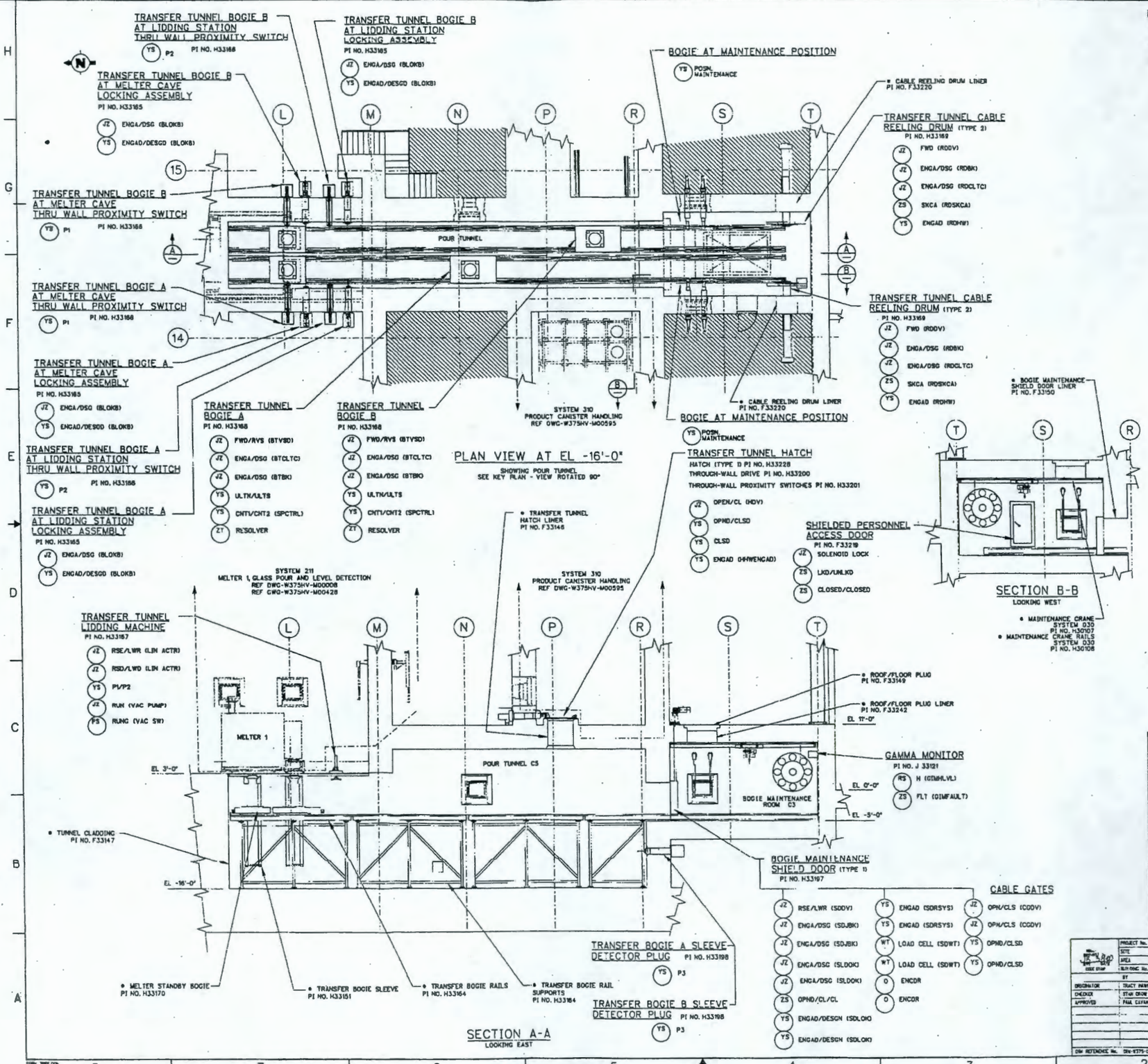
LAST PLOTTED BY: KJECHAMES
C:\Data\KJECHAMES*.dgn

DWG No. DWG-W375 HV-M00594

NOTES

1. DEVICE POSITIONS SHOWN ARE NOTIONAL, REFER TO RELEVANT D.P.D. FOR TRUE POSITIONS.
2. ITEMS WITH * ARE FOR REFERENCE ONLY AND HAVE NO CONTROLS ASSOCIATED WITH THEM

B — MODIFICATION CHANGE NOTE
COMPLETELY REDRAWN TO COVER SYSTEM 315 ONLY AND TO MATCH REVISED LAYOUT / EQUIPMENT MODIFICATIONS



PRELIMINARY

REFERENCE DRAWINGS	
DWG NO	TITLE
DWG-W375HV-M00630	HLW VIT. SYSTEM 315 MFD LEVEL 1 POUR TUNNEL
DWG-W375HV-M00631	HLW VIT. SYSTEM 315 MFD LEVEL 2 POUR TUNNEL
DWG-W375HV-M00595	HLW VIT. SYSTEM 310 MFD LEVEL 1 PRODUCT CANISTER HANDLING
DWG-W375HV-M00008	HLW VIT. SYSTEM 211 MFD LEVEL 1 CANISTER LEVEL DETECTION
DWG-W375HV-M00428	HLW VIT. SYSTEM 211 MFD LEVEL 1 POUR SPOUT
DWG-W375HV-J00001	MECHANICAL HANDLING SYSTEMS AND LEGENDS, SHEET 1 OF 8
DWG-W375HV-J00002	MECHANICAL HANDLING SYSTEMS AND LEGENDS, SHEET 2 OF 8
DWG-W375HV-J00003	MECHANICAL HANDLING SYSTEMS AND LEGENDS, SHEET 3 OF 8
DWG-W375HV-J00004	MECHANICAL HANDLING SYSTEMS AND LEGENDS, SHEET 4 OF 8
DWG-W375HV-J00005	MECHANICAL HANDLING SYSTEMS AND LEGENDS, SHEET 5 OF 8
DWG-W375HV-J00006	MECHANICAL HANDLING SYSTEMS AND LEGENDS, SHEET 6 OF 8
DWG-W375HV-J00007	MECHANICAL HANDLING SYSTEMS AND LEGENDS, SHEET 7 OF 8
DWG-W375HV-J00008	MECHANICAL HANDLING SYSTEMS AND LEGENDS, SHEET 8 OF 8

REV	DESCRIPTION	DRAWN	CHKD · APVD	DATE
B	ISSUED FOR DESIGN DEVELOPMENT (SEE MODIFICATION NOTE ABOVE)	TH	SC · PC	11-5-99
A	ISSUED FOR DWPA			

REVISION HISTORY

	BY	DATE
DRIGINATOR	TRACY MANKINS	11-5-99
CHECKED	STAN CROW	11-5-99
APPROVED	PAUL CATANAN	11-5-99

PROJECT No. W375
SITE HANFORD
AREA 200E
BLIN DWG. No.

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

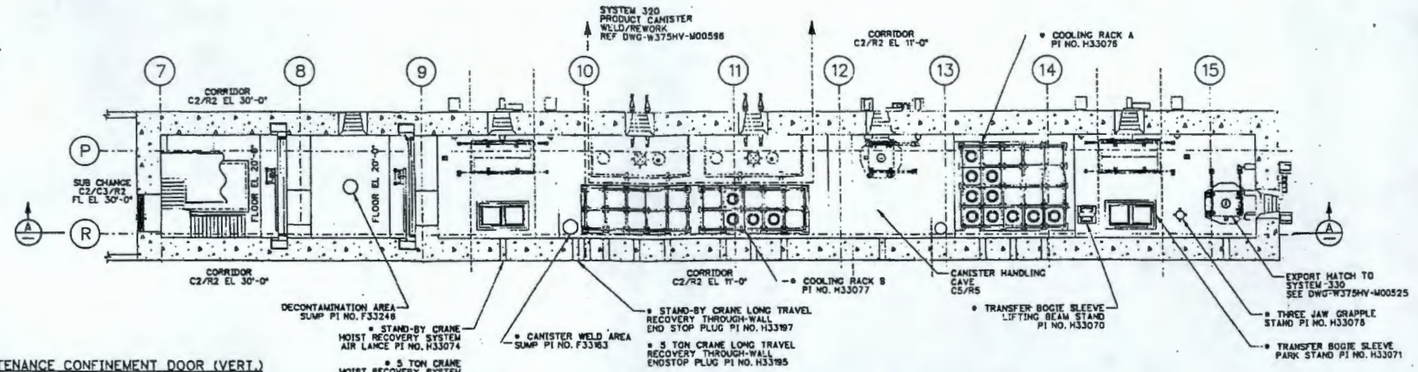
HLW VITRIFICATION SYSTEM 315 MECHANICAL HANDLING DIAGRAM LEVEL 1 POUR TUNNEL 1

DWG REFERENCE No. DW-W375-CD-01154 REV B
SCALE: NONE
DWG No. DWG- W375HV-M00594
REV B
"C" SIZE - 44x34
07 MAY 2000 09:33:33
COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No DWG-W375 HV-M00595

GENERAL NOTES:

1. DEVICE POSITIONS SHOWN ARE NOTIONAL. REFER TO RELEVANT DPD FOR TRUE POSITIONS.
2. ITEMS WITH * ARE FOR REFERENCE ONLY AND HAVE NO CONTROLS ASSOCIATED WITH THEM.



HLW CANISTER HANDLING CAVE - PART PLAN AT 30'-0"
(SEE KEY PLAN)

CRANE MAINTENANCE CONFINEMENT DOOR (VERT.)
PI NO. H33186 (TYPE 1)

JZ RSE/LWR (SDOV)	YS ENGAD (SDRSYS)	JZ OPN/CLS (CGDV)
JZ ENGA/DSG (SDLOK)	YS ENGAD (SDRSYS)	JZ OPN/CLS (CGDV)
JZ ENGA/DSG (SDLOK)	OT ENCDR	YS OPND/CLSD
JZ ENGA/DSG (SDJBK)	OT ENCDR	YS OPND/CLSD
JZ ENGA/DSG (SDJBK)	WE LOAD CELL (SDWT)	
ZS OPND/CL/CL	WE LOAD CELL (SDWT)	
YS ENGAD/DESGD (SDLOK)		
YS ENGAD/DESGD (SDLOK)		

* CRANE MAINTENANCE CONFINEMENT DOOR (VERT) LINER PI NO. F33207
* CRANE MAINTENENCE CONFINEMENT DOOR (VERT) RECOVERY PLUG PI NO. H33295
* CRANE MAINTENANCE CONFINEMENT DOOR LINER PI NO. F33050

CRANE DECONTAMINATION SHIELD DOOR (VERT.)
PI NO. H33186 (TYPE 1)

JZ RSE/LWR (SDOV)	YS ENGAD (SDRSYS)	JZ OPN/CLS (CGDV)
JZ ENGA/DSG (SDLOK)	YS ENGAD (SDRSYS)	JZ OPN/CLS (CGDV)
JZ ENGA/DSG (SDLOK)	OT ENCDR	YS OPND/CLSD
JZ ENGA/DSG (SDJBK)	OT ENCDR	YS OPND/CLSD
JZ ENGA/DSG (SDJBK)	WE LOAD CELL (SDWT)	
ZS OPND/CL/CL	WE LOAD CELL (SDWT)	
YS ENGAD/DESGD (SDLOK)		
YS ENGAD/DESGD (SDLOK)		

5 TON OVERHEAD STAND-BY CRANE
PI NO. H33072

(CROSS TRAVEL)	(LONG TRAVEL)	(HOIST)
JZ FWD/RVS (CCTDV)	JZ FWD/RVS (CLTDV)	JZ RSE/LWR (CH2SPDDV)
JZ ENGA/DSG (CCTBK)	JZ ENGA/DDSG (CLTBK)	JZ RSE/LWR (CHDV)
JZ ENGA/DSG (CCTCLTC)	JZ ENGA/DSG (CLTCLTC)	JZ ENGA/DSG (CHBK)
ZS ULTN/ULTS (CCTULT)	ZS ULTE/ULTW (CLTULT)	JZ ENGA/DSG (CHBK)
YS P1/P2/P3/P4/P5	YS P1/~/P25	WE WT (CHWT)
ZT POSN (CCTPOSN)	ZT POSN (CLTPOSN)	ZS ULTRSD/SKCA
YS POSN (DATUM)	YS POSN (DATUM)	ZS FLT (CHSLIM)
		YS P1 (CHHT)

5 TON OVERHEAD CRANE
PI NO. H33069 (TYPE 8)

(CROSS TRAVEL)	(LONG TRAVEL)	(HOIST)
JZ FWD/RVS (CCTDV)	JZ FWD/RVS (CLTDV)	JZ RSE/LWR (CH2SPDDV)
JZ ENGA/DSG (CCTBK)	JZ ENGA/DDSG (CLTBK)	JZ RSE/LWR (CHDV)
JZ ENGA/DSG (CCTCLTC)	JZ ENGA/DSG (CLTCLTC)	JZ ENGA/DSG (CHBK)
ZS ULTN/ULTS (CCTULT)	ZS ULTE/ULTW (CLTULT)	JZ ENGA/DSG (CHBK)
YS P1/P2/P3/P4/P5	YS P1/~/P25	WE WT (CHWT)
ZT POSN (CCTPOSN)	ZT POSN (CLTPOSN)	ZS ULTRSD/SKCA
YS POSN (DATUM)	YS POSN (DATUM)	ZS FLT (CHSLIM)
		YS P1 (CHHT)

STAND-BY CRANE RECOVERY REELING DRUM
PI NO. H33241 (TYPE 2)

JZ FWD (RDDV)	
JZ ENGA/DSG (RDBK)	
JZ ENGA/DSG (RDCLTC)	
ZS SKCA (RDSKCA)	
YS ENGAD (RDHW)	

* STAND-BY CRANE CABLE REEL BOX OUT LINER PI NO. F33196
* STAND-BY CRANE CABLE GUIDANCE SYSTEM PI NO. H33243

5 TON CRANE CABLE REELING DRUM/RECOVERY
PI NO. H33075 (TYPE 2)

JZ FWD (RDDV)	
JZ ENGA/DSG (RDBK)	
JZ ENGA/DSG (RDCLTC)	
ZS SKCA (RDSKCA)	
YS ENGAD (RDHW)	

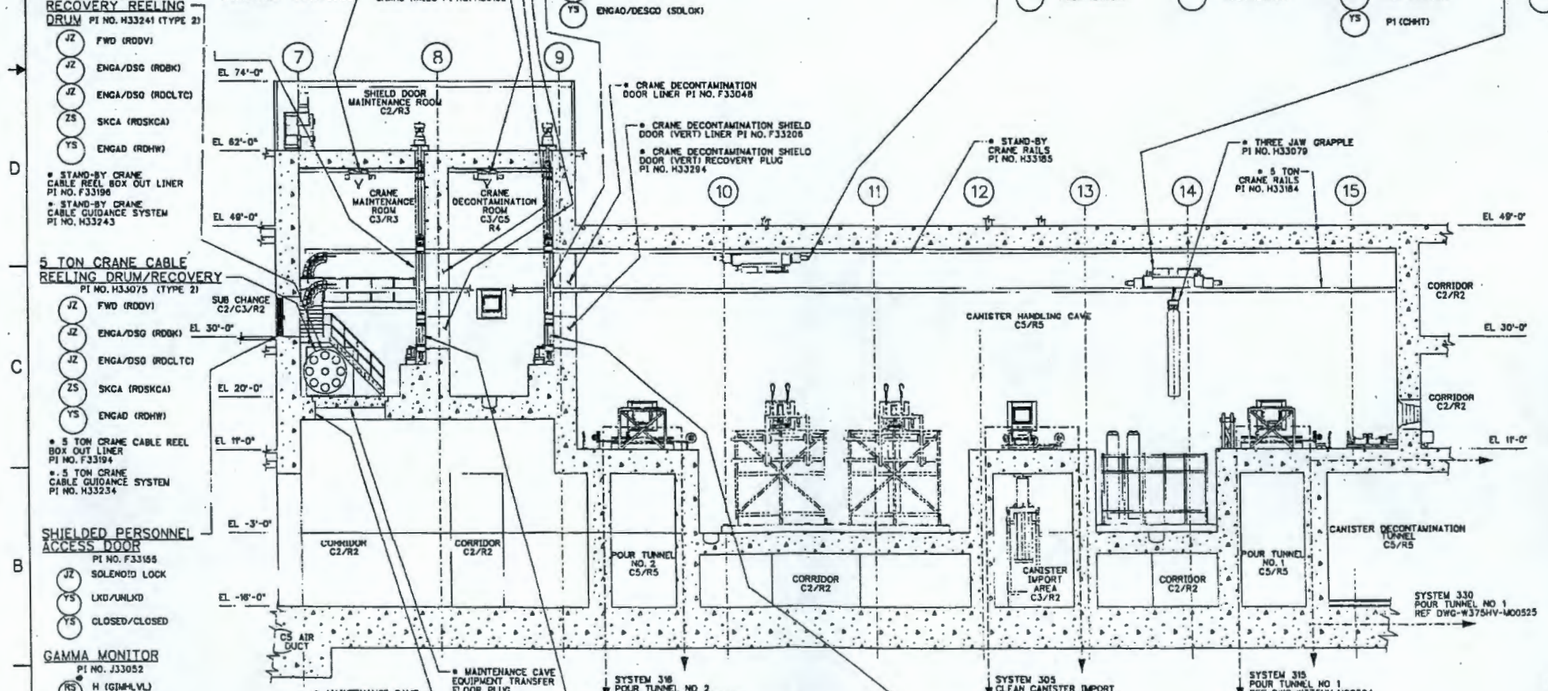
* 5 TON CRANE CABLE REEL BOX OUT LINER PI NO. F33194
* 5 TON CRANE CABLE GUIDANCE SYSTEM PI NO. H33234

SHIELDED PERSONNEL ACCESS DOOR
PI NO. F33155

JZ SOLENOID LOCK	
YS LKD/UNLKD	
YS CLOSED/CLOSED	

GAMMA MONITOR
PI NO. J33052

RS H (GIMHLVL)	
YS FLT (GIMFAULT)	



HORIZONTAL CRANE MAINTENANCE CONFINEMENT DOOR PI NO. H33274

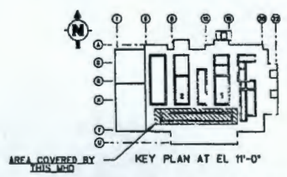
JZ OPEN/CL (SDOV)	JZ ENGAG/DSG (SDLCK)
ZS OPND/CLSD	YS ENGAD/DESGN
ZS CLSD	JZ ENGA/DSG (SDCLTC)

HORIZONTAL DECONTAMINATION SHIELD DOOR PI NO. H33273

JZ OPEN/CL (SDOV)	JZ ENGAG/DSG (SDLCK)
ZS OPND/CLSD	YS ENGAD/DESGN
ZS CLSD	JZ ENGA/DSG (SDCLTC)

SECTION 'A-A' - VIEW LOOKING NORTH

MODIFICATION CHANGE NOTE: REDRAWN TO COVER SYSTEM 310 AND TO MATCH REVISED LAYOUT/EQUIPMENT MODIFICATIONS.



PRELIMINARY

REFERENCE DRAWINGS

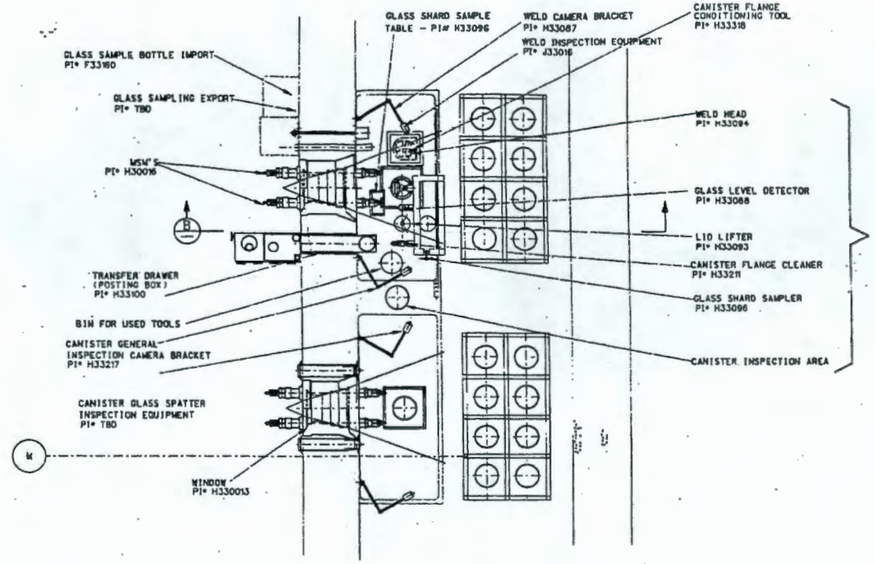
DWG NO	TITLE
DWG-W375HV-M00212	HLW SYSTEM 310 MFD LEVEL 1 PRODUCT CANISTER HANDLING
DWG-W375HV-M00587	HLW SYSTEM 310 MFD LEVEL 2 PROD. CANISTER HANDLING SHT 1
DWG-W375HV-M00588	HLW SYSTEM 310 MFD LEVEL 2 PROD. CANISTER HANDLING SHT 2
DWG-W375HV-M00593	HLW SYSTEM 305 MFD LEVEL 1 CLEAN CANISTER IMPORT
DWG-W375HV-M00594	HLW SYSTEM 315 MFD LEVEL 1 POUR TUNNEL 1
DWG-W375HV-M00596	HLW SYSTEM 320 MFD LEVEL 1 CANISTER WELD/SAMPLE/REWORK
DWG-W375HV-M00525	HLW SYSTEM 330 MFD LEVEL 1 CANISTER DECON/SAMP SHEET 1
DWG-W375SH-K00001	MECH HANDLING SYMBOLS AND LEGENDS SHEET 1 OF 8
DWG-W375SH-K00002	MECH HANDLING SYMBOLS AND LEGENDS SHEET 2 OF 8
DWG-W375SH-K00003	MECH HANDLING SYMBOLS AND LEGENDS SHEET 3 OF 8
DWG-W375SH-K00004	MECH HANDLING SYMBOLS AND LEGENDS SHEET 4 OF 8
DWG-W375SH-K00005	MECH HANDLING SYMBOLS AND LEGENDS SHEET 5 OF 8
DWG-W375SH-K00006	MECH HANDLING SYMBOLS AND LEGENDS SHEET 6 OF 8
DWG-W375SH-K00007	MECH HANDLING SYMBOLS AND LEGENDS SHEET 7 OF 8
DWG-W375SH-K00008	MECH HANDLING SYMBOLS AND LEGENDS SHEET 8 OF 8

REVISION HISTORY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
B	ISSUED FOR DESIGN DEVELOPMENT. (SEE MODIFICATION NOTE ABOVE)				3/2/00
A	ISSUED FOR DWPA	TH	SC	PC	11-5-99

PROJECT No.	1375	BNFL Inc.	RIVER PROTECTION PROJECT WASTE TREATMENT PLANT 3000 GEORGE WASHINGTON WAY RICHLAND, WA 99352
SITE	HANFORD		
AREA	300E		
BUILDING No.		CONTRACT No.	DE-AC06-96RL13308
CHECKED BY	TRACY HAWKINS	11-5-99	HLW VITRIFICATION SYSTEM 310 MECH HANDLING DIAGRAM LEVEL 1 PRODUCT CANISTER HANDLING AND BUFFER STORE
CHECKER	STAN CROW	11-5-99	
APPROVED	PAUL CAVANAH	11-5-99	
DM REFERENCE No.	DM-W375-00-0163	REV B	SCALE: NONE; DWG No. DWG- W375HV-M00595; REV B

DWG No. DWG-W375 HV-M00596



TEMPERATURE MEASURING EQUIPMENT

PI# J33016

TT XXXXXXX INFRA RED (CMT)

WELDING SYSTEM

J3 XXXXXXX RUN

J3 XXXXXXX RUNG

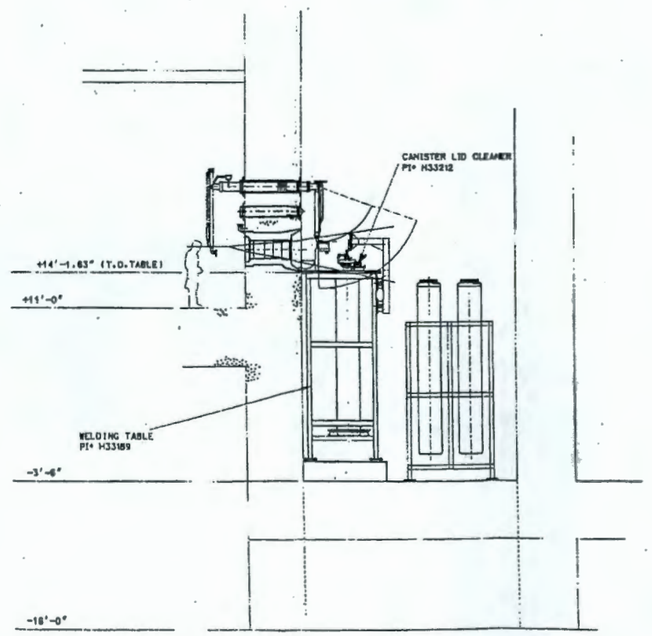
J3 XXXXXXX HY

NOTES

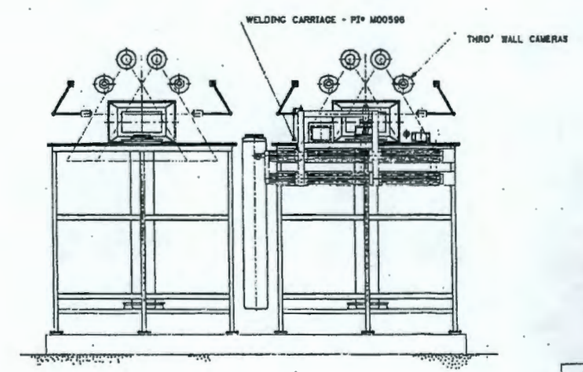
1. EQUIPMENT NOT SHOWN BUT INCLUDED IN SYSTEM

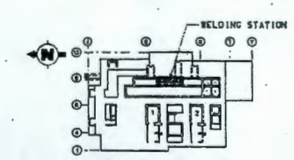
   WELDING TORCH BLOCK - PI# H33085
   WIRE FEED - PI# H33088
   ACR CATA RECORDER - PI# J33005
   CANISTER MEASURING EQUIPMENT - PI# H33216
   MAINTENANCE TOOLS AND RACKS - PI# H33092
   VACUUM SYSTEM - PI# H33290
   WELD CONTROLLER START PANEL - PI# TBD
   PLC - PI# W33014
   START PANEL - PI# W33013
   EQUIPMENT PANEL - PI# TBD
   GLASS REMOVAL TOOLS - PI# H33213
   GLASS CATCH TRAY - PI# H33214
   CANISTER WEIGHING EQUIPMENT - PI# H33215
   HELIUM LEAK HOOD TEST - PI# H33219

2. AT THIS TIME IT IS ASSUMED THAT WELDING SYSTEM CONTROLLER WILL CONTROL WELD HEAD AND ALL OTHER DEVICES AT THE STATION AND THEREFORE SPECIFIC DEVICES WILL NOT HAVE SEPERATE CALL OUTS.



SECTION ON B-B





KEY PLAN AT EL 11'-0"

PRELIMINARY

REFERENCE DRAWINGS	
DWG NO	TITLE
DWG-W375HV-M00215	HLW SYSTEM 320 MFD LVL I CANISTER GLASS SAMPLE & LID WELD
DWG-W375HV-M00216	HLW SYSTEM 350 MFD LVL I ABNORMAL PRODUCT REWORK

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
A	ISSUED FOR DWPA				11/8/99

REVISION HISTORY

THIRD ANGLE PROJECTION

PROJECT No. W375
SITE 200W
AREA 200E
BUILDING No.

	BY	DATE
DESIGNATOR		11-5-99
CHECKER		11-5-99
APPROVED		11/8/99

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

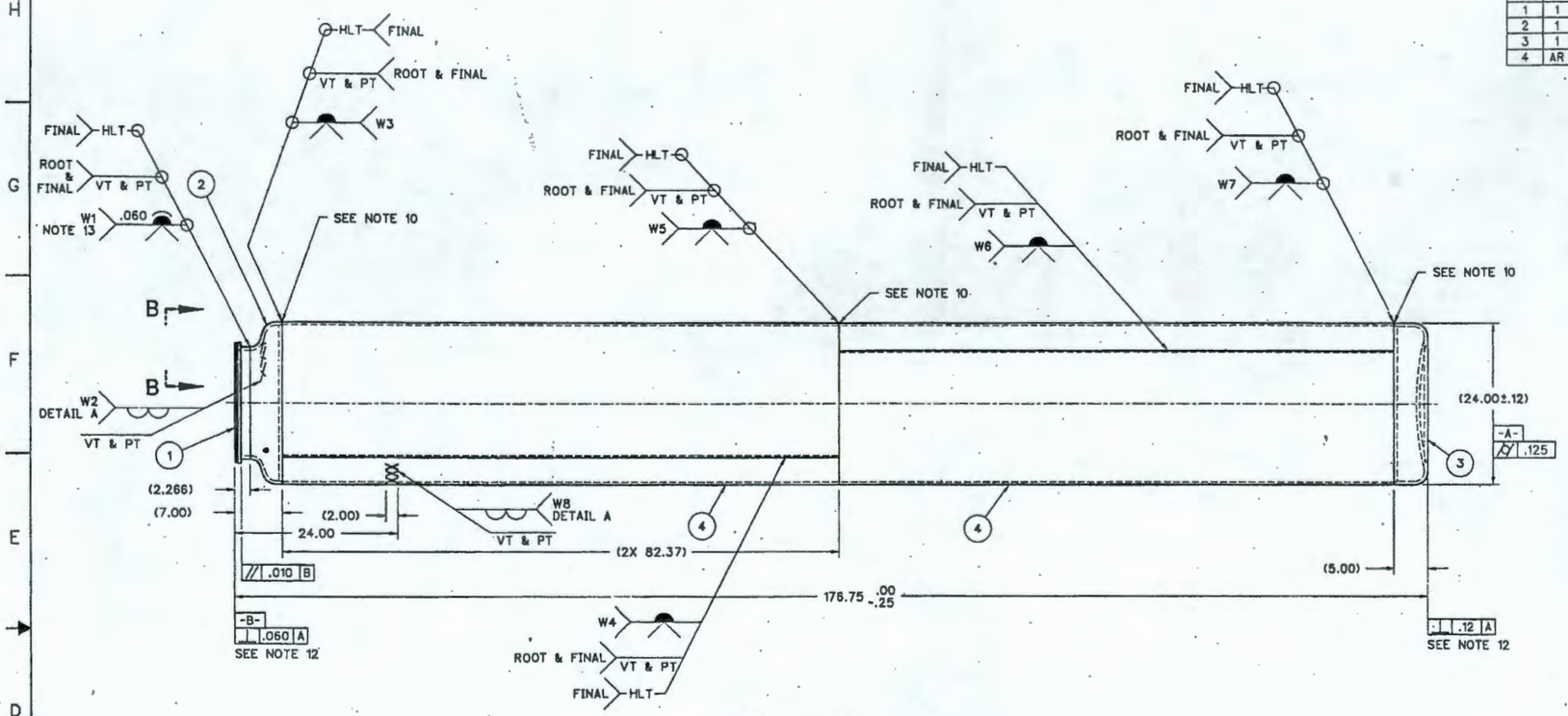
HLW VITRIFICATION
SYSTEM 320/350
MECHANICAL HANDLING DIAGRAM
LEVEL I
CANISTER WELD AND REWORK

SCALE 1/4"=1'-0" | DWG No. DWG- W375 HV-M00596 | REV A

T SIZE - 44x34

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375 HV-M00814



CANISTER ASSEMBLY

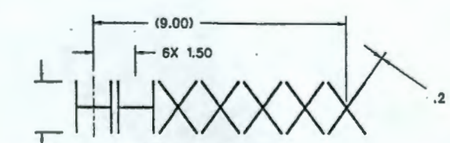
PARTS / MATERIAL LIST

ITEM	QTY	DESCRIPTION	DWG NO./PART NO./MAT'L/SPEC.
1	1	NECK FLANGE	DWG-W375HV-M00815
2	1	TOP HEAD	DWG-W375HV-M00815
3	1	BOTTOM HEAD	DWG-W375HV-M00815
4	AR	BODY SHELL	DWG-W375HV-M00815

GENEREAL NOTES (UNLESS OTHERWISE SPECIFIED)

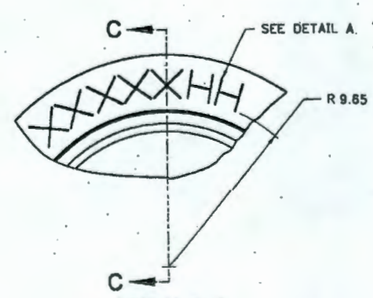
1. FABRICATION, INSPECTION, ACCEPTANCE AND SHIPPING REQUIREMENTS IN STRICT ACCORDANCE WITH SP-W375HV-M00005.
2. DIMENSIONING AND TOLERANCING PER ASME/ANSI-Y14.5. ALL DIMENSIONS ARE IN INCHES. ALL DIMENSIONS AND TOLERANCES APPLY AT FINAL ACCEPTANCE, UNLESS OTHERWISE STATED.
3. BREAK ALL SHARP EDGES AND REMOVE ALL BURRS.
4. 63 RMS (MAX) FINISH (OR EQUIVALENT) REQUIRED ON ALL EXTERIOR SURFACES AT FINAL ACCEPTANCE.
5. DESIGNATIONS W1, W2, W3, ... THRU W8 IDENTIFY SPECIFIC WELDS AND ARE USED TO SATISFY TRACEABILITY REQUIREMENTS OF SP-W375HV-M00005.
6. THE BODY SHELL (ITEM 4) MAY BE FABRICATED FROM A MAXIMUM OF TWO PIECES AS SHOWN. VERTICAL WELDS W4 & W6 MUST BE 90° OR MORE APART FROM EACH OTHER AT THE DISCRETION OF THE VENDOR TO MEET FABRICATION AND DIMENSIONAL REQUIREMENTS.
7. EACH CANISTER SHALL BE LABELED WITH A SEVEN DIGIT ALPHA-NUMERIC CODE, I. E. HHXXXXX. WHERE X IS A NUMBER. THE LABELS SHALL BE APPLIED AS SHOWN USING BEAD WELDING PROCESS.
8. SHOULDER AND BODY LABELS SHALL BE LOCATED 180° ±30° APART ON OPPOSITE SIDES OF THE CANISTER. LABELS MAY NOT BE APPLIED WITHIN ONE INCH OF SEAM WELDS.
9. MACHINED DIAMETERS TO BE CONCENTRIC TO COMMON AXIS WITHIN .01".
10. MAXIMUM RADIAL MISMATCH OF NOTED CIRCUMFERENTIAL WELDS TO BE .060 INCH. ANY MISMATCH TO BE EQUALLY DISTRIBUTED AROUND CIRCUMFERENCE.
11. ALL WELDING PROCEDURE QUALIFICATIONS AND WELDING OPERATOR QUALIFICATIONS SHALL MEET THE REQUIREMENTS OF ASME SECTION IX CURRENT REVISION.
12. BASE MAY BE MACHINED A MAXIMUM OF .062" TO ACHIEVE PERPENDICULARITY AND LENGTH.
13. GRINDING OR MACHINING OF I. D. IS ACCEPTABLE TO ACHIEVE DRAWING CONTOUR REQUIREMENTS.
14. ALL WELDING AND NDE SYMBOLS PER ANSI/AWS A2.4(CURRENT REV).
15. ALL WELD SIZES ARE MINIMUM.

PRELIMINARY

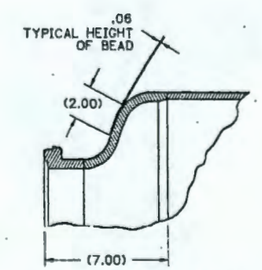


DETAIL A

(APPLIES 2 PLACES)
CANISTER NUMBER
SANS SERIF MEGARON MEDIUM FULL WIDTH
TYPICAL IDENTIFICATION WELD
SEE NOTES 5, 7, & 8



VIEW B-B



PART SECTION C-C

SCALE: NONE

REFERENCE DRAWINGS

DWG NO	TITLE
DWG-W375HV-M00815	HLW VITRIFICATION-SYSTEM 060-CANISTER DETAIL-CANISTER
DWG-W375HV-M00816	HLW VITRIFICATION-SYSTEM 060-CANISTER-LID DETAIL-CANISTER
DWG-W375HV-M00817	HLW VITRIFICATION-SYSTEM 060-CANISTER ASSEMBLY-CANISTER
DWG-W375HV-M00818	HLW VITRIFICATION-SYSTEM 060-LID WELDMENT DETAIL-CANISTER

THIRD ANGLE PROJECTION

TOLERANCES

.XX	±.03
.XXX	±.010
FRACTIONS	±1/16
ANGLES	± 1°

REVISION HISTORY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
B	MINOR EDITORIAL CHANGES TO MEET DRAWING FORMAT	JRB	SRC	PAC	11/10/99
A	ISSUE FOR FIXED PRICE ESTIMATE	JRB	SRC	PAC	09/24/1999

PROJECT No.	W375	
SITE	HANFORD	
AREA	200E	
BUILDING No.		

	BY	DATE
ORIGINATOR	J BERKEY	09/24/1999
CHECKER	S CROW	09/24/1999
APPROVED	P CAVANAH	09/24/1999
Q A	R HOLLENBECK	09/24/1999

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No: DE-AC06-96RL13308

HLW VITRIFICATION
SYSTEM 060
DETAIL
CANISTER WELDMENT

SCALE: NONE | DWG No. DWG- W375HV-M00814 | REV B

'D' SIZE - 34x22

10 NOV 1999 08:31:52

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

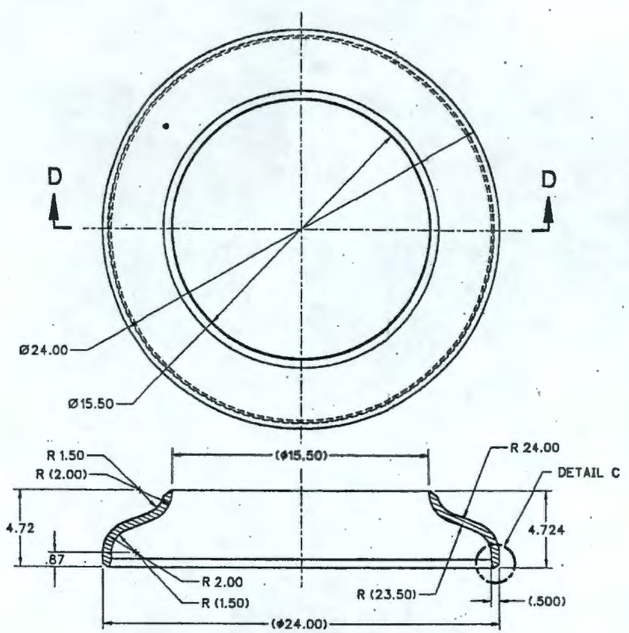
DWG No. DWG-W375 HV-M00815

PARTS / MATERIAL LIST

ITEM	QTY	DESCRIPTION	DWG NO./PART NO./MAT'L/SPEC.
1	1	NECK FLANGE, 17.875 OD X 15.500 ID X 2.266 THICK	ASTM A 182 TYPE 304L SST
2	1	TOP HEAD, 1/2 PLATE	ASTM A 240 TYPE 304L SST
3	1	BOTTOM HEAD, 1/2 PLATE	ASTM A 240 TYPE 304L SST
4	AR	BODY SHELL, 3/8 PLATE	ASTM A 240 TYPE 304L SST

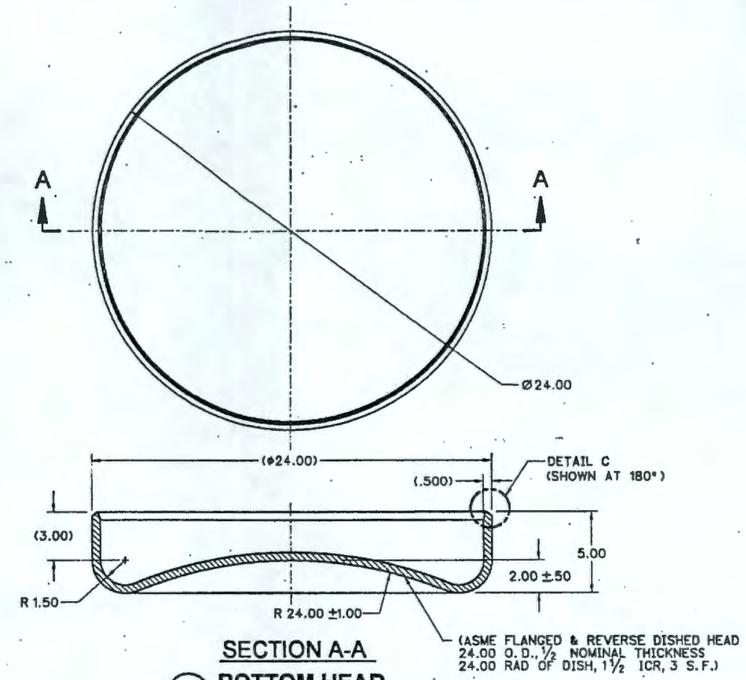
NOTES:

1. SEE GENERAL NOTES AND NEXT ASSEMBLY ON DRAWING DWG-W375HV-M00814
2. SEE LID DETAILS ON DRAWING DWG-W375HV-M00816



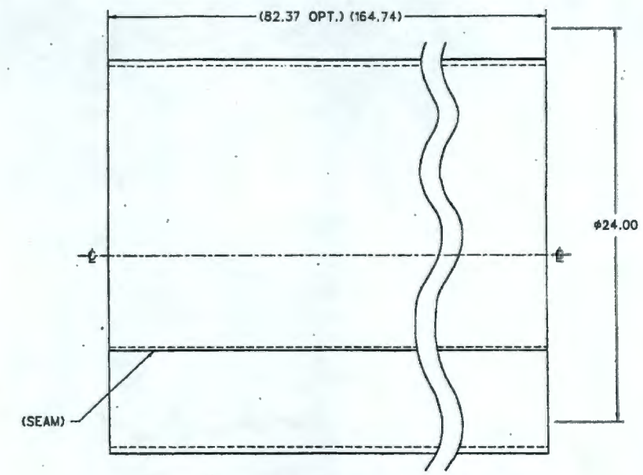
SECTION D-D

2 TOP HEAD



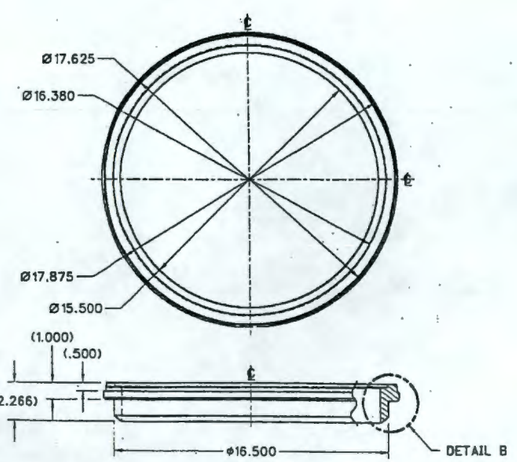
SECTION A-A

3 BOTTOM HEAD

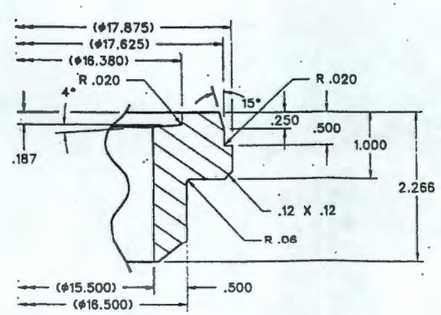


4 BODY SHELL

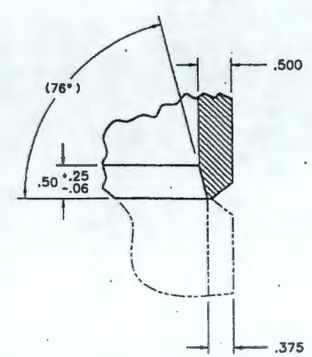
PRELIMINARY



1 NECK FLANGE



DETAIL B
SCALE: NONE



DETAIL C

REFERENCE DRAWINGS	
DWG NO	TITLE
DWG-W375HV-M00814	HLW VITRIFICATION-SYSTEM 060-CANISTER DETAIL-CANISTER
DWG-W375HV-M00816	HLW VITRIFICATION-SYSTEM 060-LID DETAIL-CANISTER
DWG-W375HV-M00817	HLW VITRIFICATION-SYSTEM 060-ASSEMBLY-CANISTER
DWG-W375HV-M00818	HLW VITRIFICATION-SYSTEM 060-LID WELDING-DETAIL-CANISTER

THIRD ANGLE PROJECTION

TOLERANCES	
.00	±.03
.000	±.010
FRACTION	± 1/16"
ANGLE	± 1°

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
B	MINOR EDITORIAL CHANGES TO MEET DRAWING FORMAT	JM	SRC	PAC	11/10/99
A	ISSUE FOR FIXED PRICE ESTIMATE	JRB	SRC	PAC	09/24/1999

REVISION HISTORY

ISSUED BY ISSUE STAMP

PROJECT No.	W375
SITE	HANFORD
AREA	200E
BUILDING No.	

	BY	DATE
ORIGINATOR	J BERKEY	09/24/1999
CHECKER	S CROW	09/24/1999
APPROVED	P CAVANAH	09/24/1999
Q A	R HOLLENBECK	09/24/1999

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No: DE-AC06-96RL13308

HLW VITRIFICATION
SYSTEM 060
DETAIL
CANISTER

SCALE: NONE | DWG No. DWG- W375 HV-M00815 | REV B

FORM BPP3.DGN

'D' SIZE - 34x22

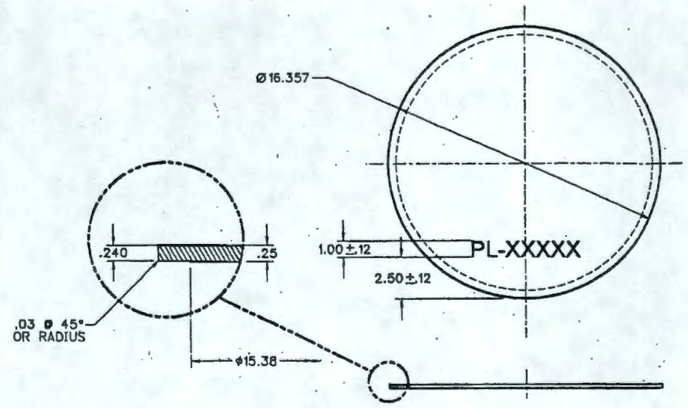
10 NOV 1999 09:32:33

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

J:\ccd_eng\hv\merch\working\hv-m00815.dgn

DWG No. DWG-W375 HV-M00816

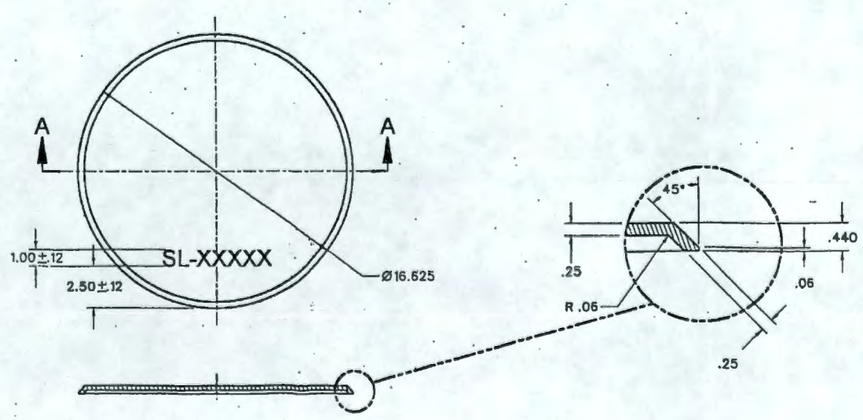
PARTS / MATERIAL LIST			
ITEM	QTY	DESCRIPTION	DWG. NO./PART NO./MAT'L/SPEC.
1	1	PRIMARY LID	ASTM A240 TYPE 304L
2	1	SECONDARY LID	ASTM A240 TYPE 304L



1 PRIMARY LID

GENERAL NOTES:

1. PRIMARY LIDS SHALL BE SHIPPED IN LID PACKAGES AS SHOWN IN SP-W375HV-M00005.
2. EACH LID SHALL BE LABELED WITH A FIVE DIGIT CODE PL-XXXXX OR SL-XXXXX WHERE X IS A NUMBER. THE LABEL SHALL BE APPLIED BY TEMPLATE AND BEAD BLAST (OR EQUIVALENT). THE SPECIFIC CODE WILL BE PROVIDED BY BNFL RPP-WTP LOCATE AS SHOWN ON UPPER SURFACE.
3. 63 RMS (MAX) FINISH (OR EQUIVALENT) REQUIRED ON ALL UPPER SURFACES EXCEPT LABEL.
4. BREAK ALL SHARP EDGES AND REMOVE ALL BURRS.
5. FABRICATION, INSPECTION, ACCEPTANCE, AND SHIPPING REQUIREMENTS IN STRICT ACCORDANCE WITH SP-W375HV-M00005.
6. DIMENSIONING AND TOLERANCING PER ASME/ANSI-Y14.5. ALL DIMENSIONS ARE IN INCHES. ALL DIMENSIONS AND TOLERANCES APPLY AT FINAL ACCEPTANCE, UNLESS OTHERWISE STATED.



SECTION A-A

2 SECONDARY LID

PRELIMINARY

REFERENCE DRAWINGS	
DWG NO	TITLE
DWG-W375HV-M00814	HLW VITRIFICATION-SYSTEM 060-DETAIL-CANISTER WELDMENT
DWG-W375HV-M00815	HLW VITRIFICATION-SYSTEM 060-DETAIL-CANISTER
DWG-W375HV-M00817	HLW VITRIFICATION-SYSTEM 060-CANISTER ASSEMBLY-CANISTER
DWG-W375HV-M00818	HLW VITRIFICATION-SYSTEM 060-LID WELDMENT DETAIL-CANISTER

THIRD ANGLE PROJECTION

TOLERANCES	
.00	±.03
.000	±.010
FRACTION	± 1/16"
ANGLE	± 1°

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
B	MINOR EDITORIAL CHANGES TO MEET DRAWING FORMAT	JRB	SRC	PAC	11/11/99
A	ISSUE FOR FIXED PRICE ESTIMATE	JRB	SRC	PAC	09/24/1999

REVISION HISTORY

PROJECT No.	W375	
SITE	HANFORD	
AREA	200E	
BUILDING No.		

	BY	DATE
ORIGINATOR	J BERKEY	09/24/1999
CHECKER	S CROW	09/24/1999
APPROVED	P CAVANAH	09/24/1999
Q A	R HOLLENBECK	09/24/1999

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No: DE-AC06-96RL13308

HLW VITRIFICATION
SYSTEM 060
DETAIL
CANISTER LID

SCALE: NONE | DWG No. DWG- W375 HV-M00816 | REV B

'D' SIZE - 34x22

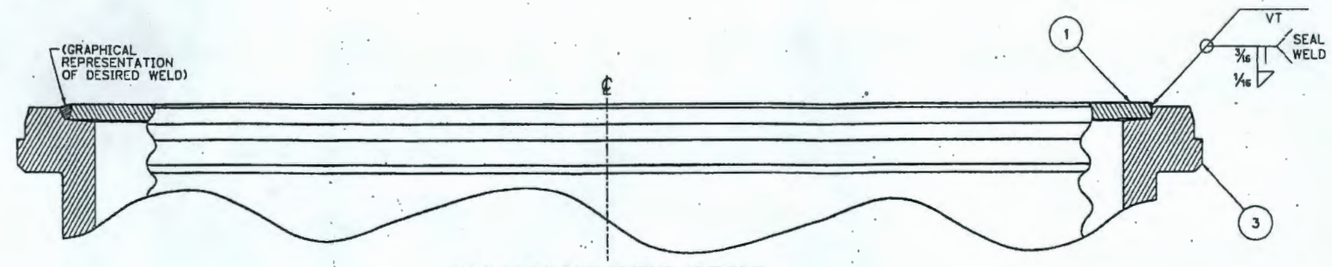
10 NOV 1999 09:33:08
COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

FORM RP-70.DGN

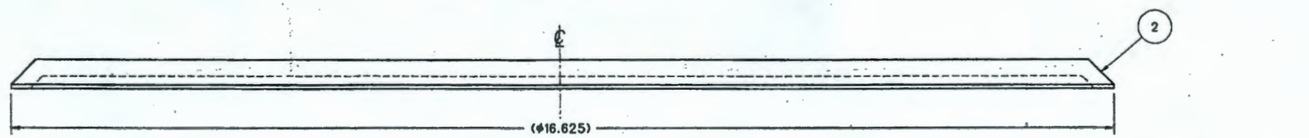
DWG No. DWG-W375 HV-M00818

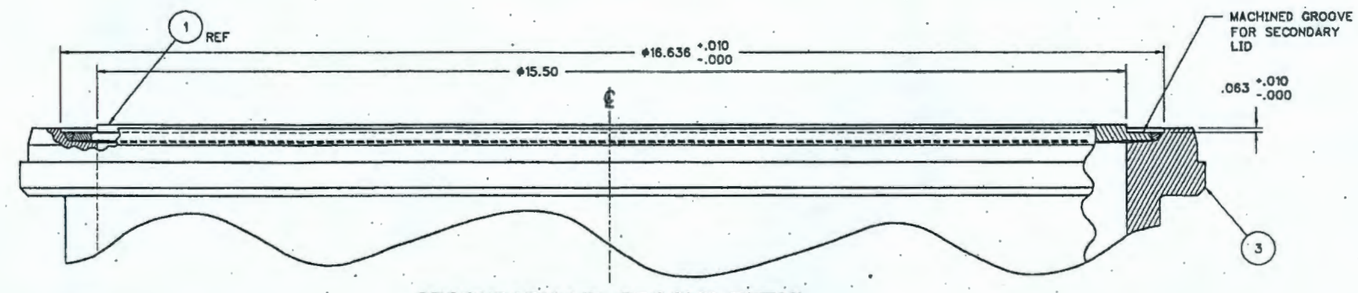
PARTS / MATERIAL LIST

ITEM	QTY	DESCRIPTION	DWG. NO./PART NO./ MAT'L/SPEC.
1	1	PRIMARY LID	DWG-W375HV-M00816
2	AR	SECONDARY LID	DWG-W375HV-M00816
3	1	HLW CANISTER WELDMENT	DWG-W375HV-M00814

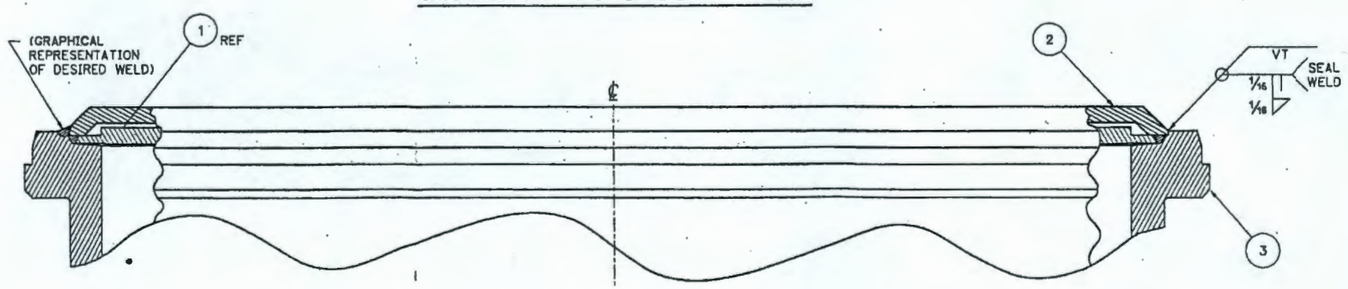


PRIMARY LID WELD DETAIL





SECONDARY LID GROOVE DETAIL



SECONDARY LID WELD DETAIL

GENERAL NOTES:

1. ALL WELD SIZES ARE NOMINAL.
2. ALL WELDING & NDE SYMBOLS PER ANSI/AWS A2.4 (CURRENT REVISION).
3. ALL WELDING PROCEDURE QUALIFICATIONS AND WELDING OPERATOR QUALIFICATIONS SHALL MEET THE REQUIREMENTS OF ASME, SECTION IX (CURRENT REVISION).
4. DIMENSIONING AND TOLERANCING PER ASME/ANSI-Y14.5. ALL DIMENSIONS ARE IN INCHES. ALL DIMENSIONS AND TOLERANCES APPLY FINAL ACCEPTANCE, UNLESS OTHERWISE STATED.
5. ALL CANISTERS WILL REQUIRE A PRIMARY LID. THE SECONDARY LID WILL ONLY BE USED AS REQUIRED.

PRELIMINARY

REFERENCE DRAWINGS

DWG NO	TITLE
DWG-W375HV-M00814	HLW VITRIFICATION-SYSTEM 060-DETAIL-CANISTER WELDMENT
DWG-W375HV-M00815	HLW VITRIFICATION-SYSTEM 060-DETAIL-CANISTER
DWG-W375HV-M00816	HLW VITRIFICATION-SYSTEM 060-DETAIL-CANISTER LID
DWG-W375HV-M00817	HLW VITRIFICATION-SYSTEM 060-CANISTER ASSEMBLY

THIRD ANGLE PROJECTION

TOLERANCES	
.00	±.03
.000	±.010
FRACTION	± 1/16"
ANGLE	± 1°

REVISION HISTORY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
B	MINOR EDITORIAL CHANGES TO MEET DRAWING FORMAT	JRB	SRC	PAC	11/11/99
A	ISSUE FOR FIXED PRICE ESTIMATE	JRB	SRC	PAC	09/24/1999

ISSUED BY ISSUE STAMP

PROJECT No.	W375
SITE	HANFORD
AREA	200E
BUILDING No.	

	BY	DATE
ORIGINATOR	J BEHKEY	09/24/1999
CHECKER	S CROW	09/24/1999
APPROVED	P CAVANAH	09/24/1999
Q A	R HOLLENBECK	09/24/1999

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No: DE-AC06-96RL13308

HLW VITRIFICATION
SYSTEM 060
DETAIL
CANISTER LID WELDING

SCALE: NONE | DWG No. DWG- W375HV-M00818 | REV B

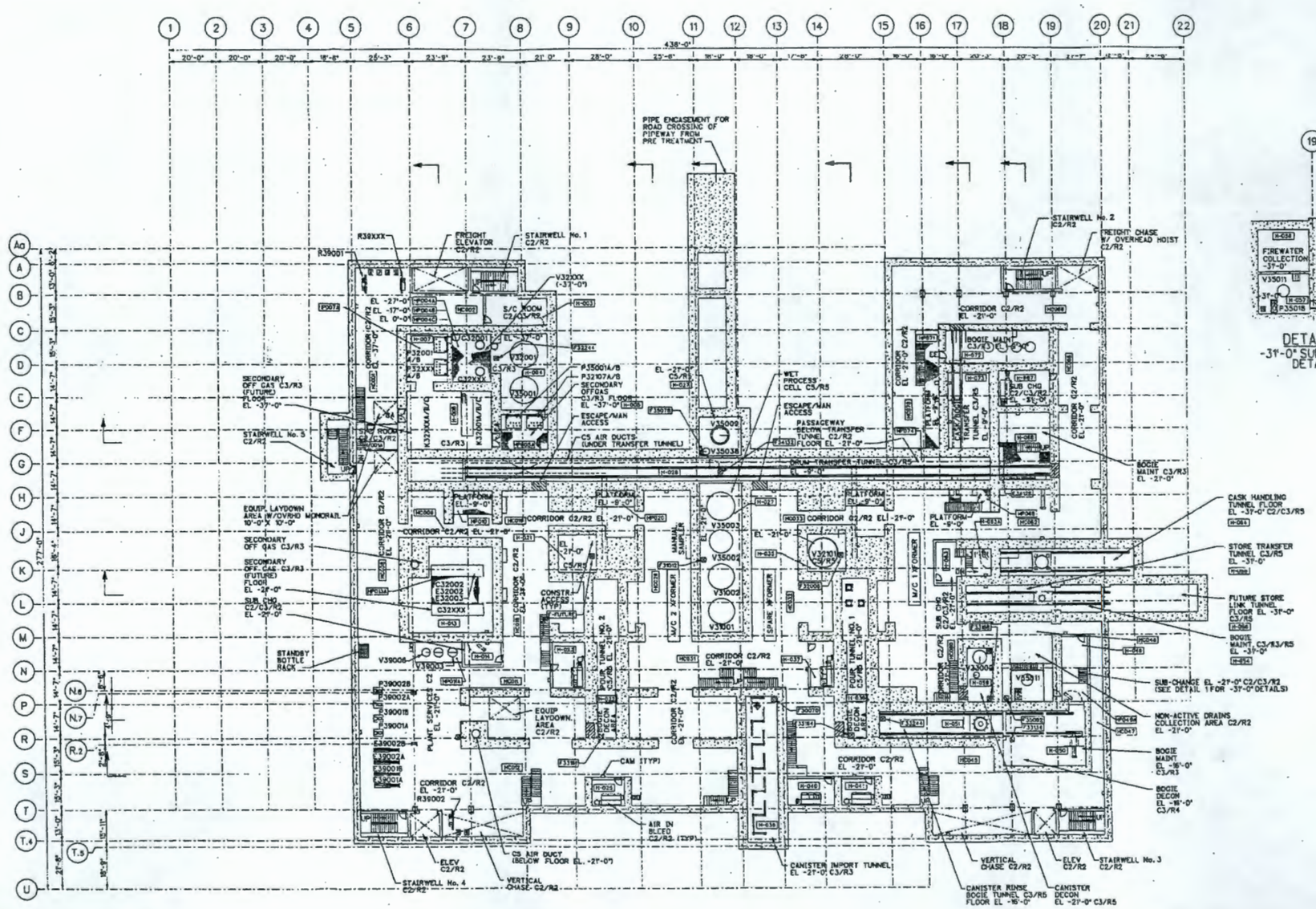
'D' SIZE - 34x22

10 NOV 1999 09:33:52

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

FORM PRPV.DGN

DWG No DWG-W375HV-PL00015 SCALE RULES



PLAN AT EL. -21'-0"
(FROM EL. -37'-0" TO EL. -9'-0")

PRELIMINARY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
E	ISSUED FOR FINAL (PHASE 3) C1	GJ		JN	05-21-00
D	REVISED PER SITE PLAN MODIFICATION AND ISSUED FOR REFINED C1	GWP	TBC	JM	01-26-00
C	REVISED AND ISSUED FOR REFINED C1	GWP	GS	JM	12-07-99
B	ISSUED FOR REFINED C1	GWP	GS	JM	10-08-99

REVISION HISTORY

LEGEND:
- CAM CONTINUOUS AIR MONITOR
- CA CONTROLLED ACCESS
- EE EMERGENCY EXIT
- FD FIRE DOORS
- TEMPORARY ACCESS (Construction - bridge crane access). Wall or floor to be repaired to initial intended specification.
- TEMPORARY ACCESS (Construction). Fit with knock out panels for decommissioning. (Caves, Cells only).
- PERMANENT ACCESS (Construction / Operations).
- SUMPS

PROJECT No. V375
SITE HANFORD
AREA 200E
BUILDING No.

	BY	DATE
DESIGNED	G.POTUZAK	12-07-99
CHECKED	G. BOSS	12-07-99
APPROVED	J.MINES	12-07-99

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

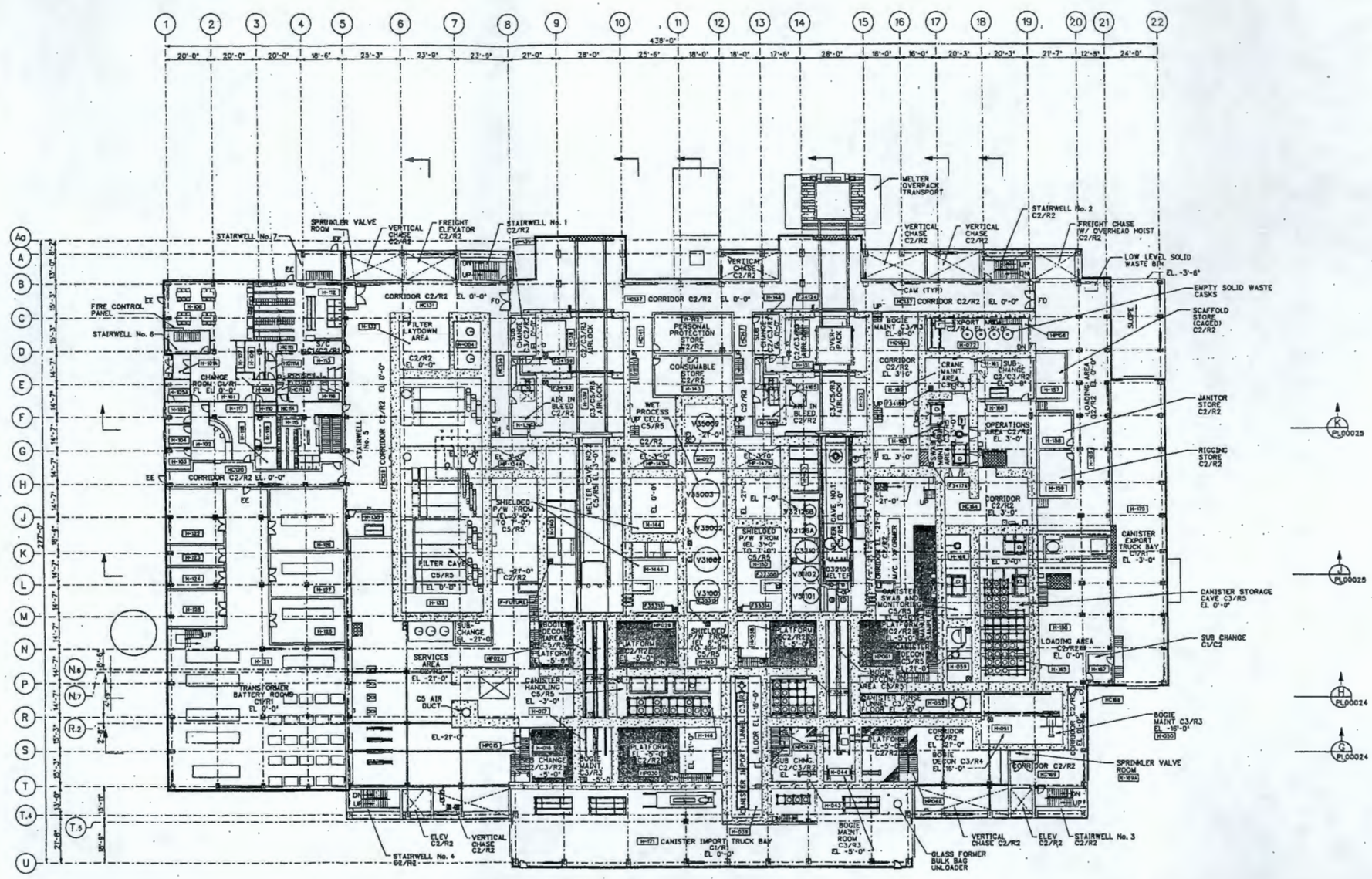
CONTRACT No DE-AC06-96RL13308

HLW VITRIFICATION BUILDING
GENERAL ARRANGEMENT
PLAN AT EL. -21'-0"

SCALE 1/16"=1'-0" DWG No. DWG-W375 HV-PL00015 REV E

SIM REFERENCE No. DRM-V375-00-00260 REV C

DWG No. DWG-W375 HV-PL00016 SCALE RULES



PLAN AT EL 0'-0"
(FROM EL -9'-0" TO EL 8'-0")

A PL00022 B PL00022 C PL00022 D PL00023 E PL00023 F PL00023

LEGEND:

- CAM CONTINUOUS AIR MONITOR
- CA CONTROLLED ACCESS
- LE EMERGENCY EXIT
- FD FIRE DOORS
- TEMPORARY ACCESS (Construction - bridge crane access). Wall or floor to be repaired to initial intended specification.
- TEMPORARY ACCESS (Construction). Fill with knock out panels for decommissioning. (Caves, Cells only).
- PERMANENT ACCESS (Construction / Operations).
- SUMPS

PRELIMINARY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
E	ISSUED FOR FINAL (PHASE 3) C1	TSL			03.21.00
D	REVISED AND ISSUED FOR REFINED C1	GWP	TSL	JM	01-27-00
C	REVISED AND ISSUED FOR REFINED C1	GWP	GS	JM	12-17-99
B	ISSUED FOR REFINED C1	GWP	CS	JM	10-06-99

REVISION HISTORY

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

	BY	DATE
ORIGINATOR	G PORIZAK	10-07-99
CHECKER	B SEEDS	10-07-99
APPROVED	J MAINES	10-07-99

PROJECT No. W375
SITE HANFORD
AREA 200E
BUILDING No.

HLW VITRIFICATION BUILDING GENERAL ARRANGEMENT PLAN AT EL 0'-0"

DSM REFERENCE No. DSM-W375-00-00281 REV E

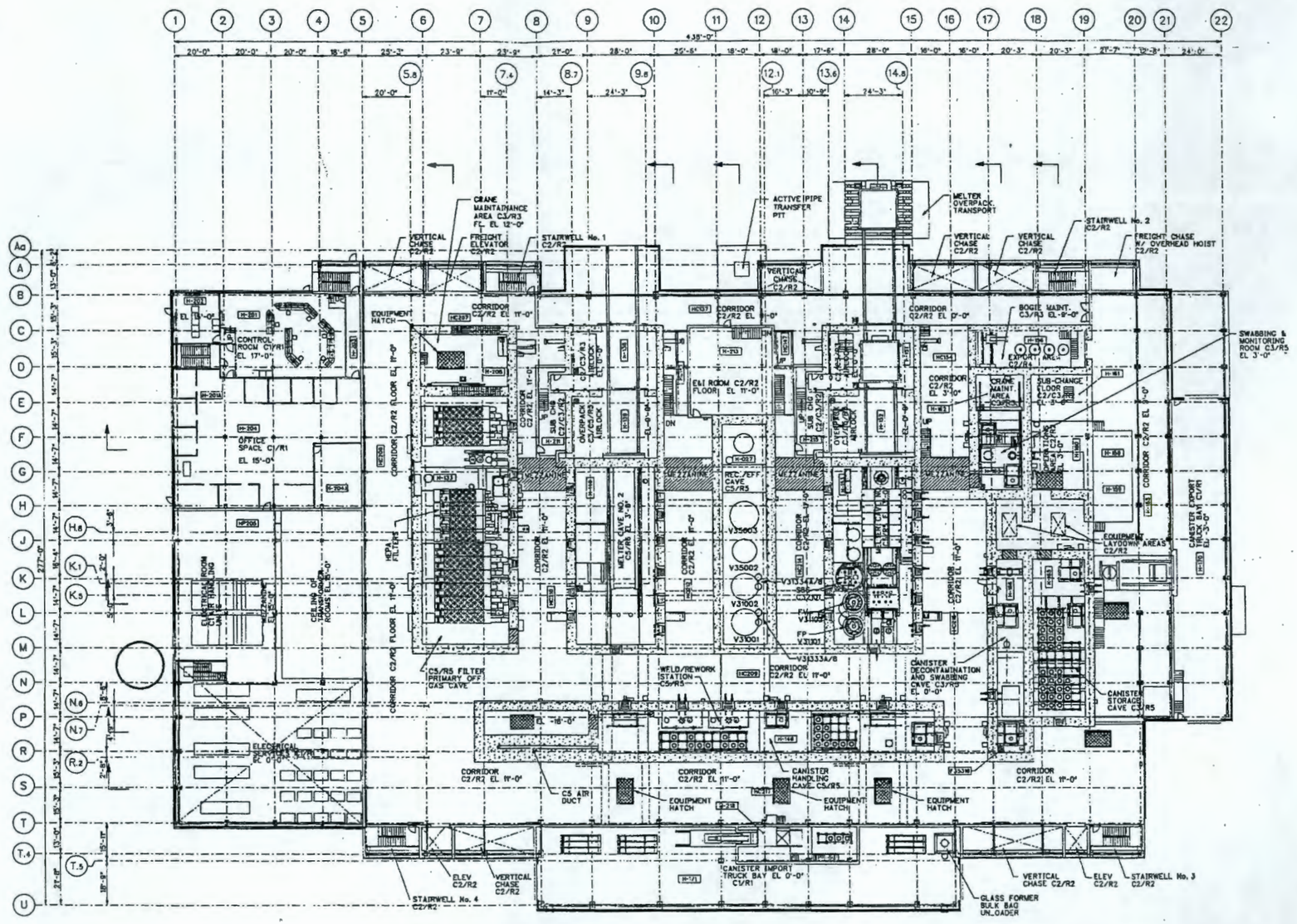
SCALE 1/16"=1'-0" 12" SIZE - 44x34

DWG No. DWG- W375 HV-PL00016 REV E

23 MAR 2000 08:37:16

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375 HV-PL00017 SCALE RULES



PLAN AT EL 11'-0"
(FROM EL 8'-0" TO EL 16'-0")

PRELIMINARY

LEGEND:

- CA CONTROLLED ACCESS
- EE EMERGENCY EXIT
- FD FIRE DOORS
- TEMPORARY ACCESS (Construction - bridge crane access). Weld or floor to be repaired to initial intended specification.
- TEMPORARY ACCESS (Construction). Fit with knock out panels for decommissioning. (Caves, Cells only).
- PERMANENT ACCESS (Construction / Operations).
- SUMPS

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
E	ISSUED FOR FINAL (PHASE 3) C1	CWP	TBL	JM	03-21-00
D	REVISED PER SITE PLAN MODIFICATION AND ISSUED FOR REFINED C1	CWP	TBL	JM	01-26-00
C	REVISED AND ISSUED FOR REFINED C1	CWP	GS	JM	12-07-99
B	ISSUED FOR REFINED C1	CWP	GS	JM	10-06-99

REVISION HISTORY

PROJECT No.	W375		
SITE	HANFORD		
AREA	200E		
ICD 2040 No.			
	BY	DATE	
ORIGINATOR	CWP	10-07-99	
CHECKER	GS	10-07-99	
APPROVER	JM	10-07-99	

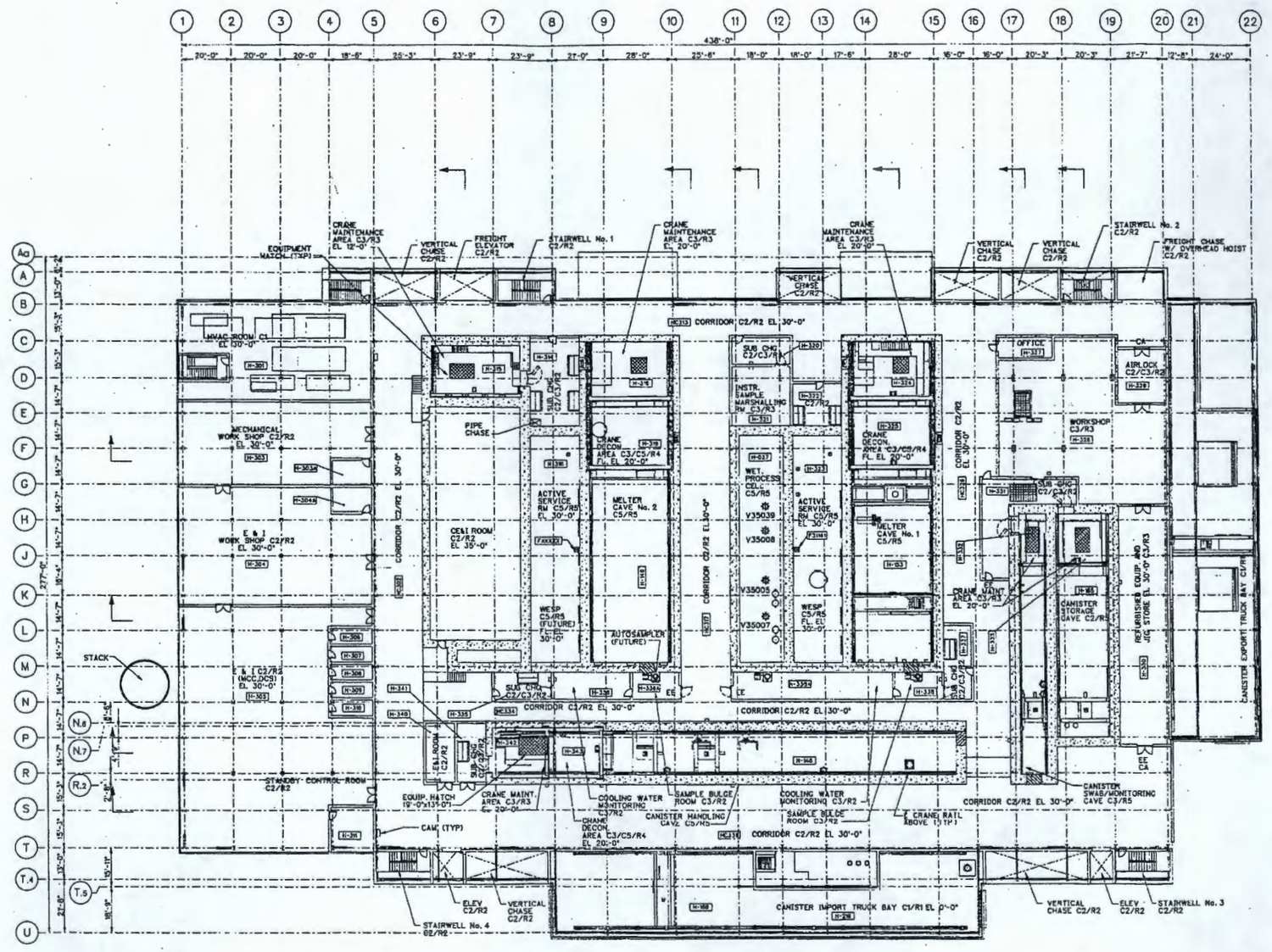
BNFL INC.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No: DE-AC06-96RL13308

HLW VITRIFICATION BUILDING GENERAL ARRANGEMENT PLAN AT EL 11'-0"

BNI REFERENCE No. 0SA-W375-00-00292 REV E
SCALE: 1/16"=1'-0"
DWG No. DWG- W375 HV-PL00017
REV E
"E" SIZE - 44x34
21 MAR 2000 09:26:43
COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375 HV-PL00018 SCALE RULES



PLAN AT EL 30'-0"
(FROM EL 16'-0 TO EL 36'-0")

LEGEND:

- CAM CONTINUOUS AIR MONITOR
- CA CONTROLLED ACCESS
- EE EMERGENCY EXIT
- FD FIRE DOORS
- TEMPORARY ACCESS (Construction - bridge crane access). Wall or floor to be repaired to initial intended specification.
- TEMPORARY ACCESS (Construction). Fill with knock out panels for decommissioning. (Caves, Cells only).
- PERMANENT ACCESS (Construction / Operations).
- SUMPS

PRELIMINARY

REV	DESCRIPTION	DRAWN	CHKD : APVD	DATE
E	ISSUED FOR FINAL (PHASE 3) C1	BW	[illegible]	03.21.00
D	REVISED PER SITE PLAN MODIFICATION AND ISSUED FOR REFINED C1	RW	TBL / JM	01-27-00
C	REVISED AND ISSUED FOR REFINED C1	RW	GS / JM	12-07-99
B	ISSUED FOR REFINED C1	RW	GS / JM	10-08-99

REVISION HISTORY

	BY	DATE
ORIGINATOR	R. WHITAKER	10-07-99
CHECKER	G. SKIDS	10-07-99
APPROVED	J. MAINES	10-07-99

PROJECT No. W375
SITE HANFORD
AREA 200E
BUILDING No.

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

HLW VITRIFICATION BUILDING GENERAL ARRANGEMENT PLAN AT EL 30'-0"

SCALE: 1/16"=1'-0" DWG No. DWG-W375 HV-PL00018 REV E

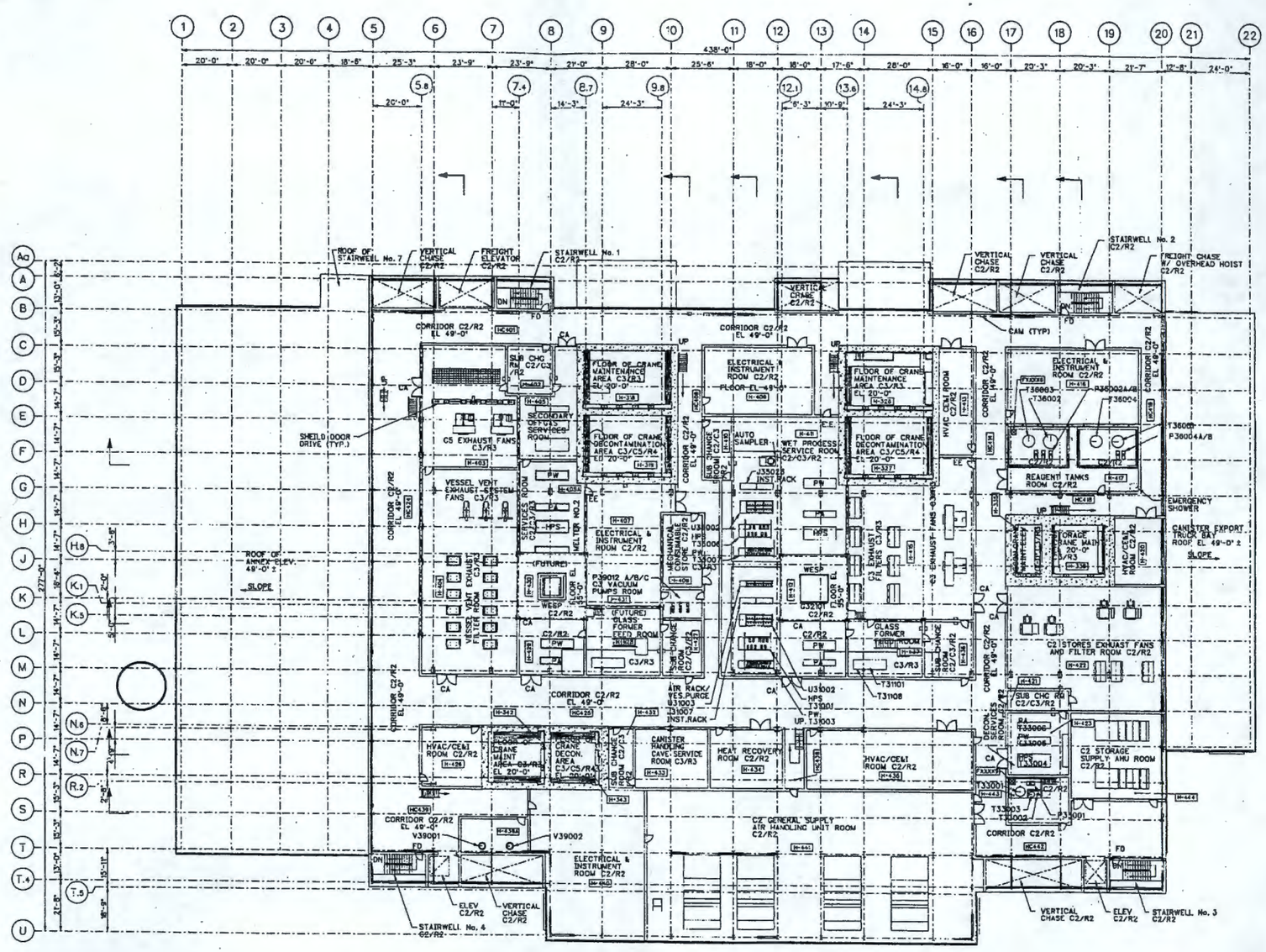
DIM REFERENCE No. DIM-W375-00-00263 REV E

C SIZE - 44x34

21 MAR 2000 09:36:24

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375HV-PL00019 SCALE RULES 1/16" 1/8" 3/16" 1/4" 3/8" 1/2"



PLAN AT EL 49'-0"
(FROM EL 36'-0" TO EL 54'-0")

PRELIMINARY

REV	DESCRIPTION	DRAWN, CHKD	APVD	DATE
E	ISSUED FOR FINAL (PHASE 3) C1	JM	JM	03.21.00
D	REVISED PER SITE PLAN MODIFICATION AND ISSUED FOR REFINED C1	RW TBC	JM	01-27-00
C	REVISED AND ISSUED FOR REFINED C1	RW GS	JM	12-07-99
B	ISSUED FOR REFINED C1	RW GS	JM	10-06-99

REVISION HISTORY

LEGEND:

- CAM CONTINUOUS AIR MONITOR
- CA CONTROLLED ACCESS
- EE EMERGENCY EXIT
- FD FIRE DOORS
- TEMPORARY ACCESS (Construction - bridge crane access). Wall or floor to be repaired to initial intended specification.
- TEMPORARY ACCESS (Construction). Fit with knock out panels for decommissioning. (Caves, Cells only).
- PERMANENT ACCESS (Construction / Operations).
- SUMPS

	BY	DATE
ORIGINATOR	R. WHITAKER	10-07-99
CHECKER	C. WEIDS	10-07-99
APPROVED	J. MAINEY	10-07-99

PROJECT No. W375 SITE HANFORD AREA 200E BUILDING No.

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC09-89RL13305

HLW VITRIFICATION BUILDING GENERAL ARRANGEMENT PLAN AT EL 49'-0"

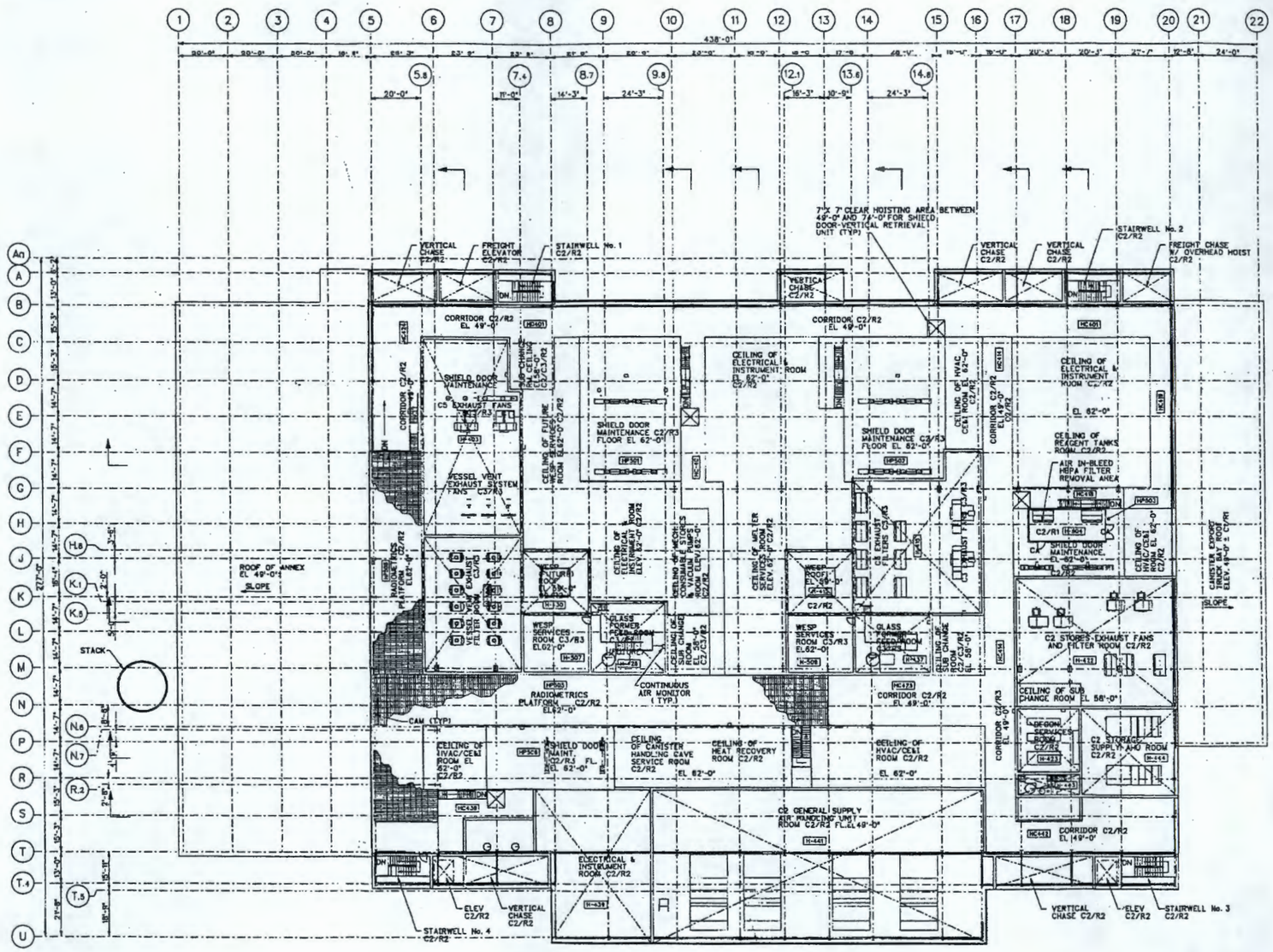
SCALE 1/16"=1'-0" DWG No. DWG-W375HV-PL00019 REV E

DSM REFERENCE No. DSM-W375-00-00264 REV E

21 MAR 2000 08:40:05

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375 HV-PL00020 SCALE RULES



PLAN AT EL 62'-0"
(FROM EL 54'-0" TO EL 66'-0")

PL00022 PL00022 PL00022 PL00023 PL00023

LEGEND:

CAM CONTINUOUS AIR MONITOR
CA CONTROLLED ACCESS
EE EMERGENCY EXIT
FD FIRE DOORS

TEMPORARY ACCESS (Construction - bridge crane access). Wafer floor to be repaired to initial intended specification.

TEMPORARY ACCESS (Construction). Fit with knock out panels for decommissioning. (Caves, Cells only).

PERMANENT ACCESS (Construction / Operations).

SUMPS

PL00025 PL00025 PL00024 PL00024

PRELIMINARY

REV	DESCRIPTION	DRAWN	CHKD	APV'D	DATE
E	ISSUED FOR FINAL (PHASE 3) C1	TBJ	GS	JM	03.21.00
D	REVISED PER SITE PLAN MODIFICATION AND ISSUED FOR REFINED C1	RW	TBJ	JM	01-27-00
C	REVISED AND ISSUED FOR REFINED C1	RW	GS	JM	12-07-99
B	ISSUED FOR REFINED C1	RW	GS	JM	10-06-99

REVISION HISTORY

	BY	DATE
ORIGINATOR	G. RHEIMER	10-07-99
CHECKED	G. SKOOS	12-07-99
APPROVED	J. MANES	12-07-99

PROJECT No. 9375
SITE HANFORD
AREA ZONE
BUILDING No.

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

HLW VITRIFICATION BUILDING GENERAL ARRANGEMENT PLAN AT EL 62'-0"

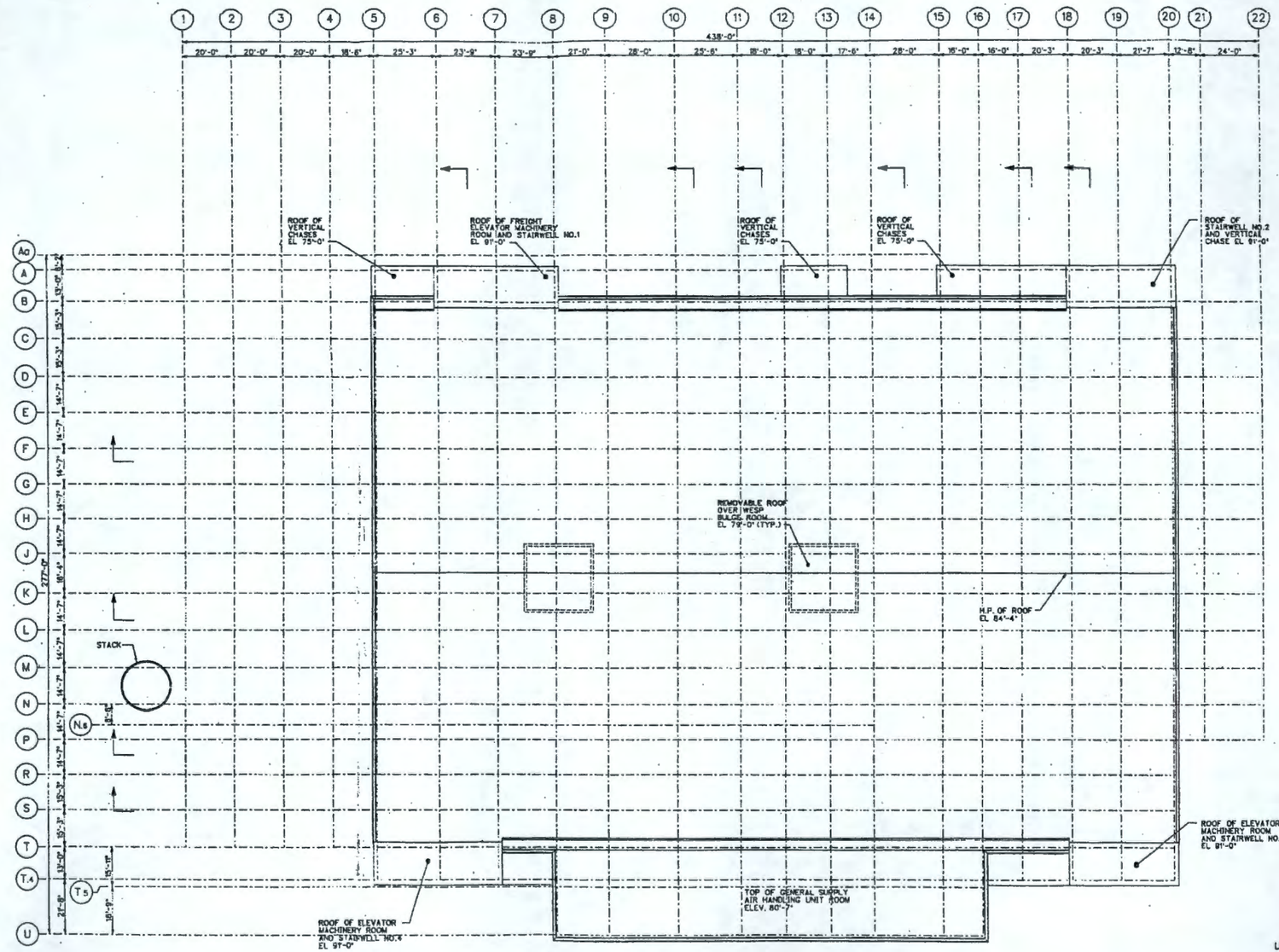
SCALE: 1/16"=1'-0"
DWG No. DWG- W375 HV-PL00020
REV E

DBM REFERENCE No. DBM-9375-00-00205 REV. E

31-MAR 2000 08:38:58

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375 HV-PL00021 SCALE RULES



PLAN AT EL. 76'-0"
(FROM EL 66'-0" TO EL 05'-0")

LEGEND:
C.A. = CONTROLLED ACCESS
E.E. = EMERGENCY EXIT
F.D. = FIRE DOOR(S)

PRELIMINARY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
E	ISSUED FOR FINAL (PHASE 3) C1	RW	CS	JM	05.21.00
D	REVISED PER SITE PLAN MODIFICATION AND ISSUED FOR REFINED C1	RW	TBL	JM	01-27-00
C	REVISED AND ISSUED FOR REFINED C1	RW	CS	JM	12-07-99
B	ISSUED FOR REFINED C1	RW	CS	JM	10-05-99

REVISION HISTORY

	BY	DATE
ORIGINATOR	R. WATAKER	10-07-99
CHECKED	G. SIZOS	10-07-99
APPROVED	J. MINES	10-07-99

PROJECT No. W375
SITE HANFORD
AREA 200E
BUILDING No.

BNFL INC.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

HLW VITRIFICATION BUILDING
GENERAL ARRANGEMENT
PLAN AT EL 76'-0"

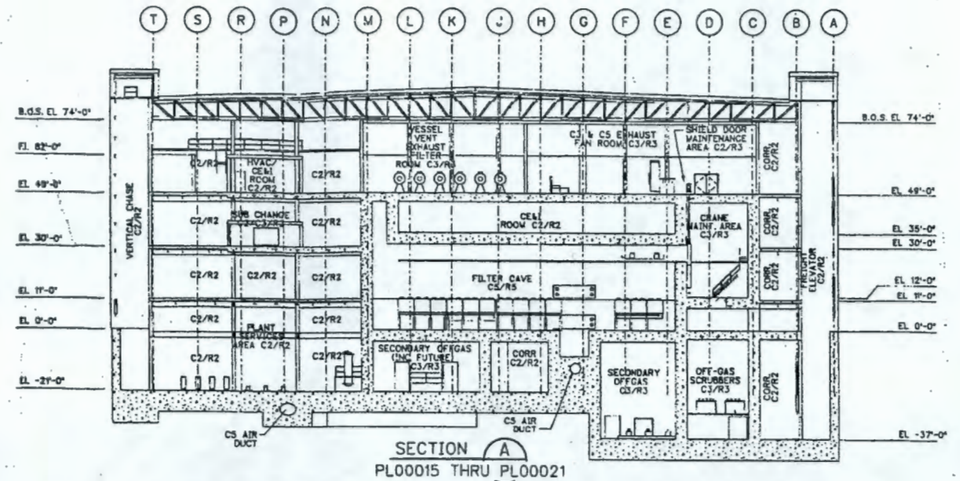
DIN REFERENCE No. DIN-W375-00-00196 REV E

SCALE: 1/16"=1'-0" DWG No. DWG- W375HV-PL00021 REV E

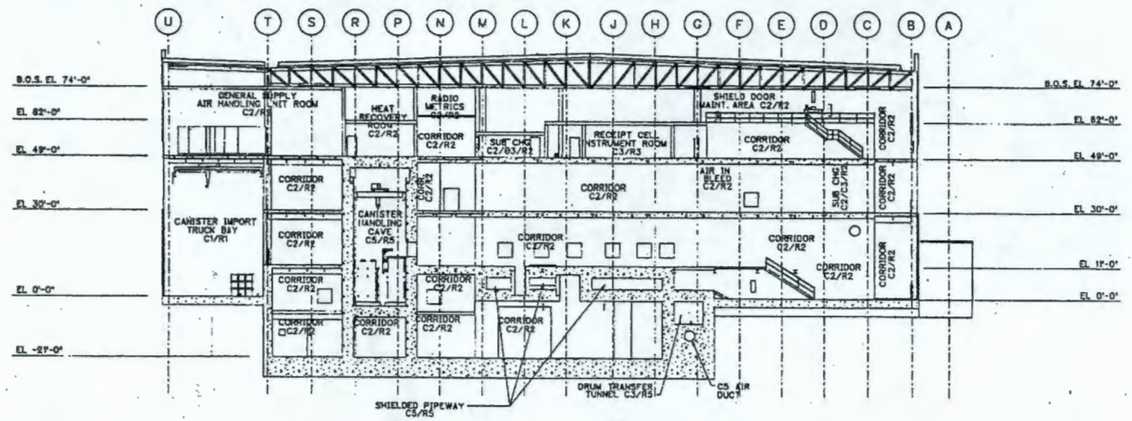
"C" SIZE - 44x34

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

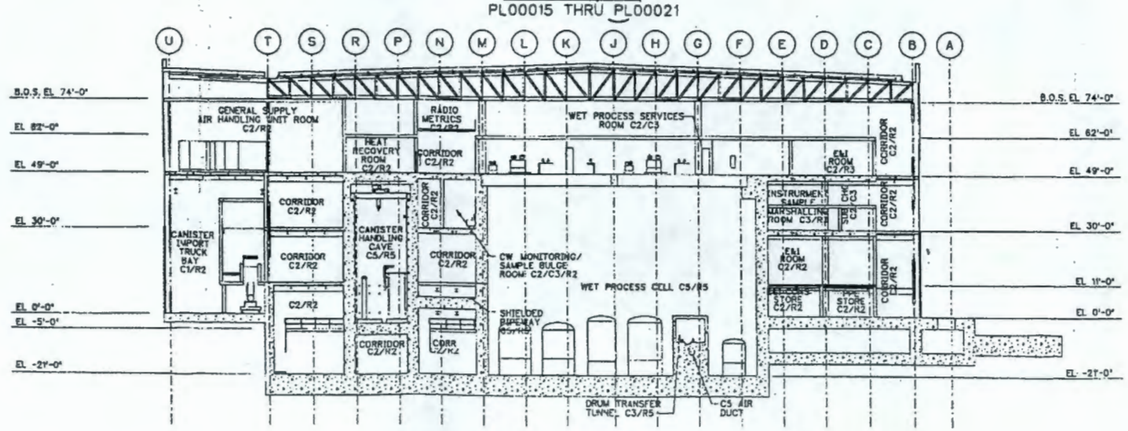
DWG No. DWG-W375HV-PL00022 SCALE IN FEET 1/8" 1/4" 1/2" 3/4" 1"



SECTION A
PL00015 THRU PL00021



SECTION B
PL00015 THRU PL00021



SECTION C
PL00015 THRU PL00021

.IMINARY

31 C1	BN	TBL	JM	03-31-00
00IFICATION C1	BN	TBL	JM	01-27-00
REFINED C1	RW	CS	JM	12-07-99
	RW	CC	JM	10 06 99
	DRAWN	CHKD	APVD	DATE

VISION HISTORY

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

ACT No. DE-AC06-96RL13308

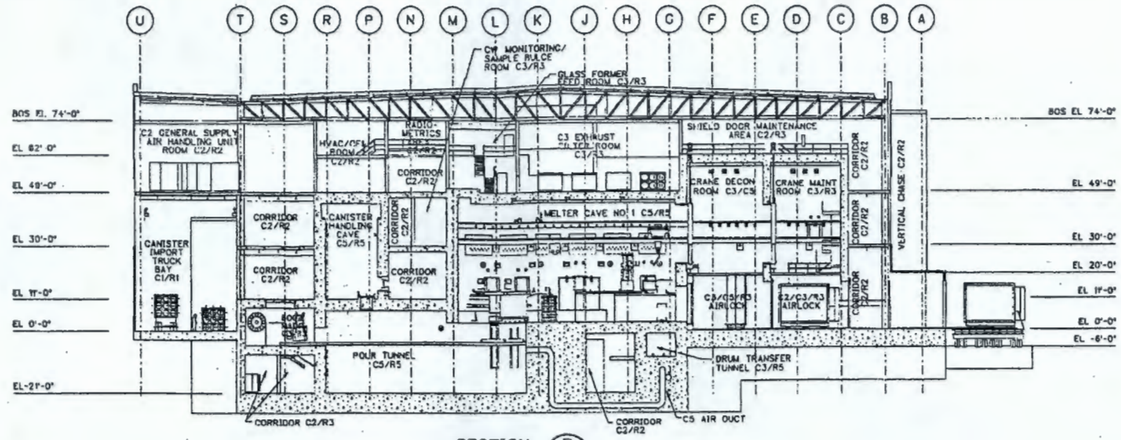
[redacted]

ITRIFICATION BUILDING
ERAL ARRANGEMENT
TIONS A-A, B-B, & C-C

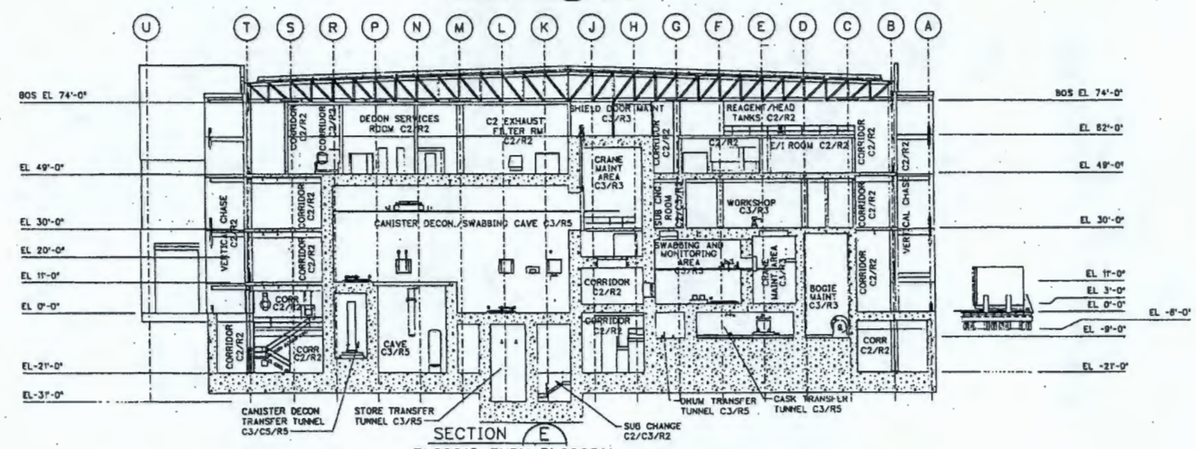
DWG-W375 HV-PL00022 REV E

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

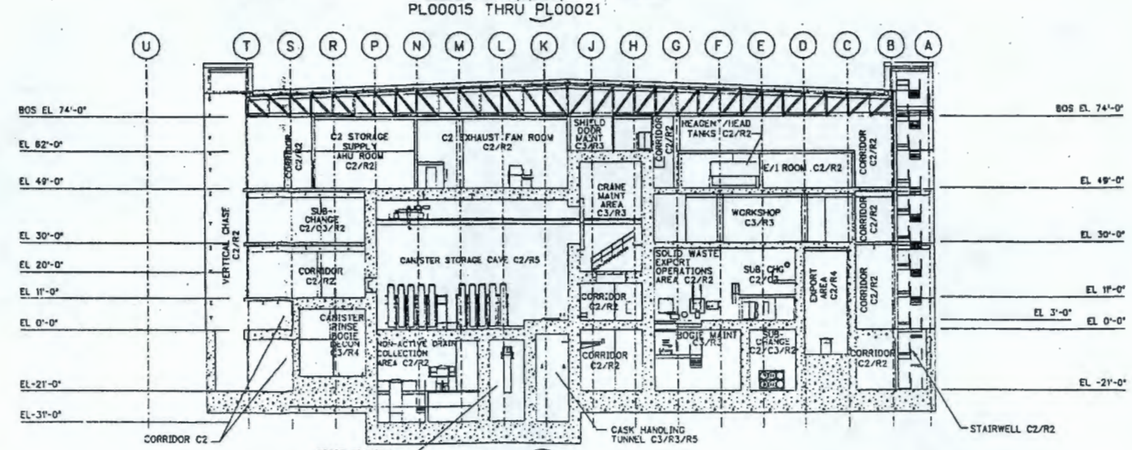
DWG No. DWG- W375 HV-PL00023 SCALE RULES



SECTION D
PL00015 THRU PL00021



SECTION E
PL00015 THRU PL00021



SECTION F
PL00015 THRU PL00021

PRELIMINARY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
E	ISSUED FOR FINAL (PHASE 3) C1	BS		JM	03-21-00
D	REVISED PER SITE PLAN MODIFICATION AND ISSUED FOR REFINED C1	BW	TS	JM	01-27-00
C	REVISED AND ISSUED FOR REFINED C1	RW	CS	JM	12-07-99
B	ISSUED FOR REFINED C1	RW	CS	JM	10-06-99

REVISION HISTORY

ISSUED BY BECHTEL PROJECT ENGINEERING

PROJECT No.	W375	
SITE	HANFORD	
AREA	200E	
BUILDING No.		
	BY	DATE
ORIGINATOR	M.WALLACE	10-07-99
CHECKER	C.GEORGE	10-07-99
APPROVED	J.HAMES	10-07-99

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

HLW VITRIFICATION BUILDING
GENERAL ARRANGEMENT
SECTIONS D-D, E-E & F-F

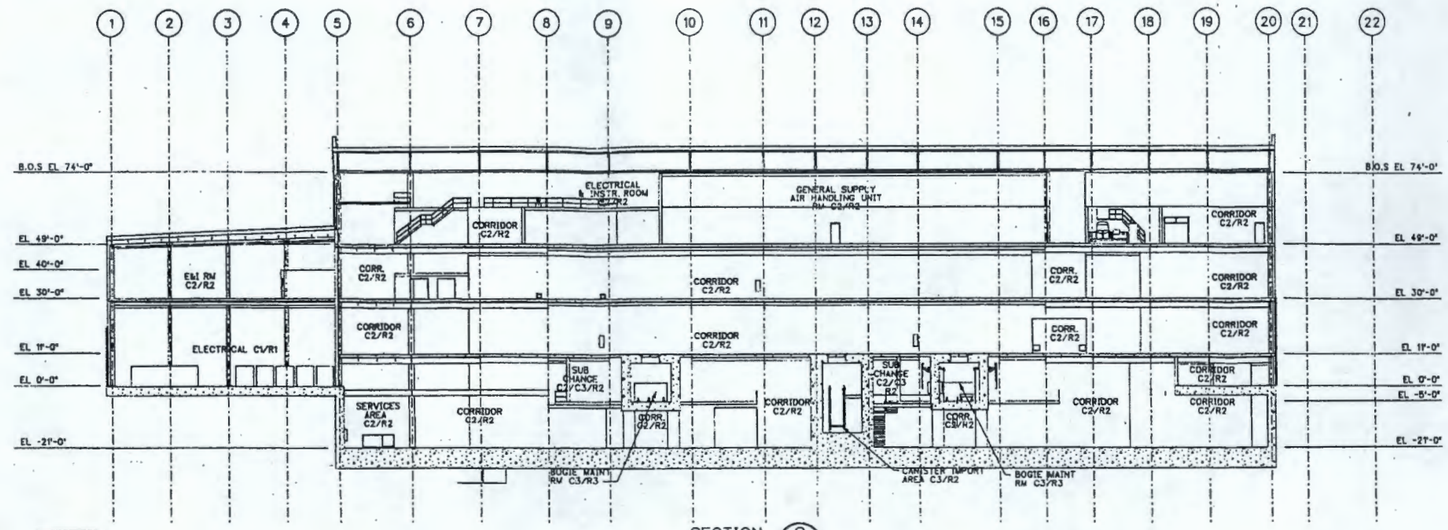
SCALE 1/16"=1'-0" DWG No. DWG- W375HV-PL00023 REV E

SIM REFERENCE No. SIM-W375-00-00268 REV E

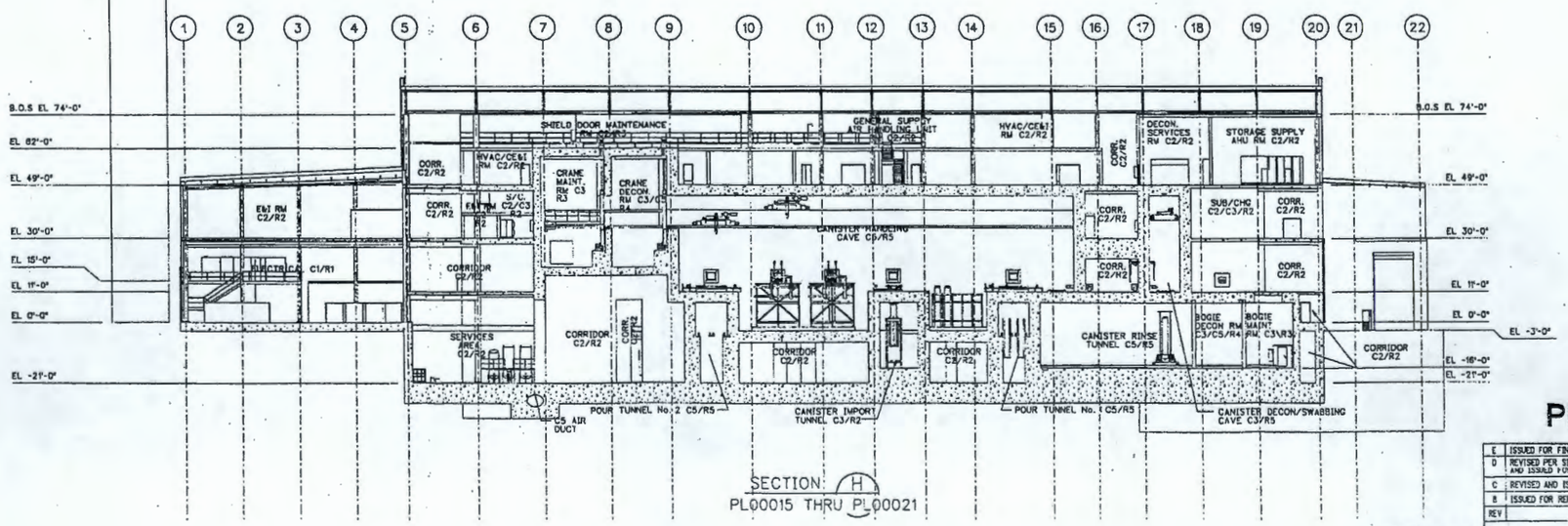
21 MAR 2000 09:39:57

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375 HV-PL00024 SCALE RULES



SECTION G
PL00015 THRU PL00021



SECTION H
PL00015 THRU PL00021

PRELIMINARY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
E	ISSUED FOR FINAL (PHASE 3) C1	[illegible]	[illegible]	JM	03-21-00
D	REVISED PER SITE PLAN MODIFICATION AND ISSUED FOR REFINED C1	BN	TBL	JM	01-27-00
C	REVISED AND ISSUED FOR REFINED C1	WM	CS	JM	12-07-99
B	ISSUED FOR REFINED C1	WM	CS	JM	10-08-99

REVISION HISTORY

PROJECT No.	W375		
SITE	HANFORD		
AREA	200E		
BUILDING No			
	BY	DATE	
ORIGINATOR	M.WALLACE	10-07-99	
CHECKER	G.SYRBS	10-07-99	
APPROVED	J.MAINES	10-07-99	
P&N REFERENCE No.	000-W375-00-00089	REV E	

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA. 99352

CONTRACT No: DE-AC06-96RL13308

HLW VITRIFICATION BUILDING GENERAL ARRANGEMENT SECTION G-G & SECTION H-H

SCALE: 1/16"=1'-0" | DWG No. DWG-W375HV-PL00024 | REV E

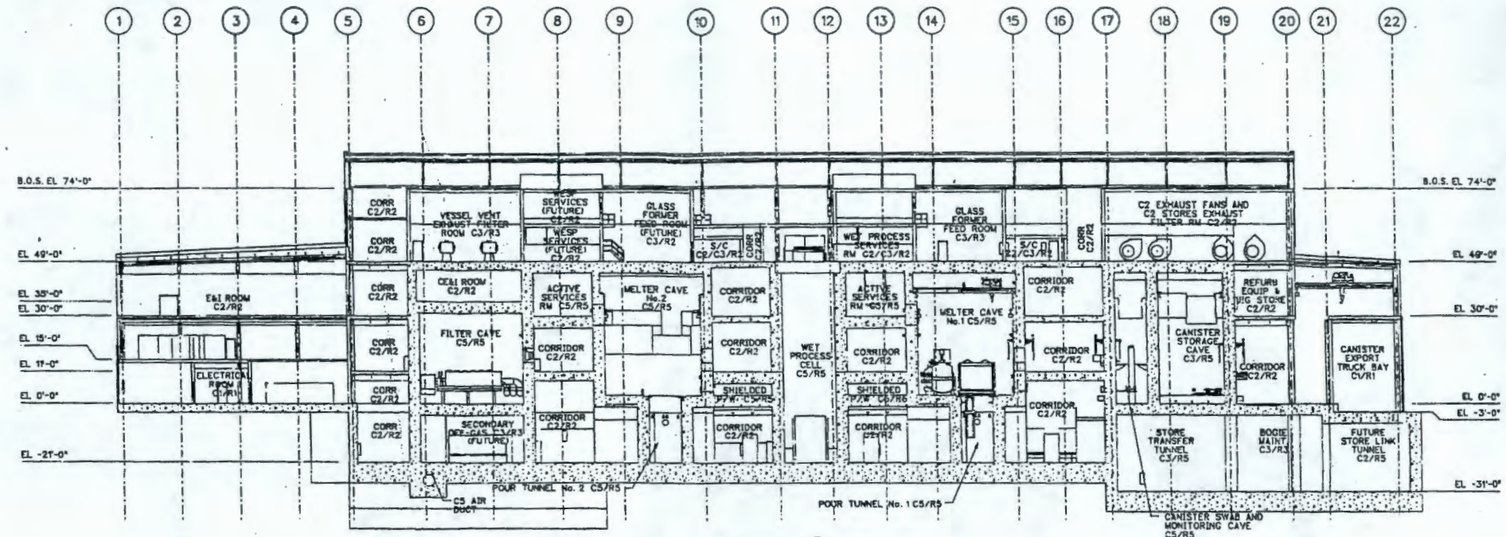
31-MAR-2000 08:40:26

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

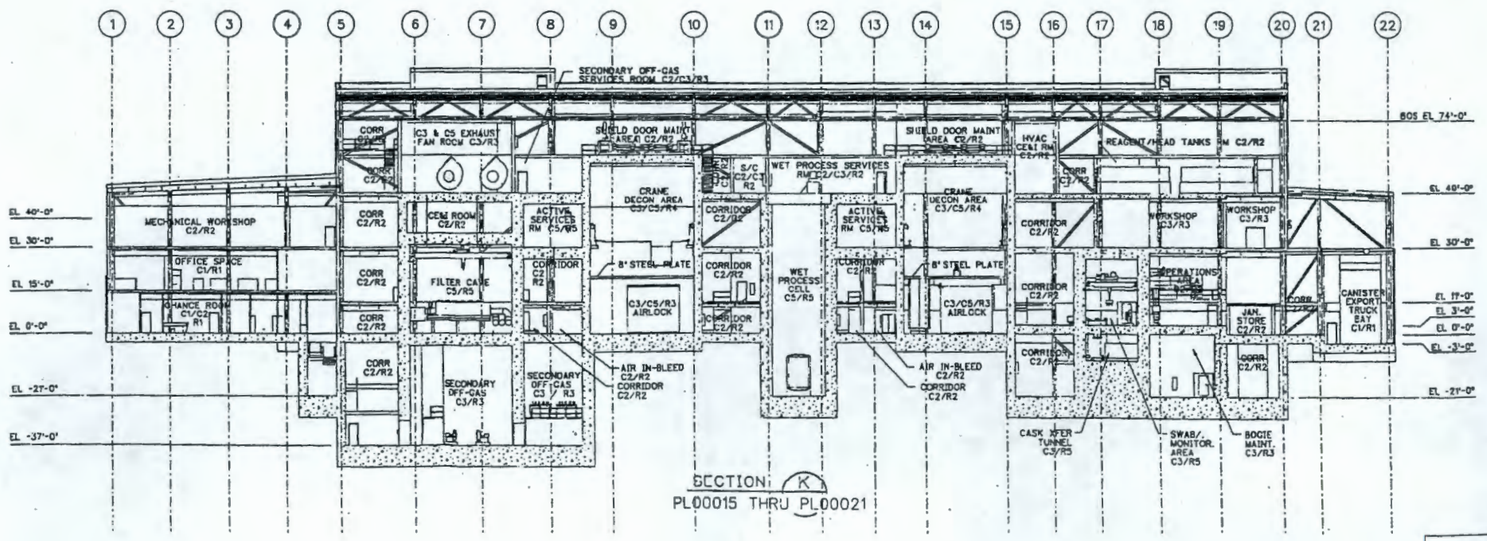
FORM DWG2001

C:\Users\User00004\...\dwg

DWG No. DWG-W375 HV-PL00025 SCALE RULES



SECTION J
PL00015 THRU PL00021



SECTION K
PL00015 THRU PL00021

PRELIMINARY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
C	REDUCED FOR FINAL EPHASE 3 CI	BJ			03.01.00
B	REVISED PER SITE PLAN MODIFICATION AND ISSUED FOR REFINED CI	BN	TBL	JM	01-27-00
A	ISSUED FOR REFINED CI	SD	CS	JM	12-07-99

REVISION HISTORY

	BY	DATE
ORIGINATOR	S. DUVALL	12-06-99
CHECKER	C. WOODS	12-06-99
APPROVED	J. MINGES	12-06-99

PROJECT No. 9375
SITE HANFORD
AREA 200E
BUILDING No.

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

HLW VITRIFICATION BUILDING
GENERAL ARRANGEMENT
SECTION J-J & SECTION K-K

DWG REFERENCE No.: 088-W375-00-00370 REV C

SCALE 1/16"=1'-0" DWG No. DWG- W375 HV-PL00025 REV C

"C" SIZE = 44x34

21 MAR 2000 08:40:57

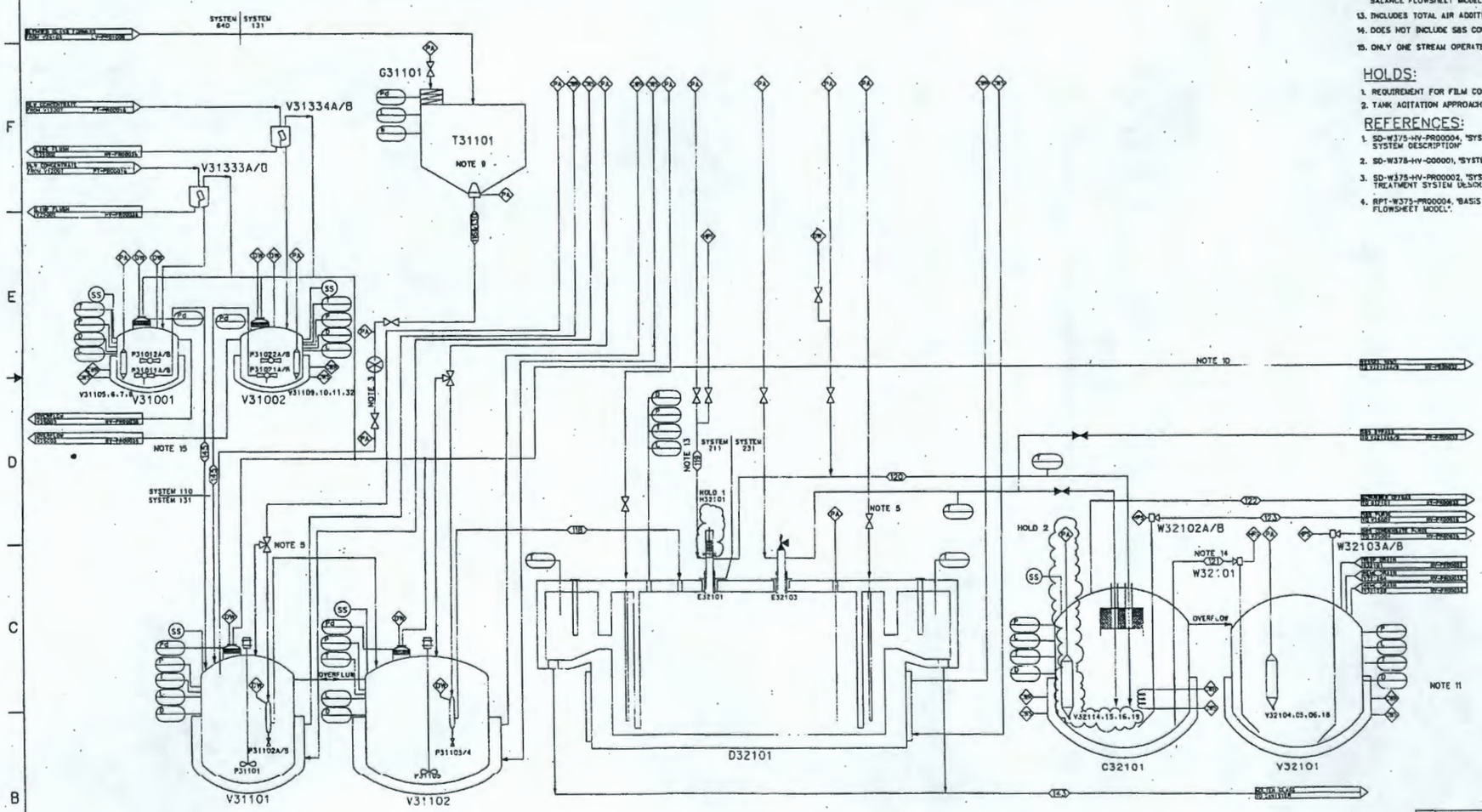
COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

FORM RPPL003

DWG No. DWG-W375HV-PR00031

PLANT ITEM NUMBER	T31101	P31011A/B	P31012A/B	G31101	M31101	V31101	P31101	V31105	V31102	V31001	V31002	V32101	G32101	H32101	H32102	C32101	V32101
DESCRIPTION	HLW MELTER BLOWER	HLW FEED	HLW FEED	HLW MELTER OFFGAS FILTER	HLW SCREW	FEED PREPARATION VESSEL	VESSEL	VESSEL AGITATOR	MELTER FEED VESSEL			HLW MELTER	HLW MELTER FILM COOLER		FILM COOLER REAMER		
MAXIMUM DUTY																	
MAXIMUM CAPACITY																	
MINIMUM DESIGN PRESSURE																	
MAXIMUM DESIGN PRESSURE																	
MINIMUM DESIGN TEMPERATURE																	
MAXIMUM DESIGN TEMPERATURE																	
DIAMETER																	
LENGTH/HEIGHT																	
MATERIALS OF CONSTRUCTION																	
NUMBER INSTALLED																	

PLANT ITEM NUMBER	V31105,6,7,8	V31109,10,11,32	P31021A/B	P31022A/B	V32104,05,06,18	V32114,15,16,19	V32101	V32102A/B	T32103A/B	P31102A/B	P31103/4	V31333A/B	V31334A/B	E32103
DESCRIPTION	PULSE JET AGITATOR	PULSE JET AGITATOR	HLW FEED	HLW FEED	JET PULSE AGITATOR	JET PULSE AGITATOR	SBS REFRIGERATION EJECTOR	SBS EMPTYING EJECTOR	SBS RECEIVER EMPTYING EJECTOR	FEED PREPARATION PUMP	MELTER FEED PUMP	FEED DIVERTER VESSEL	FEED DIVERTER VESSEL	HLW MELTER FILM COOLER
MAXIMUM DUTY														
MAXIMUM CAPACITY														
MINIMUM DESIGN PRESSURE														
MAXIMUM DESIGN PRESSURE														
MINIMUM DESIGN TEMPERATURE														
MAXIMUM DESIGN TEMPERATURE														
DIAMETER														
LENGTH/HEIGHT														
MATERIALS OF CONSTRUCTION														
NUMBER INSTALLED														



NOTES:

1. SEE DRAWING DWG-W375PT-PR00001 FOR SYMBOLS AND LEGEND.
2. ALL VESSELS FITTED WITH WASH RINGS AND EMPTYING EJECTORS FOR DECONTAMINATION PURPOSES.
3. ROTARY VALVE IS LOCATED IN BULGE.
4. MAJOR INDICATION INSTRUMENTS ONLY SHOWN.
5. VALVES SHOWN ONLY TO INDICATE PROCESS INTENT.
6. CELL WILL BE LINED WITH STAINLESS STEEL FOR SECONDARY CONTAINMENT AND ANY LEAKAGE INTO THE CELL WILL BE DETECTED BY LEVEL DETECTOR LOCATED IN CELL SUMP. LIQUOR COLLECTED IN THE SUMP WILL BE DISCHARGED TO V35003.
7. THE STAINLESS STEEL CLAD CELL WILL BE FITTED WITH A CLADDING WASH SYSTEM FOR DECONTAMINATION PURPOSES.
8. EACH CELL WILL BE FITTED WITH A SHIELDED ACCESS PLUG FOR CCTV OBSERVATIONS TO BE MADE.
9. THE FEED HOPPER INCLUDES AN INTEGRAL BLENDING HEAD.
10. VESSEL VENT DESIGN BEING REVIEWED FOR INCORPORATION OF FLUIDIC DEVICE MOTIVATION AIR.
11. NEED FOR SAMPLE BEING REVIEWED.
12. STREAM NUMBERS ON THE DRAWING CORRESPOND TO THE STREAM NUMBERS FROM RPT-W375-PR00004 "BASIS FOR PART B MASS AND ACTIVITY BALANCE FLOWSHEET MODEL".
13. INCLUDES TOTAL AIR ADDITION TO MELTER AND ASSOCIATED OFFGAS LINE.
14. DOES NOT INCLUDE SBS CONDENSATE RECYCLE.
15. ONLY ONE STREAM OPERATES AT ONE TIME.

HOLDS:

1. REQUIREMENT FOR FILM COOLER REAMER IS TBD.
2. TANK AGITATION APPROACH UNDER REVEIW.

REFERENCES:

1. SD-W375-HV-PR00004, "SYSTEM 110 AND 131, HLW MELTER FEED SYSTEM DESCRIPTION"
2. SD-W378-HV-G00001, "SYSTEM 211, HLW MELTER SYSTEM DESCRIPTION"
3. SD-W375-HV-PR00002, "SYSTEM 231, HLW VITRIFICATION OFFGAS TREATMENT SYSTEM DESCRIPTION"
4. RPT-W375-PR00004, "BASIS FOR PART B MASS AND ACTIVITY BALANCE FLOWSHEET MODEL".

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
1	REVISED PER DCN-W375-00-00005 MAJOR REVISION		RV	JB	8/10/00
0	ISSUED FOR DESIGN	SS	RV	JI	11/20/99

REVISION HISTORY

PROJECT No.	W375	
SITE	HANFORD	
AREA	200E	
BUILDING No.	05	
DRIGINATOR	S.SWEENEY	11/3/99
CHECKER	R.VORE	11/22/99
APPROVED	J.SENEWOOD	11/4/99

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

PROCESS FLOW DIAGRAM HLW VITRIFICATION FEED PREPARATION & OFFGAS

SCALE: NTS
DWG No. DWG-W375HV-PR00031
REV 1

DCN REFERENCE No. DCN-W375-00-00473 ; REV 1

C SIZE - 44x34

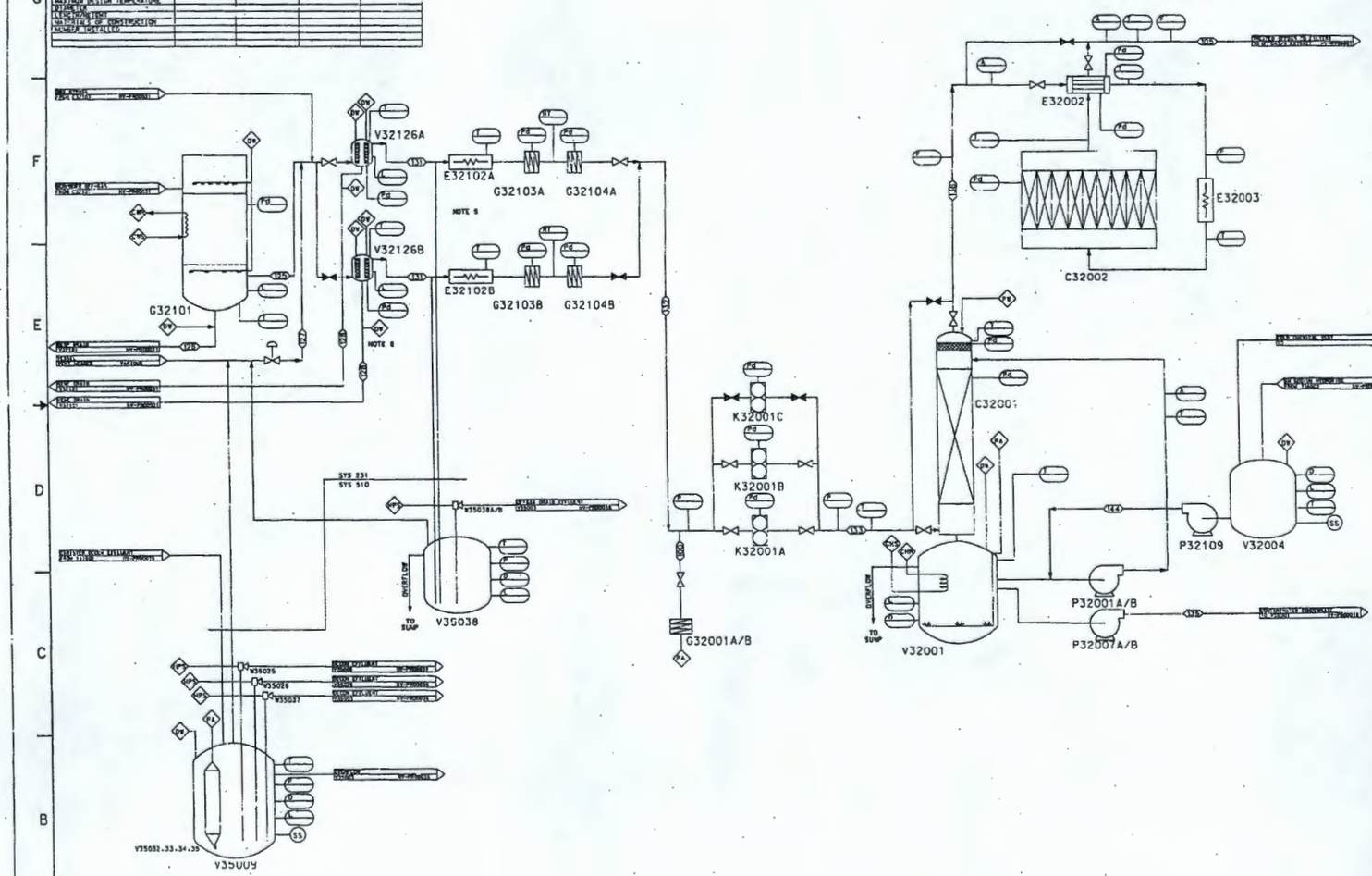
01 MAR 2000 12:36:43

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375HV-PR00032

PLANT ITEM NUMBER	C32002	G32001	G32101	E32102A/B	G32002	E32001	V32126A/B	G32103A/B	G32104A/B	P32001A/B	V32004	P32109	V35009	V35032,33,34,35	V32001	V35039	G32001A/B	P32001A/B
DESCRIPTION	HEPA/ CATALYTIC THERMAL OXIDIZER	HEPA/ CAUSTIC SCRUBBER	WET ELECTROSTATIC PRECIPITATOR	HEPA PREFILTER	HEPA/ CHEMICAL PREFILTER	STP-GAS CHEMICAL HEAT EXCHANGER	SEAL EFFECTIVENESS HEAT EXCHANGER	PRIMARY OFFGAS HEPA	PRIMARY OFFGAS HEPA	CAUSTIC SCRUBBER RECIRCULATION PUMPS	CAUSTIC FEED TANK	CAUSTIC FEED Pump	DECON EFFLUENT COLLECTION VESSEL	PULSE JET AGITATOR	CAUSTIC SCRUBBER RECIRCULATION VESSEL	BYPASS DRAINS COLLECTION VESSEL	SECONDARY OFFGAS HEPA FILTER	TEMPORARY CAUSTIC PUMPS
MAXIMUM DUTY																		
MAXIMUM CAPACITY																		
MINIMUM DESIGN PRESSURE																		
MAXIMUM DESIGN PRESSURE																		
MINIMUM DESIGN TEMPERATURE																		
MAXIMUM DESIGN TEMPERATURE																		
DIAMETER																		
LENGTH/HEIGHT																		
MATERIALS OF CONSTRUCTION																		
NUMBER INSTALLED																		

PLANT ITEM NUMBER	V35025	V35026	V35037	V35038A/B
DESCRIPTION	DECON EFFLUENT FILTER	DECON EFFLUENT FLOCKAMP	DECON EFFLUENT EJECTOR	BYPASS DRAIN EFFLUENT HEATER
MAXIMUM DUTY				
MAXIMUM CAPACITY				
MINIMUM DESIGN PRESSURE				
MAXIMUM DESIGN PRESSURE				
MINIMUM DESIGN TEMPERATURE				
MAXIMUM DESIGN TEMPERATURE				
DIAMETER				
LENGTH/HEIGHT				
MATERIALS OF CONSTRUCTION				
NUMBER INSTALLED				



NOTES:

1. SEE DRAWING DWG-W375PT-PR00001 FOR SYMBOLS AND LEGEND.
2. ALL VESSELS WILL BE FITTED WITH WASHING RINGS FOR DECONTAMINATION PURPOSES.
3. ONLY MAIN PROCESS INSTRUMENTATION IS SHOWN.
4. VALVES SHOWN ONLY TO INDICATE PROCESS INTENT.
5. ONLY ONE HEME/HEPA LINE IN OPERATION AT ANY ONE TIME. WHEN NOT IN USE HEME MAY BE WASHED.
6. ACTIVITY IS REMOVED BY FILTER G32103A/B AND G32104A/B. ALL PLANT ITEMS AFTER FILTERS DO NOT NEED CELL WALL SHIELDING, AND CAN BE IN A SHIELDED C3 AREA WITH RESTRICTED ACCESS.
7. FANS HAVE DAMPERS TO ALLOW ISOLATION FOR MAINTENANCE.
8. DRAIN LINES FROM WESP AND HEME WILL HAVE HYDRAULIC SEALS (E.G. SEAL LOOP, DIPPED LEG) FOR ISOLATION.
9. G32001 AND G32002 HAVE ISOLATION VALVES TO ALLOW MAINTENANCE. BYPASS LINES WILL OPEN TO ALLOW MELTER VENTILATION DURING THIS TIME.
10. AGITATION REQUIREMENTS FOR DRAIN COLLECTION VESSELS ARE TO BE CONFIRMED.
11. CELL WILL BE LINED WITH STAINLESS STEEL FOR SECONDARY CONTAINMENT AND ANY LEAKAGE INTO THE CELL WILL BE DETECTED BY LEVEL DETECTOR LOCATED IN CELL SUMP. LIQUOR COLLECTED IN THE SUMP WILL BE DISCHARGED TO V35003.
12. STAINLESS STEEL CLAD CELLS WILL BE FITTED WITH A CLADDING WASH SYSTEM FOR DECONTAMINATION PURPOSES.
13. EACH CELL WILL BE FITTED WITH A SHIELDED ACCESS PLUG FOR CCTV OBSERVATIONS TO BE MADE.
14. STREAM NUMBERS ON THE DRAWING CORRESPOND TO THE STREAM NUMBERS FROM RPT-W375-PR00004, "BASIS FOR PART B MASS AND ACTIVITY BALANCE FLOWSHEET MODEL"

REFERENCE:

1. SD-W375HV-PR00002, "SYSTEM 23% HLW VITRIFICATION OFFGAS TREATMENT SYSTEM DESCRIPTION"
2. SD-W375HV-PR00005, "SYSTEM 518 AND 520 HLW VITRIFICATION LIQUID WASTE SYSTEM DESCRIPTION"
3. RPT-W375-PR00004, "BASIS FOR PART B MASS AND ACTIVITY BALANCE FLOWSHEET MODEL"

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
1	REVISED PER DCN-W375-00-00005 MAJOR REVISION				3/8/00
0	ISSUED FOR DESIGN	SS	RV	JJ	11/20/99

REVISION HISTORY

PROJECT No.	W375		
SITE	496F DPD		
AREA	200W		
BUILDING No.	27		
	BY	DATE	
DESIGNER	J.STEVENS	5/26/99	
CHECKER	R.VOKE	5/26/99	
APPROVED	J.STEVENSON	5/26/99	

BNFL INC.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC09-96RL13308

PROCESS FLOW DIAGRAM HLW VITRIFICATION OFFGAS TREATMENT

DWG No. DWG-W375HV-PR00032 REV 1

DM REFERENCE No. DWG-W375-00-00474 REV 1 NTS

SCALE: NTS

"C" SIZE - 44x34

27 JUN 2000 09:34:06

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375HV-PR00035

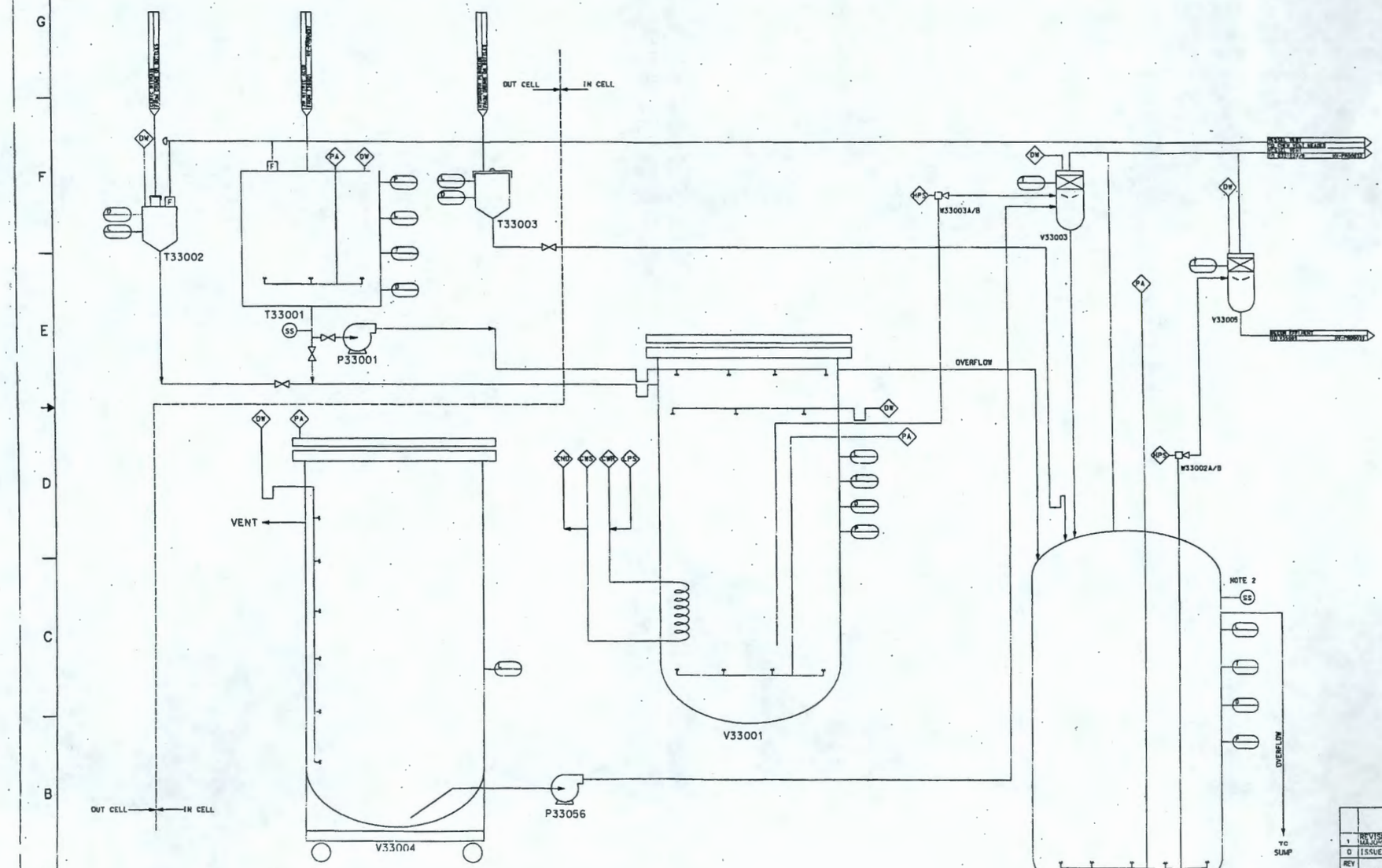
PLANT ITEM NUMBER	V33001	V33002	V33003	P33001	T33002	T33003	P33056	W33002A/B	W33003A/B	V33004	V33005
DESCRIPTION	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
MAXIMUM DUTY											
MAXIMUM CAPACITY											
MINIMUM DESIGN PRESSURE											
MAXIMUM DESIGN PRESSURE											
MINIMUM DESIGN TEMPERATURE											
MAXIMUM DESIGN TEMPERATURE											
DIAMETER											
LENGTH/HEIGHT											
MATERIALS OF CONSTRUCTION											
INDOOR/OUTDOOR											

NOTES:

1. SEE DRAWING DWG-W375HT-PR00001 FOR SYMBOLS AND LEGEND.
2. NEED FOR SAMPLER UNDER REVIEW.
3. CELL WILL BE LINED WITH STAINLESS STEEL FOR SECONDARY CONTAINMENT AND ANY LEAKAGE INTO THE CELL WILL BE DETECTED BY LEVEL DETECTOR LOCATED IN CELL SUMP. LIQUOR COLLECTED IN THE SUMP WILL BE DISCHARGED TO V33003.

REFERENCES:

1. SD-W375HV-000002,"SYSTEM DESCRIPTION FOR HLW SYSTEM 330: CANISTER DECONTAMINATION, SWABBING AND MONITORING"



REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
1	REVISED PER DCN-W375-00-00003 MAJOR REVISION				3/10/00
0	ISSUED FOR DESIGN	SS	RV		11/20/99

REVISION HISTORY

	BY	DATE
ORIGINATOR	S.SWEENEY	11/5/99
CHECKED	R.VIZE	11/15/99
APPROVED	J.DEWOOD	3/10/00

BNFL INC.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

PROCESS FLOW DIAGRAM PLANT WASTE MANAGEMENT HLW CANISTER DECON

PROJECT No. W375
SITE HANFORD
AREA 200E
BUILDING No. NA

ESM REFERENCE No. DOH-W375-00-05475 REV 1

SCALE: NTS

DWG No. DWG-W375HV-PR00035

REV 1

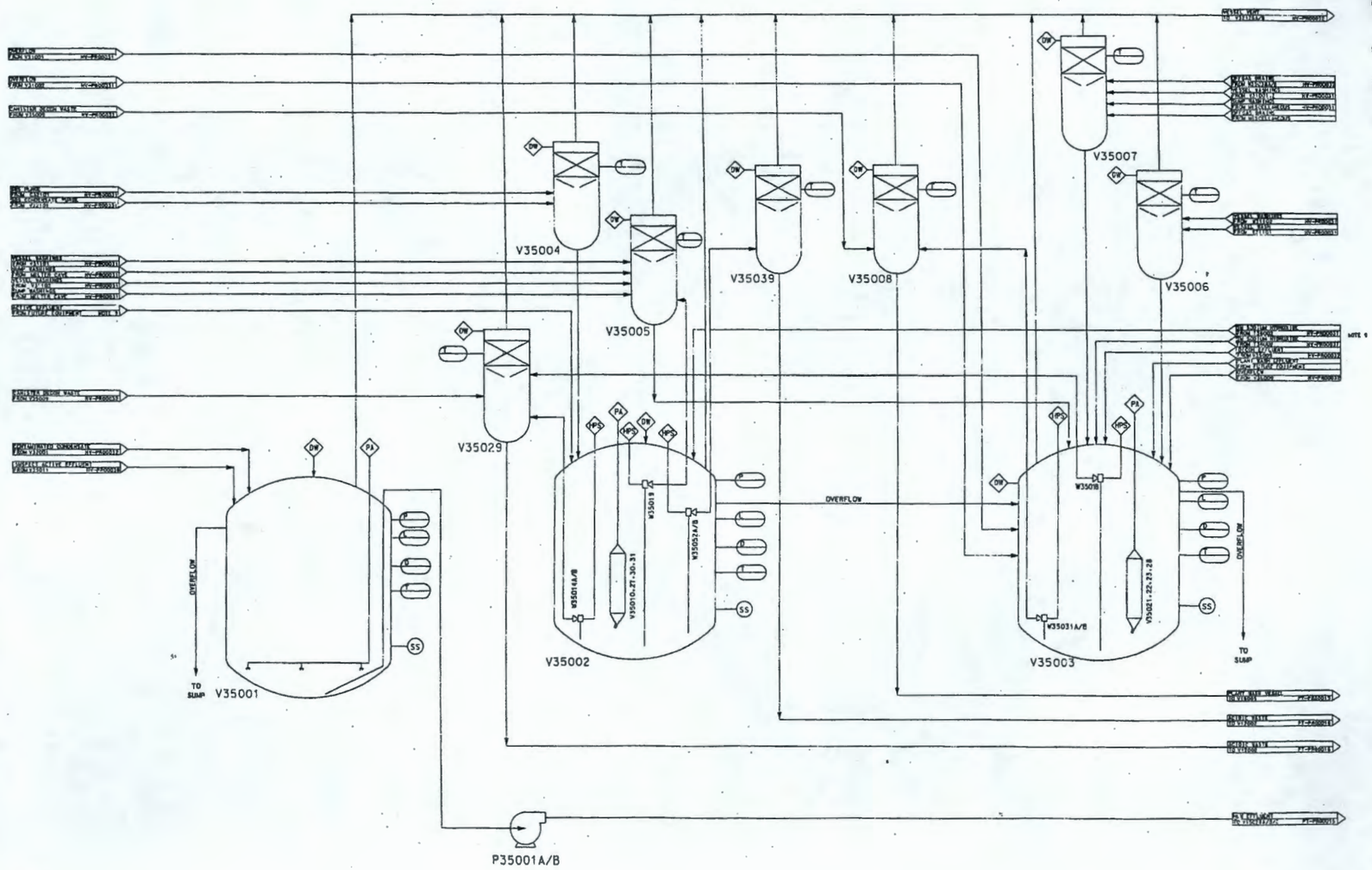
'C' SIZE - 44x34

07 MAR 2000 09:38:53

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375HV-PR00036

PLANT ITEM NUMBER	V35001	V35002	V35003	V35004	V35005	V35006	V35007	V35008	V35029	P35001A/B	V35014A/B	V35044A/B	V35031A/B	V35010.27.20.31	V35021.22.23.28	V35039	V35018	V35019	V35027A/B
DESCRIPTION	HLW VIT PLANT LOW ACTIVITY WASTE VESSEL	HLW VIT PLANT ACIDIC WASTE VESSEL	HLW VIT PLANT PLANT WASH & DRAINS VESSEL	HLW VIT PLANT ACIDIC WASTE BREAKPOT	HLW VIT PLANT PLANT WASH BREAKPOT	HLW VIT PLANT PLANT WASH BREAKPOT	HLW VIT PLANT PLANT WASH BREAKPOT	HLW VIT PLANT ACIDIC WASTE TRANSFER BREAKPOT	HLW VIT PLANT PLANT WASH TRANSFER BREAKPOT	HLW VIT PLANT LOW ACTIVITY WASTE TRANSFER PUMP	ACIDIC WASTE TRANSFER EJECTOR	HLW VIT PLANT PLANT WASH TRANSFER EJECTOR	JET PULSE AGITATOR	JET PULSE AGITATOR	ACIDIC WASTE TRANSFER BREAKPOT	PLANT WASH & DRAINS EJECTOR	ACIDIC WASTE TRANSFER EJECTOR	ACIDIC WASTE TRANSFER EJECTOR
MAXIMUM DUTY																			
MAXIMUM CAPACITY																			
MINIMUM DESIGN PRESSURE																			
MAXIMUM DESIGN PRESSURE																			
MINIMUM DESIGN TEMPERATURE																			
MAXIMUM DESIGN TEMPERATURE																			
SIZE (DIA)																			
LENGTH/HEIGHT																			
MATERIALS OF CONSTRUCTION																			
NUMBER INSTALLED																			



NOTES:

1. SEE DRAWING DWG-W375PT-PR00001 FOR SYMBOLS AND LEGEND.
2. ALL VESSELS WILL BE FITTED WITH INTERNAL WASH RING FOR DECONTAMINATION PURPOSES.
3. SAMPLING OF VESSELS WILL UTILIZE AN RFD SAMPLING SYSTEM.
4. MAIN PROCESS CONTROL INSTRUMENTS ONLY SHOWN.
5. CELL WILL BE LINED WITH STAINLESS STEEL FOR SECONDARY CONTAINMENT AND ANY LEAKAGE INTO THE CELL SUMP WILL BE DETECTED BY LEVEL SWITCH. LIQUOR COLLECTED IN THE SUMP WILL BE DISCHARGED TO V35003.
6. THE STAINLESS STEEL CLAD CELL WILL BE FITTED WITH A CLADDING WASH SYSTEM FOR DECONTAMINATION
7. EACH CELL WILL BE FITTED WITH A SHIELDED ACCESS PLUG FOR CCTV OBSERVATIONS TO BE MADE.
8. CONNECTIONS SHALL BE PROVIDED TO PERMIT ROUTING OF EFFLUENT FROM FUTURE EQUIPMENT (MELTER 2, OFFGAS SYSTEM AND ASSOCIATED EQUIPMENT) TO V35001, V35002 AND V35003.
9. SODIUM HYDROXIDE ADDED TO TANKS VIA TANK WASH LINES.

REFERENCE:

1. SD-W375HV-PR00005, "SYSTEMS 510 AND 520: HLW VITRIFICATION LIQUID WASTE SYSTEM DESCRIPTION"

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
1	REVISED PER DCN-W375-00-00005 MAJOR REVISION		RV		3/10/00
0	ISSUED FOR DESIGN	SS	RV		11/20/99

REVISION HISTORY

PROJECT No.	W375	
SITE	HANFORD	
AREA	200E	
BUILDING No.	02	
	BY	DATE
ORIGINATOR	S.SWITNEY	11/13/99
CHECKER	R.VONZ	11/18/99
APPROVED	J.ISHERWOOD	11/20/99

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

PROCESS FLOW DIAGRAM
HLW VITRIFICATION
LIQUID WASTE SYSTEM 510

SCALE: NTS

DWG No. DWG-W375HV-PR00036

REV 1

SIN REFERENCE No. DIN-W375-00-00478 REV 1

'C' SIZE - 44x34

07 MAR 2000 13:19:13

DWG No. DWG-W375HV-PR00038

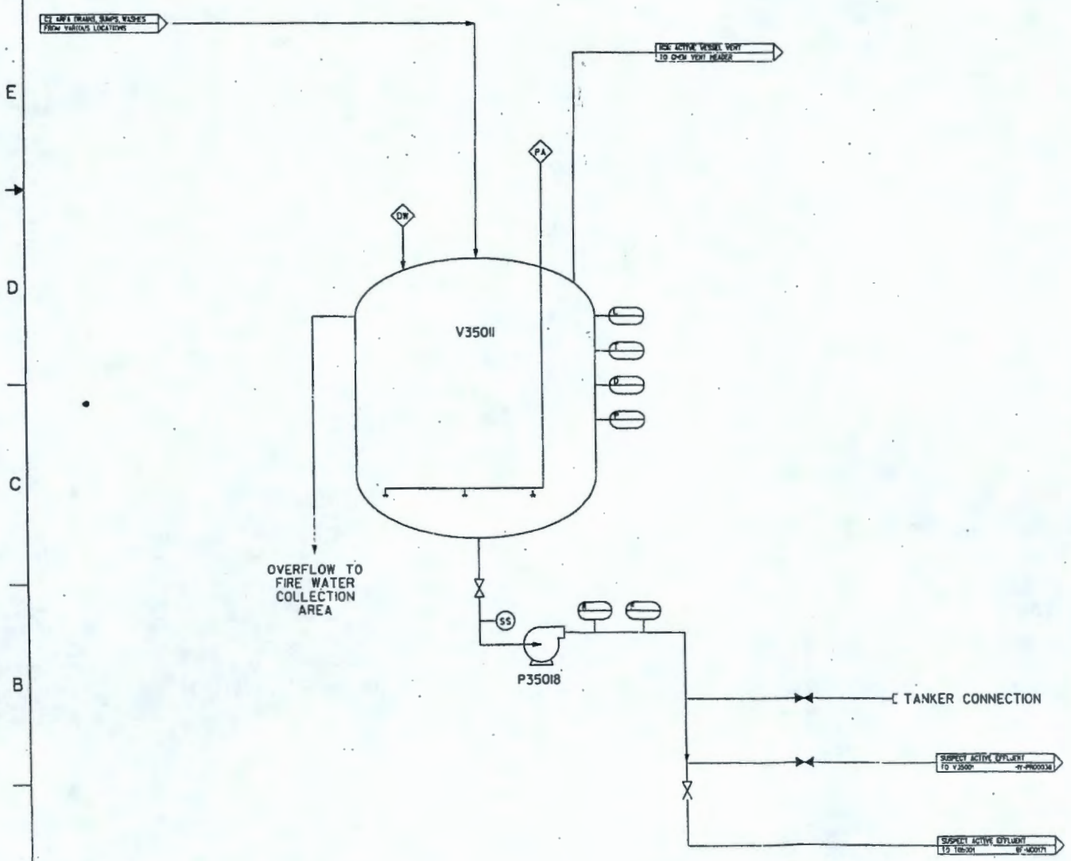
PLANT ITEM NUMBER	V35011	P35018									
DESCRIPTION	HLW C1/C2 COLLECTION VESSEL	HLW C1/C2 COLLECTION PUMP									
MAX/MIN DUTY											
MAXIMUM CAPACITY											
MINIMUM DESIGN PRESSURE											
MAXIMUM DESIGN PRESSURE											
MINIMUM DESIGN TEMPERATURE											
MAXIMUM DESIGN TEMPERATURE											
DIAMETER											
LENGTH/HEIGHT											
MATERIALS OF CONSTRUCTION											
HOWDER INSTALLED											

NOTES:

1. SEE DRAWING DWG-W375PT-PR00001 FOR SYMBOLS AND LEGEND.
2. MAIN PROCESS CONTROL INSTRUMENTS ONLY SHOWN.
3. VESSEL WILL REQUIRE ISOLATION FROM CONTAMINATED AREA. CONSIDERED NON-RADIOACTIVE.
4. CELL WILL BE LINED WITH STAINLESS STEEL AND ANY LEAKAGE INTO THE CELL WILL BE DETECTED BY LEVEL SWITCH.

REFERENCE:

1. SD-W375HV-PR00005, "SYSTEMS 510 AND 5201 HLW VITRIFICATION LIQUID WASTE SYSTEM DESCRIPTION"



REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
1	REVISED PER DCN-W375-00-00005 MAJOR REVISION				3/10/00
0	ISSUED FOR DESIGN	SS	RV	JI	11/20/99

REVISION HISTORY

PROJECT No.	W375	
SITE	HANFORD	
AREA	200E	
BUILDING No.	HT	
	BY	DATE
ORIGINATOR	S.SWEENEY	11/18/99
CHECKER	R.VYRE	11/18/99
APPROVED	J.SHEPHERD	11/20/99

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No: DE-AC06-96RL13308

PROCESS FLOW DIAGRAM HLW C1/C2 DRAINS COLLECTION SYSTEM 520

DSR REFERENCE No. DSR-W375-00-00478 REV 1

SCALE: NTS

DWG No. DWG-W375HV-PR00038

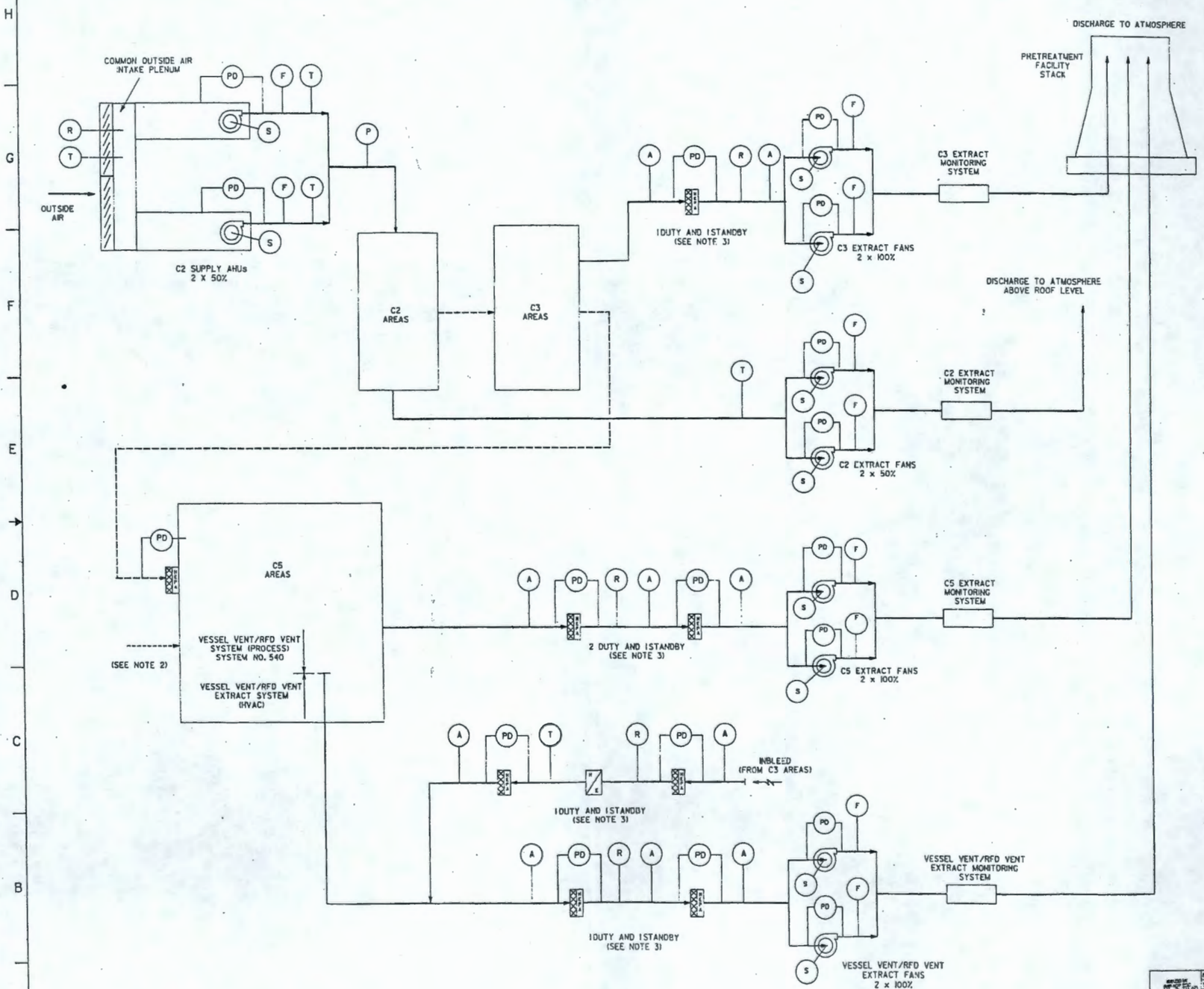
REV 1

"C" SIZE - 44x34

07 MAR 2000 08:48:18

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375 LP-HV00001



NOTES:

1. FOR SYMBOLS AND LEGEND REFER TO DWG-W375-M00000 THRU M00005 AND DWG-W375-HV00004.
2. CELL/CAVE IN-LEAKAGE
3. FILTER CONFIGURATION PENDING DETAIL DESIGN ARRANGEMENT.
4. TO ENSURE THE INTEGRITY OF VENTILATION SYSTEM CONFINEMENT BARRIERS, THE USE OF FIRE DAMPERS WILL BE RE-EVALUATED DURING B2 DESIGN PHASE.
5. FANS ARE PROVIDED WITH VARIABLE FREQUENCY DRIVES (VFD).
6. FAILURE OF A FAN IS DETERMINED BY ANY TWO OUT OF THREE SIGNALS, I.E., LOW PRESSURE DIFFERENTIAL ACROSS FAN, LOSS OF FAN SPEED OR LOSS OF DISCHARGE FLOW. ANY TWO OF THREE WILL RESULT IN A FAN SHUTDOWN AND A FAN FAILURE ALARM
7. PERMISSIVES ARE PROVIDED TO PREVENT STARTING THE C2 SUPPLY FANS WITHOUT THE ASSOCIATED EXTRACT FANS RUNNING. THE C2 SUPPLY FANS ARE INTERLOCKED TO TRIP UPON A COMPLETE LOSS OF VESSEL VENT EXTRACT FANS, OR C5 EXTRACT FANS, OR C3 EXTRACT FANS.

PRELIMINARY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
A	ISSUED FOR 24th APRIL 2000 BASELINE				24/3/00

REVISION HISTORY

PROJECT No.	W375		
SITE	HANFORD		
AREA	200E		
BUILDING No.			
	BY	DATE	
ORIGINATOR			
CHECKER			
APPROVED			

BNFL Inc.
RIVER PROTECTION PROJECT WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

V & ID OVERALL LAW PRETREATMENT BUILDING

SCALE: NONE | DWG No. DWG-W375LP-HV00001 | REV A

DM REFERENCE No. DM-W375-00-00074 | REV A

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375 LP-M00218

CONTAINER ENTRANCE AIR LOCK DOOR
(410-F-4-4-300)
- J2 OPEN/CL (SDDV)
- Z5 OPND/CLSD/CLSD
- Y5 ENGAD (HWENGAD)

SHIELD DOOR
(410-F-4-4-301)
- J2 OPEN/CL (SDDV)
- Z5 OPND/CLSD/CLSD
- Y5 ENGAD (HWENGAD)

CONTAINER LIDDING SYSTEM
(410-R-4-4-014)
- J2 ENGA/DSG (LDDV)
- Z5 ENGAD/DESGD
- J2 ROT (LDDV)

SHIELD DOOR
(410-F-4-4-302)
- J2 OPEN/CL (SDDV)
- Z5 OPND/CLSD
- Y5 ENGAD (HWENGAD)

CONTAINER IMPORT HOIST AND TROLLY
(410-H-4-4-033)

CONTAINER IMPORT CONVEYOR •2
(410-H-4-4-313)
- J2 STRT/STOP (CNVRDV)
- Z5 RUNG
- XE P1
- Y5 ENGAD (HWENGAD)

CONTAINER IMPORT CONVEYOR •1
(410-H-4-4-312)
- J2 STRT/STOP (CNVRDV)
- Z5 RUNG
- XE P1
- Y5 ENGAD (HWENGAD)

CONTAINER EXPORT CONVEYOR •2
(410-H-4-4-318)
- J2 STRT/STOP (CNVRDV)
- Z5 RUNG
- Y5 P1
- Y5 ENGAD (HWENGAD)

CONTAINER EXPORT CONVEYOR •3
(410-H-4-4-317)
- J2 STRT/STOP (CNVRDV)
- Z5 RUNG
- Y5 P1
- Y5 ENGAD (HWENGAD)

CONTAINER IMPORT AREA R2/C3

RESIN LOADING AND LIDDING AREA R5/C5

MONITORING AREA R5/C5

CONTAINER STAGING AREA R5/C5

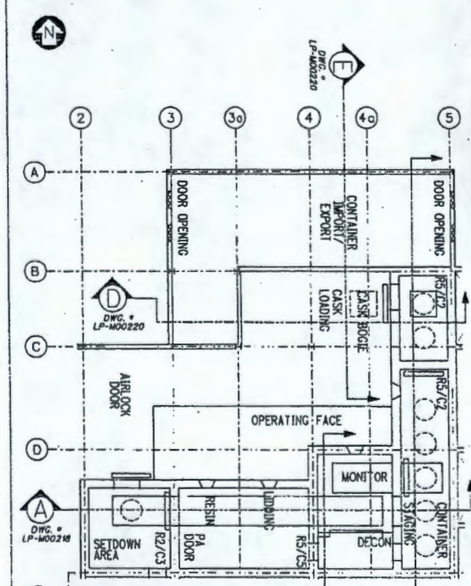
CONTAINER IMPORT CONVEYOR •3 (W/ELEVATOR)
(410-H-4-4-308)
- J2 STRT/STOP (CNVRDV)
- Z5 RUNG
- XE P1/P2
- Y5 ENGAD (HWENGAD)
- J2 RSE/LWR (JKDV)
- Z5 RSD/LWD
- Y5 P1
- Y5 ENGAD (HWENGAD)

CONTAINER IMPORT CONVEYOR •4
(410-H-4-4-314)
- J2 STRT/STOP (CNVRDV)
- Z5 RUNG
- XE P1
- Y5 ENGAD (HWENGAD)

CONTAINER IMPORT CONVEYOR •5 (W/ELEVATOR)
(410-H-4-4-309)
- J2 STRT/STOP (CNVRDV)
- Z5 RUNG
- XE P1/P2
- Y5 ENGAD (HWENGAD)
- J2 RSE/LWR (JKDV)
- Z5 RSD/LWD
- Y5 P1
- Y5 ENGAD (HWENGAD)

CONTAINER IMPORT CONVEYOR •6
(410-H-4-4-315)
- J2 STRT/STOP (CNVRDV)
- Z5 RUNG
- XE P1
- Y5 ENGAD (HWENGAD)

A DRAWING REFERENCE ELEVATION
SCALE: 1/4" = 1'



PRELIMINARY

REFERENCE DRAWINGS

DWG NO	TITLE

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
A	ISSUED FOR 24TH APRIL ON BASELINE				

REVISION HISTORY

PROJECT No. W375
SITE HANFORD
AREA 200E
BUILDING No. 14

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

	BY	DATE
ORIGINATOR		
CHECKER		
APPROVED		

SYSTEM 410
SPENT RESIN WASTE
HANDLING SYSTEM
LEVEL 1 MHD SHEET 1

SCALE: 1/4" = 1'
DWG No. DWG- W375LP-M00218
REV A

DWG REFERENCE No.: DWG-W375-00-02030 REV A

GRAPHIC SCALE 1/4" = 1'-0"

SIZE = 44x34

DWG No. DWG-W375 LP-M00219

MONITORING AND DECON HOIST & TROLLY
(410-H-4-4-306)

- JZ FWD/RVS (CCTDV)
- JZ ENGA/DSG (CCTBK)
- JZ ENGA/DSG (CCTCLTC)
- ZS ULTN (CCTULT)
- ZS ULTS (CCTULT)
- YS P1/P2/P3
- JZ RSE/LWR (CHDV)
- JZ ENGA/DSG (CHBK)
- JZ ENGA/DSG (CHBK)
- WE WT (CHWT)
- ZS ULTRSD/SKCA
- ZS FLT (CHSLIM)
- YS P1 (CHHT)

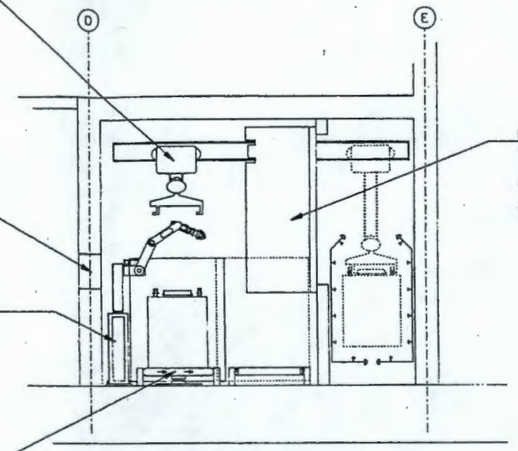
EXPORT SWAB POSTING STATION
(410-H-4-4-306)

POWER MANIPULATOR
(410-H-4-4-305)

- JZ ROT (MSLEW)
- JZ ROT (MSHLDR)
- JZ ROT (MELBOW)
- JZ ROT (MFARM)
- JZ ROT (MWRIST)
- JZ EXTND/RETR (MWRIST)
- JZ OPEN/CL (MJAWS)
- YS P1/P2/P3/P4 (MTILT)

CONTAINER EXPORT CONVEYOR #1 (W/TURNTABLE)
(410-H-4-4-XXX)

- JZ STRT/STOP (CNVRDV)
- ZS RUNG
- XE P1
- YS ENGAD (HWENGAD)
- JZ CW/CCW (TTDV)
- YS POSN (DATUM)



DECONTAMINATION BOOTH DOOR
(410-F-4-4-305)

- JZ OPEN/CL (SDDV)
- ZS OPND/CLSD

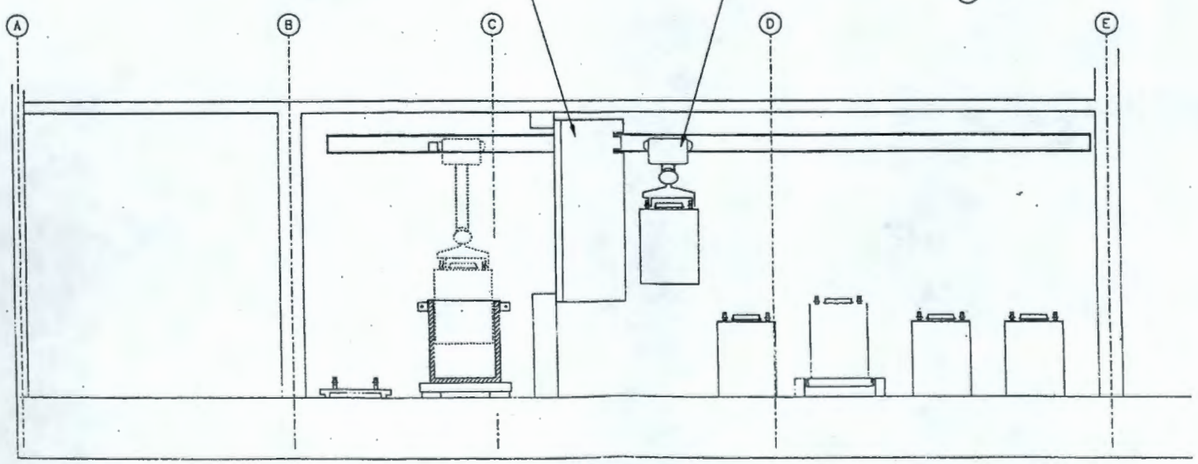
B DRAWING REFERENCE ELEVATION
SCALE: 1/4" = 1'

SHIELD DOOR
(410-F-4-4-303)

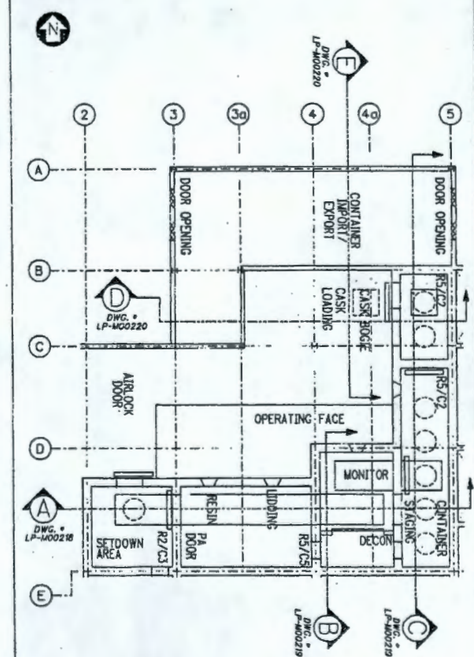
- JZ OPEN/CL (SDDV)
- ZS OPND/CLSD/CLSD
- YS ENGAD (HWENGAD)

STAGING AND CASK LOADING TROLLY
(410-H-4-4-034)

- JZ FWD/RVS (CCTDV)
- JZ ENGA/DSG (CCTBK)
- JZ ENGA/DSG (CCTCLTC)
- ZS ULTW (CCTULT)
- ZS ULTE (CCTULT)
- YS P1/P2
- ZT POSN (CCTPOSN)
- YS POSN (DATUM)
- JZ RSE/LWR (CRDV)
- JZ ENGA/DSG (CHBK)
- JZ ENGA/DSG (CHCLTCH)
- WE WT (CHWT)
- ZS ULTRSD/SKCA
- ZS FLT (CHSLIM)
- YS P1 (CHHT)
- ZT POSN (CHHTPOSN)
- YS POSN (DATUM)



C DRAWING REFERENCE ELEVATION
SCALE: 1/4" = 1'



PRELIMINARY

REFERENCE DRAWINGS

DWG NO	TITLE

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
A	ISSUED FOR 24TH MONTH BASELINE				3-24-00

REVISION HISTORY

PROJECT No.	W375		
SITE	HANFORD		
AREA	200E		
BUILDING No.	4		
CONTRACT No	DE-AC06-96RL13308		
DESIGNATOR	BY	DATE	
CHECKER			
APPROVED			

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

SYSTEM 410
SPENT RESIN WASTE
HANDLING SYSTEM
LEVEL 1 MHD SHEET 2

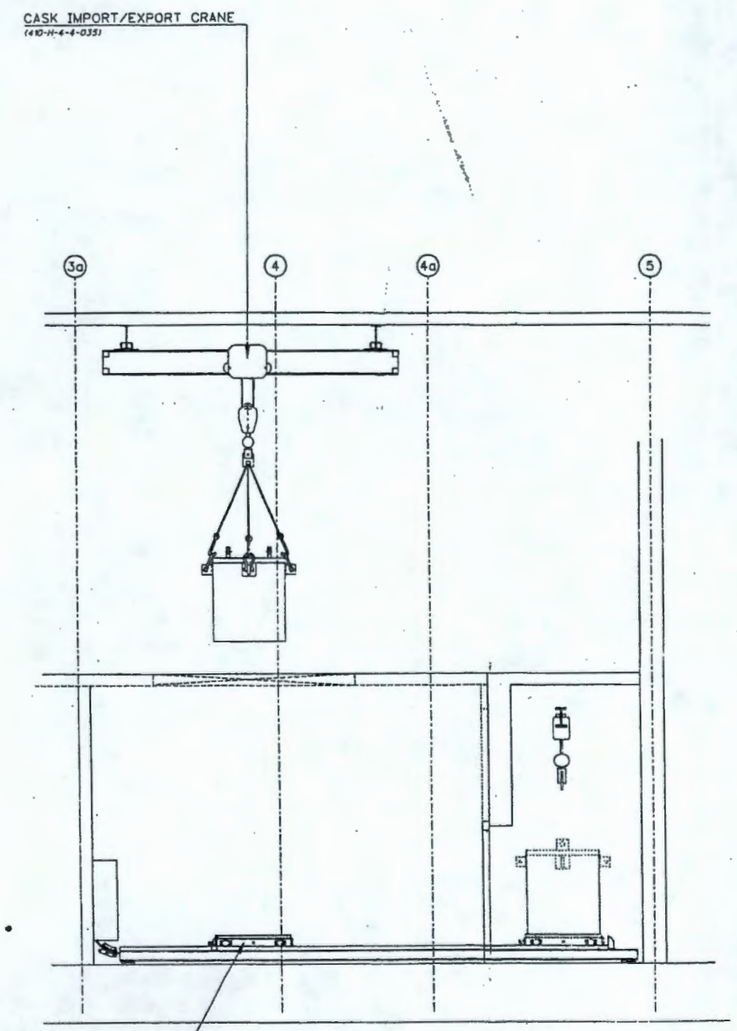
SCALE: 1/4" = 1' | DWG No. DWG- W375 LP-M00219 | REV A

SIM REFERENCE No. SIM-W375-00-99031 | REV A

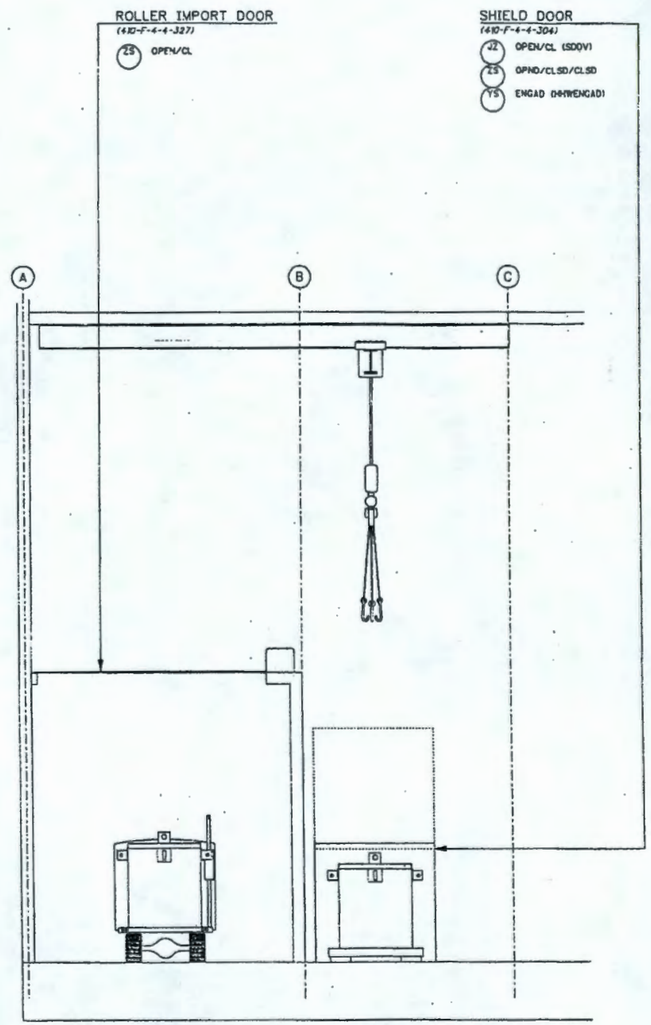
B SIZE - 44x34

29 MAR 2000 10:07:25

DWG No. DWG-W375 LP-M00220



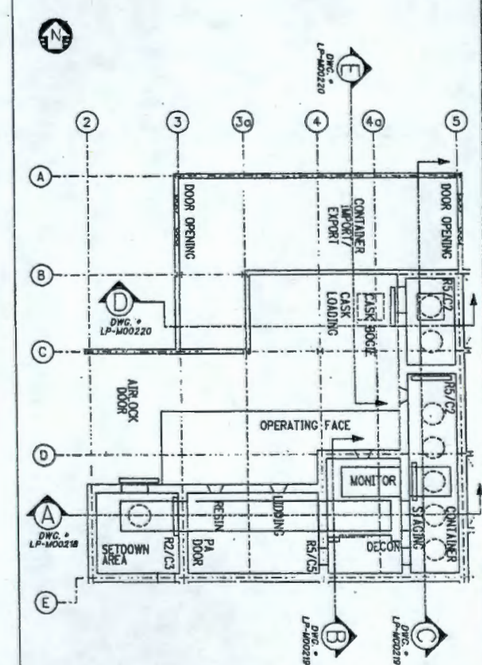
D DRAWING REFERENCE ELEVATION
SCALE: 1/4" = 1'



E DRAWING REFERENCE ELEVATION
SCALE: 1/4" = 1'

BOGIE
(410-H-4-4-043)
- JZ FWD/RVS (BTDV)
- JZ ENGA/DSG (BTBK)
- ZS ULTE (BTULT)
- ZS ULTW (BTULT)
- YS POSN (BCPRES)
- YS P1/P2

CHAIN DRIVE UNIT
(410-H-4-4-310)
- JZ FWD/RVS (CDNDV)
- ZS SKCA
- YS ENGAD (HWENCAD)



PRELIMINARY

REFERENCE DRAWINGS

DWG. NO.	TITLE

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
A	ISSUED FOR 24TH APRIL 00 BASELINE				

REVISION HISTORY

PROJECT No. 8375
STATE HANFORD
AREA 200E
BUILDING No. 4

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

	BY	DATE
ORIGINATOR		
CHECKED		
APPROVED		

SYSTEM 410
SPENT RESIN WASTE HANDLING SYSTEM
LEVEL 1 MHD SHEET 3

DWG REFERENCE No.: DW-8375-00-12532 REV A

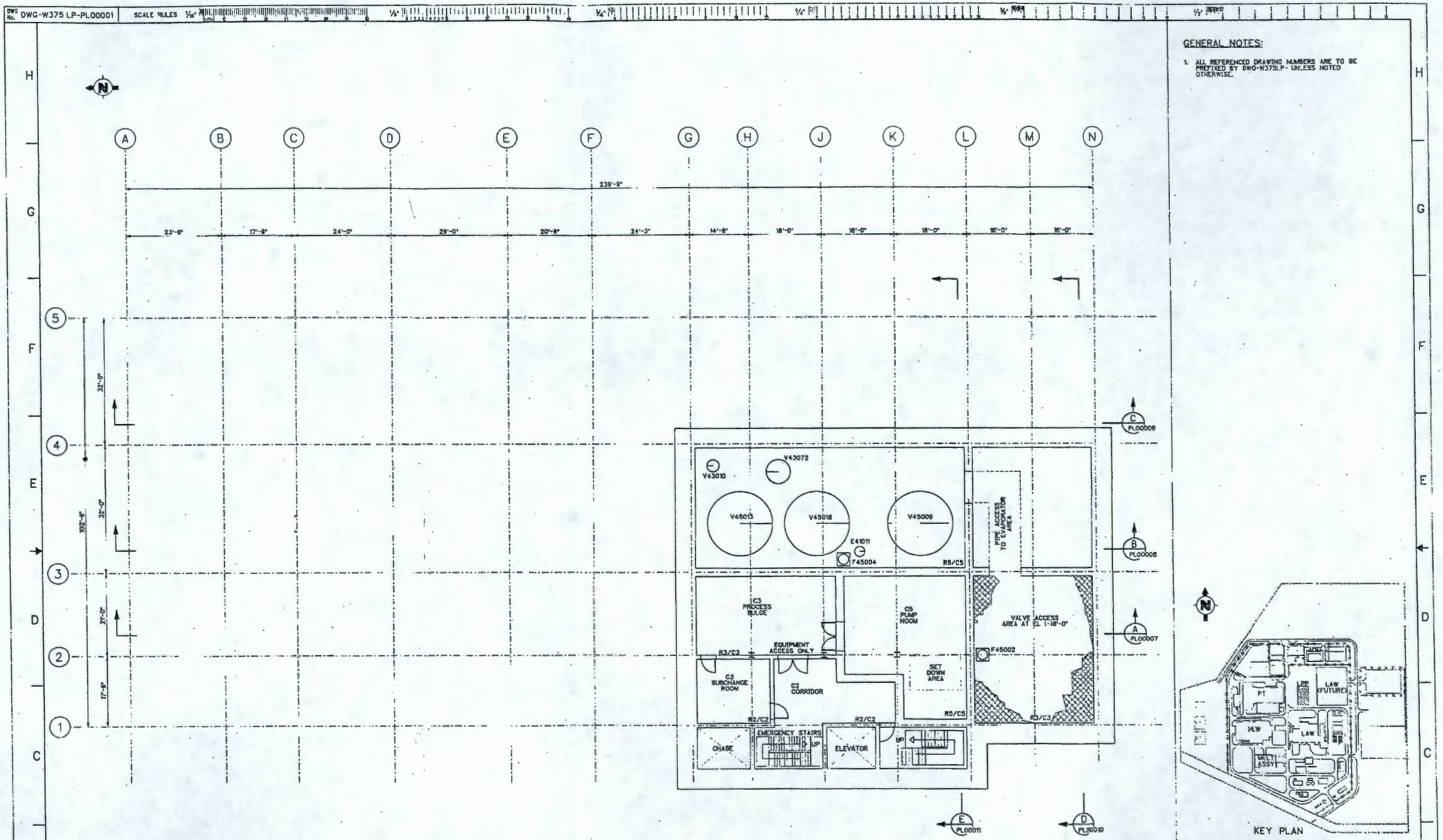
SCALE: 1/4" = 1'

DWG No. DWG- W375 LP-M00220

REV A

GRAPHIC SCALE 1/4" = 1'-0"

DWG No. DWG-W375 LP-PL00001 SCALE RULES



LAW. PRETREATMENT - PLAN AT (-)30' - 0"

GENERAL NOTES:

1. ALL REFERENCED DRAWING NUMBERS ARE TO BE PREFIXED BY DWG-W375LP- UNLESS NOTED OTHERWISE.

KEY PLAN

PRELIMINARY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
A	ISSUED FOR 24 APRIL 00 BASELINE				

REVISION HISTORY

PIN	DESCRIPTION
E41011	EVAPORATOR REBOILER
F45002	SUMP
F45004	CELL SUMP
V43010	EVAPORATOR LUTE POT
V43072	TECHNETIUM CONCENTRATE LUTE POT
V45009	PLANT WASH VESSEL
V45013	ALKALINE EFFLUENT VESSEL
V45018	ALKALINE EFFLUENT VESSEL

PROJECT No. W375
SITE HANFORD
AREA 200E
BUILDING No.

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-99RL13308

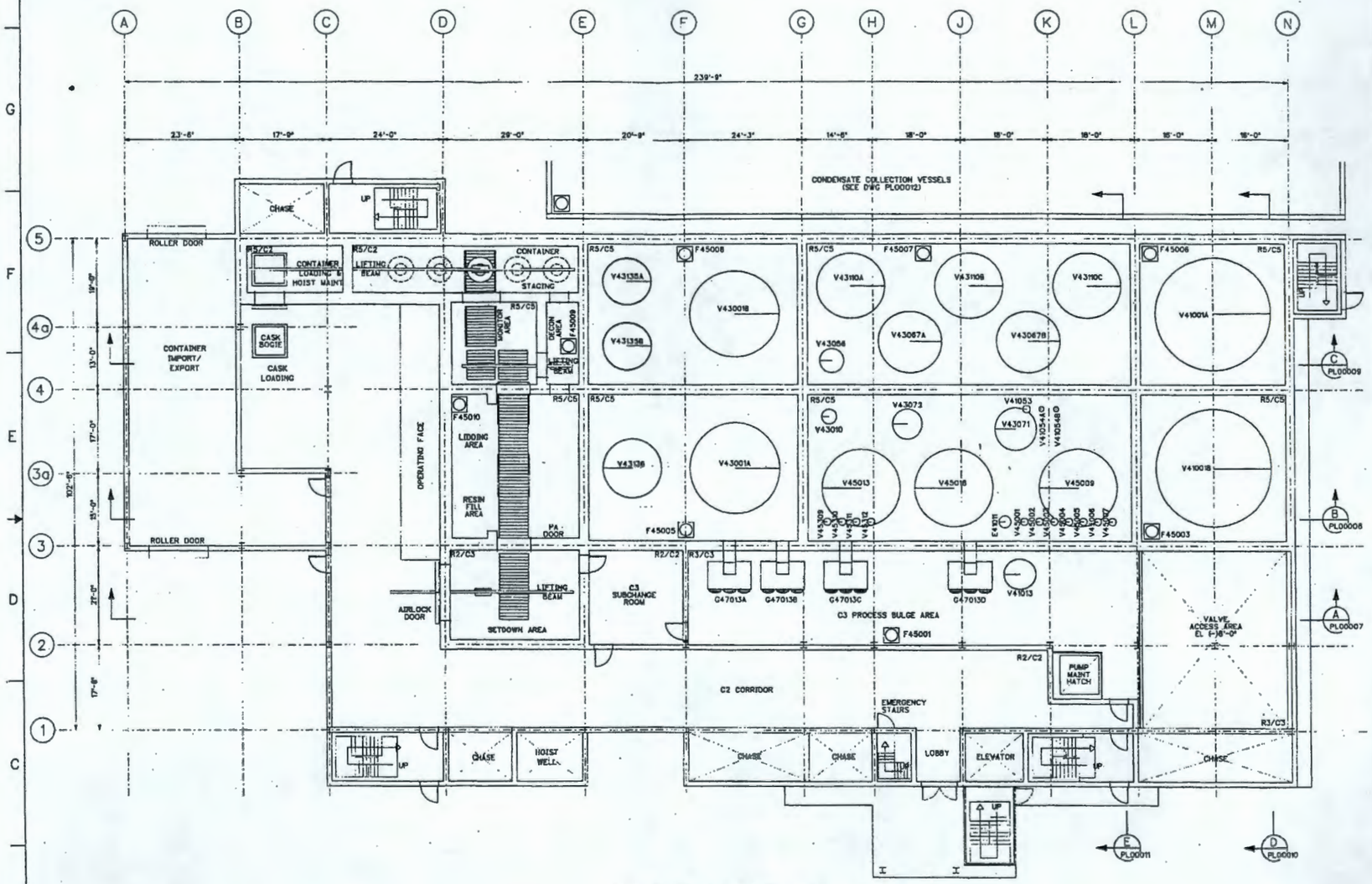
DESIGNATOR
CHECKER
APPROVED

LAW PRETREATMENT PLANT
GENERAL ARRANGEMENT
PLAN AT (-)30'-0"

SCALE: 1/4"=1'-0"
DWG No. DWG- W375LP-PL00001
REV A

SIZE - 44x34

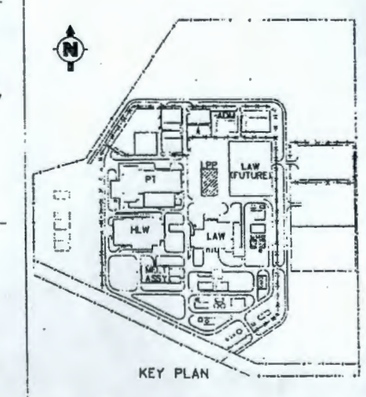
DWG No. DWG-W375 LP-PL00002 SCALE RULES



LAW PRETREATMENT - PLAN AT 0'-0"

NOTES:

1. FOR GENERAL NOTES SEE DWG-W375LP-PL00001



KEY PLAN

PRELIMINARY

REV	DESCRIPTION	DRAWN: CHKD : APVD	DATE
A	ISSUED FOR 24 APRIL 00 BASELINE		05/24/00

REVISION HISTORY

PIN	DESCRIPTION	PIN	DESCRIPTION	PIN	DESCRIPTION	PIN	DESCRIPTION
E41011	EVAPORATOR REBOILER	V41001B	LAW BUFFER VESSEL B	V43110A	TREATED LAW COLLECTION VESSEL A	V45309	ALKALINE EFFLUENT BREAKPOT
F45001	SUMP	V41013	PROCESS CONDENSATE HOLD VESSEL	V43110B	TREATED LAW COLLECTION VESSEL B	V45310	ALKALINE EFFLUENT BREAKPOT
F45003	CELL SUMP	V41053	LUTEPOT	V43110C	TREATED LAW COLLECTION VESSEL C	V45311	ALKALINE EFFLUENT BREAKPOT
F45005	CELL SUMP	V41054A	BREAKPOT	V43135A	SPENT RESIN COLLECTION VESSEL A	V45312	ALKALINE EFFLUENT BREAKPOT
F45006	CELL SUMP	V41054B	PULSEPOT	V43135B	SPENT RESIN COLLECTION VESSEL B		
F45007	CELL SUMP	V43001A	Tc Ix FEED BUFFER VESSEL A	V43136	RESIN FLUSH COLLECTION VESSEL		
F45008	CELL SUMP	V43001B	Tc Ix FEED BUFFER VESSEL B	V45001	PLANT WASH BREAKPOT		
F45009	CELL SUMP	V43010	EVAPORATOR LUTEPOT	V45002	PLANT WASH BREAKPOT		
F45010	CELL SUMP	V43056	CAUSTIC RINSE COLLECTION VESSEL	V45003	PLANT WASH BREAKPOT		
G47013A	C3 IN-BLEED HEPA FILTER UNIT	V43067A	Tc ELUATE RECEIPT VESSEL A	V45004	PLANT WASH BREAKPOT		
G47013B	C3 IN-BLEED HEPA FILTER UNIT	V43067B	Tc ELUATE RECEIPT VESSEL B	V45005	PLANT WASH BREAKPOT		
G47013C	C3 IN-BLEED HEPA FILTER UNIT	V43071	RECOVERED ACID TANK	V45006	PLANT WASH BREAKPOT		
G47013D	C3 IN-BLEED HEPA FILTER UNIT	V43072	TECHNETIUM CONCENTRATE LUTEPOT	V45007	PLANT WASH BREAKPOT		
V41001A	LAW BUFFER VESSEL A	V43075	CONDENSATE COLLECTION VESSEL	V45009	PLANT WASH VESSEL		

ISSUED BY: CONTRACTOR / CDR / DOE / DOE STAMP

	BY	DATE
ORIGINATOR		05/24/00
CHECKER		05/24/00
APPROVED		5-24-00

PROJECT No. W375 | SITE HANFORD | AREA 200E | BUILDING No.

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

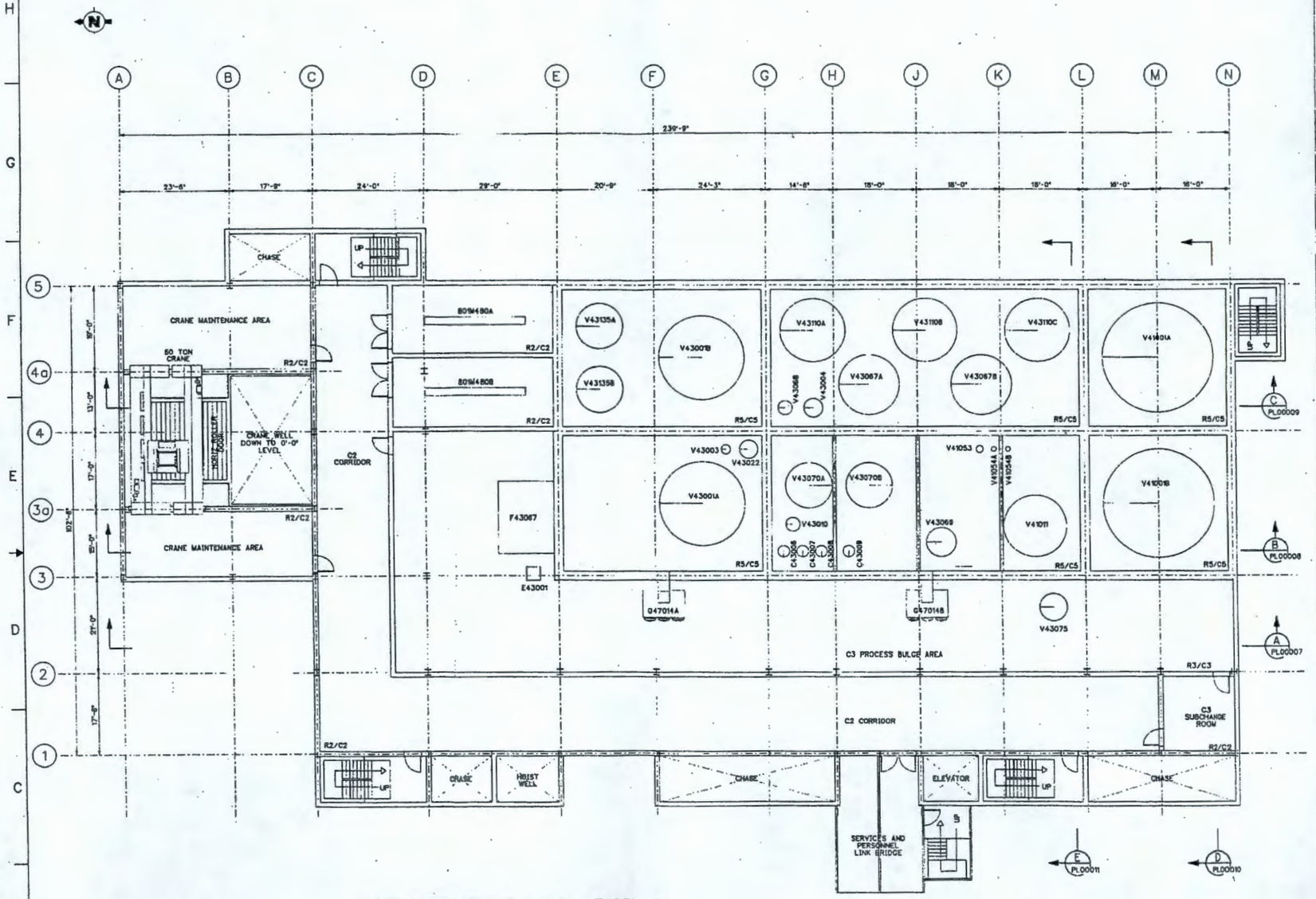
LAW PRETREATMENT PLANT
GENERAL ARRANGEMENT
PLAN AT 0'-0"

SCALE: 1/8"=1'-0" | DWG No. DWG- W375LP-PL00002 | REV A

DM REFERENCE No. DM-W375-00-00495 | REV 1 | SIZE - 44x34

10 MAR 2000 9:00:49

DWG No. DWG-W375 LP-PL00003 SCALE RULES



LAW PRETREATMENT - PLAN AT 25' - 0"

NOTES:

1. FOR GENERAL NOTES SEE DWG-W375LP-PL00001.

KEY PLAN

PRELIMINARY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
A	ISSUED FOR 24 APRIL 00 BASELINE				

REVISION HISTORY

PIN	DESCRIPTION	PIN	DESCRIPTION	PIN	DESCRIPTION
C43006	Tc ION EXCHANGE COLUMN	V43001A	Tc IX BUFFER VESSEL	V431108	TREATED LAW COLLECTION VESSEL
C43007	Tc ION EXCHANGE COLUMN	V43001B	Tc IX BUFFER VESSEL	V43110C	TREATED LAW COLLECTION VESSEL
C43008	Tc ION EXCHANGE COLUMN	V43003	Tc RECYCLE BREAKPOT	V43135A	SPENT RESIN COLLECTION VESSEL
C43009	Tc ION EXCHANGE COLUMN	V43004	EVAPORATOR Tc BREAKPOT	V43135B	SPENT RESIN COLLECTION VESSEL
E43001	CHILLER UNIT	V43010	EVAPORATOR LUTEPOT	V43136	RESIN FLUSH COLLECTION VESSEL
F43067	RESIN EQUIPMENT BULGE	V43022	Tc REAGENT VESSEL	80M480A	MOTOR CONTROL CENTER
G47014A	C5 IN-BLEED HEPA FILTER UNIT	V43067A	ELUATE RECEIPT VESSEL	80M480B	MOTOR CONTROL CENTER
G470148	C5 IN-BLEED HEPA FILTER UNIT	V43067B	ELUATE RECEIPT VESSEL		
V41001A	LAW BUFFER VESSEL	V43068	EVAPORATOR Tc PULSE POT		
V41001B	LAW BUFFER VESSEL	V43069	EVAPORATOR KETTLE		
V41011	EVAPORATOR VESSEL	V43070A	TECHNETIUM ELUATE VESSEL		
V41053	LAW MELTER FEED EVAPORATOR LUTEPOT	V43070B	TECHNETIUM ELUATE VESSEL		
V41054A	LAW MELTER CONC. EVAP. BREAKPOT	V43075	PROCESS CONDENSATE POT		
V41054B	LAW MELTER CONC. EVAP. BREAKPOT	V43110A	TREATED LAW COLLECTION VESSEL		

ISSUED BY: SUPERVISOR PDC, ENG. TAYLOR, DRAF. TAYLOR

PROJECT No. 9375; SITE HANFORD; AREA; BUILDING No.; CODE

DESIGNATOR; CHECKER; APPROVED — BY / DATE

BNFL Inc

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

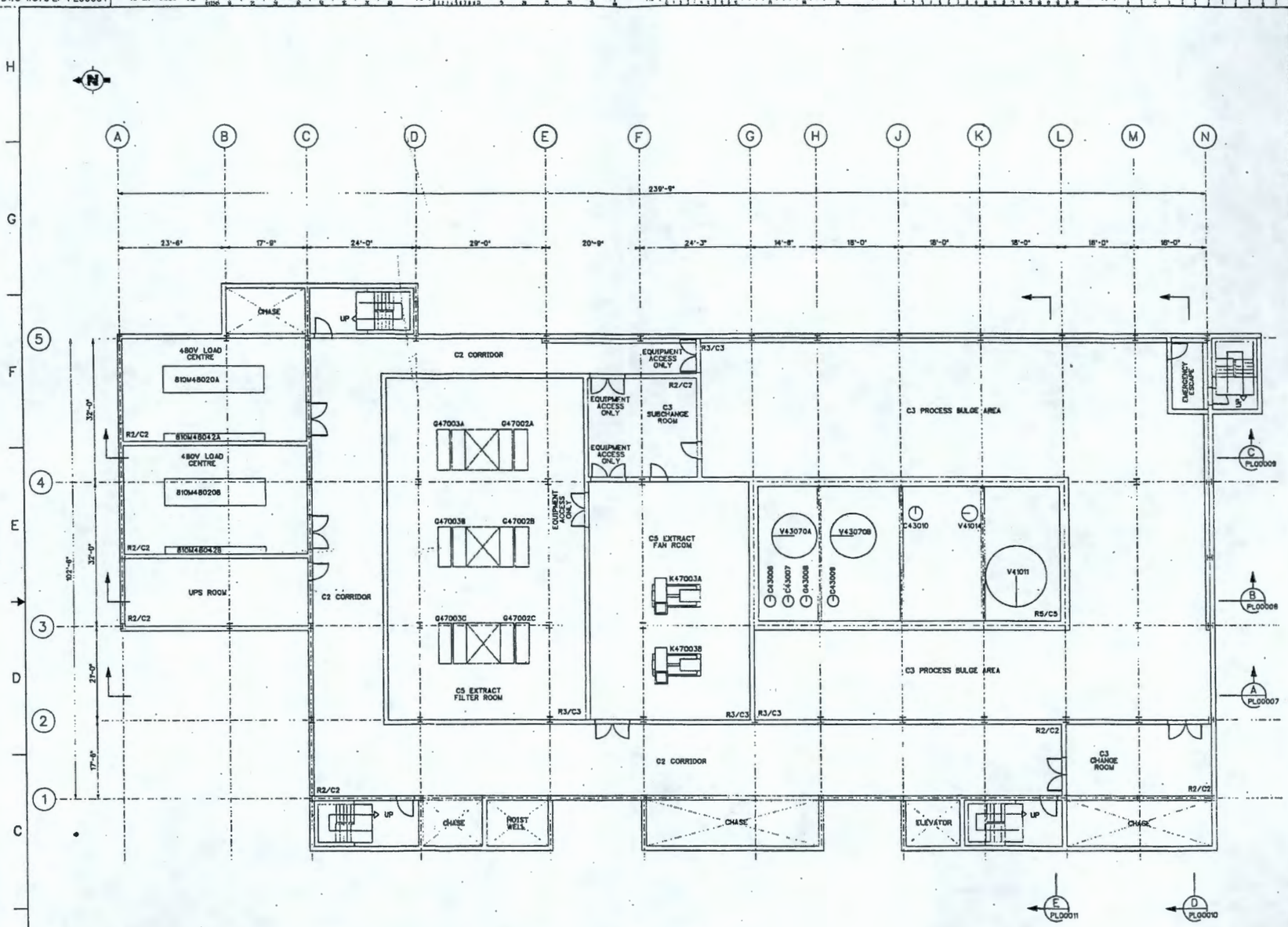
CONTRACT No. DE-AC06-96RL13308

LAW PRETREATMENT PLANT
GENERAL ARRANGEMENT
PLAN AT 25'-0"

SCALE: 1/8"=1'-0" | DWG No. DWG- W375LP-PL00003 | REV A

SIM REFERENCE No.: 9W-9375-00-01188 | REV 1

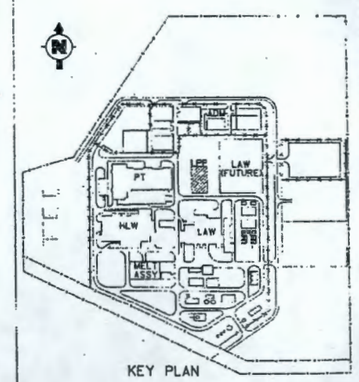
DWG No. DWG-W375 LP-PL00004



LAW PRETREATMENT - PLAN AT 55' - 0"

NOTES:

1. FOR GENERAL NOTES SEE DWG-W375LP-PL00001



KEY PLAN

PRELIMINARY

REV	DESCRIPTION	DRAWN, CHKD	APVD	DATE
A	ISSUED FOR 24 APRIL 00 BASELINE			

REVISION HISTORY

PIN	DESCRIPTION	PIN	DESCRIPTION
C43008	Tc ION EXCHANGE COLUMN	V41014	LAW MELTER FEED PULSEPOT
C43007	Tc ION EXCHANGE COLUMN	V43070A	RECOVERED ELUANT RECEIPT VESSEL A
C43008	Tc ION EXCHANGE COLUMN	V43070B	RECOVERED ELUANT RECEIPT VESSEL B
C43009	Tc ION EXCHANGE COLUMN	810M48020A	LOAD CELL
C43010	RECTIFIER	810M48020B	LOAD CELL
G47002A	C5 EXTRACT HEPA FILTER UNIT	810M48042A	MOTOR CONTROL CENTRE
G47002B	C5 EXTRACT HEPA FILTER UNIT	810M48042B	MOTOR CONTROL CENTRE
G47002C	C5 EXTRACT HEPA FILTER UNIT		
G47003A	C5 EXTRACT HEPA FILTER UNIT		
G47003B	C5 EXTRACT HEPA FILTER UNIT		
G47003C	C5 EXTRACT HEPA FILTER UNIT		
K47003A	C5 EXTRACT FAN		
K47003B	C5 EXTRACT FAN		
V41011	EVAPORATOR VESSEL		

ISSUED BY INTERNATIONAL

PROJECT No. W375
SITE RICHLAND
AREA 200E
BUILDING No.

	BY	DATE
ORIGINATOR		
CHECKER		
APPROVED		

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

LAW PRETREATMENT PLANT GENERAL ARRANGEMENT PLAN AT 55'-0"

SCALE 1/8"=1'-0"

DWG No. DWG- W375 LP-PL00004

REV A

SIM REFERENCE No. DSM-W375-00-01497 REV A

"C" SIZE - 44x34

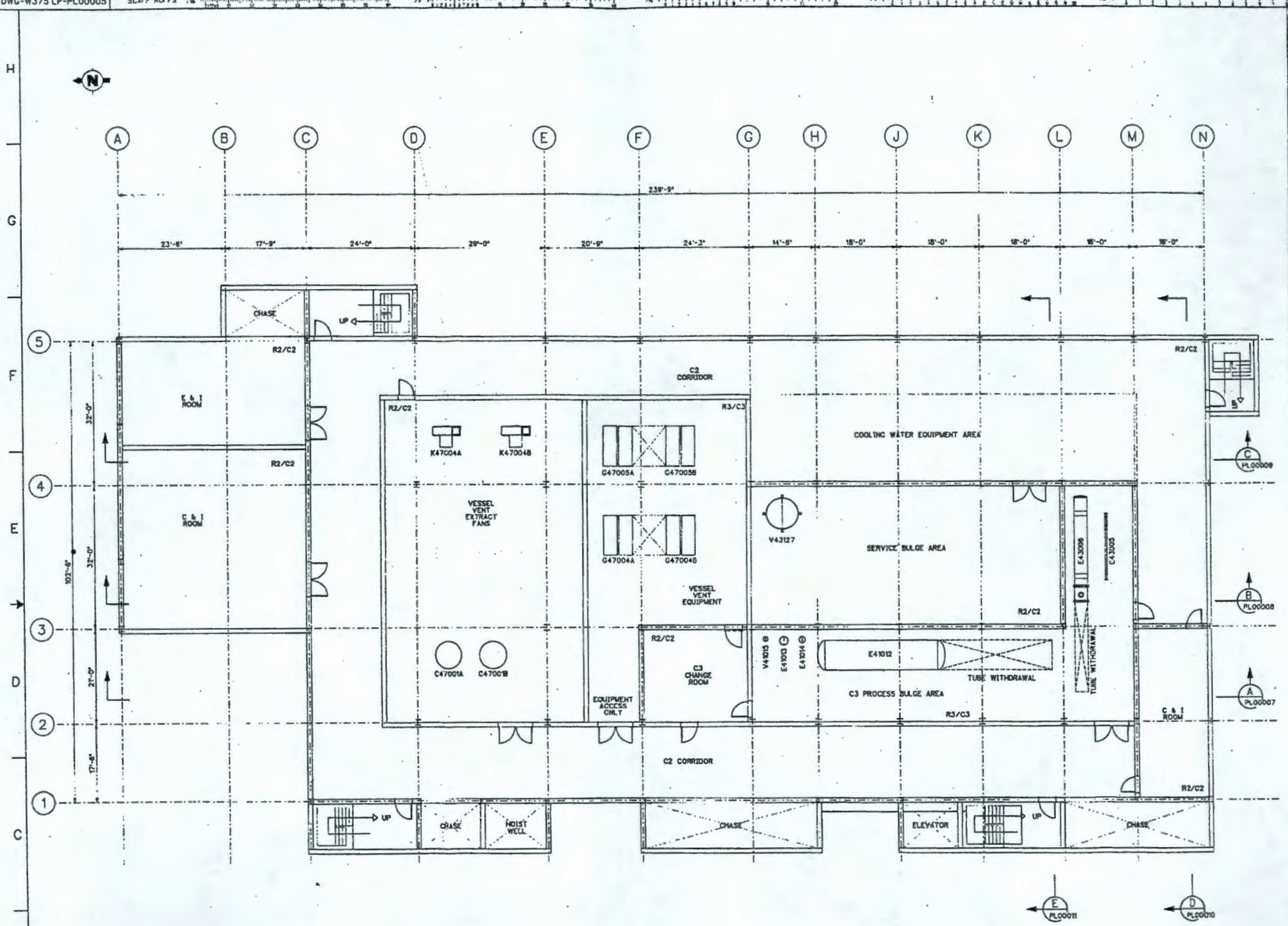
30 MAR 2000 14:02:14

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375 LP-PL00005

NOTES:

1. FOR GENERAL NOTES SEE DWG-W375LP-PL00001.



LAW PRETREATMENT - PLAN AT 75' - 0"

KEY PLAN

PRELIMINARY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
A	ISSUED FOR 24 APRIL 00 BASELINE				

REVISION HISTORY

PIN	DESCRIPTION	PIN	DESCRIPTION
C47001A	CARBON BED ORGANIC ADSORBER	V43127	FRESH Tc RESIN ADDITION VESSEL
C47001B	CARBON BED ORGANIC ADSORBER		
E41012	PRIMARY CONDENSER		
E41013	AFTERCONDENSER		
E41014	INTERCONDENSER		
E43005	Tc NITRIC ACID CONDENSER		
E43006	AFTERCONDENSER		
G47004A	VESSEL VENT EXTRACT HEPA FILTER		
G47004B	VESSEL VENT EXTRACT HEPA FILTER		
G47005A	VESSEL VENT EXTRACT HEPA FILTER		
G47005B	VESSEL VENT EXTRACT HEPA FILTER		
K47004A	VESSEL VENT EXTRACT FAN		
K47004B	VESSEL VENT EXTRACT FAN		
V41015	DEMISTER		

PROJECT No. W375
SITE HANFORD
AREA 200E
BUILDING No.
DESIGNATOR
CHECKED
APPROVED

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

LAW PRETREATMENT PLANT GENERAL ARRANGEMENT PLAN AT 75'-0"

SCALE: 1/8"=1'-0"

DWG No. DWG- W375LP-PL00005

REV A

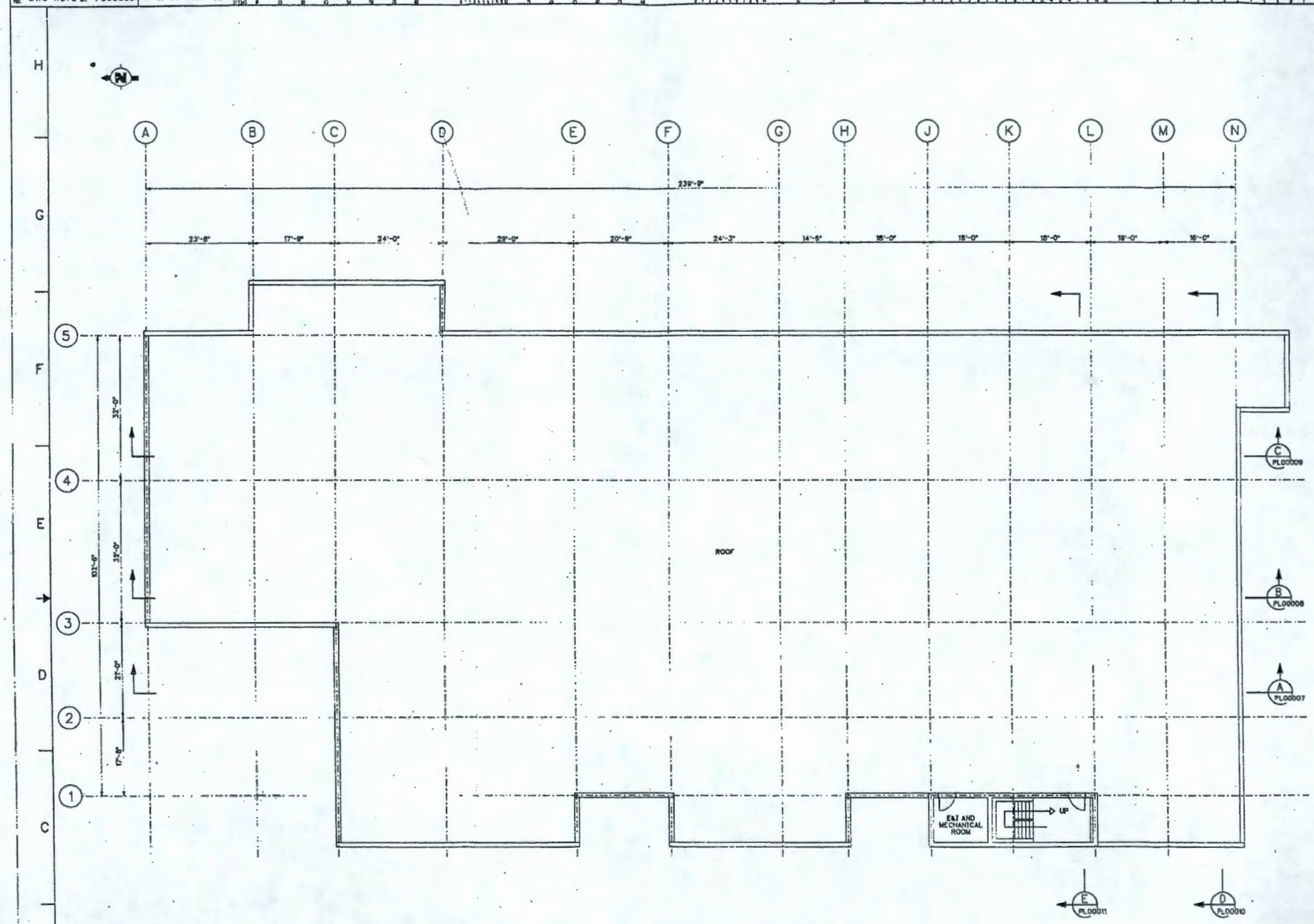
1" SIZE - 44x34

DWG No. DWG-W375 LP-PL00006

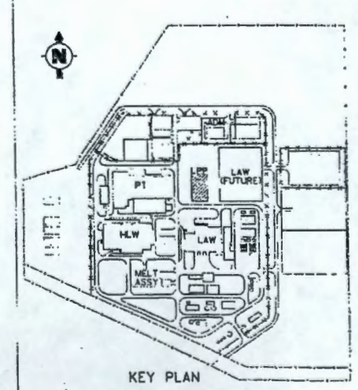
SCALE RULES

NOTES:

1. FOR GENERAL NOTES SEE DWG-W375LP-PL00001.



LAW PRETREATMENT - ROOF PLAN 96' - 0"



KEY PLAN

PRELIMINARY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
A	ISSUED FOR 24 APRIL 00 BASELINE				

REVISION HISTORY

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC09-96RL13308

PROJECT No. 9375
SITE HANFORD
AREA SIDE
BUILDING No.

	BY	DATE
DESIGNER		
CHECKER		
APPROVED		

LAW PRETREATMENT PLANT
GENERAL ARRANGEMENT
PLAN AT 96'-0"

DWG REFERENCE No. 350-P375-00-D1698 REV A

SCALE 1/4"=1'-0"

DWG No. DWG- W375LP-PL00006

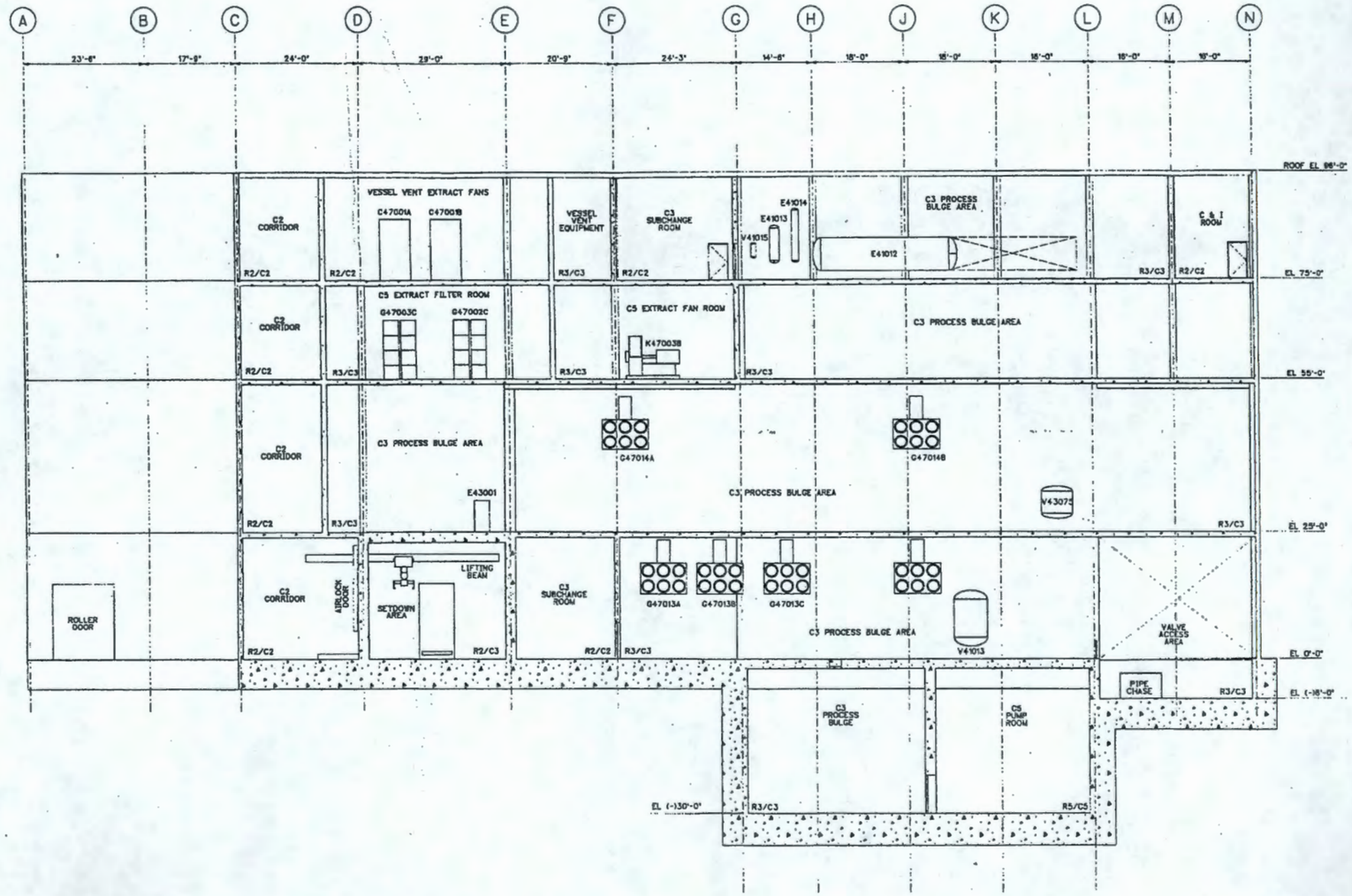
REV A

"E" SIZE - 44x34

DWG No. DWG-W375 LP-PL00007 SCALE RULES

NOTES:

1. FOR GENERAL NOTES SEE DWG-W375LP-PL00001



SECTION A
LOOKING EAST
PL00001 THRU PL00006

PRELIMINARY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
A	ISSUED FOR 24 APRIL 00 BASELINE				

REVISION HISTORY

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

PROJECT No. W375
SYSTEM
AREA 100E
BUILDING No.

DESIGNATOR
CHECKED
APPROVED

LAW PRETREATMENT PLANT GENERAL ARRANGEMENT SECTION A

DWG REFERENCE No. DW-W375-00-00008 REV A

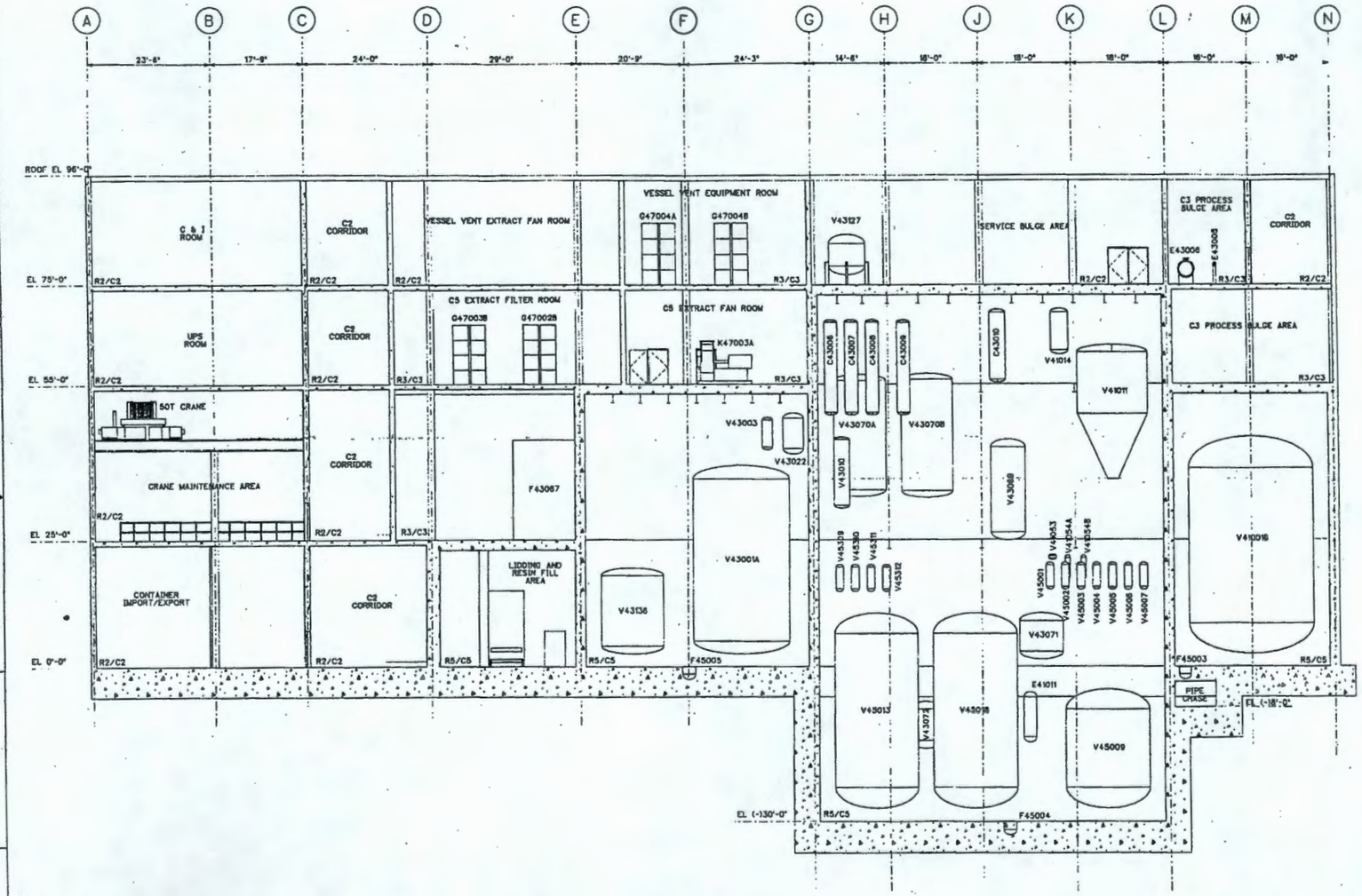
SCALE 1/8"=1'-0"

DWG No. DWG- W375 LP-PL00007 REV A

"C" SIZE - 44x34

DRAWING GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375 LP-PL00008 SCALE RULES



SECTION B
LOOKING EAST PL00001 THRU PL00008

NOTES:

1. FOR GENERAL NOTES SEE DWG-W375LP-PL00001.

PRELIMINARY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
A	ISSUED FOR 24 APRIL 00 BASELINE				

REVISION HISTORY

PROJECT No. W375
SITE HANFORD
AREA 200E
BUILDING No.

BY DATE
ORIGINATOR
CHECKER
APPROVED

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

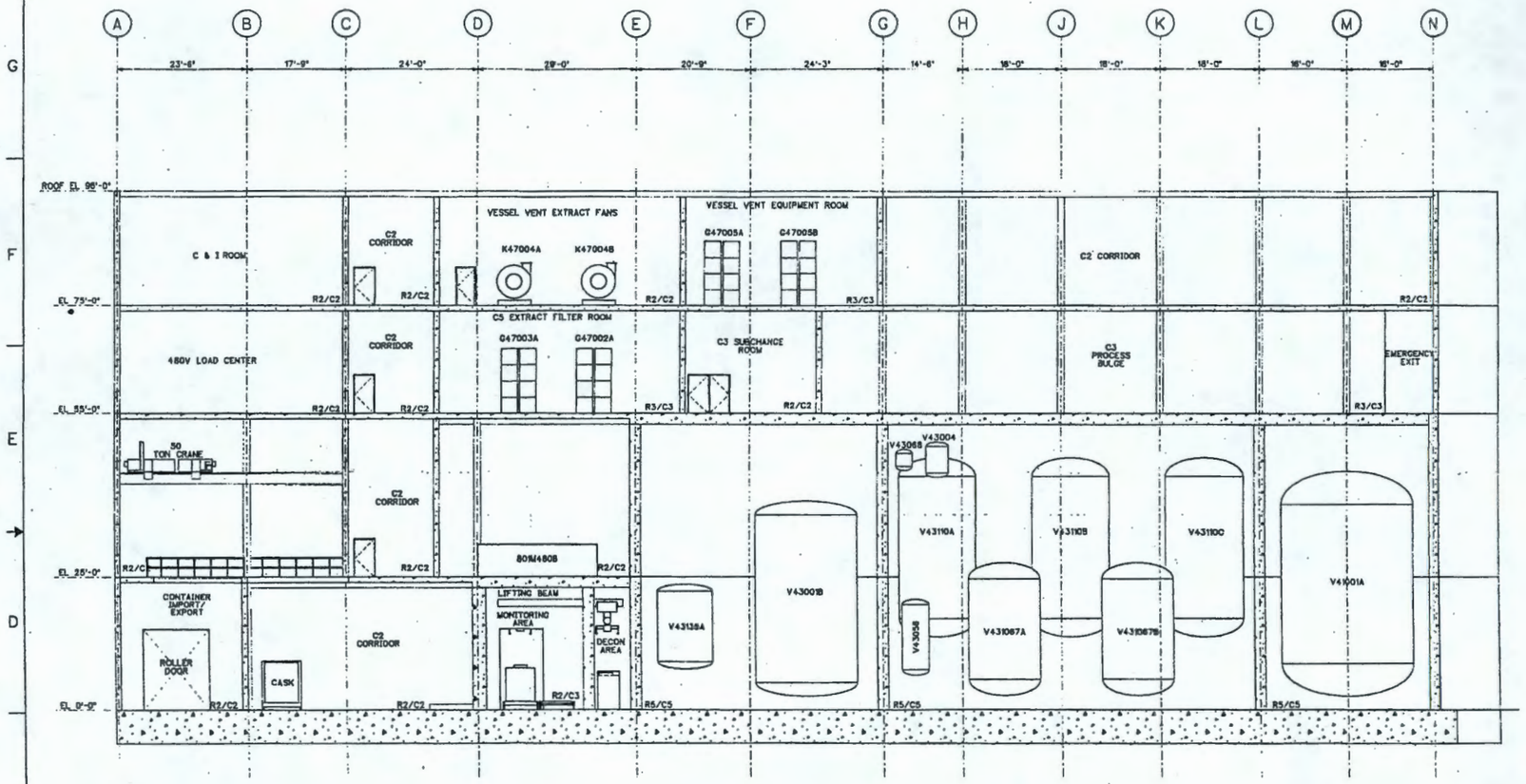
CONTRACT No. DE-AC06-98RL13308

LAW PRETREATMENT PLANT
GENERAL ARRANGEMENT
SECTION B

DWG REFERENCE No. DM-W375-00-0078 REV A

SCALE 1/4"=1'-0" DWG No. DWG- W375 LP-PL00008 REV A

DWG No. DWG-W375 LP-PL00009



SECTION C
LOOKING EAST PL00001 THRU PL00008

NOTES:

1. FOR GENERAL NOTES SEE DWG-W375LP-PL00001.

PRELIMINARY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
A	ISSUED FOR 24 APRIL 00 BASELINE				

REVISION HISTORY

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

LAW PRETREATMENT PLANT
GENERAL ARRANGEMENT
SECTION C

DWG No. DWG- W375LP-PL00009 REV A

SCALE 1/4"=1'-0"

T SIZE - 44x34

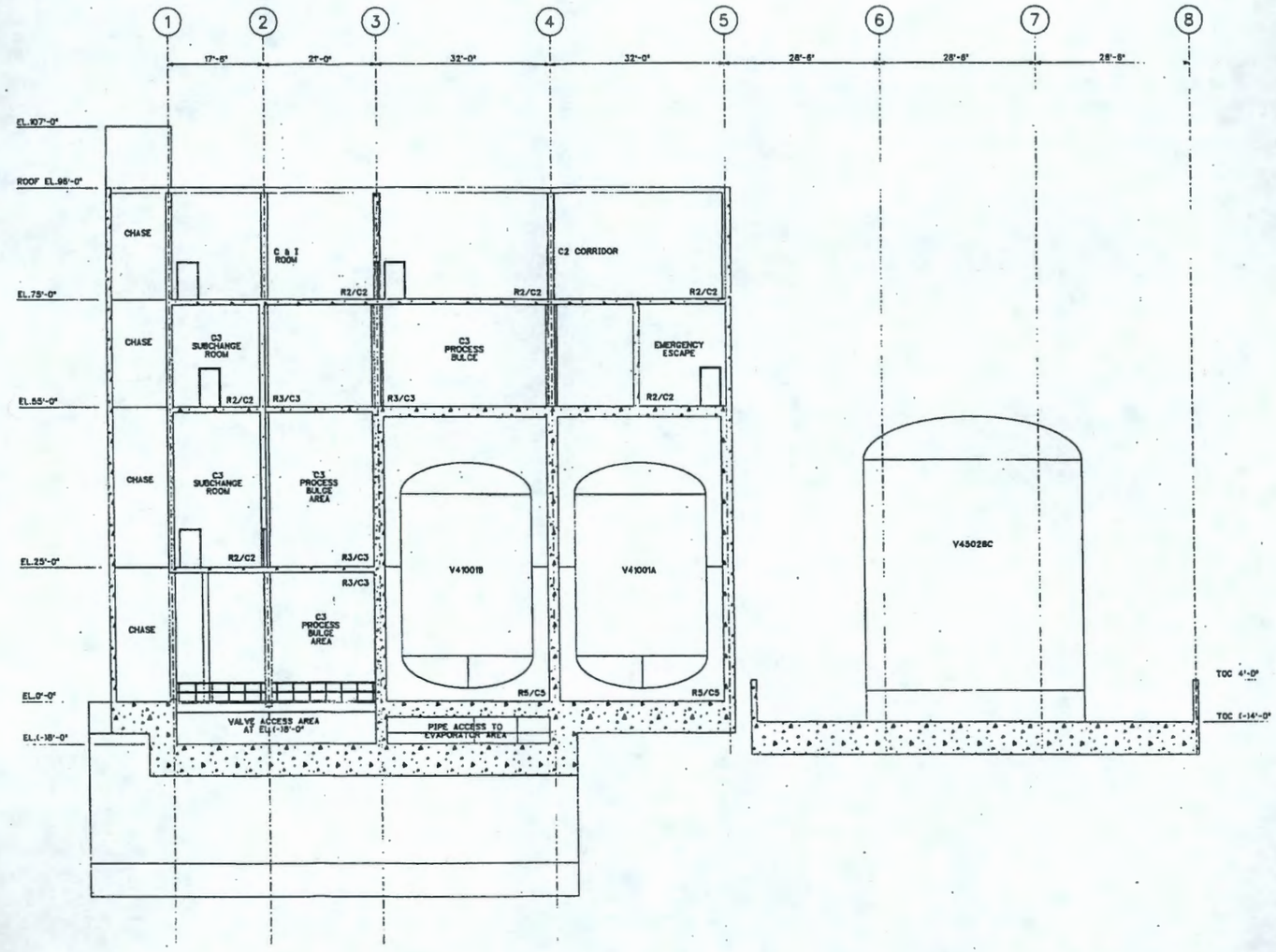
30 MAY 2000 11:29:57

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375 LP-PL00010 SCALE RULES

NOTES:

1. FOR GENERAL NOTES SEE DWG-W375LP-PL00001.



SECTION D
LOOKING NORTH PL00001 THRU PL00008 AND PL00012

PRELIMINARY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
A	ISSUED FOR 24 APRIL 90 BASELINE	P.G.			

REVISION HISTORY

PROJECT No. W375
SITE HANFORD
AREA 200E
BUILDING No.

ORIGINATOR
CHECKED
APPROVED

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-94RL13308

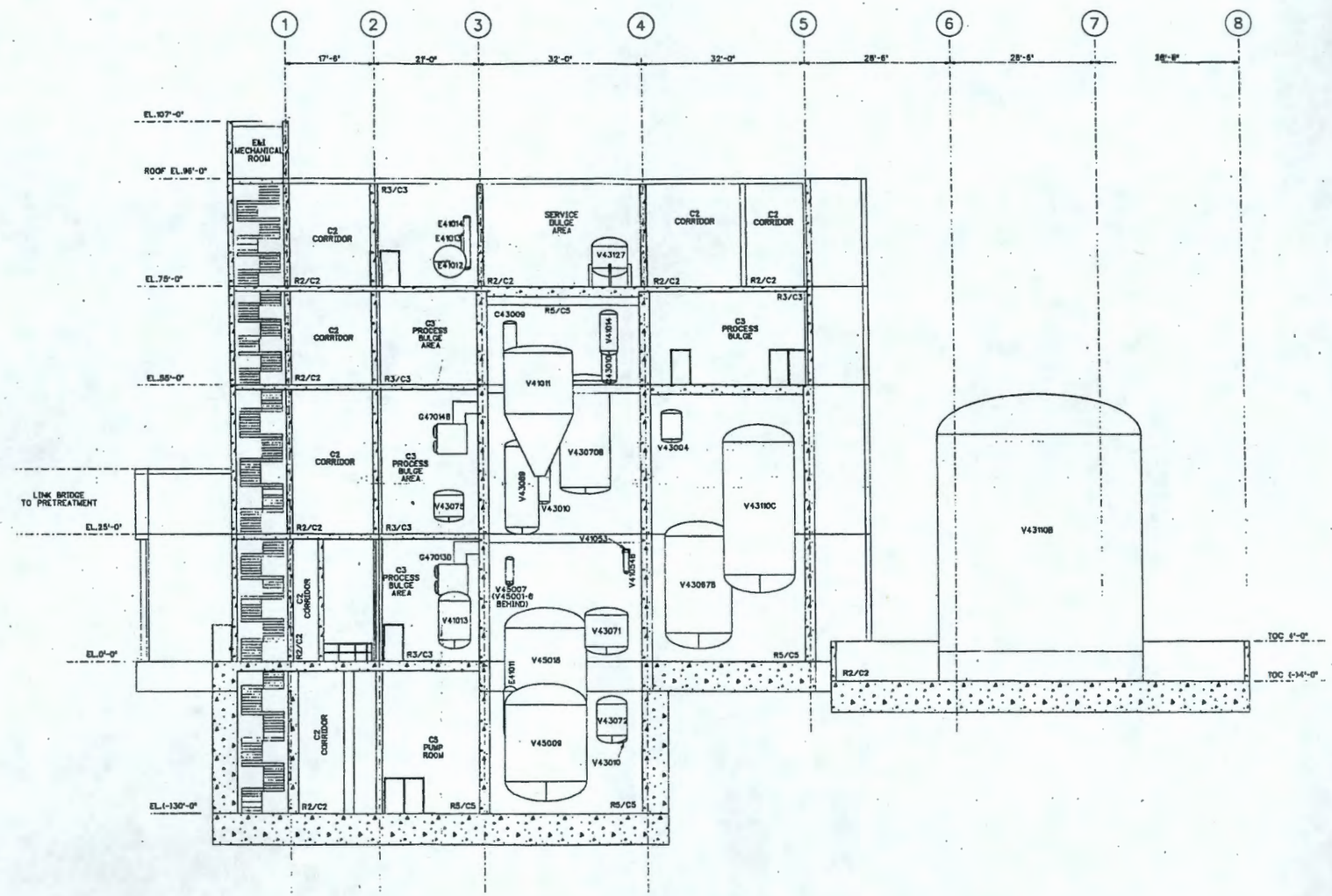
LAW PRETREATMENT PLANT
GENERAL ARRANGEMENT
SECTION D

SCALE 1/4" = 1'-0"
DWG No. DWG- W375LP-PL00010
REV A

D SIZE : 44x34

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375 LP-PL00011 SCALE RULES



SECTION E
LOOKING NORTH PL00001 THRU PL00008 AND PL00012

NOTES:

1. FOR GENERAL NOTES SEE DWG-W375LP-PL00001.

PRELIMINARY

REV	DESCRIPTION	CRAWN	CHKD	APVD	DATE
A	ISSUED FOR 24 APRIL 00 BASELINE				

REVISION HISTORY

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

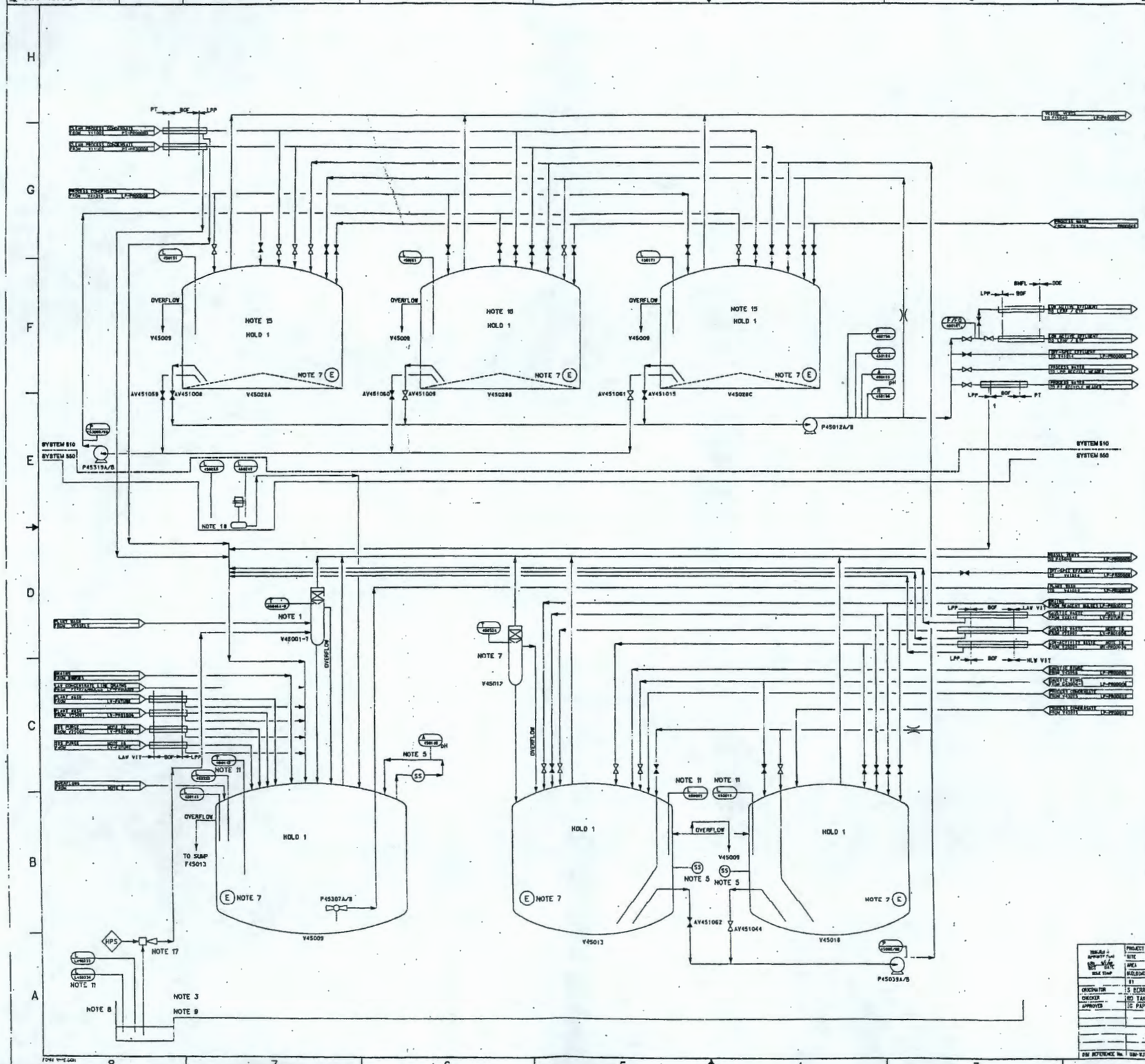
LAW PRETREATMENT PLANT
GENERAL ARRANGEMENT
SECTION E

SCALE: 1/4" = 1'-0" | DWG No. DWG- W375 LP-PL00011 | REV A

E SIZE = 44x34

30 MAR 2000 4:21:31

DWG No. DWG-W375 LP-PR00002



NOTES:

(1) THERE ARE MULTIPLE CONNECTIONS TO V45001 THROUGH V45007 FROM VESSEL AND SUMP EMPTYING EJECTORS WITHIN THE LAW PRETREATMENT PLANT.

(2) VESSELS OVERFLOWING TO V45009 INCLUDE :
V430076 AND V430100 FROM SYSTEM LP-330
V41013 FROM SYSTEM LP-130
V41001A/B FROM SYSTEM LP-140
V43136 FROM SYSTEM LP-370
V43001B AND V43096 FROM SYSTEM LP-330

(3) EACH CELL WILL BE FITTED WITH A SHIELDED ACCESS PLUG TO ALLOW VISUAL OBSERVATIONS.

(4) ALL VESSELS, INCLUDING BREAKPOTS, WILL BE FITTED WITH INTERNAL WASH RING FOR DECONTAMINATION PURPOSES.

(5) SAMPLING OF VESSELS WILL UTILIZE A RFD SAMPLING SYSTEM.

(6) ONLY MAIN PROCESS CONTROL INSTRUMENTS ARE SHOWN.

(7) VESSEL V45009 EMPTYING EJECTOR SHALL DISCHARGE TO VESSEL V45013. ALL OTHER VESSEL EMPTYING EJECTORS SHALL DISCHARGE TO VESSEL V45009.

(8) CELL WILL BE LINED WITH STAINLESS STEEL AND ANY LEAKAGE INTO THE CELL WILL BE DETECTED BY LEVEL MEASUREMENT.

(9) THE STAINLESS STEEL CLAD CELL WILL BE FITTED WITH A CLADDING WASH SYSTEM FOR DECONTAMINATION PURPOSES.

(10) DELETED.

(11) REDUNDANT LEVEL MEASUREMENT PROVIDED ON ALL SUMPS AND VESSELS OVERFLOWING TO SUMPS.

(12) DELETED.

(13) DELETED.

(14) DELETED

(15) EACH VESSEL TO BE PROVIDED WITH A MANUAL SAMPLING SYSTEM.

(16) DEDICATED SPARE INTERFACILITY TRANSFER LINE WILL BE PROVIDED.

(17) SUMP EMPTYING EJECTORS SERVING SYSTEM 550 INCLUDE:

V45093 FROM SUMP F45001
V45097 FROM SUMP F45002
V45086 FROM SUMP F45003
V45087 FROM SUMP F45004
V45088 FROM SUMP F45005
V45089 FROM SUMP F45006
V45090 FROM SUMP F45007
V45091 FROM SUMP F45008
V45116 FROM FUMP F45009
V45118 FROM SUMP F45010
V45120 FROM SUMP F45011
V45122 FROM SUMP F45012
V45092 FROM SUMP F45013

(18) SUMP PUMPS SERVING SYSTEM 550 INCLUDE:

P45318 FROM SUMP F45015
P45316 FROM SUMP F45016

HOLDS:
(1) AGITATION OF V45009, V45013, V45018, V45028A/B/C/ UNDER INVESTIGATION.

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
1	REISSUED FOR 24TH APRIL 00 BASELINE (DNC DCN-W375-00-00020)				3-30-00
0	ISSUED FOR 24TH APRIL 00 BASELINE	SR	BDT	JGP	2-22-00

REVISION HISTORY

PROJECT No.	W375	
SITE	100-KP PRO	
AREA	200E	
BUILDING No.	4	
	BY	DATE
ORIGINATOR	S BERRY	2-22-00
CHECKER	BD TAKI	2-22-00
APPROVED	JG PAPP	2-22-00

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

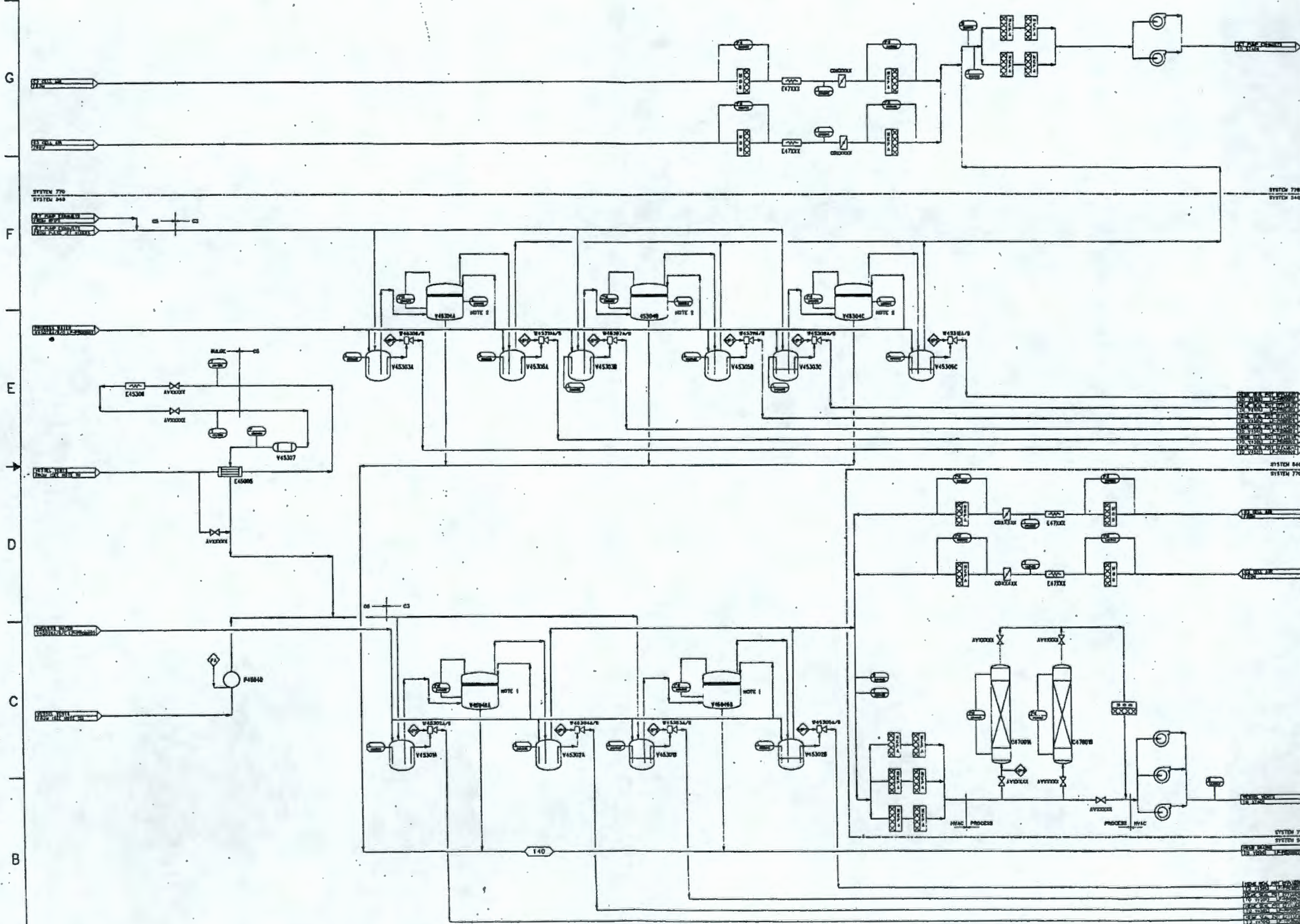
PROCESS FLOW DIAGRAM LAW PRETREATMENT EFFLUENT COLLECTION SYSTEM LP-510/550

DWG No. DWG-W375LP-PR00002 REV 1

FM REFERENCE No. DBR-W375-00-00796 REV 1

12" SIZE - 44x34

DWG No. DWG-W375 LP-PR00005



NOTES

(1) ONLY ONE VESSEL VENT HEME WILL BE OPERATED AT ONE TIME.

(2) THE RFD AND PJM STREAM HEMES ARE 50% CAPACITY UNITS. ONLY 2 OF THE 3 HEMES ARE OPERATED AT ONE TIME.

(3) DELETED.

(4) THE DIFFERENTIAL PRESSURES ACROSS THE VOC UNIT WILL VARY SLIGHTLY DURING OPERATION AND CHANGE OVER TIME. THE VORTEX AMPLIFIER IS A FLUIDIC DEVICE THAT CONTROLS PRESSURE AND FLOW, MUCH LIKE A CONTROL VALVE, BY CONTROLLING PROCESS AIR FLOW (SOURCE OUTSIDE THE CELL) TO THE VORTEX AMPLIFIER.

(5) THE VOC OXIDATION UNIT HEATER SHALL BE LOCATED IN, AND MAINTAINABLE FROM, A BULGE AREA. THE HEATING UNIT/ELEMENT WILL BE REPLACEABLE FROM THE BULGE.

(6) EACH CARBON BED IS 100% CAPACITY. ONE BED WILL BE IN SERVICE AT ONE TIME.

(7) THE CARBON BEDS ARE REPLACEABLE. METHOD OF REPLACEMENT, HANDLING OF SPENT CARBON, AND DISPOSAL TO BE DETERMINED.

(8) ALL HEMES ARE LOCATED IN A C3 AREA AND SHALL BE REMOTELY WASHABLE. A HEME IS WASHED ONLY WHEN OFF-LINE.

(9) HEME SEAL POTS ARE OPERATED BY PUTTING CLEAN HEME ON-LINE BEFORE DIRTY HEME IS ISOLATED AND WASHED. SEAL POT DESIGN SHALL PREVENT FLOW BLOCKAGE IF OPERATING SEQUENCE IS IMPROPER.

(10) EACH CELL WILL BE FITTED WITH A SHIELDED ACCESS PLUG TO ALLOW VISUAL INSPECTIONS.

(11) VESSELS ON VOC OXIDATION UNIT HEADER INCLUDE: V41052, V41011A/B, V41012, AND V41013.

(12) VESSELS ON HEME HEADER INCLUDE: V43110A/B/C, V43058, V43022, V43XXX, V41001A/B, V43067A/B, V43070A/B, V43069, V43071, V43075, V43010, V43135A/B, V43136, V43162, AND V43152 THRU V43155.

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
0	ISSUED FOR 24TH APRIL 00 BASELINE	BDJ	R.P.	AP	2-18-00

REVISION HISTORY

PROJECT No.	W375		
SITE	HANFORD		
AREA	200E		
BUILDING No.	4		
	BY	DATE	
ORIGINATOR	[signature]	2/18/00	
CHECKER	R. Pillow	2/18/00	
APPROVED	[signature]	2-18-00	

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

PROCESS FLOW DIAGRAM
LAW PRETREATMENT VESSEL VENTS
SYSTEM LP-540 / 770

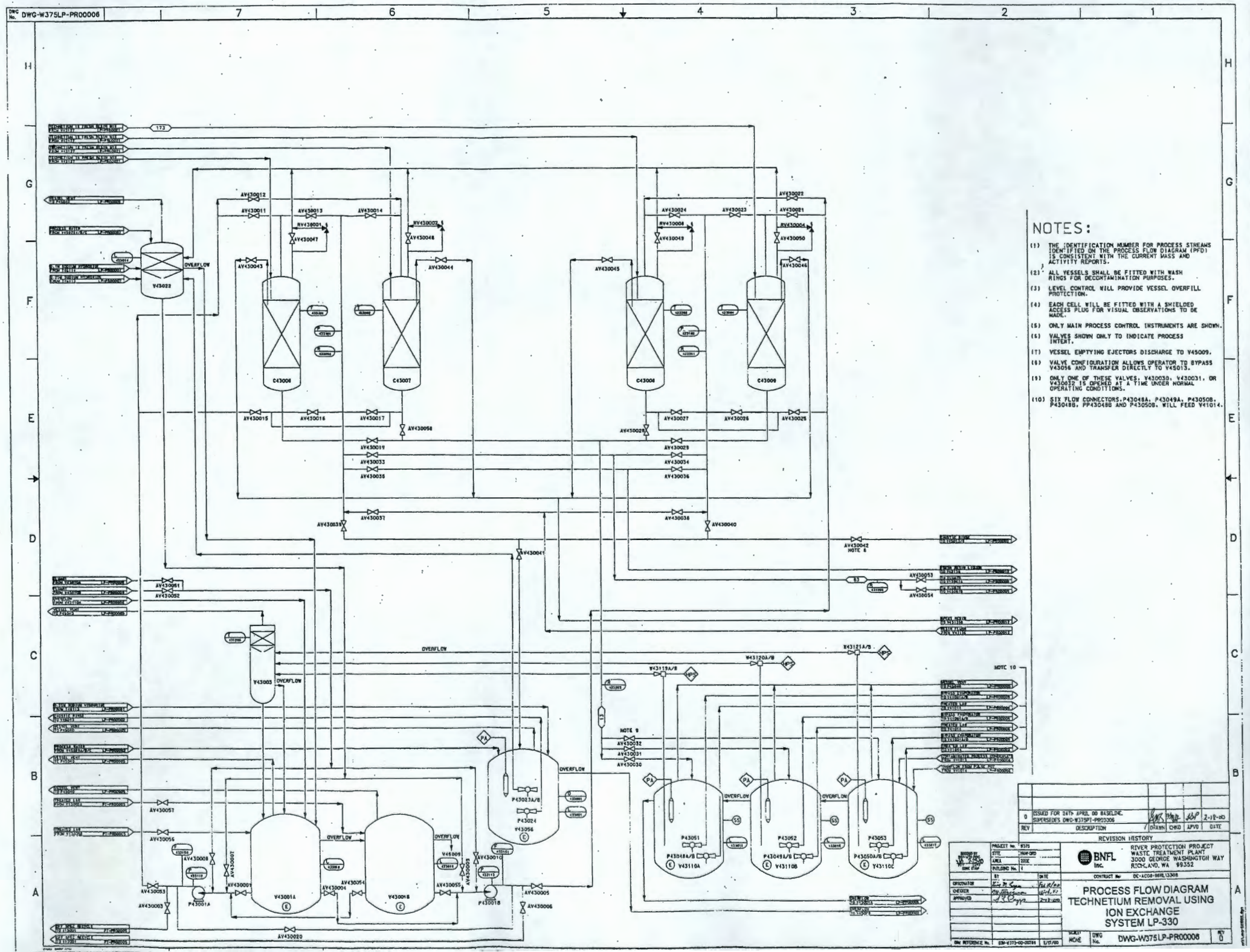
DM REFERENCE No. 016-W375-00-00720 | 12/8/00 | SCALE: NONE | DWG No. DWG-W375LP-PR00005 | REV 0

T SIZE - 44x34

18 FEB 2000 13:43:18

FORM RPPE-001

DWG No. DWG-W375LP-PR00006



NOTES:

(1) THE IDENTIFICATION NUMBER FOR PROCESS STREAMS IDENTIFIED ON THE PROCESS FLOW DIAGRAM (PFD) IS CONSISTENT WITH THE CURRENT MASS AND ACTIVITY REPORTS.

(2) ALL VESSELS SHALL BE FITTED WITH WASH RINGS FOR DECONTAMINATION PURPOSES.

(3) LEVEL CONTROL WILL PROVIDE VESSEL OVERFILL PROTECTION.

(4) EACH CELL WILL BE FITTED WITH A SHIELDED ACCESS PLUG FOR VISUAL OBSERVATIONS TO BE MADE.

(5) ONLY MAIN PROCESS CONTROL INSTRUMENTS ARE SHOWN.

(6) VALVES SHOWN ONLY TO INDICATE PROCESS INTEGRT.

(7) VESSEL EMPTYING EJECTORS DISCHARGE TO V45009.

(8) VALVE CONFIGURATION ALLOWS OPERATOR TO BYPASS V43056 AND TRANSFER DIRECTLY TO V45013.

(9) ONLY ONE OF THESE VALVES, V430030, V430031, OR V430032 IS OPENED AT A TIME UNDER NORMAL OPERATING CONDITIONS.

(10) SIX FLOW CONNECTORS, P43048A, P43049A, P43050B, P43048B, PP43048B AND P43050B, WILL FEED V41014.

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
0	ISSUED FOR 247b APRD. 00 BASELINE. SUPERSEDES DWG-W375PI-PR00006				2-18-00

REVISION HISTORY

	BY	DATE
ORIGINATOR		
CHECKER		
APPROVED		

PROJECT No. W375
SITE: HAN-DFD
AREA: 200E
BUILDING No.: 4

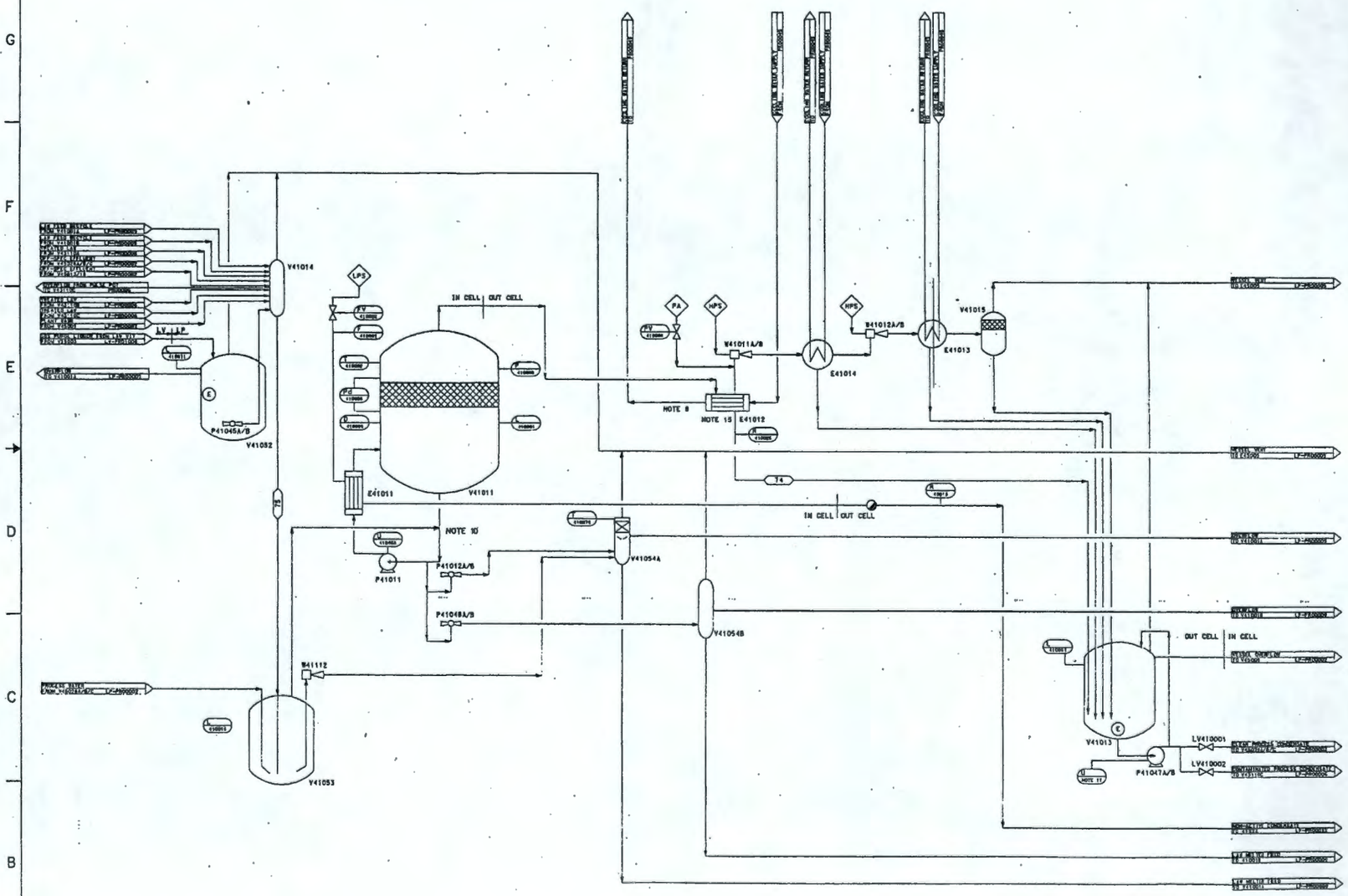
BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

PROCESS FLOW DIAGRAM TECHNETIUM REMOVAL USING ION EXCHANGE SYSTEM LP-330

SCALE: NONE
DWG No. DWG-W375LP-PR00006
REV 0

DWG No. DWG-W375 LP-PR00008



NOTES

(1)VESSEL EMPTYING EJECTORS DISCHARGE TO 45009.

(2)ALL VESSELS WILL BE FITTED WITH INTERNAL WASH RINGS FOR DECONTAMINATION PURPOSES WITH THE EXCEPTION OF THE LAW MELTER FEED EVAPORATOR LUTE POT. THIS HAS A DEDICATED PLANT WASH SOLVENT AND PROCESS WATER SUPPLY FOR DECONTAMINATION PURPOSES.

(3)SAMPLING OF VESSELS WILL UTILIZE A RFD SAMPLING SYSTEM.

(4)LEVEL CONTROL WILL PROVIDE VESSEL OVERFILL PROTECTION.

(5)PROCESS STREAM NUMBERS IDENTIFIED ON THIS PROCESS FLOW DIAGRAM (PFD) ARE CONSISTENT WITH THE CURRENT MASS AND ACTIVITY BALANCE REPORTS.

(6)ONLY MAIN PROCESS CONTROL INSTRUMENTS ARE SHOWN.

(7)VALVES SHOWN ONLY TO INDICATE PROCESS INTENT.

(8)ALL COOLING WATER RETURN LINES WILL BE MONITORED FOR FLOW AND ACTIVITY.

(9)EACH CELL WILL BE FITTED WITH A SHIELDED ACCESS PLUG FOR VISUAL OBSERVATIONS TO BE MADE.

(10)VESSEL V41011 TO BE INSTALLED ABOVE PUMP P41011 TO MEET NPSH REQUIREMENT.

(11)DELETED.

(12)DELETED.

(13)CELL WILL BE LINED WITH STAINLESS STEEL AND ANY LEAKAGE INTO THE CELL WILL BE DETECTED BY LEVEL MEASUREMENT WITHIN THE SUMP.

(14)THE STAINLESS STEEL CLAD CELL WILL BE FITTED WITH A CLADDING WASH SYSTEM FOR DECONTAMINATION.

(15)CONDENSER E41012 TO BE INSTALLED AT BAROMETRIC HEIGHT ABOVE PROCESS CONDENSATE HOLD VESSEL V41013.

(16)THE FOLLOWING VESSELS WILL HAVE A BACK-UP AIR INLET LINE TO PURGE THE VESSEL VAPOR SPACE:

V41013
V41052

(17)U41058A CONTROLS PUMP P41047A
U41059A CONTROLS PUMP P41047B

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
0	ISSUED FOR 24TH APRIL 00 BASELINE	TJ	[illegible]	[illegible]	2-18-00

REVISION HISTORY

PROJECT No.	9375	
SITE	HANFORD	
AREA	200E	
BUILDING No.	4	
ORIGINATOR	[illegible]	2-18-00
CHECKER	[illegible]	2/18/00
APPROVED	[illegible]	2-18-00

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No DE-AC06-96RL13308

PROCESS FLOW DIAGRAM LAW MELTER FEED EVAPORATION SYSTEM LP-130

DRN REFERENCE No. DRA-W375-00-00795 2/17/00

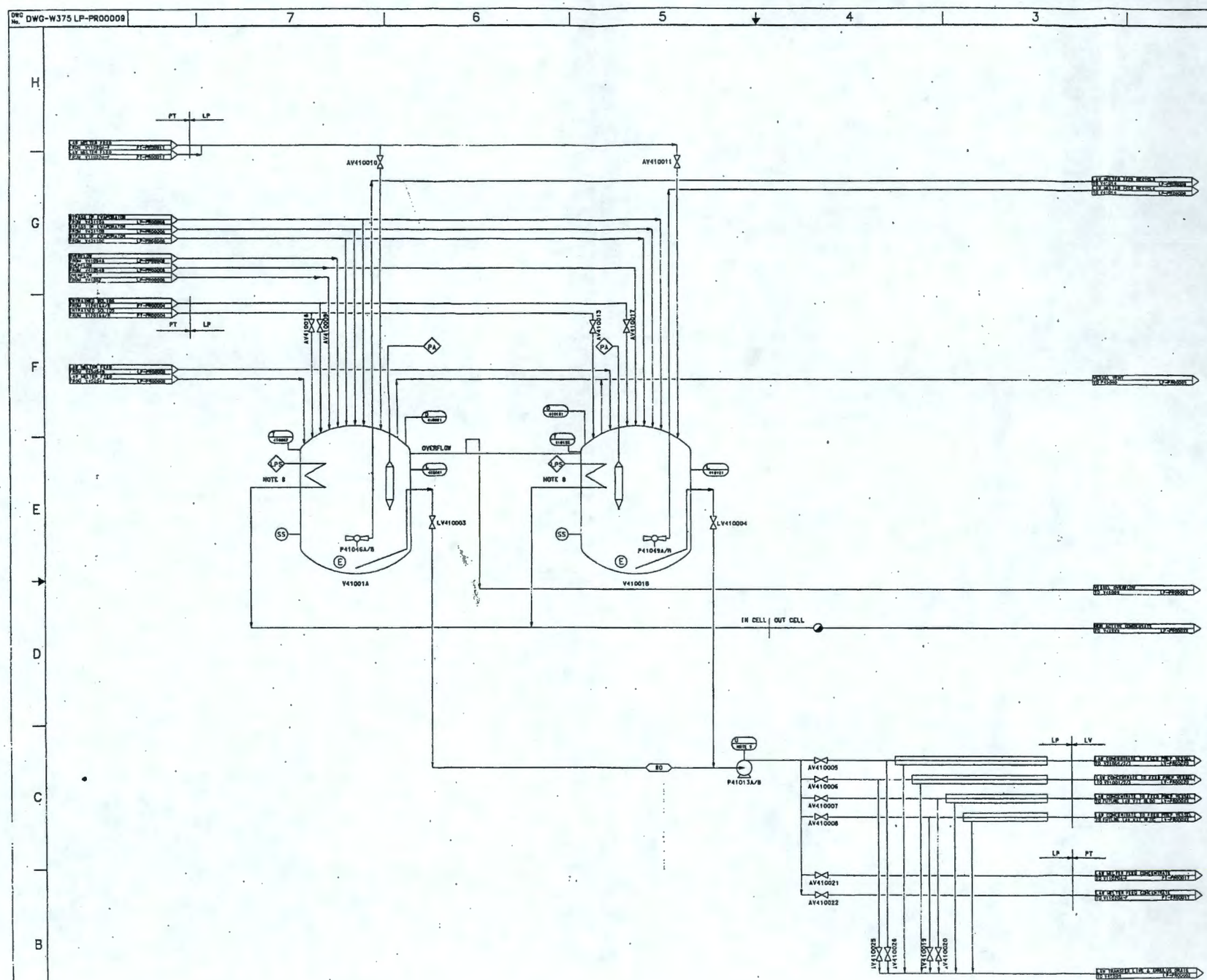
SHEET NONE

DWG No. DWG-W375LP-PR00008

REV 0

18 FEB 2000 10:48:23

DWG No. DWG-W375 LP-PR00009



NOTES

(1) VESSEL EMPTYING EJECTORS DISCHARGE TO V45009.

(2) ALL VESSELS WILL BE FITTED WITH INTERNAL WASH RINGS FOR DECONTAMINATION PURPOSES.

(3) PROCESS STREAM NUMBERS IDENTIFIED ON THIS PROCESS FLOW DIAGRAM (PFD) ARE CONSISTENT WITH THE CURRENT MASS AND ACTIVITY BALANCE REPORTS.

(4) VALVES SHOWN ONLY TO INDICATE PROCESS INTENT.

(5) CELL WILL BE LINED WITH STAINLESS STEEL AND ANY LEAKAGE INTO THE CELL WILL BE DETECTED BY LEVEL MEASUREMENT WITHIN THE SUMP.

(6) THE STAINLESS STEEL CLAD CELL WILL BE FITTED WITH A CLADDING WASH SYSTEM FOR DECONTAMINATION.

(7) VESSELS V41001A/B HAVE AN AIR INLET LINE TO PURGE THE VESSEL VAPOR SPACE.

(8) EACH VESSEL HAS AN OPERATIONAL STEAM COIL AND STANDBY.

(9) U41046A CONTROLS P41013A
U41047A CONTROLS P41013B

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
0	ISSUED FOR 24TH APRIL 00 BASELINE				2-18-00

REVISION HISTORY

PROJECT No.	W375	
SITE	HANFORD	
AREA	200E	
BUILDING No.	4	
	SIGN	DATE
ORIGINATOR		2/18/00
CHECKER		2/18/00
APPROVED		2-18-00

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

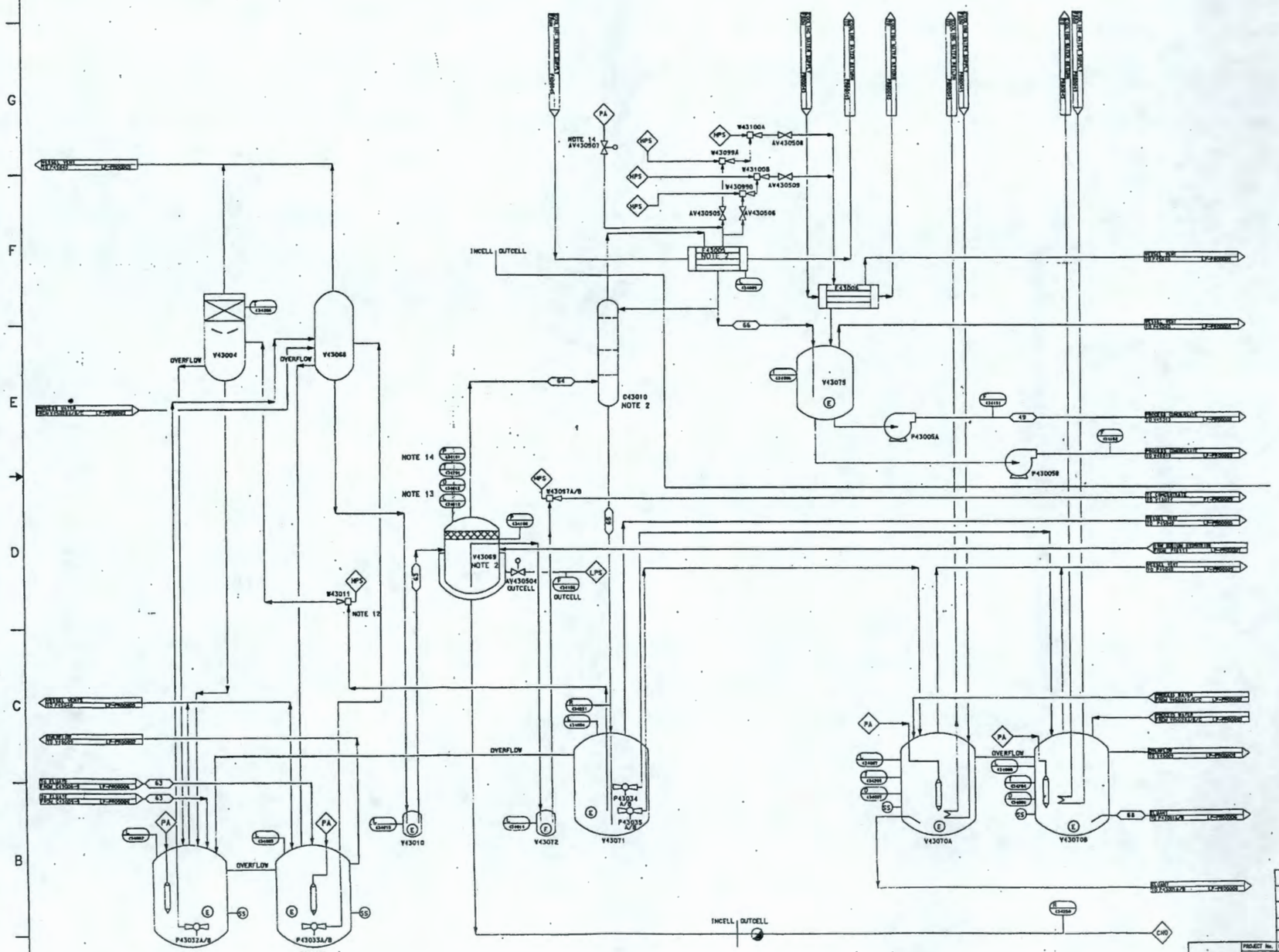
CONTRACT No: DE-AC06-96RL13308

PROCESS FLOW DIAGRAM LAW MELTER FEED LAG STORAGE SYSTEM LP-140

SCALE: NONE
DWG No. DWG-W375 LP-PR00009
REV 0

CM REFERENCE No. CM-W375-00-00782 1/17/00

DWG No. DWG-W375 LP-PR00010



NOTES

(1) THE IDENTIFICATION NUMBER FOR PROCESS STREAMS IDENTIFIED ON THE PROCESS FLOW DIAGRAM (PFD) IS CONSISTENT WITH THE CURRENT MASS AND ACTIVITY BALANCE REPORTS.

(2) EVAPORATOR VESSEL V43069, RECTIFIER COLUMN C43010 AND OVERHEADS CONDENSER E43005 ARE INSTALLED AT ONE BAROMETIC HEIGHT ABOVE VESSELS V43072, V43071 AND V43075, RESPECTIVELY.

(3) EVAPORATOR V43069 HAS NO EMPTYING EJECTOR: THE EVAPORATOR CAN BE EMPTIED VIA THE EMPTYING EJECTOR IN LUTE POT V43072. VESSEL EMPTYING EJECTORS DISCHARGE TO A BREAKPOT FEEDING V45009, EXCEPT V43072 DISCHARGES TO V43004.

(4) ALL VESSELS WILL BE FITTED WITH WASH RINGS FOR DECONTAMINATION PURPOSES.

(5) ONLY MAIN PROCESS CONTROL INSTRUMENTS ARE SHOWN

(6) VALVES SHOWN ONLY TO INDICATE PROCESS INTENT.

(7) LEVEL CONTROL WILL PROVIDE VESSEL OVERFILL PROTECTION.

(8) ALL COOLING WATER RETURN LINES WILL BE MONITORED FOR FLOW AND CONTAMINATION.

(9) CELL WILL BE LINED WITH STAINLESS STEEL AND ANY LEAKAGE INTO THE CELL WILL BE DETECTED BY LEVEL MEASUREMENT AT THE SUMP.

(10) THE STAINLESS STEEL CLAD CELL WILL BE FITTED WITH A CLADDING WASH SYSTEM FOR DECONTAMINATION PURPOSES.

(11) EACH CELL WILL BE FITTED WITH A SHIELDED ACCESS PLUG FOR VISUAL OBSERVATIONS TO BE MADE.

(12) IF RECOVERED ELUANT HAS EXCESSIVE TC CONCENTRATION IT CAN BE RECYCLED USING EJECTOR W43011 PRIOR TO ELUANT BEING TRANSFERED TO V43070A/B.

(13) KETTLE LEVEL CONTROL MODULATES RFD AT V43067A OR AT V43067B.

(14) PRESSURE (VACUUM) CONTROLLER P434101 SIGNALS CONTROL VALVE AV430507 FOR PROCESS AIR TO THE EJECTORS.

(15) THE VENT LINE FROM V43075 MUST EXTEND ABOVE THE ELEVATION OF E43006.

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
0	ISSUED FOR 24TH APRIL 00 BASELINE SUPERSEDES DWG-W375PT-PR00010				2-18-00

REVISION HISTORY

PROJECT No.	W375	
SITE	HANFORD	
AREA	200E	
BUILDING No.	6	
	BY	DATE
DRAUGHTSMAN		
CHECKED		
APPROVED		2-18-00

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

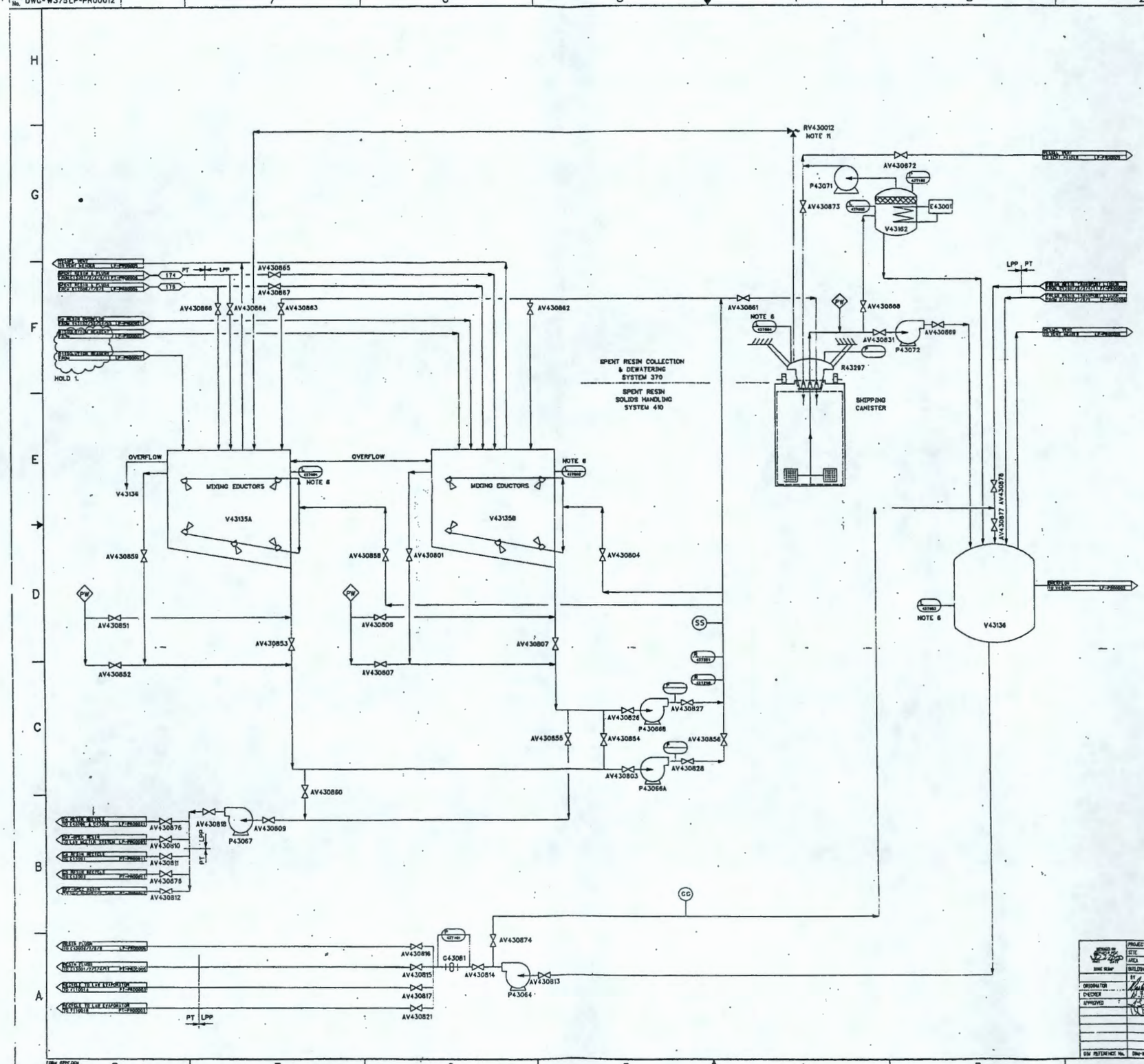
PROCESS FLOW DIAGRAM TECHNETIUM ELUANT RECOVERY SYSTEM LP-340

SCALE: NONE | DWG No. DWG-W375LP-PR00010 | REV 0

BM REFERENCE No. : 08M4771-00-00790 12/7/99

12 FEB 2000 08:12:04

DWG No. DWG-W375LP-PR00012



NOTES:

(1) THE IDENTIFICATION NUMBER FOR PROCESS STREAMS IDENTIFIED ON THE PROCESS FLOW DIAGRAM (PFD) IS CONSISTENT WITH THE CURRENT MASS AND ACTIVITY BALANCE REPORTS.

(2) ALL VESSELS SHALL BE FITTED WITH WASH RINGS FOR DECONTAMINATION PURPOSES.

(3) LINES RECEIVE OVERFLOW FROM FRESH RESIN AIR GAP CHAMBERS NOTED ON DWG-W375LP-PR00021.

(4) ONLY MAIN PROCESS CONTROL INSTRUMENTS ARE SHOWN.

(5) VALVES SHOWN ONLY TO INDICATE PROCESS INTENT.

(6) LEVEL CONTROL WILL PROVIDE LEVEL OVERFILL PROTECTION. THE LEVEL INDICATOR IN FILL HEAD SYSTEM R43297 IS VENDOR SUPPLIED AND IS NON-INTRUSIVE.

(7) THE STAINLESS STEEL CLAD CELL WILL BE FITTED WITH A CLADDING WASH SYSTEM FOR DECONTAMINATION PURPOSES.

(8) EACH CELL IS FITTED WITH A SHIELDED ACCESS PLUG FOR VISUAL OBSERVATIONS.

(9) FILL HEAD FITTED WITH RELIEF VALVE TO PROVIDE OVERPRESSURE PROTECTION.

HOLDS:

1. REAGENT SELECTION TO BE CONFIRMED BASED ON DEVELOPMENT PROGRAM.
2. BUILDING LAYOUT AND CELL/SUMP ARRANGEMENT TBD.

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
0	ISSUED FOR 24 APRIL 00 BASELINE SUPERSEDES DWG-W375PT-PR00012	DM	[illegible]	GO GEP	2-12-00

REVISION HISTORY

PROJECT No.	W375	
SITE	HANFORD	
AREA	200E	
BUILDING No.	1	
ORIGINATOR		2-9-00
CHECKER		2/10/00
APPROVED		2-10-00
		4/13/00

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No: DE-AC06-96RL13308

SPENT RESIN COLLECTION & DEWATERING SYSTEM LP-370

SCALE: NTS | DWG No. DWG-W375LP-PR00012 | REV 0

DWG REFERENCE No. DWG-W375-00-00007 2/17/00

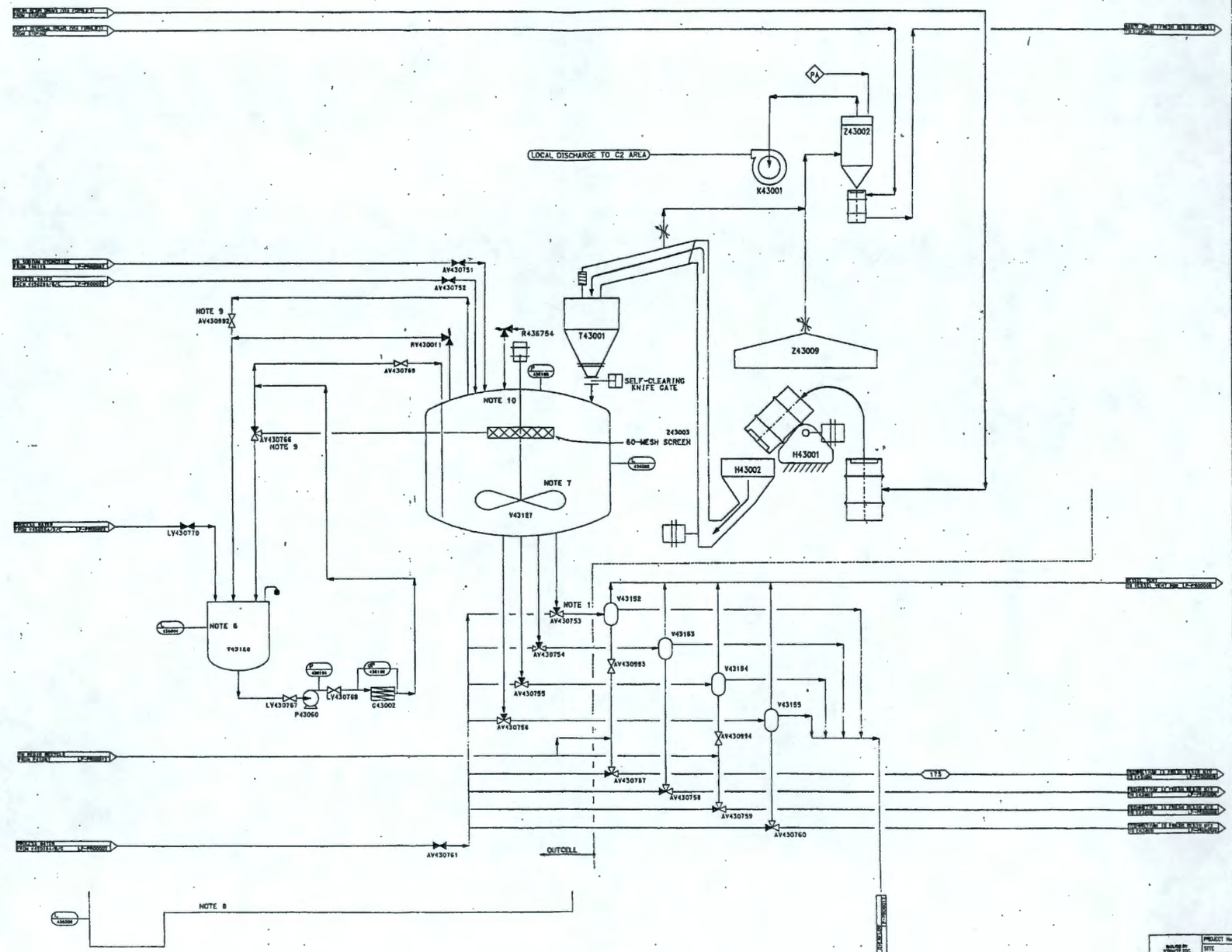
FORM PPPC.DCN

C SIZE - 44x34

16 FEB 2000 09:46:21

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375 LP-PR00021



NOTES:

(1) RESIN FLOW TO ION EXCHANGE COLUMNS IS BY GRAVITY.

(2) TECHNETIUM RESIN IS CONDITIONED WITH 5M STRENGTH CAUSTIC FOR 24 HOURS PRIOR TO BEING TRANSFERRED TO THE ION EXCHANGE COLUMN.

(3) DELETED.

(4) THE IDENTIFICATION NUMBER FOR PROCESS STREAMS IDENTIFIED ON THE PROCESS FLOW DIAGRAM (PFD) IS CONSISTENT WITH THE CURRENT MASS AND ACTIVITY BALANCE REPORTS.

(5) A HEEL OF LIQUOR IS ALWAYS MAINTAINED IN V43127 TO PROVIDE A SEAL BETWEEN THE RESIN VESSEL AND THE Tc IX COLUMNS.

(6) LEVEL CONTROL WILL PROVIDE VESSEL OVERFILL PROTECTION.

(7) AGITATOR SHALL BE SLOW-SPEED PADDLE TYPE, TO MINIMIZE ATTRITION.

(8) A BERM AND SUMP, WITH A LEVEL ALARM AND TRIP, WILL BE PROVIDED.

(9) VALVE AV430992 IS AUTOMATICALLY OPEN WHEN VALVE AV430766 IS POSITIONED TO BACKWASH SCREEN Z43003.

(10) VESSEL V43127 SHALL BE DESIGNED FOR VACUUM CONDITIONS.

REVISION HISTORY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
0	ISSUED FOR 24TH APRIL 00 BASELINE				2-18-00

PROJECT No.	W375	
SITE	HANFORD	
AREA	200E	
BUILDING No.	6	
	BY	DATE
ORIGINATOR		2/17/00
CHECKED		2/17/00
APPROVED		2-18-00

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No: DE-AC06-96RL13308

PROCESS FLOW DIAGRAM TECHNETIUM FRESH RESIN ADDITION SYSTEM LP-365

SCALE: NONE | DWG No. DWG-W375 LP-PR00021 | REV 0

DBM REFERENCE No. DBM-W375-00-00191 02/18/2000

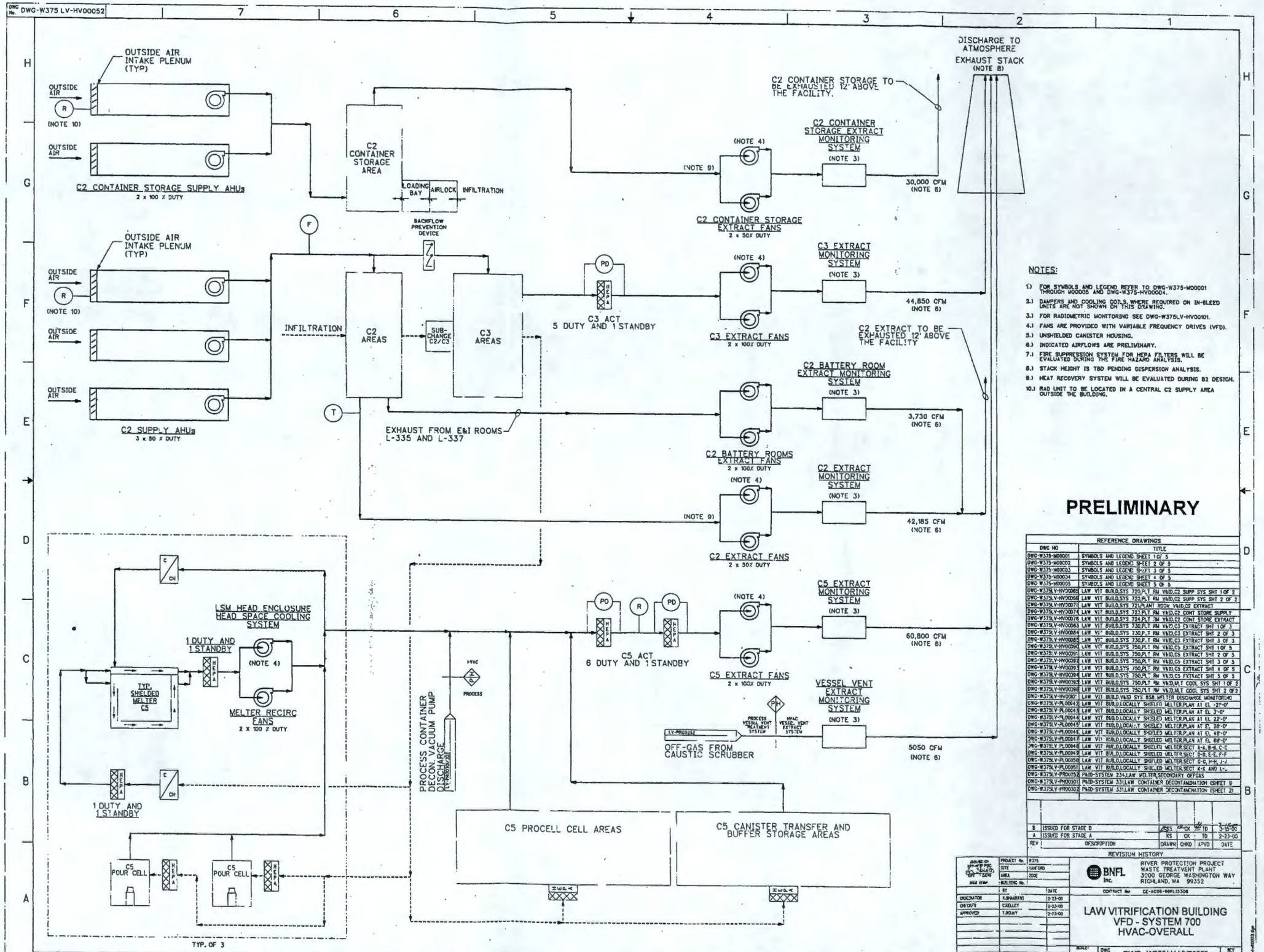
FORM APPROVED

SIZE = 44x34

16 FEB 2000 08:17:44

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375 LV-HV00052



NOTES:

1.) FOR SYMBOLS AND LEGEND REFER TO DWG-W375-M00001 THROUGH M00005 AND DWG-W375-HV00004.
2.) DAMPERS AND COOLING COILS WHERE REQUIRED ON IN-BLEED UNITS ARE NOT SHOWN ON THIS DRAWING.
3.) FOR RADIOMETRIC MONITORING SEE DWG-W375LV-HV00101.
4.) FANS ARE PROVIDED WITH VARIABLE FREQUENCY DRIVES (VFD).
5.) UNSHIELDED CANISTER HOUSING.
6.) INDICATED AIRFLOWS ARE PRELIMINARY.
7.) FIRE SUPPRESSION SYSTEM FOR HEPA FILTERS WILL BE EVALUATED DURING THE FIRE HAZARD ANALYSIS.
8.) STACK HEIGHT IS TBD PENDING DISPERSION ANALYSIS.
9.) HEAT RECOVERY SYSTEM WILL BE EVALUATED DURING B2 DESIGN.
10.) RAD UNIT TO BE LOCATED IN A CENTRAL C2 SUPPLY AREA OUTSIDE THE BUILDING.

PRELIMINARY

REFERENCE DRAWINGS

DWG NO	TITLE
DWG-W375-M00001	SYMBOLS AND LEGEND SHEET 1 OF 5
DWG-W375-M00002	SYMBOLS AND LEGEND SHEET 2 OF 5
DWG-W375-M00003	SYMBOLS AND LEGEND SHEET 3 OF 5
DWG-W375-M00004	SYMBOLS AND LEGEND SHEET 4 OF 5
DWG-W375-M00005	SYMBOLS AND LEGEND SHEET 5 OF 5
DWG-W375LV-HV00065	LAW VIT BUILD,SYS 720,PLT RM V&ID,C2 SUPP SYS SHT 1 OF 2
DWG-W375LV-HV00066	LAW VIT BUILD,SYS 720,PLT RM V&ID,C2 SUPP SYS SHT 2 OF 2
DWG-W375LV-HV00071	LAW VIT BUILD,SYS 721,PLANT ROOM V&ID,C2 EXTRACT
DWG-W375LV-HV00074	LAW VIT BUILD,SYS 723,PLT RM V&ID,C2 CONT STORE SUPPLY
DWG-W375LV-HV00076	LAW VIT BUILD,SYS 724,PLT RM V&ID,C2 CONT STORE EXTRACT
DWG-W375LV-HV00083	LAW VIT BUILD,SYS 730,PLT RM V&ID,C3 EXTRACT SHT 1 OF 3
DWG-W375LV-HV00084	LAW VIT BUILD,SYS 730,PLT RM V&ID,C3 EXTRACT SHT 2 OF 3
DWG-W375LV-HV00085	LAW VIT BUILD,SYS 730,PLT RM V&ID,C3 EXTRACT SHT 3 OF 3
DWG-W375LV-HV00090	LAW VIT BUILD,SYS 750,PLT RM V&ID,C5 EXTRACT SHT 1 OF 5
DWG-W375LV-HV00091	LAW VIT BUILD,SYS 750,PLT RM V&ID,C5 EXTRACT SHT 2 OF 5
DWG-W375LV-HV00092	LAW VIT BUILD,SYS 750,PLT RM V&ID,C5 EXTRACT SHT 3 OF 5
DWG-W375LV-HV00093	LAW VIT BUILD,SYS 750,PLT RM V&ID,C5 EXTRACT SHT 4 OF 5
DWG-W375LV-HV00094	LAW VIT BUILD,SYS 750,PLT RM V&ID,C5 EXTRACT SHT 5 OF 5
DWG-W375LV-HV00095	LAW VIT BUILD,SYS 750,PLT RM V&ID,M.T COOL SYS SHT 1 OF 2
DWG-W375LV-HV00096	LAW VIT BUILD,SYS 750,PLT RM V&ID,M.T COOL SYS SHT 2 OF 2
DWG-W375LV-HV00001	LAW VIT BUILD V&ID SYS 858,MELTER DISCHARGE MONITORING
DWG-W375LV-PL00042	LAW VIT BUILD,LOCALLY SHIELED MELTER,PLAN AT EL -27'-0"
DWG-W375LV-PL00043	LAW VIT BUILD,LOCALLY SHIELED MELTER,PLAN AT EL 3'-0"
DWG-W375LV-PL00044	LAW VIT BUILD,LOCALLY SHIELED MELTER,PLAN AT EL 22'-0"
DWG-W375LV-PL00045	LAW VIT BUILD,LOCALLY SHIELED MELTER,PLAN AT EL 28'-0"
DWG-W375LV-PL00046	LAW VIT BUILD,LOCALLY SHIELED MELTER,PLAN AT EL 48'-0"
DWG-W375LV-PL00047	LAW VIT BUILD,LOCALLY SHIELED MELTER,PLAN AT EL 88'-0"
DWG-W375LV-PL00048	LAW VIT BUILD,LOCALLY SHIELED MELTER,SECT A-A, B-B, C-C
DWG-W375LV-PL00049	LAW VIT BUILD,LOCALLY SHIELED MELTER,SECT D-D, E-E, F-F
DWG-W375LV-PL00050	LAW VIT BUILD,LOCALLY SHIELED MELTER,SECT G-G, H-H, J-J
DWG-W375LV-PL00051	LAW VIT BUILD,LOCALLY SHIELED MELTER,SECT K-K AND L-L
DWG-W375LV-PR00152	P&ID-SYSTEM 234,LAW MELTER,SECONDARY OFFGAS
DWG-W375LV-PR00301	P&ID-SYSTEM 331,LAW CONTAINER DECONTAMINATION (SHEET 1)
DWG-W375LV-PR00302	P&ID-SYSTEM 331,LAW CONTAINER DECONTAMINATION (SHEET 2)

REVISION HISTORY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
B	ISSUED FOR STAGE B	KS	CK	TD	3-15-00
A	ISSUED FOR STAGE A	KS	CK	TD	2-23-00

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

	BY	DATE
ORIGINATOR	K.SHAWRAYNI	2-23-00
CHECKED	C.KELLEY	2-23-00
APPROVED	T.DOUGLY	2-23-00

PROJECT No. 9375
SITE HANFORD
AREA 200E
BUILDING No.

LAW VITRIFICATION BUILDING
VFD - SYSTEM 700
HVAC-OVERALL

SCALE: NONE
DWG No. DWG- W375 LV-HV00052
REV B

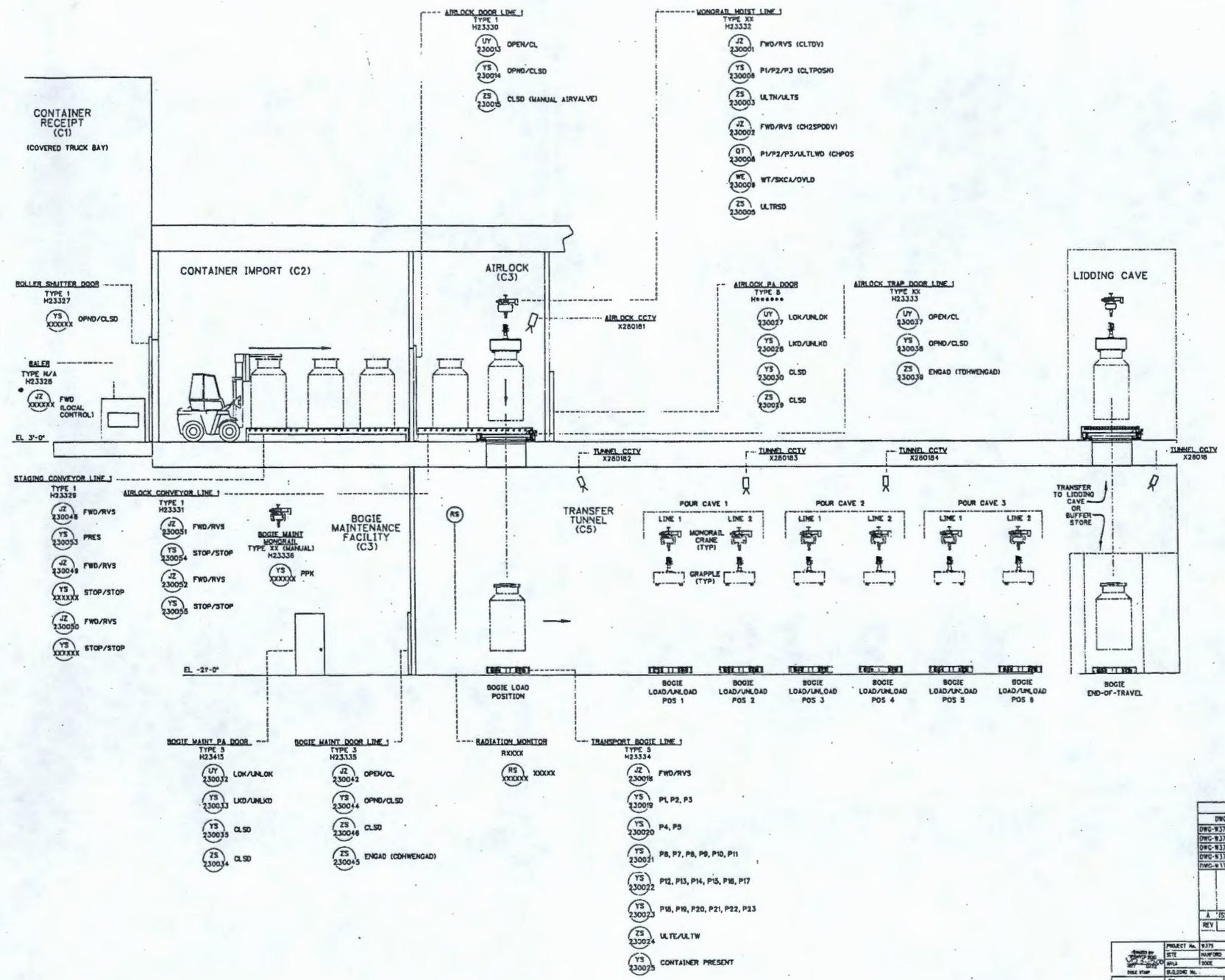
DSN REFERENCE No. DW-W375-00-01241

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375 LV-M00111

NOTES:

1. FOR SYMBOL LEGEND SEE "MECHANICAL HANDLING SYMBOLS & LEGENDS".



PRELIMINARY

REFERENCE DRAWINGS	
DWG NO	TITLE
DWG-W375LV-M00112	MHD 1 - PRODUCT CONTAINER TRANSFER LINE 2
DWG-W375LV-M00113	MHD 1 - PRODUCT CONTAINER POUR CAVE TRANSFER
DWG-W375LV-M00114	MHD 1 - PRODUCT CONTAINER BUFFER STORE
DWG-W375LV-M00131	MFD 2 - PRODUCT CONTAINER RECEIPT & TRANSFER LINE 1
DWG-W375LV-M00111	MECHANICAL HANDLING SYMBOLS & LEGENDS

REVISION HISTORY				
REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
A	ISSUED FOR CONTROL LOGIC SUPPORT				3/14/00

PROJECT No.	W375	
SITE	HANFORD	
AREA	TANK	
BUILDING No.		
CONTRACT No.	DE-AC06-96RL13336	

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

	BY	DATE
ORIGINATOR		3/14/00
CHECKER		3/14/00
APPROVED		3/14/00

LAW VITRIFICATION SYSTEM 311 MHD LVL 1 PRODUCT CONTAINER RECEIPT AND TRANSFER LINE 1

DM REFERENCE No. DM-W375-00-00556 | REV A | SCALE NONE | DWG No. DWG- W375LV-M00111 | REV A

"E" SIZE - 44x34

14 MAR 2000 12:59:47

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375LV-M00113

POUR CAVE 1 LINE 1 LOWER SHIELD DOOR
TYPE X
H23374
J2 232166 OPEN/CL
YS 232167 OPND/CLSD (SDPOSN)
ZS 232168 CLSD (SDPOSN)

POUR CAVE 1 LINE 2 LOWER SHIELD DOOR
TYPE X
H23348
J2 232169 OPEN/CL
YS 232170 OPND/CLSD (SDPOSN)
ZS 232171 CLSD (SDPOSN)

POUR CAVE 2 LINE 1 LOWER SHIELD DOOR
TYPE X
H23420
J2 232174 OPEN/CL
YS 232175 OPND/CLSD (SDPOSN)
ZS 232176 CLSD (SDPOSN)

POUR CAVE 2 LINE 2 LOWER SHIELD DOOR
TYPE X
H23421
J2 232177 OPEN/CL
YS 232178 OPND/CLSD (SDPOSN)
ZS 232179 CLSD (SDPOSN)

POUR CAVE 3 LINE 1 LOWER SHIELD DOOR
TYPE X
H23422
J2 232182 OPEN/CL
YS 232183 OPND/CLSD (SDPOSN)
ZS 232184 CLSD (SDPOSN)

POUR CAVE 3 LINE 2 LOWER SHIELD DOOR
TYPE X
H23423
J2 232185 OPEN/CL
YS 232186 OPND/CLSD (SDPOSN)
ZS 232187 CLSD (SDPOSN)

POUR CAVE 1 LINE 1 UPPER SHIELD DOORS
TYPE X
H23347
UY 232094 OPEN/CL
YS 232095 OPND/CLSD (SDPOSN)
ZS 232096 CLSD
UY 232097 OPEN/CL
YS 232098 OPND/CLSD (SDPOSN)
ZS 232099 CLSD

POUR CAVE 1 LINE 2 UPPER SHIELD DOORS
TYPE X
H23360
UY 232102 OPEN/CL
YS 232103 OPND/CLSD (SDPOSN)
ZS 232104 CLSD
UY 232105 OPEN/CL
YS 232106 OPND/CLSD (SDPOSN)
ZS 232107 CLSD

POUR CAVE 2 LINE 1 UPPER SHIELD DOORS
TYPE X
H23424
UY 232110 OPEN/CL
YS 232111 OPND/CLSD (SDPOSN)
ZS 232112 CLSD
UY 232113 OPEN/CL
YS 232114 OPND/CLSD (SDPOSN)
ZS 232115 CLSD

POUR CAVE 2 LINE 2 UPPER SHIELD DOORS
TYPE X
H23425
UY 232118 OPEN/CL
YS 232119 OPND/CLSD (SDPOSN)
ZS 232120 CLSD
UY 232121 OPEN/CL
YS 232122 OPND/CLSD (SDPOSN)
ZS 232123 CLSD

POUR CAVE 3 LINE 1 UPPER SHIELD DOORS
TYPE X
H23426
UY 232126 OPEN/CL
YS 232127 OPND/CLSD (SDPOSN)
ZS 232128 CLSD
UY 232129 OPEN/CL
YS 232130 OPND/CLSD (SDPOSN)
ZS 232131 CLSD

POUR CAVE 3 LINE 2 UPPER SHIELD DOORS
TYPE X
H23427
UY 232134 OPEN/CL
YS 232135 OPND/CLSD (SDPOSN)
ZS 232136 CLSD
UY 232137 OPEN/CL
YS 232138 OPND/CLSD (SDPOSN)
ZS 232139 CLSD

POUR CAVE-1 LINE-1 LINE-2 POUR CAVE-2 LINE-1 LINE-2 POUR CAVE-3 LINE-1 LINE-2

P3 - CONTAINER SETDOWN/PICKUP POSITION FOR POUR CAVE

P2 - CONTAINER SETDOWN/PICKUP POSITION FOR BOGIE

P1 - CONTAINER SETDOWN/PICKUP POSITION FOR BOGIE

POUR CAVE 1 LINE 1 MONORAIL HOIST
TYPE X
H23373
J2 232001 FWD/RVS (CLTDV)
YS 232007 P1/P2/P3 (CLTPOSN)
QT 232008 POSN (CLTPOSN)
ZS 232004 ULTN/ULTS
J2 232003 RSE/LWR (CH2SPDDV)
QT 232009 P1/P2/P3/ULTLWD (CHPOSN)
WE 232010 WT/SKCA/OVLD
ZS 232006 ULTRSD

POUR CAVE 1 LINE 2 MONORAIL HOIST
TYPE X
H23345
J2 232014 FWD/RVS (CLTDV)
YS 232020 P1/P2/P3 (CLTPOSN)
QT 232021 POSN (CLTPOSN)
ZS 232017 ULTN/ULTS
J2 232016 RSE/LWR (CH2SPDDV)
QT 232022 P1/P2/P3/ULTLWD (CHPOSN)
WE 232023 WT/SKCA/OVLD
ZS 232019 ULTRSD

CCTV XT280187

POUR CAVE 2 LINE 1 MONORAIL HOIST
TYPE X
H23428
J2 232027 FWD/RVS (CLTDV)
YS 232033 P1/P2/P3 (CLTPOSN)
QT 232034 POSN (CLTPOSN)
ZS 232030 ULTN/ULTS
J2 232029 RSE/LWR (CH2SPDDV)
QT 232035 P1/P2/P3/ULTLWD (CHPOSN)
WE 232036 WT/SKCA/OVLD
ZS 232032 ULTRSD

POUR CAVE 2 LINE 2 MONORAIL HOIST
TYPE X
H23429
J2 232040 FWD/RVS (CLTDV)
YS 232046 P1/P2/P3 (CLTPOSN)
QT 232047 POSN (CLTPOSN)
ZS 232043 ULTN/ULTS
J2 232042 RSE/LWR (CH2SPDDV)
QT 232048 P1/P2/P3/ULTLWD (CHPOSN)
WE 232049 WT/SKCA/OVLD
ZS 232045 ULTRSD

CCTV XT280188

POUR CAVE 3 LINE 1 MONORAIL HOIST
TYPE X
H23430
J2 232053 FWD/RVS (CLTDV)
YS 232059 P1/P2/P3 (CLTPOSN)
QT 232060 POSN (CLTPOSN)
ZS 232056 ULTN/ULTS
J2 232055 RSE/LWR (CH2SPDDV)
QT 232061 P1/P2/P3/ULTLWD (CHPOSN)
WE 232062 WT/SKCA/OVLD
ZS 232058 ULTRSD

POUR CAVE 3 LINE 2 MONORAIL HOIST
TYPE X
H23431
J2 232066 FWD/RVS (CLTDV)
YS 232072 P1/P2/P3 (CLTPOSN)
QT 232073 POSN (CLTPOSN)
ZS 232069 ULTN/ULTS
J2 232068 RSE/LWR (CH2SPDDV)
QT 232074 P1/P2/P3/ULTLWD (CHPOSN)
WE 232075 WT/SKCA/OVLD
ZS 232071 ULTRSD

CCTV XT280189

MONORAIL MAINTENANCE FACILITY

POUR CAVE NO. 1 MONORAIL MAINT. FACILITY PA SHIELDED DOOR
TYPE X
H23416
UY 232079 LOK/UNLK (PADLOK)
YS 232080 LKD/UNLKD (PADLOK)
YS 232082 OPND/CLSD
ZS 232081 CLSD

POUR CAVE NO. 2 MONORAIL MAINT. FACILITY PA SHIELDED DOOR
TYPE X
H23417
UY 232084 LOK/UNLK (PADLOK)
YS 232085 LKD/UNLKD (PADLOK)
YS 232087 OPND/CLSD
ZS 232086 CLSD

POUR CAVE NO. 3 MONORAIL MAINT. FACILITY PA SHIELDED DOOR
TYPE X
H23418
UY 232089 LOK/UNLK (PADLOK)
YS 232090 LKD/UNLKD (PADLOK)
YS 232092 OPND/CLSD
ZS 232091 CLSD

POUR CAVE 1 LINE 1 MONORAIL MAINT. FAC. SHIELD DOORS
TYPE X
H23375
UY 232142 OPEN/CL
YS 232143 OPND/CLSD (SDPOSN)
ZS 232144 CLSD
UY 232145 OPEN/CL
YS 232146 OPND/CLSD (SDPOSN)
ZS 232147 CLSD

POUR CAVE 1 LINE 2 MONORAIL MAINT. FAC. SHIELD DOORS
TYPE X
H23376
UY 232190 OPEN/CL
YS 232191 OPND/CLSD (SDPOSN)
ZS 232192 CLSD
UY 232193 OPEN/CL
YS 232194 OPND/CLSD (SDPOSN)
ZS 232195 CLSD

POUR CAVE 2 LINE 1 MONORAIL MAINT. FAC. SHIELD DOORS
TYPE X
H23432
UY 232150 OPEN/CL
YS 232151 OPND/CLSD (SDPOSN)
ZS 232152 CLSD
UY 232153 OPEN/CL
YS 232154 OPND/CLSD (SDPOSN)
ZS 232155 CLSD

POUR CAVE 2 LINE 2 MONORAIL MAINT. FAC. SHIELD DOORS
TYPE X
H23433
UY 232198 OPEN/CL
YS 232199 OPND/CLSD (SDPOSN)
ZS 232200 CLSD
UY 232201 OPEN/CL
YS 232202 OPND/CLSD (SDPOSN)
ZS 232203 CLSD

POUR CAVE 3 LINE 1 MONORAIL MAINT. FAC. SHIELD DOORS
TYPE X
H23434
UY 232158 OPEN/CL
YS 232159 OPND/CLSD (SDPOSN)
ZS 232160 CLSD
UY 232161 OPEN/CL
YS 232162 OPND/CLSD (SDPOSN)
ZS 232163 CLSD

POUR CAVE 3 LINE 2 MONORAIL MAINT. FAC. SHIELD DOORS
TYPE X
H23435
UY 232206 OPEN/CL
YS 232207 OPND/CLSD (SDPOSN)
ZS 232208 CLSD
UY 232209 OPEN/CL
YS 232210 OPND/CLSD (SDPOSN)
ZS 232211 CLSD

PRELIMINARY

REFERENCE DRAWINGS

DWG NO	TITLE
DWG-W375LV-M00133	MVD 2, PRODUCT CONTAINER POUR CAVE TRANSFER
DWG-W375LV-M00111	MVD 1, PRODUCT CONTAINER RECEIPT AND TRANSFER LINE 1
DWG-W375LV-M00112	MVD 1, PRODUCT CONTAINER TRANSFER LINE 2
DWG-W375SH-J00001	MECHANICAL HANDLING SYMBOLS & LEGENDS

REVISION HISTORY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
A	ISSUED FOR CONTROL LOGIC SUPPORT				3/13/00

PROJECT No. W375
SITE HANFORD
AREA 200E
BUILDING No.

		DATE
DESIGNER		3/13/00
CHECKER		3/13/00
APPROVED		3/13/00

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

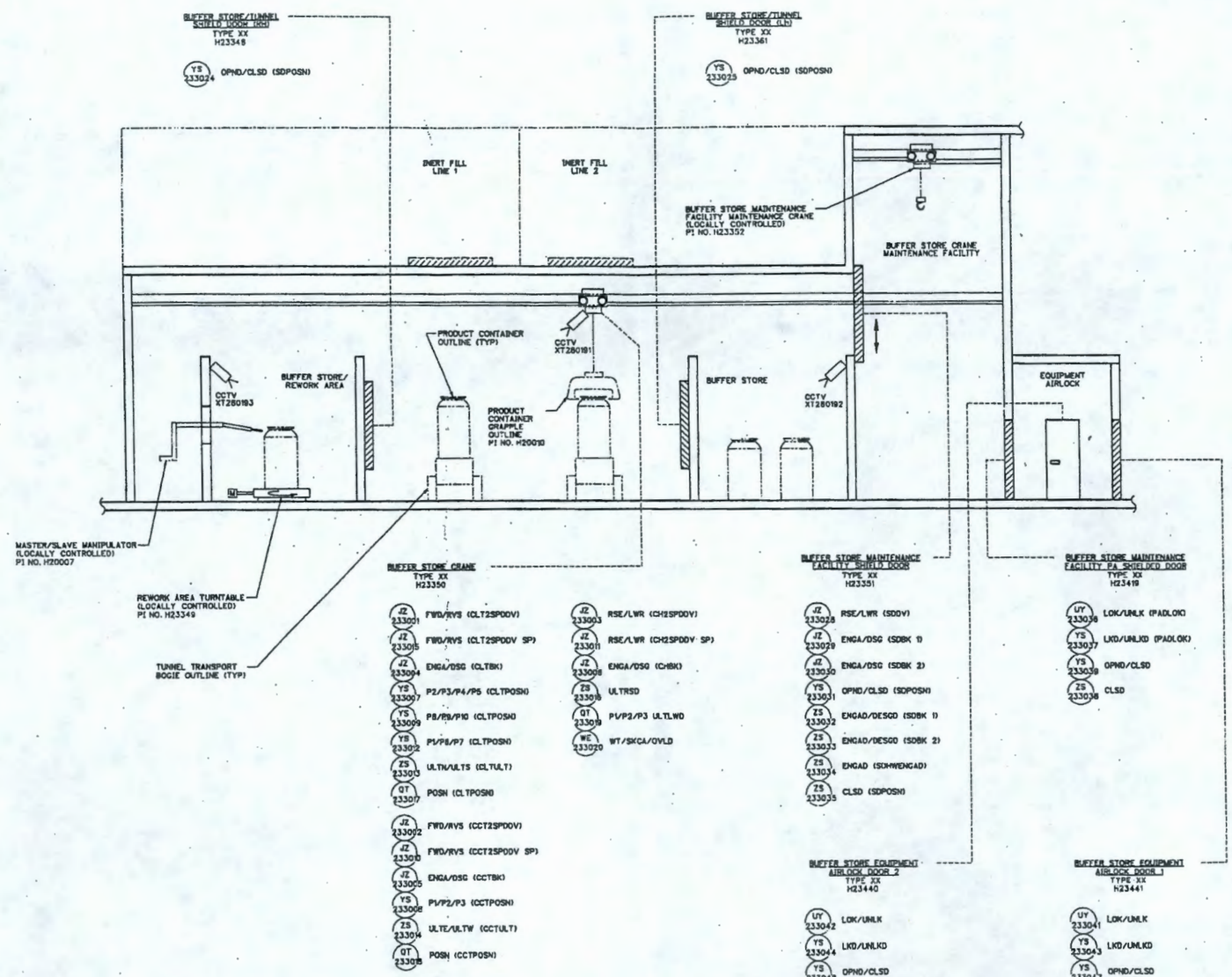
LAW VITRIFICATION SYSTEM 313
MECHANICAL HANDLING DIAGRAM
LEVEL 1
PRODUCT CONTAINER POUR CAVE
TRANSFER

SYS REFERENCE No. DWG-W375-00-00002 REV A
SCALE NONE
DWG No. DWG- W375LV-M00113
REV A
E SIZE - 44x34

13 MAR 2000 14:09:27

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375 LV-M00114



PRELIMINARY

REFERENCE DRAWINGS

DWG NO	TITLE
DWG-W375LV-M00134	MFD 2, PRODUCT CONTAINER BUFFER STORE
DWG-W375LV-M00111	MFD 1, PRODUCT CONTAINER RECEIPT AND TRANSFER LINE 1
DWG-W375LV-M00112	MFD 1, PRODUCT CONTAINER TRANSFER LINE 2
DWG-W375SH-J00001	MECHANICAL HANDLING SYMBOLS AND LEGENDS, SHEET 1 OF 8
DWG-W375LV-M00951	MFD 1, INERT FILL & CONTAINER LID WELD
DWG-W375LV-M00952	MFD 1, INERT FILL & CONTAINER LID WELD

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
A	ISSUED FOR CONTROL LOGIC SUPPORT		D.L.		3/15/00

REVISION HISTORY

PROJECT No. 8375
SITE HANFORD
AREA 200E
BUILDING No.

	BY	DATE
ORIGINATOR		3/15/00
CHECKER		3/15/00
APPROVED		3/15/00

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

LAW VITRIFICATION SYSTEM 314
MECHANICAL HANDLING DIAGRAM
LEVEL 1
PRODUCT CONTAINER
BUFFER STORE

BSN REFERENCE No. DSN-W375-00-00983 REV A

SCALE: NONE

DWG No. DWG- W375LV-M00114 REV A

'E' SIZE - 44x34

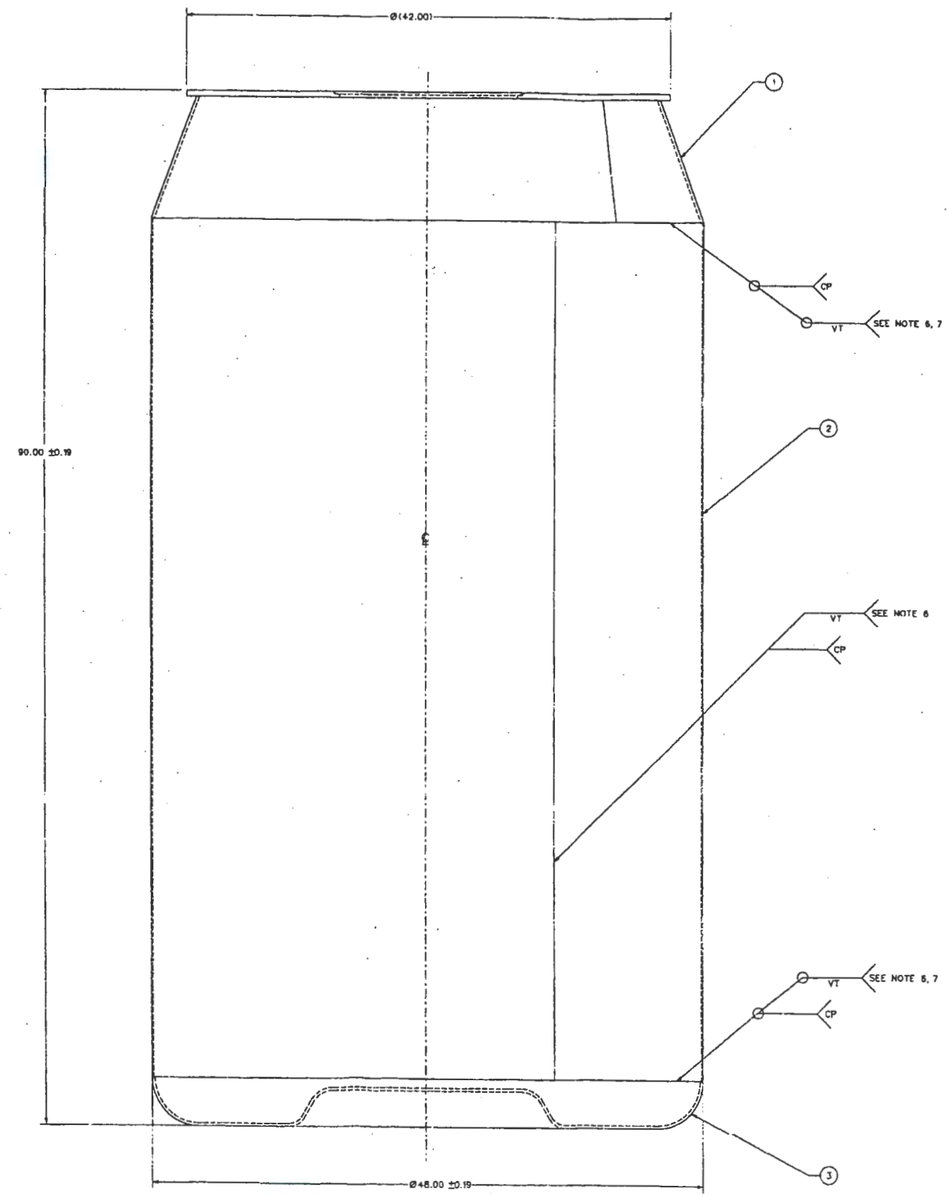
12 MAR 2000 14:43:00

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

FORM 4PPK.DSN

DWG No DWG-W375 LV-M00241

PARTS/MATERIAL LIST					
ITEM	QTY	DESCRIPTION	REFERENCE	QL	MATL
1	1	TOP HEAD	DWG-W375LV-M00242		
2	1	BODY SHELL	DWG-W375LV-M00243		
3	1	BOTTOM HEAD	DWG-W375LV-M00243		



CONTAINER WELDMENT

NOTES:

1. WELDING SHALL BE PERFORMED BY PERSONNEL QUALIFIED TO THE CURRENT REQUIREMENTS OF THE ASME BOILER & PRESSURE VESSEL CODE, SECTION IX.
2. WELDING SHALL BE IN ACCORDANCE WITH THE CURRENT REQUIREMENTS OF THE ASME BOILER & PRESSURE VESSEL CODE, SECTION VIII, DIVISION 1.
3. WELDING SHALL BE DONE ACCORDING TO BUYER APPROVED PROCEDURES.
4. EXTERIOR SURFACE FINISH TO BE 63 RMS OR BETTER.
5. EACH CONTAINER SHALL HAVE A PERMANENT FIVE DIGIT ALPHA-NUMERIC LABEL, APPROXIMATELY 2 INCHES HIGH, APPLIED ON OPPOSITE SIDES OF THE NECK REGION. APPLICATION METHODS TO BE CONSIDERED SHALL INCLUDE MACHINE-GENERATED WELD-BEAD OR LASER-ETCH.
6. IF MORE THAN ONE WELD PASS IS REQUIRED, VT INSPECTION SHALL BE DOCUMENTED FOR EACH PASS.
7. MAXIMUM RADIAL MISMATCH TO BE 0.06 INCH AND TO BE EQUALLY DISTRIBUTED AROUND CIRCUMFERENCE.
8. TOP FLANGE RUN-OUT TO BE WITHIN 0.13 INCH OF BOTTOM HEAD CENTER. BASE MAY BE MACHINED UP TO 0.06 INCH TO ACHIEVE RUN-OUT REQUIREMENT.
9. TOP FLANGE AND BASE TO BE WITHIN 0.13 INCH OF PARALLEL.
10. EST WEIGHT: EMPTY - 800 LB FULL - 14000 LB
11. DIMENSIONING AND TOLERANCING PER ASME/ANSI-Y14.5M. DIMENSIONS ARE IN INCHES AND APPLY AT FINAL ACCEPTANCE.
12. WELDING AND NDE SYMBOLS PER ANSI/AWS A2.4. WELD SIZES ARE MINIMUM.
13. BREAK SHARP EDGES, REMOVE BURRS.
14. PI NO. H20021

PRELIMINARY

REFERENCE DRAWINGS	
DWG NO	TITLE
DWG-W375LV-M00242	PRODUCT CONTAINER TOP HEAD AND LID DETAILS
DWG-W375LV-M00243	PRODUCT CONTAINER BOTTOM HEAD AND BODY DETAILS
DWG-W375LV-M00240	PRODUCT CONTAINER ASSEMBLY

"THIRD ANGLE PROJECTION"

TOLERANCES	
.00	± .010
.000	± .010
FRACTION	± 1/8"
ANGLE	± 1°

REVISION HISTORY					
REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
A	ISSUED FOR LAYOUT SUPPORT	R.S.S.	G.F.L.	S.K.G.	3/16/00

PROJECT No.	W375	
SITE	HANFORD	
AREA	200E	
BUILDING No.		

	BY	DATE
ORIGINATOR	R.S.S.	3/16/00
CHECKER	G.F.L.	3/16/00
APPROVED	S.K.G.	3/16/00

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
2000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No: DE-AC06-96RL13308

LAW VITRIFICATION SYSTEM 060
DESIGN PROPOSAL DRAWING
PRODUCT CONTAINER
WELDMENT DETAILS

DW REFERENCE No. N/A | REV | SCALE: 1/4"=1" | DWG No. DWG- W375LV-M00241 | REV A

"C" SIZE - 44x34

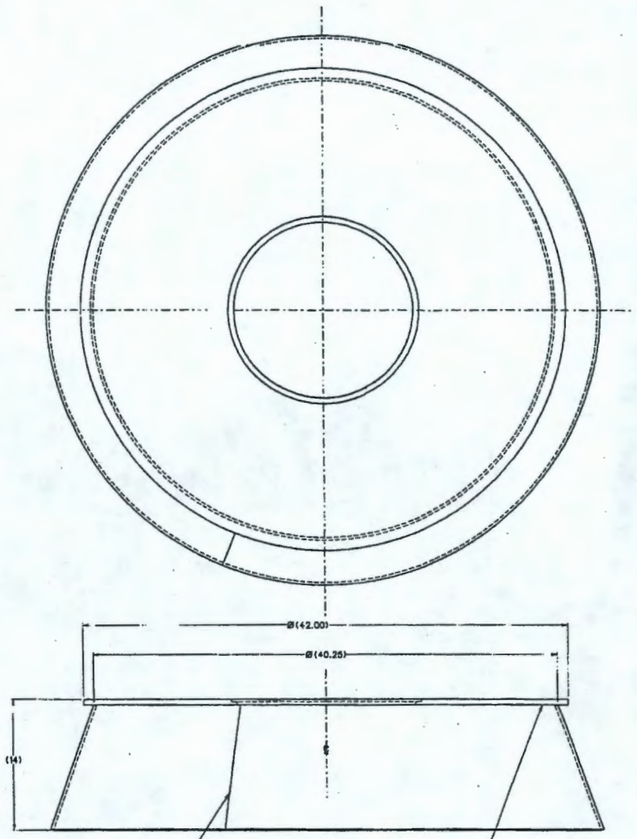
13 MAY 2000 10:11:18

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

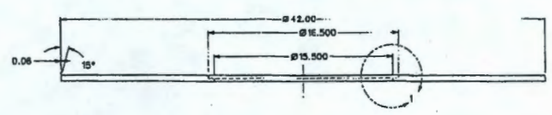
C:\BNFL\CHANGES\M00241.dgn

DWG No. DWG-W375 LV-M00242

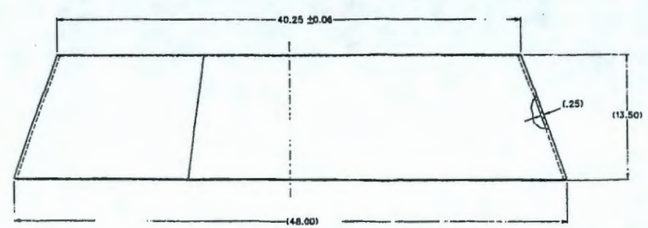
PARTS/MATERIAL LIST					
ITEM	QTY	DESCRIPTION	REFERENCE	QL	MATL
1	1	FLANGE, 1/2" PLATE	ASTM A 240 TYPE 304L SST		
2	1	NECK, 1/4" PLATE	ASTM A 240 TYPE 304L SST		
3	1	LID, 1/4" PLATE	ASTM A 240 TYPE 304L SST		
4	1	TEMPORATY LID	ASTM A 240 TYPE 304L SST		



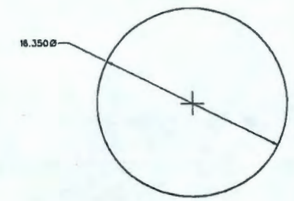
TOP HEAD



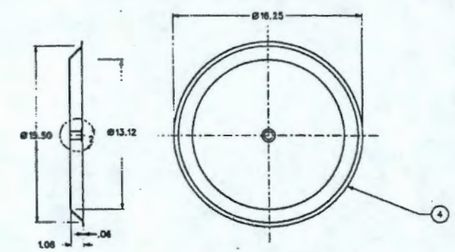
FLANGE (1)



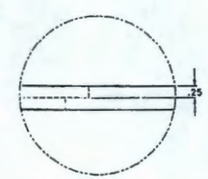
NECK (2)



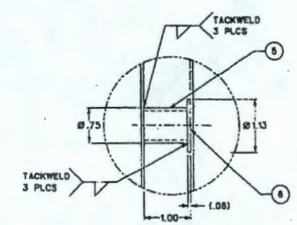
LID (3)



TEMPORARY LID (4)



DETAIL (1)
SCALE: 4X



DETAIL (2)
SCALE: 4X

NOTES:

1. FOR GENERAL NOTES AND WELDING REQUIREMENTS SEE NEXT ASSEMBLY DWG-W375LV-M00241.

2. IF MORE THAN ONE WELD PASS IS REQUIRED, VT INSPECTION SHALL BE DOCUMENTED FOR EACH PASS.

3. FLANGE TO BE CENTERED ON NECK TO WITHIN +/- 0.06 INCH.

PRELIMINARY

REFERENCE DRAWINGS	
DWG NO	TITLE
DWG-W375LV-M00240	PRODUCT CONTAINER ASSEMBLY
DWG-W375LV-M00241	PRODUCT CONTAINER WELDMENT
DWG-W375LV-M00243	PRODUCT CONTAINER BOTTOM HEAD & BODY DETAILS

THIRD ANGLE PROJECTION

TOLERANCES	
.00	± .010
.000	± .005
FRACTION	± 1/16"
ANGLE	± 1°

REV	DESCRIPTION	DRAWN, CHKD	APVD	DATE
A	ISSUED FOR LAYOUT SUPPORT	AJS, DFL	RS	5-19-00

REVISION HISTORY

PROJECT No. : W375
SITE : HANFORD
AREA : 200E
BUILDING No.

	BY	DATE
ORIGINATOR		3/15/00
CHECKER		3/15/00
APPROVED		3/15/00

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No: DE-AC09-96RL13308

LAW VITRIFICATION SYSTEM 060
DESIGN PROPOSAL DRAWING
PRODUCT CONTAINER
TOP HEAD & LID DETAILS

CIV REFERENCE No. : N/A

REV

SCALE: 1/4"=1"

'E' SIZE = 44x34

DWG No. DWG- W375LV-M00242

REV A

12 JAN 2000 13:39:43

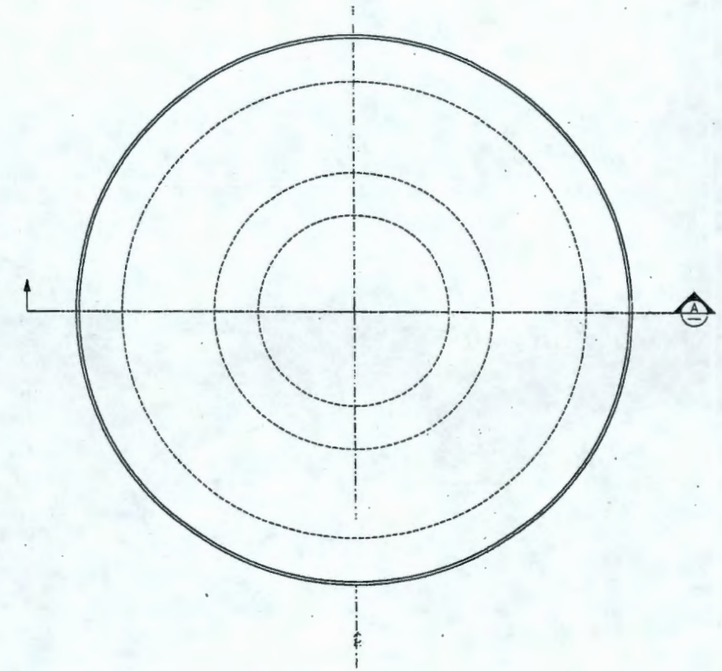
COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

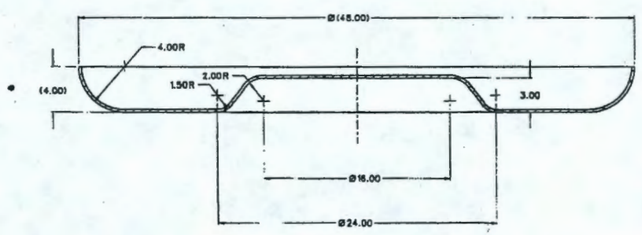
DWG No. DWG-W375 LV-M00243

PARTS/MATERIAL LIST					
ITEM	QTY	DESCRIPTION	REFERENCE	QL	MATL
1	1	BOTTOM HEAD, 1/4 PLATE	ASTM A 240 TYPE 304L SST		
2	1	BODY SHELL, SHEET, 10 GA, 2B FINISH	ASTM A 240 TYPE 304L SST		

NOTES:

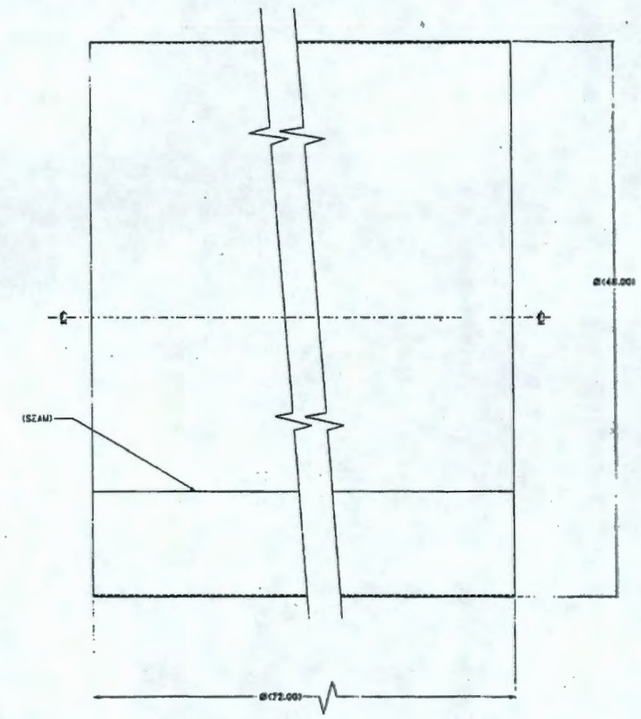
1. FOR NOTES AND NEXT ASSEMBLY SEE DWG-W375LV-M00241





SECTION A

BOTTOM HEAD 1



BODY SHELL 2

PRELIMINARY

REFERENCE DRAWINGS	
DWG NO	TITLE
DWG-W375LV-M00240	PRODUCT CONTAINER ASSEMBLY
DWG-W375LV-M00241	PRODUCT CONTAINER W/LOMENT
DWG-W375LV-M00242	PRODUCT CONTAINER TOP HEAD & LID DETAILS

THIRD ANGLE PROJECTION

TOLERANCES	
.XX	±.030
.XXX	±.010
FRACTION	± 1/16"
ANGLE	± 1°

REVISION HISTORY					
REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
A	ISSUED FOR LAYOUT SUPPORT	RJD	WTL	RG	3.13.00

PROJECT No.	W375	
SITE	HANFORD	
AREA	200E	
BLD./DWG No.		

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY.
RICHLAND, WA 99352

CONTRACT No: DE-AC06-96RL13308

	BY	DATE
ORIGINATOR	[illegible]	3/13/00
CHECKER	[illegible]	3/13/00
APPROVED	[illegible]	3.13.00

LAW VITRIFICATION SYSTEM 060
DESIGN PROPOSAL DRAWING
PRODUCT CONTAINER
BOTTOM HEAD & BODY DETAILS

DIN REFERENCE No.: N/A

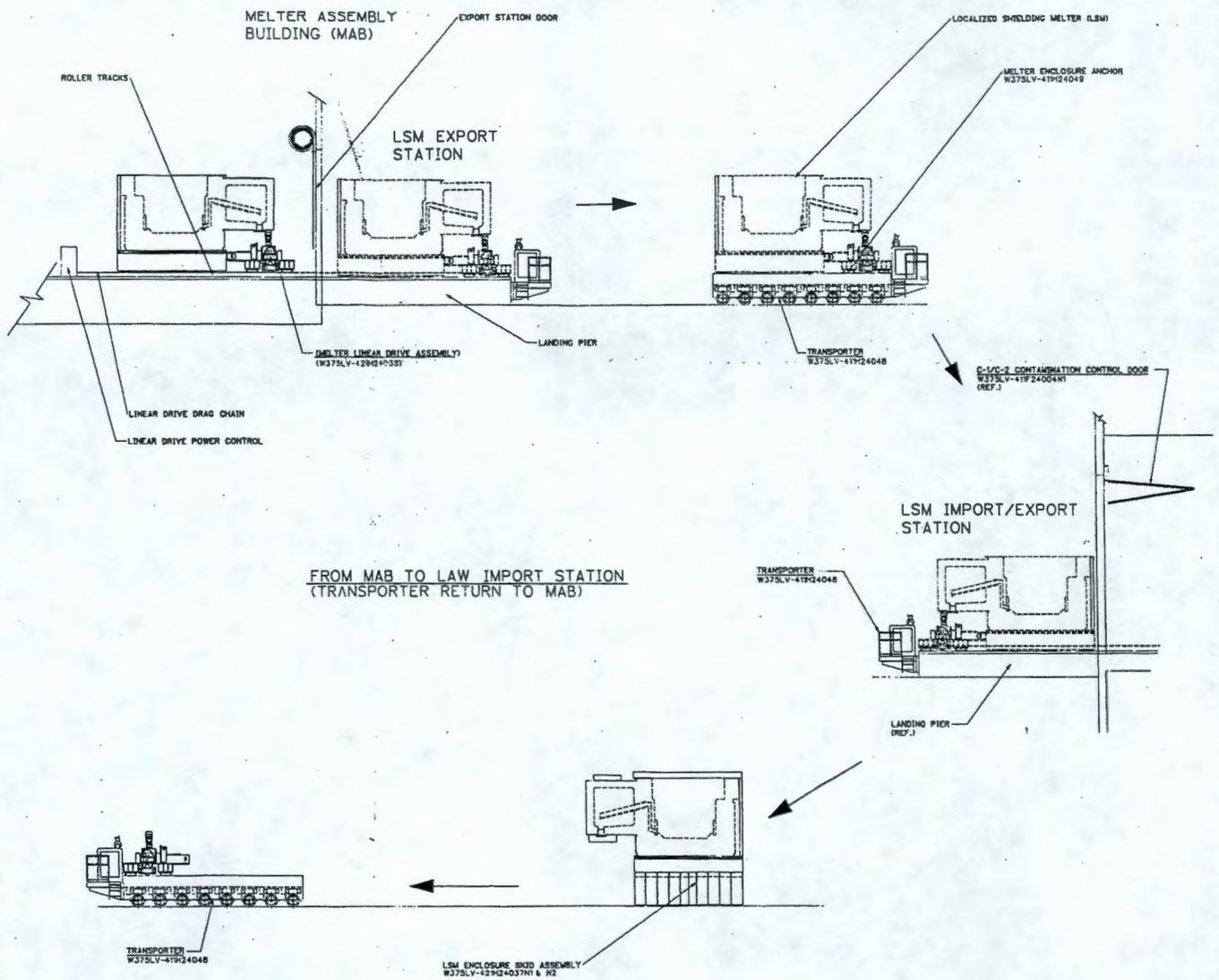
REV | SCALE 1/4"=1" | DWG No. DWG- W375 LV-M00243 | REV A

12" SIZE - 44x34

12 MAR 2000 13:35:35

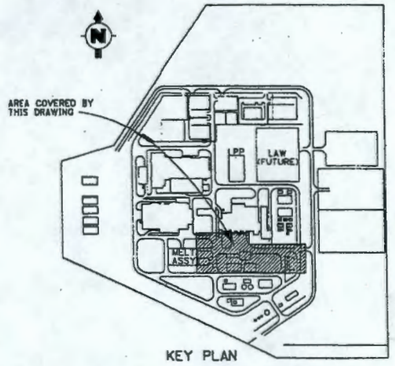
COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375LV-M00387



FROM MAB TO LAW IMPORT STATION
(TRANSPORTER RETURN TO MAB)

TRANSPORT FROM LAW EXPORT STATION TO MELTER INTERIM STORAGE AREA
(TRANSPORTER RETURN TO MAB)



KEY PLAN

PRELIMINARY

REFERENCE DRAWINGS	
DWG NO	TITLE
DWG-W375LV-M00884	LAW SYSTEM 421 MFD MELTER 1 (IMPORT/EXPORT)
DWG-W375LV-M00885	LAW SYSTEM 421 MFD MELTER 2 (IMPORT/EXPORT)
DWG-W375LV-M00886	LAW SYSTEM 421 MFD MELTER 3 (IMPORT/EXPORT)
DWG-W375LV-M00388	LAW SYSTEM 411 MFD MELTER TRANSPORT
DWG-W375LV-M00389	LAW SYSTEM 411 MFD MELTER TRANSPORT
DWG-W375LV-M00390	LAW SYSTEM 411 MFD MELTER TRANSPORT

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
A	ISSUED FOR LOGIC SUPPORT				8/16/00

REVISION HISTORY

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

PROJECT No. W375
SITE HANFORD
AREA 200E
BUILDING No.

	BY	DATE
ORIGINATOR		07/18/00
CHECKED		07/18/00
APPROVED		8/16/00

LAW VITRIFICATION SYSTEM 411 MECHANICAL HANDLING DIAGRAM LSM TRANSPORT

SCALE: 1/16"=1" | DWG No. DWG- W375LV-M00387 | REV A

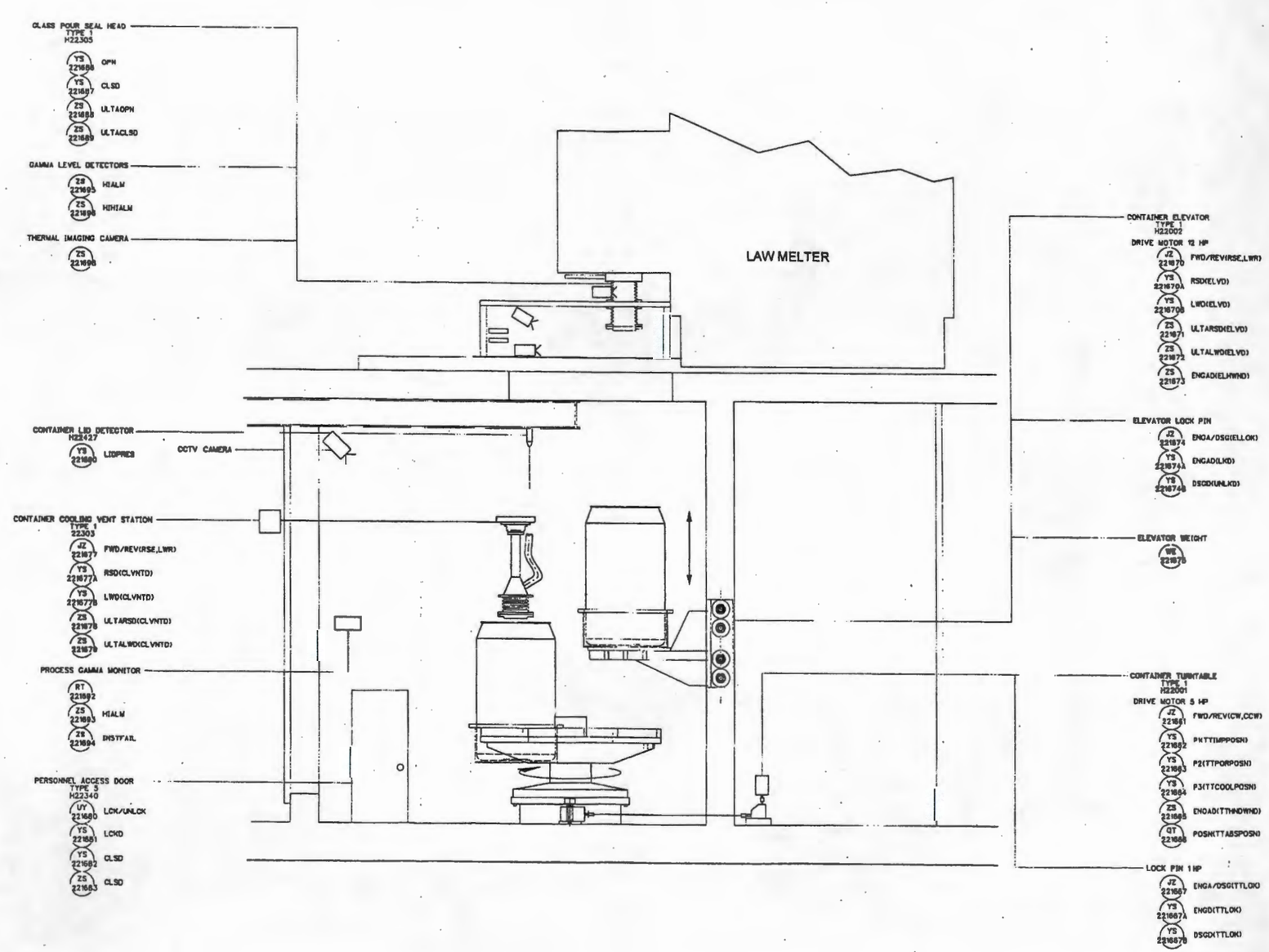
CSU REFERENCE No. 350-W375-00-20186 REV A

T-SIZE - 44x34

8 MAR 2000 08:39:23

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375 LV-M00490



PRELIMINARY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
A	ISSUED FOR CONTROL LOGIC SUPPORT				

REVISION HISTORY

PROJECT No. 9375
SITE HANFORD
AREA 200E
BUILDING No.
CONTRACT No DE-AC06-96RL13308

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

DESIGNATOR
CHECKER
APPROVED

LAW VITRIFICATION SYSTEM 221
MECH HANDLING DIAGRAM
GLASS POUR SYSTEM

SCALE NONE
DWG No. DWG- W375LV-M00490
REV 1
SHEET 7

DW REFERENCE No. DW W375-00-09494 REV 1

SIZE - 44x34

DWG No. DWG-W375 LV-M00673

MAINTENANCE CRANE

H22409

LONG TRAVEL

- JZ 225028 FWD/RVS (MCLTDV)
- JZ 225029 ENGA/DSG (MCLTBK)
- JZ 225030 ENGA/DSG (MCLTCLTC)
- ZS 225027 ULTE (MCLTULT)
- YS 225026A P1 EAST
- YS 225026B P2 WEST
- ZS 225028 ULTW (MCLTULT)

CROSS TRAVEL

- JZ 225031 FWD/RVS (MCCTDV)
- JZ 225034 ENGA/DSG (MCCTBK)
- JZ 225035 ENGA/DSG (MCCTCLTC)
- ZS 225032 ULTN (MCCTULT)
- YS 225031A P1 NORTH
- YS 225031B P2 SOUTH
- ZS 225033 ULTS (MCCTULT)

HOIST

- JZT 225036 RSE/LWR (MCHDV)
- JZ 225039 ENGA/DSG (MCHBK)
- ZS 225037 ULTRSDP
- YS 225038A P1 RSD
- YS 225038B P2 LWD
- ZS 225038 ULTLRD

CCTV ON WEST WALL

PROCESS CRANE

REELING DRUM

TYPE 1

H22412

- JZ 225064 FWD (CRDDV)
- JZ 225065 ENGA/DSG (CRDCLTC)
- ZS 225066 SKCA (CRDSKCA)
- YS 225067 ENGAD (CRDHW)
- ZS 225068 LOW (CRDPCLTC)
- JZ 225069 MEDIUM (CRDPCLTC)
- JZ 225070 HIGH (CRDPCLTC)
- YS 225071 COUNTER (CRDROT)

CROSS TRAVEL

- JZV 225051 FWD/RVS (CCTDV)
- JZ 225056 ENGA/DSG (CCTBK)
- JZ 225057 ENGA/DSG (CCTCLTC)
- ZS 225054 ULTN (CCTULT)
- YS 225051A P1 NORTH
- YS 225053B P2 SOUTH
- YS 225052 P3
- YS 225053 P4
- ZS 225055 ULTS (CCTULT)

HOIST

- JZT 225058 RSE/LWR (CHDV)
- JZ 225061 ENGA/DSG (CHBK)
- WL 225062 WT (CHWT)
- ZS 225059 ULTRSDP
- YS 225058A P1 RSD
- YS 225058B P2 LWD
- ZS 225060 ULTLWDP

PROCESS CRANE

TYPE 1

H22424

LONG TRAVEL

- JZV 225041 FWD/RVS (CLTDV)
- JZ 225049 ENGA/DSG (CLTBK)
- JZ 225050 ENGA/DSG (CLTCLTC)
- ZS 225047 ULTE (CLTULT)
- YS 225042 P1
- YS 225043 P2
- YS 225044 P3
- YS 225045 P4
- YS 225046 P5
- ZS 225048 ULTW (CLTULT)

CCB HANDLER

H22418

- JZ 225001 FWD/RVS NORTH/SOUTH (CCBCDV)
- JZ 225004 ENGA/DSG (CCBCCLTC)
- JZ 225005 FWD/RVS EAST/WEST (CCBCDV)
- JZ 225008 ENGA/DSG (CCBCCLTC)
- ZS 225002 ULTN (CCBCULT)
- ZS 225003 ULTS (CCBCULT)
- ZS 225006 ULTE (CCBCULT)
- ZS 225007 ULTW (CCBCULT)

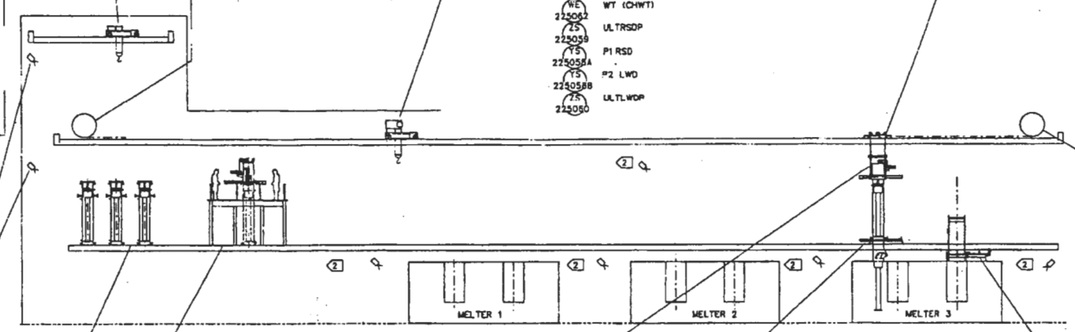
RAISE/LOWER DRIVE

- JZ 225081 RSE/LWR (CCBRLDV)
- YS 225082 RSD
- YS 225083 LWD
- ZS 225084 ULTRSDP
- ZS 225085 ULTLWDP

NOTES:

1. CCTV TO BE WALL MOUNTED PAN/TILT & ZOOM

2 CCTV ON NORTH WALL



CCB STORAGE RACK (10 POSITIONS)

CCB PREPARATION STATION

CCB HANDLER

REELING DRUM

TYPE 1

H22442

- JZ 225073 FWD (CCBHRDDV)
- JZ 225074 ENGA/DSG (CCBHRDCLTC)
- ZS 225075 SKCA (CCBHRDSKCA)
- YS 225076 ENGAD (CCBHRDHW)
- JZ 225077 LOW (CCBHRDPCLTC)
- JZ 225078 MEDIUM (CCBHRDPCLTC)
- JZ 225079 HIGH (CCBHRDPCLTC)
- YS 225080 COUNTER (CCBHRDROT)

LIFTING HEAD

H22417

RAISE/LOWER DRIVE

- JZ 225009 RSE/LWR (CCBLHRLDV)
- YS 225009A RSD (CCBLHDV)
- YS 225009B LWD (CCBLHDV)
- ZS 225010 ULTRSDP (CCBLHDV)
- ZS 225011 ULTLWD (CCBLHDV)

CCB GRAB LOCK ACTUATOR

- JZ 225017 LOK/UNLOK
- YS 225018 LKD
- YS 225019 UNLKD

WINCH RAISE/LOWER DRIVE

- JZ 225012 RSE/LWR (CCBWRLDV)
- YS 225012A RSOP
- ZS 225013 ULTRSDP
- YS 225014 TRANSPORT HEIGHT POSN
- ZTS 225015 RESOLVER LWR
- WL 225016 WT (CHWTLWDP)

GAMMA GATE

- JZ 225020 OPEN/CLOSE
- YS 225021 OPND
- YS 225022 CLOSED

MELTER GAMMA GATE

H22439

- JZ 225023 OPEN/CLOSE
- YS 225024 OPND
- YS 225025 CLOSED

DISCHARGE CHAMBER LID CHANGEOUT BOX ISOLATION GATE

H22421

- JZ 225087 OPEN/CLOSE (DCLCBIGDV)
- YS 225087A OPND
- YS 225087B CLSD
- ZS 225088 CLSD

PRELIMINARY

THIRD ANGLE PROJECTION

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
A	ISSUED FOR CONTROL LEVEL SUPPORT				3/13/00

REVISION HISTORY

PROJECT No. W375
SITE HANFORD
AREA 300C
BUILDING No.
ST DATE
ORIGINATOR 3/13/00
CHECKER 3/13/00
APPROVED 3/13/00

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000C GEORGE WASHINGTON WAY
RICHLAND, WA 99352

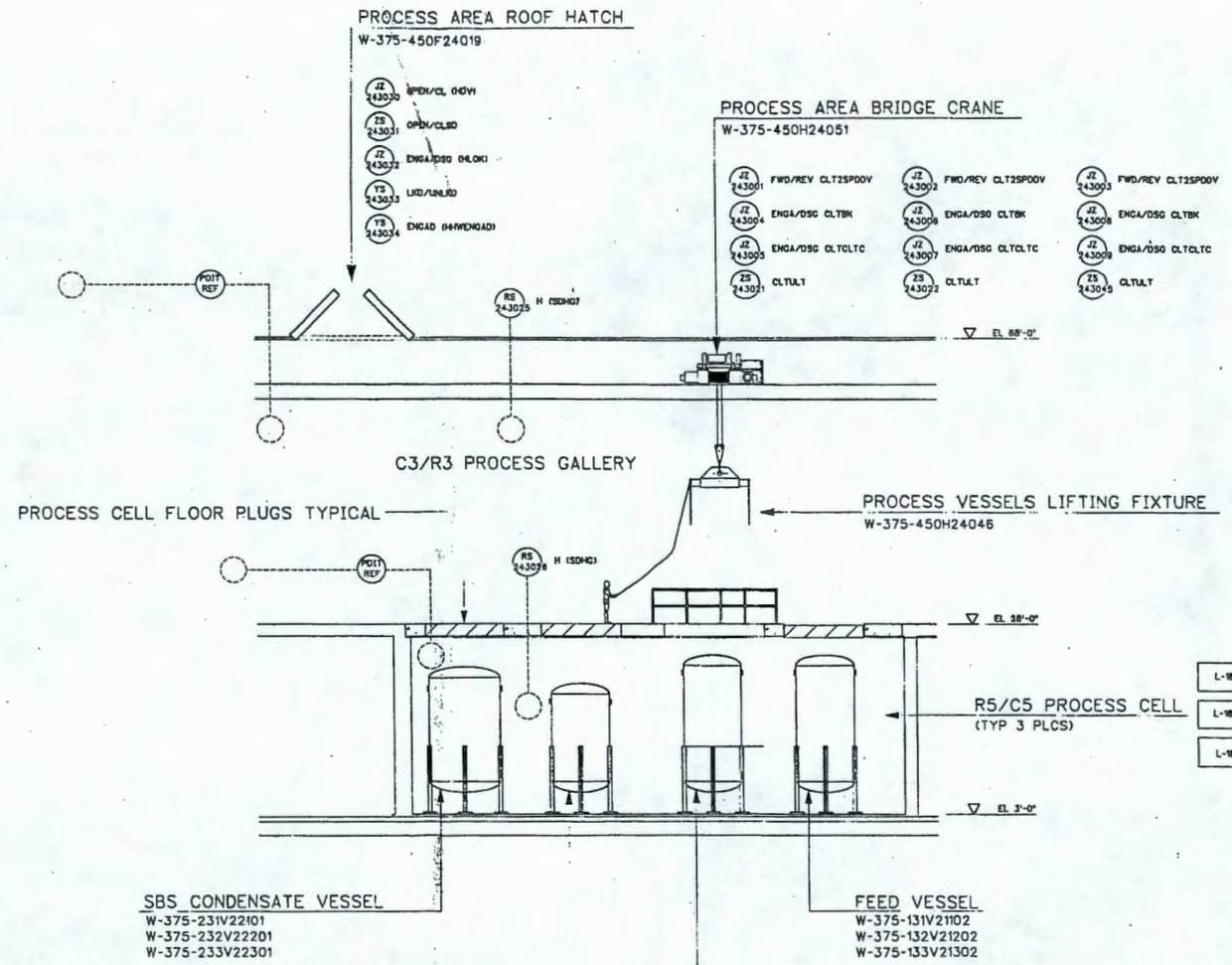
CONTRACT No. DE-AC06-98RL13308

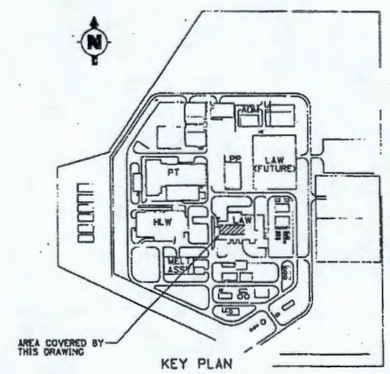
LAW VITRIFICATION
SYSTEM 244
MECHANICAL HANDLING DIAGRAM
MELTER CAVE SUPPORT

DIV REFERENCE No. DBH-W375-00-013/5 REV A SCALE: NONE DWG No. DWG-W375 LV-M00673 REV A

FORM 8140.024 · 8.5x11 · 44x34 · 12 MAR 2000 13:02:58 · COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375 LV-M00702





PRELIMINARY

REFERENCE DRAWINGS	
DWG NO	TITLE
DWG-W375SV-M00001	MECHANICAL HANDLING SYMBOLS AND LEGENDS
DWG-W375LV-M00397	LAW SYSTEM 450 MFD SPENT PROCESS VESSEL EXPORT
DWG-W375LV-M00400	LAW SYSTEM 450 MFD NEW PROCESS VESSEL IMPORT
DWG-W375LV-M00403	LAW SYS 450 MECH. SEQUENCE SPENT PROCESS VESSEL EXPORT
DWG-W375LV-M00404	LAW SYS 450 MECH. SEQUENCE NEW PROCESS VESSEL IMPORT
DWG-W375LV-M00442	LAW SYS 450 DPD PROCESS VESSELS LIFTING FIXTURE
DWG-W375LV-M00702	LAW SYS 450 MHD PROCESS VESSEL IMPORT/EXPORT
DWG-W375LV-M00703	LAW SYSTEM 450 DPD REMOVABLE FLOOR PLUGS
DWG-W375LV-PL00343	LAW VIT BLDG LOCALLY SHIELDED MELTER PLAN EL 3'-0"
DWG-W375LV-PL00045	LAW VIT BLDG LOCALLY SHIELDED MELTER PLAN EL 28'-0"
DWG-W375LV-PL00046	LAW VIT BLDG LOCALLY SHIELDED MELTER PLAN EL 49'-0"
DWG-W375LV-PL00047	LAW VIT BLDG LOCALLY SHIELDED MELTER PLAN EL 68'-0"

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
A	ISSUED FOR CONTROL LOGIC SUPPORT				3/26/00

REVISION HISTORY

PROJECT No.	W375		
SITE	HANFORD		
AREA	200E		
BUILDING No.			
	BY	DATE	
ORIGINATOR		10/5/99	
CHECKER		10/5/99	
APPROVED		3/26/00	

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

LAW VITRIFICATION
SYSTEM 450
MECHANICAL HANDLING DIAGRAM
MISCELLANEOUS SOLID WASTE
PROCESS VESSEL IMPORT/EXPORT

SCALE: NONE | DWG No. DWG- W375 LV-M00702 | REV A

DW REFERENCE No. | DW-W375-00003 | REV A

16 MAR 2000 2980-7

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375 LV-M00736

NOTES:

1. RECOVERY OF THE DECONTAMINATION CRANE USES THE LIDDING CRANE AND A MECHANICAL LOCKING SYSTEM.
2. CCTV CAMERAS, X280235 AND X280236, ARE MOUNTED ON THE DECONTAMINATION PROCESS CRANE (331-H-2-3-355)

SHIELD DOOR (VORT & HORZ)
(331-H-2-3-303)

- JZ 236110 OPEN/CL (SDHDV)
- JZ 236118 ENGA/DSG (SDHLOK)
- JZ 236111 ENGA/DSG (SDHCLTC)
- JZ 236112 ENGA/DSG (SDHBK)
- YS 236316 OPENED
- YS 236317 CLOSED
- ZS 236119 LKD/UNLKD (SDHLOK)
- YS 236118 ENG (SDHHW)
- JZ 236113 RSE/LWR (SDVDV)
- JZ 236320 ENGA/DSG (SDVLOK)
- JZ 236114 ENGA/DSG (SDVCLTC)
- JZ 236115 ENGA/DSG (SDVBK)
- YS 236318 RAISED
- YS 236319 LOWERED
- ZS 236321 LKD/UNLKD (SDVLOK)
- YS 236117 ENG (SDVHW)

SHIELD DOOR (VORT & HORZ)
(331-H-2-3-210)

- JZ 236106 OPEN/CL (SDHDV)
- JZ 236107 ENGA/DSG (SDHLOK)
- JZ 236100 ENGA/DSG (SDHCLTC)
- JZ 236101 ENGA/DSG (SDHBK)
- YS 236310 OPENED
- YS 236311 CLOSED
- ZS 236108 LKD/UNLKD (SDHLOK)
- YS 236105 ENG (SDHHW)
- JZ 236102 RSE/LWR (SDVDV)
- JZ 236314 ENGA/DSG (SDVLOK)
- JZ 236103 ENGA/DSG (SDVCLTC)
- JZ 236104 ENGA/DSG (SDVBK)
- YS 236312 RAISED
- YS 236313 LOWERED
- ZS 236315 LKD/UNLKD (SDVLOK)
- YS 236108 ENG (SDVHW)

PERSONAL ACCESS DR. (SHIELDED) TYPE 4
(331-H-2-3-408)

- JZ 236170 ENGA/DSG (PADLOK)
- ZS 236171 LKD/UNLKD (PADLOCK)
- YS 236172 CLOSED
- YS 236325 OPENED
- YS 236326 CLOSED

SHIELDED DOOR (HORZ)
(331-H-2-3-309)

- JZ 236000 OPEN/CL (SDDV)
- JZ 236091 ENGA/DSG (SDLOK)
- JZ 236089 ENGA/DSG (SDCLTC)
- JZ 236090 ENGA/DSG (SDBK)
- YS 236093 OPENED
- YS 236095 CLOSED
- ZS 236092 LKD/UNLKD (SDLOK)
- ZS 236094 ENGA (SDHW)

TURNTABLE BOGIE
(331-H-2-3-203)

- JZ 236121 FWD/RVS (TBDV)
- JZ 236124 ENGA/DSG (TBBK)
- JZ 236123 ENGA/DSG (TBCCTC)
- QT 236138 POSN (TBPOSN)
- ZS 236122 ULTE/ULTW (TBULT)
- YS 236137 POSN (DATUM)
- YS 236132 P1 UNDER FIXATIVE HATCH DOOR (STOP)
- YS 236134 P1 UNDER FIXATIVE HATCH DOOR (RPD)
- YS 236133 P2 UNDER STORAGE HATCH DOOR (STOP)
- YS 236135 P2 UNDER STORAGE HATCH DOOR (RPD)
- JZ 236129 CW/CCW (TBTDV)
- JZ 236126 ENG/DSG (TBTLOK)
- YS 236136 ROT (DATUM)
- YS 236128 ROT (TTBCPRES)
- YS 236131 LKD/UNLKD (TBTLOK)

GAMMA MONITOR
(R236256)

- RS 236256 H (GIMHLVL)

GAMMA MONITOR
(R236257)

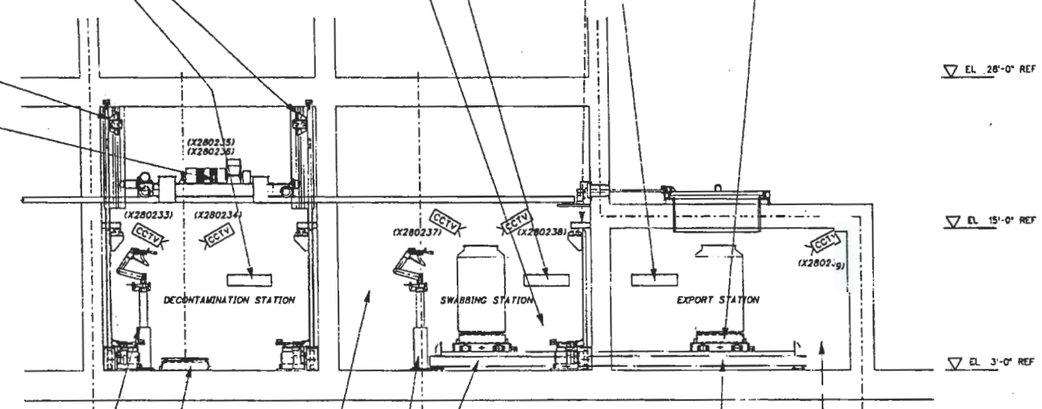
- RS 236257 H (GIMHLVL)

GAMMA MONITOR
(R236258)

- RS 236258 H (GIMHLVL)

CRANE (IN CELL) 1 2
(331-H-2-3-355)

- JZ 236143 FWD/RVS (CLTVSD)
- JZ 236146 ENGA/DSG (CLTBK)
- JZ 236147 ENGA/DSG (CLTCLTC)
- ZS 236154 ULTE/ULTW (CLTULT)
- QT 236152 POSN (CLTPOSN)
- YS 236153 POSN (DATUM)
- YS 236162 P1 DECONT TURNTABLE
- YS 236163 P2 SWABBING TURNTABLE
- YS 236161 P3 HOME
- JZ 236144 FWD/RVS (CCTVSD)
- JZ 236148 ENGA/DDSG (CCTBK)
- JZ 236149 ENG/DSG (CCTCLTC)
- ZS 236155 ULTN/ULTS (CCTULT)
- YS 236166 P1 OPERATION
- YS 236164 P2 TRANSPORT/HOME
- JZ 236145 RSE/LWR (CH2SPODV)
- JZ 236150 ENGA/DSG (CHBK)
- JZ 236151 ENGA/DSG (CHCLTC)
- WC 236165 WT (CHWT)
- ZS 236158 ULTRSD/SKCA
- ZS 236167 FLT (CHSLIND
- YS 236157 P1 TRANSPORT (CHHT)
- YS 236160 P2 DECONT TURNTABLE (CHHT)
- YS 236159 P3 TURNTABLE BOGIE (CHHT)
- YS 236158 P4 SWABBING POSITION (CHHT)



SYSTEM 321: LAW PRODUCT CONTAINER INERT FILL & LIDDING SEE DWG-W375LV-M00951

SYSTEM 340: LAW PRODUCT CONTAINER STORAGE AND EXPORT SEE DWG-W375LV-M00791

SWAB POSTING MACHINE
(331-H-2-3-212)

- JZ 236182 ENGA/DSG (SPLOK)
- YS 236183 LKD/UNLKD (SPLOK)
- YS 236330 P1 PRE-SCREENING
- YS 236331 P2 MANIPULATOR GRAB/POST

TURNTABLE BOGIE LOCK ASSEMBLY
(331-H-2-3-207)

- JZ 236335 ENG/DSG (BLOK)
- YS 236336 LKD/UNLKD (BLOK)

TURNTABLE BOGIE LOCK ASSEMBLY
(331-H-2-3-207)

- JZ 236337 ENG/DSG (BLOK)
- YS 236338 LKD/UNLKD (BLOK)

POWER MANIPULATOR
(331-H-2-3-208)

- JZ 236016 ROT (WSLEW)
- JZ 236014 ROT (WSHLDR)
- JZ 236018 ROT (WELBOW)
- JZ 236032 ROT (WFARM)
- JZ 236022 ROT (WWRIST)
- JZ 236020 EXTND (WWRIST)
- JZ 236024 OPEN/CL (WJAWS)
- YS 236029 P1/P2/P3/P4 (WTILT)
- JZ 236010 CW/CCW (WBDV)
- YS 236031 POSN (DATUM)
- YS 236028 P1 ROT STANDBY
- YS 236027 P2 ROT DECONTAMINATION
- JZ 236007 RSE/LWR (WBDV)
- JZ 236034 ENGA/DSG (WBBK)
- ZS 236008 ULTRSD/SKCA
- YS 236028 P1 CONTAINER TOP
- YS 236030 P2 CONTAINER BOTTOM

TURNTABLE
(331-H-2-3-209)

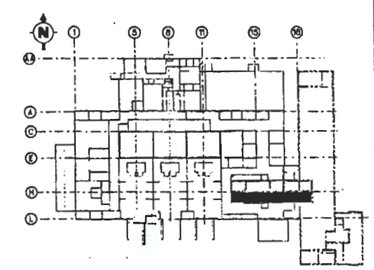
- JZ 236001 CW/CCW (TTDV)
- JZ 236002 ENG/DSG (TTLOK)
- YS 236003 POSN (DATUM)
- YS 236004 ROT (TTCPRES)
- YS 236005 LKD/UNLKD (TTLOK)

POWER MANIPULATOR
(331-H-2-3-211)

- JZ 236041 ROT (WSLEW)
- JZ 236043 ROT (WSHLDR)
- JZ 236047 ROT (WELBOW)
- JZ 236045 ROT (WFARM)
- JZ 236051 ROT (WWRIST)
- JZ 236049 EXTND (WWRIST)
- JZ 235053 OPEN/CL (WJAWS)
- YS 236057 P1/P2/P3/P4 (WTILT)
- JZ 236039 CW/CCW (WBDV)
- YS 236059 POSN (DATUM)
- YS 236055 P1 ROT STANDBY
- YS 236056 P2 ROT SWAB POSITION
- YS 236058 P3 ROT SWAB POST
- JZ 236036 RSE/LWR (WBDV)
- JZ 236060 ENGA/DSG (WBBK)
- ZS 236037 ULTRSD/SKCA
- YS 236061 P1 CONTAINER TOP
- YS 236062 P2 CONTAINER BOTTOM

BOGIE RECOVERY SYSTEM
(331-H-2-3-204)

- JZ 236248 FWD (BRDV)
- JZ 236250 ENGA/DSG (BRBK)
- JZ 236249 ENGA/DSG (BRCLTC)
- ZS 236252 SKCA (BRSKCA)



KEY PLAN AT EL +3'-0"

PRELIMINARY

REFERENCE DRAWINGS	
DWG NO	TITLE
DWG-W375SH-J00001	MECHANICAL HANDLING SYMBOLS AND LEGENDS
DWG-W375SH-J00002	MECHANICAL HANDLING SYMBOLS AND LEGENDS
DWG-W375SH-J00003	MECHANICAL HANDLING SYMBOLS AND LEGENDS
DWG-W375SH-J00004	MECHANICAL HANDLING SYMBOLS AND LEGENDS
DWG-W375SH-J00005	MECHANICAL HANDLING SYMBOLS AND LEGENDS
DWG-W375SH-J00006	MECHANICAL HANDLING SYMBOLS AND LEGENDS
DWG-W375SH-J00007	MECHANICAL HANDLING SYMBOLS AND LEGENDS
DWG-W375SH-J00008	MECHANICAL HANDLING SYMBOLS AND LEGENDS
SK-W375LV-J00090	SYS 331 DECONT, SWABBING & MONITORING CE&I MHD
SK-W375LV-J00132	SYS 331 DECONT, SWABBING & MONITORING CE&I MHD

REVISION HISTORY				
REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
A	ISSUED FOR CONTROL LOGIC SUPPORT	KJ		PB	5.21.03

PROJECT No. W375
HANFORD
DOE
CONTRACT No. DE-AC06-96RL13308

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

ORIGINATOR K. TETCHAM
CHECKER K. JENCAL
APPROVED P. BUCKLEY

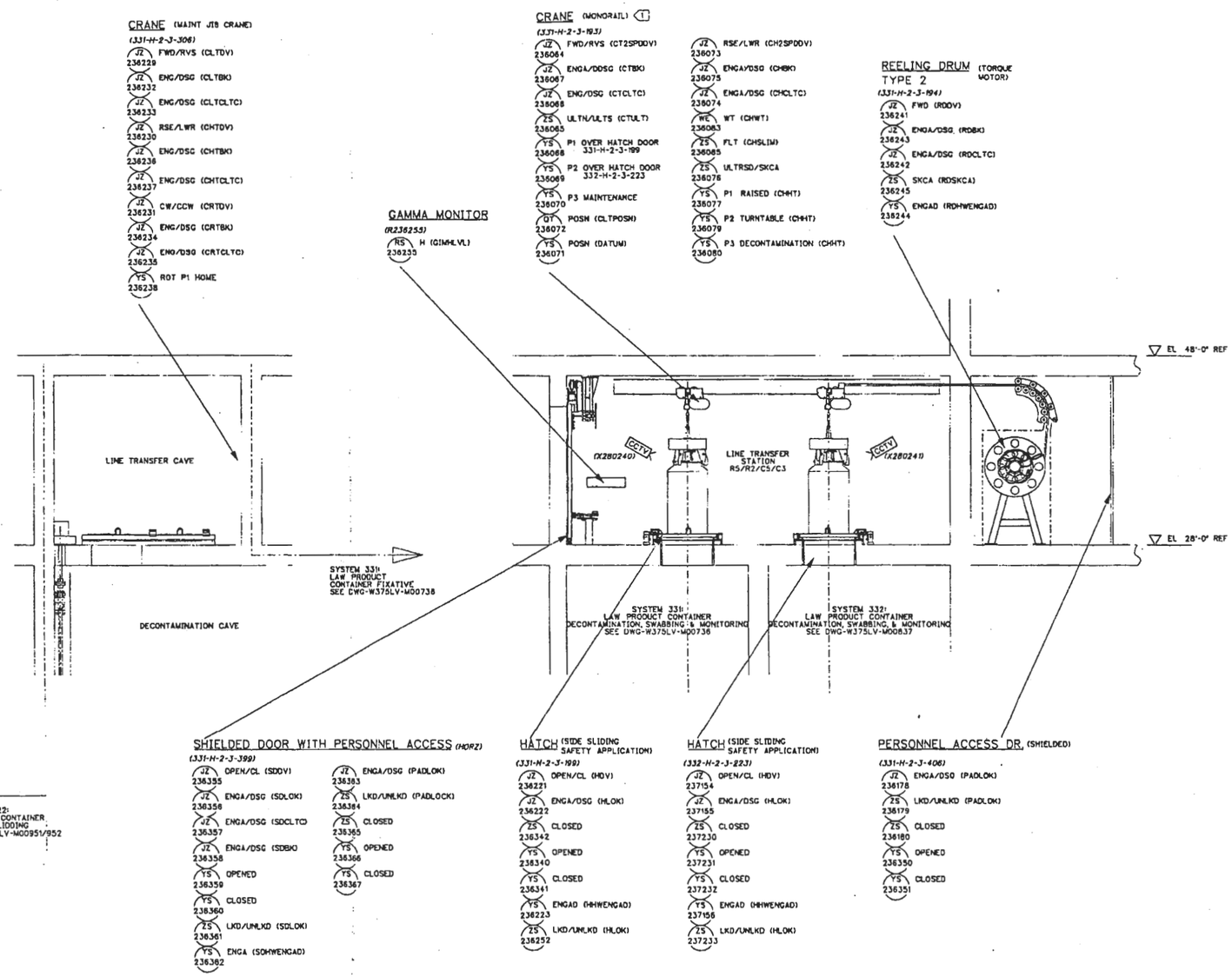
LAW VITRIFICATION SYSTEM 331 MECH. HANDLING DIAGRAM 1 DECONTAMINATION, SWABBING, & MONITORING

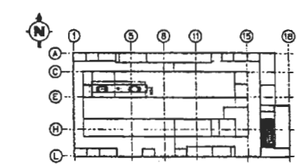
DIM REFERENCE No. DIM-W375-00-00048 REV A
SCALE: NONE
DWG No. DWG- W375LV-M00736
REV A
E SIZE - 44x34
21 MAR 2006 16:01:03
COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375 LV-M00737

NOTES:

1. CCTV CAMERA, X280242, IS MOUNTED ON THE LINE TRANSFER PROCESS CRANE (331-H-2-3-193)





KEY PLAN AT EL 28'-0"

PRELIMINARY

REFERENCE DRAWINGS	
DWG NO	TITLE
DWG-W375SH-J00001	MECHANICAL HANDLING SYMBOLS AND LEGENDS
DWG-W375SH-J00002	MECHANICAL HANDLING SYMBOLS AND LEGENDS
DWG-W375SH-J00003	MECHANICAL HANDLING SYMBOLS AND LEGENDS
DWG-W375SH-J00004	MECHANICAL HANDLING SYMBOLS AND LEGENDS
DWG-W375SH-J00005	MECHANICAL HANDLING SYMBOLS AND LEGENDS
DWG-W375SH-J00006	MECHANICAL HANDLING SYMBOLS AND LEGENDS
DWG-W375SH-J00007	MECHANICAL HANDLING SYMBOLS AND LEGENDS
DWG-W375SH-J00008	MECHANICAL HANDLING SYMBOLS AND LEGENDS

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
A	ISSUED FOR CONTROL LOGIC SUPPORT				5-10-00

REVISION HISTORY

PROJECT No.	W375	
SITE	HANFORD	
AREA	200E	
BUS. DWG No.		
	BY	DATE
ORIGINATOR		7/1/00
CHECKER		
APPROVED		5-11-00

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No: DE-AC06-96RL13308

LAW VITRIFICATION
SYSTEM 331
MECH. HANDLING DIAGRAM 1
LINE TRANSFER STATION

DIN REFERENCE No. DIN-W375-00-02546 REV A

SCALE: 1/4" = 1'

DWG No. DWG- W375LV-M00737

REV A

C SIZE - 44x34

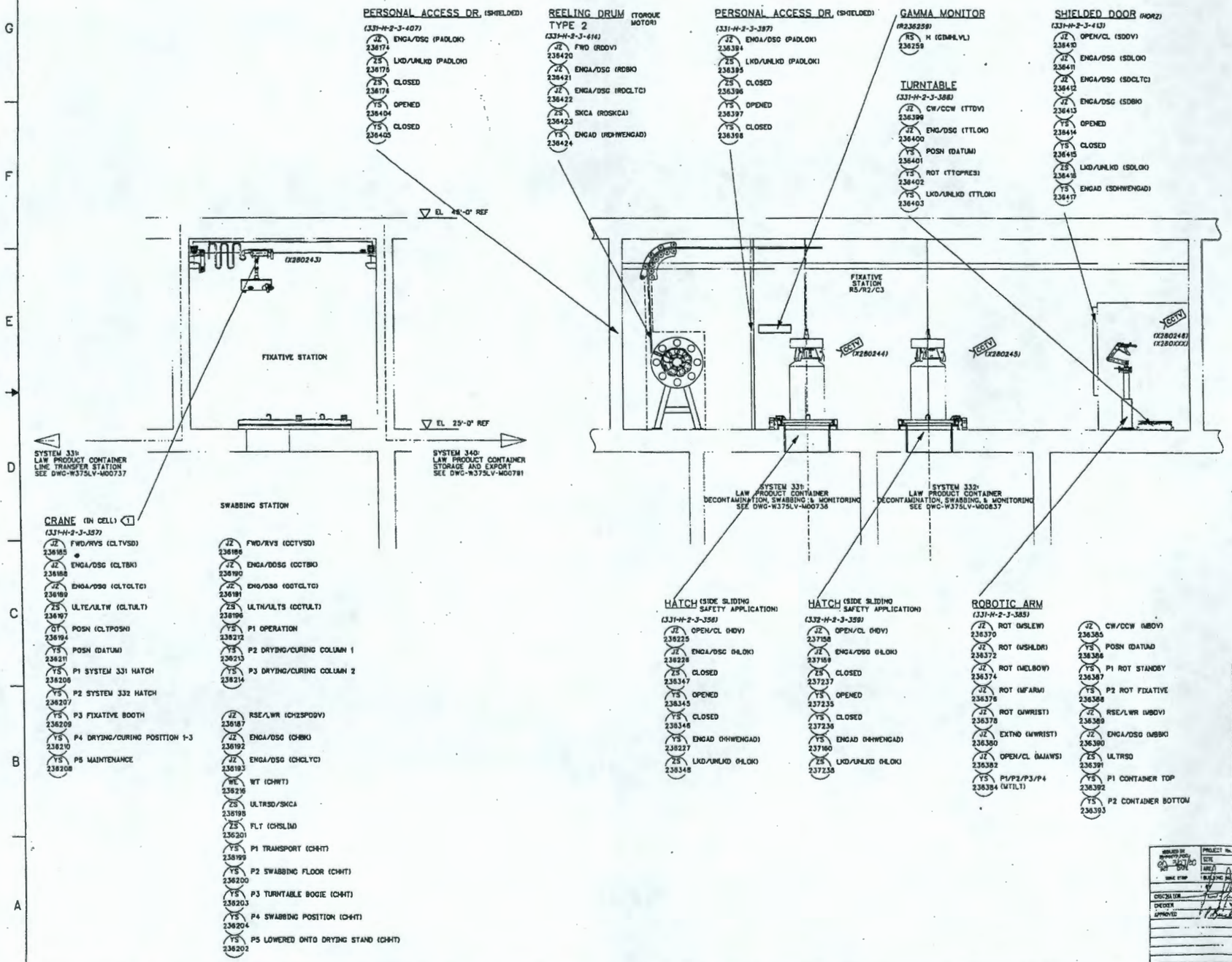
14 MAR 2006 14:17:19

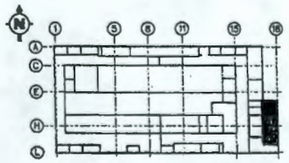
COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. CWC-W375 LV-M00738

NOTES:

1. CCTV CAMERA, X280243, IS MOUNTED ON THE FIXATIVE PROCESS CRANE (331-H-2-3-357).





KEY PLAN AT EL 28'-0"

PRELIMINARY

REFERENCE DRAWINGS	
DWG NO	TITLE
DWG-W375SH-X00001	MECHANICAL HANDLING SYMBOLS AND LEGENDS
DWG-W375SH-X00002	MECHANICAL HANDLING SYMBOLS AND LEGENDS
DWG-W375SH-X00003	MECHANICAL HANDLING SYMBOLS AND LEGENDS
DWG-W375SH-X00004	MECHANICAL HANDLING SYMBOLS AND LEGENDS
DWG-W375SH-X00005	MECHANICAL HANDLING SYMBOLS AND LEGENDS
DWG-W375SH-X00006	MECHANICAL HANDLING SYMBOLS AND LEGENDS
DWG-W375SH-X00007	MECHANICAL HANDLING SYMBOLS AND LEGENDS
DWG-W375SH-X00008	MECHANICAL HANDLING SYMBOLS AND LEGENDS

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
A	ISSUED FOR CONTROL LOGIC SUPPORT				5-18-00

REVISION HISTORY

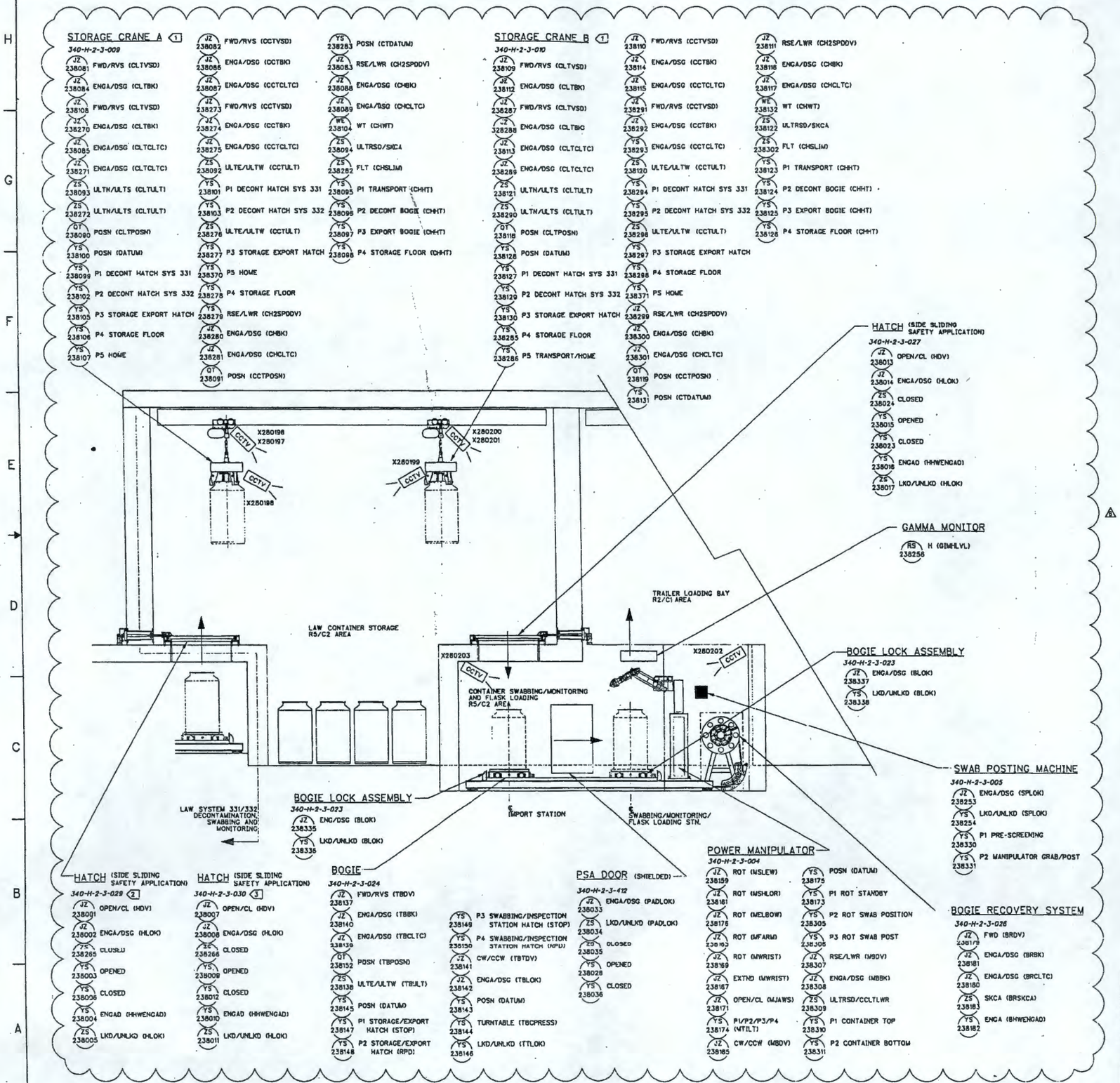
PROJECT No. 6375
SITE HANFORD
AREA 200E
BUILDING NO.
DRAWN 5/18/00
CHECKED
APPROVED 5-18-00

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

LAW VITRIFICATION
SYSTEM 331
MECH. HANDLING DIAGRAM 1
FIXATIVE STATION

DSI REFERENCE No. DSW-W375-00-00059 REV A
SCALE: 1/4" = 1'
DWG No. OWG- W375LV-M00738
REV A
© SIZE - 44x34
COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED



NOTES:

1. RECOVERY OF THE STORAGE CRANES VIA REDUNDANT MOTORS.
2. DECON/STORAGE HATCH POSITIONED OVER DECONTAMINATION LINE 1, SYSTEM 331.
3. DECON/STORAGE HATCH POSITIONED OVER DECONTAMINATION LINE 2, SYSTEM 332.

PRELIMINARY

REFERENCE DRAWINGS

DWG NO	TITLE
DWG-W375LV-M00615	LAW VITRIFICATION SYSTEM 340 MECHANICAL FLOW DIAGRAM L1
DWG-W375LV-M00617	LAW VITRIFICATION SYSTEM 340 MECHANICAL FLOW DIAGRAM L2
DWG-W375LV-M00618	LAW VITRIFICATION SYSTEM 340 MECHANICAL FLOW DIAGRAM L2
DWG-W375LV-M00620	LAW VITRIFICATION SYSTEM 340 MECHANICAL FLOW DIAGRAM L2
DWG-W375LV-M00795	LAW VITRIFICATION SYSTEM 340 MECH HANDLING DIAGRAM L1

REVISION HISTORY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
B	ISSUED FOR CONTROL LOGIC SUPPORT				
A	ISSUED FOR FPE	JD	WFM	PB	11/3/99

ISSUED BY SPARTIT-POS

PROJECT No.	W375	
SITE	HANFORD	
AREA	200E	
BUILDING No.		

BY DATE
ORIGINATOR C BATTENBY 11/3/99
CHECKED WF MEYER 11/3/99
APPROVED P BUGALEY 11/3/99

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No: DE-AC06-96RL13308

LAW VITRIFICATION
SYSTEM 340
MECH HANDLING DIAGRAM LEVEL 1
STORAGE & SWABBING

DWG REFERENCE No: DDM-W375-00-0048 REV B

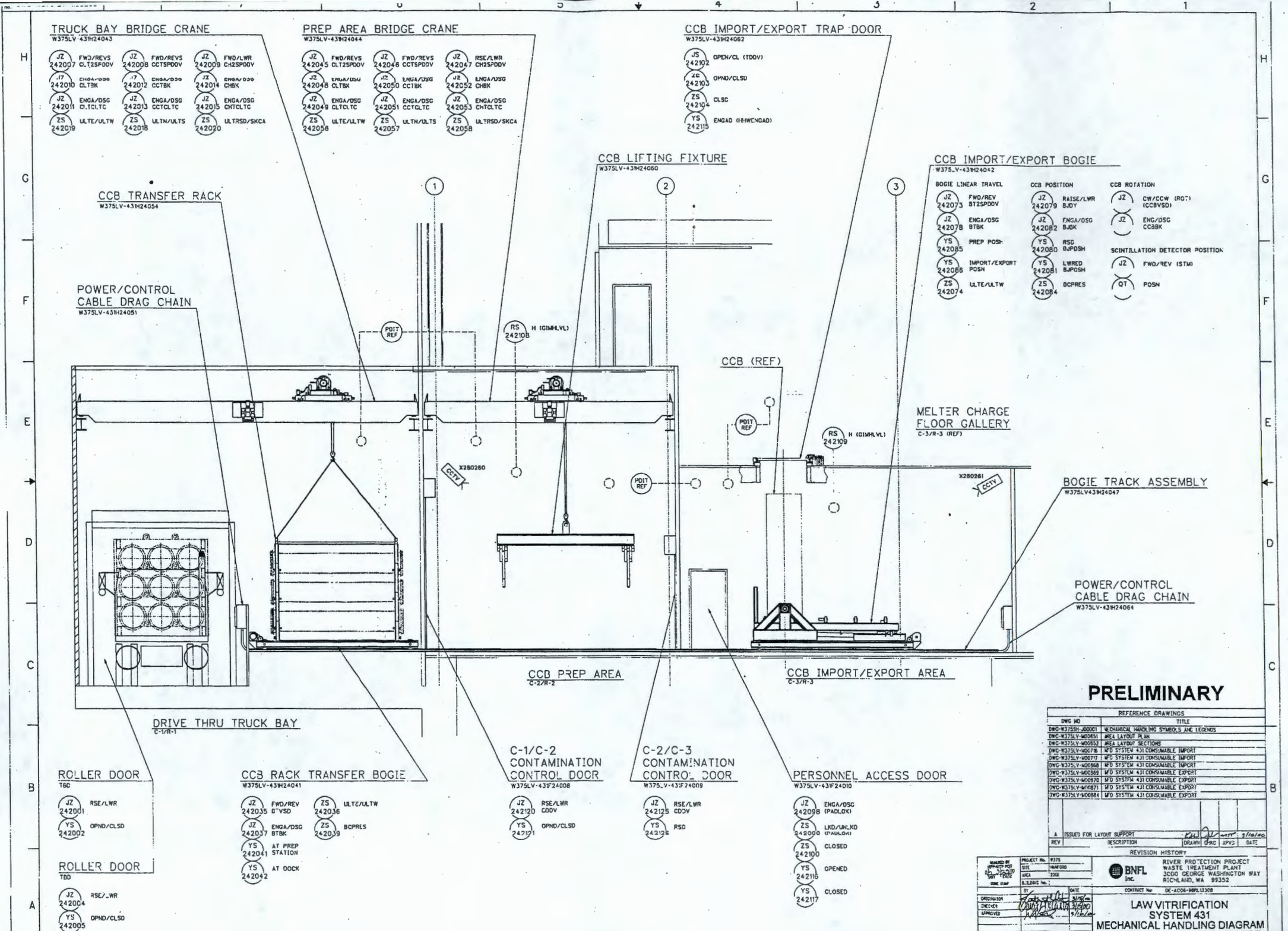
SCALE: 1/4" = 1" DWG No. DWG- W375LV-M00791 REV B

"E" SIZE - 44x34

23 MAR 2000 13:36:00
COMPUTER GENERATED - MANUAL CHANGES NOT ALLOWED

LAST PLOTTED BY: bbarner
p:\dwgs\hc\dd375.dgn

FORM RPE.3C1



PRELIMINARY

REFERENCE DRAWINGS

DWG NO	TITLE
DWG-W375SH-J00001	MECHANICAL HANDLING SYMBOLS AND LEGENDS
DWG-W375LV-M00851	AREA LAYOUT PLAN
DWG-W375LV-M00852	AREA LAYOUT SECTIONS
DWG-W375LV-M00718	MFD SYSTEM 431 CONSUMABLE IMPORT
DWG-W375LV-M00719	MFD SYSTEM 431 CONSUMABLE IMPORT
DWG-W375LV-M00868	MFD SYSTEM 431 CONSUMABLE IMPORT
DWG-W375LV-M00869	MFD SYSTEM 431 CONSUMABLE EXPORT
DWG-W375LV-M00870	MFD SYSTEM 431 CONSUMABLE EXPORT
DWG-W375LV-M00871	MFD SYSTEM 431 CONSUMABLE EXPORT
DWG-W375LV-M00884	MFD SYSTEM 431 CONSUMABLE EXPORT

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
A	ISSUED FOR LAYOUT SUPPORT	RHJ	JJ	MTT	5/10/00

REVISION HISTORY

PROJECT No.	W375	
SITE	HANFORD	
AREA	200E	
B.S.DWG No.		
CONTRACT No.	DE-AC06-98RL13308	

	BY	DATE
ORIGINATOR		3/30/00
CHECKED		3/30/00
APPROVED		5/10/00

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

LAW VITRIFICATION
SYSTEM 431
MECHANICAL HANDLING DIAGRAM
CONSUMABLES IMPORT/EXPORT

DGN REFERENCE No. DN-W375-00-00507 REV A

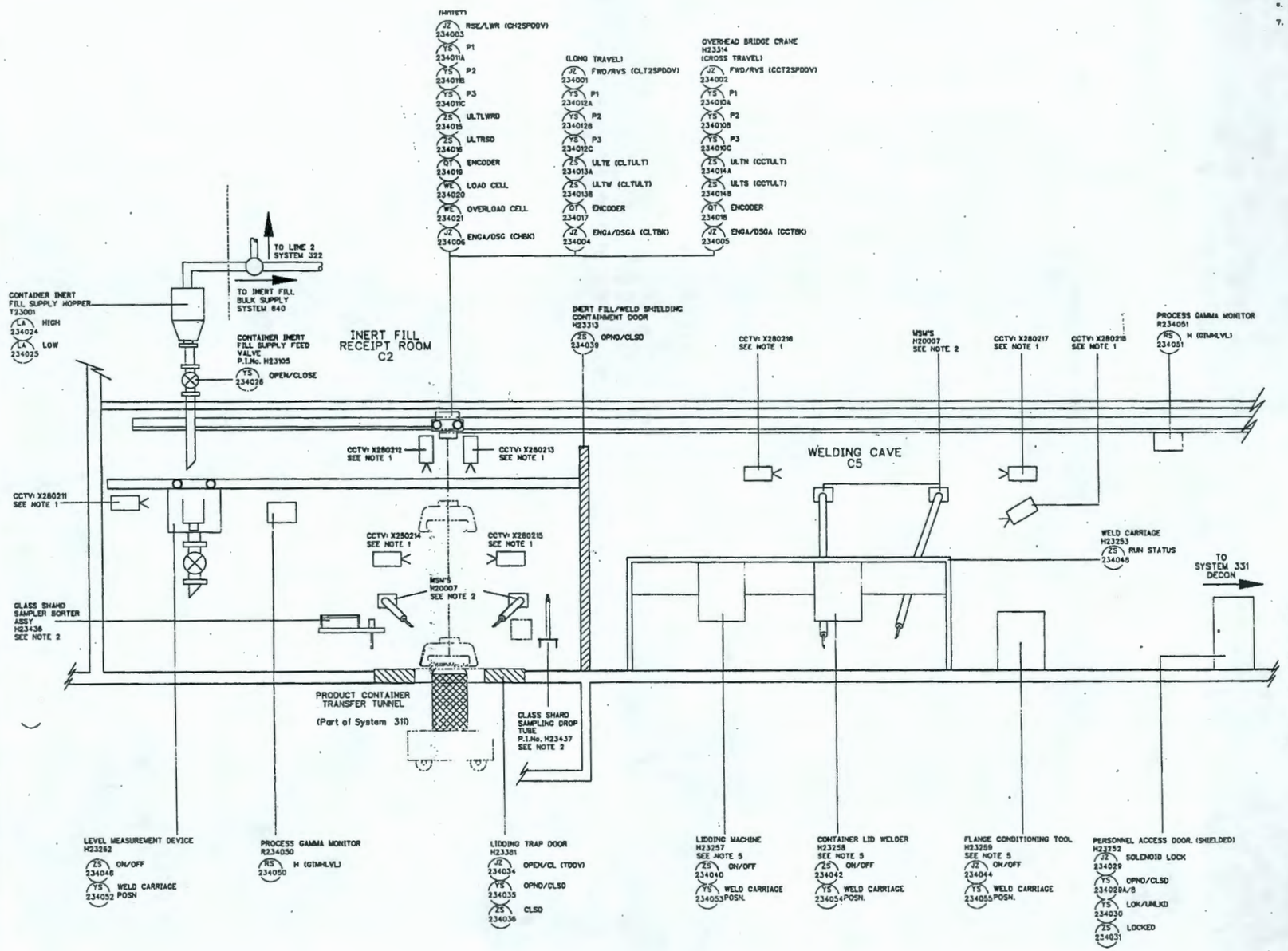
SCALE: NONE | DWG No. DWG- W375LV-M00860 | REV A

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

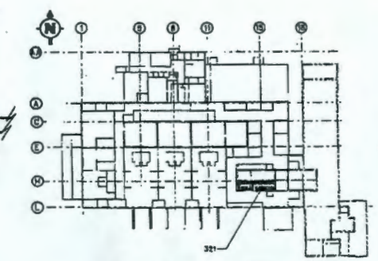
DWG No. DWG-W375 LV-M00951

NOTES:

1. PART OF THE PLANTWIDE CONTROL SYSTEM USED FOR MONITORING
2. MECHANICAL SYSTEM, NO POWER OR CONTROLS USED
3. THIS DRAWING TO BE READ IN CONJUNCTION WITH SD-W375LV-M00008
4. THIS DRAWING TO BE READ IN CONJUCTION WITH MECHANICAL FLOW DIAGRAM DWG-W375LV-M00800
5. LOCALLY CONTROLLED BY VENDOR SUPPLIED SYSTEM
6. FOR DETAILS OF MECHANICAL HANDLING SYMBOLS AND LEGEND SEE DWG-W375SH-J00001
7. FOR DETAILS OF INSTRUMENTATION SYMBOLS AND IDENTIFICATION SEE ANSI/ISA-S5.1-1984 (R 1992)



LID HANDLING, INERT FILL WELDING, LINE 1
SYSTEM - 321



KEY PLAN AT EL +3'-0"

PRELIMINARY

REFERENCE DRAWINGS

DWG NO	TITLE
DWG-W375LV-M00952	MECHANICAL HANDLING DIAGRAM LEVEL 1 SYSTEM 322
DWG-W375LV-M00800	MECHANICAL FLOW DIAGRAM LEVEL 1 SYSTEM 321/322
DWG-W375SH-J00001	MECHANICAL HANDLING SYMBOLS AND LEGEND

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
A	ISSUED FOR CONTROL LOGIC SUPPORT	CK	SAH	KB	5.13.00

REVISION HISTORY

PROJECT No. W375
SITE HANFORD
AREA 200E
BUILDING No.

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC08-96RL13308

	BY	DATE
ORIGINATOR	CK	5/13/00
CHECKER	SAH	5/13/00
APPROVED	KB	5.13.00

LAW VITRIFICATION SYSTEM 321 MECH HANDLING DIAGRAM LEVEL 1 INERT FILL AND CONTAINER LID WELD AREA

DGN REFERENCE No. DWG-W375-00-00130 REV A

SCALE NONE

DWG No. DWG- W375LV-M00951

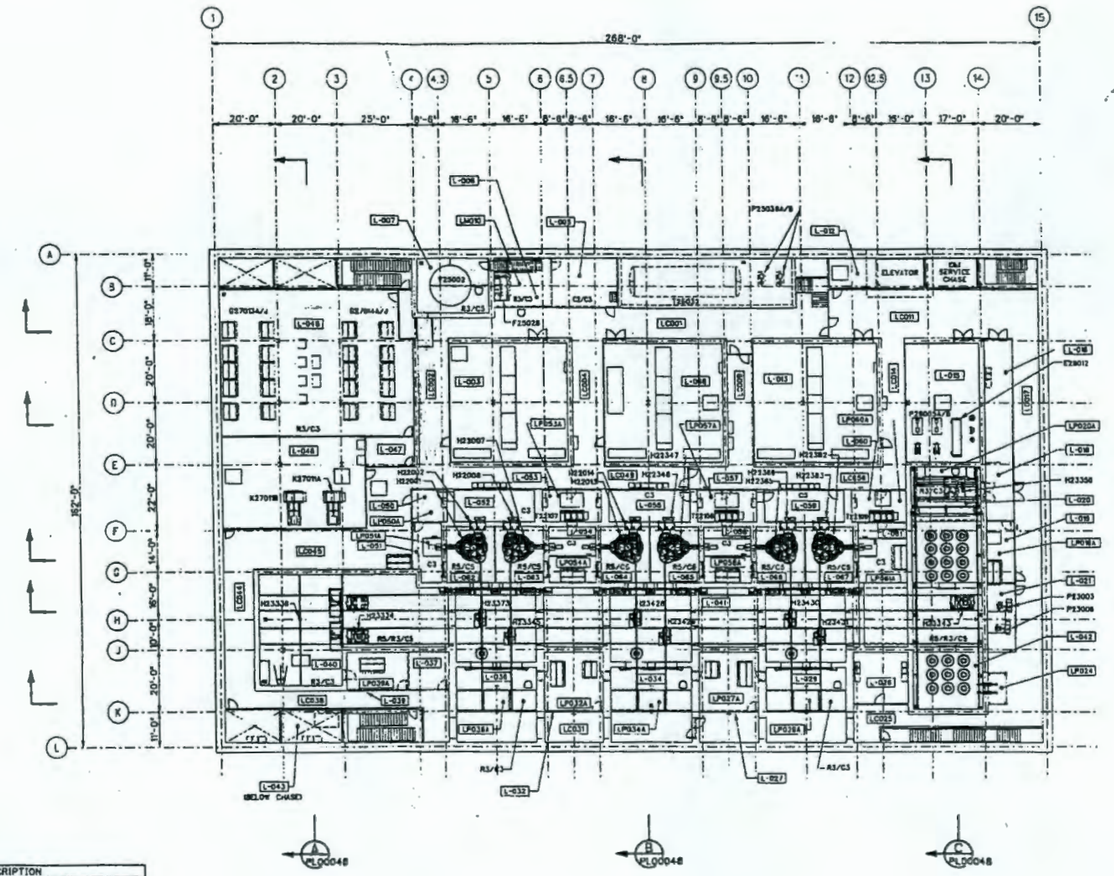
REV A

"C" SIZE - 44x34

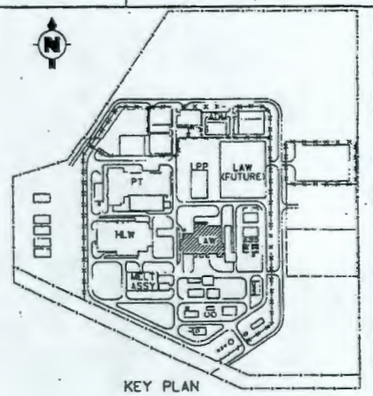
10 MAR 2000 14:33:06

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375 LV-PL00042



PLAN AT EL (-)21'-0"



KEY PLAN

PIN	DESCRIPTION
E29012	COOLING WATER EVAPORATOR
F25028	C3/C5 DRAIN EFFLUENT PUMP BULGE
G27013A/J	C5 FILTERS
G27014A/J	C5 FILTERS
H22001	CONTAINER TURNTABLE
H22002	CONTAINER ELEVATOR
H22007	CONTAINER TURNTABLE
H22008	CONTAINER ELEVATOR
H22013	CONTAINER TURNTABLE
H22014	CONTAINER ELEVATOR
H22347	CONTAINER TURNTABLE
H22348	CONTAINER ELEVATOR
H22365	CONTAINER TURNTABLE
H22366	CONTAINER ELEVATOR
H22382	CONTAINER TURNTABLE
H22383	CONTAINER ELEVATOR
H23334	CONTAINER TRANSPORT BOGIE
H23336	BOGIE MAINTENANCE MONORAIL HOIST
H23343	CONTAINER TRANSPORT BOGIE
H23345	POUR CAVE MONORAIL HOIST
H23350	BUFFER STORE CRANE - 10T
H23373	POUR CAVE MONORAIL HOIST
H23428	POUR CAVE MONORAIL HOIST
H23429	POUR CAVE MONORAIL HOIST
H23430	POUR CAVE MONORAIL HOIST
H23431	POUR CAVE MONORAIL HOIST
K27011A/B	C5 EXHAUST FAN
P23003	CONTAINER DECONTAMINATION VACUUM PUMP
P23006	CONTAINER DECONTAMINATION VACUUM PUMP
P25038A/B	C1/C2 DRAIN COLLECTION PUMP
P29005A/B	COOLING WATER PUMP
T22107	ELECTRODE BUS COOLING WATER RACK
T22108	ELECTRODE BUS COOLING WATER RACK
T22109	ELECTRODE BUS COOLING WATER RACK
T25032	C1/C2 DRAIN DRAIN COLLECTION TANK
V25002	C3/C5 DRAIN/SUMP COLLECTION VESSEL

*DIN APPLICON

RM ID	DESCRIPTION	RM ID	DESCRIPTION	RM ID	DESCRIPTION	RM ID	DESCRIPTION
LC001	CORRIDOR	L-020	BUFFER CRANE MAINTENANCE	L-039	SUB-CHANGE	LP054A	VIEWING PLATFORM
LC002	CORRIDOR	LP020A	BUFFER CRANE MAINTENANCE PLATFORM	LP039A	MAINTENANCE PLATFORM	L-055	MECHANICAL ROOM
L-003	LSM POWER SUPPLY ROOM	L-021	FINISH LINE EQUIPMENT ROOM	L-040	BOGIE MAINTENANCE	LC056	CORRIDOR
LC004	CORRIDOR			L-041	CONTAINER TRANSFER CORRIDOR	L-057	SUB-CHANGE
L-005	SUB-CHANGE	LP024	CONTAINER REWORK STATION PLATFORM	L-042	CONTAINER BUFFER STORAGE	LP057A	MAINTENANCE PLATFORM
L-006	PUMP BULGE ROOM	LC025	CORRIDOR	L-043	E&I ROOM	L-058	POUR CAVE VIEWING ROOM
L-007	C3/C5 DRAIN TANK ROOM	L-026	E&I ROOM	LC044	CORRIDOR	LP058A	VIEWING PLATFORM
L-008	LSM POWER SUPPLY ROOM	L-027	SUB-CHANGE	LC045	CORRIDOR	L-059	MECHANICAL ROOM
LC009	CORRIDOR	LP027A	MAINTENANCE PLATFORM	L-046	C5 EXHAUST FAN ROOM	L-060	SUB-CHANGE
LM010	E&I MEZZANINE	L-029	MONORAIL MAINTENANCE	L-047	SUB-CHANGE	LP060A	MAINTENANCE PLATFORM
LC011	CORRIDOR	LP029A	LSM MONITORING PLATFORM	L-048	C5 FILTER ROOM	L-061	POUR CAVE VIEWING ROOM
L-012	E&I ROOM	LC031	CORRIDOR	LC049	CORRIDOR	LP061A	VIEWING PLATFORM
L-013	LSM POWER SUPPLY ROOM	L-032	SUB-CHANGE	L-050	SUB-CHANGE	L-062	POUR CAVE
LC014	CORRIDOR	LP032A	MAINTENANCE PLATFORM	LP050A	E & I MAINTENANCE PLATFORM	L-063	POUR CAVE
L-015	SPS POWER SUPPLY COOLING ROOM	L-034	MONORAIL MAINTENANCE	L-051	POUR CAVE VIEWING ROOM	L-064	POUR CAVE
L-016	E&I ROOM	LP034A	LSM MONITORING PLATFORM	LP051A	VIEWING PLATFORM	L-065	POUR CAVE
LC017	CORRIDOR	L-036	MONORAIL MAINTENANCE	L-052	MECHANICAL ROOM	L-066	POUR CAVE
L-018	EQUIPMENT AIRLOCK	LP036A	LSM MONITORING PLATFORM	L-053	SUB-CHANGE	L-067	POUR CAVE
L-019	SUB-CHANGE	L-037	OPS STORAGE	LP053A	MAINTENANCE PLATFORM		
LP019A	MAINTENANCE PLATFORM	LC038	CORRIDOR	L-054	POUR CAVE VIEWING ROOM		

GENERAL NOTES:

1. ALL OPERATING AREAS ARE DESIGNATED R2/C2 UNLESS NOTED OTHERWISE.
2. THE LOWER RADIATION ZONE DESIGNATION ASSUMES CONTAINER IS NOT PRESENT.
3. ALL SUB-CHANGE ROOMS ARE DESIGNATED C2/C3 UNLESS NOTED OTHERWISE.

PRELIMINARY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
B	ISSUED FOR REFINED C1 INFORMATION (PHASE II)	K.			3-03-00
A	ISSUED FOR PRELIMINARY C1 INFORMATION (PHASE I)	D.E.	RM	GO	1-14-00

REVISION HISTORY

	BY	DATE
DESIGNATOR	LONGMIRE	1-14-00
CHECKER	MOSSBRUCKER	1-14-00
APPROVED	DUNCAN	1-14-00

PROJECT No. W375
SITE HANFORD
AREA 200E
BUILDING No.

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

LAW VITRIFICATION BUILDING
LOCALLY SHIELDED MELTER
PLAN AT EL. (-)21'-0"

SCALE: 1/16"=1'-0"
DWG No. DWG- W375LV-PL00042
REV B

DIN REFERENCE No. RM-W375-00-00002 REV B

"E" SIZE = 44x34

03 MAR 2000 16:28:01

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

LAST PLOTTED 01-04
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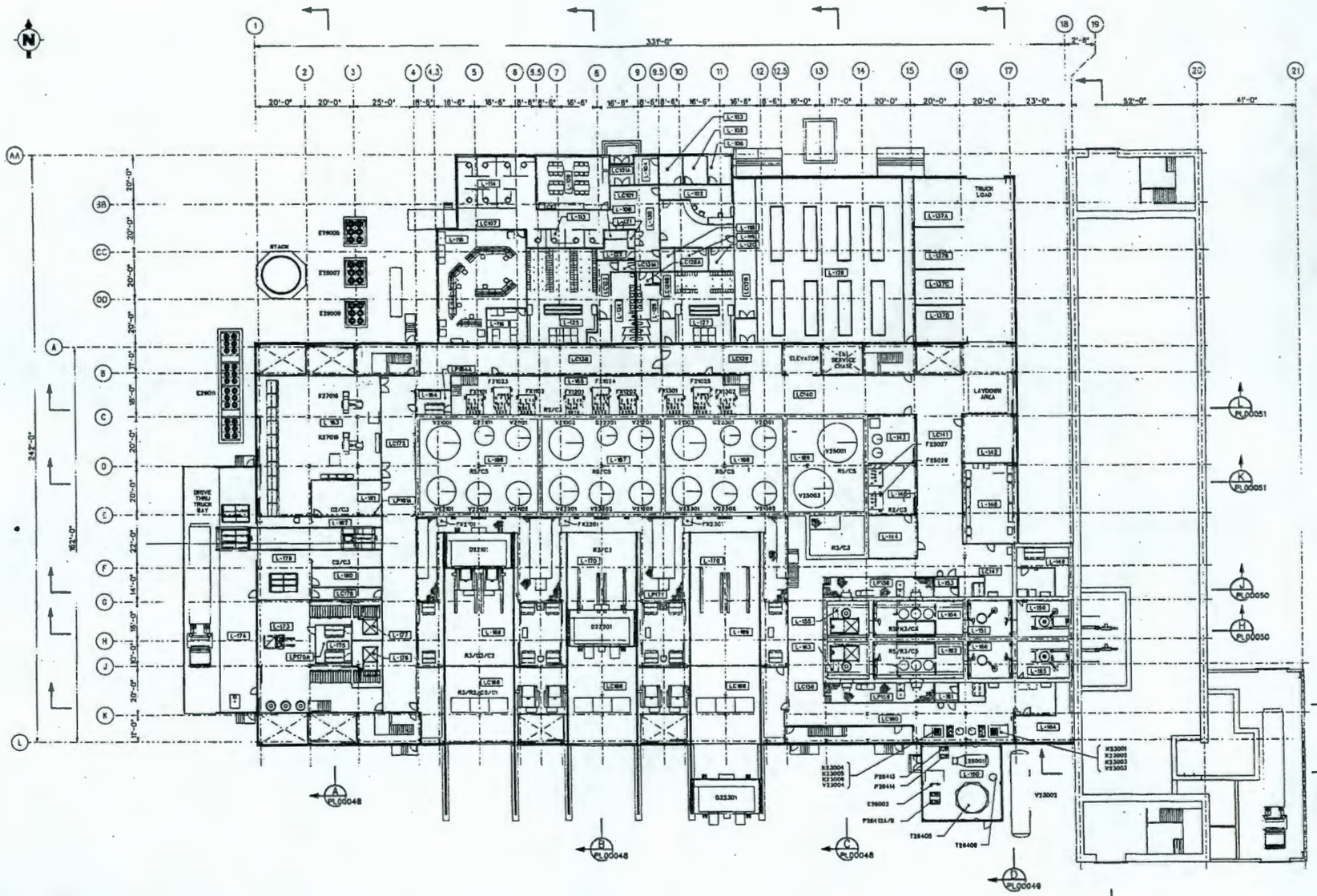
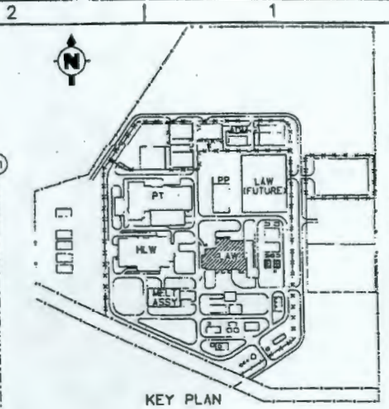
DWG No. DWG-W375 LV-PL00043





NOTES:

1. FOR GENERAL NOTES, SEE DWG-W375LV-PL00042.
2. THE LOWER RADIATION DESIGNATION ASSUMES A CONTAINER IS NOT PRESENT

PIN	DESCRIPTION	PIN	DESCRIPTION
D22101	MELTER 1	K23004	CONTAINER DECON. AIR COMPRESSOR
D22201	MELTER 2	K23005	CONTAINER DECON. AFTERCOOLER
D22301	MELTER 3	K23006	CONTAINER DECON. AIR DRYER
E26001	UREA ADDITION REACTOR	K27015	C2 EXTRACT FAN A
E26002	UREA SOLUTION HEATER	K27016	C2 EXTRACT FAN B
E29005	COOLING WATER CHILLER	P26412A/B	UREA CIRCULATION PUMP
E29007	COOLING WATER CHILLER	P26413	DEMINERALIZED WATER PUMP
E29009	COOLING WATER CHILLER	P26414	UREA FEED PUMP
E29011	COOLING WATER CHILLER	T26405	UREA ADDITION TANK
F21023	CONCENTRATE RECEIPT PUMP BULGE	T26406	REACTOR BLOWDOWN TANK
F21024	CONCENTRATE RECEIPT PUMP BULGE	V21001	MELTER 1 CONCENTRATE RECEIPT VESSEL
F21025	CONCENTRATE RECEIPT PUMP BULGE	V21002	MELTER 2 CONCENTRATE RECEIPT VESSEL
F25027	WASH DISCHARGE PUMP BULGE	V21003	MELTER 3 CONCENTRATE RECEIPT VESSEL
F25029	COLLECTION DISCHARGE PUMP BULGE	V21101	MELTER 1 FEED PREPERATION VESSEL
FX1101	MELTER 1 FEED PREPERATION VALVE BULGE	V21102	MELTER 1 FEED VESSEL
FX1102	MELTER 1 FEED RECEIPT VALVE BULGE	V21201	MELTER 2 FEED PREPERATION VESSEL
FX1201	MELTER 2 FEED PREPERATION VALVE BULGE	V21202	MELTER 2 FEED VESSEL
FX1202	MELTER 2 FEED RECEIPT VALVE BULGE	V21301	MELTER 3 FEED PREPERATION VESSEL
FX1301	MELTER 3 FEED PREPERATION VALVE BULGE	V21302	MELTER 3 FEED VESSEL
FX1302	MELTER 3 FEED RECEIPT VALVE BULGE	V22101	MELTER 1 SBS CONDENSATE VESSEL
FX2101	MELTER 1 SBS COND VALVE BULGE	V22102	MELTER 1 SBS COLUMN VESSEL
FX2202	MELTER 2 SBS COND VALVE BULGE	V22201	MELTER 2 SBS CONDENSATE VESSEL
FX2302	MELTER 3 SBS COND VALVE BULGE	V22202	MELTER 2 SBS COLUMN VESSEL
G22101	MELTER 1 OFF GAS WESP	V22301	MELTER 3 SBS CONDENSATE VESSEL
G22201	MELTER 1 OFF GAS WESP	V22302	MELTER 3 SBS COLUMN VESSEL
G22301	MELTER 1 OFF GAS WESP	V23002	CONTAINER DECON. CO2 STORAGE VESSEL
G23002	CONTAINER DECON. PELLETIZER	V23003	CONTAINER DECON. COMPR. AIR STRG. VESSEL
G23006	CONTAINER DECON. PELLETIZER	V23004	CONTAINER DECON. COMPR. AIR STRG. VESSEL
K23001	CONTAINER DECON. AIR COMPRESSOR	V25001	PLANT WASH VESSEL
K23002	CONTAINER DECON. AIR DRYER	V25003	SBS CONDENSATE COLLECTION VESSEL
K23003	CONTAINER DECON. AFTERCOOLER		

RM ID	DESCRIPTION	RM ID	DESCRIPTION	RM ID	DESCRIPTION
LC101	CCR (CHANGE / CONTROL ROOM)	L-154	WELDING AREA LINE #2	L-177	IMPORT HATCH AREA LINE #2
--		L-155	INERT FILL LINE #2	LC178	CORRIDOR
LC135		LP156	PLATFORM	L-179	CONSUMABLE RACKING ROOM
L-136	FACILITY POWER DISTRIBUTION ROOM	LC160	CORRIDOR	L-180	STORAGE
L-137A	OPS COLD CHEMICAL STORE	LP159	PLATFORM	L-181	SUB-CHANGE
L-137B	MAINTENANCE STORE	LC160	CORRIDOR	LP181A	PLATFORM
L-137C	EI&M CONSUMABLES STORE	L-161	SUB-CHANGE	L-182	CONSUMABLE IMPORT/EXPORT
L-137D	TRANSIT STORE	L-162	WELDING AREA LINE #1	L-183	C2 EXHAUST FAN ROOM
LC138	CORRIDOR	L-163	INERT FILL LINE #1	L-184	SUB-CHANGE
LC139	CORRIDOR	L-164	SUB-CHANGE	LP184A	PLATFORM
LC140	CORRIDOR	L-165	SWABBING AREA LINE #1	L-185	PROCESS CELL BULGE ROOM
LC141	CORRIDOR	L-166	DECONTAMINATION AREA LINE #1	L-186	PROCESS CELL
L-142	PPE STORE	LC168	CORRIDOR	L-187	PROCESS CELL
L-143	MARSHALLING ROOM	L-169	LSW PACKAGING	L-188	PROCESS CELL
L-144	SUB-CHANGE	L-170	LSW GALLERY	L-189	EFFLUENT CELL
L-145	PUMP BULGE ROOM	LP171	PLATFORM	L-190	UREA ENCLOSURE
LC147	CORRIDOR	LC172	CORRIDOR		
L-148	E&I ROOM	L-173	CLEAN CONTAINER RECEIPT		
L-149	SUB-CHANGE	L-174	LOAD DOCK		
L-150	SWABBING AREA LINE #2	L-175	SUB-CHANGE		
L-151	DECONTAMINATION AREA LINE #2	LP175A	PLATFORM		
L-153	SUB-CHANGE	L-176	IMPORT HATCH AREA LINE #1		

PRELIMINARY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
B	ISSUED FOR REVISED C1 INFORMATION (PHASE II)				3-03-00
A	ISSUED FOR PRELIMINARY C1 INFORMATION (PHASE I)	MD	RM	GD	1-14-00

REVISION HISTORY

PROJECT No.	W375	
SITE	HANFORD	
AREA	200L	
BUILDING No.		
	BY	DATE
DESIGNATOR	DEVALL	1-14-00
CHECKER	MOSSBRUCKER	1-14-00
APPROVED	DUNCAN	1-14-00

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

LAW VITRIFICATION BUILDING
LOCALLY SHIELDED MELTER
PLAN AT EL 3'-0"

CSI REFERENCE No. DBR-W375-00-00003 REV B

SCALE 1/16"=1'-0"

DWG No. DWG- W375 LV-PL00043

REV B

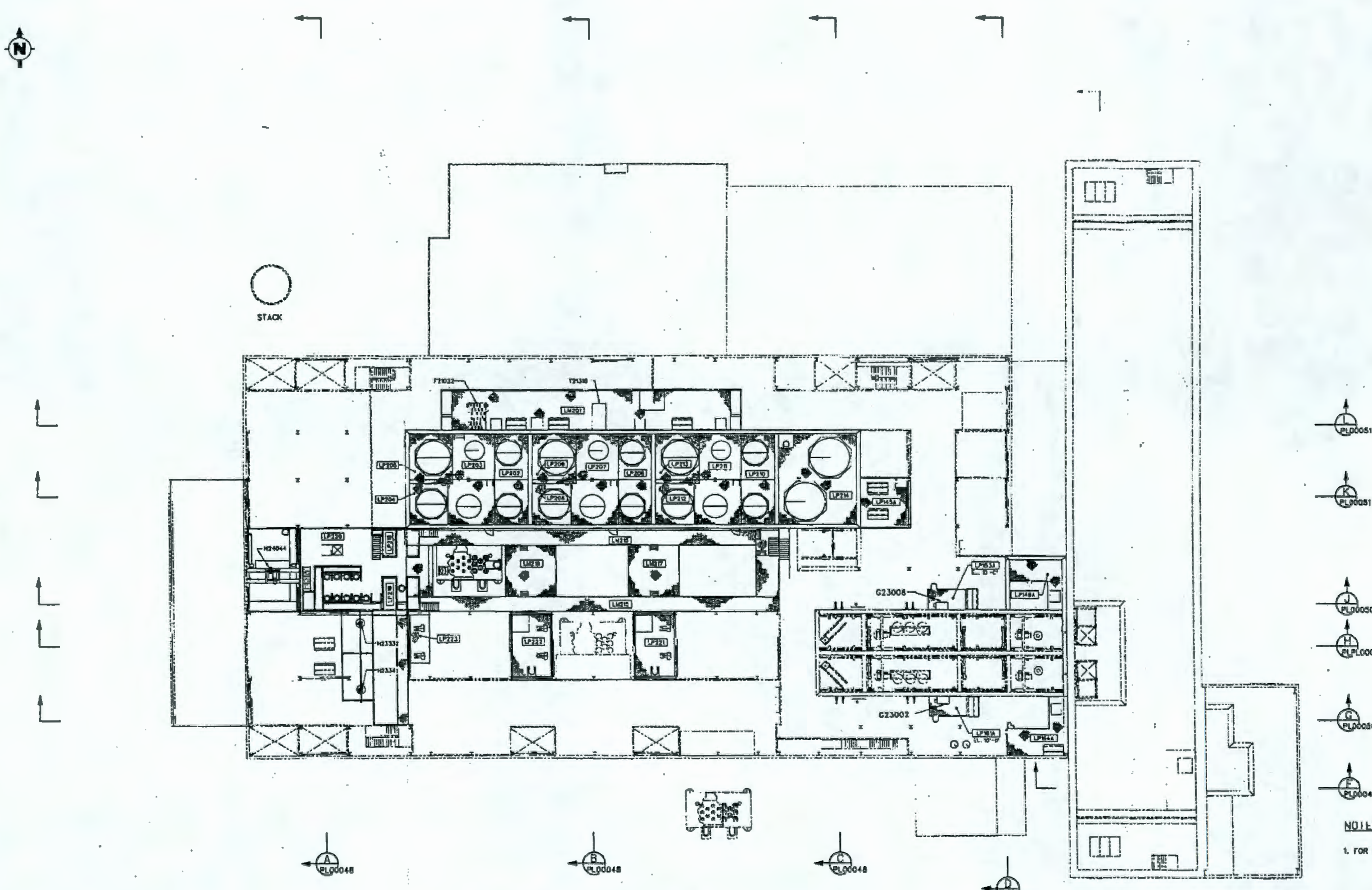
03 MAR 2000 17:35:37

"C" SIZE - 44x34

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

LAST PLOTTED BY: JDM

DWG No. DWG-W375 LV-PL00044



PARTIAL PLAN AT EL 22'-0"

NOTES:

1. FOR GENERAL NOTES, SEE DWG-W375LV-PL00042.

PIN	DESCRIPTION
F21022	FEED RECEIPT VALVE BULGE
H23332	MONORAIL HOIST
H23341	MONORAIL HOIST
H24044	PREP AREA BRIDGE CRANE
T21310	STEAM CABINET

RM ID	DESCRIPTION	RM ID	DESCRIPTION
LP145A	HVAC MAINTENANCE PLATFORM	LM216	CCB PLATFORM
LP149A	HVAC MAINTENANCE PLATFORM	LM217	CCB PLATFORM
LP153A	HVAC MAINTENANCE PLATFORM	LP221	HVAC MAINTENANCE PLATFORM
LP161A	HVAC MAINTENANCE PLATFORM	LP222	HVAC MAINTENANCE PLATFORM
LP164A	HVAC MAINTENANCE PLATFORM	LP223	HVAC MAINTENANCE PLATFORM
LM201	PROCESS CELL BULGE MEZZANINE		
LP202	VESSEL MAINTENANCE PLATFORM		
LP203	VESSEL MAINTENANCE PLATFORM		
LP204	VESSEL MAINTENANCE PLATFORM		
LP205	VESSEL MAINTENANCE PLATFORM		
LP206	VESSEL MAINTENANCE PLATFORM		
LP207	VESSEL MAINTENANCE PLATFORM		
LP208	VESSEL MAINTENANCE PLATFORM		
LP209	VESSEL MAINTENANCE PLATFORM		
LP210	VESSEL MAINTENANCE PLATFORM		
LP211	VESSEL MAINTENANCE PLATFORM		
LP212	VESSEL MAINTENANCE PLATFORM		
LP213	VESSEL MAINTENANCE PLATFORM		
LP214	VESSEL MAINTENANCE PLATFORM		
LM215	MELTER CHARGE FLOOR GALLERY		

PRELIMINARY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
B	ISSUED FOR REFINED C1 INFORMATION (PHASE II)				3-03-00 3-5-00
A	ISSUED FOR PRELIMINARY C1 INFORMATION (PHASE I)	LJ	RM	GD	1-14-00

REVISION HISTORY

PROJECT No.	W375	
SITE	HANFORD	
AREA	200E	
BUILDING No.		
	BY	DATE
ORIGINATOR	JONES	1-14-00
CHECKER	MOSSBRUCKER	1-14-00
APPROVED	DUNCAN	1-14-00

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

LAW VITRIFICATION BUILDING
LOCALLY SHIELDED MELTER
PARTIAL PLAN AT EL. 22'-0"

DWG REFERENCE No. DW-W375-00-00001 REV B

SCALE 1/32"=1'-0" DWG No. DWG- W375 LV-PL00044 REV B

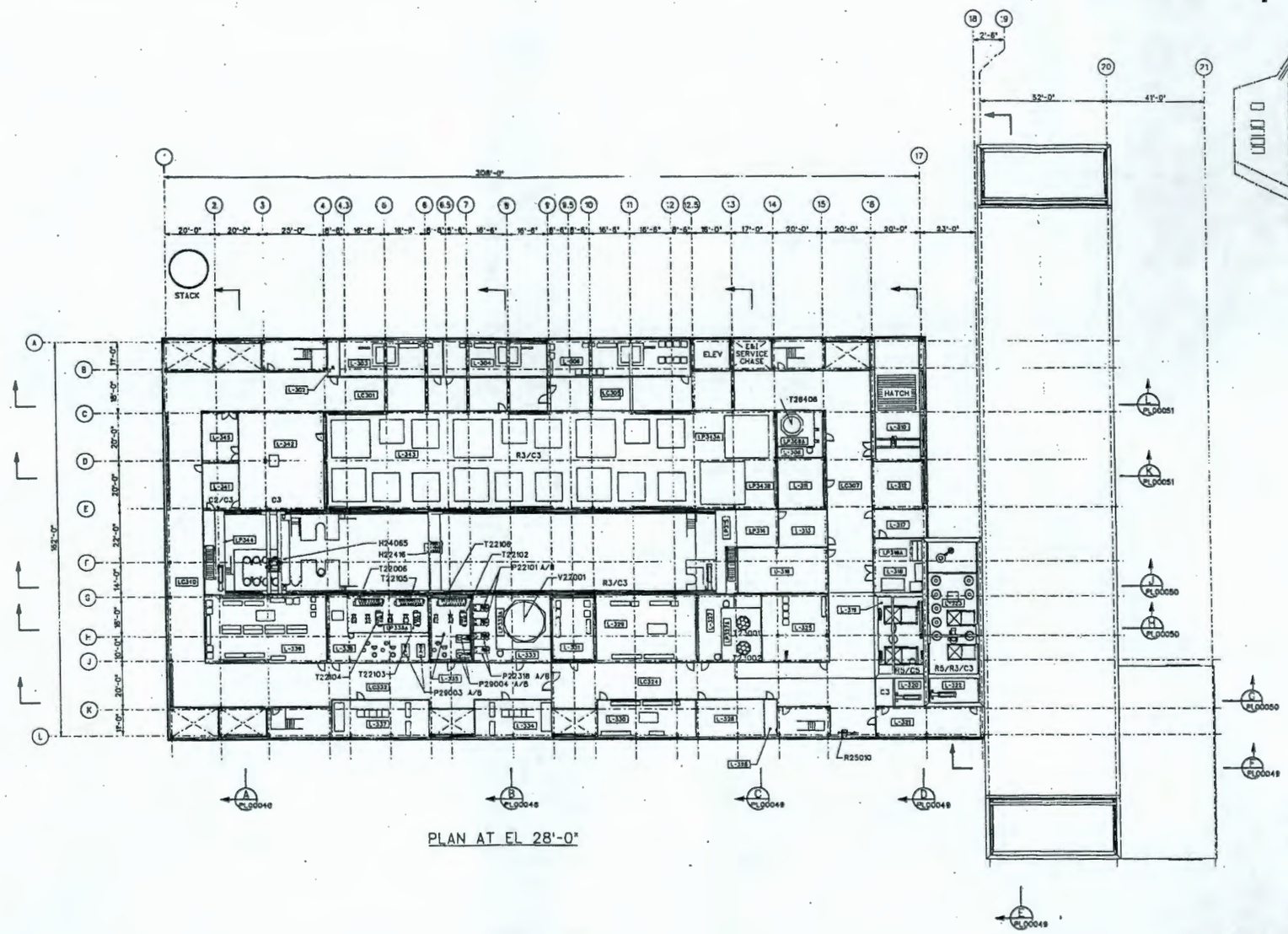
"E" SIZE - 44x34

03 MAR 2000 17:30:14

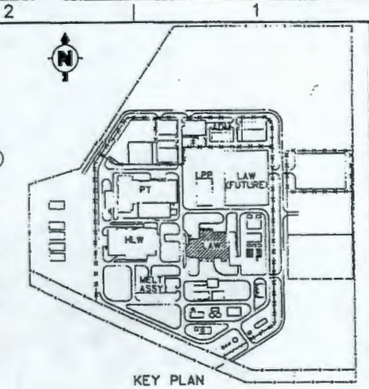
COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

FORM NPPL00H

DWG No. DWG-W375 LV-PL00045



PLAN AT EL 28'-0"



KEY PLAN

NOTES:

1. FOR GENERAL NOTES, SEE DWG-W375LV-PL00042.
2. THE LOWER RADIATION ZONE DESIGNATION ASSUMES A CONTAINER IS NOT PRESENT.

PRELIMINARY

PIN	DESCRIPTION
H22416	CCB HANDLER
H24065	CCB LIFTING FIXTURE
P22101A/B	CAUSTIC SCRUBBING SOLUTION RECIRC. PUMP
P22318A/B	CAUSTIC BLOWDOWN TRANSFER PUMP
P29002A/B	COOLING WATER PUMP
P29003A/B	COOLING WATER PUMP
P29004A/B	COOLING WATER PUMP
R25010	CARRIER POSTING FACILITY
T22006	COOLING WATER BULGE
T22102	DEMINERALIZED WATER CABINET
T22103	DEMINERALIZED WATER CABINET
T22104	DEMINERALIZED WATER CABINET
T22105	COOLING WATER BULGE
T22106	COOLING WATER BULGE
T23001	CONTAINER INERT FILL SUPPLY HOPPER
T23002	CONTAINER INERT FILL SUPPLY HOPPER
T26406	DEMINERALIZED WATER TANK
V22001	CAUSTIC COLLECTION VESSEL

ROOM ID	DESCRIPTION	ROOM ID	DESCRIPTION	ROOM ID	DESCRIPTION
LC301	CORRIDOR	L-320	RECLING STORAGE ROOM	LP338A	MAINTENANCE PLATFORM
L-302	FIREWATER RISER GANG VALVE ROOM	L-321	SUB-CHANGE	L-339	E & I ROOM
L-303	E & I ROOM	L-322	CRANE MAINTENANCE	L-340	CORRIDOR
L-304	E & I ROOM	L-323	FIXATIVE CURING ROOM	L-341	SUB-CHANGE
LC305	CORRIDOR	LC324	CORRIDOR	L-342	C3 WORKSHOP
L-306	E & I ROOM	L-325	E & I ROOM	L-343	PROCESS CELL CHARGE FLOOR
LC307	CORRIDOR	L-326	FIREWATER RISER GANG VALVE ROOM	LP343A	PROCESS CELL BELOW/PACKAGING AREA
L-308	DEMINERALIZED WATER ROOM	LP326A	MAINTENANCE PLATFORM	LP343B	LAYDOWN AREA
LP308A	VESSEL MAINTENANCE PLATFORM	L-327	INERT FILL HOPPERS	LP344	CRANE MAINTENANCE AREA
L-310	LAYDOWN AREA	L-328	PLANT SERVICES ROOM	L-345	EQUIPMENT AIRLOCK
L-311	E & I WORKSHOP	L-329	E & I ROOM		
L-312	OPERATION STORAGE ROOM	L-330	E & I ROOM		
L-313	SUBCHANGE	L-331	E & I ROOM		
LP314	CRANE MAINTENANCE PLATFORM	LC332	CORRIDOR		
LP315	CRANE MAINTENANCE PLATFORM	L-333	CAUSTIC SCRUBBER BLOWDOWN COL ROOM		
L-316	C2 WORKSHOP	L-334	E & I ROOM		
L-317	SUB-CHANGE	LP334A	VESSEL MAINTENANCE PLATFORM		
L-318	EQUIPMENT AIRLOCK	L-335	MELTER COOLING WATER ROOM		
LP318A	HVAC MAINTENANCE PLATFORM	L-337	E & I ROOM		
L-319	CONTAINER TRANSFER ROOM	L-338	MELTER COOLING WATER ROOM		

REVISION HISTORY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
B	ISSUED FOR REFINED C1 INFORMATION (PHASE II)	EM	[illegible]	[illegible]	3-03-00
A	ISSUED FOR PRELIMINARY C1 INFORMATION (PHASE I)	MEW	RM	CD	1-14-00

PROJECT No.	8375	
SITE	HANFORD	
AREA	200E	
BUILDING No.		
	BY	DATE
DESIGNATOR	MCFLESTER	1-14-00
CHECKER	MOSSBURGER	1-14-00
APPROVED	DUNCAN	1-14-00

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No: DE-AC06-96RL13308

LAW VITRIFICATION BUILDING
LOCALLY SHIELDED MELTER
PLAN AT EL. 28'-0"

SCALE: 1/16"=1'-0" | DWG No. DWG- W375LV-PL00045 | REV B

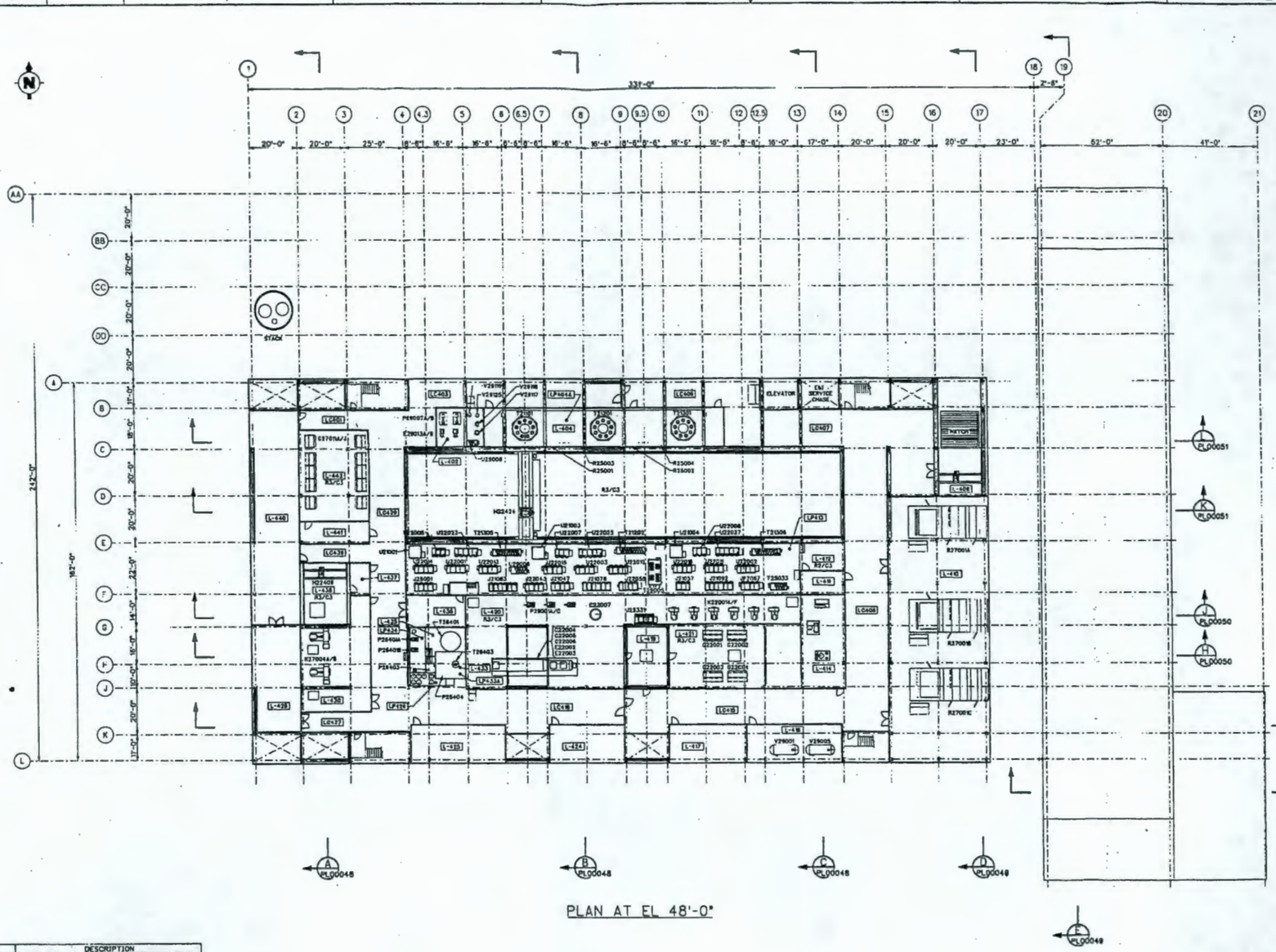
BN REFERENCE No.: 0200-W375-00-00000 | REV B | 'C' SIZE - 44x34

03 MAR 2000 17:35:03

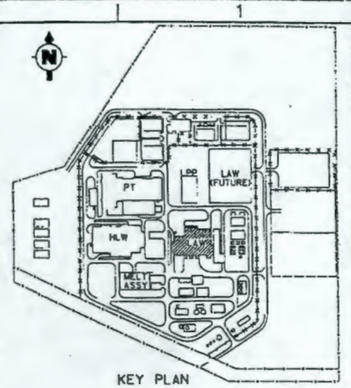
COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

LAST PLOTTED BY: JBM
V:\LAW\LSMBRIDGE.DWG

DWG No. DWG-W375 LV-PL00046



PLAN AT EL 48'-0"



KEY PLAN

NOTES:

1. FOR GENERAL NOTES, SEE DWG-W375LV-PL00042.

PIN	DESCRIPTION
C22004	OFFGAS CAT OXIDIZER SCR CAT 1
C22005	OFFGAS CAT OXIDIZER SCR CAT 2
C22006	OFFGAS CAT OXIDIZER VOC CATALYST
C22007	OFFGAS CAUSTIC SCRUBBER COLUMN
E22002	CATALYTIC OXIDIZER HEAT RECOVERY UNIT
E22003	CATALYTIC OXIDIZER ELECTRIC HEATER
E29013A/B	CHILLED WATER HEAT EXCHANGER
G27001	MELTER OFFGAS HEPA FILTER
G22002	MELTER OFFGAS HEPA FILTER
G22003	MELTER OFFGAS HEPA FILTER
G22004	MELTER OFFGAS HEPA FILTER
G27011A/J	C3 HEPA FILTER
H22424	10 TON PROCESS CRANE
J21057	FEED PREP AND MELTER FEED EQPT RACK
J21076	FEED PREP AND MELTER FEED INSTR RACK
J21083	FEED PREP AND MELTER FEED INSTR RACK
J21092	FEED PREP AND MELTER FEED INSTR RACK
J22243	PRIMARY OFF GAS EQPT RACK
J22055	M3 BUSS COOLING PROCESS AIR RACK
J22057	M3 BUSS COOLING PROCESS AIR RACK
J22333	CAUSTIC SCRUBBERS TRANSMITTER RACK
J25001	LIQUID EFFLUENT TRANSMITTER RACK
K27001A/B	MELTER OFFGAS EXHAUSTER FAN
K27004A/B	C3 EXTRACT FAN
P26401A/B	CAUSTIC PUMP
P26403	MISC COLD CHEMICALS PUMP
P26404	MISC COLD CHEMICALS TRANSFER PUMP
P29001A/C	VACUUM PUMP
P29007A/B	CHILLED WATER PUMP
R25001	AUTOSAMPLER
R25002	AUTOSAMPLER

PIN	DESCRIPTION
R25003	LINKED GLOVEBOX SAMPLER
R25004	LINKED GLOVEBOX SAMPLER
R27001A	C2 SUPPLY AIR HANDLING UNIT
R27001B	C2 SUPPLY AIR HANDLING UNIT
R27001C	C2 SUPPLY AIR HANDLING UNIT
T21101	MELTER 1 GLASS FORMERS FEED HOPPER
T21201	MELTER 2 GLASS FORMERS FEED HOPPER
T21202	PROCESS WATER CABINET
T21301	MELTER 3 GLASS FORMERS FEED HOPPER
T21305	WASH BULGE CABINET
T21306	PROCESS WATER CABINET
T25033	PROCESS WATER RACK
T26401	CAUSTIC TANK
T26403	MISC COLD CHEMICALS TANK
T29005	LOW PRESSURE STEAM CABINET
U21001	PROCESS AIR RACK ADS PUMP
U21003	PROCESS AIR RACK ADS PUMP
U21004	PROCESS AIR M1 BUSS CLNG-ETC
U22001	MELTER 1 BUBBLER RACK
U22002	MELTER 2 BUBBLER RACK

PIN	DESCRIPTION
U22003	MELTER 3 BUBBLER RACK
U22006	MELTER 1 PROCESS AIR RACK
U22007	MELTER 2 PROCESS AIR RACK
U22008	MELTER 3 PROCESS AIR RACK
U22011	MELTER 1 BUBBLER RACK
U22012	MELTER 2 BUBBLER RACK
U22013	MELTER 3 BUBBLER RACK
U22014	MELTER 1 INSTRUMENT AIR RACK
U22015	MELTER 2 INSTRUMENT AIR RACK
U22016	MELTER 3 INSTRUMENT AIR RACK
U22023	MELTER 1 ELECT BUS COOLING RACK
U22025	MELTER 2 ELECT BUS COOLING RACK
U22027	MELTER 3 ELECT BUS COOLING RACK
U29008	SBS VESSELS COOLING RACK
V29001	PROCESS AIR RECEIVER
V29005	INSTRUMENT AIR RECEIVER
V29117	CHILLED WATER HEAD VESSEL
V29118	CHILLED WATER AIR REMOVAL VESSEL
V29119	CHILLED WATER MONITOR VESSEL
V29125	CHEMICAL FEED VESSEL

RM ID	DESCRIPTION
LC401	CORRIDOR
L-402	SBS VESSELS COOLING ROOM
LC403	CORRIDOR
L-404	GLASS FORMERS ROOM
LP404A	MAINTENANCE PLATFORM
LC406	CORRIDOR
LC407	CORRIDOR
LC408	CORRIDOR
L-409	LAYDOWN AREA
L-410	C2 SUPPLY ROOM
L-411	SUB-CHANGE
L-412	PROCESS BULGE & CABINET ROOM
LP413	PLATFORM
L-414	HVAC HUMIDIFIER SYSTEM ROOM
LC415	CORRIDOR
L-416	PLANT SERVICES ROOM
L-417	OPERATIONS CONSUMABLES AND PIPE STORE
LC418	CORRIDOR
L-419	SUB-CHANGE & EQUIPMENT AIRLOCK
L-420	SECONDARY OFFGAS ROOM
L-421	HEPA FILTER ROOM

RM ID	DESCRIPTION
LP421A	HEPA FILTER PLATFORM
LP421B	HEPA FILTER PLATFORM
L-424	TOOLS STORE & ENGINEERING CONSUMABLES
L-425	RIGGING STORE
LP426	COLD CHEMICAL PLATFORM
LC427	CORRIDOR
L-428	F&I ROOM
LC429	CORRIDOR
L-430	C3 EXHAUST FAN ROOM
L-433	DEMINERALIZED WATER TANK AREA
LP433A	COLD CHEMICALS TANK PLATFORM
LP434	PUMP PLATFORM
L-435	CAUSTIC COLD CHEMICAL AREA
L-436	SUB-CHANGE
L-437	SUB-CHANGE
L-438	CRANE MAINTENANCE
LC439	CORRIDOR
L-440	STACK MONITORING ROOM
L-441	SUB-CHANGE
L-442	C3 FILTER ROOM

PRELIMINARY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
B	ISSUED FOR REVISED CI INFORMATION (PHASE II)				3-30-00
A	ISSUED FOR PRELIMINARY CI INFORMATION (PHASE II)	AH	RM	CD	1-14-00

REVISION HISTORY

PROJECT No. W375
SITE HANFORD
AREA 200E
BUILDING No.

	BY	DATE
ORIGINATOR	HARSFIELD	1-14-00
CHECKER	MCSHANNOCK	1-14-00
APPROVED	DUNCAN	1-14-00

DBM REFERENCE No. DBI-W375-00-00006 REV B

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

LAW VITRIFICATION BUILDING LOCALLY SHIELDED MELTER PLAN AT EL 48'-0"

SCALE: 1/8"=1'-0"

DWG No. DWG- W375LV-PL00046

REV B

03 MAR 2000 13:24:07

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

LAST PLOTTED BY JAB
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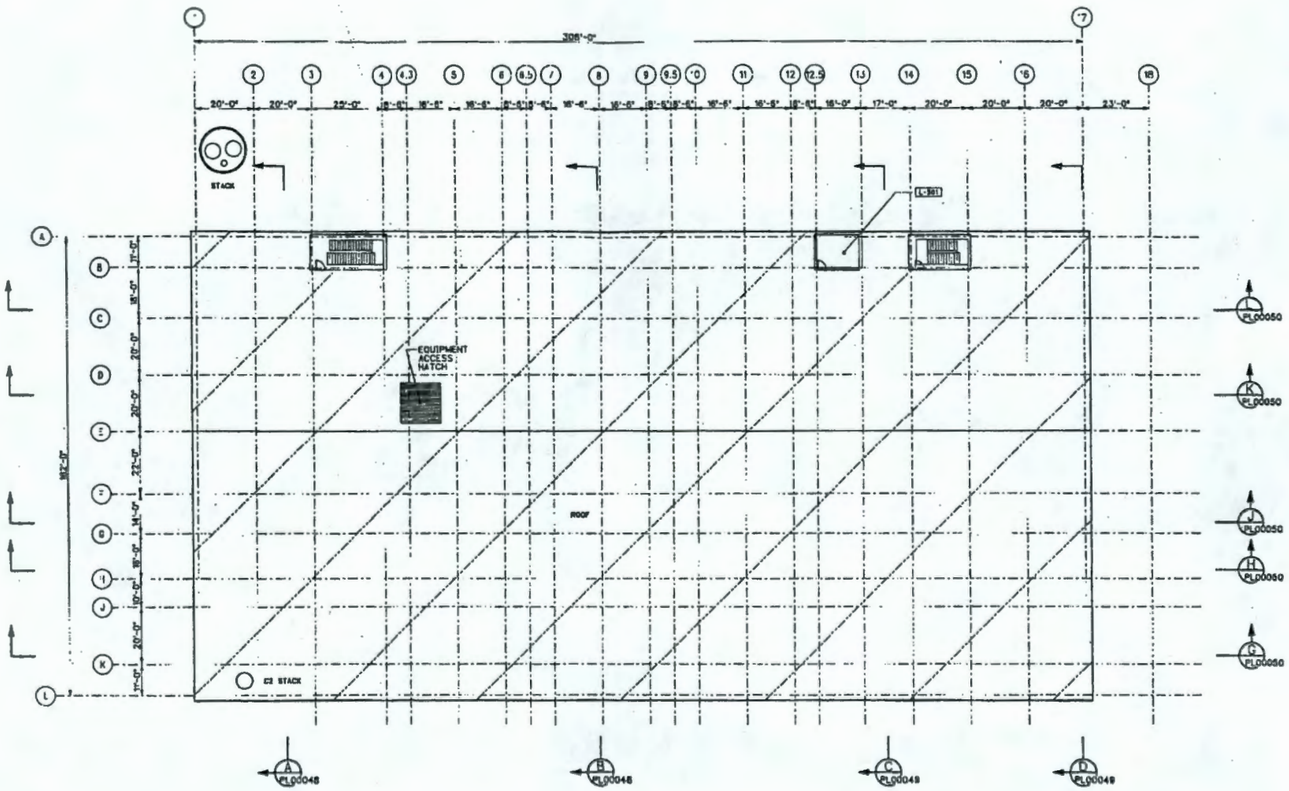
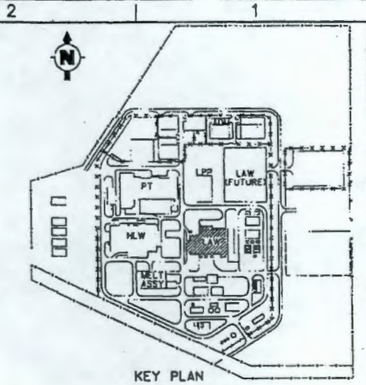
DWG No. DWG-W375 LV-PL00047



PLAN AT EL 68'-0"



KEY PLAN

NOTES:

1. FOR GENERAL NOTES, SEE DWG-W375LV-PL00042.

PRELIMINARY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
B	ISSUED FOR REFINED C1 INFORMATION (PHASE II)	JP	RM	JW	3-03-00 5-8-00
A	ISSUED FOR PRELIMINARY C1 INFORMATION (PHASE I)	AM	RM	CD	1-14-00

REVISION HISTORY

	BY	DATE
ORIGINATOR	WARNFIELD	1-14-00
CHECKER	MOSSBRUCKER	1-14-00
APPROVED	DUNCAN	1-14-00

PROJECT No. W375
SITE HANFORD
AREA 200E
BUILDING No.

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

LAW VITRIFICATION BUILDING
LOCALLY SHIELDED MELTER
PLAN AT EL. 68'-0"

SCALE 1/8"=1'-0" | DWG No. DWG- W375 LV-PL00047 | REV B

DGI REFERENCE No. DGI-W375-00-00007 REV B

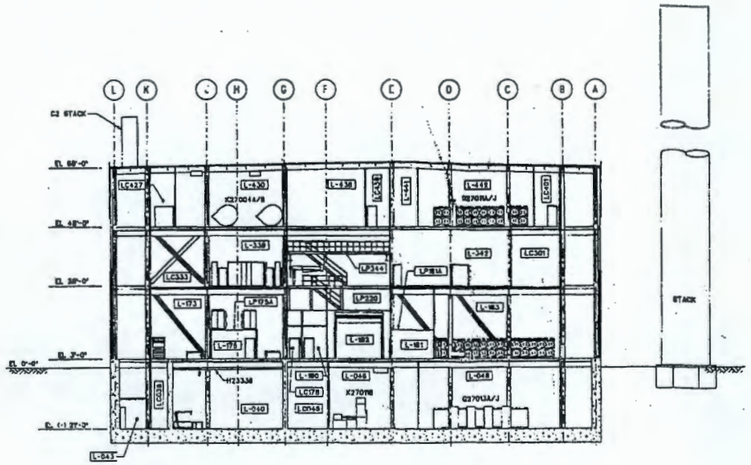
1" SIZE - 44x34

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

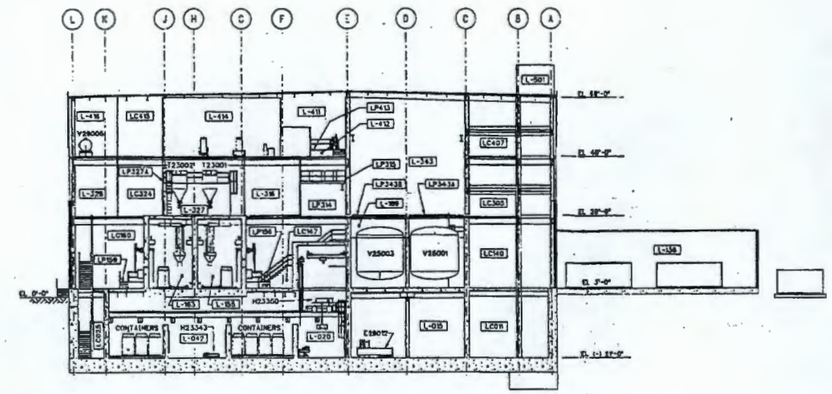
ROOM ID	DESCRIPTION
L-501	ELEVATOR EQUIPMENT ROOM

FORM RP-1.2.2.2.2

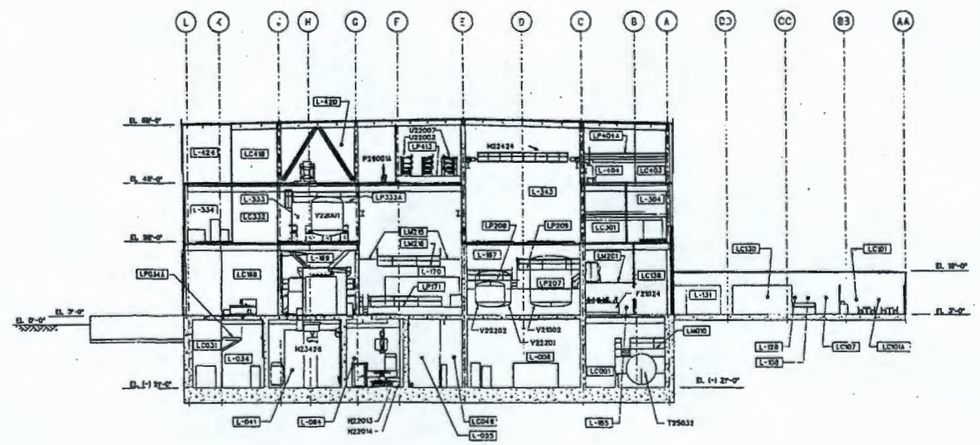
DWG No. DWG-W375 LV-PL00048



SECTION A-A



SECTION C-C



SECTION B-B

NOTES:

1. FOR GENERAL NOTES, SEE DWG-W375LV-PL00042.
2. FOR ROOM IDENTIFICATIONS AND PLANT ITEM NUMBER DESCRIPTIONS REFER TO THE RESPECTIVE PLAN VIEWS

PRELIMINARY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
B	ISSUED FOR NOTICE OF INFORMATION (PHASE D)	JCD	RM	GD	3-14-00 B-8 CKD
A	ISSUED FOR PRELIMINARY CI INFORMATION (PHASE D)	JCD	RM	GD	1-14-00

REVISION HISTORY

	BY	DATE
ORIGINATOR	GORMON	1-14-00
CHECKER	MOSSBRUCKER	1-14-00
APPROVED	JUNCAY	1-14-00

PROJECT No. W375
SITE HANFORD
AREA 200E
BUILDING No.

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

LAW VITRIFICATION BUILDING LOCALLY SHIELDED MELTER SECTION A-A, B-B AND C-C

DWG REFERENCE No. 004-W375-00-00000 REV 0

SCALE: 1/16"=1'-0"

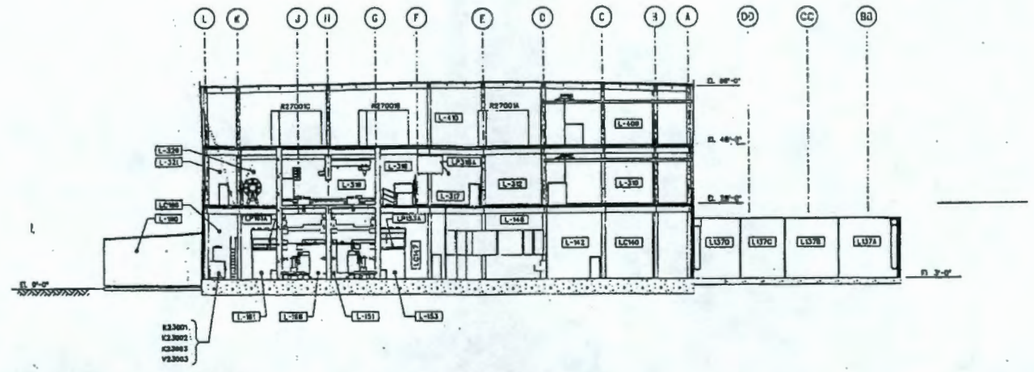
DWG No. DWG- W375LV-PL00048 REV B

"C" SIZE - 44x34

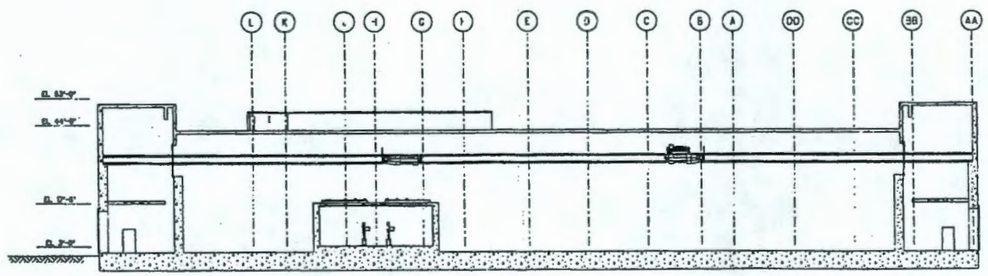
03 MAR 2000 17:28:52

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

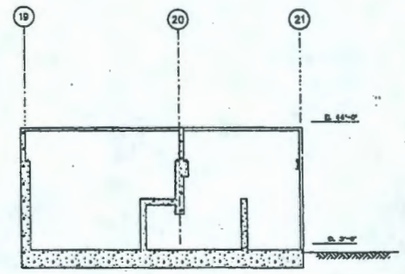
DWG No. DWG-W375 LV-PL00049



SECTION D-D



SECTION E-E



SECTION F-F

NOTES:

1. FOR GENERAL NOTES, SEE DWG-W375LV-PL00042.
2. FOR ROOM IDENTIFICATIONS AND PLANT ITEM NUMBER DESCRIPTIONS REFER TO THE RESPECTIVE PLAN VIEWS.

PRELIMINARY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
B	ISSUED FOR REFINED C1 INFORMATION (PHASE II)	EM			3-03-00
A	ISSUED FOR PRELIMINARY C1 INFORMATION (PHASE I)	EM	RM	GD	1-14-00

REVISION HISTORY

PROJECT No.	W375	
SITE	HANFORD	
AREA	200E	
BUILDING No.		
	BY	DATE
ORIGINATOR	MONTENEGRO	1-14-00
CHECKER	MOSSBRUCKER	1-14-00
APPROVED	DUNCAN	1-14-00

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No: DE-AC06-96RL13308

LAW VITRIFICATION BUILDING
LOCALLY SHIELDED MELTER
SECTION D-D, E-E AND F-F

SCALE: 1/16"=1'-0"

DWG No. DWG- W375LV-PL00049

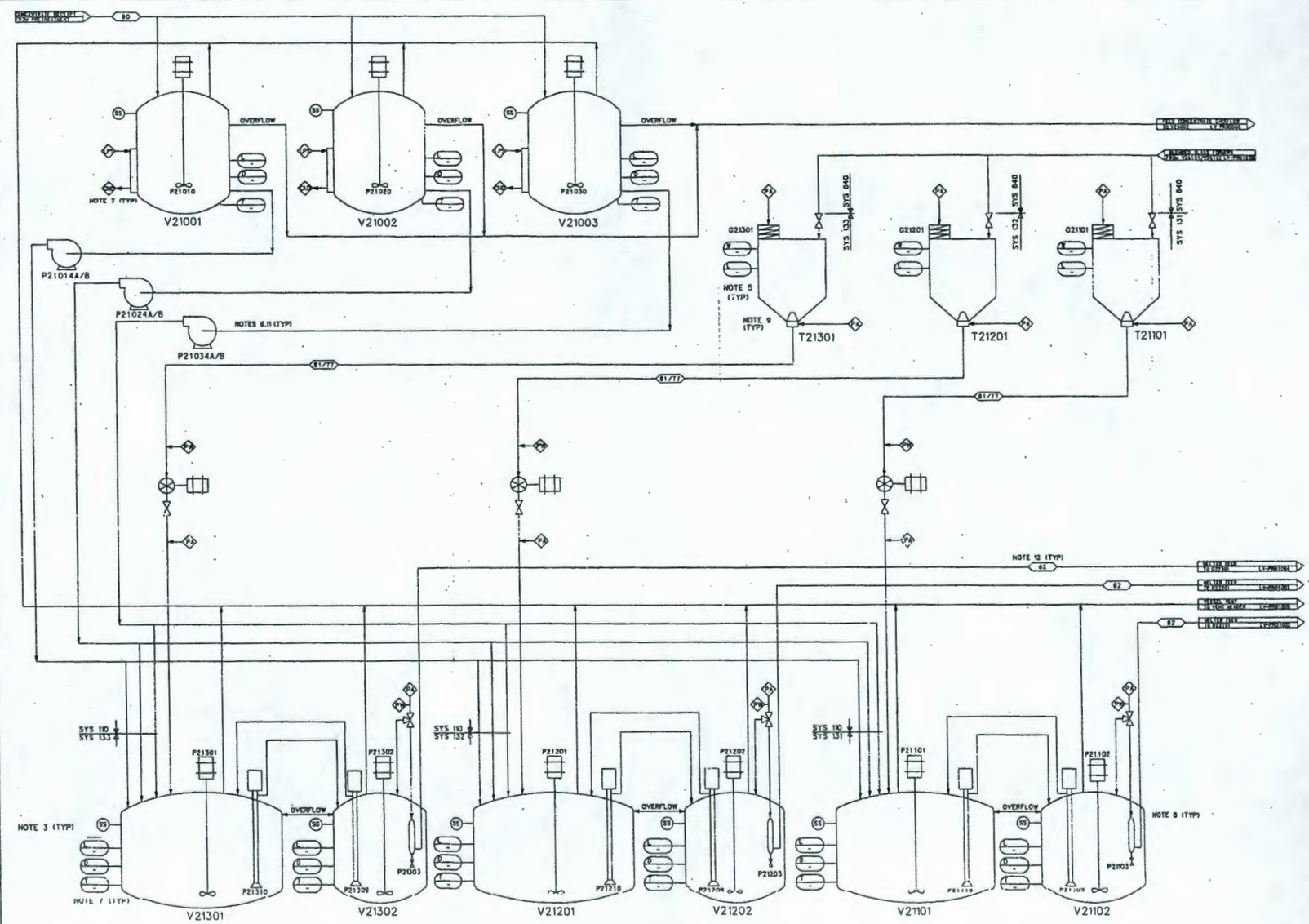
REV B

"E" SIZE - 44x34

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375LV-PR01001

PLANT ITEM NUMBER	T21301	T21201	T21101	V21001	V21002	V21003	V21301	V21201	V21101	V21302	V21202	V21102	G21301	G21201	G21101	P21303	P21203	P21103
DESCRIPTION	LAW MELTER 3 GLASS FORMER (133) MELTER	LAW MELTER 2 GLASS FORMER (132) MELTER	LAW MELTER 1 GLASS FORMER (131) MELTER	CONCENTRATE RECEIPT VESSEL 1	CONCENTRATE RECEIPT VESSEL 2	CONCENTRATE RECEIPT VESSEL 3	LAW MELTER 3 FEED PREPARATION VESSEL	LAW MELTER 2 FEED PREPARATION VESSEL	LAW MELTER 1 FEED PREPARATION VESSEL	LAW MELTER 3 FEED VESSEL	LAW MELTER 2 FEED VESSEL	LAW MELTER 1 FEED VESSEL	LAW MELTER 3 GLASS FORMER HOPPER FILTER	LAW MELTER 2 GLASS FORMER HOPPER FILTER	LAW MELTER 1 GLASS FORMER HOPPER FILTER	LAW MELTER 3 FEED VESSEL PUMP	LAW MELTER 2 FEED VESSEL PUMP	LAW MELTER 1 FEED VESSEL PUMP
MAXIMUM DUTY																		
MAXIMUM CAPACITY																		
MINIMUM DESIGN PRESSURE																		
MAXIMUM DESIGN PRESSURE																		
MINIMUM DESIGN TEMPERATURE																		
MAXIMUM DESIGN TEMPERATURE																		
DIAMETER																		
LENGTH/HEIGHT																		
MATERIALS OF CONSTRUCTION																		
NUMBER INSTALLED																		



NOTES:

1. SEE DRAWINGS DWG-W375PT-PR00001 AND DWG-W375PT-MD0001 FOR SYMBOLS AND LEGEND.
2. ONLY MAIN PROCESS CONTROL INSTRUMENTS SHOWN.
3. ONLY NON-ROUTINE SAMPLING IS UNDERTAKEN IN THE MELTER FEED PREP AND FEED VESSELS.
4. VALVES SHOWN ONLY TO INDICATE PROCESS INTENT.
5. MAXIMUM CHEMICAL FEED HOPPERS ARE CONTROLLED ON LOSS IN WEIGHT.
6. ONLY PRIMARY TRANSFER ROUTES ARE SHOWN. VALVING ALLOWS WASTE TO BE ROUTED FROM ANY CONCENTRATE FEED VESSELS TO ANY OF THE FEED PREPARATION VESSELS OR TO V25001.
7. ALL VESSELS FITTED WITH WASH RINGS, NOT SHOWN.
8. PUMPS SHOWN IN THE MELTER FEED VESSELS ARE AIR DISPLACEMENT SLURRY PUMPS. MULTIPLE PUMPS AND FEED LINES WILL BE PROVIDED.
9. THE FEED HOPPERS INCLUDE AN INTEGRAL BLENDING HEAD.
10. VESSELS AND EQUIPMENT HANDLING WASTE WILL BE LOCATED IN AREAS WHICH PROVIDE SECONDARY CONTAINMENT. DRAINS/SUMPS IN THESE AREAS ARE ROUTED TO TO V25002 OR T25032.
11. CONCENTRATE FEED VALVING AND PUMPS WILL BE LOCATED IN CONTAINMENT BULGES.
12. STREAM NUMBERS ON THE DRAWING CORRESPONDS TO THE STREAM NUMBERS FROM THE MASS AND ACTIVITY BALANCE, RPT-W375-PR00004. NOTE: WHERE THERE ARE MULTIPLE PIECES OF EQUIPMENT (I.E. THREE MELTERS, THREE FEED VESSELS, ETC.), THE FLOW RATE AS LISTED IN THE MASS BALANCE IS THE SUM FOR ALL.

HOLDS:

REFERENCES:

1. SD-W375LV-PR00006, "SYSTEMS 110 AND 131: LAW MELTER FEED SYSTEM DESCRIPTION"

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
1	REVISED PER DCN-W375-00-00004 MAJOR REVISION		RV		5/2/00
0	ISSUED FOR DESIGN	YR	RV		11/19/99

REVISION HISTORY

PROJECT No.	W375	
SITE	HANFORD	
AREA	200E	
BUILDING No.		
	BY	DATE
DESIGNATOR	W. MEED/WSEN	11/19/99
CHECKER	R. YOKE	11/19/99
APPROVED	C. M. DUNCAN	11/19/99

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT Nbr DE-AC06-96RL13308

PROCESS FLOW DIAGRAM LAW VITRIFICATION FEED PREPARATION

DCN REFERENCE No. DCN-W375-00-00167 2/2/00

SCALE NTS

DWG No. DWG-W375LV-PR01001

REV 1

T SIZE - 44x34

25 FEB 2000 08:38:03

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

FORM RPPC.001

DWG No. DWG-W375LV-PR01002

DENOTE TYPE NUMBER	V22101	V22102	D22101	V22103	E22101	P22101	P22102	E22102	P22103
DESCRIPTION	MELTER 1	MELTER 1 SBS CONDENSATE VESSEL	MELTER 1 SBS COLUMN	MELTER 1 SBS COLUMN VESSEL	MELTER 1 OFFGAS FILM COOLER	MELTER 1 SBS CONDENSATE PURGE PUMP	MELTER 1 SBS CONDENSATE PURGE PUMP	MELTER 1 OFFGAS FILM COOLER	MELTER 1 SCRUBBER WATER PURGE PUMP
MAXIMUM BUILT									
MAXIMUM CAPACITY									
MINIMUM DESIGN PRESSURE									
MAXIMUM DESIGN PRESSURE									
MINIMUM DESIGN TEMPERATURE									
MAXIMUM DESIGN TEMPERATURE									
DIAMETER									
LENGTH/HEIGHT									
MATERIALS OF CONSTRUCTION									
WHERE INSTALLED									

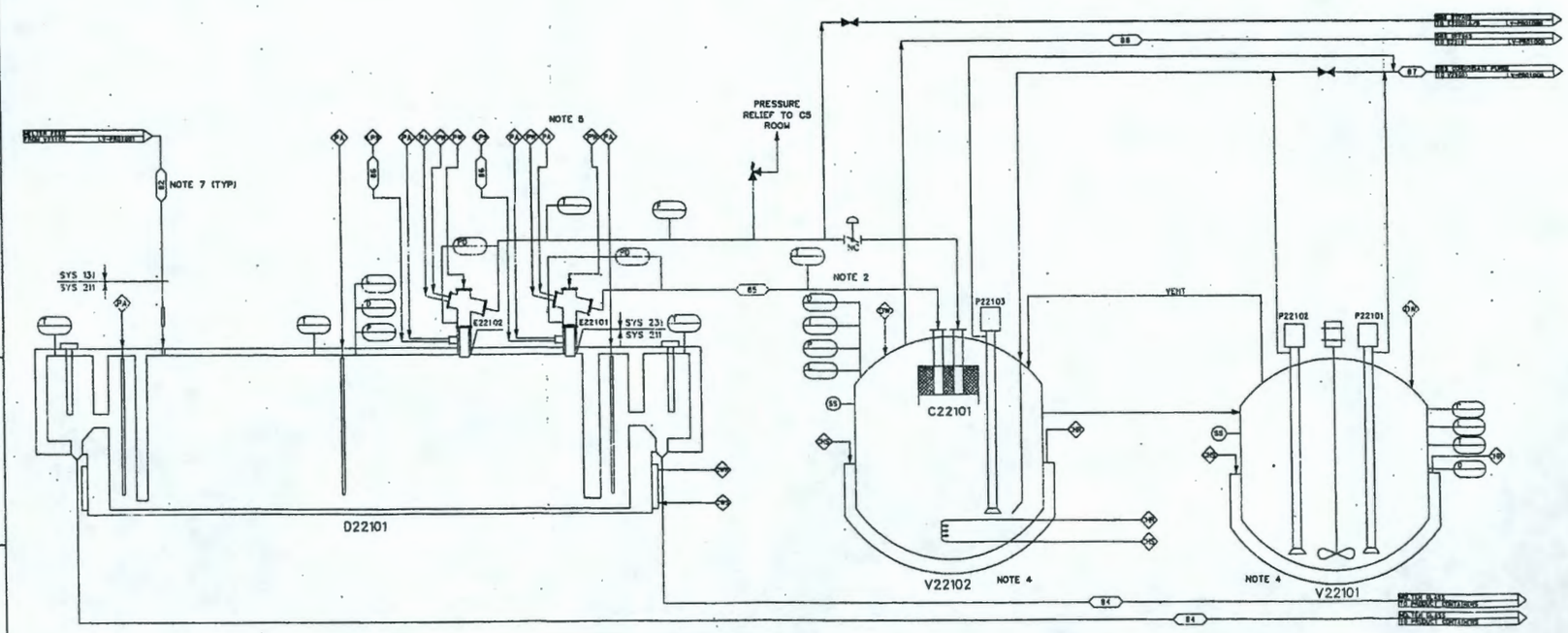
NOTES:

1. SEE DRAWINGS DWG-W375PT-PR00001 AND DWG-W375PT-M00001 FOR SYMBOLS AND LEGEND.
2. ONLY MAIN PROCESS CONTROL INSTRUMENTS SHOWN.
3. VALVES SHOWN ONLY TO INDICATE PROCESS INTENT.
4. VESSELS FITTED WITH WASH NOZZLE, NOT SHOWN.
5. INJECTION AIR TO FILM COOLER, AND CONTROL AIR TO OFFGAS JUMPER TO BE PROVIDED BY FANS.
6. VESSELS AND EQUIPMENT HANDLING WASTE WILL BE LOCATED IN AREAS WHICH PROVIDE SECONDARY CONTAINMENT. DRAINS/SUMPS IN THESE AREAS ARE ROUTED TO V25002 OR T25032.
7. STREAM NUMBERS ON THE DRAWING CORRESPONDS TO THE STREAM NUMBERS FROM THE MASS AND ACTIVITY BALANCE, RPT-W375-PR00004. NOTE: WHERE THERE ARE MULTIPLE PIECES OF EQUIPMENT (I.E. THREE MELTERS, THREE FEED VESSELS, ETC.). THE FLOW RATE AS LISTED IN THE MASS BALANCE IS THE SUM FOR ALL.

HOLDS:

REFERENCES:

1. SYSTEM DESCRIPTION "LAW MELTER FEED", SD-W375LV-PR00001.
2. SD-W375LV-PR00004, SYSTEMS 231, 232, 233 AND 234, LAW MELTER OFFGAS SYSTEM DESCRIPTION.



REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
1	REVISED PER DCN-W375-00-00C04 MAJOR REVISION	FR	RV	GD	2/26/00
0	ISSUED FOR DESIGN	FR	RV	GD	11/19/99

REVISION HISTORY

PROJECT No.	W375	
SITE	HANFORD	
AREA	200E	
B&L DWG No.		
	BY	DATE
ORIGINATOR	K. MEDAPUDI	11/19/99
CHECKER	R. VOKE	11/19/99
APPROVED	C.M. DUNCAN	11/19/99

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

PROCESS FLOW DIAGRAM LAW VITRIFICATION, MELTER 1 AND OFFGAS QUENCHING

DWG REFERENCE No. DWG-W375-00-00388 2/25/00

SCALE: NTS

DWG No. DWG-W375LV-PR01002

REV 1

E-SIZE - 44x34

25 FEB 2020 08:00:07

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375LV-PR01003

PLANT ITEM NUMBER	P22201	V22201	V22202	V22203	E22201	P22202	P22203	E22202	P22205
DESCRIPTION	MELTER 2	MELTER 2 SBS CONDENSATE VESSEL	MELTER 2 SBS COLUMN	MELTER 2 SBS COLUMN VESSEL	MELTER 2 OFFGAS FILM COOLER	MELTER 2 SBS CONDENSATE PURGE PUMP	MELTER 2 SBS CONDENSATE PURGE PUMP	MELTER 2 OFFGAS FILM COOLER	MELTER 2 CONDENSATE WATER PURGE PUMP
MAXIMUM DUTY									
MAXIMUM CAPACITY									
MINIMUM DESIGN PRESSURE									
MAXIMUM DESIGN PRESSURE									
MINIMUM DESIGN TEMPERATURE									
MAXIMUM DESIGN TEMPERATURE									
DIAMETER									
LENGTH/HEIGHT									
MATERIALS OF CONSTRUCTION									
NUMBER INSTALLED									

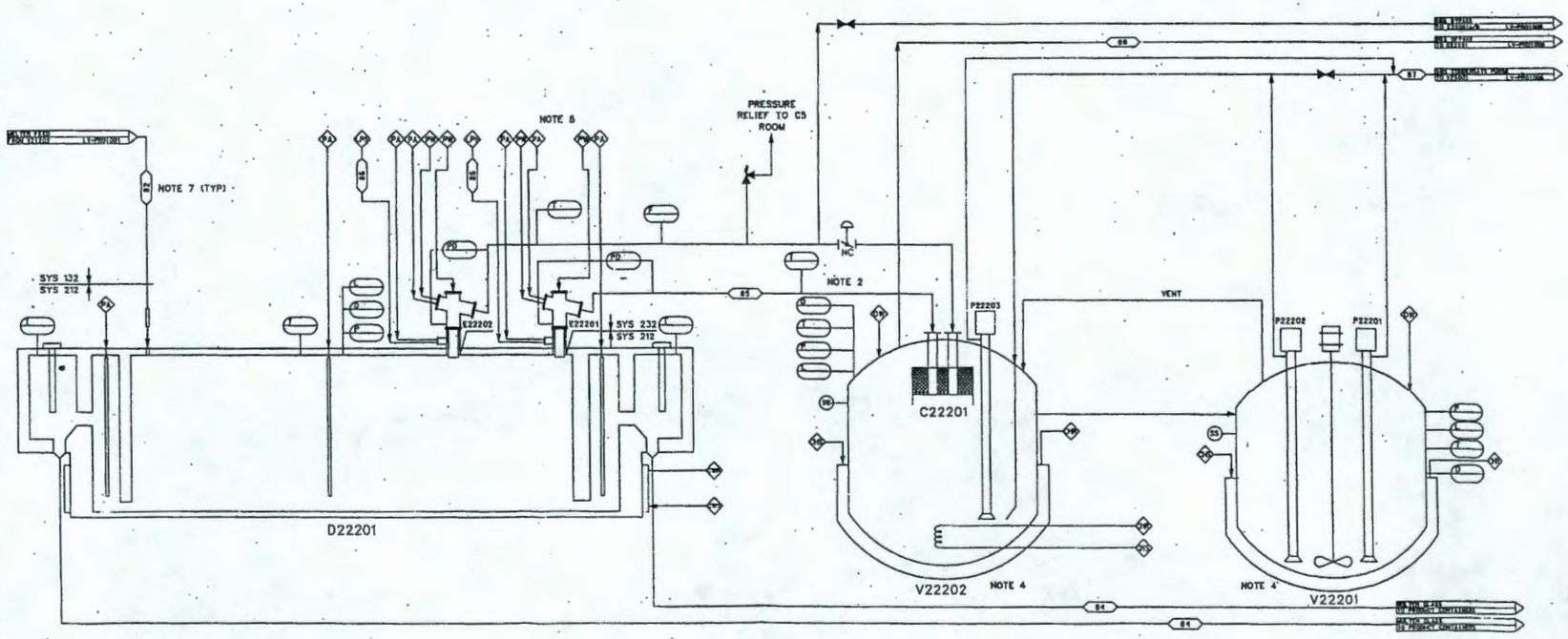
NOTES:

1. SEE DRAWINGS DWG-W375PT-PR00001 AND DWG-W375PT-M00001 FOR SYMBOLS AND LEGEND.
2. ONLY MAIN PROCESS CONTROL INSTRUMENTS SHOWN.
3. VALVES SHOWN ONLY TO INDICATE PROCESS INTENT.
4. VESSELS FITTED WITH WASH RINGS, NOT SHOWN.
5. DIRECTION AIR TO FILM COOLER, AND CONTROL AIR TO OFFGAS JUMPER TO BE PROVIDED BY FANS.
6. VESSELS AND EQUIPMENT HANDLING WASTE WILL BE LOCATED IN AREAS WHICH PROVIDE SECONDARY CONTAINMENT. DRAINS/SUMPS IN THESE AREAS ARE ROUTED TO V25002 OR T25033.
7. STREAM NUMBERS ON THE DRAWING CORRESPONDS TO THE STREAM NUMBERS FROM THE MASS AND ACTIVITY BALANCE, RPT-W375-PR00004. NOTE: WHERE THERE ARE MULTIPLE PIECES OF EQUIPMENT (I.E. THREE MELTERS, THREE FEED VESSELS, ETC.). THE FLOW RATE AS LISTED IN THE MASS BALANCE IS THE SUM FOR ALL.

HOLDS:

REFERENCES:

1. SYSTEM DESCRIPTION "LAW MELTER FEED", SD-W375LV-PR00001.
2. SD-W375LV-PR00004, SYSTEMS 231, 232, 233 AND 234, LAW MELTER OFFGAS SYSTEM DESCRIPTION.



REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
1	REVISED PER DCN-W375-00-00004 MAJOR REVISION	FR	RV	GD	5/26/00
0	ISSUED FOR DESIGN	FR	RV	GD	11/15/99

REVISION HISTORY

	BY	DATE
DESIGNATOR	W. METZRISEN	11/15/99
CHECKER	R. VOKE	11/15/99
APPROVED	G. W. DUNCAN	11/15/99

PROJECT No. W375
SITE HANFORD
AREA 200E
BUILDING No.

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

PROCESS FLOW DIAGRAM LAW VITRIFICATION, MELTER 2 AND OFFGAS QUENCHING

DWG REFERENCE No. SDM-W375-00-00308 5/26/00
SCALE: NTS
DWG No. DWG-W375LV-PR01003
REV 1
SIZE - 44x34

DWG No. DWG-W375LV-PR01004

PLANT ITEM NUMBER	D22301	V22301	C22301	V22302	E22301	P22301	P22302	P22303	E22302
DESCRIPTION	MELTER 3	MELTER 3 DEC CONDENSATE VESSEL	MELTER 3 DEC COLUMN	MELTER 3 DEC COLUMN VESSEL	MELTER 3 OFFGAS FILM COOLER	MELTER 3 DEC CONDENSATE PURGE PUMP	MELTER 3 DEC CONDENSATE PURGE PUMP	MELTER 3 OFFGAS FILM COOLER	MELTER 3 SCRUBBER WATER PURGE PUMP
MAXIMUM DUTY									
MAXIMUM CAPACITY									
MINIMUM DESIGN PRESSURE									
MAXIMUM DESIGN PRESSURE									
MINIMUM DESIGN TEMPERATURE									
MAXIMUM DESIGN TEMPERATURE									
DIAMETER									
LENGTH/HEIGHT									
MATERIALS OF CONSTRUCTION									
NUMBER INSTALLED									

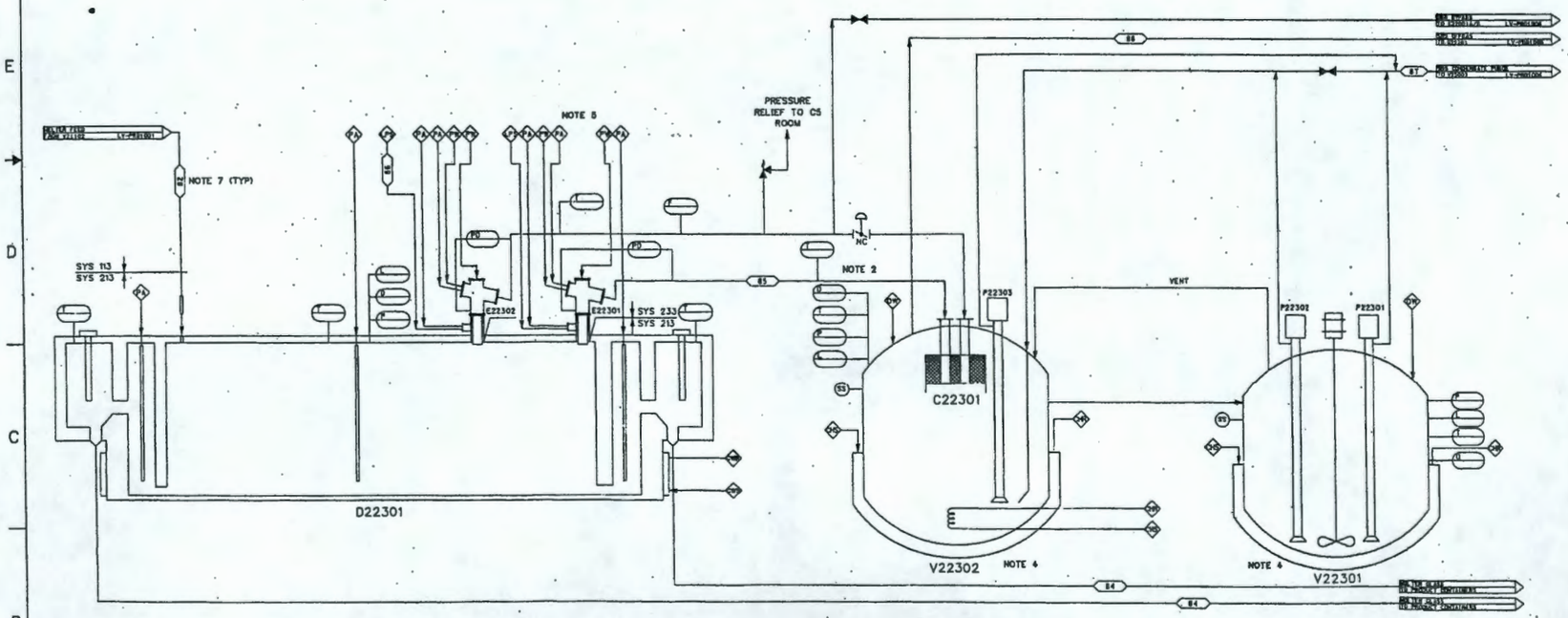
NOTES:

1. SEE DRAWINGS DWG-W375PT-PR00001 AND DWG-W375PT-M00001 FOR SYMBOLS AND LEGEND.
2. ONLY MAIN PROCESS CONTROL INSTRUMENTS SHOWN.
3. VALVES SHOWN ONLY TO INDICATE PROCESS INTENT.
4. VESSELS FITTED WITH WARM RINSING, HOT DRAINS.
5. INJECTION AIR TO FILM COOLER, AND CONTROL AIR TO OFFGAS JUMPER TO BE PROVIDED BY FAMS.
6. VESSELS AND EQUIPMENT HANDLING WASTE WILL BE LOCATED IN AREAS WHICH PROVIDE SECONDARY CONTAINMENT. DRAINS/SUMPS IN THESE AREAS ARE ROUTED TO V25002 OR T35032.
7. STREAM NUMBERS ON THE DRAWING CORRESPONDS TO THE STREAM NUMBERS FROM THE MASS AND ACTIVITY BALANCE, RPT-W375-PR00004. NOTE: WHERE THERE ARE MULTIPLE PIECES OF EQUIPMENT (I.E. THREE MELTERS, THREE FEED VESSELS, ETC.). THE FLOW RATE AS LISTED IN THE MASS BALANCE IS THE SUM FOR ALL.

HOLDS:

REFERENCES:

1. SYSTEM DESCRIPTION "LAW MELTER FEED", SD-W375LV-PR00001.
2. SD-W375LV-PR00004, SYSTEMS 231, 232, 233 AND 234, LAW MELTER OFFGAS SYSTEM DESCRIPTION.



REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
1	REVISED PER SCN-W375-00-00004 MAJOR REVISION	FR	RV	GD	3/20/00
0	ISSUED FOR DESIGN	FR	RV	GD	11/19/99

REVISION HISTORY

	BY	DATE
ORIGINATOR	M. MEDUNSKI	11/8/99
CHECKER	R. VOKE	11/8/99
APPROVED	G. M. DUNCAN	11/9/99

PROJECT No. 9375
SITE HANFORD
AREA 200E
BUILDING No.

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

PROCESS FLOW DIAGRAM LAW VITRIFICATION, MELTER 3 AND OFFGAS QUENCHING

SCALE: NTS
DWG No. DWG-W375LV-PR01004
REV 1

ERM REFERENCE No. DWG-W375-00-00380

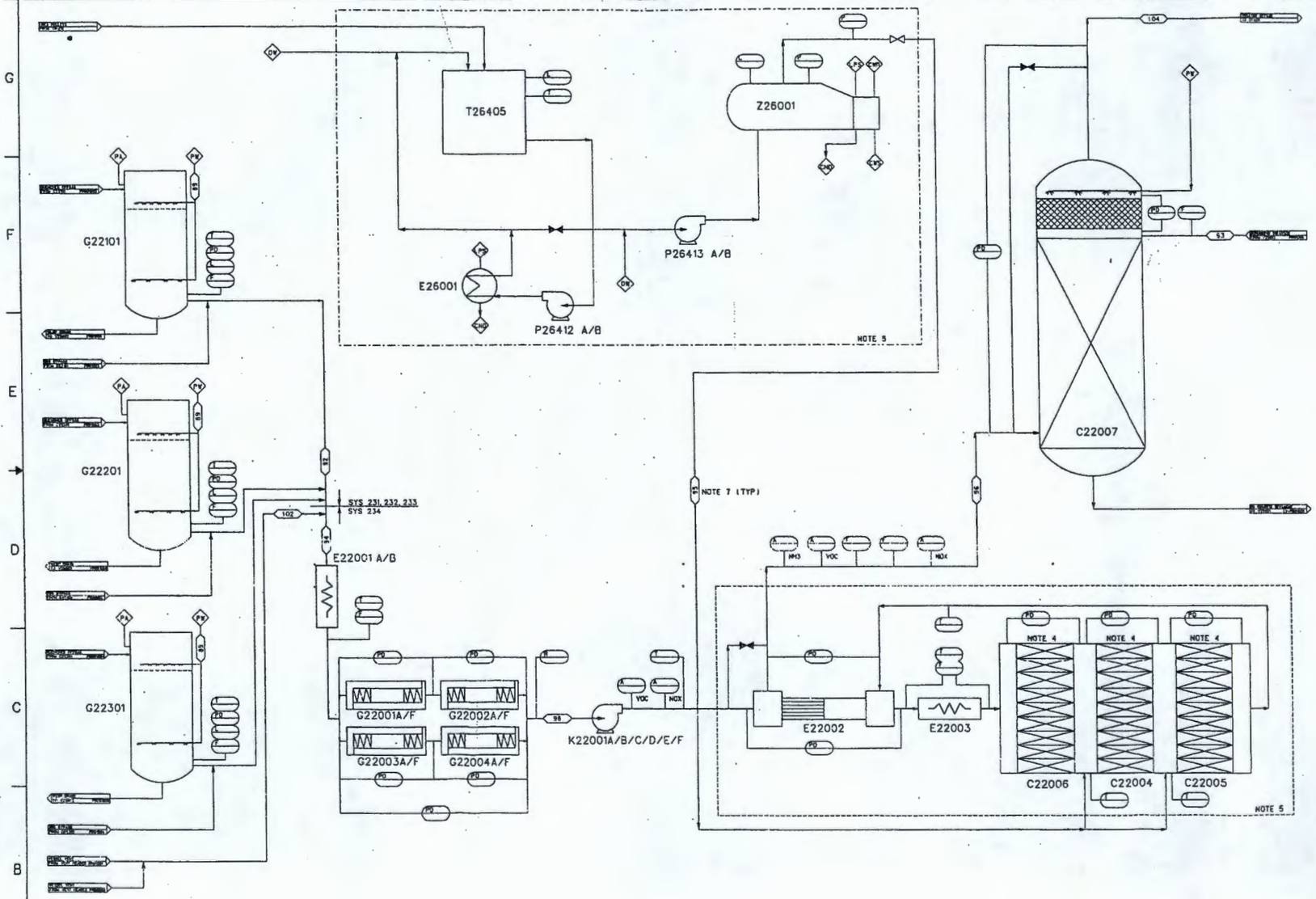
FORM APPLICATION

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375LV-PR01005

PLANT ITEM NUMBER	G22101	G22201	G22301	C22004	C22005	C22006	C22007	E22001 A/B	E22002	E22003
DESCRIPTION	LAW MELTER 1 OFFGAS MCP	LAW MELTER 2 OFFGAS MCP	LAW MELTER 3 OFFGAS MCP	LAW MELTERS OFFGAS CAT. OXIDIZER SCR CATALYST 1	LAW MELTERS OFFGAS CAT. OXIDIZER SCR CATALYST 2	LAW MELTERS OFFGAS CAT. OXIDIZER VOC CATALYST	LAW MELTERS OFFGAS CAUSTIC SCRUBBER	LAW MELTERS OFFGAS PREHEATER	LAW MELTERS OFFGAS CAT. OXIDIZER HEAT RECOVERY UNIT	LAW MELTERS OFFGAS CAT. OXIDIZER ELECTRIC HEATER
MAXIMUM DUTY										
MAXIMUM CAPACITY										
MINIMUM DESIGN PRESSURE										
MAXIMUM DESIGN PRESSURE										
MINIMUM DESIGN TEMPERATURE										
MAXIMUM DESIGN TEMPERATURE										
DIAMETER										
LENGTH/HEIGHT										
MATERIALS OF CONSTRUCTION										
NUMBER INSTALLED										

PLANT ITEM NUMBER	G22001 A/F	G22002 A/F	G22003 A/F	G22004 A/F	K22001 A/F	T26405	Z26001	P26412 A/B	P26413 A/B	T25001
DESCRIPTION	LAW MELTER OFFGAS HEPA FILTER	LAW MELTER OFFGAS HEPA FILTER	LAW MELTERS OFFGAS HEPA FILTER	LAW MELTER OFFGAS HEPA FILTER	LAW MELTER OFFGAS CONVEYOR FAN	WRCA DISSOLVER TANK	WRCA SYSTEM VEC EXCHANGER	WRCA DISSOLVER CIRCULATION PUMPS	WRCA REACTOR FEED PUMPS	WRCA SYSTEM REACTOR
MAXIMUM DUTY										
MAXIMUM CAPACITY										
MINIMUM DESIGN PRESSURE										
MAXIMUM DESIGN PRESSURE										
MINIMUM DESIGN TEMPERATURE										
MAXIMUM DESIGN TEMPERATURE										
DIAMETER										
LENGTH/HEIGHT										
MATERIALS OF CONSTRUCTION										
NUMBER INSTALLED										



NOTES:

1. SEE DRAWINGS DWG-W375PT-PR00001 AND DWG-W375PT-MO0001 FOR SYMBOLS AND LEGEND.
2. ONLY MAIN PROCESS CONTROL INSTRUMENT LOOPS SHOWN.
3. VALVES SHOWN ONLY TO INDICATE PROCESS INTENT.
4. VOC AND SCR CATALYST IS SUPPLIED AS A METAL MONOLITH HELD IN FRAMES. CATALYST IS INSERTED AND REMOVED THROUGH ACCESS DOORS.
5. VENDOR SUPPLIED EQUIPMENT IS A SKID MOUNTED UNIT.
6. VESSELS AND EQUIPMENT HANDLING WASTE WILL BE LOCATED IN AREAS WHICH PROVIDE SECONDARY CONTAINMENT. DRAINS/SUMPS IN THESE AREAS ARE ROUTED TO V25002 OR T25032.
7. STREAM NUMBERS ON THE DRAWING CORRESPONDS TO THE STREAM NUMBERS FROM THE MASS AND ACTIVITY BALANCE, RPT-W375-PR00004. NOTE: WHERE THERE ARE MULTIPLE PIECES OF EQUIPMENT (I.E. THREE MELTERS, THREE FEED VESSELS, ETC.). THE FLOW RATE AS LISTED IN THE MASS BALANCE IS THE SUM FOR ALL.

HOLDS:

REFERENCES:

1. SD-W375LV-PR00004, SYSTEMS 231, 232, 233 AND 234, LAW MELTER OFFGAS SYSTEM DESCRIPTION.
2. SD-W375LV-PR00007, "LAW COLD CHEMICAL SUPPLY SYSTEM DESCRIPTION".

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
1	REVISED PER DCN-W375-00-00004 MAJOR REVISION				
0	ISSUED FOR DESIGN	FR	RV	GD	11/19/99

REVISION HISTORY

	BY	DATE
ORIGINATOR	W. MEDWINSEN	11/19/99
CHECKER	R. VINZ	11/19/99
APPROVED	G. M. DUNCAN	11/19/99

PROJECT No. 9175
SITE HANFORD
AREA 200E
BUILDING No.

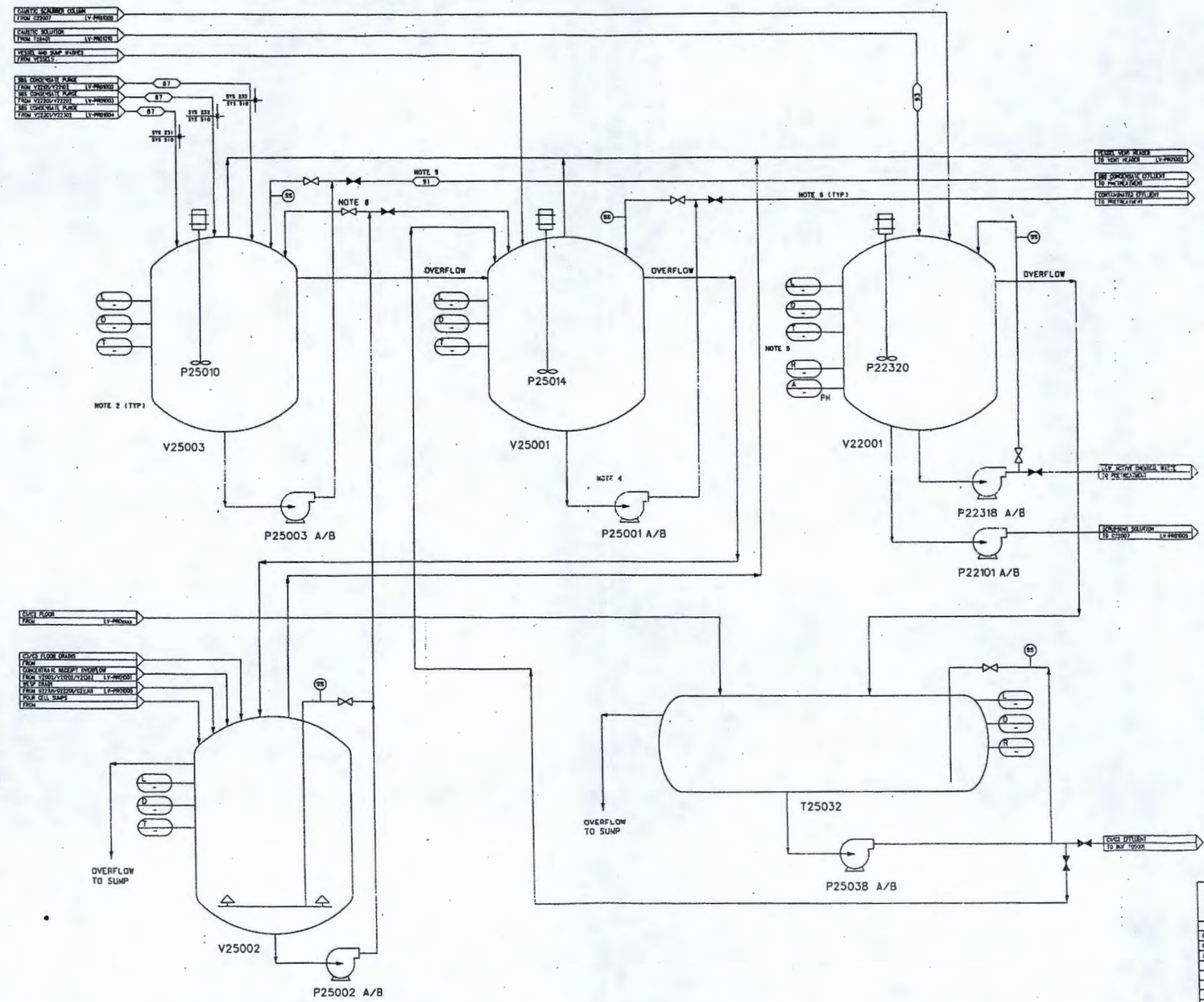
BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352
CONTRACT No. DE-AC06-96RL13308

PROCESS FLOW DIAGRAM LAW VIT PRIMARY AND SECONDARY OFFGAS TREATMENT

DWG REFERENCE No. DW-W375-00-00381
SCALE NTS
DWG No. DWG-W375LV-PR01005
REV 1
C SIZE - 44x34

DWG No. DWG-W375LV-PR01006

PLANT ITEM NUMBER	V25002	P25002 A/B	V25001	P25001 A/B	P25014	V25003	P25003 A/B	P25010	V22001	P22318 A/B	P22101 A/B	P22320	CV/C2 DRAIN COLLECTION TANK	P25038 A/B
DESCRIPTION	C3/C5 DRAIN/SUMP COLLECTION VESSEL	C3/C5 DRAIN/SUMP COLLECTION TRANS. PUMP	PLANT WASH VESSEL	PLANT WASH DISCH PUMP	PLANT WASH MECHANICAL AGITATOR	SBS CONDENSATE VESSEL	SBS CONDENSATE DISCH PUMP	SBS CONDENSATE MECHANICAL AGITATOR	CAUSTIC COLLECTION VESSEL	CAUSTIC BLOWDOWN TRANSFER PUMP	CAUSTIC SCRUBBING SOLUTION RECIRC PUMP	CAUSTIC COLLECTION MECHANICAL AGITATOR	CV/C2 DRAIN COLLECTION TANK	CV/C2 DRAIN COLLECTION TRANSFER PUMP
MAXIMUM DUTY														
MAXIMUM CAPACITY														
MINIMUM DESIGN PRESSURE														
MAXIMUM DESIGN PRESSURE														
MINIMUM DESIGN TEMPERATURE														
MAXIMUM DESIGN TEMPERATURE														
DIAMETER														
LENGTH/HEIGHT														
MATERIALS OF CONSTRUCTION														
NUMBER INSTALLED														



NOTES:

1. SEE DRAWINGS DWG-W375PT-PR00001 AND DWG-W375PT-MD00001 FOR SYMBOLS AND LEGEND.
2. ALL VESSELS WILL BE FITTED WITH INTERNAL WASH RING FOR DECONTAMINATION PURPOSES.
3. SAMPLING OF VESSELS WILL UTILIZE A DISCHARGE PUMP WITH A RECIRCULATING LEG SAMPLING SYSTEM.
4. ONLY MAIN PROCESS CONTROL INSTRUMENTS SHOWN.
5. VESSEL V25001 AND V25003 LOCATED IN A C5 CELL. VESSEL V25002 LOCATED IN A SEPARATE C5 CELL/ROOM. VESSEL V22001 LOCATED IN A SEPERATE C2 CELL/ROOM.
6. VALVES SHOWN TO INDICATE PROCESS INTENT.
7. VESSELS AND EQUIPMENT HANDLING WASTE WILL BE LOCATED IN AREAS WHICH PROVIDE SECONDARY CONTAINMENT. DRAINS/SUMPS IN THESE AREAS ARE ROUTED TO V25002 OR T25032.
8. NORMAL ROUTING IS TO V25003, MAINTENANCE ACTIVITY ROUTING IS TO V25001.
9. STREAM NUMBERS ON THE DRAWING CORRESPONDS TO THE STREAM NUMBERS FROM THE MASS AND ACTIVITY BALANCE, RPT-W375-PR00004. NOTE: WHERE THERE ARE MULTIPLE PIECES OF EQUIPMENT (I.E. THREE MELTERS, THREE FEED VESSELS, ETC.). THE FLOW RATE AS LISTED IN THE MASS BALANCE IS THE SUM FOR ALL.

HOLDS:

REFERENCES:

1. SD-W375LV-PR00008, SYSTEM DESCRIPTION "SYSTEM 510 LAW VITRIFICATION LIQUID EFFLUENT SYSTEM DESCRIPTION".

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
1	REVISED PER DCN-W375-00-00004 MAJOR REVISION				
0	ISSUED FOR DESIGN	FR	RV	GD	11/19/99

REVISION HISTORY

PROJECT No.	W375	
SITE	HANFORD	
AREA	200E	
BUILDING No.		
	BY	DATE
ORIGINATOR	W. MEDUNSEN	11/18/99
CHECKER	R. YOKE	11/18/99
APPROVED	G. W. DUNCAN	11/19/99

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No: DE-AC06-96RL13308

PROCESS FLOW DIAGRAM LAW LIQUID EFFLUENT SYSTEM

DWG No. DWG-W375LV-PR01006 REV 1

DWN REFERENCE No. DCN-W375-00-00392

SCALE: NTS

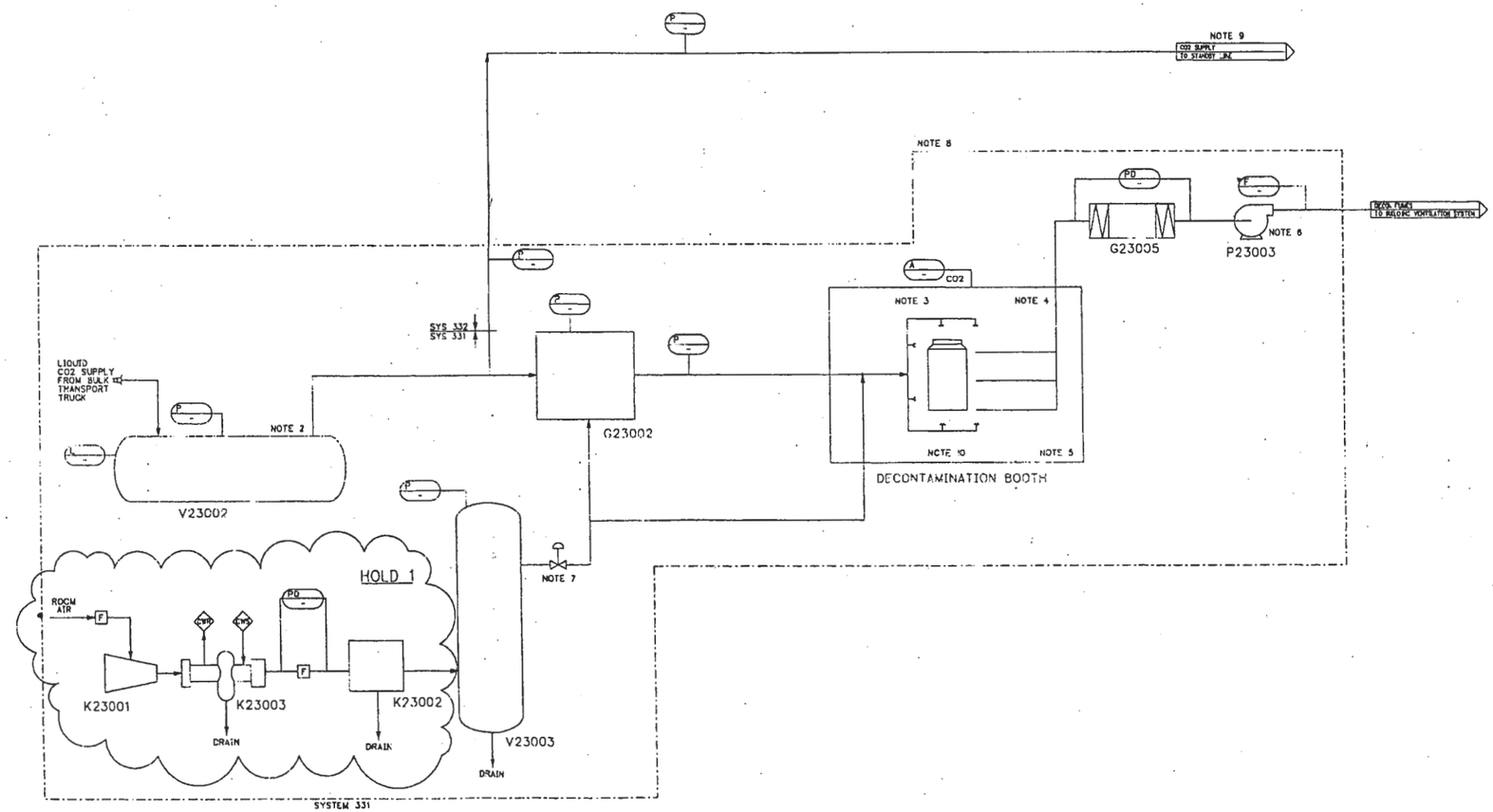
SIZE - 44x34

23 FEB 2000 08:04:30

COMPUTER GENERATED MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375LV-PR01009

PLANT ITEM NUMBER	V23001	V23002	P23002	F23002	K23001	K23002	F23003	K23003
DESCRIPTION	CONTAINER DECON CO2 STORAGE	CONTAINER DECON. COMP. AIR STORAGE	CONTAINER DECON PELLETIZER	CONTAINER DECON HEPA FILTER	CONTAINER DECON AIR COMPRESSOR	CONTAINER DECON AIR DRYER	CONTAINER DECON VACUUM PUMP	CONTAINER DECON AIR AFTERCOOLER
MAXIMUM DUTY								
MAXIMUM CAPACITY								
MINIMUM DESIGN PRESSURE								
MAXIMUM DESIGN PRESSURE								
MINIMUM DESIGN TEMPERATURE								
MAXIMUM DESIGN TEMPERATURE								
DIAMETER								
LENGTH/HEIGHT								
MATERIALS OF CONSTRUCTION								
NUMBER INSTALLED								



NOTES:

1. SEE DRAWINGS DWG-W375PT-PR00001 AND DWG-W375PT-M00001 FOR SYMBOLS AND LEGEND.
2. LIQUID CO2 STORAGE TANK IS LOCATED OUTSIDE LAW BUILDING.
3. MULTIPLE NOZZLES WILL BE REQUIRED. THE PRECISE NUMBER AND CONFIGURATION WILL BE DETERMINED AND DEMONSTRATED BY SYSTEM TRIALS.
4. CONTAINERS ARE POSTED IN THE DECON CELL FROM THE WELDING AREA BY A BOGIE. AFTER DECON. THEY ARE TRANSPORTED TO THE SWABBING AREA BY A CRANE.
5. DECON CELL IS AN ENCLOSED AREA WITH NOISE REDUCTION PROVISIONS. CO2 LEVEL IN THE DECON CELL IS MONITORED.
6. THE VACUUM SYSTEM REMOVES GASES AND AIRBORNE FROM DECONTAMINATING THE SURFACE OF THE CANISTER. THIS STREAM GOES THROUGH A HEPA FILTER VACUUM CLEANING SYSTEM AND IS THEN SENT THROUGH THE FACILITY VENTILATION SYSTEM FOR FURTHER TREATMENT.
7. VALVES SHOWN ONLY TO INDICATE PROCESS INTENT.
8. VENDOR SUPPLIED EQUIPMENT.
9. THERE ARE TWO CO2 DECONTAMINATION SYSTEMS, ONE IS OPERATIONAL WHILE THE OTHER ONE IS ON STANDBY MODE.
10. VESSELS AND EQUIPMENT HANDLING WASTE WILL BE LOCATED IN AREAS WHICH PROVIDE SECONDARY CONTAINMENT. DRAINS/SUMPS IN THESE AREAS ARE ROUTED TO V23002 OR T23032.

HOLDS:

1. AIR SUPPLY TO RECEIVER WILL BE FROM COMPRESSOR IN LAW BUILDING OR FROM BOF SUPPLIED PROCESS AIR TBD.

REFERENCES:

1. SD-W375LV-M00009, SYSTEM DESCRIPTION "LAW PRODUCT CONTAINER DECONTAMINATION", SWABBING AND MONITORING.

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
1	REVISED PER DCN-W375-00-00004 MAJOR REVISION		RV		2/24/00
0	ISSUED FOR DESIGN	FR	RV	GU	11/19/99

REVISION HISTORY

	BY	DATE
DESIGNATOR	W. MEEUWSEN	11/18/99
CHECKER	R. VOKE	11/18/99
APPROVED	G. M. DUNCAN	11/18/99

PROJECT No. W375
SITE HANFORD
AREA 200E
BUILDING No.

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

PROCESS FLOW DIAGRAM LAW VITRIFICATION CONTAINER DECONTAMINATION

SM REFERENCE No. 01W-W375-00-00395

SCALE: NTS

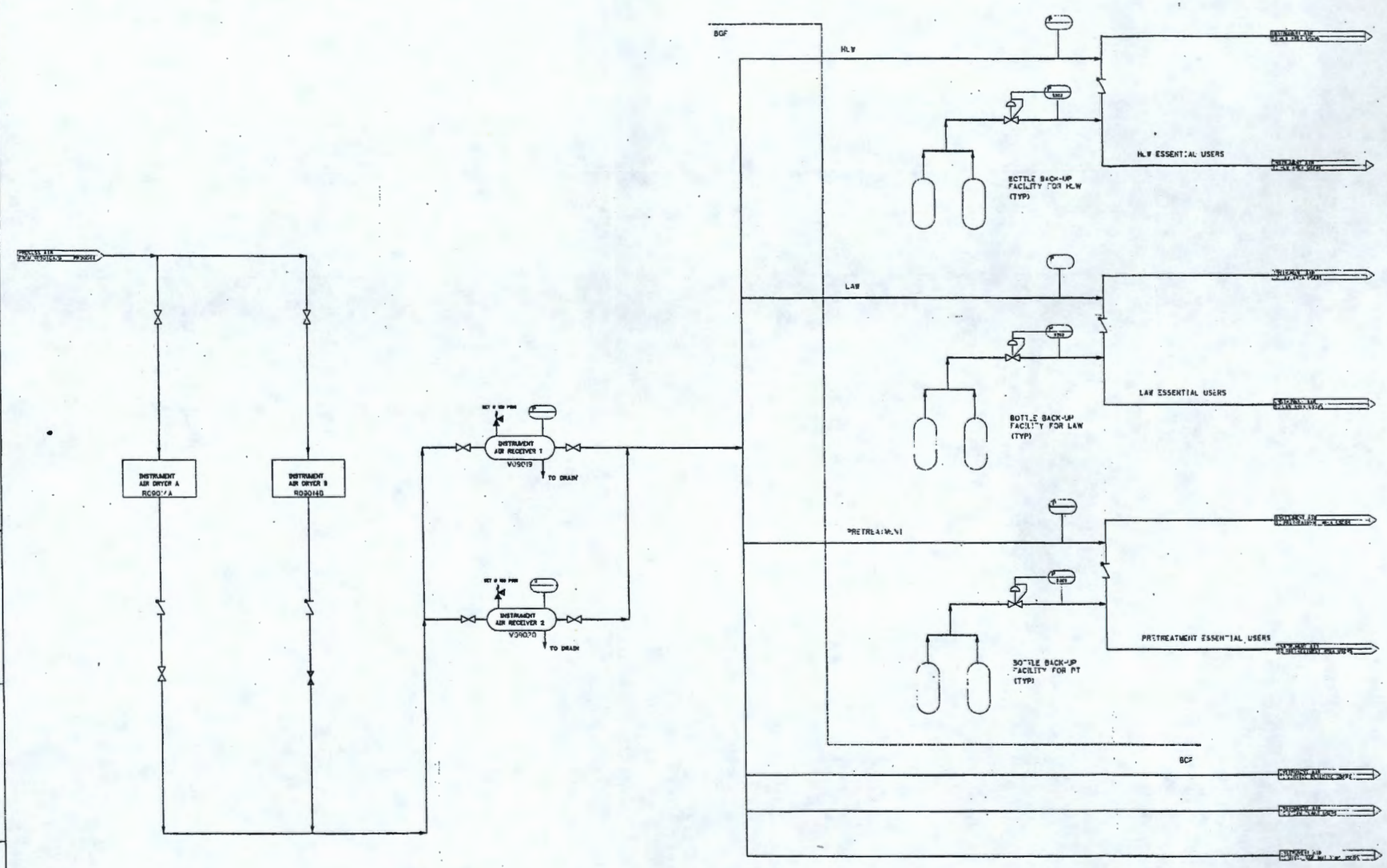
DWG No. DWG-W375LV-PR01009

REV. 1

E-SIZE - 44x34

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375-PR00043



NOTES

1. FOR LEGENDS AND SYMBOLS REFER TO DWG-W375-PT-PR00001.

2. ALL ITEMS ON THIS DRAWING ARE BCF RESPONSIBILITY UNLESS NOTED AS PT, HLW, OR LAW.

3. BOTTLE BACK UP SYSTEM WILL BE PROVIDED WITHIN EACH FACILITY. THIS SYSTEM WILL CONSIST OF HIGH PRESSURE NITROGEN BOTTLES PLACED STRATEGICALY AROUND THE AIR SYSTEM ENABLING CRITICAL AIR USERS TO MAINTAIN OPERATION IF POWER GOES OUT.

4. INSTRUMENT AIR DRYERS ARE OF THE DESICANT TYPE AND SHOULD HAVE DUAL PRE AND POST FILTERING.

PRELIMINARY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
A	ISSUED FOR INTERNAL REVIEW	CHC			07/7/99
B	DRAFT ISSUED FOR TWPA APPLICATION	CHC			07/21/99
C	ISSUED FOR DWTA DELIVERABLE 6F JD	CHC			07/30/99
D	ISSUED FOR TWPA	MAL	C-C		09/29/99
E	ISSUED FOR TWPA	[illegible]	[illegible]	[illegible]	[illegible]

REVISION HISTORY

PROJECT No. W375
DATE
SHEET
BUILDING No.

	BY	DATE
ORIGINATOR	[illegible]	[illegible]
CHECKER	[illegible]	[illegible]
APPROVED	[illegible]	[illegible]

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

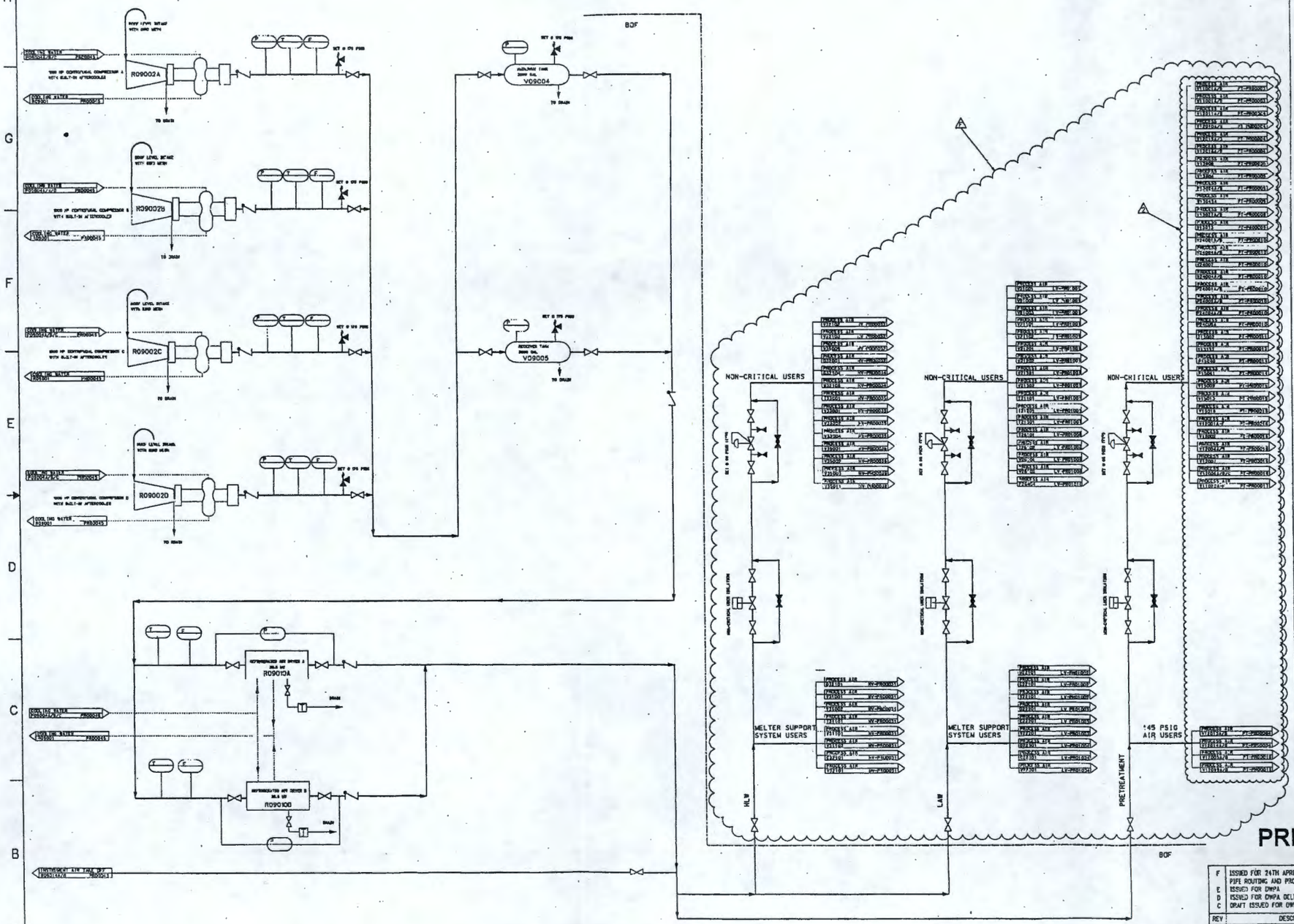
PROCESS FLOW DIAGRAM INSTRUMENT AIR

SCALE: NTS | DWG No. DWG-W375-PR00043 | REV E

SIZE - 44x34

STAMPED DRAWINGS - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375 -PR00044



NOTES

1. FOR LEGENDS AND SYMBOLS REFER TO DWG-W375-PT-P00001.

2. ALL ITEMS ON THIS DRAWING ARE BOF RESPONSIBILITY UNLESS NOTED AS PT, HLW, OR LAW.

3. PROCESS AIR SERVICES SHOWN MAY NOT REPRESENT A COMPLETE LIST OF ALL THE PROCESS AIR USERS.

4. BATTERY LIMITS FOR BOF IS 5' OUTSIDE THE PRIMARY BUILDING WALL.

HOLD

1. THE COMPRESSED AIR SYSTEM IS UNDER REVIEW AND MAY GROW FROM 14,000 SCFM TO 44,300 SCFM IN CAPACITY. THE POWER RATING ON THE COMPRESSOR WOULD CHANGE FROM 1000 HP TO 4,000 HP.

2. A LAW PRETREATMENT PLANT IS CURRENTLY UNDER REVIEW. THIS DRAWING WILL NEED ADDITIONAL SERVICES TO THAT PROCESS WHEN THE PFD'S FOR THAT SYSTEM ARE ISSUED.

PRELIMINARY

REV	DESCRIPTION	DRAWN. CHKD	APVD	DATE
F	ISSUED FOR 24TH APRIL 00 BASELINE. ALTERED PIPE ROUTING AND PROCESS CONNECTIONS.			3-14-00
E	ISSUED FOR DWPA	MA. CHC	CHC	12/19/98
D	ISSUED FOR DWPA DELIVERABLE B1-35	CHC	L.L.	
C	DRAFT ISSUED FOR DWP APPLICATION	CHC		

REVISION HISTORY

		BY	DATE
ORIGINATOR	C.CHUNG		12/1/94
CHECKED			
APPROVED			

PROJECT No. W375
SITE HANFORD
AREA 200E
BLDG. No. 10

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-89RL13308

PROCESS FLOW DIAGRAM
PROCESS AIR

DM REFERENCE No. 00A-W375-00-01140 REV F

SCALE: NTS

DWG No. DWG-W375 -PR00044 REV F

A SIZE - 44x34

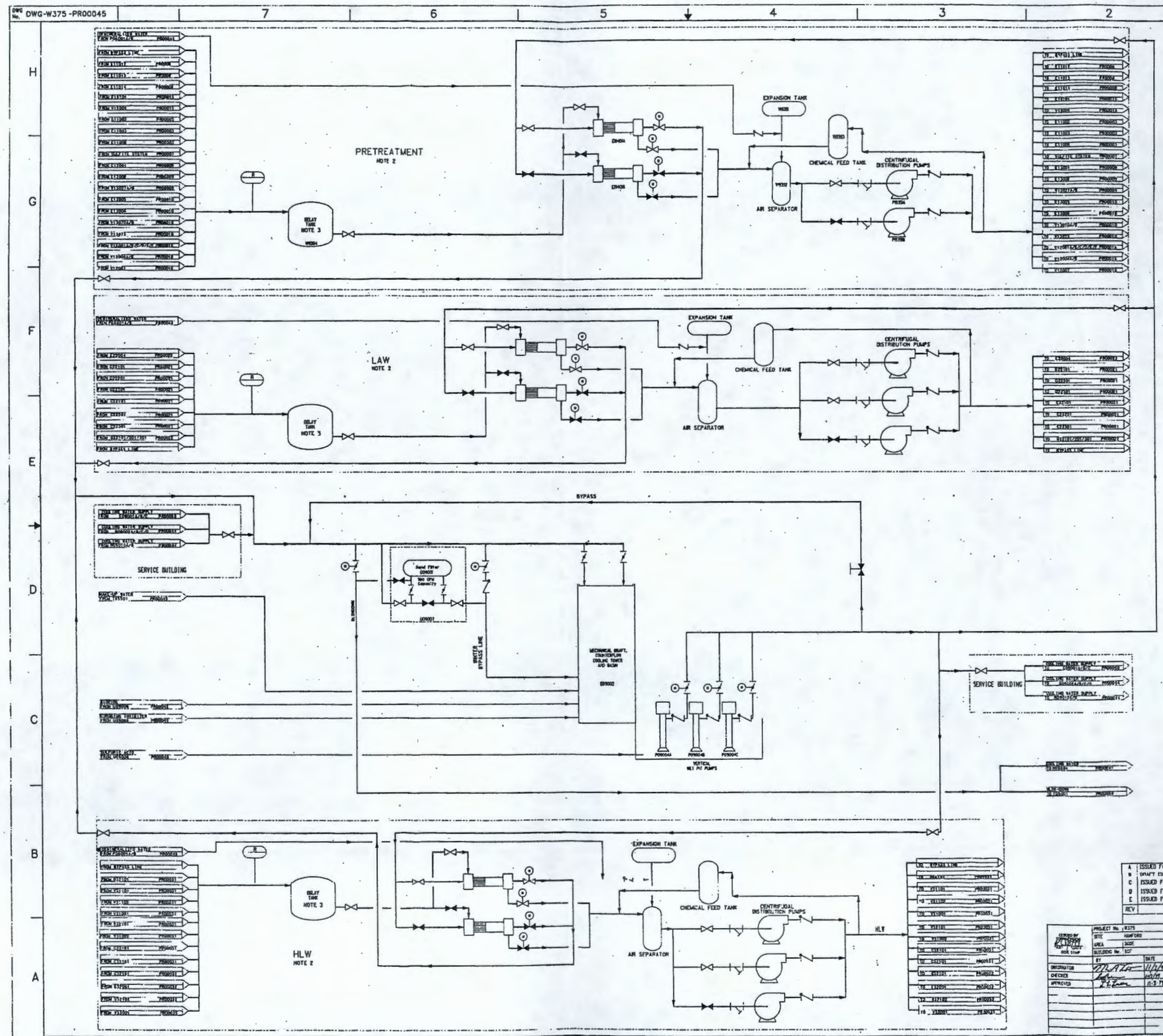
14 MAR 2000 07:27:37

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

LAST PLOTTED BY: ULF\ernsth
c:\ness\375\PR00044.dgn

FORM APPC.DOC

DWG No. DWG-W375 -PR00045



NOTES

1) ALL ITEMS ON THIS DRAWING ARE BOF RESPONSIBILITY UNLESS NOTED AS PT, HLW, OR LAW.

2) CONFIGURATION WITHIN EACH FACILITY IS DEPICTED AS A TYPICAL ARRANGEMENT. THESE CONFIGURATIONS MAY CHANGE.

3) SECONDARY LOOP RETURNS WILL HAVE RADIATION MONITORING AND DELAY TANKS. IN CASE CONTAMINATION IS DETECTED, EACH DELAY TANK WILL HAVE THE ABILITY TO DIVERT FLOW TO AN APPROPRIATE LOCATION TO BE DETERMINED BY PT, HLW AND LAW.

PRELIMINARY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
A	ISSUED FOR SYSTEM REVIEW	SAN			12/11/98
B	DRAFT ISSUED FOR DWP APPLICATION	SAN			01/13/99
C	ISSUED FOR DWPA DELIVERABLE B1-35	SAN			03/18/99
D	ISSUED FOR DWPA	MAL	SAN	LLL	09/22/99
E	ISSUED FOR SYSTEM UPDATE	MA/[illegible]	[illegible]	[illegible]	11-2-99

REVISION HISTORY

PROJECT No. W375
SITE HANFORD
AREA 300E
BUILDING No. 3GF

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No: DE-AC06-96RL13308

	BY	DATE
DESIGNER	[illegible]	11/1/99
CHECKER	[illegible]	11/1/99
APPROVED	[illegible]	11-2-99

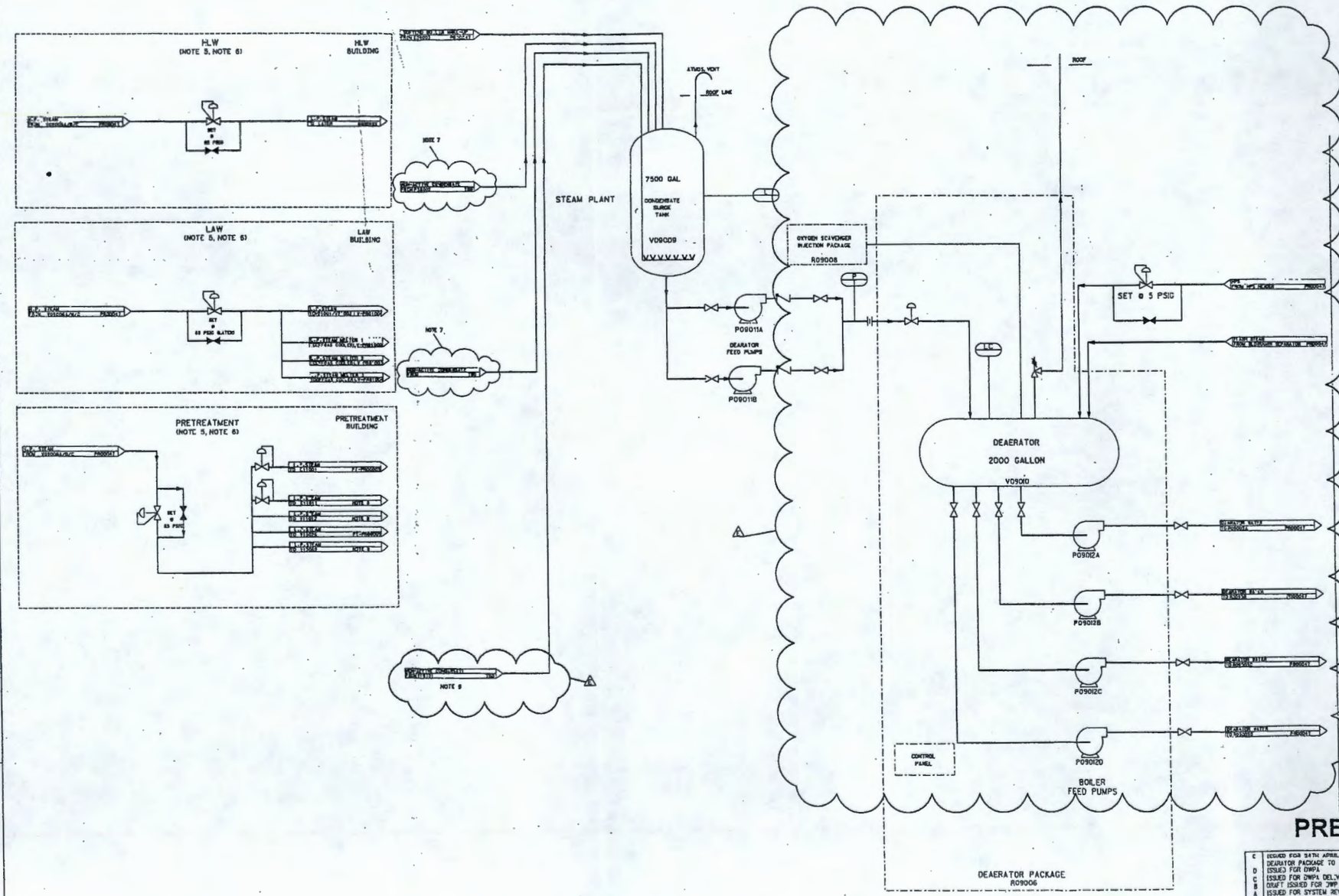
PROCESS FLOW DIAGRAM COOLING WATER

SCALE: NTS
DWG No. DWG-W375 -PR00045
REV E

U3 NOV 1999 09:50:19

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375-PR00046



NOTES

1) ALL PIPING SHALL BE CARBON STEEL, SCH 40, A53, SEAMLESS GRADE B

2) ALL PIPING TO BE INSULATED WITH 1" CALCIUM SILICATE INSULATION AND STEEL JACKET.

3) DELETED

4) ALL ITEMS ON THIS DRAWING ARE BNF RESPONSIBILITY UNLESS NOTED AS PRETREATMENT, LAW, OR HLW.

5) PRESSURE REDUCING VALVES AND DESUPERHEATERS ARE TO BE DESIGNED BY PT, HLW, AND LAW AS PROCESS REQUIRES.

6) PT, LAW, AND HLW ARE RESPONSIBLE FOR THE DESIGN OF CONDENSATE COLLECTION AND RETURN IN EACH FACILITY.

7) CONDENSATE MAY NOT BE RETURNED FROM LAW AND HLW LPS USERS DUE TO LOW LEAKE QUANTITIES. RETURN FROM STEAM LINE TRAPS MAY STILL BE PROVIDED.

8) USERS IN THE LPP BUILDING ARE NOT SHOWN. THEY WILL BE SHOWN ON THE NEXT REVISION.

9) THE CONDENSATE RETURN FLOW WILL BE INCREASED TO SUPPORT A 80MT/DAY PRETREATMENT THROUGHPUT. THE CHANGES REQUIRE INCREASED CAPACITY IN THE CONDENSATE TANK, ADDITION OF A THIRD GENERATOR PUMP AND INCREASED DEAERATOR CAPACITY. THE CHANGES WILL BE SHOWN ON THE NEXT REVISION.

PRELIMINARY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
E	ISSUED FOR 24TH APRIL 00 BASELINE - UNOVED DEARATOR PACKAGE TO THIS PFD	SJ	OTS	JOA	3/3/00
D	ISSUED FOR DWPA	VAL	OTS	JLL	9/22/99
C	ISSUED FOR DWPA DELIVERABLE B1-25	OTS			03/18/99
B	DRAFT ISSUED FOR DWP APPLICATION	OTS			09/10/98
A	ISSUED FOR SYSTEM REVIEW	OTS			12/17/98

REVISION HISTORY

	BY	DATE
ORIGINATOR	GT STRENKEL	12/8/98
CHECKER	S. NEBEKER	12/8/98
APPROVED	L. LUCAS	12/10/98

PROJECT No. W375
SITE HANFORD
AREA 200E
BUILDING No. C

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

PROCESS FLOW DIAGRAM L.P. STEAM AND CONDENSATE

SCALE: NTS

DWG No. DWG-W375-PR00046

REV E

BNF REFERENCE No. 96W-W375-00-01214 REV E

"C" SIZE - 24x36

DWG No. DWG-W375-PR00047

FIRETUBE BOILER
21,500 LB/HR
@ 135 PSI
R09003A

FIRETUBE BOILER
R09003B

FIRETUBE BOILER
R09003C

FIRETUBE BOILER
R09003D

STACK

CONTROL PANEL

BOILER PACKAGE (TYPICAL) 4 REQ'D

CONDENSATE CHEMICAL ADDITION PACKAGE

PRETREATMENT

LAW

HLW

BOILER BOTTOM BLOWDOWN PACKAGE R09004

BOILER SURFACE BLOWDOWN PACKAGE R09007

V09007

V09008

EC9003

P09009A P09009B

NOTES

1) ALL PIPING SHALL BE CARBON STEEL, SCH 40, A53, SEAMLESS GRADE B

2) ALL PIPING TO BE INSULATED WITH 2" CALCIUM SILICATE INSULATION AND STEEL JACKET

3) ACTIVE CELL SUMP EJECTORS AND AND VESSEL EJECTORS ARE ALSO SERVED WITH HIGH PRESSURE STEAM.

4) H.P. STEAM SUPPLIES TO SUMP EJECTORS AND VESSEL EMPTYING EJECTORS NOT SHOWN.

5) ALL ITEMS ON THIS DRAWING ARE BOF RESPONSIBILITY UNLESS NOTED AS PRETREATMENT, LAW, OR HLW

6) SOME PRE-TREATMENT DEMAND HAS TRANSFERRED TO THE LPP BUILDING. ALL CHANGES AFFECT'D BY THE LPP WILL BE SHOWN ON THE NEXT REVISION.

7) THE STEAM DEMAND WILL INCREASE TO ACCOMODATE 60MT/DAY PRETREATMENT THROUGHPUT. ADDITION OF A FIFTH BOILER IS REQUIRED. THE CHANGE WILL BE SHOWN ON THE NEXT REVISION.

8) DWG-W375PT-PR00003 - W11001A/B, W11002A/3

DWG-W375PT-PR00004 - W12250A/B, 12251A/B, W12280, W12281, W12282, W12283

DWG-W375PT-PR00007 - W13119A/B, W13120A/B, W13121A/B, W13127

DWG-W375PT-PR00009 - W13046A/B, W13045A/B, W13042A/B, W13058

DWG-W375PT-PR00014 - W15301, W15302A/B, W15303A/B, W15304A/B, W15305A/B, W15306A/B, W15307A/B, W15308A/B, W15309A/B, W15310A/B, W15311A/B, W15312A/B, W15014A/B

DWG-W375PT-PR00015 - SEE NOTE 14

DWG-W375PT-PR00016 - W12248A/B, W12249A/B

9) DWG-W375HV-PR00031 - E32101, E32102, W32101, W32102, W32103

DWG-W375HV-PR00032 - W35038A/B, W35025, W35026, W35037

DWG-W375HV-PR00034 - W32106, W32107

DWG-W375HV-PR00035 - W33002A/3, W33003A/B

DWG-W375HV-PR00036 - W35014A/B, W35016, W35052A/B, W35031A/B, W3508

PRELIMINARY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
E	ISSUED FOR 24TH APRIL 00 BASELINE	SP			
D	ISSUED FOR DWPA	MAL	CTS	LLL	9/22/99
C	ISSUED FOR DWPA DELIVERABLE B1-35	CTS			03/18/99
B	DRAFT ISSUED FOR DWPA	CTS			01/12/99
A	ISSUED FOR SYSTEM REVIEW	CTS			12/1/98

REVISION HISTORY

PROJECT No. W375
SITE HANFORD
AREA 200E
BUILDING No. 0

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

	BY	DATE
ORIGINATOR	DT STUENKEL	12/11/98
CHECKER		
APPROVED		

PROCESS FLOW DIAGRAM HIGH PRESSURE STEAM

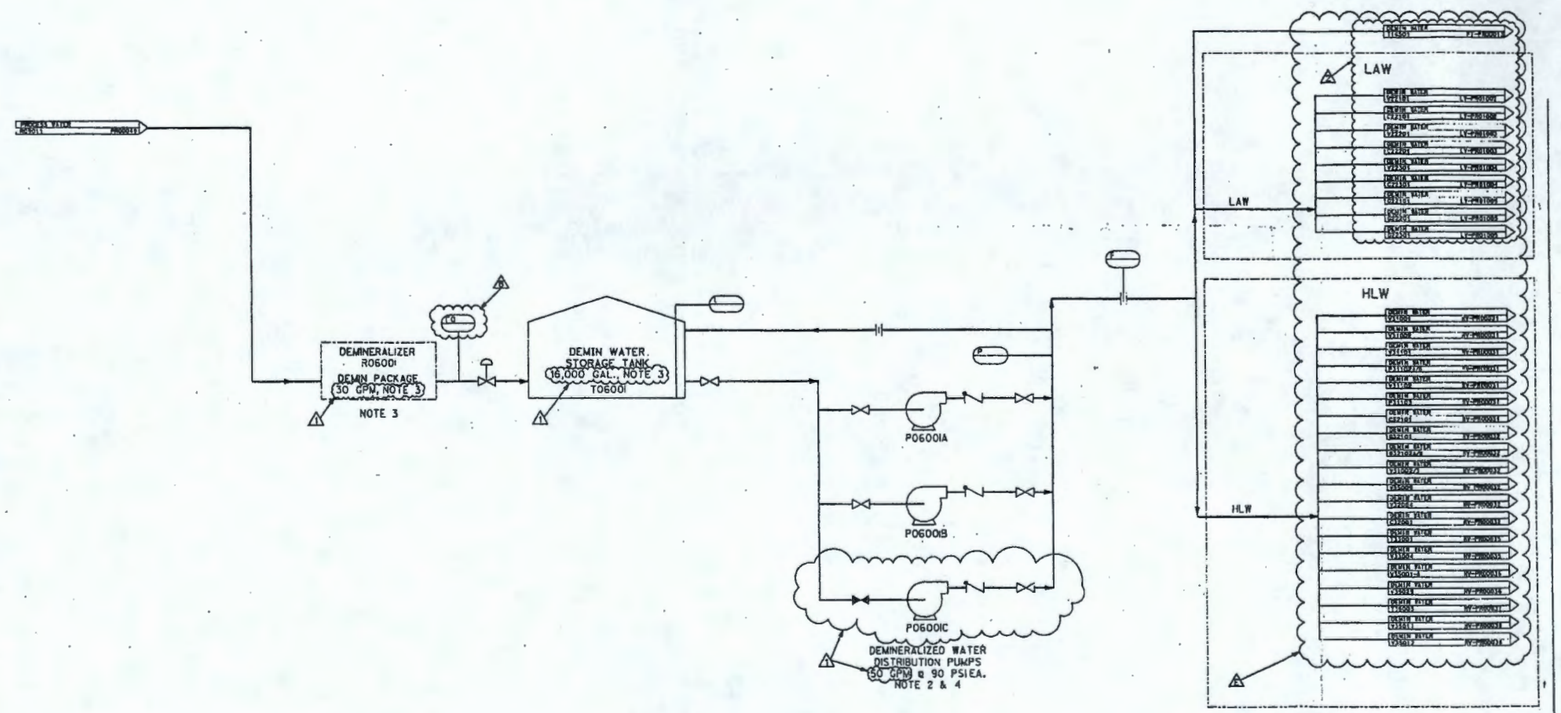
SCALE: NTS
DWG No. DWG-W375-PR00047
REV E

BOF REFERENCE No. 02V-W375-00-01223 REV E

SIZE - 44x34

© BNFL 2000

DWG No. DWG-W375-PR00048



NOTES

1) ALL ITEMS ON THIS DRAWING ARE BOF RESPONSIBILITY UNLESS NOTED AS PT, HLW, OR LAW.

2) DEMINERALIZERS WILL BE BOTTLE RACK UNITS THAT WILL NOT BE REGENERATED ON SITE. THIS IS DUE TO THE HIGH TDS CONTENT WATER THAT WOULD NEED TO BE DISPOSED OF.

3) ALL CAPACITIES AND QUANTITIES SHOWN ON EQUIPMENT ARE PRELIMINARY AND SUBJECT TO CHANGE.

HOLD

1) TR-W375BF-PCA00380 PROPOSES CHANGING THE DEMINERALIZED WATER SYSTEM TO INCLUDE A THIRD PUMP, CHANGE THE SIZE OF THE DEMINERALIZER PACKAGE AND CHANGE THE CAPACITY OF THE DEMINERALIZED WATER STORAGE TANK.

2) DEMINERALIZED WATER MAY ALSO BE USED TO FOR MAKEUP TO AN ISOLATED COOLING LOOP IN PT AND LAW AND TO AN ISOLATED CHILLED WATER LOOP IN PT.

PRELIMINARY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
E	ISSUED FOR 24TH APRIL 00 BASELINE. OFFSHEET CONNECTORS WHERE UPDATED, EQUIPMENT SIZES WHERE CHANGED AND INSTRUMENTATION WAS ADDED. THE PT HEADER WAS MOVED TO DWG-W375PT-PR00013				3-17-00
D	ISSUED FOR DWPA	MAL	SAH	LLL	11/03/99

REVISION HISTORY

PROJECT No.	W375		
SITE	HANFORD		
AREA	200E		
BLD./DWG No.	0		
	BY	DATE	
ORIGINATOR	S.KESSLER	12/3/98	
CHECKED	N/A		
APPROVED	N/A		

SAR REFERENCE No. SAR-W375-00-00036 REV E

BNFL INC.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

PROCESS FLOW DIAGRAM DEMINERALIZED WATER

SCALE: NTS

DWG No. DWG-W375-PR00048

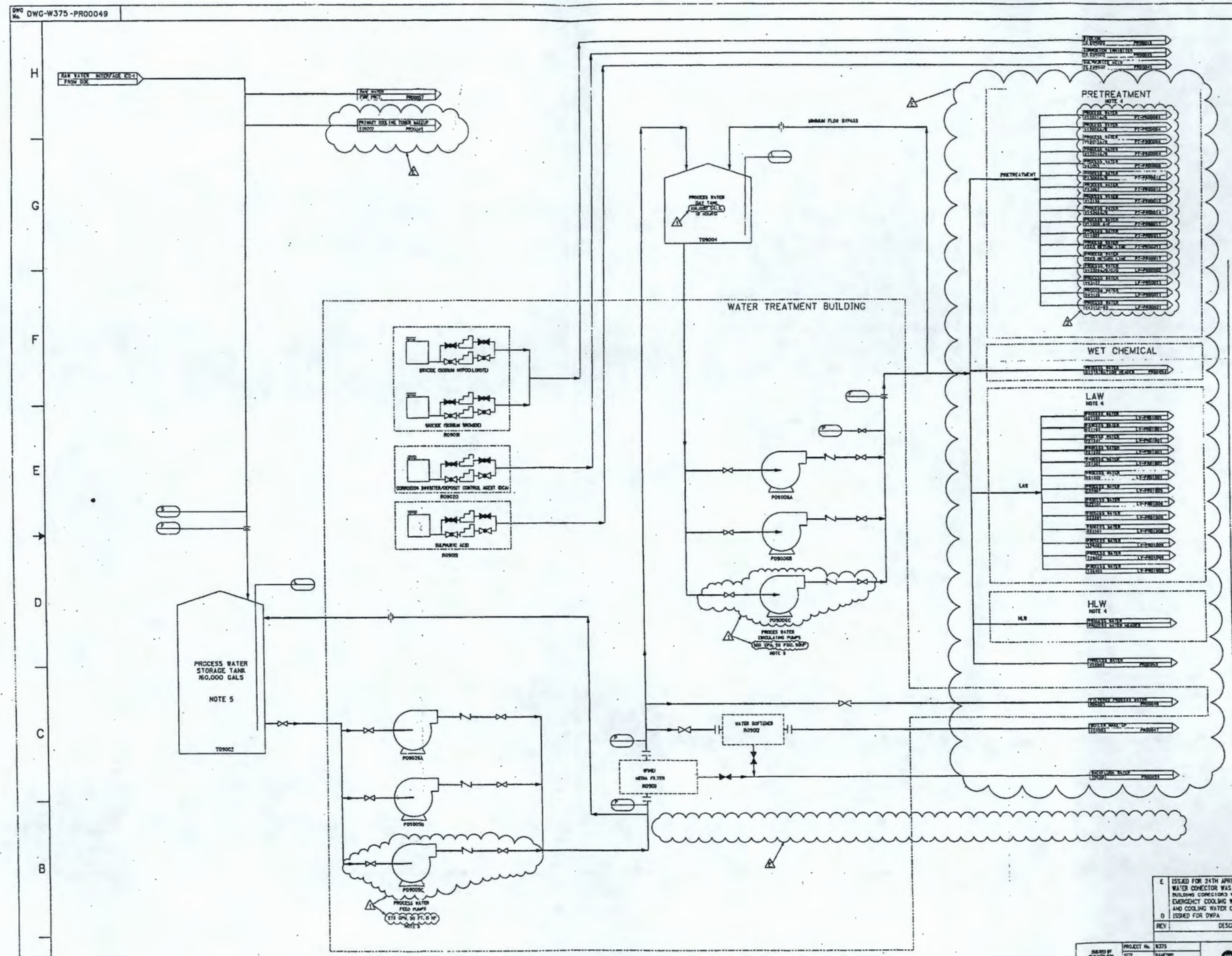
REV E

"E" SIZE - 44x34

18 MAR 2000 12:43:56

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375-PR00049



NOTES

1. RAW WATER FEED IS BASED ON ICD-01 (INTERFACE BETWEEN DOE AND BNFL INC. FOR RAW WATR)
2. ALL OUTSIDE ABOVE GROUND LINES TO BE INSULATED & HEAT TRACED
3. ALL ITEMS ON THIS DRAWING ARE BOF RESPONSIBILITY UNLESS NOTED AS PT, HLW, OR LAW.
4. SUPPLY HEADERS FEEDING VESSEL WASH RINGS AND CELL LINING WASH NOZZLES ARE NOT SHOWN.
5. ALL CAPACITIES AND QUANTITIES SHOWN ON EQUIPMENT ARE PRELIMINARY AND SUBJECT TO CHANGE.

HOLD ITEMS

1. SIZES FOR THESE ITEMS IS PENDING THE APPROVAL OF TREND TR-W375BF-PCAC0380.
2. THESE CONNECTIONS ARE CONTINGENT ON THE FINAL DESIGN OF THE LPP PROCESS.

PRELIMINARY

REV	DESCRIPTION	DRAWN'	CHKD	APVD	DATE
E	ISSUED FOR 24TH APRE. 00 BASELINE. CHILLED WATER CONECTOR WAS ADDED, PROCESS BUILDING CONECTIONS WHERE UPDATED, EMERGENCY COOLING WATER WAS REMOVED, AND COOLING WATER CONECTOR WAS MOVED.				3-19-00
D	ISSUED FOR DWPA	MAL	SAN	LLL	11/03/99

REVISION HISTORY

PROJECT No.	W375	
SITE	HANFORD	
AREA	200E	
BUILDING No.	0	
CONTRACT No	DE-AC06-96RL13308	

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

	BY	DATE
DRAFTSMAN	S.HELBLAUER	6/9/98
CHECKED		
APPROVED		

PROCESS FLOW DIAGRAM PROCESS WATER

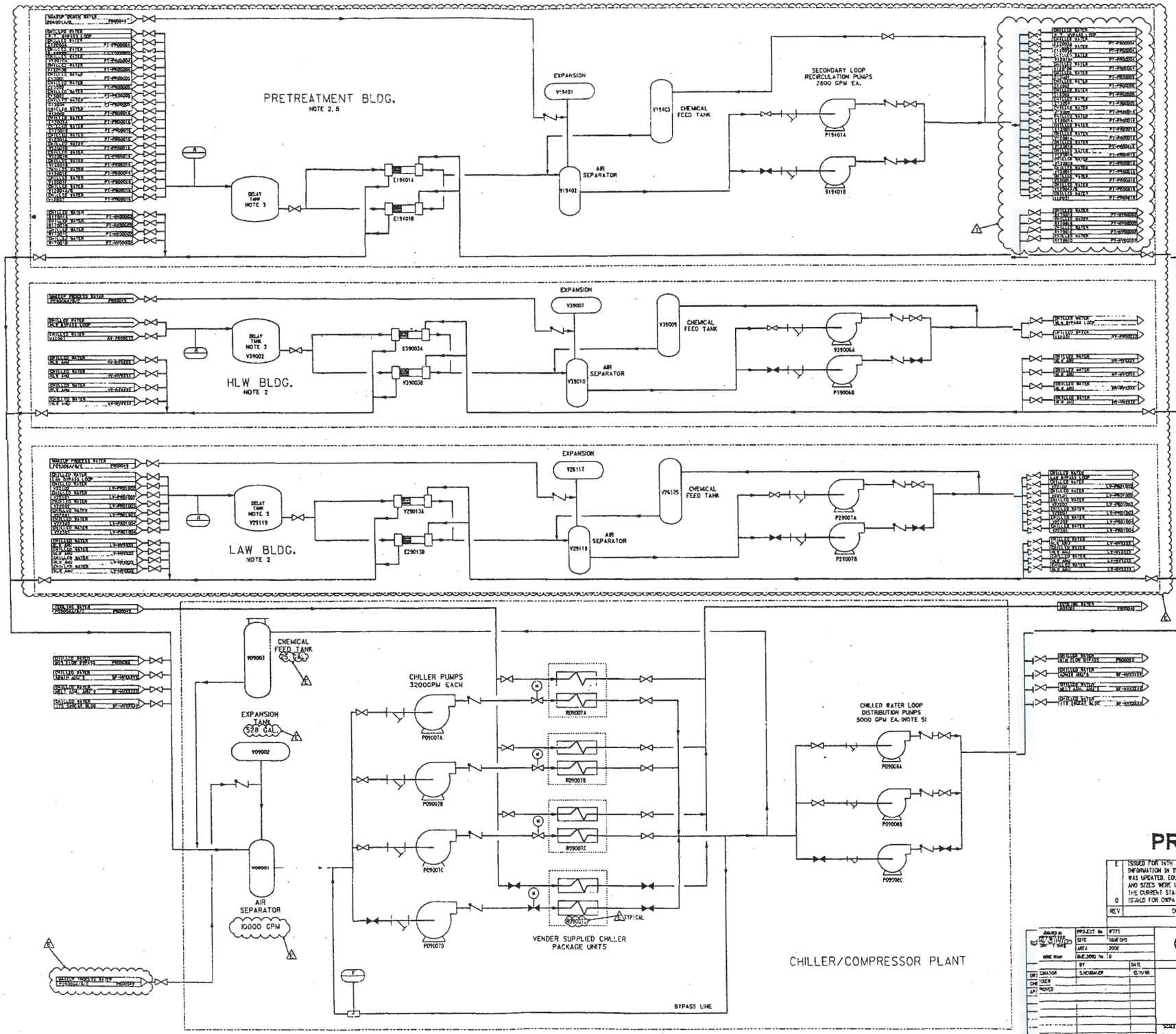
SCALE: N.S | DWG No. DWG-W375-PR00049 | REV E

"E" SIZE - 44x34

© MAR 2000 11:25:27

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375-PR00050



NOTES

1) ALL ITEMS ON THIS DRAWING ARE BOF RESPONSIBILITY UNLESS NOTED AS PT, HLW, OR LAW.

2) CONFIGURATION WITHIN EACH FACILITY IS DEPICTED AS A TYPICAL ARRANGEMENT. THESE CONFIGURATIONS MAY CHANGE.

3) SECONDARY LOOP RETURNS WILL HAVE RADIATION MONITORING AND DELAY TANKS. IN CASE CONTAMINATION IS DETECTED, EACH DELAY TANK WILL HAVE SOME PROVISION TO DRAIN TO AN APPROPRIATE LOCATION DETERMINED BY PT, HLW AND LAW.

4) THE CHILLED WATER SYSTEM HAS A TREND AGAINST IT. THE PROPOSED CHANGES INCLUDED A 800 TON INCREASE IN CAPACITY (TR-W375-BF-PCA-00359).

5) DISTRIBUTION PUMPS WILL BE VARIABLE FLOW. PUMP OUTPUT WILL BE PROPORTIONAL TO USER DEMAND.

6) A LAW PRETREATMENT PLANT IS CURRENTLY UNDER REVIEW. WHEN DESIGN INFORMATION FOR THIS PROCESS IS ISSUED, THIS DRAWING WILL BE REISSUED TO ADD THOSE CHANGES.

HOLD

1) SOME OF THE PRETREATMENT PROCESSES WILL BE MOVING TO A SEPARATE FACILITY. THIS WILL CHANGE THE PT AND MAY CHANGE THE HVAC DEMAND ON THE CHILLED WATER SYSTEM.

PRELIMINARY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
E	ISSUED FOR 14TH APRIL DD BASELINE. INFORMATION IN THE ISOLATED LOOPS WAS UPDATED. EQUIPMENT NUMBERS AND SIZES WERE UPDATED TO REFLECT THE CURRENT STATE OF DESIGN.				5-5-00
D	ISSUED FOR DWPA	MAL	SAN	LLL	11/03/99

REVISION HISTORY

PROJECT No. W375
DATE 16MAR2000
AREA 200E
BUILDING No. 10

BY | DATE
DRAWN SANDBAKER | 12/11/98
CHKD
APVD
REVIED

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

PROCESS FLOW DIAGRAM
CHILLED WATER SYSTEM

REFERENCE No. DW-W375-CP-01236 REV F

SCALE: NTS

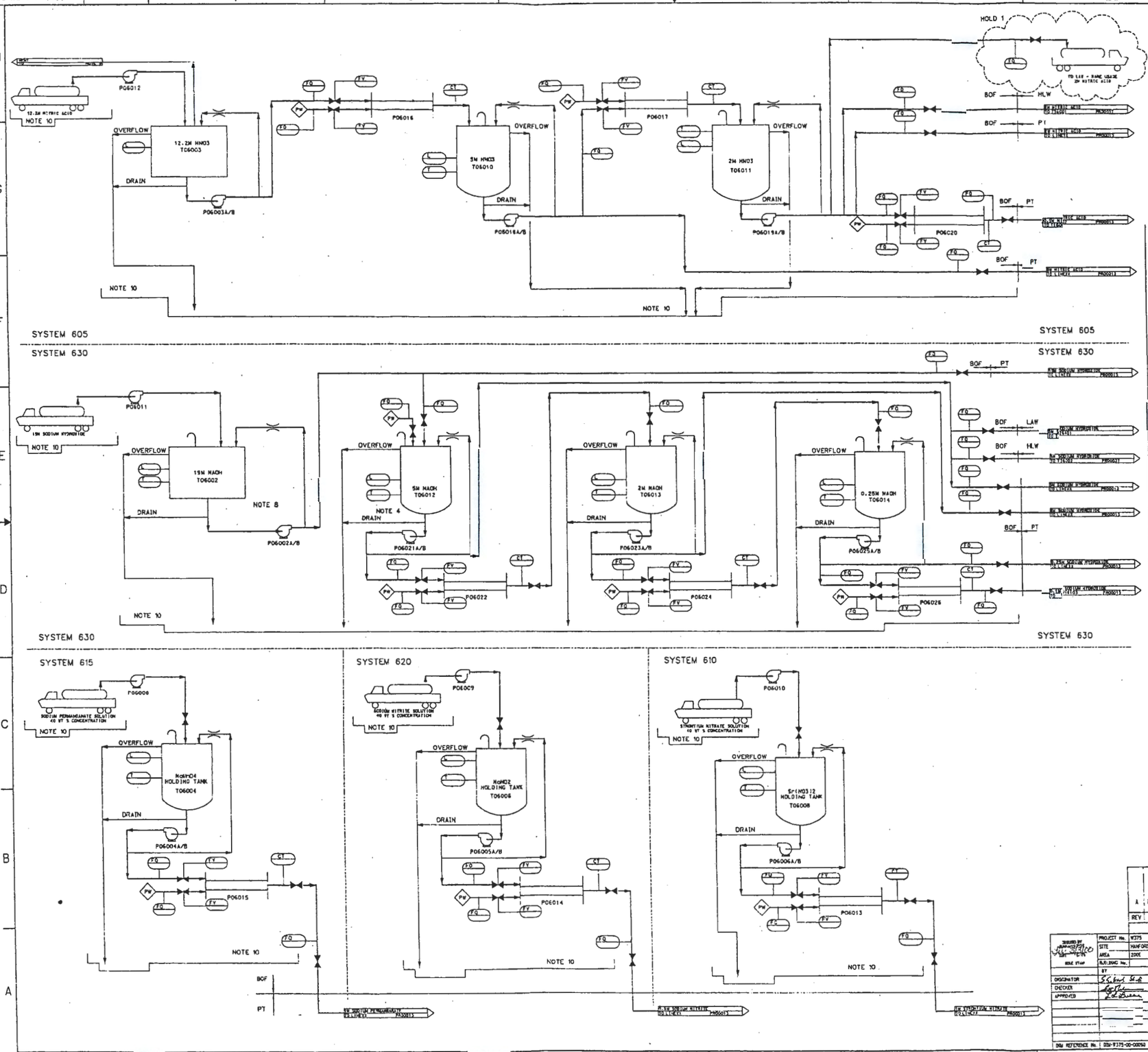
DWG No. DWG-W375-PR00050 REV E

E SIZE - 44x34

08 MAR 2000 12:55:59

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375-PR00054



NOTES:

(1) LEVEL CONTROL WILL PROVIDE TANK OVERFILL AND UNDERFILL PROTECTION.

(2) VALVES ONLY SHOWN TO INDICATE PROCESS INTENT.

(3) ONLY MAIN PROCESS CONTROL INSTRUMENTS ARE SHOWN.

(4) RECIRCULATION LINES ARE USED AS MINIMUM FLOW BYPASS LINES FOR THE PUMPS.

(5) ALL ATMOSPHERIC VENTS WILL CONTAIN FILTERATION.

(6) DELETED

(7) DELETED

(8) 19M CAUSTIC WILL FREEZE AT 54°F.

(9) THIS VENT WILL BE DIRECTED INTO A SCRUBBER SYSTEM.

(10) THERE WILL BE A SEPARATE SUMP FOR EACH REAGENT.

(11) ALL EQUIPMENT EXCEPT THE 12.2M NITRIC ACID TANK AND ASSOCIATED LINES WILL REQUIRE THE PROPER FREEZE PROTECTION (I.E. INSULATION, HEAT TRACING).

(12) ALL EQUIPMENT SHOWN (w/ THE EXCEPTION OF THE TANKER TRUCK) IS LOCATED IN THE WET CHEMICAL BUILDING.

(13) ALL EFFLUENT LINES MARKED "TO LINEXX" ARE DIRECTED INTO A HEADER THAT LEADS TO PLANT ITEMS IN PRETREATMENT AS LISTED BELOW.

2M NITRIC ACID - V12011A/B, V12013-14A/B, V12006-99A/B, V12004A/B, T36001, T16002

5M NITRIC ACID - V13026, V13069

19M SODIUM HYDROXIDE - T16101, V12011A/B, V13070, V12002, V12004A/B

5M SODIUM HYDROXIDE- V15013, V13127, T16102, V11027

2M SODIUM HYDROXIDE - P16106, V12013-14A/B, V12011A/B, V12004A/B, V12005-99A/B, V13125, V12018A/B

0.25M SODIUM HYDROXIDE - V13058, V13056, V13020, V13008.

1M SODIUM PERMANGANATE - V12011A/B

1M STRONTIUM NITRATE - V12011A/B

0.5M SODIUM NITRITE - V11027, V12016A/B

HOLDS:

(1) THE METHOD OF REAGENT DELIVERY TO LAW IS STILL UNDER CONSIDERATION.

REFERENCES:

(1) DWG-W375BF-PL00013 REV. A, BOF WET CHEMICAL STORAGE.

PRELIMINARY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
A	INITIAL ISSUE	CS SMS			3/28/00

REVISION HISTORY

PROJECT No.	W375	
SITE	HANFORD	
AREA	200E	
BLK/DWG No.		
	BY	DATE
ORIGINATOR		2/22/00
CHECKED		3/27/00
APPROVED		12-1-00
DWG REFERENCE No.	DZN-W375-00-00050	1/22/99

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No: DE-AC06-96RL13308

PROCESS FLOW DIAGRAM
REAGENT BULK STORAGE
AND DILUTION

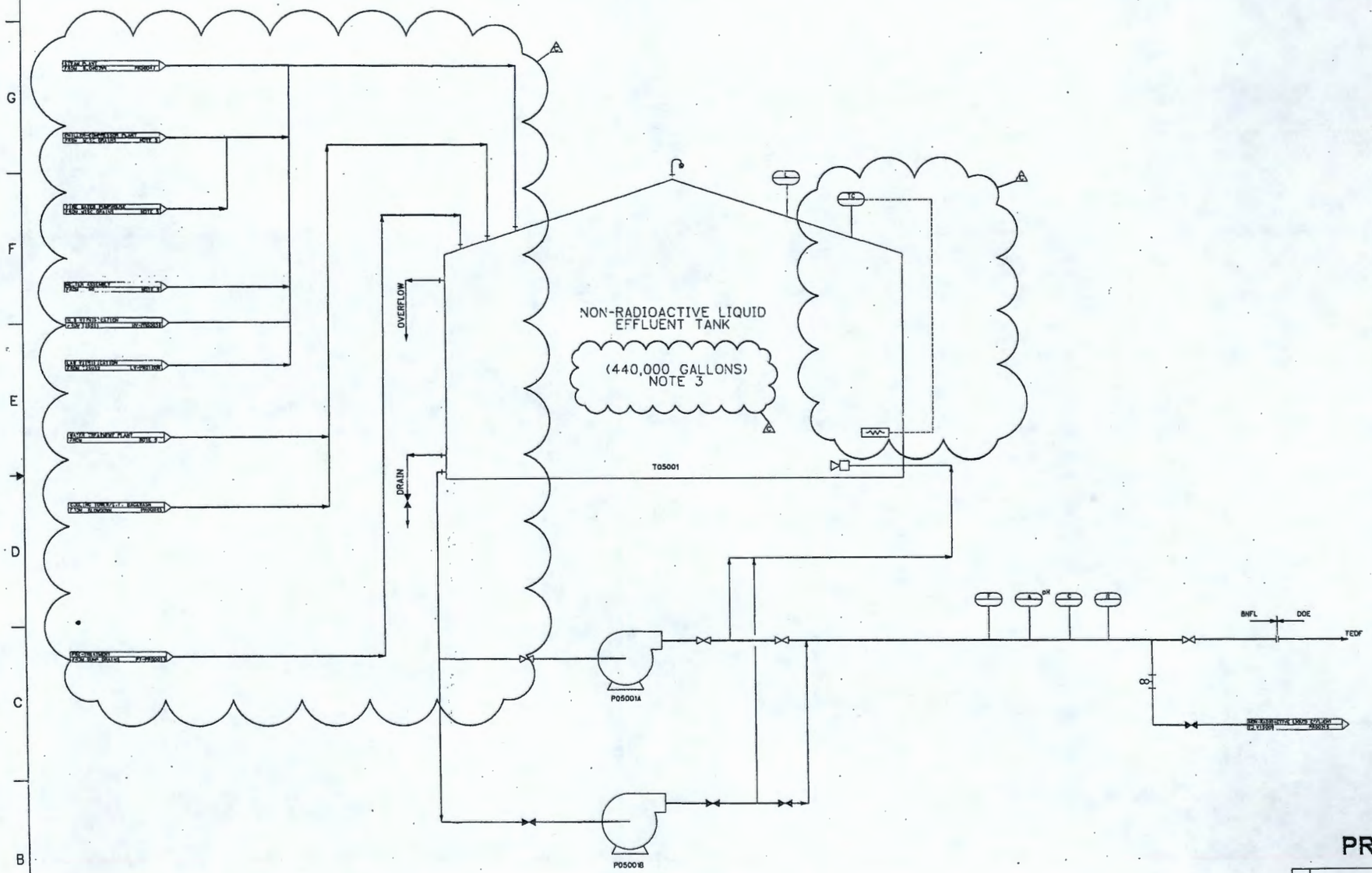
SCALE: NTS | DWG No. DWG-W375-PR00054 | REV A

T-SIZE - 44x34

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

FORM 8PRE.DGN

DWG No. DWG-W375 -PR00059



NOTES

1) ALL ITEMS ON THIS DRAWING ARE BOP RESPONSIBILITY.

2) IN THE EVENT THAT WASTE IS UNSUITABLE FOR DISCHARGE TO TEDF, A BACKUP LINE PROVIDES AN ALTERNATE DISCHARGE PATH TO THE PLANT WASH VESSEL LOCATED IN THE PRETREATMENT BUILDING.

3) THIS TANK WILL BE SIZED TO SUPPORT 60MT/DAY PRE-TREATMENT PRODUCTION. THE INCREASED CAPACITY WILL BE SHOWN ON THE NEXT REVISION OF THE PFD.

4. INPUT FROM THE LDP BUILDING WILL BE SHOWN ON THE NEXT REVISION OF THE PFD.

5. CLEAN FACILITY DRAINS WILL BE DIRECTED TO T05001. THE DRAINS ARE CURRENTLY NOT SHOWN ON THE SYSTEM PFD.

PRELIMINARY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
C	ISSUED FOR 30TH APRIL 00 BASELINE- REVISION BASED ON LATEST CALCULATIONS AND SYSTEM NOTES.	SI MAL DTS	RS DTS	KKK LLL	3-7-00
B	ISSUED FOR DNFA				5/22/99
A	ISSUED FOR SYSRA REVIEW				4/13/99

REVISION HISTORY

PROJECT No.	W375	
SITE	HANFORD	
AREA	200E	
BUILDING No.	0	
	BY	DATE
ORIGINATOR	GT STUDHOLL	4/13/99
CHECKER		
APPROVED		

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No: DE-AC06-96RL13308

PROCESS FLOW DIAGRAM NON-RADIOACTIVE EFFLUENT

SCALE: NTS

DWG No. DWG-W375 -PR00059

REV C

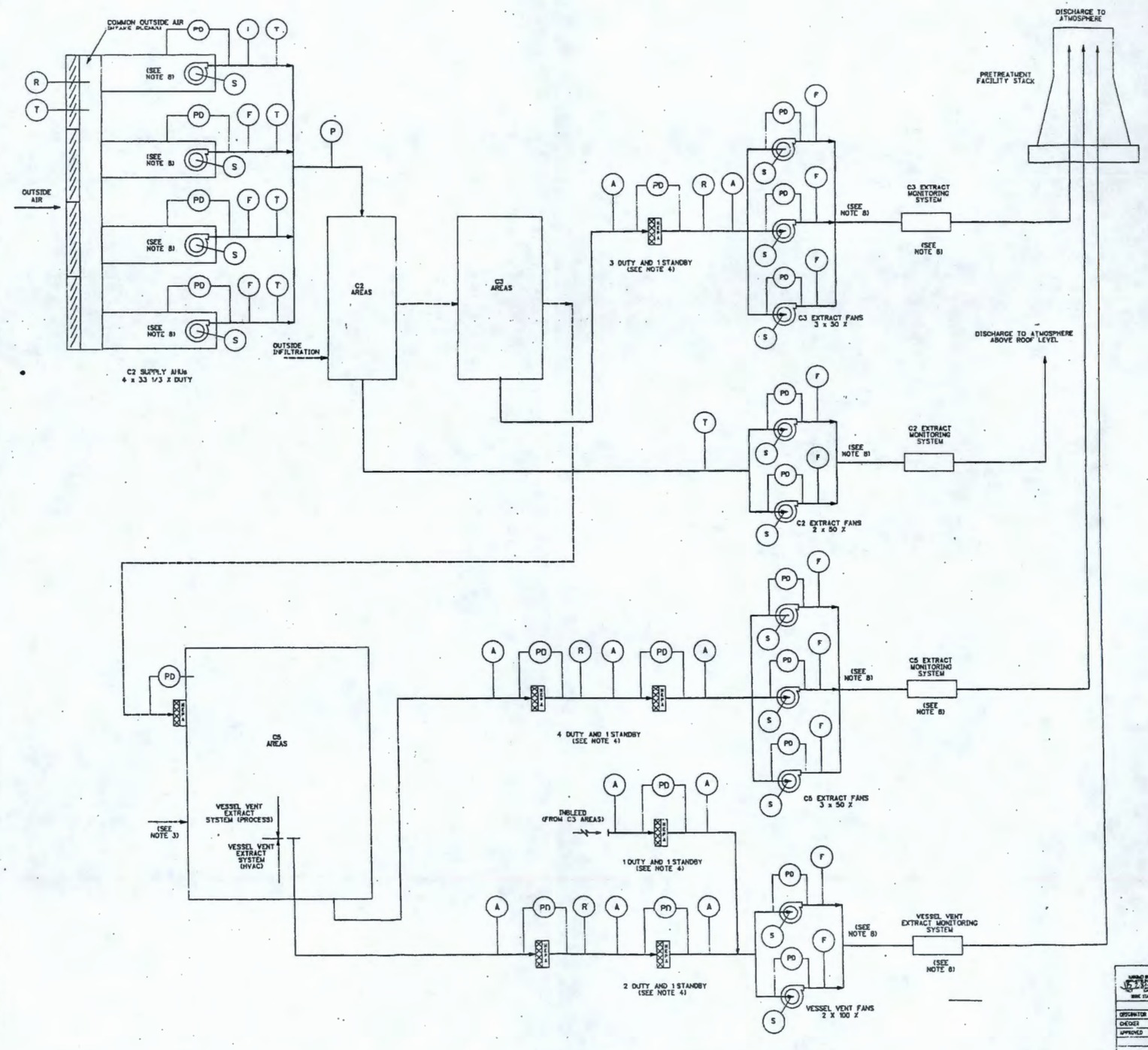
"E" SIZE - 44x34

BN REFERENCE No. DBN-W375-00-01230 REV C

09 MAR 2000 09:23:30

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375 PT-HV00001



NOTES:

1. FOR SYMBOLS AND LEGEND REFER TO DWG-W375-M00001 THRU M00005 AND DWG-W375-HV00004.
2. REFER TO THE FOLLOWING V&ID:
   DWG-W375PT-HV00002 - C2 SYSTEM, SHEET 1 OF 5
   DWG-W375PT-HV00003 - C2 SYSTEM, SHEET 2 OF 5
   DWG-W375PT-HV00004 - C3 EXTRACT SYSTEM, SHEET 2 OF 3
   DWG-W375PT-HV00005 - C5 EXTRACT SYSTEM, SHEET 4 OF 5
   DWG-W375PT-HV00006 - EXHAUST STACK MONITORING SYSTEM
   DWG-W375PT-HV00007 - VESSEL VENT EXTRACT SYSTEM, SHEET 1 OF 5
   DWG-W375PT-HV00034 - C5 EXTRACT SYSTEM, SHEET 5 OF 5
   DWG-W375PT-HV00041 - VESSEL VENT EXTRACT SYSTEM, SHEET 2 OF 5
   DWG-W375PT-HV00042 - VESSEL VENT EXTRACT SYSTEM, SHEET 3 OF 5
3. CELL/CAVE IN-LEAKAGE
4. FILTER CONFIGURATION PENDING DETAIL DESIGN ARRANGEMENT.
5. TO ENSURE THE INTEGRITY OF VENTILATION SYSTEM CONFINEMENT BARRIERS, THE USE OF FIRE DAMPERS WILL BE RE-EVALUATED DURING THE B2 DESIGN PHASE.
6. REFER TO EXHAUST STACK MONITORING SYSTEM V&ID DWG-W375PT-HV00006.
7. PERMISSIVES ARE PROVIDED TO PREVENT STARTING THE C2 SUPPLY FANS WITHOUT THE ASSOCIATED EXTRACT FANS RUNNING. THE C2 SUPPLY FANS ARE INTELOCKED TO TRIP UPON A COMPLETE LOSS OF VESSEL VENT EXTRACT FANS, OR C5 EXTRACT FANS, OR C3 EXTRACT FANS.
8. FANS ARE PROVIDED WITH VARIABLE FREQUENCY DRIVES (VFD).
9. FAILURE OF A FAN IS DETERMINED BY ANY TWO OUT OF THREE SIGNALS, I.e., LOW PRESSURE DIFFERENTIAL ACROSS FAN, LOSS OF FAN SPEED OR LOSS OF DISCHARGE FLOW. ANY TWO OF THREE WILL RESULT IN A FAN SHUTDOWN AND A FAN FAILURE ALARM.

PRELIMINARY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
C	ISSUED FOR STAGE B USE	TFH	JSB	JMQ	02/12/00
B	REISSUED FOR STAGE A USE	RJS	LHS	JMQ	10/18/99
A	ISSUED FOR STAGE A USE	RJS	LHS	JMQ	8/5/99

REVISION HISTORY

PROJECT No.	W375	
SITE	HANFORD	
AREA	200E	
BUILDING No.		
DESIGNATOR	R. Rizzuto	2/17/00
CHECKER	B. J. Rogers	2/24/00
APPROVED	J. Q. Smith	2/24/00
DW REVIEWS No.	SAN-W375-00-00008	2/7/00

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

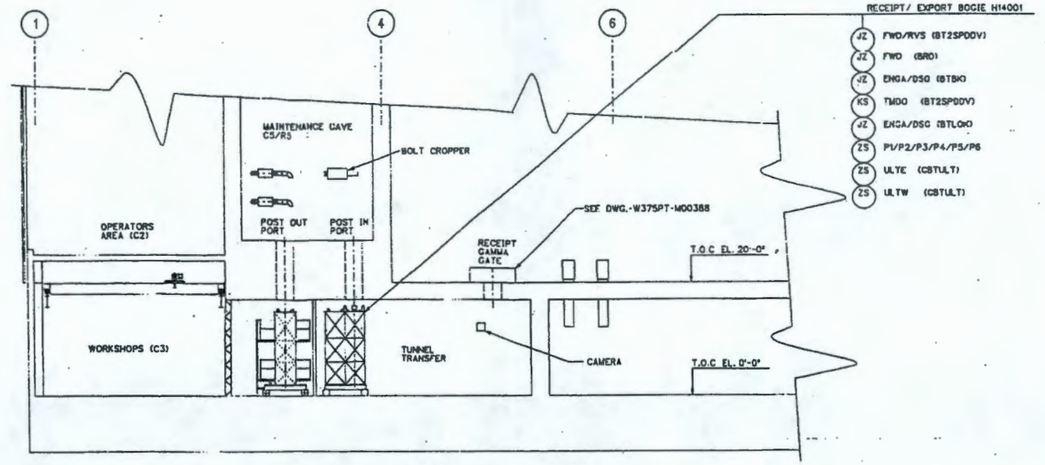
CONTRACT No. DE-AC06-96RL13308

V&ID
OVERALL
PRETREATMENT BUILDING

SCALE: NONE
DWG No. DWG-W375 PT-HV00001
REV C

FORM APPROVED
SIZE - 44x34
19 FEB 2000 08:09:33
COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375 PT-M00331



ELEVATION A

INCELL CRANE H14002

CROSS TRAVEL	LONG TRAVEL	HOIST	AUX. HOIST
JZ FWD/RVS (CCT2SPODV)	JZ FWD/RVS (CLT2SPODV)	JZ RSE/LWR (CH2SPODV)	JZ ROT (CHSSPDV)
ZS ULTE (CCTULT)	ZS ULTN (CLTULT)	ZS ULTRSD	ZS ULTRSD
ZS ULTW (CCTULT)	ZS ULTS (CLTULT)	ZS SKCA	ZS SKCA
JZ ENGA/DSG (CCTBK)	JZ ENGA/DSG (CLTBK)	JZ ENGA/DSG (CHBK)	JZ ENGA/DSG (CHBK)
JZ ENGA/DSG (CCTCLTC)	JZ ENGA/DSG (CLTCLTC)	JZ ENGA/DSG (CHCLTC)	JZ ENGA/DSG (CHCLTC)
YS P1/P2	YS P1/P2/P3/P4	WE WT (CHWT)	WE WT (CHWT)
ZT POSN (CCTPOSN)	ZT POSN (CLTPOSN)	ZS P1 (CHHT)	
YS POSN (DATUM)	YS POSN (DATUM)	JZ ROT (CHTS)	
JZ FWD (RDDV)	ZS ENGAD (CRET)	ZS ENGAD (CHUCK)	
JZ ENGA/DSG (RDBK)		ZS ENGAD (MANIP)	
JZ ENGA/DSG (RDCLTC)		JZ ROT (CMRA)	
ZS SKCA (RDSKSA)		JZ TILT (CMRA)	
YS ENGAD (RDHW)			

CHUCK H14061
JZ OPEN/CL (MJAWSDCDV)
YS OVLD (MJAWSDCDV)

REELING DRUM H14008
JZ FWD (RDDV)
JZ ENGA/DSG (RDBK)
JZ ENGA/DSG (RDCLTC)
ZS SKCA (RDSKSA)
YS ENGAD (RDHW)
YS HY (GUARD)

MASTER SLAVE MANIPULATOR H14009
JS ROT (SLAVEDCDV)
JS EXTND/RETR (SLAVEDCDV)
1

POWER MANIPULATOR H14063

JZ ROT (MSLEWDCDV)	JZ OPEN/CL (MJAWSDCDV)
JZ ROT (MSHLDRDCDV)	YS P1/P2/P3/P4 (MTILT)
JZ ROT (MELBOWDCDV)	YS OVLD (MSLEWDCDV)
JZ ROT (MFARMDCDV)	YS OVLD (MSHLDRDCDV)
JZ ROT (MWRISTDCDV)	YS OVLD (MELBOWDCDV)
JZ EXTND (MWRISTDCDV)	YS OVLD (MWRISTDCDV)

CAMERA

T.O.C EL. 25'-0"

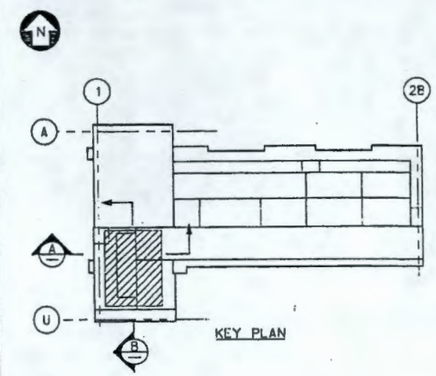
T.O.C EL. 0'-0"

ELEVATION B

GRAPHIC SCALE 1/8" = 1'-0"

NOTES:

1. TO MANIPULATOR POSITIONS ARE IDENTIFIED ACTUAL NUMBER (TBD)



PRELIMINARY

REFERENCE DRAWINGS

DWG NO	TITLE
DWG-W375PT-M00332	PRETREATMENT SYSTEM 420, INCELL MECHANICAL EQUIPMENT
DWG-W375PT-M00333	PRETREATMENT SYSTEM 430, INCELL DECONTAMINATION
DWG-W375PT-M00334	PRETREATMENT SYSTEM 440, OUTCELL HANDLING
DWG-W375PT-M00335	PRETREATMENT SYSTEM 450, OUTCELL MECHANICAL EQUIPMENT
DWG-W375SH-J00001	MECHANICAL HANDLING, SYMBOLS AND LEGENDS SHT.1 OF 8
DWG-W375SH-J00002	MECHANICAL HANDLING, SYMBOLS AND LEGENDS SHT.2 OF 8
DWG-W375SH-J00003	MECHANICAL HANDLING, SYMBOLS AND LEGENDS SHT.3 OF 8
DWG-W375SH-J00004	MECHANICAL HANDLING, SYMBOLS AND LEGENDS SHT.4 OF 8
DWG-W375SH-J00005	MECHANICAL HANDLING, SYMBOLS AND LEGENDS SHT.5 OF 8
DWG-W375SH-J00006	MECHANICAL HANDLING, SYMBOLS AND LEGENDS SHT.6 OF 8
DWG-W375SH-J00007	MECHANICAL HANDLING, SYMBOLS AND LEGENDS SHT.7 OF 8
DWG-W375SH-J00008	MECHANICAL HANDLING, SYMBOLS AND LEGENDS SHT.8 OF 8

REVISION HISTORY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
A	ISSUED FOR 24 APRIL 00 BASELINE	JFL			3/31/00

THIRD ANGLE PROJECTION

PROJECT No. W375
SITE HANFORD
AREA 200E
BUILDING No.

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No DE-AC06-96RL13308

	BY	DATE
ORIGINATOR	P G TERRY	3/31/00
CHECKER	R J WANGER	3/31/00
APPROVED	J E RICHARDS	3/31/00

PRETREATMENT SYSTEM 410 LEVEL 1 MECHANICAL HANDLING DIAGRAM INCELL HANDLING

DWG REFERENCE No. DW-W375-00-00025 REV A

SCALE 1/8"=1'-0"

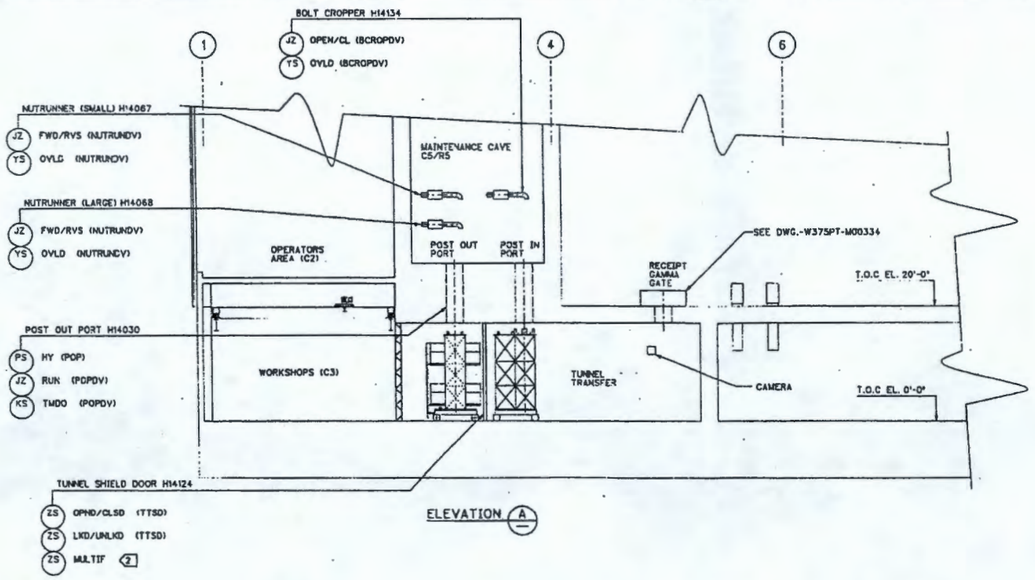
DWG No. DWG- W375 PT-M00331 REV A

SIZE - 44x34

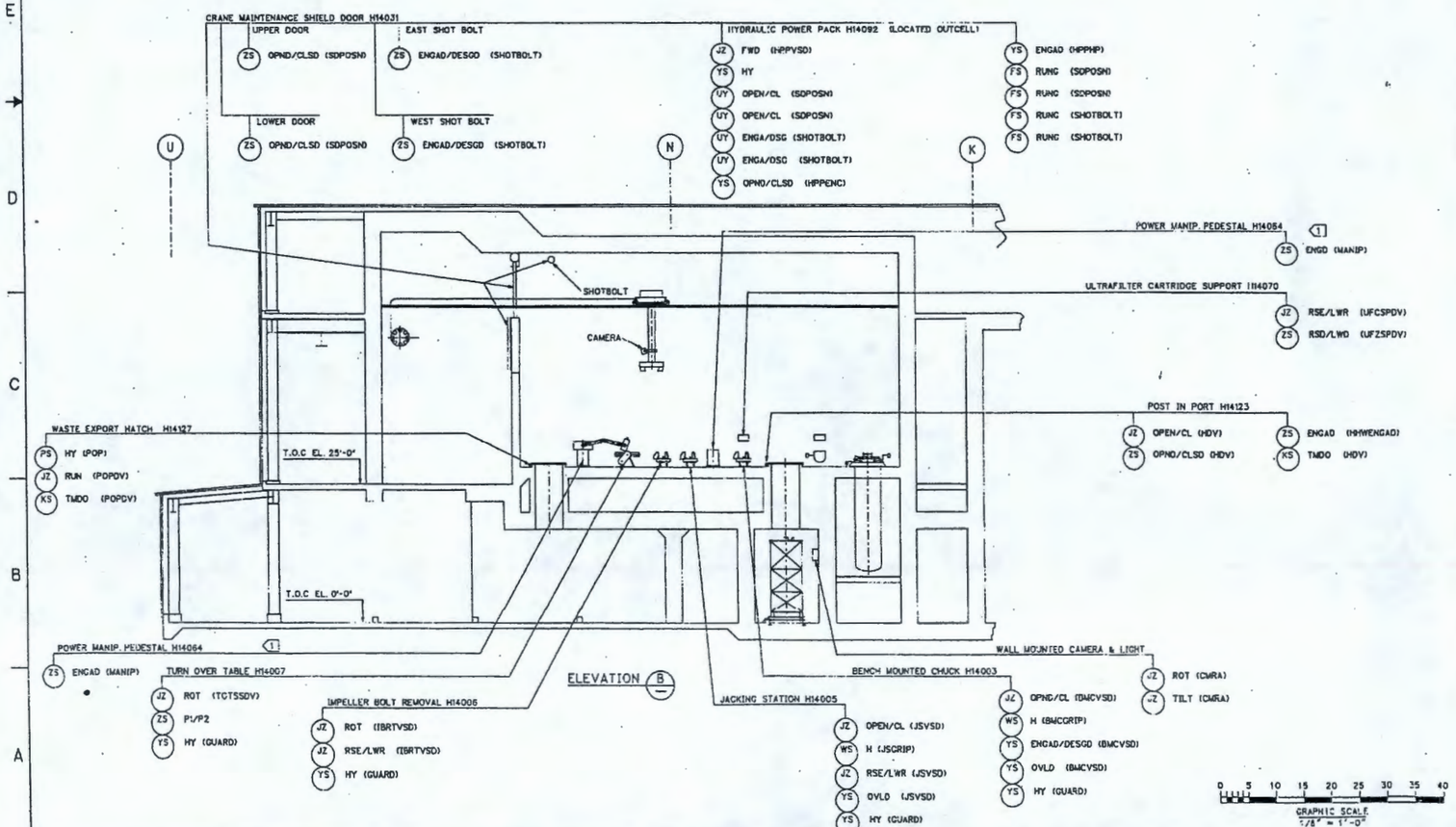
13 MAR 2000 13:14 25

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No DWG-W375 PT-M00332



ELEVATION A

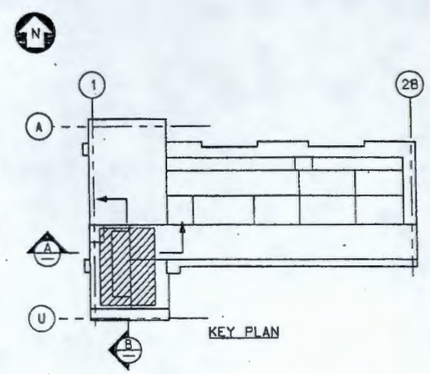


ELEVATION B

GRAPHIC SCALE 1/8" = 1'-0"

NOTES:

1. BOTH POWER MANIPULATOR PEDESTALS WILL BE FULLY INTERACTIVE WITH THE POWER MANIPULATOR AS DETAILED ON DWG. W375PT-M00331
2. MULTIFUNCTION DESCRIBES A SAFETY KEY INTERLOCKING SYSTEM (E.G. CASTELL)



KEY PLAN

PRELIMINARY

REFERENCE DRAWINGS

DWG NO	TITLE
DWG-W375PT-M00331	PRETREATMENT SYSTEM 410, INCELL HANDLING
DWG-W375PT-M00333	PRETREATMENT SYSTEM 430, INCELL DECONTAMINATION
DWG-W375PT-M00334	PRETREATMENT SYSTEM 440, OUTCELL HANDLING
DWG-W375PT-M00335	PRETREATMENT SYSTEM 450, OUTCELL MECHANICAL EQUIPMENT
DWG-W375SH-J00001	MECHANICAL HANDLING, SYMBOLS AND LEGENDS SHT. 1 OF 8
DWG-W375SH-J00002	MECHANICAL HANDLING, SYMBOLS AND LEGENDS SHT. 2 OF 8
DWG-W375SH-J00003	MECHANICAL HANDLING, SYMBOLS AND LEGENDS SHT. 3 OF 8
DWG-W375SH-J00004	MECHANICAL HANDLING, SYMBOLS AND LEGENDS SHT. 4 OF 8
DWG-W375SH-J00005	MECHANICAL HANDLING, SYMBOLS AND LEGENDS SHT. 5 OF 8
DWG-W375SH-J00006	MECHANICAL HANDLING, SYMBOLS AND LEGENDS SHT. 6 OF 8
DWG-W375SH-J00007	MECHANICAL HANDLING, SYMBOLS AND LEGENDS SHT. 7 OF 8
DWG-W375SH-J00008	MECHANICAL HANDLING, SYMBOLS AND LEGENDS SHT. 8 OF 8

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
A	ISSUED FOR 24 APRIL DG BASELINE	JFL	WJM	DER	4/24/00

REVISION HISTORY

THIRD ANGLE PROJECTION

ISSUED BY: BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No: DE-AC06-96RL13308

	BY	DATE
ORIGINATOR	P C TOBIAS	3/6/00
CHECKER	W J MANGAN	3/6/00
APPROVED	J E MICHAELS	3/7/00

PRETREATMENT SYSTEM 420 LEVEL 1 MECHANICAL HANDLING DIAGRAM INCELL MECHANICAL EQUIPMENT

PROJECT No. 9375
SITE HWVSPD
AREA 200E
WBS/DWG No.

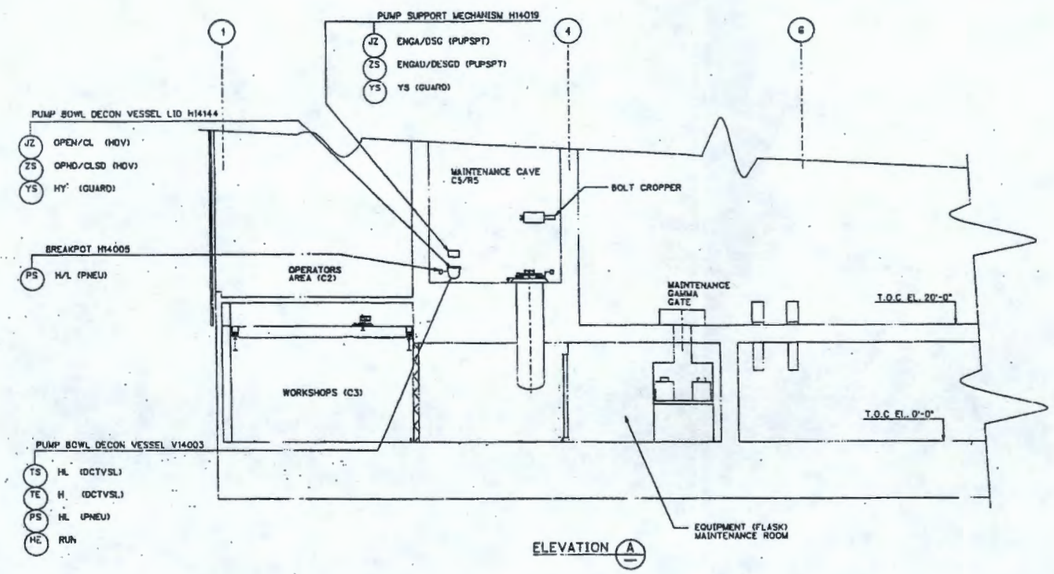
DWG REFERENCE No. DW-9375-00-00027 REV A SCALE: 1/8"=1'-0" DWG No. DWG- W375PT-M00332 REV A

T-SIZE - 44434

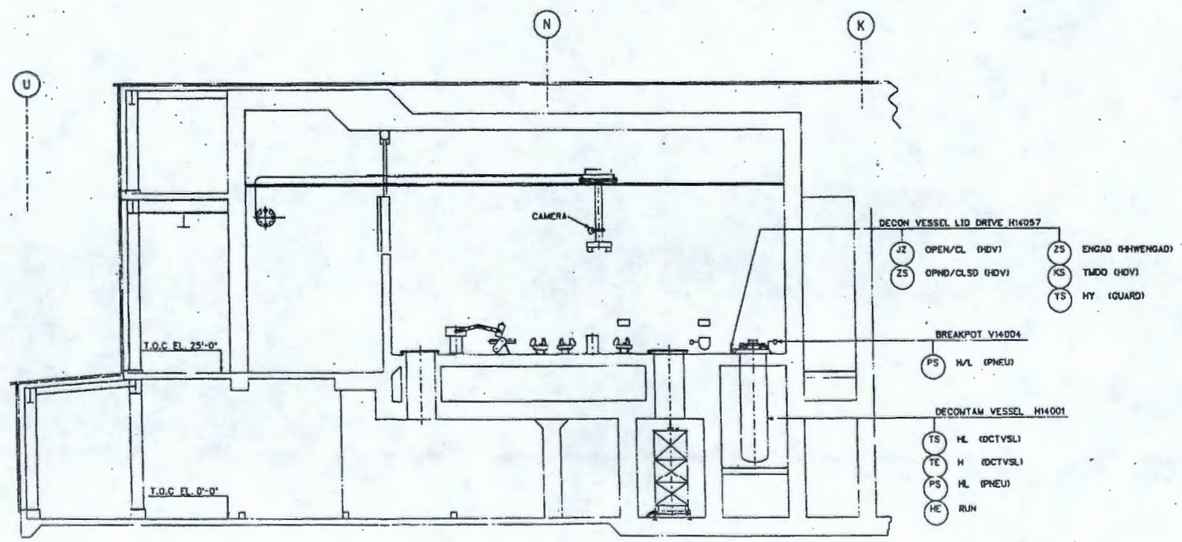
13 MAR 2000 13:14:27

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375 PT-M00333



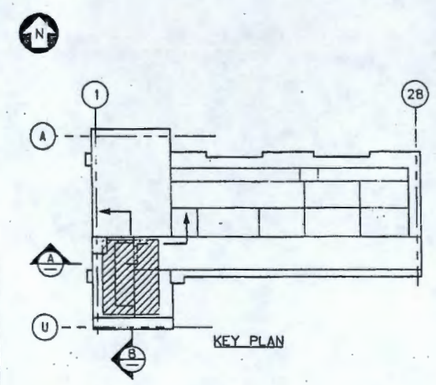
ELEVATION A



ELEVATION B

GENERAL NOTES:

1. ALL PROCESS PARAMETERS SHOWN ARE INCLUDED ON THIS MHD AS A TEMPORARY MEASURE UNTIL SUITABLE PFD AND P&ID'S ARE PRODUCED.



KEY PLAN

GRAPHIC SCALE 1/8" = 1'-0"

PRELIMINARY

REFERENCE DRAWINGS

DWG NO	TITLE
DWG-W375PT-M00331	PRETREATMENT SYSTEM 410, INCELL HANDLING
DWG-W375PT-M00332	PRETREATMENT SYSTEM 420, INCELL MECHANICAL EQUIPMENT
DWG-W375PT-M00334	PRETREATMENT SYSTEM 440, OUTCELL HANDLING
DWG-W375PT-M00335	PRETREATMENT SYSTEM 450, OUTCELL MECHANICAL EQUIPMENT
DWG-W375SH-J00001	MECHANICAL HANDLING, SYMBOLS AND LEGENDS SHT. 1 OF 8
DWG-W375SH-J00002	MECHANICAL HANDLING, SYMBOLS AND LEGENDS SHT. 2 OF 8
DWG-W375SH-J00003	MECHANICAL HANDLING, SYMBOLS AND LEGENDS SHT. 3 OF 8
DWG-W375SH-J00004	MECHANICAL HANDLING, SYMBOLS AND LEGENDS SHT. 4 OF 8
DWG-W375SH-J00005	MECHANICAL HANDLING, SYMBOLS AND LEGENDS SHT. 5 OF 8
DWG-W375SH-J00006	MECHANICAL HANDLING, SYMBOLS AND LEGENDS SHT. 6 OF 8
DWG-W375SH-J00007	MECHANICAL HANDLING, SYMBOLS AND LEGENDS SHT. 7 OF 8
DWG-W375SH-J00008	MECHANICAL HANDLING, SYMBOLS AND LEGENDS SHT. 8 OF 8

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
A	ISSUED FOR 24 APRIL 00 BASELINE	JPL	JJM	TKR	3/4/00

REVISION HISTORY

THIRD ANGLE PROJECTION

ISSUED BY: 3/4/00 DATE

PROJECT No.	W375	
SITE	HANFORD	
AREA	200E	
BUILDING No.		

	BY	DATE
ORIGINATOR	P C TIMMINS	3/4/00
CHECKER	W J MANCHESTER	3/4/00
APPROVED	J E RICHARDS	3/4/00

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-95RL13308

PRETREATMENT SYSTEM 430 LEVEL 1 MECHANICAL HANDLING DIAGRAM INCELL DECONTAMINATION

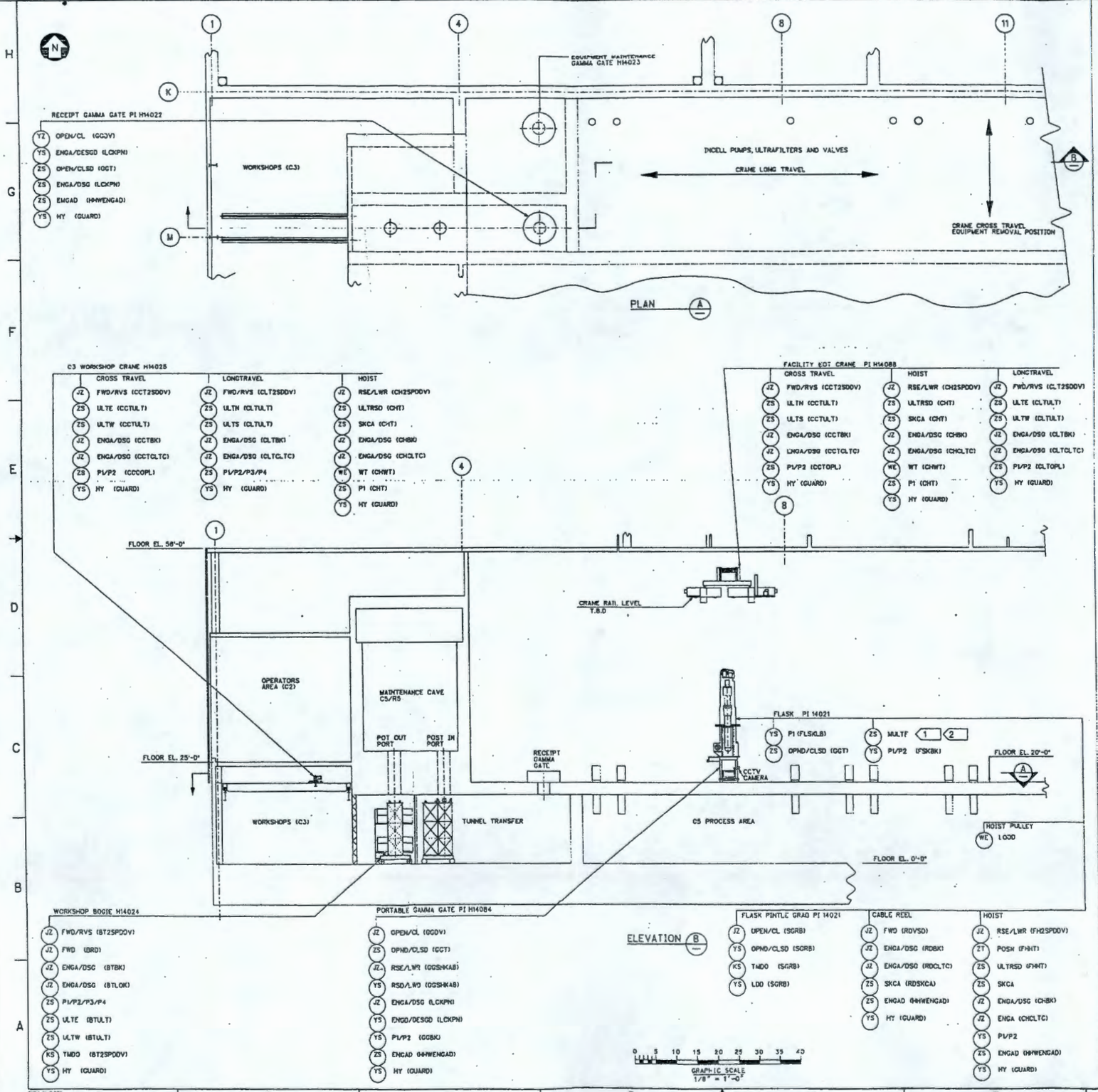
SCALE: 1/8"=1'-0" | DWG No. DWG- W375 PT-M00333 | REV A

SW REFERENCE No. SW-W375-CD-D028 | REV 1

12 MAR 2000 13:41:28

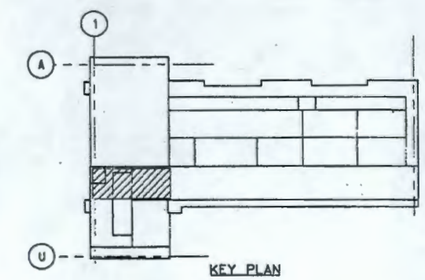
COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375 PT-M00334



NOTES:

1. MULTIFUCTION DESCRIBES A SAFETY KEY INTERLOCKING SYSTEM (E.G. CASTELL)
2. KEY SWITCH FOR ULTRAFILTER RESTRAINT PINS USED ONLY IF ULTRAFILTER IS BEING CARRIED-CONTROLLED VIA OPERATIONAL INSTRUCTIONS.



PRELIMINARY

REFERENCE DRAWINGS

DWG NO	TITLE
DWG-W375PT-M00331	PRETREATMENT SYSTEM 410, INCELL HANDLING
DWG-W375PT-M00332	PRETREATMENT SYSTEM 420, INCELL MECHANICAL EQUIPMENT
DWG-W375PT-M00333	PRETREATMENT SYSTEM 430, INCELL DECONTAMINATION
DWG-W375PT-M00335	PRETREATMENT SYSTEM 450, OUTCELL MECHANICAL EQUIPMENT
DWG-W375SH-J00001	MECHANICAL HANDLING, SYMBOLS AND LEGENDS SHT. 1 OF 8
DWG-W375SH-J00002	MECHANICAL HANDLING, SYMBOLS AND LEGENDS SHT. 2 OF 8
DWG-W375SH-J00003	MECHANICAL HANDLING, SYMBOLS AND LEGENDS SHT. 3 OF 8
DWG-W375SH-J00004	MECHANICAL HANDLING, SYMBOLS AND LEGENDS SHT. 4 OF 8
DWG-W375SH-J00005	MECHANICAL HANDLING, SYMBOLS AND LEGENDS SHT. 5 OF 8
DWG-W375SH-J00006	MECHANICAL HANDLING, SYMBOLS AND LEGENDS SHT. 6 OF 8
DWG-W375SH-J00007	MECHANICAL HANDLING, SYMBOLS AND LEGENDS SHT. 7 OF 8
DWG-W375SH-J00008	MECHANICAL HANDLING, SYMBOLS AND LEGENDS SHT. 8 OF 8

REVISION HISTORY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
A	ISSUED FOR 24 APRIL 00 BASELINE	JPL	JMM	TSR	3/3/00

	BY	DATE
ORIGINATOR	P C TRIMMER	3/3/00
CHECKER	W J MARCHAND	3/3/00
APPROVED	J E RICHARDS	3/3/00

PROJECT No. W375
SITE HANFORD
AREA 200E
BUILDING No.

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT REF DE-AC06-96RL13308

PRETREATMENT SYSTEM 440
LEVEL1 MECHANICAL
HANDLING DIAGRAM
OUTCELL HANDLING

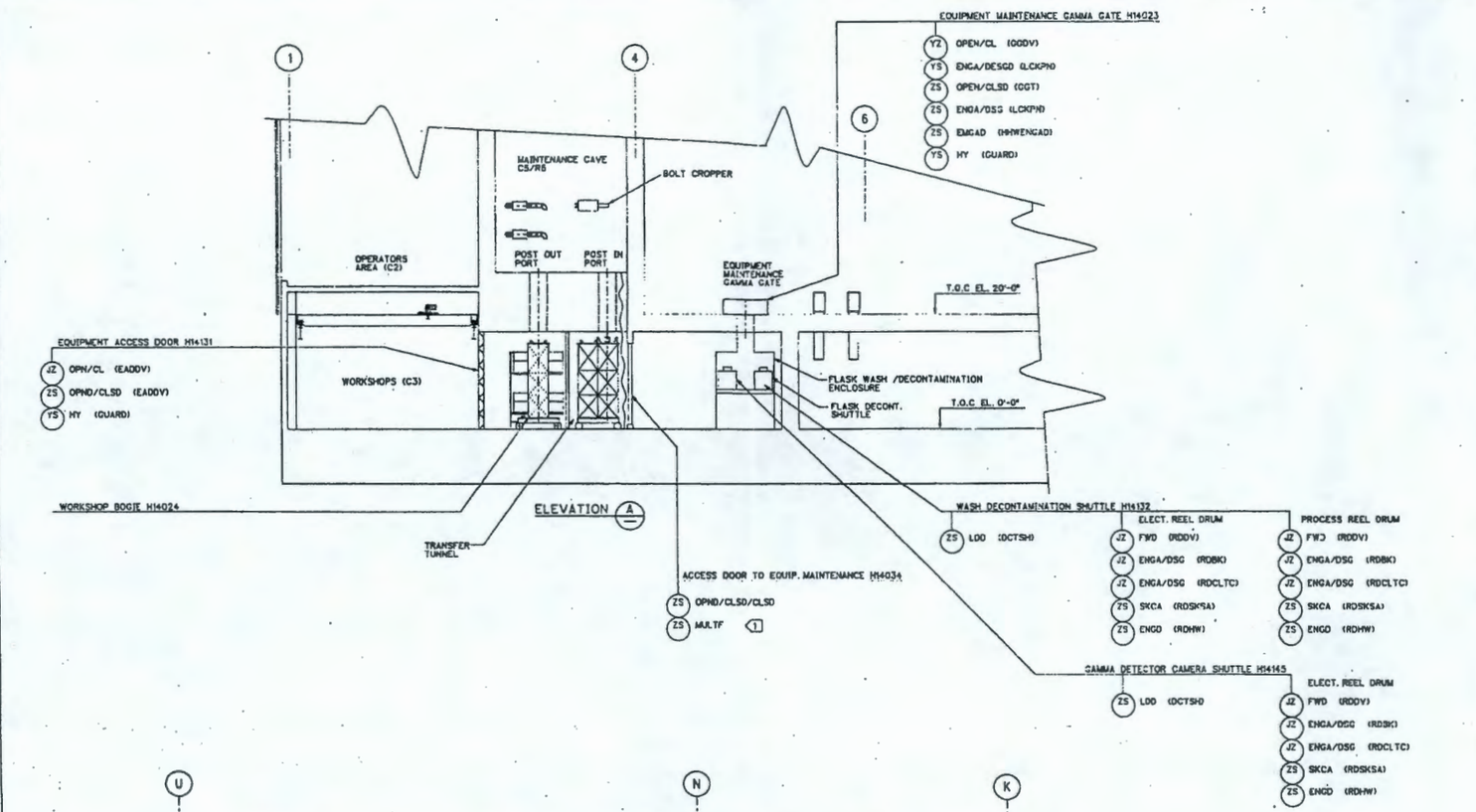
CN REFERENCE No. DWG-W375-00-00029 REV A SCALE 1/8"=1'-0" DWG No. DWG- W375 PT-M00334 REV A

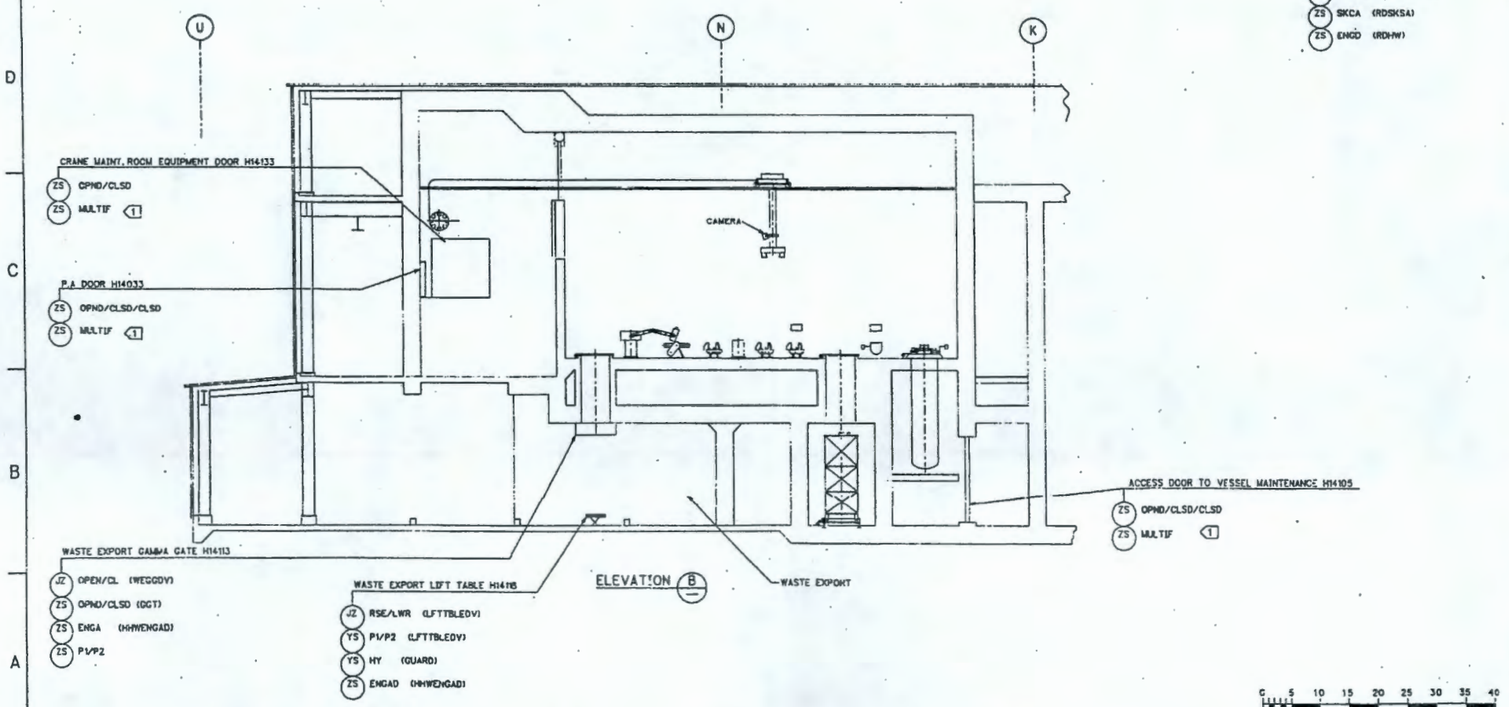
SIZE - 44x34

13 MAR 2000 15:14:28

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375 PT-M00335

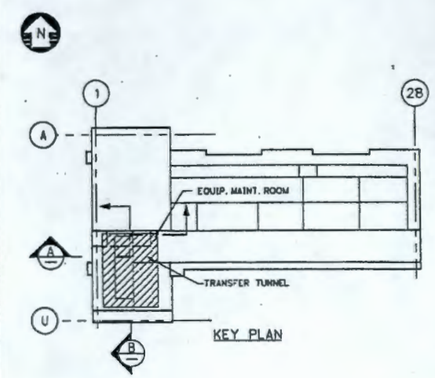




GRAPHIC SCALE 1/8" = 1'-0"

NOTES:

1. MULTIFUNCTION DESCRIBES A SAFETY KEY INTERLOCKING SYSTEM (E.G. CASTELL)



PRELIMINARY

REFERENCE DRAWINGS

DWG NO	TITLE
DWG-W375PT-M00331	PRETREATMENT SYSTEM 410, INCELL HANDLING
DWG-W375PT-M00332	PRETREATMENT SYSTEM 450, INCELL MECHANICAL EQUIPMENT
DWG-W375PT-M00333	PRETREATMENT SYSTEM 430, INCELL DECONTAMINATION
DWG-W375PT-M00334	PRETREATMENT SYSTEM 440, OUTCELL HANDLING
DWG-W375SH-J00001	MECHANICAL HANDLING, SYMBOLS AND LEGENDS SHT. 1 OF 8
DWG-W375SH-J00002	MECHANICAL HANDLING, SYMBOLS AND LEGENDS SHT. 2 OF 8
DWG-W375SH-J00003	MECHANICAL HANDLING, SYMBOLS AND LEGENDS SHT. 3 OF 8
DWG-W375SH-J00004	MECHANICAL HANDLING, SYMBOLS AND LEGENDS SHT. 4 OF 8
DWG-W375SH-J00005	MECHANICAL HANDLING, SYMBOLS AND LEGENDS SHT. 5 OF 8
DWG-W375SH-J00006	MECHANICAL HANDLING, SYMBOLS AND LEGENDS SHT. 6 OF 8
DWG-W375SH-J00007	MECHANICAL HANDLING, SYMBOLS AND LEGENDS SHT. 7 OF 8
DWG-W375SH-J00008	MECHANICAL HANDLING, SYMBOLS AND LEGENDS SHT. 8 OF 8

REVISION HISTORY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
A	ISSUED FOR 24 APRIL 00 BASELINE	PL	JM	PS	3/5/00

THIRD ANGLE PROJECTION

BNFL INC.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

PRETREATMENT SYSTEM 450
LEVEL 1 MECHANICAL
HANDLING DIAGRAM
OUTCELL MECH. EQUIPMENT

PROJECT No. W375
SITE HANFORD
AREA 200E
BUILDING No.

ORIGINATOR P. K. TRUMBO
CHECKER W. J. MANN
APPROVED J. E. RICHARDS

SCALE 1/8"=1'-0"
DWG No. DWG- W375PT-M00335
REV A

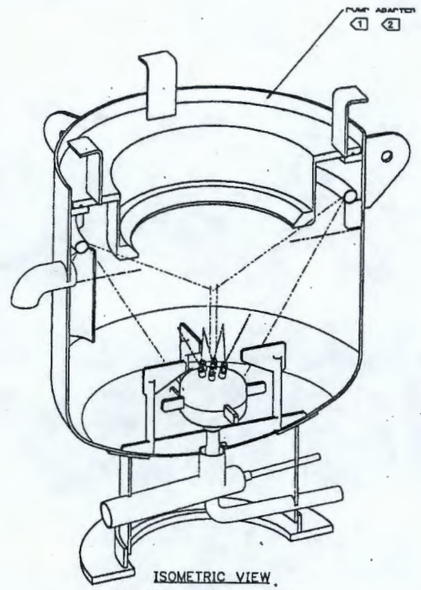
BNI REFERENCE No. DIN-4773-00-01030 REV 1

"E" SIZE - 44x34

15 MAR 2000 13:14:30

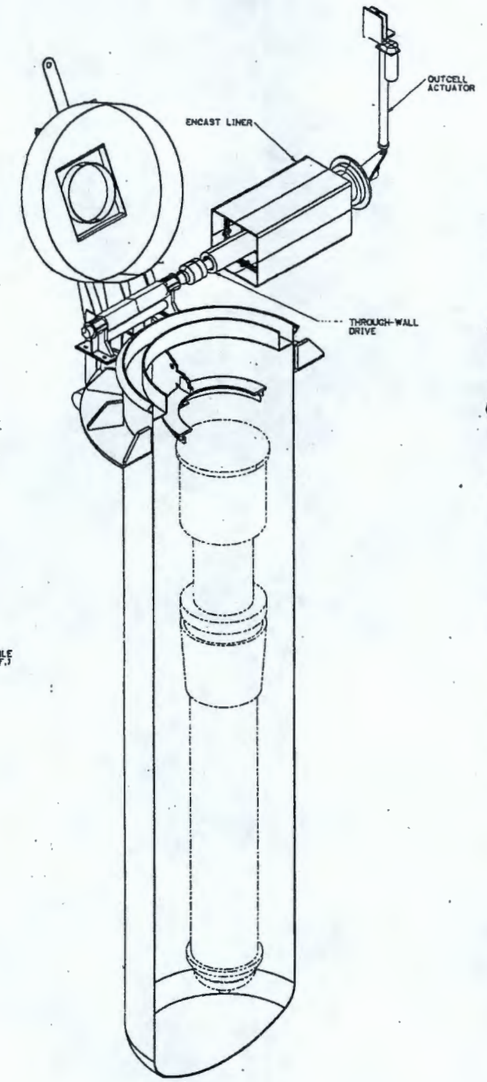
COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375 PT-M00402



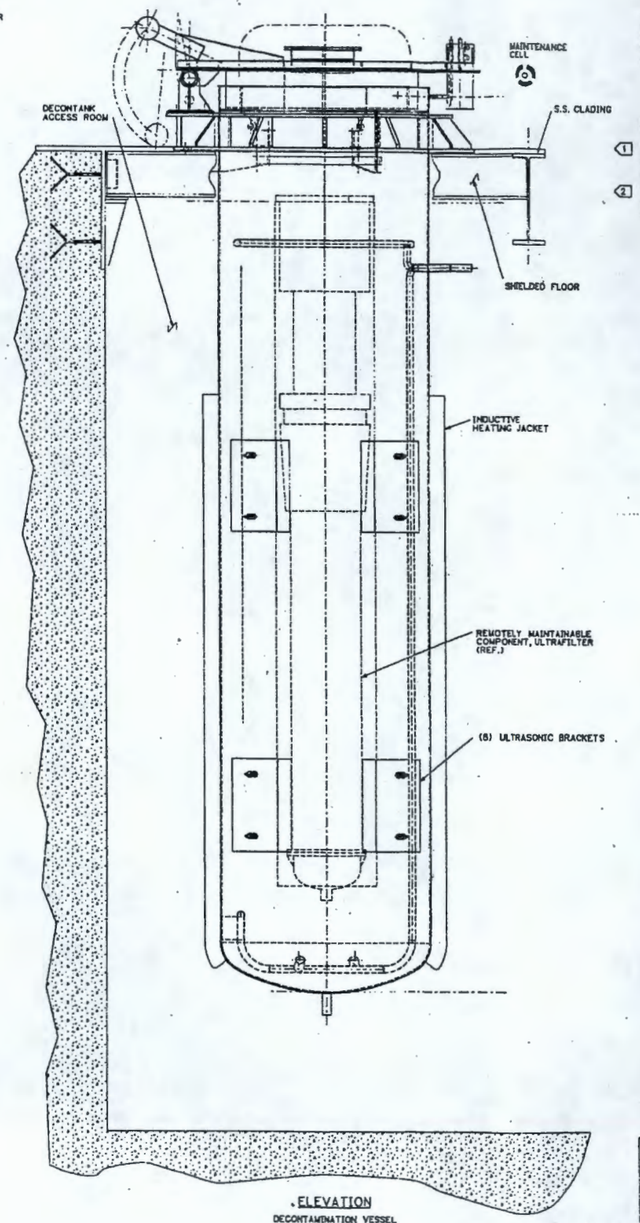
ISOMETRIC VIEW

PUMP BOWL DECONTAMINATION VESSEL
V14003
N.T.S.



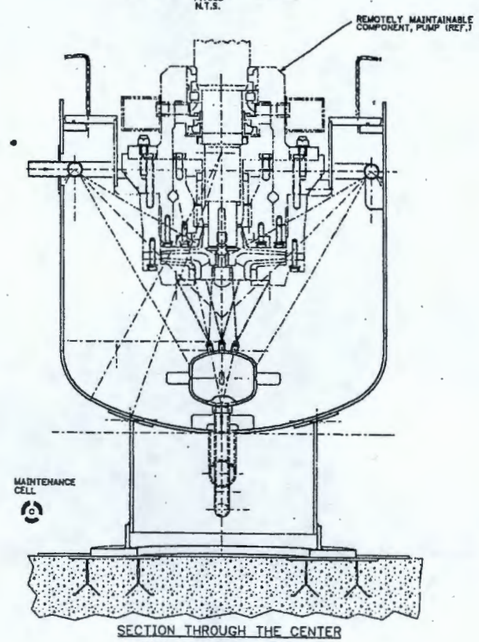
ISOMETRIC VIEW

DECONTAMINATION VESSEL
V14001
N.T.S.



ELEVATION

DECONTAMINATION VESSEL
V14001
SCALE: 1" = 1'-0"



SECTION THROUGH THE CENTER

PUMP BOWL DECONTAMINATION VESSEL
V14003
SCALE: 2"-1'-0"

GENERAL NOTES:

THE DECONTAMINATION VESSEL, V14001 IS USED TO DECONTAMINATE WET PROCESS EQUIPMENT (ULTRA FILTERS, PUMPS, VALVES AND INSTRUMENTS)
THE DECONTAMINATION VESSEL WILL ALSO BE USED TO DECONTAMINATE WET PROCESS EQUIPMENT SUB-COMPONENTS IN BASKETS OR AS PARTIALLY ASSEMBLED UNITS.

THE DECONTAMINATION VESSEL PROVIDES THE PRIMARY MEANS OF HEATING ALL DECONTAMINATION FLUIDS USED.

THE PUMP BOWL DECONTAMINATION VESSEL, V14003 IS USED TO INITIALLY DECONTAMINATE THE PUMP BOWL PRIOR TO STRIP DOWN, MONITORING AND EXPORT TO THE WORKSHOPS (C3) FOR REPAIR AND REFURBISHMENT.
THE PUMP BOWL DECONTAMINATION VESSEL WILL ALSO BE USED TO DECONTAMINATE SMALL PARTS PLACED IN BASKETS.

NOTES:

1. THE PUMP BOWL DECONTAMINATION IS SHOWN WITH A PUMP BOWL ADAPTER IN PLACE.
THERE WILL BE VARIOUS SIZE ADAPTERS TO ACCOMMODATE DIFFERENT SIZE PUMPS.

2. THE PUMP BOWL DECONTAMINATION VESSEL ASSEMBLY ALSO INCLUDES A LID, REMOVED AND PLACED BY THE INCELL CRANE, FOR USE DURING SMALL BASKET DECONTAMINATION OPERATIONS OR VESSEL "STORAGE" CONDITIONS.

PRELIMINARY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
A	ISSUED FOR DWPA		MLR		

REVISION HISTORY

PROJECT No.	W375	
SITE	HANFORD	
AREA	200E	
BUILDING No.		
CONTRACT No.	DE-AC06-96RL13308	

	BY	DATE
DESIGNATOR	W.J. WANGLER	
CHECKER	M.J. HORSCH	
APPROVER	J.E. MICHALSKI	

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

PRETREATMENT
SYSTEM 430
MAINTAINANCE FACILITY
DECONTAMINATION VESSELS

DWG No. DWG- W375PT-M00402 REV A

SCALE: INCHE

"E" SIZE - 44x34

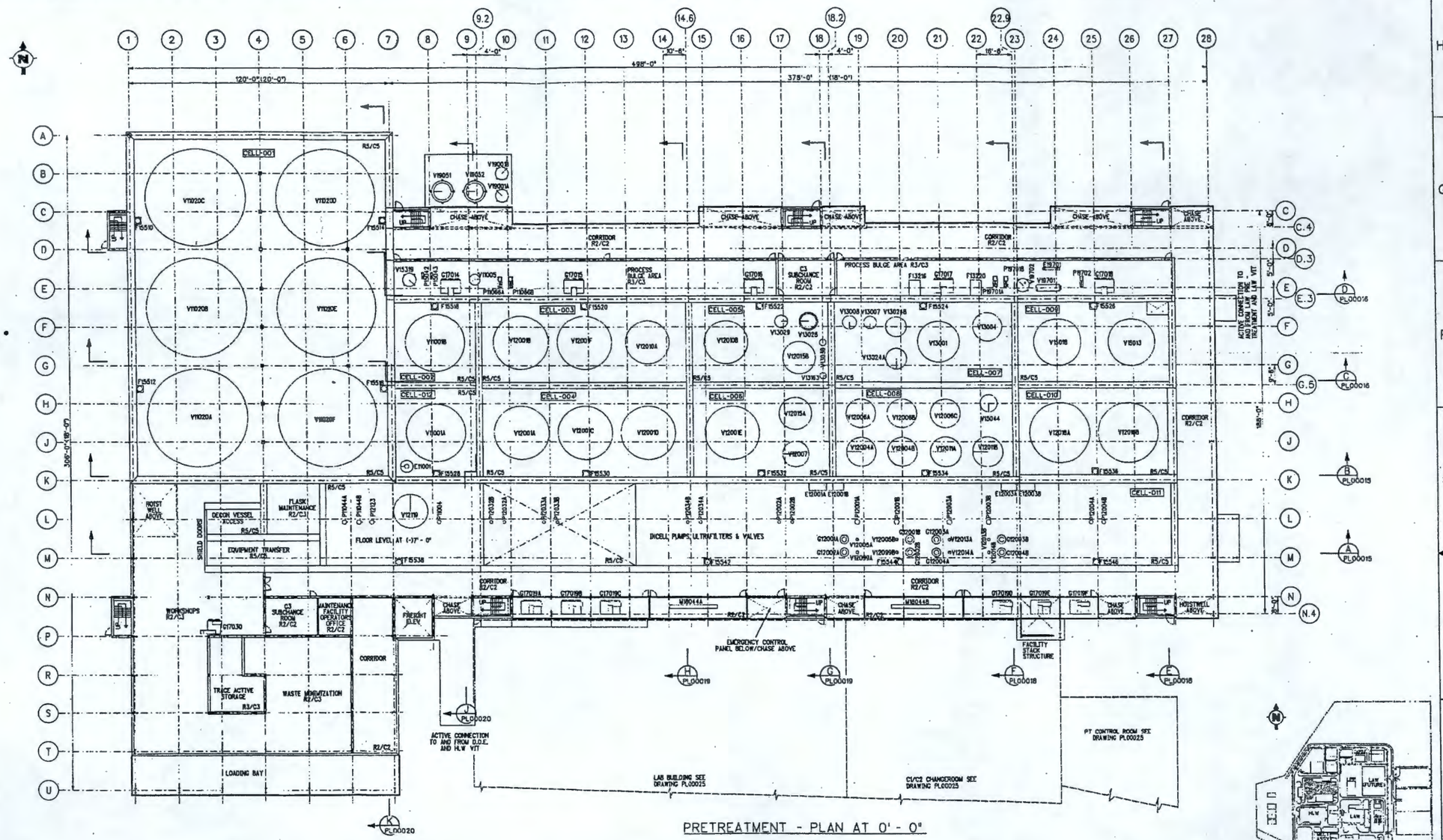
30 MAR 2000 17:15:47

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DW REFERENCE No. EDM-W375-01-00001 REV A

LAST PLOTTED BY: jmthomas
J:\mtd_eng\projects\wtp\solidwaste\ea facility\base\W_L-230000000\wgs\w00402.dwg

DWG No. DWG-W375 PT-PL00009 SCALE RULES



PRETREATMENT - PLAN AT 0' - 0"

PIN	DESCRIPTION	PIN	DESCRIPTION	PIN	DESCRIPTION	PIN	DESCRIPTION	PIN	DESCRIPTION
E1001	LAW FEED EVAPORATOR REBOILER	G120018	HLW ULTRAFILTER MODULE B	P120028	HLW ULTRAFILTRATION FEED PUMP B	V120010F	LAW RECEIPT VESSEL F	V120095A	HLW ULTRAFILTRATION PLUSE POT A
E120014	HLW ULTRAFILTER CIRCUIT COOLER A	G120028	HLW ULTRAFILTER MODULE A	P120028	HLW FEED BLEND TRANSFER PUMP A	V120014	ENVELOPE D RECEIPT VESSEL A	V120095B	HLW ULTRAFILTRATION PLUSE POT B
E120018	HLW ULTRAFILTER CIRCUIT COOLER B	G120028	HLW ULTRAFILTER MODULE B	P120028	HLW FEED BLEND TRANSFER PUMP B	V120018	ENVELOPE D RECEIPT VESSEL B	V12119	FLUSH WATER SUPPLY VESSEL
E120034	LAW ULTRAFILTER CIRCUIT COOLER A	G120038	LAW ULTRAFILTER MODULE A	P120038	ULTRAFILTRATION RECIRCULATION PUMP A	V120010C	ENVELOPE D RECEIPT VESSEL C	V13001	LAW FEED VESSEL
E120038	LAW ULTRAFILTER CIRCUIT COOLER B	G120038	LAW ULTRAFILTER MODULE B	P120038	ULTRAFILTRATION RECIRCULATION PUMP B	V120010D	ENVELOPE D RECEIPT VESSEL D	V13004	TREATED LAW COLLECTION VESSEL
E19701	NON-ACTIVE CONDENSATE HEAT EXCHANGER	G120044	LAW ULTRAFILTER MODULE A	P120044	ENTRAINED SOLIDS RETURN PUMP A	V120010E	ENVELOPE D RECEIPT VESSEL E	V13007	CAUSTIC RINSE TANK
F13219	PROCESS BULGE	G120048	LAW ULTRAFILTER MODULE B	P120048	ENTRAINED SOLIDS RETURN PUMP B	V120010F	ENVELOPE D RECEIPT VESSEL F	V13008	CAUSTIC RINSE TANK
F13220	PROCESS BULGE	G17014	C5 IN-BLEED HEPA FILTER UNIT	P130324	HLW FEED TRANSFER PUMP A	V120044A	HLW ULTRAFILTRATION FEED VESSEL A	V130248	CESIUM ELUATE RECEIPT VESSEL A
F15510	CELL SUMP	G17015	C5 IN-BLEED HEPA FILTER UNIT	P130328	HLW FEED TRANSFER PUMP B	V120048	HLW ULTRAFILTRATION FEED VESSEL B	V130248	CESIUM ELUATE RECEIPT VESSEL B
F15512	CELL SUMP	G17016	C5 IN-BLEED HEPA FILTER UNIT	P120334A	SR/TRU FEED TRANSFER PUMP A	V120054	HLW ULTRAFILTRATION PLUSE POT A	V13028	RECOVERED ACID TANK
F15514	CELL SUMP	G17017	C5 IN-BLEED HEPA FILTER UNIT	P120338	SR/TRU FEED TRANSFER PUMP B	V120058	HLW ULTRAFILTRATION PLUSE POT B	V13029	PROCESS CONDENSATE POT
F15516	CELL SUMP	G17018	C5 IN-BLEED HEPA FILTER UNIT	P120348A	ENTRAINED SOLIDS TRANSFER PUMP A	V120064	HLW ULTRAFILTRATION PERMEATE COLLECT VESSEL A	V13030	CESIUM CONCENTRATE LUTE POT
F15518	CELL SUMP	G17019A	C5 IN-BLEED HEPA FILTER UNIT	P120348B	ENTRAINED SOLIDS TRANSFER PUMP B	V120068	HLW ULTRAFILTRATION PERMEATE COLLECT VESSEL B	V13183	LUTE POT
F15520	CELL SUMP	G17019B	C5 IN-BLEED HEPA FILTER UNIT	P12123	ENVELOPE D REJECT AND FLUSH PUMP	V120060	HLW ULTRAFILTRATION PERMEATE COLLECT VESSEL C	V15013	ACIDIC EFFLUENT VESSEL
F15522	CELL SUMP	G17019C	C5 IN-BLEED HEPA FILTER UNIT	P15042	FLOOR DRAINS DISCHARGE PUMP	V12007	HLW FEED BLENDING VESSEL	V15018	CONTAMINATED EFFLUENT VESSEL
F15524	CELL SUMP	G17019D	C5 IN-BLEED HEPA FILTER UNIT	P15043	FLOOR DRAINS DISCHARGE PUMP	V12010A	EVAPORATOR CONCENTRATE BUFFER A	V15044	HEME WASHINGS COLLECTION VESSEL
F15526	CELL SUMP	G17019E	C5 IN-BLEED HEPA FILTER UNIT	P19701A	NON-ACTIVE CONDENSATE PUMP A	V12010B	EVAPORATOR CONCENTRATE BUFFER B	V15319	FLOOR DRAINS TANK
F15528	CELL SUMP	G17019F	C5 IN-BLEED HEPA FILTER UNIT	P19701B	NON-ACTIVE CONDENSATE PUMP B	V12011A	ULTRAFILTRATION FEED VESSEL A	V19001A	INSTRUMENT AIR RECEIVERS
F15530	CELL SUMP	G17030	C3 IN-BLEED HEPA FILTER UNIT	P37102	ACTIVE CONDENSATE PUMP	V12011B	ULTRAFILTRATION FEED VESSEL B	V19001B	INSTRUMENT AIR RECEIVERS
F15532	CELL SUMP	M80444A	MOTOR CONTROL CENTER	V18001A	LAW FEED EVAPORATOR VESSEL	V12013A	LAW ULTRAFILTRATION PLUSE POT A	V19051	PROCESS AIR RECEIVERS
F15534	CELL SUMP	M80444B	MOTOR CONTROL CENTER	V18001B	LAW FEED EVAPORATOR VESSEL	V12013B	LAW ULTRAFILTRATION PLUSE POT B	V19052	PROCESS AIR RECEIVERS
F15536	CELL SUMP	P18064A	LAW FEED EVAPORATOR CONDENSATE TRANSFER PUMP	V19205	LAW EVAP PROCESS CONDENSATE POT	V12014A	LAW ULTRAFILTRATION PLUSE POT A	V19701	NON-ACTIVE CONDENSATE VESSEL
F15538	CELL SUMP	P18064B	LAW FEED EVAPORATOR CONDENSATE TRANSFER PUMP	V120204A	LAW RECEIPT VESSEL A	V12014B	LAW ULTRAFILTRATION PLUSE POT B	V19702	NON-ACTIVE LP CONDENSATE VESSEL
F15542	CELL SUMP	P18004	LAW FEED EVAPORATOR RECIRCULATION PUMP	V120204B	LAW RECEIPT VESSEL B	V120154A	PERMEATE HOLD VESSEL A		
F15544	CELL SUMP	P18044A	REJECTED LAW TRANSFER PUMP A	V120204C	LAW RECEIPT VESSEL C	V120154B	PERMEATE HOLD VESSEL B		
F15546	CELL SUMP	P18044B	REJECTED LAW TRANSFER PUMP B	V120204D	LAW RECEIPT VESSEL D	V120164A	ENTRAINED SOLIDS HOLD VESSEL A		
G120014	HLW ULTRAFILTER MODULE A	P120014	HLW ULTRAFILTRATION FEED PUMP A	V120204E	LAW RECEIPT VESSEL E	V120164B	ENTRAINED SOLIDS HOLD VESSEL B		

KEY PLAN

PRELIMINARY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
E	ISSUED FOR 24 APRIL DD BASELINE	PG	DJD	[illegible]	5/16/99
D	RE-ISSUED FOR PRELIMINARY CI INFORMATION	LAL	JAB	HM	12/21/98
C	ISSUED FOR PRELIMINARY CI INFORMATION	LAL	JAB	HM	09/27/98
B	ISSUED FOR STRUCTURAL DESIGN	LWD			6/2/98
A	ISSUED FOR STRUCTURAL DESIGN	LWD			5/6/98

REVISION HISTORY

ISSUED BY REPORTS DOC	PROJECT No.	W375
Rev E 5/16/99	SITE	HANFORD
INIT DATE	AREA	200E
USE STAMP	BUILDING No.	
	BY	DATE
ORIGINATOR	L.Dooley/L.LEYLAND	06/27/99
CHECKER	JAMES BROWN	06/27/99
APPROVED	HIROSHI NAGAI	06/27/99
VPN REFERENCE No.	DM-W375-00-01165	REV E

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL.03308

PRETREATMENT BUILDING
GENERAL ARRANGEMENT
PLAN AT 0' - 0"

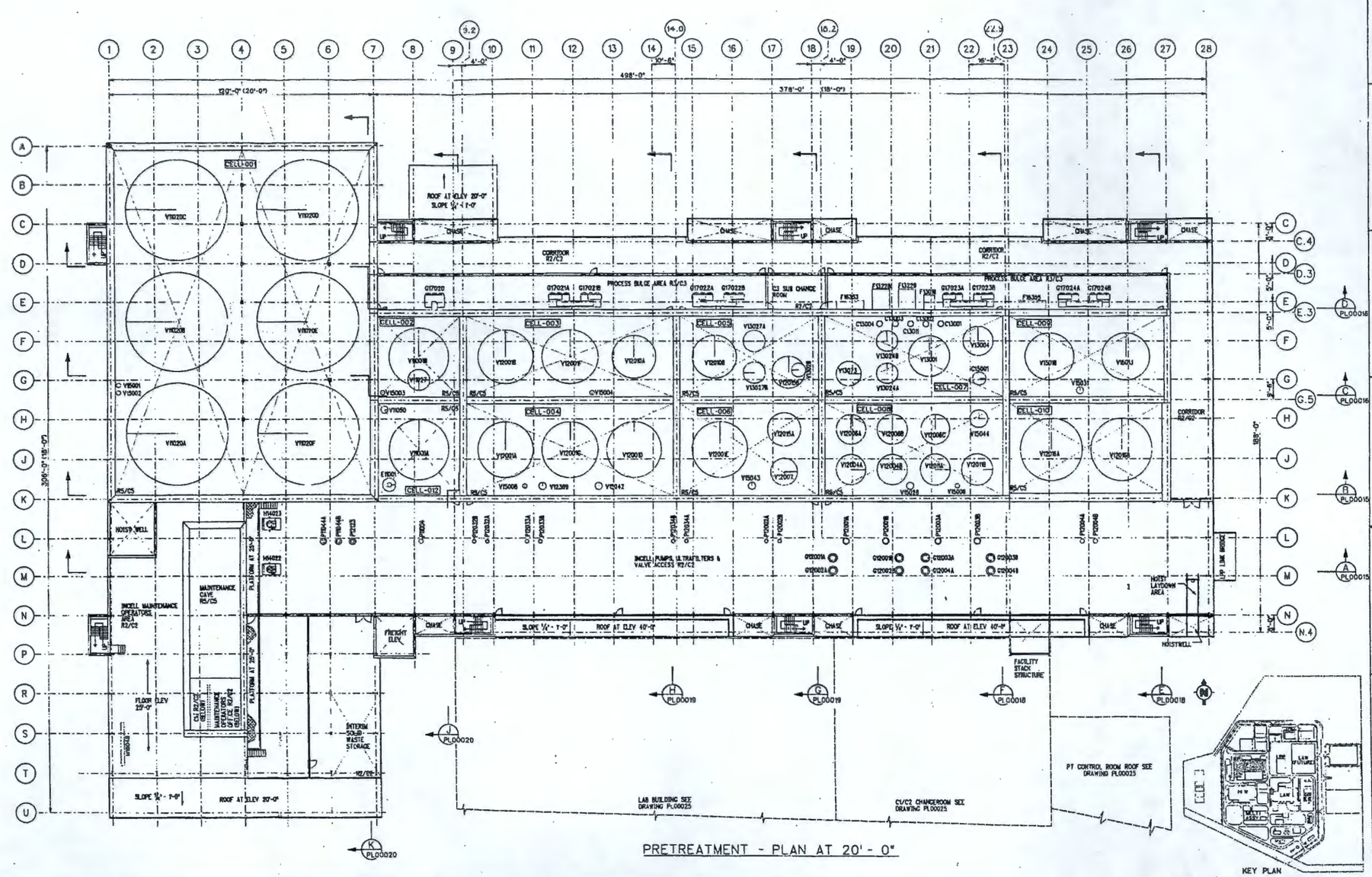
SCALE: 1/16"=1'-0" DWG No. DWG- W375 PT-PL00009 REV E

"E" SIZE - 44x34

7 MAP CODE 10 0' 02

PROPRIETARY INFORMATION - NOTICE PROPERTY AND PROPRIETARY

DWG No. DWG-W375 PT-PL00010 SCALE RULES 1/16" 1/8" 1/4" 1/2" 3/4" 1"



PRETREATMENT - PLAN AT 20' - 0"

PIN	DESCRIPTION	PIN	DESCRIPTION	PIN	DESCRIPTION	PIN	DESCRIPTION	PIN	DESCRIPTION
C13001	CESIUM ION EXCHANGER COLUMN	G17022B	C5 IN-BLEED HEPA FILTER UNIT	P12034B	ENTRAINED SOLIDS TRANSFER PUMP B	V12010A	EVAPORATOR CONCENTRATE BUFFER A	V15010	PRETREATMENT CONTAMINATED CONDENSATE VESSEL
C13002	CESIUM ION EXCHANGER COLUMN	G17023A	C5 IN-BLEED HEPA FILTER UNIT	P12123	ENVELOPE D REJECT AND FLUSH PUMP	V12010B	EVAPORATOR CONCENTRATE BUFFER B	V15028	SAMPLE COLLECTION BREAKPOT
C13003	CESIUM ION EXCHANGER COLUMN	G17023B	C5 IN-BLEED HEPA FILTER UNIT	V11001A	LAW FEED EVAPORATOR FEED VESSEL A	V12011A	ULTRAFILTRATION FEED VESSEL A	V15031	PLANT WASH BREAKPOT
C13004	CESIUM ION EXCHANGER COLUMN	G17024A	C5 IN-BLEED HEPA FILTER UNIT	V11001B	LAW FEED EVAPORATOR FEED VESSEL B	V12011B	ULTRAFILTRATION FEED VESSEL B	V15043	SAMPLE COLLECTION BREAKPOT
C13011	CESIUM ION EXCHANGER COLUMN	G17024B	C5 IN-BLEED HEPA FILTER UNIT	V11020A	LAW RECEIPT VESSEL	V12015A	PERMEATE HOLD VESSEL A	V15043	SAMPLE COLLECTION BREAKPOT
C15001	VESSEL VENT SCRUBBER	H14022	EQUIPMENT MAINTENANCE GAMMA GATE	V11020B	LAW RECEIPT VESSEL	V12015B	PERMEATE HOLD VESSEL B	V15044	SCRUBBER COLLECTION VESSEL
E11001	LAW FEED EVAPORATOR REBOILER	H14023	RECEIPT GAMMA GATE	V11020E	LAW RECEIPT VESSEL	V12016A	ENTRAINED SOLIDS HOLD VESSEL A		
F13016	SPENT RESIN BLUGE	M18045	MOTOR CONTROL PANEL	V11020D	LAW RECEIPT VESSEL	V12016B	ENTRAINED SOLIDS HOLD VESSEL B		
F13228	ELUATE AND CASTIC RINSE BLUGE	P11004	LAW FEED EVAPORATOR RECIRCULATION PUMP	V11020C	LAW RECEIPT VESSEL	V12369	HLW EJECTOR DISCHARGE BREAKPOT		
F13229	CESIUM REAGENTS BLUGE	P11044A	REJECTED LAW TRANSFER PUMP A	V11020F	LAW RECEIPT VESSEL	V13001	LAW FEED TANK		
F18353	REAGENTS BLUGE	P11044B	REJECTED LAW TRANSFER PUMP B	V11027	LINE FLUSH MAKEUP VESSEL	V13004	TREATED LAW COLLECTION TANK		
F18355	REAGENTS BLUGE	P12001A	HLW ULTRAFILTRATION FEED PUMP A	V11050	LAW FEED EVAPORATOR LUTE POT	V13024B	CESIUM ELUATE RECEIPT VESSEL A		
G12001A	HLW ULTRAFILTER MODULE A	P12001B	HLW ULTRAFILTRATION FEED PUMP B	V12001A	ENVELOPE D RECEIPT VESSEL A	V13024B	CESIUM ELUATE RECEIPT VESSEL B		
G12001B	HLW ULTRAFILTER MODULE B	P12002A	HLW FEED BLEND TRANSFER PUMP A	V12001B	ENVELOPE D RECEIPT VESSEL B	V13026	EVAPORATOR KETTLE		
G12002A	HLW ULTRAFILTER MODULE A	P12002B	HLW FEED BLEND TRANSFER PUMP B	V12001C	ENVELOPE D RECEIPT VESSEL C	V13027A	CESIUM ELUATE VESSEL A		
G12002B	HLW ULTRAFILTER MODULE B	P12003A	ULTRAFILTRATION RECIRCULATION PUMP A	V12001D	ENVELOPE D RECEIPT VESSEL D	V13027B	CESIUM ELUATE VESSEL B		
G12003A	LAW ULTRAFILTER MODULE A	P12003B	ULTRAFILTRATION RECIRCULATION PUMP B	V12001E	ENVELOPE D RECEIPT VESSEL E	V13073	CESIUM CONCENTRATE STORAGE TANK		
G12003B	LAW ULTRAFILTER MODULE B	P12004A	ENTRAINED SOLIDS RETURN PUMP A	V12001F	ENVELOPE D RECEIPT VESSEL F	V15001	PLANT WASH BREAKPOT		
G12004A	LAW ULTRAFILTER MODULE A	P12004B	ENTRAINED SOLIDS RETURN PUMP A	V12014A	HLW ULTRAFILTRATION FEED VESSEL A	V15002	PLANT WASH BREAKPOT		
G12004B	LAW ULTRAFILTER MODULE B	P12032A	HLW FEED TRANSFER PUMP A	V12014B	HLW ULTRAFILTRATION FEED VESSEL B	V15003	PLANT WASH BREAKPOT		
G17020	C5 IN-BLEED HEPA FILTER UNIT	P12032B	HLW FEED TRANSFER PUMP B	V12016A	HLW ULTRAFILTRATION PERMEATE COLLECT VESSEL A	V15004	PLANT WASH BREAKPOT		
G17021A	C5 IN-BLEED HEPA FILTER UNIT	P12033A	SR/TRU FEED TRANSFER PUMP A	V12016B	HLW ULTRAFILTRATION PERMEATE COLLECT VESSEL B	V15006	PLANT WASH BREAKPOT		
G17021B	C5 IN-BLEED HEPA FILTER UNIT	P12033B	SR/TRU FEED TRANSFER PUMP B	V12016C	HLW ULTRAFILTRATION PERMEATE COLLECT VESSEL C	V15008	PLANT WASH BREAKPOT		
G17022A	C5 IN-BLEED HEPA FILTER UNIT	P12034A	ENTRAINED SOLIDS TRANSFER PUMP A	V12017	HLW FEED BLENDING VESSEL	V15012	PRETREATMENT ACIDIC EFFLUENT VESSEL		

PRELIMINARY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
E	ISSUED FOR 24 APRIL 00 BASELINE	PG	DSP	LL	6/15/00
D	RE-ISSUED FOR PRELIMINARY C1 INFORMATION	GR	JAB	HM	12/21/99
C	ISSUED FOR PRELIMINARY C1 INFORMATION	GR	JAB	HM	09/27/99
B	ISSUED FOR STRUCTURAL DESIGN	LMD			6/2/99
A	ISSUED FOR STRUCTURAL DESIGN	LMD			5/6/99

REVISION HISTORY

PROJECT No. W375
SITE RANFORD
AREA 200E
BUILDING No.

	BY	DATE
ORIGINATOR	L.Lindley/RLRIVMC	09/27/99
CHECKER	JAMES BROWN	09/27/99
APPROVED	HANSHI WANG	09/27/99

DIN REFERENCE No. DIN-R375-00-00016 REV E

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
2000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

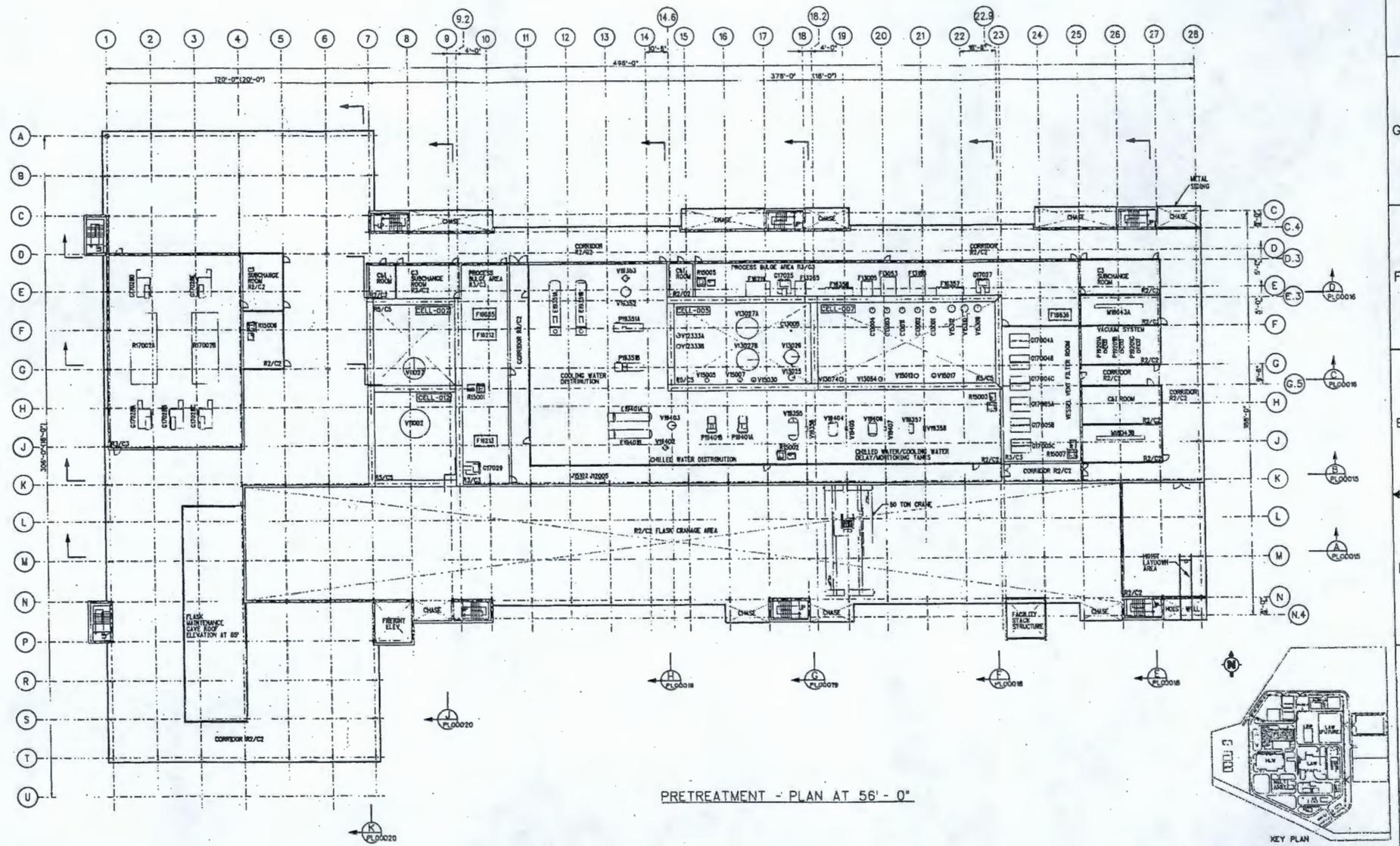
PRETREATMENT BUILDING GENERAL ARRANGEMENT PLAN AT 20' - 0"

SCALE 1/16"=1'-0" DWG No. DWG- W375PT-PL00010 REV E

D SIZE - 44x34

USING PROPRIETARY - NOTIFY OWNER BEFORE REPRODUCTION

DWG No. DWG-W375 PT-PL00011 SCALE RULES



PRETREATMENT - PLAN AT 56' - 0"

PRELIMINARY

PIN	DESCRIPTION	PIN	DESCRIPTION	PIN	DESCRIPTION	PIN	DESCRIPTION	PIN	DESCRIPTION
C13001	Cs ION EXCHANGE COLUMN	F16639	STEAM BULGE	P18201B	VACUUM PUMP	V13027A	CESIUM ELUATE VESSEL A	V16404	CESIUM ION EXCHANGER GROUP DELAY TANK
C13002	Cs ION EXCHANGE COLUMN	G17004A	VESSSEL VENT EXTRACT HEPA FILTER UNIT	P18201C	VACUUM PUMP	V13027B	CESIUM ELUATE VESSEL B	V16405	ULTRA-FILTER COOLER GROUP HEADER TANK
C13003	Cs ION EXCHANGE COLUMN	G17004B	VESSSEL VENT EXTRACT HEPA FILTER UNIT	P19351A	CW PUMP	V13054	OFF-SPEC ELUANT RECYCLE BREAKPOT	V16406	COOLING WATER LOOP B DELAY TANK
C13004	Cs ION EXCHANGE COLUMN	G17004C	VESSSEL VENT EXTRACT HEPA FILTER UNIT	P19351B	CW PUMP	V13074	BREAKPOT	V16407	RAD-MONITORS LOOP B DELAY TANK
C13005	RECTIFIER COLUMN	G17005A	VESSSEL VENT EXTRACT HEPA FILTER UNIT	P18401A	CHW PUMP	V15005	PLANT WASH BREAKPOT		
C13011	Cs ION EXCHANGE COLUMN	G17005B	VESSSEL VENT EXTRACT HEPA FILTER UNIT	P18401B	CHW PUMP	V15007	PLANT WASH BREAKPOT		
E19351A	CW LOOP HEAT EXCHANGER	G17005C	VESSSEL VENT EXTRACT HEPA FILTER UNIT	R15001	HA AUTOSAMPLER	V15012	ACIDIC EFFLUENT BREAKPOT		
E19351B	CW LOOP HEAT EXCHANGER	G17025	C5 IN-BLEED HEPA FILTER UNIT	R15002	HA AUTOSAMPLER	V15017	CONTAMINATED EFFLUENT BREAKPOT		
E19401A	CHW LOOP HEAT EXCHANGER	G17027	C5 IN-BLEED HEPA FILTER UNIT	R15003	HA AUTOSAMPLER	V15030	PLANT WASH BREAKPOT		
E19401B	CHW LOOP HEAT EXCHANGER	G17028A	C5 IN-BLEED HEPA FILTER UNIT	R15005	HA AUTOSAMPLER	V15306	ACIDIC EFFLUENT BREAKPOT		
F13005	INSTRUMENTATION FLOORBOX	G17028B	C5 IN-BLEED HEPA FILTER UNIT	R15006	HA AUTOSAMPLER	V15310	ACIDIC EFFLUENT BREAKPOT		
F13053	TREATED LAW BULGE	G17028C	C5 IN-BLEED HEPA FILTER UNIT	R15007	HA AUTOSAMPLER	V15312	ACIDIC EFFLUENT BREAKPOT		
F13185	TREATED LAW BULGE	G17028D	C5 IN-BLEED HEPA FILTER UNIT	R17002A	RECIRC. COOLING UNIT	V19352	AIR SEPERATOR		
F13265	RCD DETECTION BULGE	G17028E	C5 IN-BLEED HEPA FILTER UNIT	R17002B	RECIRC. COOLING UNIT	V19353	RECIRC. COOLING WATER LOOP CHEMICAL FEED TANK		
F18212	PLANT WASH BULGE	G17029	C5 IN-BLEED HEPA FILTER UNIT	V11001	EVAPORATOR RECIRCULATION VESSEL	V19355	Cs PRIMARY COND. COOLING WATER DELAY TANK		
F18213	PLANT WASH BULGE	J12005	INSTRUMENT BOX	V11027	LINE FLUSH MAKEUP VESSEL	V19356	Cs PRIMARY COND. RAD-MONITORS DELAY TANK		
F18219	PLANT WASH BULGE	J15302	INSTRUMENT BOX	V23333A	BREAKPOT	V19357	Cs COOLING WATER STORAGE DELAY TANK		
F18357	REAGENT BULGE	M18043A	MOTOR CONTROL CENTER	V23333B	BREAKPOT	V19358	Cs STORAGE RAD-MONITORS DELAY TANK		
F18358	REAGENT BULGE	M18043B	MOTOR CONTROL CENTER	V15025	EVAPORATOR FEED PULSE POT	V19402	AIR SEPERATOR		
F18635	STEAM BULGE	P19201A	VACUUM PUMP	V15028	EVAPORATOR KETTLE	V19403	RECIRC. CHILLED WATER CHEMICAL FEED TANK		

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
E	ISSUED FOR 24 APRIL 00 BASELINE	PG	JAB	HW	5/15/00
D	RE ISSUED FOR PRELIMINARY C1 INFORMATION	PG	JAB	HW	10/21/99
C	ISSUED FOR PRELIMINARY C1 INFORMATION	PG	JAB	HW	09/27/99
B	ISSUED FOR STRUCTURAL DESIGN	LMD			8/2/99
A	ISSUED FOR STRUCTURAL DESIGN	LMD			5/5/99

REVISION HISTORY

ISSUED BY BECHTEL NATIONAL INC. FOR DOE

PROJECT No.	W375	
SITE	HANFORD	
AREA	200E	
BUILDING No.		
	BY	DATE
ORIGINATOR	L.Downey/P. CARROLL	09/27/99
CHECKER	JAMES BROWN	09/27/99
APPROVED	YORZUO NASAI	09/27/99

DN REFERENCE No. DN-W375-00-00017 REV C

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

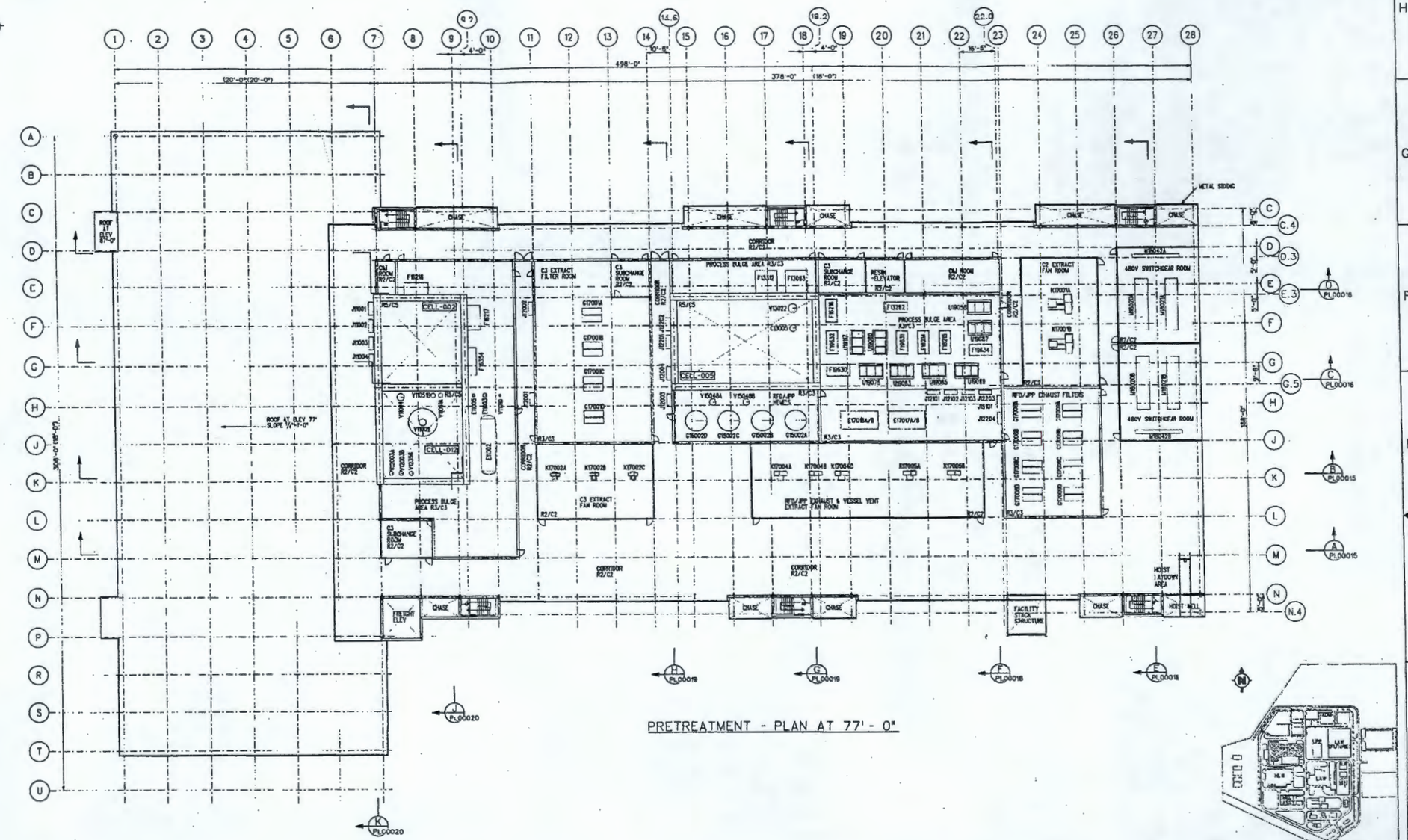
PRETREATMENT BUILDING
GENERAL ARRANGEMENT
PLAN AT 56' - 0"

SCALE 1/8"=1'-0" DWG No. DWG- W375 PT-PL00011 REV E

8 7 6 5 4 3 2

E 5122 - 44x34

DWG No. DWG-W375 PT-PL00012 SCALE RULES



PRELIMINARY

PIN	DESCRIPTION	PIN	DESCRIPTION	PIN	DESCRIPTION	PIN	DESCRIPTION	PIN	DESCRIPTION
G13003	RECTIFIER COLUMN	F18634	STEAM BULGE	J10004	INSTRUMENT BOX	K170040	VESSEL VENT EXTRACT FAN	U18058	RFD CONTROLLER RACK
E16022	LAW FEED EVAPORATOR PRIMARY CONDENSER	G15002A	HA HEPA	J12001	INSTRUMENT BOX	K170054	RFD EXTRACT FAN	U19075	RFD CONTROLLER RACK
E16023	LAW FEED EVAPORATOR AFTERCONDENSER	G15002B	HA HEPA	J12002	INSTRUMENT BOX	K170058	RFD EXTRACT FAN	U19080	PULSE JET MIXER CONTROLLER RACK
E16025	LAW FEED EVAPORATOR INTERCONDENSER	G15002C	HA HEPA	J17003	INSTRUMENT BOX	M18020A	MOTOR CONTROL CABINET	U19083	PULSE JET MIXER CONTROLLER RACK
E17016A	VESSEL VENT IN-BLEED ELECTRIC HEATING COILS	G15002D	HA HEPA	J12004	INSTRUMENT BOX	M180208	MOTOR CONTROL CABINET	U19085	PULSE JET MIXER CONTROLLER RACK
E17016B	VESSEL VENT IN-BLEED ELECTRIC HEATING COILS	G17001A	C3 EXTRACT HEPA FILTER UNITS	J12101	INSTRUMENT BOX	M18021A	MOTOR CONTROL CABINET	U19087	PULSE JET MIXER CONTROLLER RACK
E17017A	VESSEL VENT IN-BLEED ELECTRIC HEATING COILS	G17001B	C3 EXTRACT HEPA FILTER UNITS	J12102	INSTRUMENT BOX	M18021B	MOTOR CONTROL CABINET	U19089	PULSE JET MIXER CONTROLLER RACK
E17017B	VESSEL VENT IN-BLEED ELECTRIC HEATING COILS	G17001C	C3 EXTRACT HEPA FILTER UNITS	J12103	INSTRUMENT BOX	M18042A	MOTOR CONTROL CABINET	U19117	PULSE JET MIXER CONTROLLER RACK
F13063	VENT BULGE	G17001D	C3 EXTRACT HEPA FILTER UNITS	J12201	INSTRUMENT BOX	M18042B	MOTOR CONTROL CABINET		
F13282	CESIUM FRESH RESIN BULGE	G17008A	RFD EXTRACT HEPA FILTER UNITS	J12202	INSTRUMENT BOX	V11002	EVAPORATOR RECIRCULATION VESSEL		
F13312	VENT BULGE	G17008B	RFD EXTRACT HEPA FILTER UNITS	J12203	INSTRUMENT BOX	V11004	LAW FEED EVAP FEED BREAKPOT		
F16214	PLANT WASH BULGE	G17008C	RFD EXTRACT HEPA FILTER UNITS	J12204	INSTRUMENT BOX	V11010	LAW FEED EVAPORATOR DEMISTER		
F16215	PLANT WASH BULGE	G17008D	RFD EXTRACT HEPA FILTER UNITS	J15101	INSTRUMENT BOX	V11051A	LAW FEED EVAPORATOR CONCENTRATE BREAKPOT		
F16216	PLANT WASH BULGE	G17009A	RFD EXTRACT HEPA FILTER UNITS	K170011	C2 EXTRACT FAN	V11051B	LAW FEED EVAPORATOR CONCENTRATE PULSEPOT		
F16217	PLANT WASH BULGE	G17009B	RFD EXTRACT HEPA FILTER UNITS	K170019	C2 EXTRACT FAN	V12003A	HLW EFFLUENT BREAKPOT		
F16218	PLANT WASH BULGE	G17009C	RFD EXTRACT HEPA FILTER UNITS	K170023	C3 EXTRACT FAN	V12003B	HLW EFFLUENT BREAKPOT		
F16354	REAGENT BULGE	G17009D	RFD EXTRACT HEPA FILTER UNITS	K170028	C3 EXTRACT FAN	V12356	HLW EFFLUENT DISCHARGE BREAKPOT		
F19630	STEAM BULGE	J11001	INSTRUMENT BOX	K170028	C3 EXTRACT FAN	V13022	Cs CAUSTIC BREAKPOT		
F19631	STEAM BULGE	J11002	INSTRUMENT BOX	K170044	VESSEL VENT EXTRACT FAN	V15048A	VESSEL VENT HEME A		
F19632	STEAM BULGE	J11003	INSTRUMENT BOX	K170048	VESSEL VENT EXTRACT FAN	V15048B	VESSEL VENT HEME B		

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
E	ISSUED FOR 24 APRIL 00 BASELINE	P.G.			4/15/00
D	RE-ISSUED FOR PRELIMINARY CI INFORMATION	WA	JMB	HN	12/21/99
C	ISSUED FOR PRELIMINARY CI INFORMATION	WA	JMB	HN	09/27/99
B	ISSUED FOR STRUCTURAL DESIGN	LHD			8/2/99
A	ISSUED FOR STRUCTURAL DESIGN	LHD			5/6/99

REVISION HISTORY

PROJECT No. W375
SITE HANFORD
AREA 200E
BUILDING No.

		DATE
DESIGNER	L.Dailey/M.MCKISSIN	09/27/99
CHECKER	JAMES BROWN	09/27/99
APPROVED	KOROSH NASAI	09/27/99

DWG REFERENCE No. DWG-W375-00-0010 REV E

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

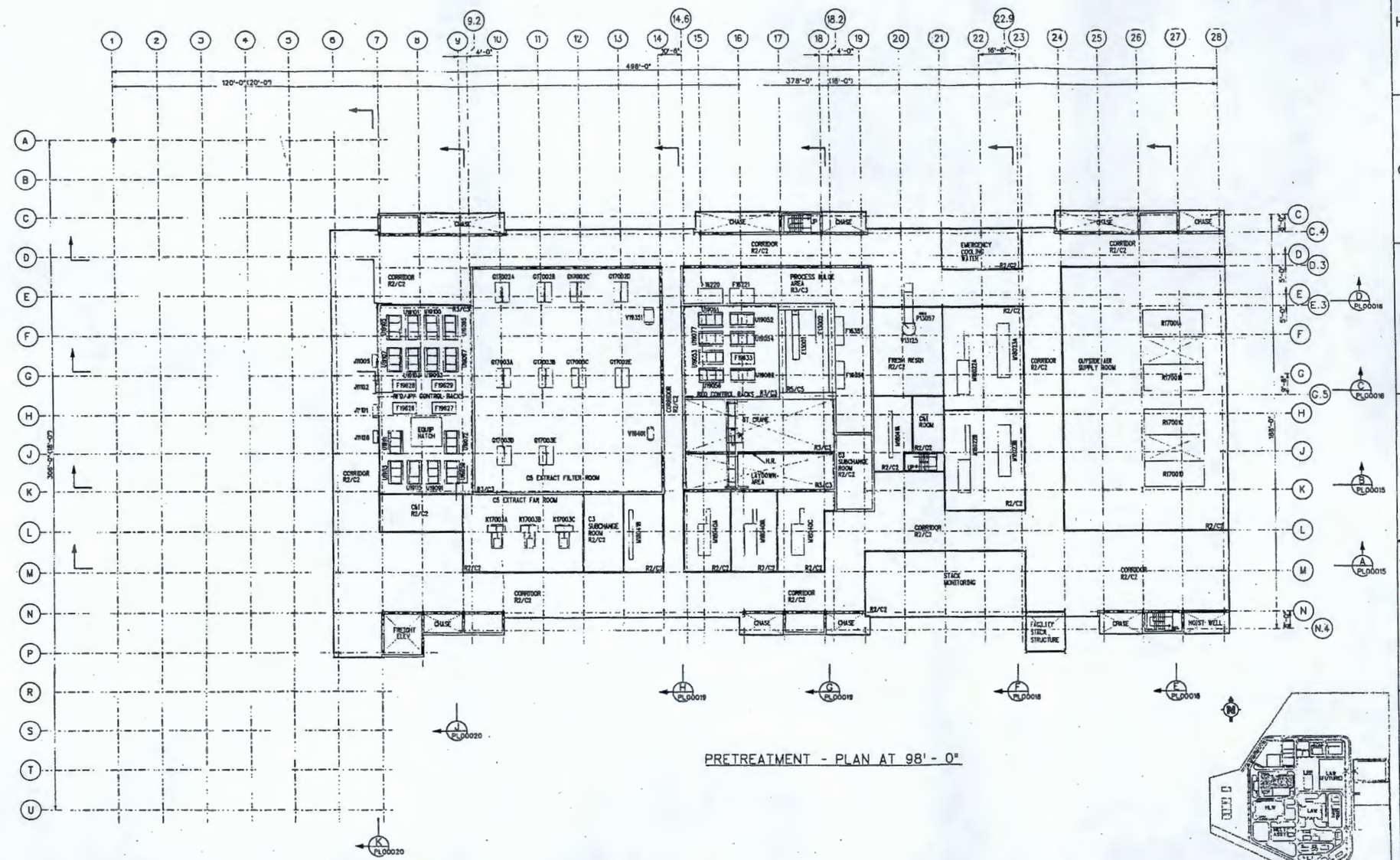
CONTRACT No DE-AC06-96RL13308

PRETREATMENT BUILDING
GENERAL ARRANGEMENT
PLAN AT 77' - 0"

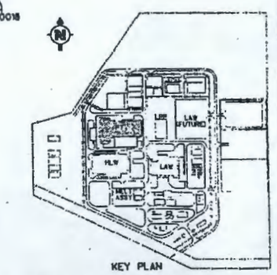
SCALE 1/4"-1'-0" DWG No. DWG- W375 PT-PL00012 REV E

"C" SIZE - 44x34

DWG No. DWG-W375PT-PL00013 | SCALE MILES



PRETREATMENT - PLAN AT 98' - 0"



KEY PLAN

PRELIMINARY

REV	DESCRIPTION	DRAWN/CHKD	APVD	DATE
L	ISSUED FOR 24 APRIL 00 BASELINE	PG DJE	JL	3/15/00
D	RE-ISSUED FOR PRELIMINARY CI INFORMATION	LAL / JMB	HW	12/21/99
C	ISSUED FOR PRELIMINARY CI INFORMATION	LAL / JMB	HW	09/27/99
B	ISSUED FOR STRUCTURAL DESIGN	LWD		8/2/99
A	ISSUED FOR STRUCTURAL DESIGN	LWD		5/6/99

REVISION HISTORY

	BY	DATE
DESIGNATOR	L.Dabney/A.Cleveland	08/27/99
CHECKER	James Brown	08/27/99
APPROVED	Hideki Masai	08/27/99

PROJECT No. W375
SITE HANFORD
AREA 200E
BUILDING No.

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

PRETREATMENT BUILDING GENERAL ARRANGEMENT PLAN AT 98' - 0"

SCALE: 1/16"=1'-0" | DWG No. DWG- W375PT-PL00013 | REV E

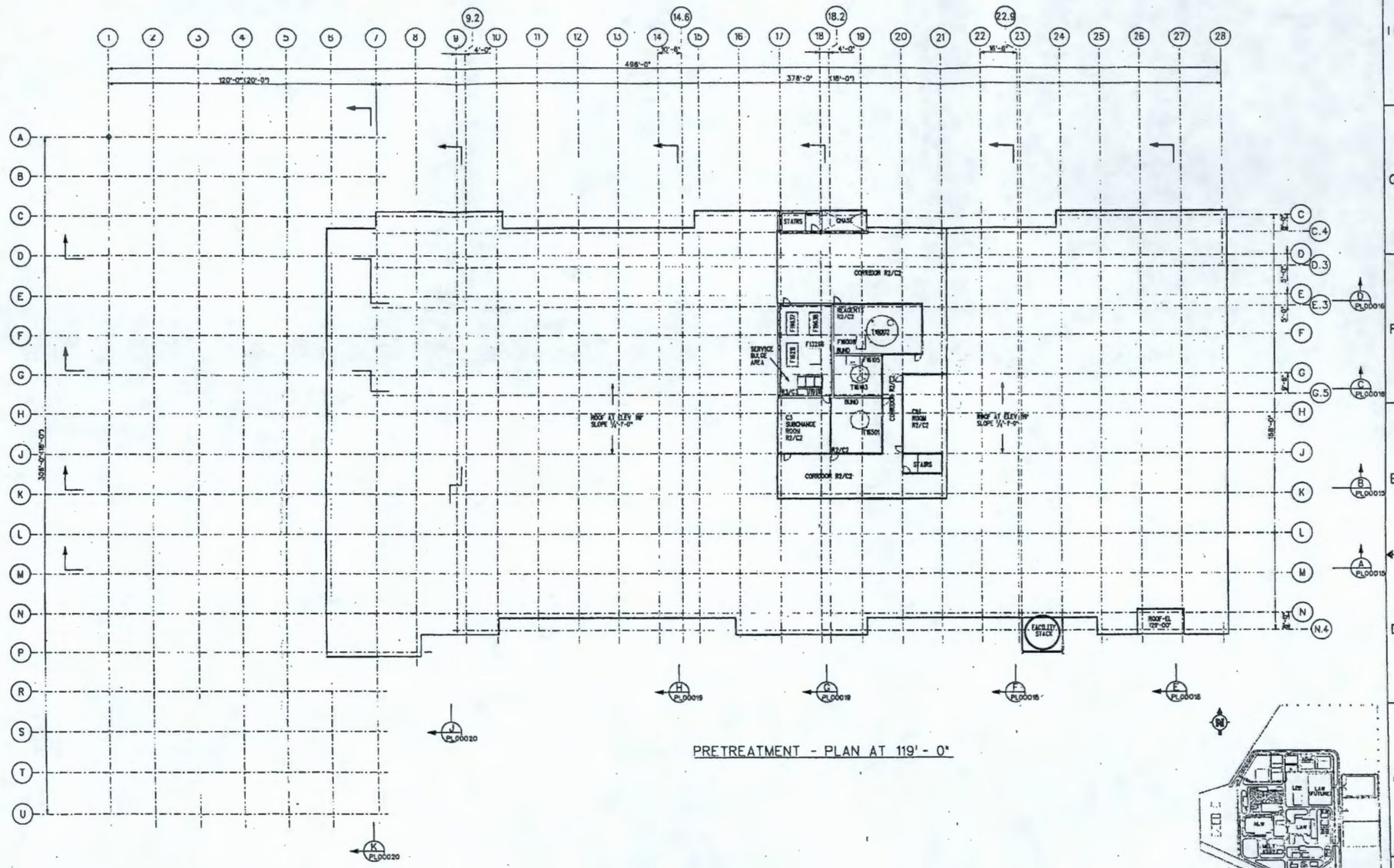
PM REFERENCE No. DRF-W375-00-09018 | REV E

D SIZE - 44x34

PIN	DESCRIPTION	PIN	DESCRIPTION	PIN	DESCRIPTION	PIN	DESCRIPTION
E10001	OVERHEADS RECTIFIER CONDENSER	G17003C	C5 EXTRACT HEPA FILTERS UNIT	R17001C	C2 SUPPLY AIR HANDLING UNIT	U19111	PULSE JET MIXER CONTROLLER RACK
E10002	AFTER CONDENSER	J11101	INSTRUMENT BOX	R17001D	C2 SUPPLY AIR HANDLING UNIT	U19113	PULSE JET MIXER CONTROLLER RACK
F16220	PLANT WASH BULGE	J11102	INSTRUMENT BOX	U19051	RFD CONTROLLER RACK	U19115	PULSE JET MIXER CONTROLLER RACK
F16221	PLANT WASH BULGE	J11005	INSTRUMENT BOX	U19052	RFD CONTROLLER RACK	V13125	FRESH Ca RESIN ADDITION TANK
F16351	REAGENT BULGE	J11128	INSTRUMENT BOX	U19053	RFD CONTROLLER RACK	V13351	CW EXPANSION TANK
F16356	REAGENT BULGE	K17003A	C5 EXTRACT FAN	U19054	RFD CONTROLLER RACK	V19421	CHW EXPANSION TANK
F19626	STEAM BULGE	K17003B	C5 EXTRACT FAN	U19056	RFD CONTROLLER RACK		
F19627	STEAM BULGE	K17003C	C5 EXTRACT FAN	U19059	RFD CONTROLLER RACK		
F19628	STEAM BULGE	M16040A	MOTOR CONTROL CENTER	U19072	RFD CONTROLLER RACK		
F19629	STEAM BULGE	M16040B	MOTOR CONTROL CENTER	U19077	PULSE JET MIXER CONTROLLER RACK		
F19633	STEAM BULGE	M16040C	MOTOR CONTROL CENTER	U19082	PULSE JET MIXER CONTROLLER RACK		
G17002A	C5 EXTRACT HEPA FILTERS UNIT	M16041A	MOTOR CONTROL CENTER	U19091	PULSE JET MIXER CONTROLLER RACK		
G17002B	C5 EXTRACT HEPA FILTERS UNIT	M16041B	MOTOR CONTROL CENTER	U19093	PULSE JET MIXER CONTROLLER RACK		
G17002C	C5 EXTRACT HEPA FILTERS UNIT	M16222A	MOTOR CONTROL CENTER	U19095	PULSE JET MIXER CONTROLLER RACK		
G17002D	C5 EXTRACT HEPA FILTERS UNIT	M16222B	MOTOR CONTROL CENTER	U19097	PULSE JET MIXER CONTROLLER RACK		
G17002E	C5 EXTRACT HEPA FILTERS UNIT	M16023A	MOTOR CONTROL CENTER	U19101	PROCESS RFD CONTROLLER RACK		
G17003A	C5 EXTRACT HEPA FILTERS UNIT	M16023B	MOTOR CONTROL CENTER	U19103	PROCESS RFD CONTROLLER RACK		
G17003B	C5 EXTRACT HEPA FILTERS UNIT	P13057	FRESH RESIN OVERFLOW RECYCLE PUMP	U19105	PROCESS RFD CONTROLLER RACK		
G17003C	C5 EXTRACT HEPA FILTERS UNIT	R17001A	C2 SUPPLY AIR HANDLING UNIT	U19107	PULSE JET MIXER CONTROLLER RACK		
G17003D	C5 EXTRACT HEPA FILTERS UNIT	R17001B	C2 SUPPLY AIR HANDLING UNIT				

DWG No. DWG-W375PT-PL00014

SCALE RULES



PRELIMINARY

PN	DESCRIPTION
F13266	DUAL EJECTOR BULGE
F16008	ACIDIC EFFLUENT SUMP
F16025	ALKALINE EFFLUENT DRY SUMP
F15721	PLANT WASH BULGE
F19637	STEAM BULGE
F19638	STEAM BULGE
TW002	0.5M NITRIC ACID HEAD TANK
TW003	0.1M SODIUM HYDROXIDE HEAD TANK
TW501	DMW HEAD TANK
U9918	PULSE JET MIXER CONTROLLER RACK

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
E	ISSUED FOR 24 APRIL 00 BASELINE	PG	JMB	JM	9/15/00
D	RE-ISSUED FOR PRELIMINARY C1 INFORMATION	PG	JMB	HM	12/21/99
C	ISSUED FOR PRELIMINARY C1 INFORMATION	PG	JMB	HM	09/27/99
B	ISSUED FOR STRUCTURAL DESIGN	LMD			8/2/99
A	ISSUED FOR STRUCTURAL DESIGN	LMD			5/6/99

REVISION HISTORY

		BY	DATE
PROJECT No.	W375		
SITE	HANFORD		
AREA	200E		
BUILDING No.			
ORIGINATOR	L.Dooley/P. Gaskill		09/27/99
CHECKER	JAMES BROWN		09/27/99
APPROVED	HIROSHI NAGAI		09/27/99

DWG REFERENCE No. DWG-W375-00-09020 REV E

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

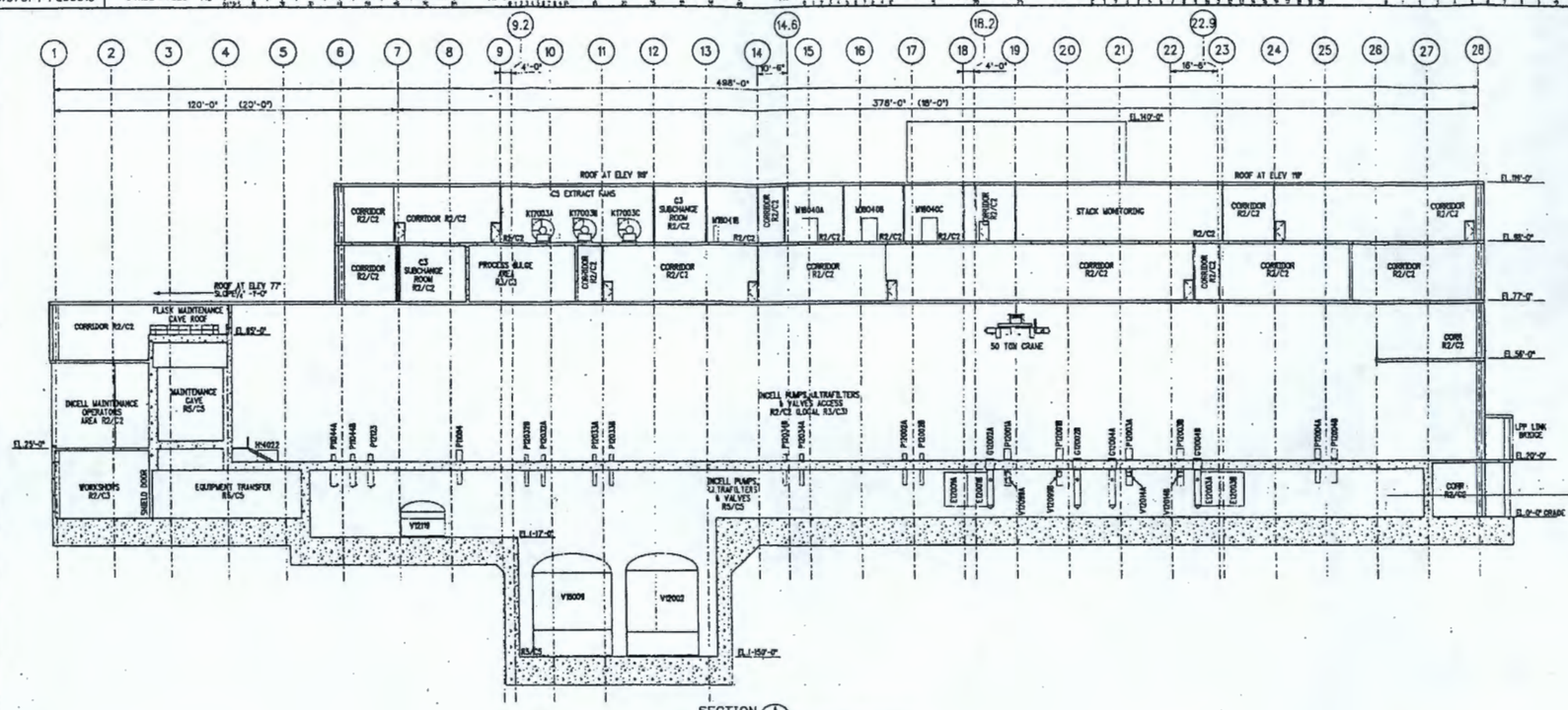
PRETREATMENT BUILDING
GENERAL ARRANGEMENT
PLAN AT 119' - 0"

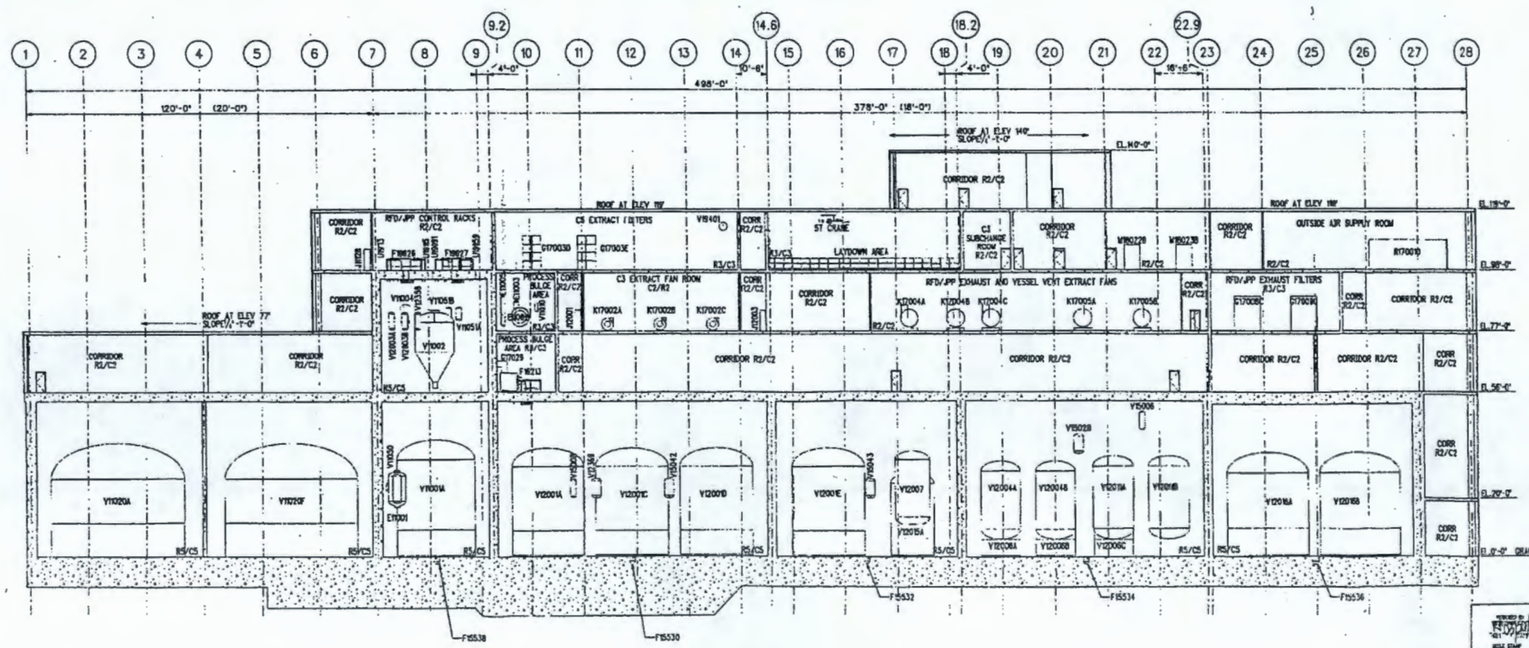
SCALE: 1/16"=1'-0" | DWG No. DWG- W375PT-PL00014 | REV E

"E" SIZE = 44x34

COMPUTER RENDERINGS - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375PT-PL00015 SCALE RULES





PRELIMINARY

REV	DESCRIPTION	DRAWN, CHKD	APVD	DATE
E	ISSUED FOR B1 APPEL DO BASELINE			4/16/99
D	RE-ISSUED FOR PRELIMINARY C1 INFORMATION	PG	JAB	HM	12/21/98
C	ISSUED FOR PRELIMINARY C1 INFORMATION	PG	JAB	HM	10/27/98
B	ISSUED FOR STRUCTURAL DESIGN	LWD			6/2/98
A	ISSUED FOR STRUCTURAL DESIGN	LWD			5/8/98

REVISION HISTORY

PROJECT No.	W375	
SITE	HANFORD	
AREA	200E	
BUILDING No.		
ORIGINATOR	L.Delwyn CASWELL	04/27/99
CHECKER	JAMES BROWN	04/27/99
APPROVED	MINOSHE MASKA	04/27/99

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

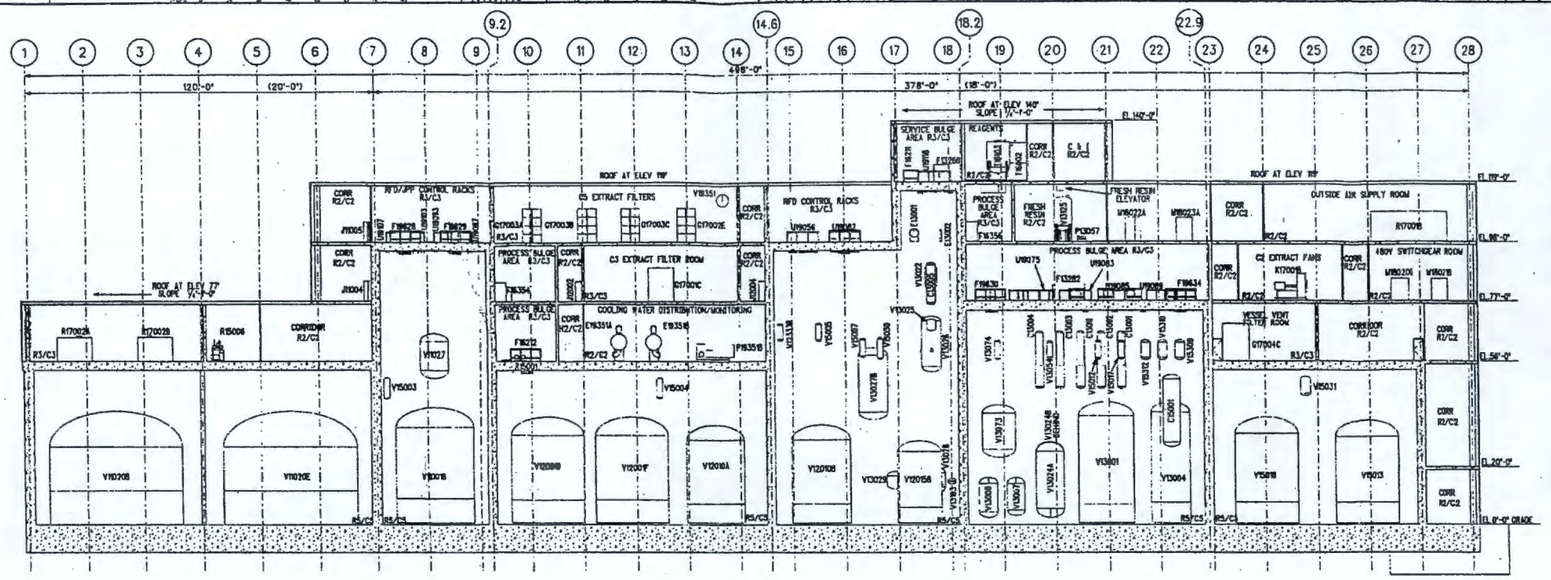
PRETREATMENT BUILDING GENERAL ARRANGEMENT SECTIONS A AND B

SCALE 1/16"=1'-0" DWG No. DWG-W375PT-PL00015 REV E

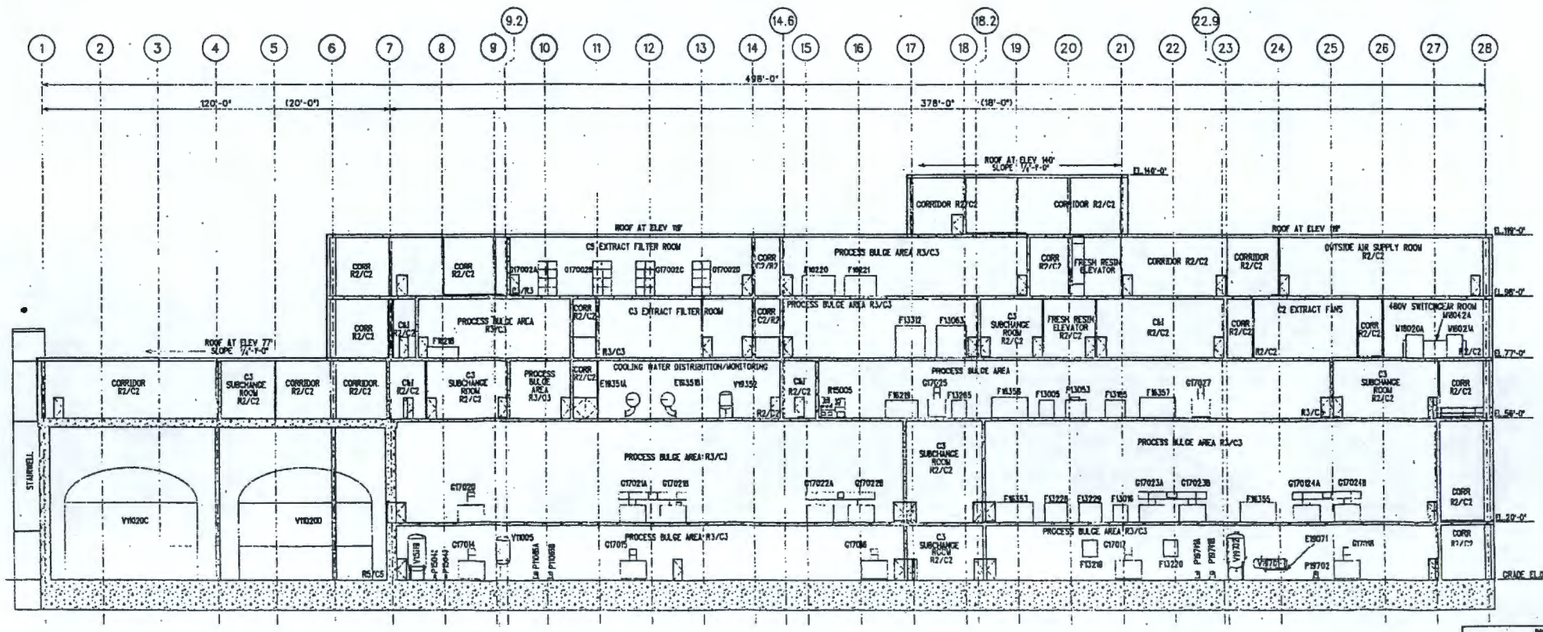
DWG REFERENCE No. DW-W375-C0-0N001

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375PT-PL00016 SCALE RULES



SECTION C
LOOKING NORTH PL00009 THRU PL00014,PL00022



SECTION D
LOOKING NORTH PL00009 THRU PL00014,PL00022

PRELIMINARY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
E	REVISED FOR 24 APRIL 00 BASELINE	PC	LVD		5/19/00
D	RE-ISSUED FOR PRELIMINARY C1 INFORMATION	KH	JAB	HM	12/23/99
C	ISSUED FOR PRELIMINARY C1 INFORMATION	PC	JAB	HM	09/27/99
B	ISSUED FOR STRUCTURAL DESIGN	LWD			6/2/99
A	ISSUED FOR STRUCTURAL DESIGN	LWD			5/6/99

REVISION HISTORY

PROJECT No.	W375	
SITE	HANFORD	
AREA	200E	
BUILDING No.		
	BY	DATE
DESIGNATOR	L.Lindsay/P. Gaspell	09/27/99
CHECKER	J.JAMES BROWN	09/27/99
APPROVED	HERSONG NASAI	09/27/99
DM REFERENCE No.	DM-W375-00-0921	REV E

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

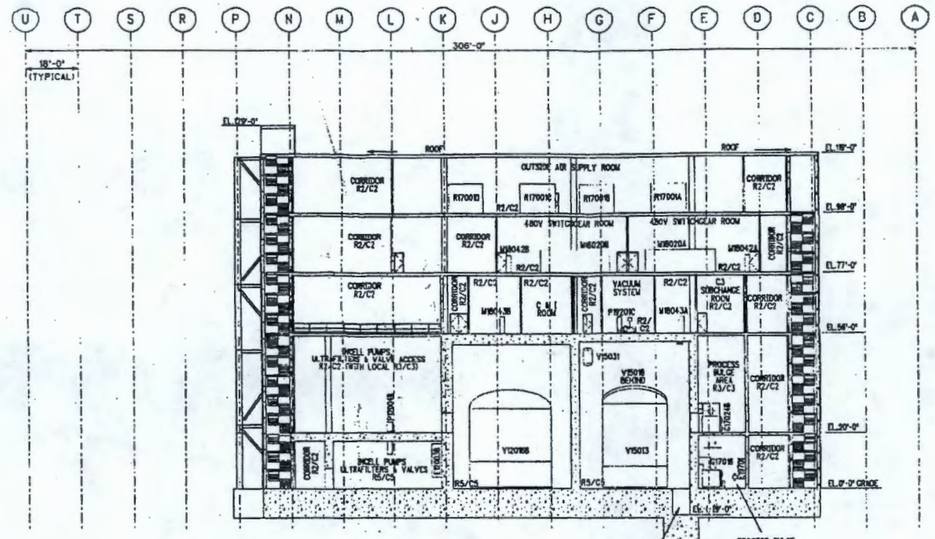
PRETREATMENT BUILDING GENERAL ARRANGEMENT SECTIONS C AND D

SCALE 1/8"=1'-0" | DWG No. DWG- W375PT-PL00016 | REV E

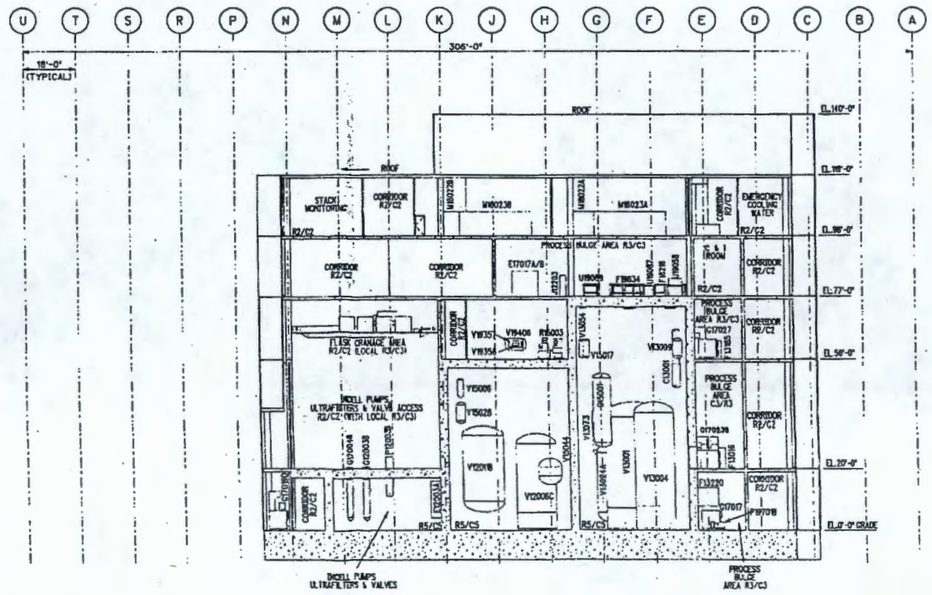
"E" SIZE - 44x34

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375 PT-PL00018 SCALE HALF=1/16"



SECTION E
LOOKING WEST PL00009 THRU PL00014,PL00022



SECTION F
LOOKING WEST PL00009 THRU PL00014,PL00022

PRELIMINARY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
C	ISSUED FOR 34 APRIL 00 BASELINE	PG			5/15/00
B	RE-ISSUED FOR PRELIMINARY CI INFORMATION	RH	JAB	HM	12/21/99
A	ISSUED FOR PRELIMINARY CI INFORMATION	PG	JAB	HM	09/22/99

REVISION HISTORY

PROJECT No. W375
SITE HANFORD
AREA 200E
BUILDING No.

	BY	DATE
DESIGNATOR	L.Dailey/P.Gaskill	06/23/99
CHECKER	JAMES BROWN	05/23/99
APPROVED	MORDECAI HASAI	05/23/99

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-98RL13308

PRETREATMENT BUILDING
GENERAL ARRANGEMENT
SECTIONS E AND F

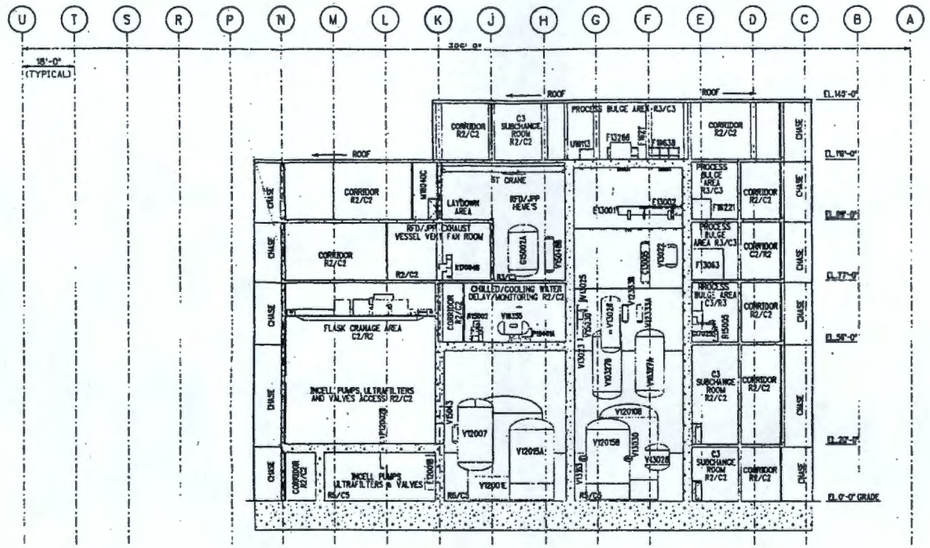
SCALE: 1/16"=1'-0"
DWG No. DWG- W375PT-PL00018
REV C

BIM REFERENCE No. 010-W375-00-00013 REV C

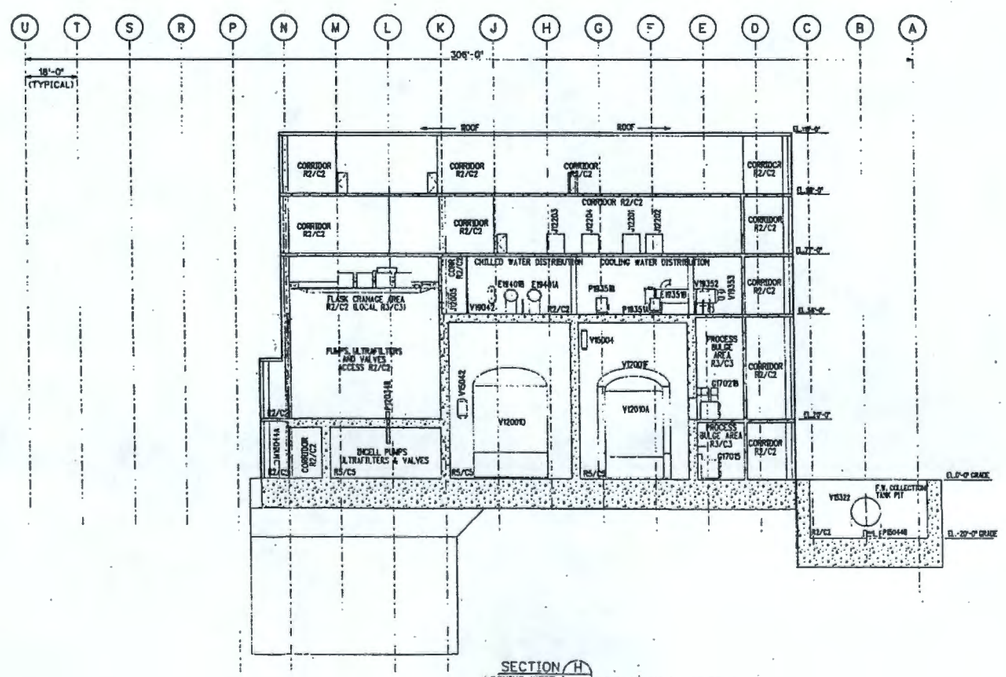
IF NOT 2"X2" IGNORE

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375 PT-PL00019



SECTION G
LOOKING WEST PL00009 THRU PL00014 & PL00022



SECTION H
LOOKING WEST PL00009 THRU PL00014 & PL00022

PRELIMINARY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
C	ISSUED FOR 24 APRIL 00 BASELINE	PG	DSS	HJ	9/15/00
B	RE-ISSUED FOR PRELIMINARY C1 INFORMATION	LAL	JAB	HM	12/21/99
A	ISSUED FOR PRELIMINARY C1 INFORMATION	PG	JAB	HM	09/27/99

REVISION HISTORY

PROJECT No.	W375	
SITE	HANFORD	
AREA	200E	
BUILDING No.		
	BY	DATE
ORIGINATOR	Lindsay F. Gaskell	08/27/99
CHECKED	JAMES BROWN	09/27/99
APPROVED	HIROSHI HAZAI	09/27/99

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

PRETREATMENT BUILDING GENERAL ARRANGEMENT SECTIONS G AND H

DWG No. DWG-W375 PT-PL00019 REV C

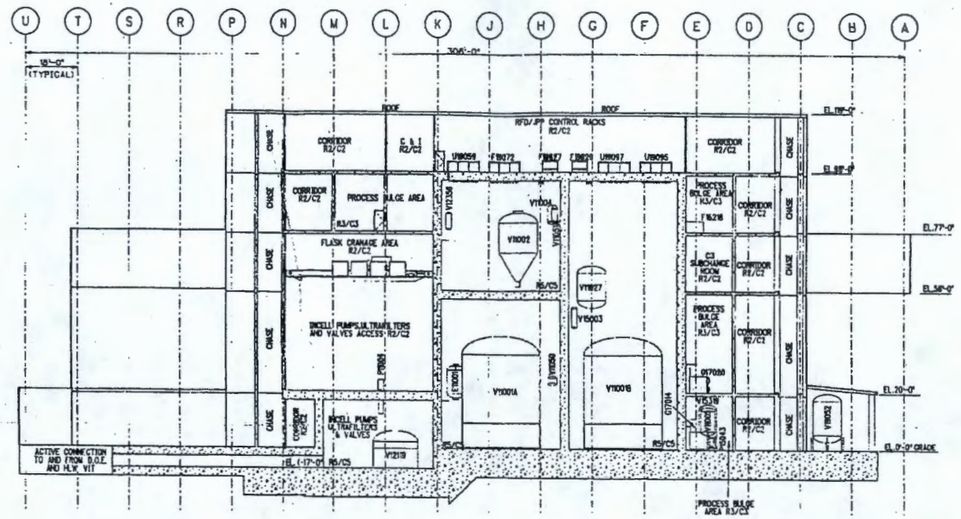
SCALE: 1/16"=1'-0"

JOB REFERENCE No. DRW-E375-00-0074 REV C

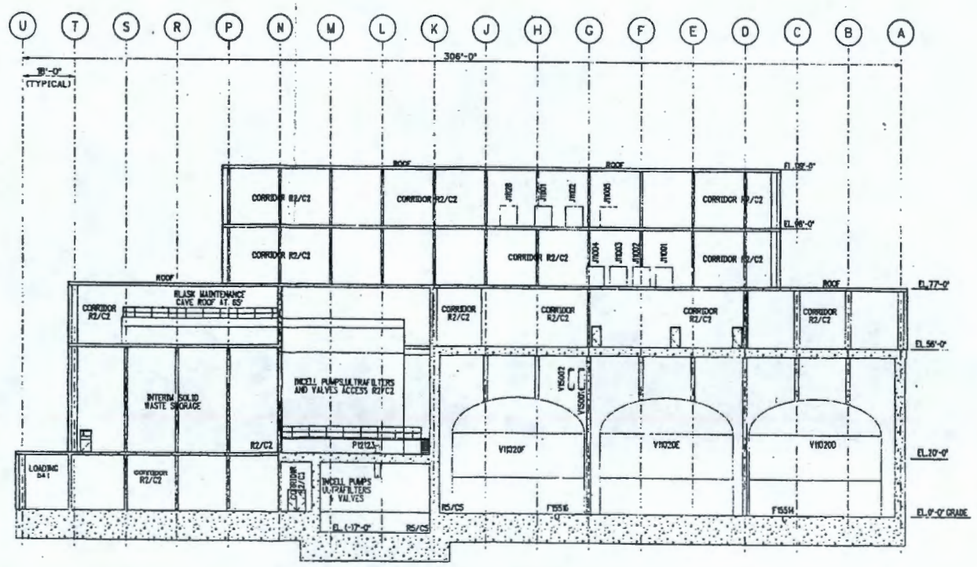
"C" SIZE - 44x34

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375 PT-PL00020 SCALE RULES



SECTION J
LOOKING WEST PL00009 THRU PL00014,PL00022



SECTION K
LOOKING WEST PL00009 THRU PL00014,PL00022

PRELIMINARY

REV	DESCRIPTION	DRAWN	CHKD	APV'D	DATE
C	ISSUED FOR 21 APRIL 00 BASELINE	PG	JAB	HM	3/16/00
B	RE-ISSUED FOR PRELIMINARY C1 INFORMATION	PG	JAB	HM	12/27/99
A	ISSUED FOR PRELIMINARY C1 INFORMATION	PG	JAB	HM	09/27/99

REVISION HISTORY

	BY	DATE
ORIGINATOR	L.Dewey/P. Gaskell	09/27/99
DESIGN	JAMES BROWN	09/27/99
APPROVED	NORVINE MAGAJ	09/27/99

PROJECT No. W375
SITE HNF/DOE
AREA 200E
BUILDING No.

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-98RL13308

PRETREATMENT BUILDING GENERAL ARRANGEMENT SECTIONS J AND K

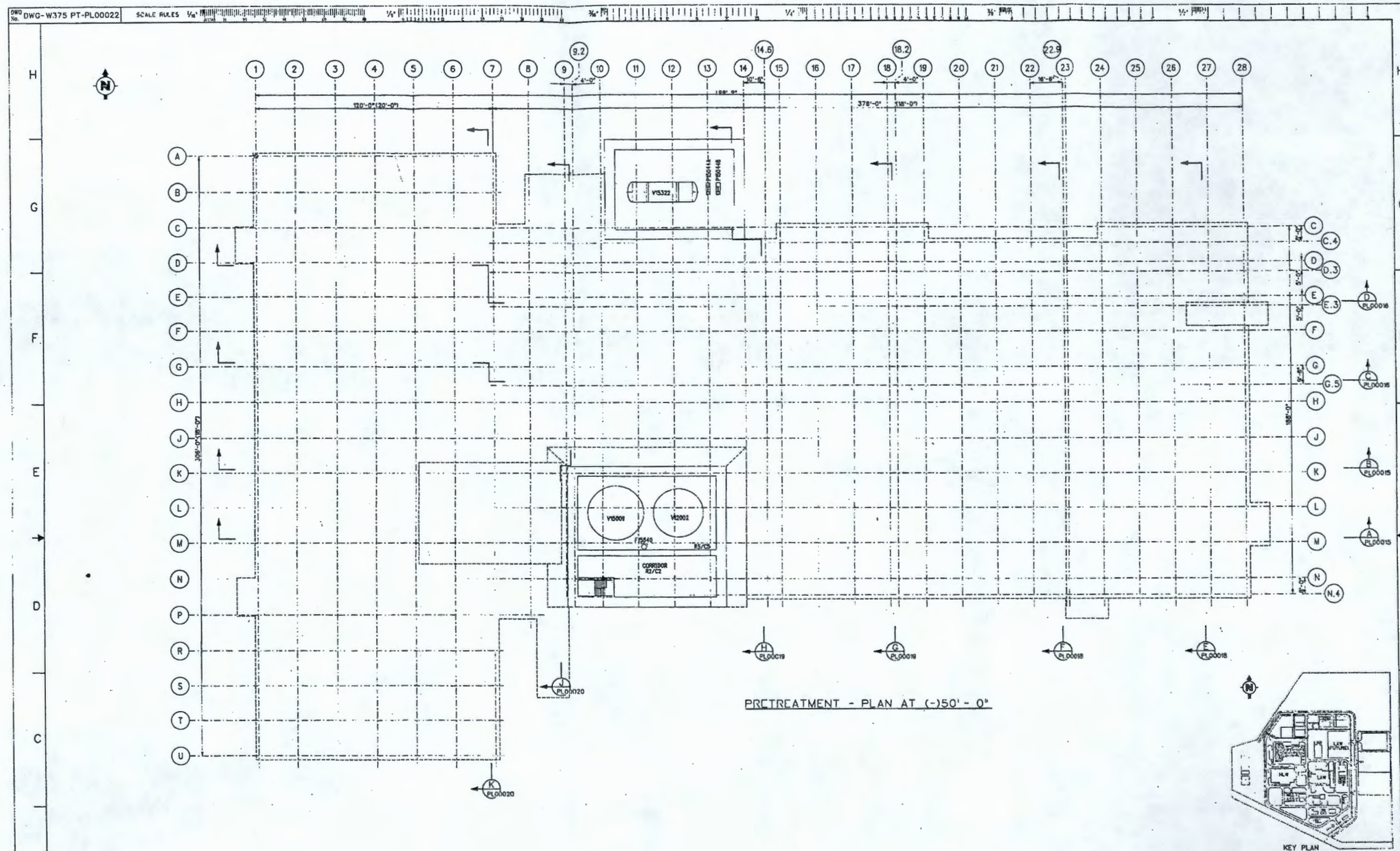
SCALE 1/16"=1'-0"
DWG No. DWG- W375 PT-PL00020
REV C

DBM REFERENCE No. DBM-W375-00-01635 REV 0

T SIZE - 44x34

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375 PT-PL00022 SCALE RULES



PRELIMINARY

PIN	DESCRIPTION
P150-D	SOLL SUMP
P150-A	FIRE WATER DISCHARGE PUMP A
P150-B	FIRE WATER DISCHARGE PUMP B
V12002	ACIDIC H2W EFFLUENT HOLD VESSEL
V15009	PLANT WASH VESSEL
V15322	FIRE WATER COLLECTION TANK

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
B	ISSUED FOR 24 APRIL 00 BASELINE	PC	JWS	JJ	3/16/00
A	ISSUED FOR PRELIMINARY C1 INFORMATION	LAL	JMB	HW	12/21/99

REVISION HISTORY

	BY	DATE
ORIGINATOR	L.LETTLAND	12/21/99
CHECKER	JAMES BROWN	12/21/99
APPROVED	HERZOG WASAI	12/21/99

PROJECT No. 6375
SITE HANFORD
AREA 200E
BUILDING No.

BNFL Inc.

RIVER PROTECTION PROJECT - WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

PRETREATMENT BUILDING
GENERAL ARRANGEMENT
PLAN AT (-)50' - 0"

CAD REFERENCE No. DWG-W375-00-01027 REV B

SCALE 1/8"=1'-0"

DWG No. DWG- W375 PT-PL00022

REV B

"C" SIZE - 44x34

DWG No. DWG-W375PT-PR00001

SERVICES:

- CHW — CHILLED WATER
- CND — CONDENSATE COLLECTION
- CWS — COOLING WATER SUPPLY
- CWR — COOLING WATER RETURN
- HPS — HIGH PRESSURE STEAM
- LPS — LOW PRESSURE STEAM
- PA — PROCESS AIR

INSTRUMENTATION:

GENERAL CONTROL ROOM INSTRUMENT

LIST OF LETTERS USED IN ABOVE SYMBOL:-

A	ANALYSIS
C	CONDUCTIVITY
D	DENSITY
d	DIFFERENTIAL
F	FLOW
G	GROUP (COLLECTIVE)
L	LEVEL
M	MOISTURE
P	PRESSURE
r	RATIO
R	BETA MONITOR / GAMMA MONITOR
T	TEMPERATURE
W	WEIGHT
X	MISCELLANEOUS
Y	STATE

TYPE OF CONTROLLER:

I	INDICATOR
R	RECORDER
Q	INTEGRATOR
C	CONTROLLER
E	ON/ OFF
A	ALARM

VALVE SYMBOLS:

- 3 WAY VALVE
- BUTTERFLY VALVE
- INLINE VALVE (OPEN)
- INLINE VALVE (CLOSED)
- FLOW RESTRICTOR (VARIABLE)
- FLOW RESTRICTOR (FIXED)
- PRESSURE RELIEF VALVE
- VACUUM RELIEF VALVE
- BUTTERFLY DAMPER

STREAM IDENTIFICATION:

XXX — STREAM NUMBER

EQUIPMENT:

- VESSEL
- JACKETED VESSEL
- TRAY COLUMN
- PACKED / ION EXCHANGE COLUMN
- CYCLONE
- SCRUBBER
- KNOCKOUT POT
- LUTE POT
- TRAP DRAIN
- STRAINER
- ULTRAFILTER
- FILTER
- HEPA = HEPA FILTER (SHOWN)
  MOD = MODERATE EFFICIENCY FILTER
- VENT WITH MESH GUARD
- BACKDRAFT DAMPER
- Y STRAINER
- DUPLEX FILTER
- STATIC MIXER
- BREAK POT
- PULSE POT
- SEAL POT
- PACKED SECTION
- SUMP PUMP
- CENTRIFUGAL PUMP
- CENTRIFUGAL FAN/BLOWER
- REVERSE FLOW DIVERTER (RFD)
- VORTEX AMPLIFIER
- EJECTOR
- VESSEL EMPTYING EJECTOR
- TWO STAGE RECIPROCATING PUMP
- AXIAL FLOW COMPRESSOR
- COOLING OR HEATING COIL
- HEAT EXCHANGER
- SHELL AND TUBE HEAT EXCHANGER
- INLINE HEAT EXCHANGER
- ELECTRIC HEATER
- FIRED HEATER
- DOUBLE PIPE HEAT EXCHANGER
- ELECTRIC MOTOR
- MECHANICAL STIRRER
- PULSEJET MIXER
- PULSE TUBE MIXER
- SAMPLE SYSTEM
- SCREEN
- MIST ELIMINATOR
- CELL LINER WITH SUMP

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
2	ISSUED FOR 24TH APRIL '00 BASELINE (INC DCN-W375-00-00010)	[illegible]	[illegible]	[illegible]	2-18-00
1	ISSUED TO SUPPORT DWPA SUBMISSION (INC DCN-W375-99-00033)	PYS	SA	JGP	11/11/99
0	ISSUED TO SUPPORT P&ID'S-STAGE A	SKA	MLJ	JGP	5/4/99

REVISION HISTORY

	BY	DATE
DRAWN FOR	SK AMRIT	5/4/99
CHECKED	ML ADAMSON	5/4/99
APPROVED	JG PAPP	5/4/99

PROJECT No. W375
SITE HANFORD
AREA 200E
BUILDING No. 1

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No: DE-AC06-96RL13308

PROCESS FLOW DIAGRAM LEGEND & SYMBOLS

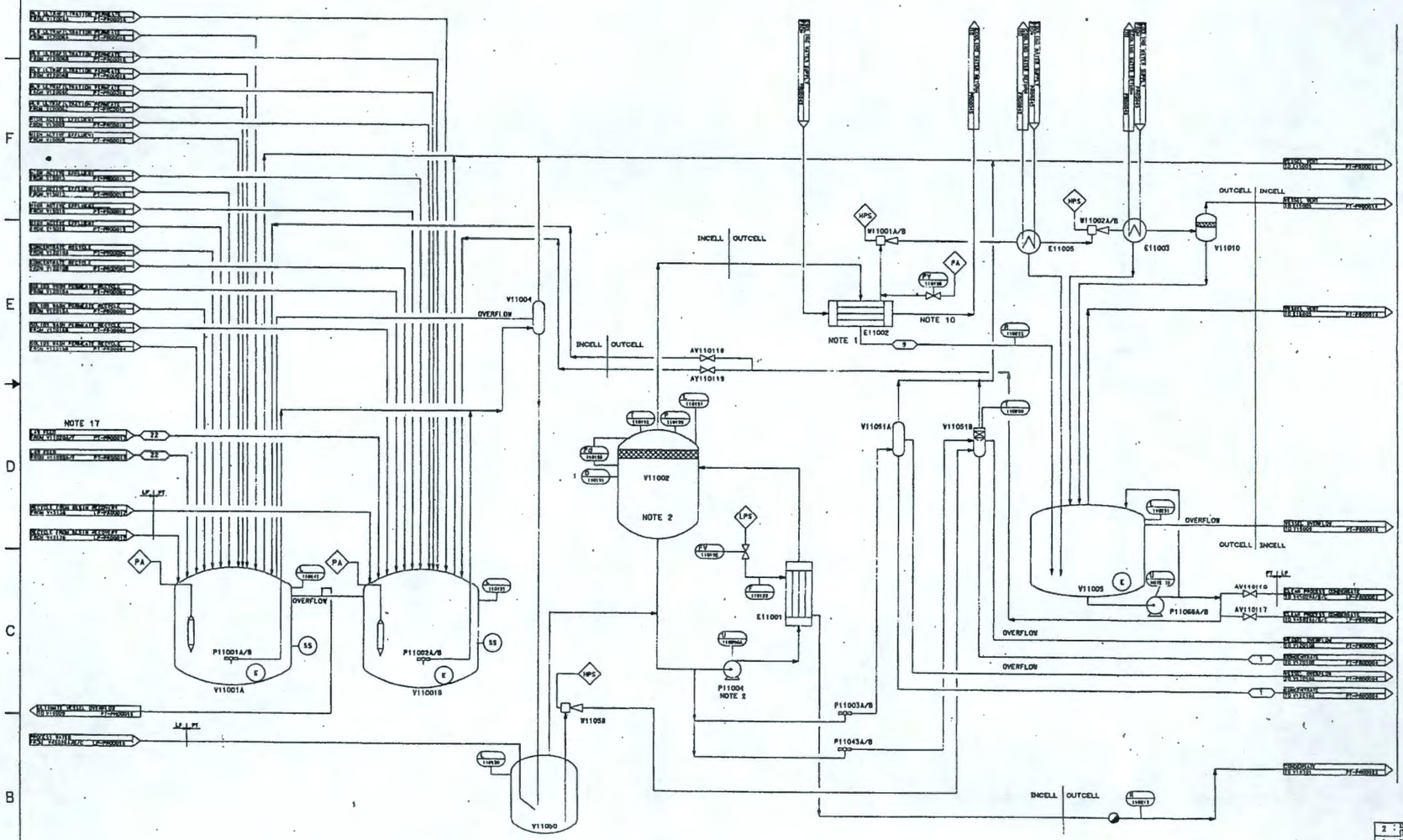
DGN REFERENCE No. DGN-W375-00-00733 02/16/2000

SCALE: NONE
DWG No. DWG-W375PT-PR00001
REV 2

C SIZE - 44x34

15 FEB 2000 10:36:08
COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375 PT-PR00003



NOTES:

(1) CONDENSER E11002 TO BE INSTALLED AT BAROMETRIC HEIGHT ABOVE CONDENSATE POT V11005.

(2) VESSEL V11002 TO BE INSTALLED ABOVE PUMP P11004 TO MEET NPSH REQUIREMENT.

(3) VESSEL EMPTYING EJECTORS DISCHARGE TO V15009.

(4) ALL VESSELS WILL BE FITTED WITH WASH RINGS FOR DECONTAMINATION PURPOSES WITH THE EXCEPTION OF THE LAW FEED EVAPORATOR LUTE POT. THIS HAS A DEDICATED PLANT WASH SOLVENT AND PROCESS WATER SUPPLY FOR DECONTAMINATION PURPOSES.

(5) LEVEL CONTROL WILL PROVIDE VESSEL OVERFILL PROTECTION.

(6) ONLY MAIN PROCESS CONTROL INSTRUMENTS ARE SHOWN.

(7) VALVES SHOWN ONLY TO INDICATE PROCESS INTENT.

(8) DELETED.

(9) DELETED.

(10) ALL COOLING WATER RETURN LINES WILL BE MONITORED FOR FLOW AND ACTIVITY.

(11) PROCESS STREAM NUMBERS IDENTIFIED ON THIS PROCESS FLOW DIAGRAM (PFD) ARE CONSISTENT WITH THE CURRENT MASS AND ACTIVITY BALANCE REPORTS.

(12) DELETED.

(13) CELL TO BE LINED WITH STAINLESS STEEL AND ANY LEAKAGE INTO THE CELL WILL BE DETECTED BY LEVEL MEASUREMENT WITHIN THE SUMP. THIS IS SHOWN ON DWG-W375PT-PR00015 (SYSTEM 550).

(14) THE STAINLESS STEEL CLAD CELL WILL BE FITTED WITH A CLADDING WASH SYSTEM FOR DECONTAMINATION PURPOSES. THIS IS SHOWN ON DWG-W375PT-PR00015 (SYSTEM 550).

(15) EACH CELL TO BE FITTED WITH A SHIELDED ACCESS PLUG FOR VISUAL OBSERVATIONS TO BE MADE.

(16) THE FOLLOWING VESSELS WILL HAVE A BACK-UP AIR INLET LINE TO PURGE THE VESSEL VAPOR SPACE.
V11001A/B
V11002
V11005

(17) THERE ARE INDIVIDUAL TRANSFER LINES FROM EACH OF THE LAW FEED RECEIPT VESSEL RFD's TO V11001A/B, i.e. 24 LAW FEED TRANSFER LINES IN TOTAL. TWO LINES ARE SHOWN ON THIS PFD FOR CLARITY.

(18) U11156A CONTROLS P11066A
U11157A CONTROLS P11066B

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
2	ISSUED FOR 24th APRIL DQ BASELINE (CRC DCN-W375-00-00015)				3-29-00
1	ISSUED TO SUPPORT DWPA SUBMISSION (CRC DCN-W375-99-00025, -00028, & -00030, DCI-W375-99-00062 THRU -00070, & -00083)	PFS	MDB	JGP	11/11/99
0	ISSUED TO SUPPORT PMP/S-STAGE A	MDW	MJH	JGP	5/7/99

REVISION HISTORY

	BY	DATE
ORIGINATOR	MIKE D. WASHER	5/7/99
CHECKER	MIKE J. HOLLE	5/7/99
APPROVED	JOHN G. PAPP	5/7/99

PROJECT No. W375
BY/C HANFORD
AREA 200E
BUILDING No. 1

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

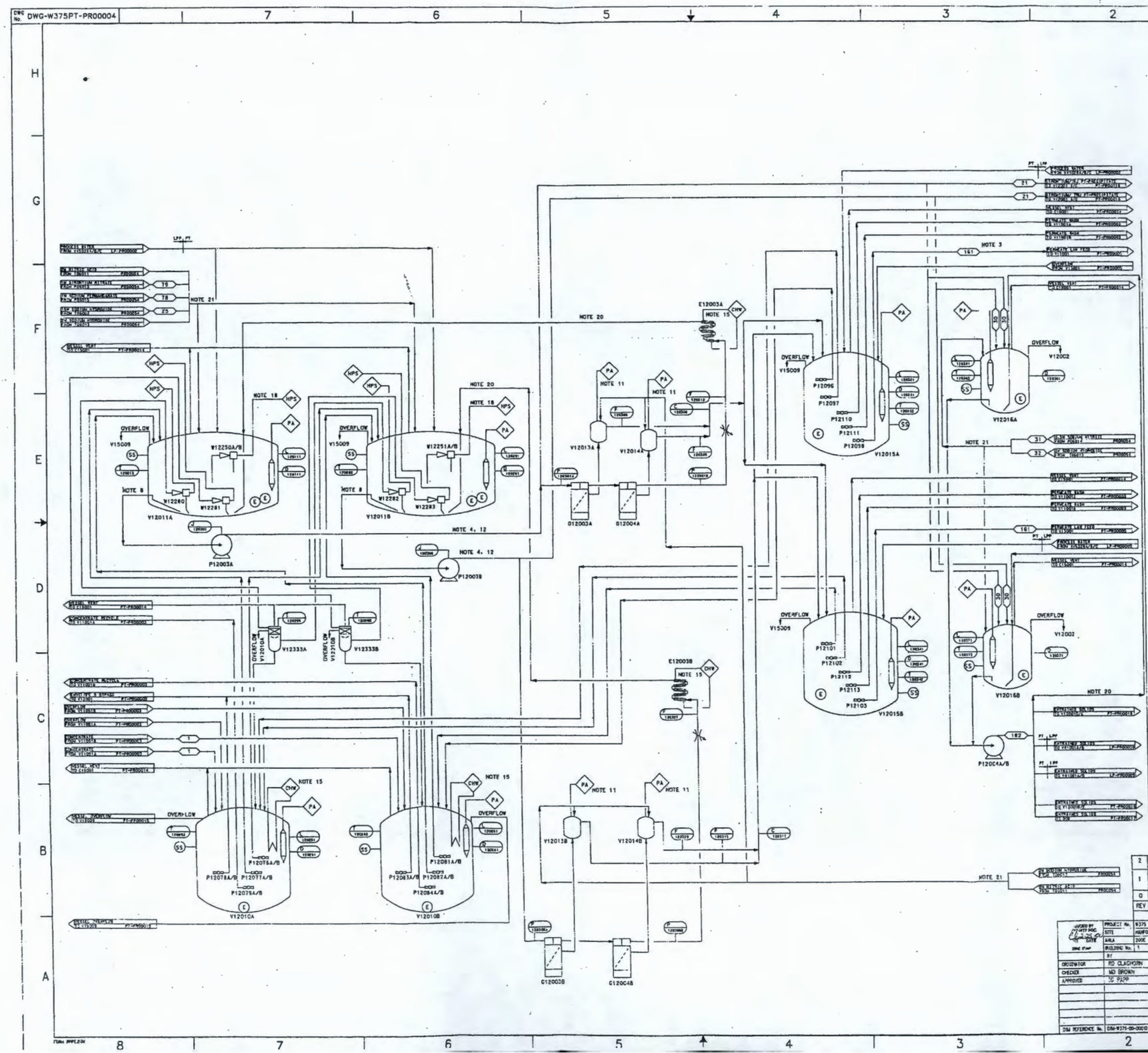
CONTRACT No. DE-AC06-96RL13308

PROCESS FLOW DIAGRAM
LAW FEED EVAPORATION
SYSTEM PT-120

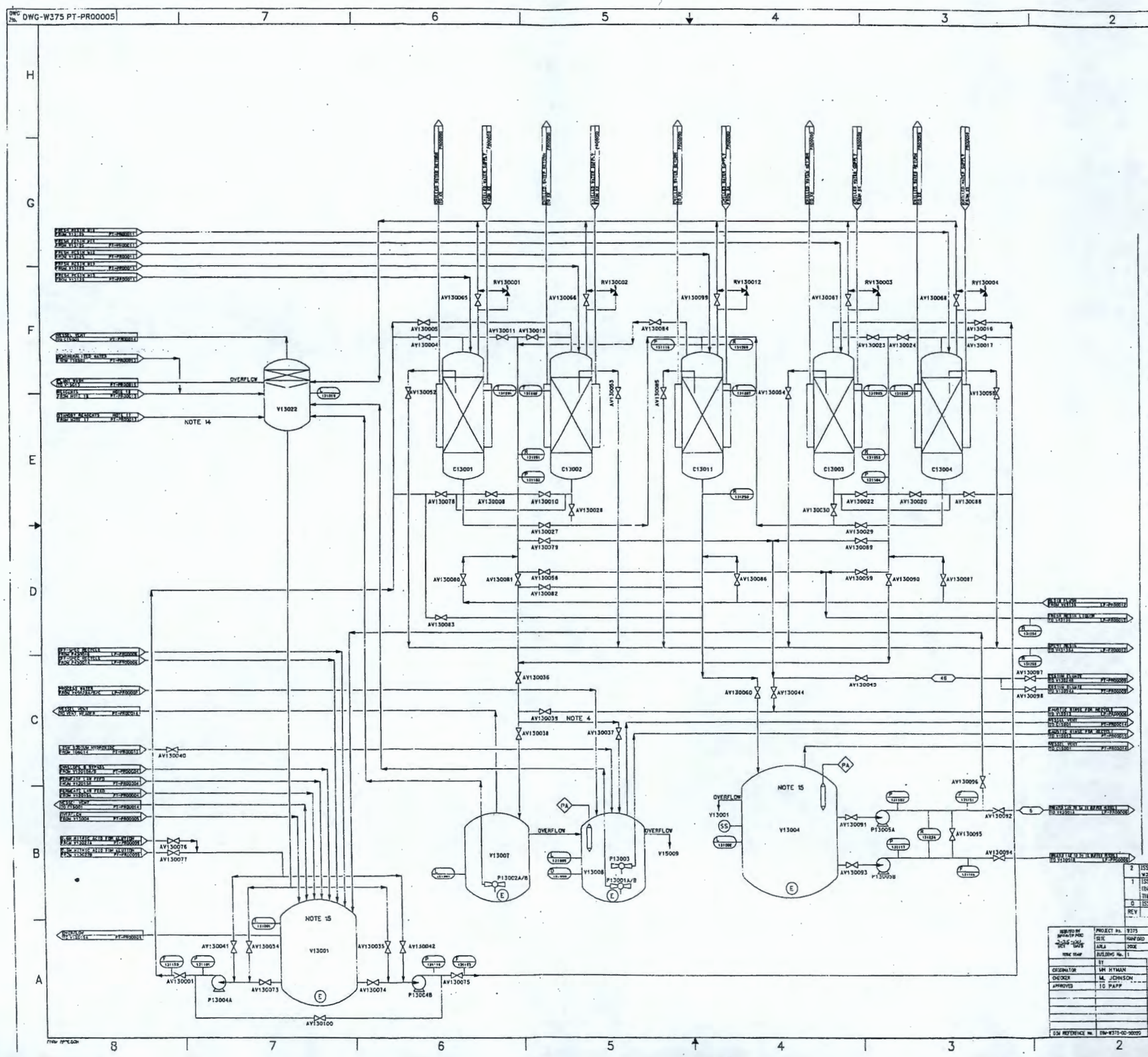
SCALE: NONE
DWG No. DWG- W375 PT-PR00003
REV 2

DBM REFERENCE No. DBM-W375-00-00017 REV 2

19 MAR 2000 10:40:10


DWG No. DWG-W375PT-PR00004
V12250A/B
V12251A/B
V12011A
V12011B
V15009
V12016A
V12015A
V12002
V120168
V12013A
V12014A
V12013B
V12014B
V12333A
V12333B
V12010A
V12010B
V12076A/B
V12077A/B
V12078A/B
V12079A/B
V12081A/B
V12082A/B
V12083A/B
V12084A/B
V12010A
V12010B
P12003A
P120038
P12096
P12097
P12110
P12111
P12098
P12101
P12102
P12112
P12113
P12103
P120C4A/B
G12003A
G12004A
G12003B
G12004B
E12003A
E120038
NOTE 3
NOTE 4, 12
NOTE 8
NOTE 11
NOTE 15
NOTE 18
NOTE 20
NOTE 21
OVERFLOW
HPS
PA
CHW
SS
NOTES:
(1) DELETED.
(2) DELETED.
(3) PROCESS STREAM NUMBERS IDENTIFIED ON THIS PROCESS FLOW DIAGRAM (PFD) ARE CONSISTENT WITH THE CURRENT MASS AND ACTIVITY BALANCE REPORTS.
(4) FLOWRATE CONSTANT BUT DENSITY OF SLURRY WILL VARY WITH TIME.
(5) VESSEL EMPTYING EJECTORS DISCHARGE TO V15013 FROM V12011A, V15018 FROM V12011B, AND V15009 FROM ALL OTHER VESSELS.
(6) ALL VESSELS WILL BE FITTED WITH WASH RINGS FOR DECONTAMINATION PURPOSES.
(7) LEVEL CONTROL WILL PROVIDE VESSEL OVERFILL PROTECTION.
(8) DELETED.
(9) ONLY MAIN PROCESS CONTROL INSTRUMENTS ARE SHOWN.
(10) VALVES SHOWN ONLY TO INDICATE PROCESS INTENT.
(11) SUPPLY PRESSURE MUST BE 145 PSIG.
(12) ALL SLURRY LINES TO DRAIN TO EITHER FEED OR PRODUCT TANKS AND TO HAVE NO POCKETS. CONNECTIONS TO SLURRY LINES TO BE VERTICAL OFF THE TOP OF THE SLURRY LINES. WHEN POSSIBLE LINES TO BE FLUSHED AFTER SLURRY TRANSFERS.
(13) DELETED.
(14) EACH CELL WILL BE FITTED WITH A SHIELDED ACCESS PLUGS FOR OBSERVATION EQUIPMENT.
(15) ALL COOLING/CHILLED WATER RETURN LINES WILL BE MONITORED FOR BREAKTHROUGH.
(16) DELETED
(17) DELETED
(18) HPS INJECTED INTO VESSEL TO PROVIDE HEATING.
(19) V12010A/B, V12011A/B, V12015A/B AND V12016A/B TO HAVE AIR INLET LINE TO PURGE THE VESSEL VAPOR SPACE.
(20) RECIRCULATION LINE WILL BE DIPPED TO BOTTOM OF VESSEL AND FITTED WITH A NOZZLE TO PROMOTE MIXING.
(21) REAGENT LINES WILL BE FLUSHED WITH NON-ACTIVE PROCESS WATER.
REVISION HISTORY
REV | DESCRIPTION | DRAWN | CHKD | APVD | DATE
2 | ISSUED FOR 24TH APRIL 00 BASELINE, GMC DCN-W375-00-00001 | RM | BAS | JSP | 2-18-00
1 | ISSUED TO SUPPORT DWPA SUBMISSION, GMC DCN-W375-99-00034 & 4; DCN-W375-99-00061, 89 & 153 | PFS | BAS | JGP | 11/11/99
0 | ISSUED TO SUPPORT P&IDS-STAGE A | RSC | WOB | JGP | 5/4/99
BNFL INC.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352
CONTRACT No. DE-AC06-96RL13308
PROJECT No. W375
SITE HANFORD
AREA 200E
BUILDING No. 1
ORIGINATOR RD CLAGHORN 5/4/99
CHECKER MD BROWN 5/4/99
APPROVED JG PLPP 5/4/99
DBJ REFERENCE No. DBJ-W375-00-00010 3/17/00
PROCESS FLOW DIAGRAM
LAW ULTRAFILTRATION
SYSTEM PT-230
SCALE NONE
DWG No. DWG-W375PT-PR00004
REV 2
SIZE = 44x34
COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375 PT-PR00005



NOTES:

(1) THE IDENTIFICATION NUMBER FOR PROCESS STREAMS IDENTIFIED ON THE PROCESS FLOW DIAGRAM (PFD) IS CONSISTENT WITH THE CURRENT MASS AND ACTIVITY BALANCE REPORTS.

(2) ALL VESSELS SHALL BE FITTED WITH WASH RINGS FOR DECONTAMINATION PURPOSES.

(3) LEVEL CONTROL WILL PROVIDE VESSEL OVERFILL PROTECTION.

(4) VALVE CONFIGURATION ALLOWS BYPASSING OF V13008 AND TRANSFER DIRECTLY TO PRETREATMENT EFFLUENT COLLECTION.

(5) ONLY MAIN PROCESS CONTROL INSTRUMENTS ARE SHOWN.

(6) VALVES SHOWN ONLY TO INDICATE PROCESS INTENT.

(7) DELETED

(8) ALL COOLANT RETURN LINES WILL BE MONITORED FOR FLOW AND CONTAMINATION.

(9) VESSEL EMPTYING EJECTORS DISCHARGE TO T15009.

(10) DELETED

(11) DELETED

(12) EACH CELL TO BE FITTED WITH A SHIELDED ACCESS PLUG FOR VISUAL OBSERVATIONS TO BE MADE.

(13) DELETED.

(14) DELETED

(15) VESSELS V13001 AND V13004 SHALL HAVE AIR INLET LINES FOR PURGING THE VESSEL VAPOR SPACE.

(16) THE CAPABILITY FOR EMERGENCY ELUTION OF ALL COLUMNS IS PROVIDED BY HEAD TANK OF 0.5 MOLAR NITRIC ACID FROM (T16002).

(17) STANDBY REAGENTS:
0.5M STANDBY NITRIC ACID FROM T16002, DWG-W375-PT-PR00013.
0.1M SODIUM HYDROXIDE FROM T16103, DWG-W375-PT-PR00013.
DEMINERALIZED WATER FROM T16501, DWG-W375-PT-PR00013.

(18) REAGENTS:
0.25M SODIUM HYDROXIDE FROM T06014, DWG-W375-PT-PR00013.
0.1M SODIUM HYDROXIDE FROM T16103, DWG-W375-PT-PR00013.
DEMINERALIZED WATER FROM T16501, DWG-W375-PT-PR00013.

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
2	ISSUED FOR 24TH APRIL 00 BASELINE, INC DCA-W375-99-00027, DCA-W375-00-00003 & -00010			JSP	2-18-00
1	ISSUED TO SUPPORT DWPA SUBMISSION (INC DCA-W375-99-00019, DCA-W375-99-00089 THRU 94)	PFS	MHH	ICP	11/11/99
0	ISSUED TO SUPPORT PHASE-STAGE A	MHH	MJ	ICP	5/11/99

REVISION HISTORY

PROJECT No.	9375	
SITE	HANFORD	
AREA	200E	
BUILDING No.	1	
	BY	DATE
ORIGINATOR	MH HYMAN	5/11/99
CHECKER	ML JOHNSON	5/11/99
APPROVED	IC PAPP	5/11/99
DGN REFERENCE No.	DWG-W375-00-00020	2/17/00

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No: DE-AC06-96RL13308

CESIUM REMOVAL USING ION EXCHANGE SYSTEM PT-310

SCALE: NONE

DWG No. DWG- W375 PT-PR00005

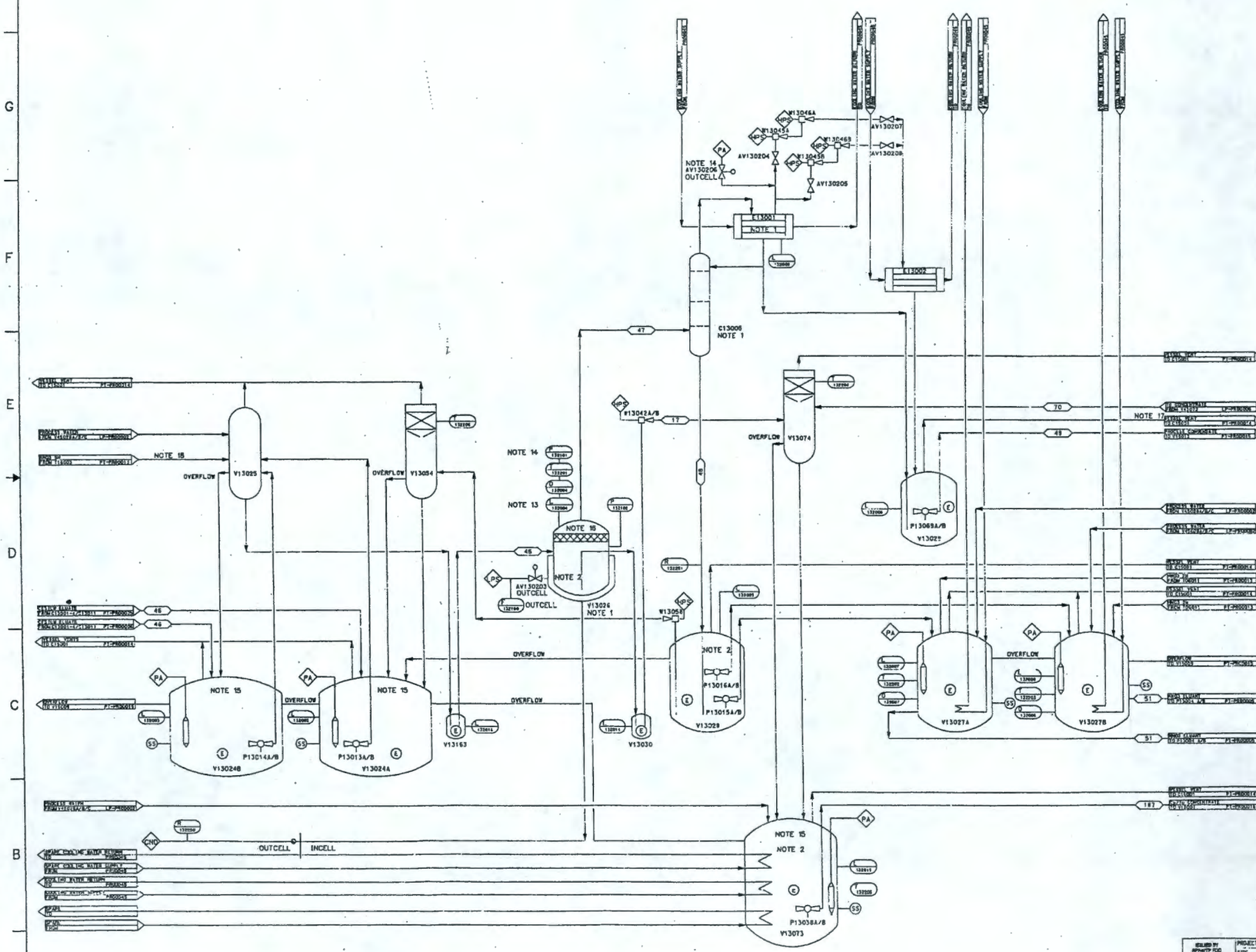
REV 2

S: SIZE = 44x34

16 FEB 2000 15:21:23

GRAPHICS GENERATED - WHITE CHANGES NOT PERMITTED

DWG No DWG-W375PT-PR00009



NOTES

(1) EVAPORATOR VESSEL V13026, RECTIFIER COLUMN C13005 AND OVERHEADS CONDENSER E13001 ARE ALL INSTALLED AT ONE BAROMETRIC HEIGHT ABOVE V13030, V13028, & V13029, RESPECTIVELY.

(2) EVAPORATOR V13026 HAS NO EMPTYING EJECTOR; THE EVAPORATOR CAN BE EMPTIED VIA THE EMPTYING EJECTOR IN LUTE POT V13030. VESSEL EMPTYING EJECTOR'S DISCHARGE TO A BREAKPOT FEEDING V13009, EXCEPT V13030 & V13073 DISCHARGE TO V13054.

(3) ALL VESSELS WILL BE FITTED WITH WASH RINGS FOR DECONTAMINATION PURPOSES.

(4) LEVEL CONTROL WILL PROVIDE VESSEL OVERFILL PROTECTION.

(5) ONLY MAIN PROCESS CONTROL INSTRUMENTS ARE SHOWN.

(6) VALVES SHOWN ONLY TO INDICATE PROCESS INTENT.

(7) THE IDENTIFICATION NUMBER FOR PROCESS STREAMS IDENTIFIED ON THE PROCESS FLOW DIAGRAM (PFD) IS CONSISTENT WITH THE CURRENT MASS AND ACTIVITY BALANCE REPORTS.

(8) ALL COOLANT RETURN LINES WILL BE MONITORED FOR FLOW AND CONTAMINATION.

(9) CELL WILL BE LINED WITH STAINLESS STEEL AND ANY LEAKAGE INTO THE CELL WILL BE DETECTED BY LEVEL MEASUREMENT, AT THE CELL SUMP.

(10) THE STAINLESS STEEL CLAD CELL WILL BE FITTED WITH A CLADDING WASH SYSTEM FOR DECONTAMINATION PURPOSES. THIS IS SHOWN ON DWG-375PT-PR00015 (SYSTEM 550).

(11) EACH CELL WILL BE FITTED WITH A SHIELDED ACCESS PLUG FOR VISUAL OBSERVATIONS TO BE MADE.

(12) IF RECOVERED ACID HAS EXCESSIVE ACTIVITY, IT CAN BE RECYCLED USING V13058 PRIOR TO ACID BEING TRANSFERRED TO V13027A/B.

(13) KETTLE LEVEL CONTROL MODULATES RFD AT V13024A OR AT V13024B.

(14) PRESSURE (VACUUM) CONTROLLER P13210 SIGNALS CONTROL VALVE AV130208 FOR PROCESS AIR TO THE EJECTORS.

(15) VESSELS V13024A/B & V13073 TO HAVE AIR INLET LINE FOR PURGING THE VESSEL VAPOR SPACE.

(16) EVAPORATOR V13026 TO HAVE AIR INLET LINE FOR PURGING THE VESSEL VAPOR SPACE THAT IS OPEN ONLY WHEN THE EVAPORATOR IS NOT OPERATING.

(17) THE VENT LINE FROM V13029 MUST EXTEND ABOVE THE ELEVATION OF E13002.

(18) THE NITRIC ACID USED TO CHARGE THE EVAPORATOR KETTLE (NORMALLY 5M NITRIC ACID) MAY RANGE IN CONCENTRATION UP TO 8M NITRIC ACID.

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
2	ISSUED FOR 24TH APRIL, 00 BASELINE (INC. DCN-W375-99-00027 & DCN-W375-00-00003 & 00013)			AP	2-18-00
1	ISSUED TO SUPPORT DIRA SUBMISSION (INC. DCN-W375-99-00021, DCN-W375-99-00089, 185, & 102)	PFS	MHH	IGP	11/1/98
0	ISSUED TO SUPPORT P&ID's STAGE A	MHH	MJJ	IGP	5/11/99

REVISION HISTORY

	BY	DATE
ORIGINATOR	MH HYMAN	5/11/99
CHECKER	WL JOHNSON	5/11/99
APPROVED	IG PAPP	5/11/99

PROJECT No. W375
SITE HANFORD
AREA 200E
BUILDING No. 1

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13336

PROCESS FLOW DIAGRAM CESIUM NITRIC ACID RECOVERY SYSTEM PT-320

SCALE: NONE
DWG No. DWG-W375PT-PR00009
REV 2

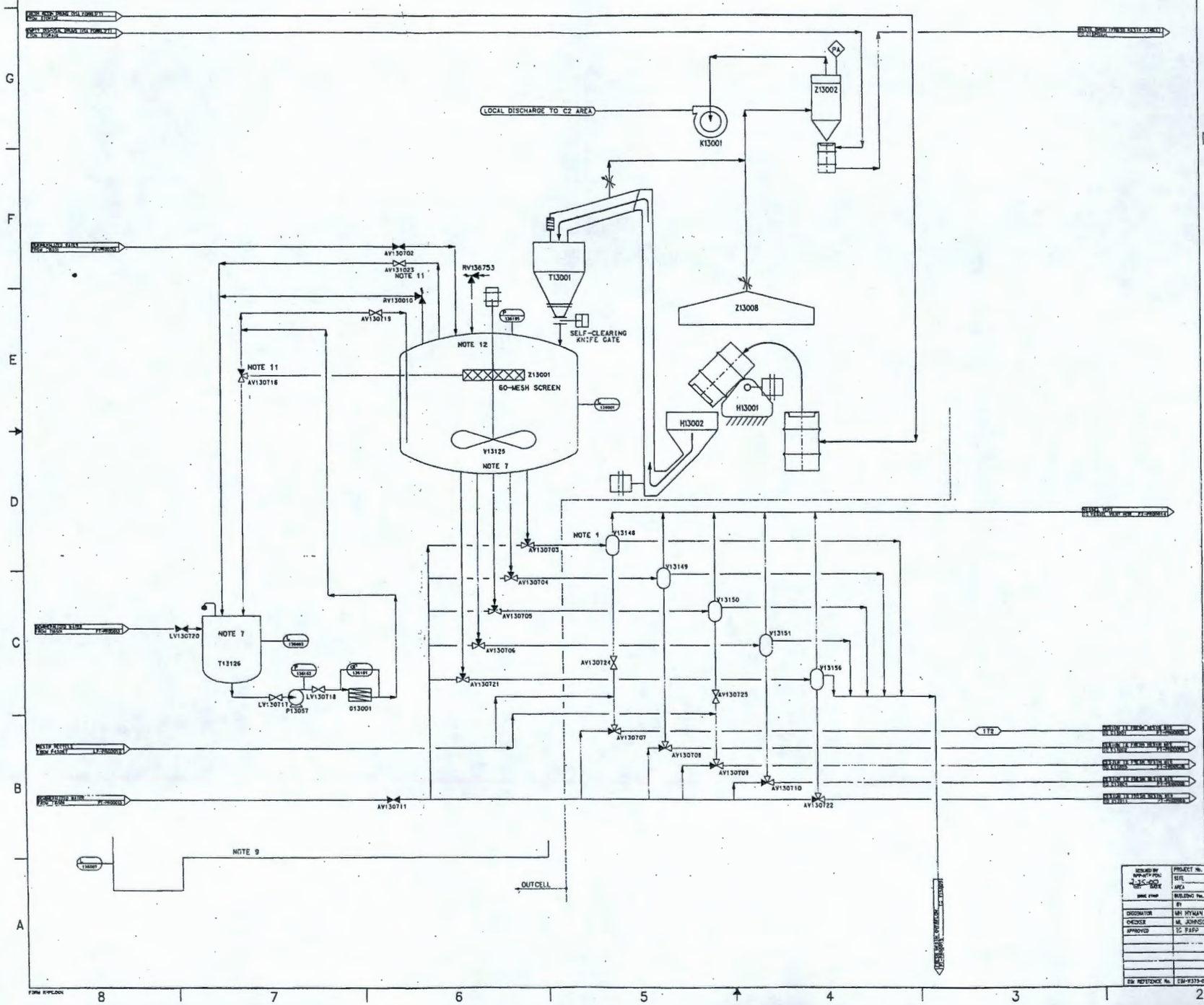
DM REFERENCE No. DWG-W375-00-00023 3/17/00

"E" SIZE - 44x34

18 FEB 2000 10:23:45

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375 PT-PR00011



NOTES:

(1) RESIN FLOW TO ION EXCHANGE COLUMNS IS BY GRAVITY.

(2) DELETED.

(3) DELETED.

(4) THE IDENTIFICATION NUMBER FOR PROCESS STREAMS IDENTIFIED ON THE PROCESS FLOW DIAGRAM (PFD) IS CONSISTENT WITH THE CURRENT MASS AND ACTIVITY BALANCE REPORTS.

(5) A HEEL OF LIQUOR IS ALWAYS MAINTAINED IN V13125 TO PROVIDE A SEAL BETWEEN THE RESIN VESSEL AND THE Cs IX COLUMNS.

(6) DELETED.

(7) LEVEL CONTROL WILL PROVIDE VESSEL OVERFILL PROTECTION.

(8) AGITATOR SHALL BE SLOW-SPEED PADDLE TYPE, TO MINIMIZE ATTRITION.

(9) A BERM AND SUMP, WITH A LEVEL ALARM AND TRIP, WILL BE PROVIDED.

(10) DELETED.

(11) VALVE AV131023 IS AUTOMATICALLY OPEN WHEN VALVE AV130716 IS POSITIONED TO BACKWASH SCREEN Z13001.

(12) VESSEL V13125 SHALL BE DESIGNED FOR VACUUM CONDITIONS.

REVISION HISTORY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
2	ISSUED FOR 24TH APRIL 00 BASELINE (INC. DCN-W375-00-00001 & DCN-W375-00-00006)				2-12-00
1	ISSUED TO SUPPORT DWPA SUBMISSION (INC DCN-W375-99-00023 & DCA-W375-99-00101)	PFS	MHH	RCP	11/11/99
0	ISSUED TO SUPPORT PHASE-STAGE 1	MHH	MLJ	RCP	5/11/99

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No DE-AC06-96RL13308

	BY	DATE
DESIGNATOR	MH HYMAN	5/11/99
CHECKER	ML JOHNSON	5/11/99
APPROVED	TC PAPP	5/11/99

PROCESS FLOW DIAGRAM
CESIUM
FRESH RESIN ADDITION
SYSTEM PT-360

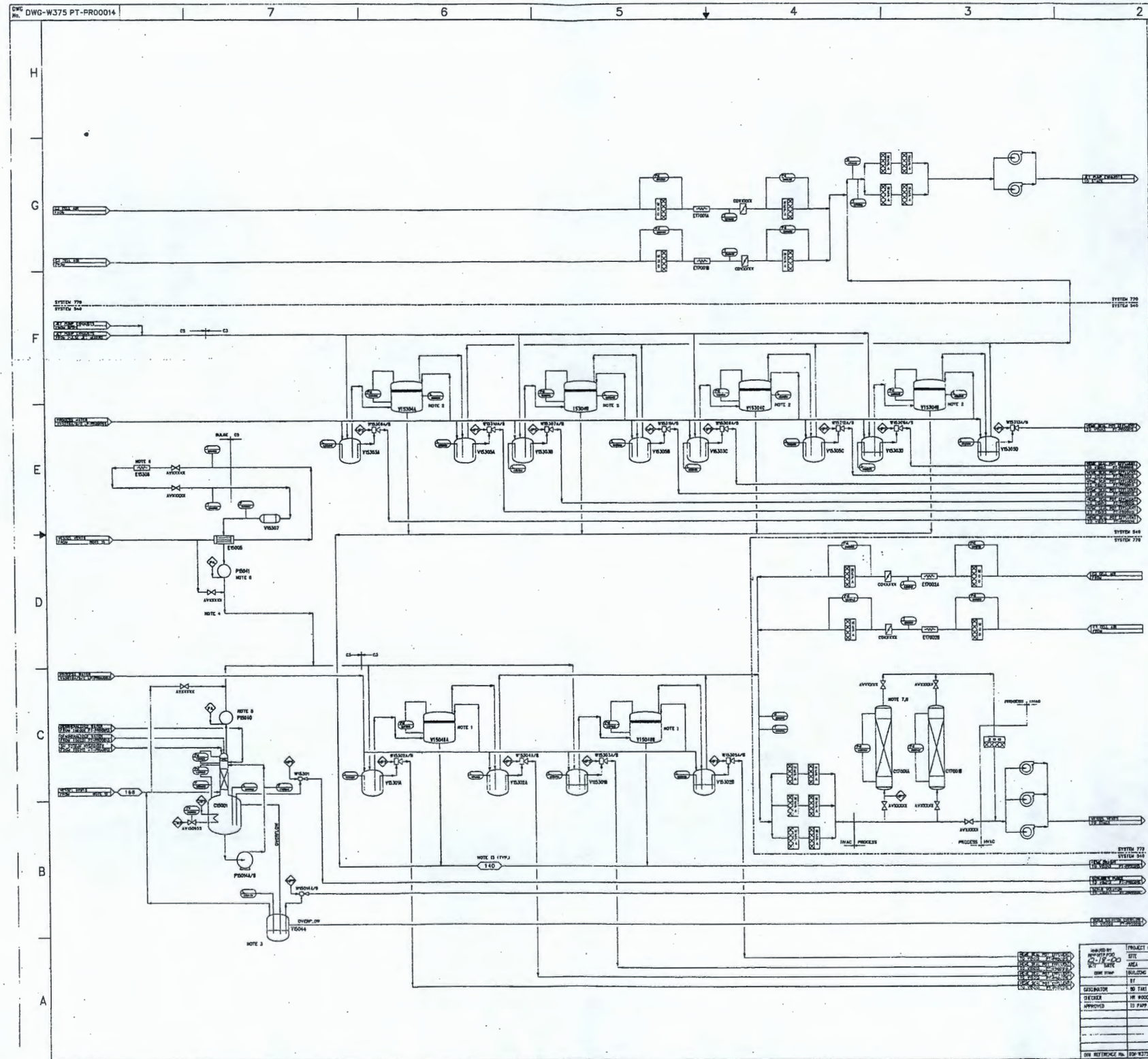
SCALE: NONE | DWG No. DWG-W375 PT-PR00011 | REV 2

ER REFERENCE No. ER-W375-00-00025 5/18/00

'E' SIZE = 44x34

18 FEB 2002 09:22:48

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED



NOTES

(1) ONLY ONE VESSEL VENT HEME WILL BE OPERATED AT ONE TIME.

(2) THE RFD AND PJM STREAM HEMES ARE 33% CAPACITY UNITS. ONLY 3 OF THE 4 HEMES ARE OPERATED AT ONE TIME.

(3) SEAL WATER FOR V15C44 WILL BE PROVIDED FROM SCRUBBER.

(4) ALTHOUGH THE VOC OXIDATION UNIT WILL NOT OPERATE DURING A LOSS OF OFF-SITE POWER (LOSP), AIRFLOW THROUGH THE VESSELS ON THE VOC-EVAPORATORS HEADER WILL CONTINUE. TO INCREASE AIRFLOW, THE BYPASS VALVE CAN BE OPENED.

(5) THE DIFFERENTIAL PRESSURES ACROSS THE VOC UNIT AND THE WET SCRUBBER WILL VARY SLIGHTLY DURING OPERATION AND CHANGE OVER TIME. THE VORTEX AMPLIFIERS ARE FLUIDIC DEVICES THAT CONTROL PRESSURE AND FLOW MUCH LIKE A CONTROL VALVE, BY CONTROLLING PROCESS AIR FLOW (SOURCE OUTSIDE THE CELL) TO THE VORTEX AMPLIFIER.

(6) THE VOC OXIDATION UNIT HEATER SHALL BE LOCATED IN, AND MAINTAINABLE FROM, A BULGE AREA. THE HEATING UNIT/ELEMENT WILL BE REPLACEABLE FROM THE BULGE.

(7) EACH CARBON BED IS 100% CAPACITY. ONE BED WILL BE IN SERVICE AT ONE TIME.

(8.) THE CARBON BEDS ARE REPLACEABLE. METHOD OF REPLACEMENT, HANDLING OF SPENT CARBON, AND DISPOSAL TO BE DETERMINED.

(9) ALL HEMES ARE LOCATED IN A C3 AREA AND REMOTELY WASHABLE. A HEME IS WASHED ONLY WHEN OFF-LINE.

(10) HEME SEAL POTS ARE OPERATED BY PUTTING CLEAN HEME ON-LINE BEFORE DIRTY HEME IS ISOLATED AND WASHED. SEAL POT DESIGN SHALL PREVENT FLOW BLOCKAGE IF OPERATING SEQUENCE IS IMPROPER.

(11) EACH CELL WILL BE FITTED WITH A SHIELDED ACCESS PLUG TO ALLOW VISUAL INSPECTIONS.

(12) VESSELS ON SCRUBBER HEADER: V12001 A-F, V12010 A-B, V12002, V15009, V12007, V13073, V13029, V13028, V12008 A-C, V12004 A-B, V12011 A-B, V12018 A-B, V13024 A-B, C13001-4, V13001, V13004, V13027 A-B, V15018, V15013, V13028, V12015 A-B, V13008, V13007, V13022, C13011, V12119, V12119, V13156, AND V13148 THRU V13151.

(13) PROCESS STREAM NUMBERS IDENTIFIED ON THIS PFD ARE CONSISTENT WITH THE CURRENT MASS AND ACTIVITY BALANCE REPORTS.

(14) ONLY MAIN PROCESS CONTROL INSTRUMENTS ARE SHOWN

(15) VESSELS ON VOC OXIDATION UNIT HEADER: V11020 A-F, V11027, V11001 A-B, V11005 AND V11002

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
1	ISSUED FOR 24TH APRIL 00 BASELINE INC DCN-W375-00-00001, 99-00088, & 99-00089 AND DCN-W375-00-00001	BJU	R.P.		2-18-00
0	ISSUED TO SUPPORT P&ID'S - STAGE A	BDT	HRH	TCP	5/5/99

REVISION HISTORY

PROJECT No.	W375	
SITE	HANFORD	
AREA	200E	
BUILDING No.	1	
DESIGNATOR	BD TAKI	5/5/99
CHECKER	HR WOODWORTH	5/5/99
APPROVED	TD PAPP	5/5/99

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No: DE-AC06-96RL13308

PROCESS FLOW DIAGRAM
PRETREATMENT VESSEL VENTS
SYSTEM PT-540 / 770

DWG REFERENCE No. DCN-W375-00-00285 2/18/00

SHEET: NONE

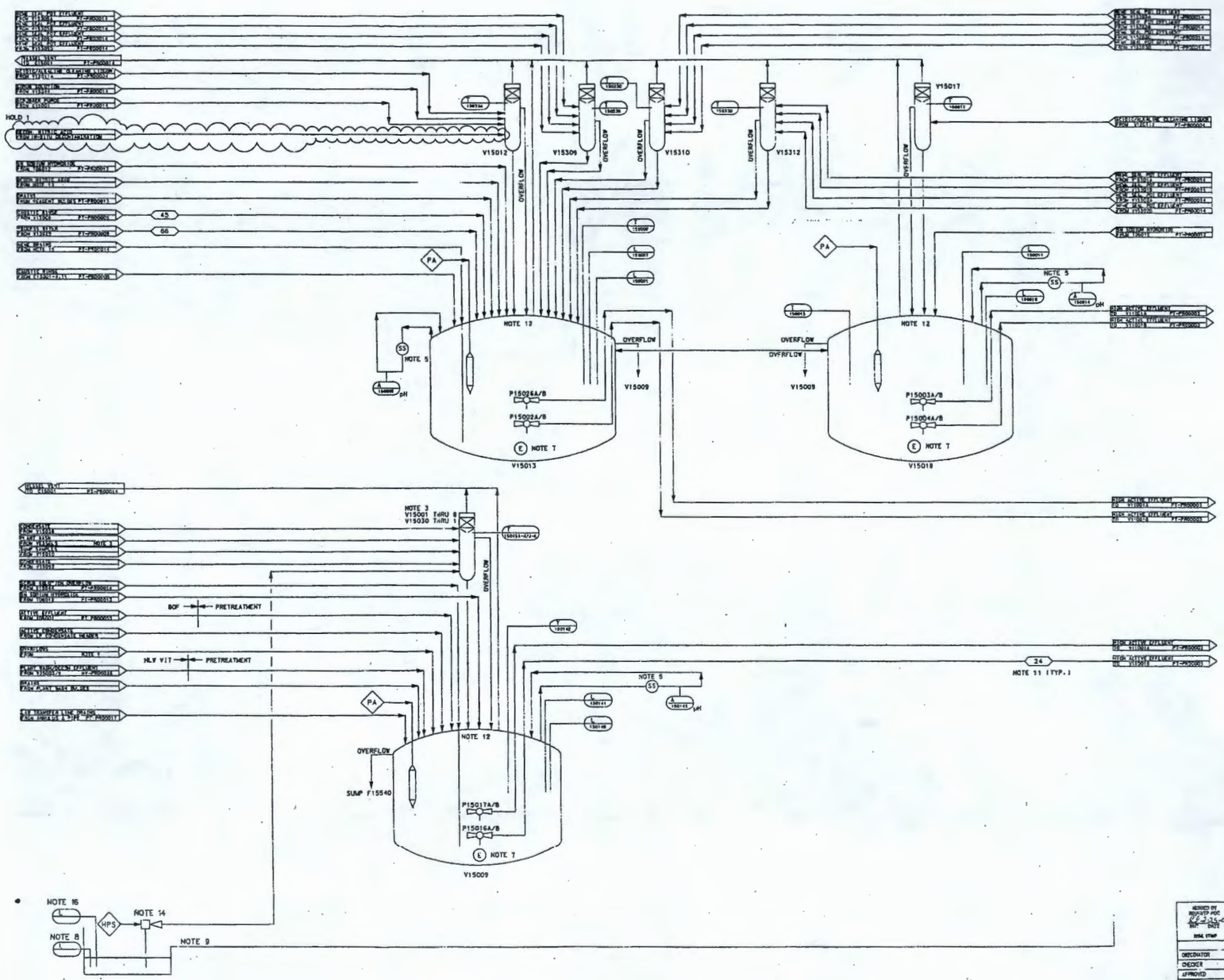
DWG No. DWG- W375PT-PR00014

REV 1

"E" SIZE - 44x34

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375 PT-PR00015



NOTES:

(1) VESSELS OVERFLOWING TO V15009 INCLUDE: V11001A/B AND V11005 FROM DWG-W375PT-PR00003 V12010A/B, V12011A/B, V12015A/B AND V12016A/B FROM DWG-W375PT-PR00004 V13008 AND V13022 FROM DWG-W375PT-PR00005 V13074B AND V13027B FROM DWG-W375PT-PR00009 V13148 THRU V13151 AND V13156 FROM DWG-W375PT-PR00011 V12002 AND V12119 FROM DWG-W375PT-PR00016 V11027 FROM DWG-W375PT-PR00017 V15010 (NOT DEPICTED ON PFD).

(2) VESSELS ARE LOCATED IN A C5/R5 AREA.

(3) THERE ARE MULTIPLE CONNECTIONS TO V15001 THRU V15008, V15030 AND V15031 FOR EMPTYING EJECTOR DISCHARGES FROM ALL VESSELS (EXCLUDING V12001A-F, V12002, V12004A/B, V12007, V13069, V13073 AND V15009).

(4) ALL VESSELS, INCLUDING BREAKPOTS, WILL BE FITTED WITH INTERNAL WASH RING FOR DECONTAMINATION PURPOSES.

(5) SAMPLING OF VESSELS WILL UTILIZE AN RFO SAMPLING SYSTEM.

(6) ONLY MAIN PROCESS CONTROL INSTRUMENTS ARE SHOWN.

(7) VESSEL EMPTYING EJECTOR IN V15009 DISCHARGES TO V15018; THOSE IN V15013 AND V15018 DISCHARGE TO V15009.

(8) EACH CELL WILL BE LINED WITH STAINLESS STEEL AND ANY LEAKAGE INTO THE CELL WILL BE DETECTED BY LEVEL MEASUREMENT.

(9) THE STAINLESS STEEL CLAD CELL WILL BE FITTED WITH A CLADDING WASH SYSTEM FOR DECONTAMINATION PURPOSES.

(10) EACH CELL WILL BE FITTED WITH A SHIELDED ACCESS PLUG TO ALLOW VISUAL OBSERVATIONS.

(11) PROCESS STREAM NUMBERS IDENTIFIED ON THIS PROCESS FLOW DIAGRAM ARE CONSISTENT WITH THE CURRENT MASS AND ACTIVITY BALANCE REPORTS.

(12) V15013, V15018 AND V15009 TO HAVE AN AIR IN-BLEED.

(13) DECONTAMINATION NITRIC ACID IS TRANSFERED FROM VESSELS V14001 AND V14003 IN THE MAINTENANCE FACILITY.

(14) SUMP EMPTYING EJECTORS SERVING THE EFFLUENT COLLECTION SYSTEM INCLUDE:
W15320 FROM SUMP F15510
W15322 FROM SUMP F15512
W15324 FROM SUMP F15514
W15326 FROM SUMP F15516
W15328 FROM SUMP F15518
W15330 AND W15332 FROM SUMP F15520
W15333 FROM SUMP F15522
W15335 FROM SUMP F15524
W15337 FROM SUMP F15526
W15339 FROM SUMP F15528
W15341 AND W15343 FROM SUMP F15530
W15344 FROM SUMP F15532
W15346 AND W15348 FROM SUMP F15534
W15349 AND W15351 FROM SUMP F15536
W15352 FROM SUMP F15538
W15354 FROM SUMP F15540
W15356 FROM SUMP F15542
W15358 FROM SUMP F15544
W15360 FROM SUMP F15546

(15) VESSEL VENT HEWE'S V15048A/B AND V15304A/B/C/D DRAIN TO V15013.

(16) REDUNDANT LEVEL MEASUREMENT TO BE PROVIDED ON ALL CELL SUMPS.

HOLDS:

1. NUMBER OF BREAKPOTS REQUIRED FOR RECEIPT OF NITRIC ACID DECONTAMINATION SOLUTIONS TO BE CONFIRMED BASED ON MECHANICAL STUDY OF REMOTELY MAINTAINABLE PUMPS.

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
2	ISSUED FOR 24TH APRIL 00 BASELINE (INC DCN-W375-00-00009)	BCU	SB	JSP	2-23-00
1	ISSUED TO SUPPORT DNFA SUBMISSION (INC DCN-W375-99-00015 & 21, DCN-W375-99-00057 & 103)	BDT	SB	RAP	11/11/99
0	ISSUED TO SUPPORT PBDS-STAGE A	BDT	HRW	JGP	5/10/99

REVISION HISTORY

		BY	DATE
ORIGINATOR	BD TAKI		5/10/99
CHECKER	HR WOODWORTH		5/10/99
APPROVED	JG PAPP		5/10/99

PROJECT No. W375
SITE HANFORD
AREA 200E
BUILDING No. T1

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

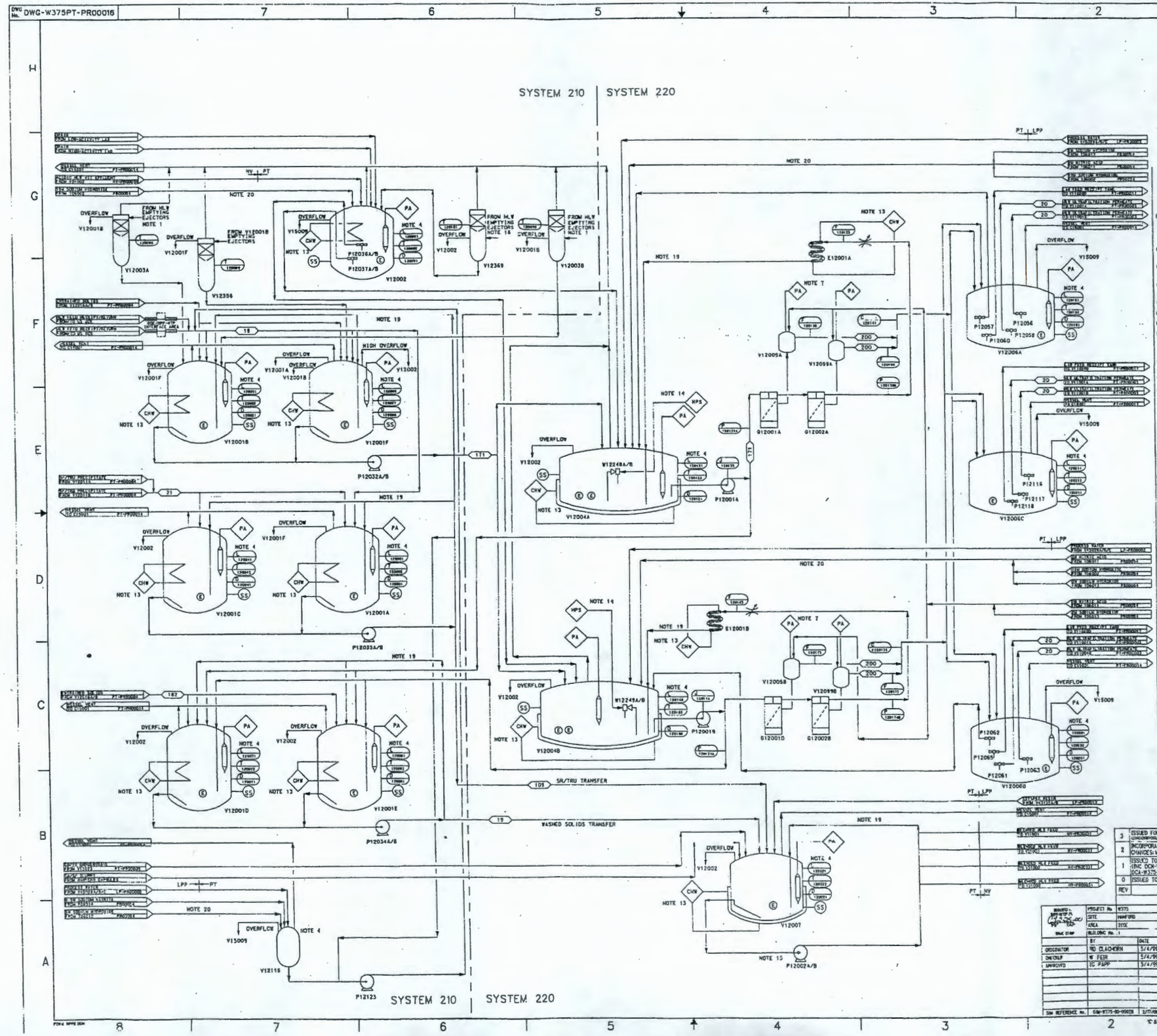
CONTRACT No. DE-AC06-96RL13308

PROCESS FLOW DIAGRAM PRETREATMENT EFFLUENT COLLECTION SYSTEM PT-550

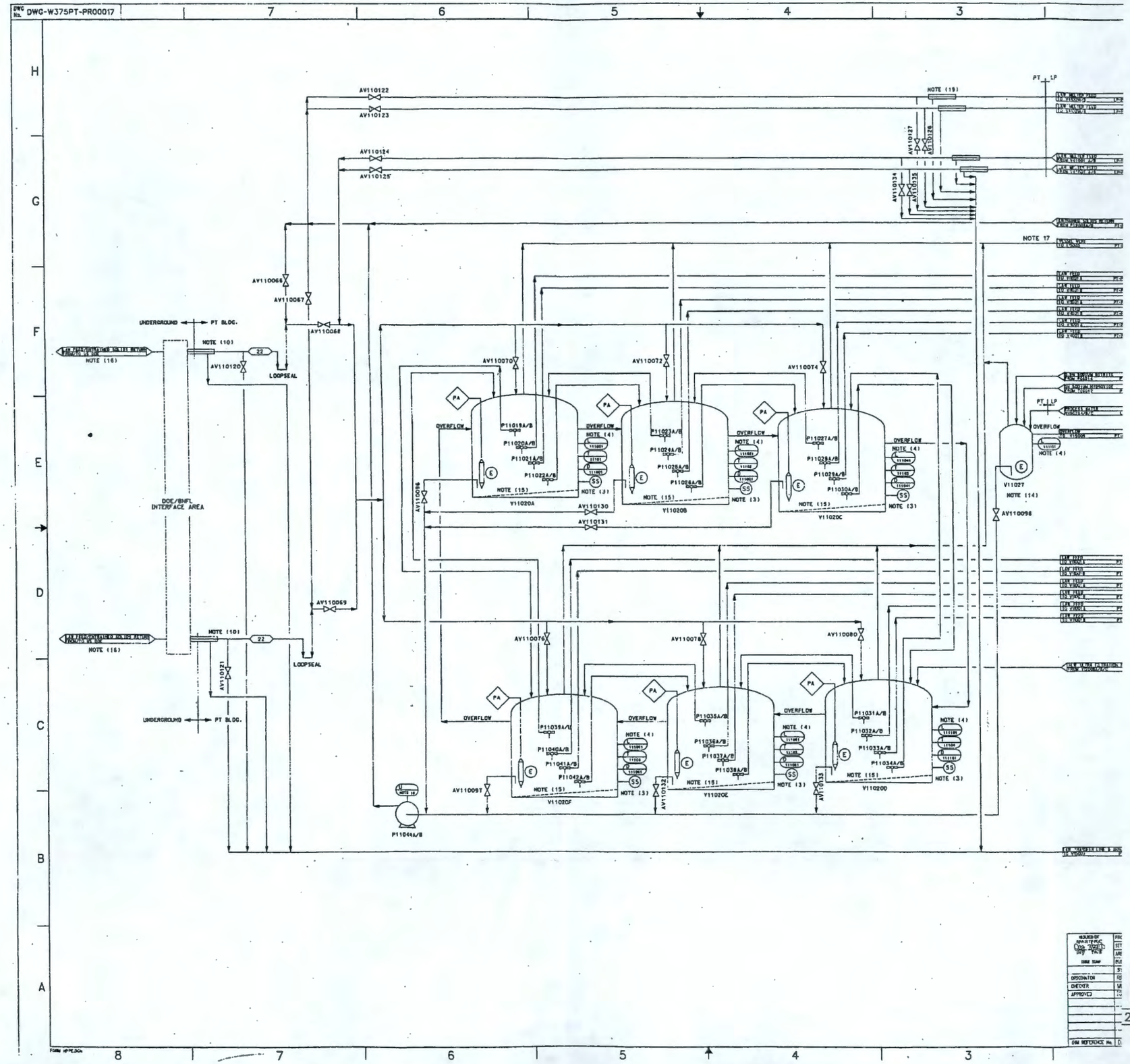
SCALE: NONE
DWG No. DWG-W375PT-PR00015
REV 2

DCN REFERENCE No. DCN-W375-00-00009 2/25/00

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED


DWG No. DWG-W375PT-PR00016
SYSTEM 210
SYSTEM 220
V12003A
V12001B
V12001F
V12356
V12002
V12369
V12001C
V12001A
V12004A
V12004B
V12001D
V12001E
V12007
V12115
V12056
V12057
V12060
V12006A
V12006B
V12006C
V12062
V12063
V12061
V12005A
V12005B
V12005C
V12005D
V12005E
E12001A
E12001B
G12001A
G12002A
G12001D
G12002B
P12036A/B
P12037A/B
P12032A/B
P12033A/B
P12034A/B
P12123
P12002A/B
P12001A
P12001B
P12001C
P12001D
P12001E
P12056
P12057
P12058
P12060
P12062
P12063
P12065
P12061
P12116
P12117
P12118
WASHED SOLIDS TRANSFER
SR/TRU TRANSFER
NOTES
(1) HLW VESSEL & SUMP EMPTYING EJECTORS FROM V12001 & THRU F, V12004A/B, V12007, & HLW CELL SUMPS DISCHARGE TO V12003B, V12003A. OTHERS GO TO V15009. VESSEL EMPTYING EJECTORS ARE REPRESENTED BY (E).
(2) ALL VESSELS WILL BE FITTED WITH INTERNAL WASH RINGS FOR DECONTAMINATION PURPOSES.
(3) SAMPLING OF VESSELS WILL UTILIZE A RFD SAMPLING SYSTEM.
(4) LEVEL CONTROL WILL PROVIDE VESSEL OVERFILL PROTECTION.
(5) DELETED
(6) DELETED.
(7) 145 PSIG AIR REQUIRED TO PULSE ULTRAFILTERS.
(8) PROCESS STREAM NUMBERS IDENTIFIED ON THIS PROCESS FLOW DIAGRAM (PFD) ARE CONSISTENT WITH THE CURRENT MASS AND ACTIVITY BALANCE REPORTS.
(9) EACH CELL WILL BE FITTED WITH A SHIELDED ACCESS PLUG FOR OBSERVATION EQUIPMENT.
(10) DELETED
(11) DELETED
(12) ONLY MAIN PROCESS CONTROL INSTRUMENTS ARE SHOWN.
(13) CHILLED WATER RETURN LINES TO BE MONITORED FOR BREAKTHROUGH.
(14) HPS INJECTED INTO VESSEL TO PROVIDE HEAT.
(15) DELETED
(16) DELETED
(17) ALL VESSELS TO HAVE AIR INLET DUCT FOR PURGING VESSEL GASSES EXCEPT V12119.
(18) HLW ACIDIC CLEANING FROM V12004A/B.
(19) RECIRCULATION LINES WILL BE DIPPED TO BOTTOM OF VESSEL AND FITTED WITH A NOZZLE TO PROMOTE MIXING.
(20) REAGENT LINES TO BE FLUSHED WITH NON-ACTIVE PROCESS WATER.
REVISION HISTORY
3 ISSUED FOR 24TH APRIL 00 BASELINE (INCORPORATE DCN-W375-00-00011 & 12)
2 INCORPORATE SUMP, INSTRUMENT LOOP NUMBERING CHANGES; MOVE F120133, F120183 LOCATION. MPC KN IOP 12/7/99
1 ISSUED TO SUPPORT DWPA SUBMISSION (INC DCN-W375-98-00039 & 37, DCA-W375-99-00059 & 60) PFS KN IOP 11/11/99
0 ISSUED TO SUPPORT PA/DS-STAGE A RSC WF IOP 5/4/99
REV DESCRIPTION DRAWN CHKD APVD DATE
PROJECT No. W375
SITE HANFORD
AREA SITE
BUILDING No. 1
BY DATE
ORIGINATOR RD CLAGHORN 5/4/99
CHECKED W FEIR 5/4/99
APPROVED IC PAPP 5/4/99
BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352
CONTRACT No. DE-AC06-96RL13308
PROCESS FLOW DIAGRAM
HLW FEED RECEIPT
AND PRE-TREATMENT
SYSTEM PT-210/220
SCALE NONE
DWG No. DWG-W375PT-PR00016
REV 3
SIM REFERENCE No. DCN-W375-00-00028 2/17/00
COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375PT-PR00017



RGE TO V15009.
INTERNAL WASH
OSES.
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. SHIELDED ACCESS
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R00015 (SYSTEM 550).
VILL BE FITTED WITH
CONTAMINATION
-W375PT-PR00015
TRUMENTS ARE SHOWN.
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020A-F) WILL HAVE
ALLY BY DASHED
NE IS IN USE AT ANY
TE H_2 ACCUMULATION
EEN V11020A-F
ROUND PIPELINES
SE PIPELINES WILL BE
THE ANNULI
NULI WILL DRAIN
LITY.
INLET LINE TO

		JSP	2-23-00
PFS	MDR	KCP	11/16/99
RPH	MDW	ICP	8/31/99
DRAWN	CHKD	APVD	DATE

PROTECTION PROJECT
TREATMENT PLANT
EORGE WASHINGTON WAY
ND, WA 98352

-96RL13305

[redacted]

W DIAGRAM
RECEIPT
PT-110

5PT- PR00017 REV 2

23 FEB 2000 13:18:57

SEAL CHANGES NOT PERMITTED

DWG No. DWG-W375 SH-J0C001

TABLE 1 (1)

GUIDANCE ON GENERAL FORMAT

DESCRIPTION (2)
TYPE 1 (3)
PLANT ITEM NUMBER (4)
(5) XXXXXX CONDITION/STATE (6) (OPERATION) (7)

TABLE 2 (8)

EXAMPLE SHOWING GENERAL FORMAT

BOGIE
TYPE 1
N34001
ZS 342001 FWD/RVS (BTVSD)
JZ 342010 (ENGA/DSG) (BTBK)
YS 342020 PV/T2

TABLE 3

GENERAL INSTRUMENT OR FUNCTION SYMBOLS

- LOCAL (FIELD) MOUNTED INSTRUMENT OR DEVICE
- NORMALLY INACCESSIBLE OR BEHIND PANEL INSTRUMENT OR DEVICE
- CENTRAL CONTROL ROOM INSTRUMENT OR DEVICE
- AUXILIARY CONTROL PANEL INSTRUMENT OR DEVICE
- LOCAL (FIELD) INSTRUMENT FOR TWO MEASURED VARIABLES OR MORE THAN ONE FUNCTION
- NORMALLY INACCESSIBLE OR BEHIND PANEL INSTRUMENT FOR TWO MEASURED VARIABLES OR MORE THAN ONE FUNCTION
- CENTRAL CONTROL ROOM INSTRUMENT OR DEVICE FOR TWO MEASURED VARIABLES OR MORE THAN ONE FUNCTION
- AUXILIARY CONTROL PANEL INSTRUMENT OR DEVICE FOR TWO MEASURED VARIABLES OR MORE THAN ONE FUNCTION
- CENTRAL CONTROL ROOM CRT DISPLAY OR CRT CONTROL
- AUXILIARY CRT DISPLAY OR CRT CONTROL
- FIELD MOUNTED CRT DISPLAY OR CONTROL
- PROGRAMMABLE ELECTRONIC SYSTEM (PES)
- AUXILIARY CONTROL PANEL PES FUNCTION
- FIELD MOUNTED PLC CONTROL
- CEI EQUIPMENT ROOM PLC CONTROL

TABLE 4

FUNCTIONAL IDENTIFIERS MECHANICAL HANDLING CONTROLS DESIGN

FIRST LETTER	SECOND LETTER	EQUIPMENT DESIGNATION
D	S	SWITCH (DENSITY)
F	S	SWITCH (FLOW)
H	S	SWITCH (HAND)
J	S	SWITCH (POWER)
J	Z	MOTOR
K	S	SWITCH (TIME)
L	S	SWITCH (LEVEL)
P	S	SWITCH (PRESSURE)
Q	T	ENCODER
R	S	SWITCH (RADIATION)
S	S	SWITCH (SPEED/FREQUENCY)
T	E	THERMAL SAFETY ELEMENT (THERMISTOR)
T	S	SWITCH (TEMPERATURE)
U	Y	SOLENOID VALVE
V	S	SWITCH (VIBRATION)
W	E	LOADCELL
W	S	SWITCH (WEIGHT/FORCE)
X	E	PHOTOELECTRIC CELL
Y	S	SWITCH (STATE/PRESENCE) (10)
Z	S	SWITCH (POSITION) (9)
Z	Y	RESOLVER

TABLE 5 (11)

CONDITION/STATE ABBREVIATIONS

ABBREVIATION	DEFINITION	ABBREVIATION	DEFINITION
ADV	ADVANCE *	PPK	POSITION PARK
ADVD	ADVANCED	P1	POSITION 1
BK	BRAKE *	P2	POSITION 2
CCW	COUNTER-CLOCKWISE *	P3	POSITION 3
CL	CLOSE *	RATE	RATE
CLPD	CLAMPED	RETR	RETRACT *
CLSD	CLOSED	RETRD	RETRACTED
CNT	COUNT	RLSD	RELEASED
CREP	CREEP	RLSE	RELEASE
CRS	COARSE *	ROT	ROTATE *
CW	CLOCKWISE *	RSD	RAISED *
DESGD	DISENGAGED	RSE	RAISE
DSG	DISENGAGE	RUN	RUN
ENGA	ENGAGE *	RUNG	RUNNING
ENGAD	ENGAGED	RVS	REVERSE *
EPN	EAST POSITION	RVSD	REVERSED
EXTND	EXTEND	SKCA	SLACK CABLE
EXTNDD	EXTENDED	SLW	SLOW
FAST	FAST	SOPN	SOUTH POSITION
FIN	FINE	SPEED	SPEED
FLT	FAULT *	STOP	STOP
FWD	FORWARD *	STOPD	STOPPED
H	HIGH *	STRT	START
HIHI	HIGH-HIGH	TILT	TILT
HL	HIGH-LOW	TMDO	TIMED OUT
HY	HEALTHY	TRP	TRIPPED *
INTMD	INTERMEDIATE *	ULT	ULTIMATE *
L	LOW *	ULTCLSD	ULTIMATE CLOSED POSITION
LDD	LANDED	ULTE	ULTIMATE EAST
LKD	LOCKED *	ULTLWD	ULTIMATE LOWERED POSITION
LOADD	LOADED		
LOK	LOCK	ULTN	ULTIMATE NORTH
LOLO	LOW-LOW	ULTOPEN	ULTIMATE OPEN POSITION
LWD	LOWERED		
LWR	LOWER *	ULTRSD	ULTIMATE RAISED POSITION
MDL	MIDDLE *	ULTS	ULTIMATE SOUTH
MULTF	MULTI-FUNCTION	ULTT	ULTIMATE TRAVEL POSITION
NOPN	NORTH POSITION	ULTW	ULTIMATE WEST
OPEN	OPEN	UNCLPD	UNCLAMPED
OPND	OPENED	UNLK	UNLOCK
OVLD	OVERLOAD *	UNLKD	UNLOCKED
PCRS	POSITION COARSE	VAC	VACUUM *
PDESGD	POSITION DISENGAGED	W	FORCE
PENGAD	POSITION ENGAGED	WEPN	WEST POSITION
PFIN	POSITION FINE	WT	WEIGHT *
PDSN	POSITION *		

TO DWG-W375SH-J00008, TABLE 6

NOTES: (X)

1. THIS TABLE SHOWS THE GENERAL FORMAT AND LAYOUT TO BE USED TO IDENTIFY CONTROL AND MEASUREMENT REQUIREMENTS ON MECHANICAL HANDLING DIAGRAMS (MHD).

2. THE DESCRIPTION IS TAKEN FROM THE PROJECT PLANT ITEM LIST (PIL) DATABASE.

3. THE 'TYPE' IS ASSOCIATED WITH A SPECIFIC PIECE OF MECHANICAL EQUIPMENT.

4. THE PLANT ITEM NUMBER IS TAKEN FROM THE PROJECT PLANT ITEM LIST (PIL) DATABASE

5. THE LETTERS USED IN THIS SYMBOL ARE FUNCTIONAL IDENTIFIERS BASED ON ISA-S5.1 AND REPRESENTED IN TABLE 4. THE 'XXXXXX' DESIGNATES THE COMPONENT TAG NUMBER FROM CAIES (COMPUTER AIDED INSTRUMENT AND ELECTRICAL SYSTEM).

6. THE CONDITION/STATE OF THE ITEM IS TAKEN FROM TABLE 5, CONDITION/STATE ABBREVIATIONS. WHEN MORE THAN ONE ITEM IS TO BE USED, THIS CAN BE INDICATED BY THE USE OF '/' EG. A POSITION SWITCH SHOWN AS 'ADV/RETR' INDICATES THE USE OF TWO SWITCHES, ONE FOR 'ADV' AND ONE FOR 'RETR'.

7. DISCRETIONARY EQUIPMENT SPECIFIC CONDITIONS OR STATES ARE PROVIDED FOR IN TABLE 6 (DWG-W375SH-J00008) TO FURTHER DEFINE THE DEVICE FUNCTION WITH RESPECT TO THE PHYSICAL EQUIPMENT THAT IT WILL BE APPLIED TO.

8. TABLE 2 IS AN EXAMPLE ONLY AND SHOULD NOT BE TAKEN TO REPRESENT AN ACTUAL BOGIE. FOLLOW DASHED LINES TO FIND THE SOURCE OF INFORMATION.

9. THE USE OF 'ZS' SHALL BE ASSOCIATED WITH PHYSICAL CONTACT DEVICES EG. A LIMIT SWITCH.

10. THE USE OF 'YS' SHALL BE ASSOCIATED WITH PHYSICAL NON-CONTACT DEVICES EG. A PROXIMITY SWITCH.

11. THE CONDITION/STATE ABBREVIATIONS ARE BASED ON ABBREVIATIONS TAKEN FROM AMERICAN NATIONAL STANDARD ASME Y1.1-1989 'ABBREVIATIONS FOR USE ON DRAWINGS AND IN TEXT'. THOSE WITH A '*' EXACTLY MATCH THE ABBREVIATIONS GIVEN IN THE STANDARD. ALL OTHERS HAVE BEEN GENERATED FOR USE ON THE RPP-WTP PROJECT AND DO NOT CONFLICT WITH OTHER ABBREVIATIONS IN THE STANDARD.

PRELIMINARY

REFERENCE DRAWINGS

DWG NO	TITLE
DWG-W375SH-J00008	MECHANICAL HANDLING SYMBOLS AND LEGENDS SHEET 2

REVISION HISTORY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
B	GENERAL DRAWING REVISION ISSUED FOR DESIGN DEVELOPMENT				9-23-00
A	ISSUED FOR DWPA	DWC	CH	DW	11-5-99

ISSUED BY BNFL Inc. — ISSUE STAMP

	BY	DATE
ORIGINATOR	IAN RAL	11-5-99
CHECKER	BENES HALCH	11-5-99
APPROVED	GORDON WEBSTER	11-5-99

PROJECT No. W375
SITE HANFORD
AREA 200E
BUILDING No.

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

MECHANICAL HANDLING SYMBOLS AND LEGENDS SHEET 1 OF 2

DWG REFERENCE No. DDM-W375-00-00434 | REV B | SCALE NONE | DWG No. DWG- W375 SH-J00001 | REV B

23 MAR 2000 06:47:37

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

FORM 6M8120

LAST PLOTTED BY DOCnet

FROM TABLE 2, DWG-W375SH-J00001

TABLE 6

MECHANICAL HANDLING ACRONYMS

ACRONYM	DESCRIPTIONS	ACRONYM	DESCRIPTIONS	ACRONYM	DESCRIPTIONS	ACRONYM	DESCRIPTIONS
ADDV	AIRLOCK DOOR DRIVE	CDUVSD	CHAIN DRIVE UNIT VARIABLE SPEED DRIVE	FCVSPEED	FILTER COMPACTOR VERTICAL SPEED	MTILT	MANIPULATOR TILT
ADHWENGAD	AIRLOCK DOOR HANDWIND ENGAGED	CGDV	CABLE GATE DRIVE	FH2SPDDV	FLASK HOIST 2 SPEED DRIVE	MWRISTDCDV	MANIPULATOR WRIST DC DRIVE
BCPRES	BOGIE CONTAINER PRESENT	CGPOSN	CABLE GATE POSITION	FLSKLB	FLASK LIFT BEAM	MLDBK	MELTER LINEAR DR BRAKE
BJBK	BOGIE JACK BRAKE	CHBK	CRANE HOIST BRAKE	FLSKSA	FLASK SHOCK ABSORBER	MLDCLTC	MELTER LINEAR DR CLUTCH
BJDV	BOGIE JACK DRIVE	CHCLTC	CRANE HOIST CLUTCH	FSKBK	FLASK BULK	MLDVSD	MELTER LINEAR DR VARIABLE SPEED DR
BTPORT	BAGLESS TRANSFER PORT	CHDV	CRANE HOIST DRIVE	GGBK	GAMMA GATE BULK	NUTRUNDV	NUTRUNNER DRIVE
BJPOSN	BOGIE JACK POSITION	CHHT	CRANE HOIST HEIGHT	GGDV	GAMMA GATE DRIVE	OENGAD	OVERPACK ENGAGED
BLOKB	BOGIE LOCK BOLT	CHLOK	CRANE HOIST LOCK	GGSHKAB	GAMMA GATE SHOCK ABSORBER	OLOKINPOSN	OVERPACK LOCKED IN POSITION
BMCGRIP	BENCH MOUNTED CHUCK GRIP	CHPOSN	CRANE HOIST POSITION	GGT	GAMMA GATE	PADLOK	PERSONAL ACCESS DOOR LOCK
BMCVSD	BENCH MOUNTED CHUCK VARIABLE SPEED DRIVE	CHSLIM	CRANE HOIST SERIES LIMIT	GIMFAULT	GAMMA INTERLOCK MONITOR FAULT	POP	POST OUT PORT
BRD	BOGIE REELING DRUM	CHUCK	CHUCK	GIMHLVL	GAMMA INTERLOCK MONITOR HIGH LEVEL	POPDV	POST OUP PORT PUMP MOTOR
BSLV	BOGIE SLEEVE	CHT	CRANE HOIST	HCLSD	HATCH CLOSED	PUPSPT	PUMP SUPPORT MECH
BTBK	BOGIE TRAVEL BRAKE	CHTS	CRANE HOIST TUBE SET	HDV	HATCH DRIVE	RDBK	REELING DRUM BRAKE
BTCLTC	BOGIE TRAVEL CLUTCH	CHWT	CRANE HOIST WEIGHT	HHWENGAD	HATCH HANDWIND ENGAGED	RDCLTC	REELING DRUM CLUTCH
BTLL	BAGLESS TRANSFER LOCKING LID	CH2SPDDV	CRANE HOIST TWO SPEED DRIVE	HLOK	HATCH LOCK	RDDV	REELING DRUM DRIVE
BTLOK	BOGIE TRAVEL LOCK	CLTBK	CRANE LONG TRAVEL BRAKE	HOPND	HATCH OPENED	RDFAN	REELING DRUM MOTOR COOLING FAN
BTLPOSN	BAGLESS TRANSFER LOCKING POSITION	CLTCLTC	CRANE LONG TRAVEL CLUTCH	HPOSN	HATCH POSITION	RDFXDDV	REELING DRUM FLUX DENSITY DRIVE
BTLR	BAGLESS TRANSFER LOCKING RING	CLTLOK	CRANE LONG TRAVEL LOCK	HPPENC	HYDRAULIC POWER PACK ENCLOSURE	RDHW	REELING DRUM HAND WIND
BTVSD	BOGIE TRAVEL VARIABLE SPEED DRIVE	CLTPOSN	CRANE LONG TRAVEL POSITION	HPPHP	HYDRAULIC POWER PACK HEAD PUMP	RDSKCA	REELING DRUM SLACK CABLE
BWHLROT	BOGIE WHEEL ROTATE	CLTULT	CRANE LONG TRAVEL ULTIMATE	HPPVSD	HYDRAULIC POWER PACK VARIABLE SPEED DRIVE	SDCLTC	SHIELD DOOR CLUTCH
BT2SPDDV	BOGIE TRAVEL TWO SPEED DRIVE	CLTVSSD	CRANE LONG TRAVEL VARIABLE SPEED DRIVE	IBRTVSD	IMPELLER BOLT REMOVAL TOOL VARIABLE SPEED DR	SDDV	SHIELD DOOR DRIVE
CCBCHMDRV	CCB CONSUMABLE CHAMBER DRIVE	CLTWT	CRANE LONG TRAVEL WEIGHT	IMEXCOVR	IMPORT/EXPORT COVER DRIVE (CCB)	SDHWENGAD	SHIELD DOOR HANDWIND ENGAGED
CCBEMTPOS	CONSUMABLE CHANGEOUT BOX EMPTY CHAMBER POSN	CLT2SPDDV	CRANE LONG TRAVEL TWO SPEED DRIVE	JSCRP	JACKING STATION GRIP	SDJBK	SHIELD DOOR JACK BRAKE
CCBNEW1POSN	CONSUMABLE CHANGEOUT BOX NEW POSITION 1	CRET	CRANE RETRIEVAL EQUIPMENT	JSVSD	JACKING STATION VARIABLE SPEED DRIVE	SDJPOSN	SHIELD DOOR JACK POSITION
CCBNEW2POSN	CONSUMABLE CHANGEOUT BOX NEW POSITION 2	CRPOSN	CRIMPING ROLLER POSITION	LCBRSHAIR	LID CLEANER AIR TO BRUSHES	SDJWT	SHIELD DOOR JACK WEIGHT
CCBNEW3POSN	CONSUMABLE CHANGEOUT BOX NEW POSITION 3	CMRA	CAMERA	LCDV	LID CLEANER DRIVE	SDLOK	SHIELD DOOR LOCK
CCBPLPOSN	CONSUMABLE CHANGEOUT BOX PLUG POSITION	CWSCDV	CANISTER WELD STATION CARRRIAGE DRIVE	LCKPN	LOCKING PIN	SDPOSN	SHIELD DOOR POSITION
CCBROTCLTC	CONSUMABLE CHANGEOUT BOX INNER UNIT CLUTCH	CWSCPOSN	CANISTER WELD STATION CARRIAGE POSITION	LINACTR	LINEAR ACTUATOR	SDRSYS	SHIELD DOOR RECOVERY SYSTEM
CCBROTLOK	CONSUMABLE CHANGEOUT BOX INNER UNIT LOCK	DATUM	DATUM	LINACTRPOSN	LINEAR ACTUATOR POSITION	SGRB	SOLENOID GRAB
CCBROT	CONSUMABLE CHANGEOUT BOX ROTATE	DCTSH	DECONTAMINATION SHUTTLE	LINACTRROTDV	LINEAR ACTUATOR ROTATIONAL DRIVE	SHOTBOLT	SHOT BOLT, THROUGH WALL
CCTBM	CRANE CROSS TRAVEL BRAKE	ELDV	ELEVATOR DRIVE	LLVAC	LID LIFTER VACUUM	SOBLT	SOLENOID BOLT
CCTCLTC	CRANE CROSS TRAVEL CLUTCH	ELHWENGAD	ELEVATOR HAND WIND ENGAGED	LMGRAB	LIDDING MACHINE GRAB	SPCTRL	SPEED CONTROL
CCTLOK	CRANE CROSS TRAVEL LOCK	ELLOK	ELEVATOR LOCK	LSCYDV	LIDDING STATION CYLINDER DRIVE	SPMPOSN	SWAB POSTING MACHINE POSITION
CCTPOSN	CRANE CROSS TRAVEL POSITION	FCBRSHAIR	FLANGE CLEANER AIR TO BRUSHES	LSCYPOSN	LIDDING STATION CYLINDER POSITION	TDDV	TRAP DOOR DRIVE
CCTULT	CRANE CROSS TRAVEL ULTIMATE	FCDV	FLANGE CLEANER DRIVE	LSLCLP	LIDDING STATION LID CLAMP	TDHWENGAD	TRAP DOOR HANDWIND ENGAGED
CCTVSD	CRANE CROSS TRAVEL VARIABLE SPEED DRIVE	FCFAN	FILTER COMPACTOR FAN	LSLPRES	LIDDING STATION LID PRESENT	TOTDV	TURN OVER TABLE DRIVE
CCTWT	CRANE CROSS TRAVEL WEIGHT	FCHDV	FILTER COMPACTOR HORIZONTAL DRIVE	LSLPOSN	LIDDING STATION LID POSITION	TROLIM	TORQUE LIMITER
CCT2SPDDV	CRANE CROSS TRAVEL TWO SPEED DRIVE	FCHPOSN	FILTER COMPACTOR HORIZONTAL POSITION	LSDV	LIDDING STATION DRIVE	TTABSPOSN	TURNTABLE ABS POSITION
CDCLTC	CONTAINMENT DOOR CLUTCH	FCHSPEED	FILTER COMPACTOR HORIZONTAL SPEED	LSHWENGAD	LIDDING STATION HANDWIND ENGAGED	TTCOLPOSN	TURNTABLE COOL POSITION
CDDV	CONTAINMENT DOOR DRIVE	FCRES	FILTER COMPACTOR RESEVOIR	LSPOSN	LIDDING STATION POSITION	TTDV	TURNTABLE DRIVE
CDLKD	CONTAINMENT DOOR LOCKED	FCTWMDV	FLANGE CONDITIONING TOOL MILLING MACHINE DRIVE	LWREXTNDRV	LOWER EXTENDED DRIVE (CCB)	TTPORPOSN	TURNTABLE POUR POSITION
CDLOK	CONTAINMENT DOOR LOCK	FCTVAC	FLANGE CONDITIONING TOOL VACUUM	MANIP	MANIPULATOR	TTRCVPOSN	TURNTABLE RECEIVE POSITION
CDPWR	CHAIN DRIVE POWER	FCULT	FILTER COMPACTOR ULTIMATE	MELBOWDCDV	MANIPULATOR ELBOW DC DRIVE	TTSD	TRANSFER TUNNEL SHIELD DOOR
CDSEAL	CONTAINMENT DOOR SEAL	FCVAC	FLANGE CLEANER VACUUM	MFARMDCDV	MANIPULATOR FOREARM DC DRIVE	UFCSPT	ULTRAFILTER CARTRIDGE SUPPORT
CDSDV	CONTAINMENT DOOR SEAL DRIVE	FCVCRUSH	FILTER COMPACTOR VERTICAL CRUSHER	MJAWSDCDV	MANIPULATOR JAWS DC DRIVE	ULT	ULTIMATE
CDTQL	CHAIN DRIVE TORQUE LIMIT	FCVDV	FILTER COMPACTOR VERTICAL DRIVE	MSHLDRDCDV	MANIPULATOR SHOULDER DC DRIVE	VACPUMP	VACUUM PUMP
CDUCPOSN	CHAIN DRIVE UNIT CHAIN POSITION	FCVPOSN	FILTER COMPACTOR VERTICAL POSITION	MSLEWDCDV	MANIPULATOR SLEW DC DRIVE	VACSW	VACUUM SWITCH
						WEGGDV	WASTE EXPORT GAMMA GATE DRIVE

PRELIMINARY

REFERENCE DRAWINGS

DWG NO	TITLE
DWG-W375SH-J00001	MECHANICAL HANDLING SYMBOLS AND LEGENDS SHEET 1

REVISION HISTORY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
A	ISSUED FOR DESIGN DEVELOPMENT				01/22/00

PROJECT No. 9375
DATE 06/09/00
AREA 200E
BUILDING No. 1

	BY	DATE
DESIGNATOR		06/23/00
CHECKER		06/22/00
APPROVER		9-29-00

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

MECHANICAL HANDLING SYMBOLS AND LEGENDS SHEET 2 OF 2

DBI REFERENCE No. DBI-9375-00-0021 REV A

SCALE NONE

DWG No. DWG- W375 SH-J00008 REV A

"E" SIZE - 44x34

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375-M0C001

PUMPS

- AIR DRIVEN PUMP
- CENTRIFUGAL PUMP
- HAND PUMP
- MOTOR DRIVEN DIAPHRAGM PUMP
- POSITIVE DISPLACEMENT PUMP
- ROTARY PUMP
- WET PIT PUMP
- PERISTALTIC PUMP
- REVERSE FLOW DIVERTOR ASSEMBLY
- EJECTOR
- JET PUMP PAIR

COMPRESSORS

- CENTRIFUGAL COMPRESSOR
- RECIPROCATING COMPRESSOR

HEAT EXCHANGERS

- SHELL AND TUBE HEAT EXCHANGER
- U-TUBE HEAT EXCHANGER
- PLATE EXCHANGER
- CONCENTRIC PIPE HEAT EXCHANGER
- CONCENTRIC PIPE HEAT EXCHANGER
- HEATING/COOLING COIL

HEAT EXCHANGERS (cont.)

- SAMPLE COOLER
- OIL COOLER

TANKS & VESSELS

- OPEN TANK
- FLOATING ROOF TANK
- COVERED TANK
- SEALED TANK
- CONICAL BOTTOM TANK
- TANK WITH FIXED ROOF AND DRAW-OFF SUMP
- JACKETED TANK
- CONE ROOF TANK
- HOPPER, BUNKER OR SILO
- BUNKER WITH VIBRATOR
- VESSEL
- JACKETED VESSEL
- DISTRIBUTOR
- SAMPLE POT
- LUTE POT

TANKS & VESSELS (cont.)

- PULSE POT
- BREAK POT
- SURGE VESSEL
- CLOSED LIQUID SEAL POT
- OPEN LIQUID SEAL POT

MISCELLANEOUS EQUIPMENT

- DISTILLATION COLUMN
- PACKED COLUMN
- TRAY COLUMN
- STEAM SEPARATOR
- PULSE JET MIXER
- MIXER
- MIXING BOX
- ULTRAFILTER
- AIR COOLED CONDENSER
- AIR BLOWN COOLER
- ELECTRIC HEAT COIL
- CARTRIDGE FILTER
- GAS BOTTLE
- PACKED FILTER
- SILENCER

MISCELLANEOUS EQUIPMENT (cont.)

- BOILER
- STACK OR CHIMNEY
- ELECTRIC MOTOR
- ACCESS HOLE (WELDED SHUT)
- ELECTROSTATIC PRECIPITATOR

VALVES

NORMALLY OPEN		NORMALLY CLOSED
	GATE VALVE	
	GLOBE VALVE	
	BALL VALVE	
	PLUG VALVE	
	STOP CHECK VALVE	
	DIAPHRAGM VALVE	
	ANGLE PLUG VALVE	
	ANGLE VALVE	
	NEEDLE VALVE (THROTTLED)	
	NEEDLE VALVE (OPEN)	
	CHECK VALVE	
	SWING CHECK VALVE	
	EXCESS FLOW CHECK VALVE	
	FOOT CHECK VALVE	
	FLOAT VALVE	
	PINCH VALVE	
	BUTTERFLY VALVE	
	ANGLE CHECK VALVE	
	3-WAY PLUG VALVE (NOTE 1)	
	3-WAY BALL VALVE (NOTE 1)	
	4-WAY PLUG VALVE (NOTE 2)	
	4-WAY BALL VALVE (NOTE 2)	

VALVES (cont.)

- VALVE FAILS CLOSED
- VALVE FAILS OPEN
- VALVE FAILS AS-IS
- BACKFLOW PREVENTER
- RUPTURE DISK

IN-LINE ITEMS & FITTINGS

- Y-STRAINER
- BASKET STRAINER
- DUPLEX FILTER
- START-UP STRAINER
- SCREEN STRAINER
- T-TYPE STRAINER
- REMOVABLE SPOOLPIECE
- FLEXIBLE CONNECTION
- SCREWED CAP
- WELDED CAP
- BREATHABLE CAP
- VICTAULIC CAP
- VICTAULIC FITTING
- CONCENTRIC REDUCER
- ECCENTRIC REDUCER
- EXPANSION JOINT
- FLANGE
- UNION
- ORIFICE UNION
- HOSE CONNECTION
- FLEX HOSE
- QUICK DISCONNECT
- SPRAY NOZZLE
- IN-LINE FILTER

IN-LINE ITEMS & FITTINGS (cont.)

- IN-LINE TRAP
- IN-LINE MIXER
- MIXING TEE
- FLAME ARRESTOR
- EXHAUST HEAD
- INTAKE HEAD

VENT/DRAIN PIPING COMPONENTS

- VENT
- VENT WITH FLAME TRAP AND HOLDER
- VENT WITH MESH GUARD
- AUTOMATIC VENT
- HARD PIPED DRAIN
- DRAIN
- PLUGGED DRAIN
- ROOF DRAIN
- LOOP SEAL (LUTE)
- WATER HAMMER ARRESTOR

CONTINUATION BOXES

DESCRIPTION OF CONTENT

DESTINATION OR ORIGIN OF LINE | NOZZLE No. (WHERE APPLICABLE) | CONNECTING P&ID

BOUNDARIES

- VENDOR AB AJ — INDICATES ITEM FURNISHED WITH ASSOCIATED EQUIPMENT SYSTEM LOCATOR CHANGE
- CCDA CCDA — LINE SEQUENCE SPECIFICATION CHANGE
- RPP-WTP — RPP-WTP - VENDOR INTERFACE
- AG LG — SPECIFICATION OR CLASS CHANGE

NOTES

1. 3-WAY VALVES ARE SHOWN WITH ONE PATH NORMALLY CLOSED.
2. 4-WAY VALVES ARE SHOWN WITH TWO PATHS NORMALLY CLOSED.
3. REFER TO K700G899, "DESIGN GUIDE FOR PIPING AND INSTRUMENTATION DIAGRAMS (P&IDS)" FOR FURTHER INFORMATION ON ENGINEERING CONTENT AND DRAFTING PRACTICES USED IN THE PREPARATION OF P&IDS.

PRELIMINARY

REV	DESCRIPTION	DRAWN	CHKD - APVD	DATE
A	ISSUED TO SUPPORT DWPL SUBMISSION			12/1/99

REVISION HISTORY

PROJECT No.	W375		
SITE	HANFORD		
AREA	200E		
BUILDING No.			
	BY		DATE
ORIGINATOR			10-13-99
CHECKER			11-15-99
APPROVED			12/1/99

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

P&ID SYMBOLS & LEGEND
SHEET 1 OF 5

SCALE: NTS | DWG No. DWG-W375-M00001 | REV A

C SIZE - 44434

DWG No. DWG-W375-M00002

FLOW/BOUNDRY LINES

- PRIMARY/SECONDARY FLOW
- DRAIN LINE
- FLEX LINE/HOSE
- INSULATED LINE
- COAXIAL LINE FOR SECONDARY CONTAINMENT
- HEAT TRACED PRIMARY FLOW
- BURIED
- EQUIPMENT SKID OR BUILDING OUTLINE

NAMING CONVENTIONS

PLANT ITEMS (NOTE 2, 3, 4)

W375 999 A 9 9 999 A X

- RPP-WTP
- PROJECT ID
- SYSTEM ID
- GROUP LETTER
- PLANT ID
- AREA CODE
- PLANT ITEM SEQUENTIAL NO
- STANDBY ITEM
- RESERVE ITEM

PIPELINE (NOTE 1, 3)

W375-9-999-9999-AA-AA-99999

- RPP-WTP
- PROJECT ID
- PLANT ID
- SYSTEM ID
- PIPE SEQUENTIAL NO
- PIPELINE CONTENT CODE
- PIPE CLASS
- PIPE NOMINAL SIZE (IN.)

VALVES (NOTE 1, 3)

AA 9 9 XXXX

- VALVE TYPE
- PLANT ID
- AREA CODE
- SEQUENTIAL NO.

ACCESSORIES (NOTE 1, 3)

LF 9 9 9999

- GROUP LETTER
- PLANT ID
- AREA CODE
- ACCESSORY SEQUENTIAL NO.

GENERAL NOTES

PRETREATMENT (PLANT 1)

1. PIPING SHALL BE SLOPED, AT A MINIMUM, AS FOLLOWS:
   A. MAIN PROCESS, 1:20
   B. VESSEL VENT, UPSLOPE 1:40
   C. JET PUMP PAIR VENT, DOWNSLOPE 1:40
   D. SERVICE LINES, 1:40
   E. INSTRUMENT BUBBLER LINES, DOWNSLOPE 1:20
2. CELL LINER SHALL SLOPE DOWN TOWARD THE SUMP.
3. LUTE DEPTHS TO BE DETERMINED DURING DETAIL DESIGN.
4. JET PUMP PAIRS SHALL BE LOCATED A MINIMUM OF 1 ATM (34' FOR WATER, SpG=1.0) ABOVE THE MAXIMUM OPERATING LEVEL OF THE SERVICED VESSEL.
5. IN-VESSEL RFD's ARE LOCATED AT LEAST 12 INCHES BELOW THE MINIMUM OPERATING LEVEL OF THE VESSEL.

NOTES

1. REFER TO E70C554, "CODE OF PRACTICE FOR TWRS PIPELINE AND VALVE NAMING CONVENTIONS" FOR MORE DETAILED INFORMATION.
2. REFER TO E70C553, "CODE OF PRACTICE FOR PLANT ITEM NAMING CONVENTIONS" FOR MORE DETAILED INFORMATION.
3. 'A' SIGNIFIES AN ALPHABETIC CHARACTER
   '9' SIGNIFIES A NUMBER
   'X' SIGNIFIES THE LETTER 'X'
4. ALPHANUMERICS LOCATED INSIDE BOX INDICATE TRUNCATED TAG DISPLATED ON P&ID.

PRELIMINARY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
A	ISSUED TO SUPPORT DWPA SUBMISSION				12/1/99

REVISION HISTORY

PROJECT No. 9375
DATE HANFORD
AREA 200E
BUILDING No.

BY / DATE
ORIGINATOR / 12/1/99
CHECKED / 11-13-99
APPROVED / 12/1/99

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

P&ID SYMBOLS & LEGEND
SHEET 2 OF 5

SCALE: NTS | DWG No. DWG-W375-M00002 | REV A

SIZE - 44x34

DWG No. DWG-W375-M00003

FIRE AND SAFETY

- DELUGE VALVE
- PREACTION VALVE
- ALARM CHECK VALVE
- DRY PIPE VALVE
- BALL DRIP VALVE
- CHECK VALVE WITH AUTOMATIC DRAIN BALL DRIP VALVE
- POST INDICATOR VALVE
- HOSE VALVE
- SIAMESE FIRE DEPARTMENT CONNECTION
- CLEAN AGENT GAS STORAGE BOTTLES
- FIRE HYDRANT
- FIRE HYDRANT WITH MONITOR
- FIRE HYDRANT WITH HOSE HOUSE
- FIRE HYDRANT WITH HOSE HOUSE AND MONITOR
- HOSE REEL
- HOSE RACK
- SPRINKLERS (OPEN HEAD)
- SPRINKLERS (CLOSED HEAD)
- SPECIAL SPRAY NOZZLE
- EYE WASH
- SHOWER/EYE WASH
- FACP — FIRE ALARM & CONTROL PANEL (LOCAL)
- MFPP — MAIN FIRE PROTECTION PANEL (CONTROL ROOM)
- DETECTOR
  - HD HEAT DETECTOR
  - DD DUCT DETECTOR
  - PD PHOTOELECTRIC PDC DETECTOR
  - IR INFRARED DETECTOR
  - UV ULTRAVIOLET DETECTOR

PRELIMINARY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
A	ISSUED TO SUPPORT DWPA SUBMISSION				

REVISION HISTORY

PROJECT No. W375
SITE HANFORD
AREA 200E
BUILDING No. N/A

DESIGNATOR
CHECKER
APPROVED

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

P&ID SYMBOLS & LEGEND
SHEET 3 OF 5

SCALE: NTS | DWG No. DWG-W375-M00003 | REV A

COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED

DWG No. DWG-W375-M00004

GENERAL INSTRUMENT OR FUNCTION SYMBOLS

- LOCAL (FIELD) MOUNTED INSTRUMENT OR DEVICE. (MAY BE IN/ON FIELD PANEL)
- NORMALLY INACCESSIBLE OR BEHIND PANEL INSTRUMENT OR DEVICE
- CENTRAL CONTROL ROOM INSTRUMENT OR DEVICE
- STANDBY CONTROL ROOM PANEL INSTRUMENT OR DEVICE
- LOCAL (FIELD) INSTRUMENT FOR TWO MEASURED VARIABLES OR MORE THAN ONE FUNCTION
- NORMALLY INACCESSIBLE OR BEHIND PANEL INSTRUMENT FOR TWO MEASURED VARIABLES OR MORE THAN ONE FUNCTION
- CENTRAL CONTROL ROOM INSTRUMENT OR DEVICE FOR TWO MEASURED VARIABLES OR MORE THAN ONE FUNCTION
- STANDBY CONTROL ROOM PANEL INSTRUMENT OR DEVICE FOR TWO MEASURED VARIABLES OR MORE THAN ONE FUNCTION
- CENTRAL CONTROL ROOM CRT DISPLAY OR CRT CONTROL
- STANDBY CONTROL ROOM DISPLAY OR CRT CONTROL
- FIELD MOUNTED CRT DISPLAY OR CONTROL (MAY BE IN/ON FIELD PANEL)
- NORMALLY NONMANIPULABLE CRT DISPLAY OR CONTROL
- CENTRAL CONTROL ROOM PLC CONTROL
- FIELD MOUNTED PLC CONTROL
- STANDBY CONTROL ROOM PLC CONTROL
- FIELD, NORMALLY INACCESSIBLE PLC CONTROL
- FIELD, PROGRAMMABLE ELECTRONIC SYSTEM (PES)
- CENTRAL CONTROL ROOM PROGRAMMABLE ELECTRONIC SYSTEM (PES)
- STANDBY CONTROL ROOM PES FUNCTION
- FIELD, NOT NORMALLY ACCESSIBLE PROGRAMMABLE ELECTRONIC SYSTEM (PES)

INSTRUMENT LINE SYMBOLS

- INSTRUMENT SUPPLY OR CONNECTION TO PROCESS
- PNEUMATIC SIGNAL
- ELECTRIC SIGNAL
- HYDRAULIC SIGNAL
- CAPILLARY TUBE
- GUIDED ELECTROMAGNETIC OR SONIC SIGNAL
- INTERNAL SYSTEM LINK (SOFTWARE OR DATA LINK)
- MECHANICAL LINK

TYPICAL INSTRUMENT TO PROCESS CONNECTIONS (ANY VARIABLES)

- DIRECT CONNECTION
- CAPILLARY FILLED SYSTEM WITH DIAPHRAGM SEAL
- IN-LINE DEVICE
- ELECTROMAGNETIC OR SONIC
- DIRECT CONNECTION WITH PURGE (AIR) — AS

SENSORS - FLOW

- FT FE — FLOW ORIFICE WITH DIFFERENTIAL TYPE FLOW TRANSMITTER (CORNER TAPS, FLANGE TAPS OR PIPE TAPS)
- FT FE — VENTURI TUBE OR FLOW NOZZLE WITH DIFFERENTIAL TYPE FLOW TRANSMITTER
- FT FE — PITOT OR PITOT- VENTURI TUBE WITH DIFFERENTIAL TYPE FLOW TRANSMITTER
- FQI — POSITIVE DISPLACEMENT FLOW TOTALIZER
- FT FE — TURBINE OR PROPELLER TYPE FLOW ELEMENT WITH TRANSMITTER
- FE — ROTAMETER
- FE M — MAGNETIC TYPE FLOW ELEMENT
- FE — CORIOLIS TYPE FLOW ELEMENT
- FG — SIGHT GLASS
- FO — FLOW RESTRICTION ORIFICE

SENSORS - ANALYSIS

- AE O_2 — FLOW-THROUGH TYPE (EXAMPLE FOR OXYGEN ANALYZER)
- AE — INSERTION TYPE

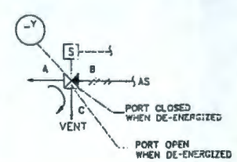
SENSORS - LEVEL

- LI — GAGE GLASS, EXTERNAL FLOAT OR DISPLACEMENT TYPE LEVEL INSTRUMENT
- LI — DIFFERENTIAL PRESSURE
- LI — DIFFERENTIAL PRESSURE LEVEL MEASUREMENT
- LI — TYPE MOUNTED ON SIDE OF TANK, INTERNAL FLOAT DISPLACER
- LI — TYPE, MOUNTED ABOVE TANK (NUMBER OF DISPLACERS OPTIONAL) INTERNAL FLOAT OR DISPLACER
- LI — PROBE TYPE (DIP TUBE, CONDUCTIVE, CAPACITANCE, etc) MOUNTED ABOVE TANK (NUMBER OF PROBES IS OPTIONAL)
- LI — PROBE TYPE MOUNTED ON SIDE OF TANK
- LI — NON-CONTACTING PROBE: SONIC, ELECTROMAGNETIC, etc.
- LI — NON-CONTACTING SONIC ELECTROMAGNETIC, etc.

SENSORS - PRESSURE

- PI — DIRECTLY-CONNECTED
- PDI — DIRECTLY-CONNECTED
- PI — WITH DIAPHRAGM SEAL
- PI — WITH DIAPHRAGM SEAL, FLUSH-MOUNTED

SOLENOID OPERATED PILOT VALVE-TYPICAL SYMBOLS



PORTS REVERSE WHEN SOLENOID IS ENERGIZED

SELF-ACTUATED DEVICES FLOW

- FCV — FLOW REGULATOR SELF-CONTAINED

SELF-ACTUATED DEVICES - LEVEL

- LCV — LEVEL REGULATOR WITH MECHANICAL LINKAGE

SELF-ACTUATED DEVICES - PRESSURE

- PCV — PRESSURE REDUCING REGULATOR, SELF-CONTAINED
- PCV — PRESSURE REDUCING REGULATOR, WITH EXTERNAL PRESSURE TAP
- PDCV — DIFFERENTIAL PRESSURE REDUCING REGULATOR, WITH INTERNAL AND EXTERNAL PRESSURE TAPS
- PCV — BACKPRESSURE REGULATOR SELF-CONTAINED
- PCV — BACKPRESSURE REGULATOR WITH EXTERNAL PRESSURE TAP
- PSV — PRESSURE RELIEF OR SAFETY VALVE, ANGLE PATTERN, SPRING OR WEIGHT-LOADED, OR WITH INTEGRAL PILOT
- PSV — VACUUM RELIEF VALVE, ANGLE PATTERN, SPRING OR WEIGHT-LOADED, OR WITH INTEGRAL PILOT
- PSE — RUPTURE DISK OR SAFETY HEAD FOR PRESSURE RELIEF
- PSE — RUPTURE DISK OR SAFETY HEAD FOR VACUUM RELIEF

SELF-ACTUATED DEVICES - TEMPERATURE

- TCV — TEMPERATURE REGULATOR, FILLED-SYSTEM TYPE
- TCV — SELF-ACTUATED TEMPERATURE REGULATOR

MISCELLANEOUS SYMBOLS

- PILOT LIGHT
- SIGNAL CONTINUATION ON THE SAME DRAWING. THE POINTER ON THE CIRCLE IDENTIFIES THE DIRECTION TO THE PAIR POINT ON THE DRAWING
- SIGNAL(S) AND DATA BRANCH OR COMBINATION POINT
- DAMPENER

VALVE - ACTUATORS.

- DIAPHRAGM SPRING OPPOSED
- DIAPHRAGM PRESSURE BALANCED
- ROTARY MOTOR (SHOWN TYPICALLY WITH ELECTRIC SIGNAL)
- PNEUMATIC CYLINDER SINGLE-ACTING
- HYDRAULIC CYLINDER DOUBLE-ACTING
- PNEUMATIC CYLINDER DOUBLE-ACTING
- SINGLE SOLENOID (SHOWN WITH MANUAL RESET)
- ELECTRO-HYDRAULIC
- HAND ACTUATOR (MOUNTED AT TOP, SIDE, OR BOTTOM OF ACTUATED DEVICE AS APPLICABLE)
- UNASSIGNED (TYPE OF ACTUATOR TO BE WRITTEN ADJACENT TO THE SYMBOL)

FUNCTION SYMBOLS

- INTEGRATE
- SQUARE ROOT EXTRACTOR
- GAIN OR ATTENUATE (INPUT-OUTPUT)
- ADD OR SUMMATION
- AVG — AVERAGE
- GENERIC INSTRUMENT FOR P&ID TAGGING
- DIFFERENCE
- DIVIDE
- MULTIPLY
- f(x) — CHARACTERIZE
- LOW SELECTOR
- HIGH SELECTOR
- BIAS
- HARDWIRE INTERLOCK
- 23 — HARDWIRE INTERLOCK WITH INTERLOCK NUMBER
- REV — REVERSE

NOTES

1. THE SYMBOLS AND LEGENDS SHOWN ARE BASED ON ISA STANDARD ANSI/ISA-S5.1-1984 (R1992) "INSTRUMENTATION SYMBOLS AND IDENTIFICATION", AND STANDARD ANSI/ISA-S5.3-1983 "GRAPHIC SYMBOLS FOR DISTRIBUTED CONTROL/SHARED DISPLAY INSTRUMENTATION, LOGIC AND COMPUTER SYSTEM.
2. ALL INSTRUMENT PROCESS CONNECTION (IMPULSE) LINES ARE UNDERSTOOD TO HAVE SINGLE PIPING CLASS ROOT VALVES. ROOT VALVES ARE SHOWN ON APPROPRIATE INSTALLATION DRAWING BUT NOT ON P&ID.
3. TEXT LOCATIONS AROUND INSTRUMENTATION SYMBOLS ARE:

J5 J3 J1 J2 * Z, J4 **H **H **L **LL

J1: INSTRUMENT FUNCTION CODE, E.G., PDISH
J2: UNIQUE LOOP NUMBER
J3: FUNCTION (E.G., ☑)
Z, J4: Z DESIGNATES SAFETY ITEM MAY BE PLACED AT END OF TAG NUMBER.
J4 LISTS THE VARIABLES OF ANALYSIS, DEVICE DESIGNATION (I/P, P/I E/I, I/I, E/E, PITOT, pH etc.), MISCELLANEOUS DESCRIPTION (e.g., J, K, RTD, THERMAL, MASS, A (AUTO), H (HAND), SEL (SELECT), O (OPEN), C (CLOSED)) AND/OR FAIL SAFE OPERATION: FO - FAIL OPEN, FC - FAIL CLOSED, FL - FAIL LAST, FI - FAIL INDETERMINATE)
J5: PTL CTM - ASSOCIATES PING DATABASE ENTRY WITH GAPHIC
* DENOTES INSTRUMENT SUPPLIED WITH ASSOCIATED MECHANICAL OR ELECTRICAL EQUIPMENT PACKAGE. ALARMS MAY BE LISTED TO SIDE OF BALLOON.

4. THE UPPER IMPULSE LINE IS OMITTED IF LEVEL IS MEASURED USING ATMOSPHERIC PRESSURE AS REFERENCE
5. NORMAL OPERATION MEANS PLANT EQUIPMENT IS IN OPERATING MODE FOR A CONTINUOUS OR BATCH PROCESS
6. EXAMPLES OF USE OF TANGENTIAL INSTRUMENT CIRCLES TO DENOTE A SINGLE INSTRUMENT WITH TWO VARIABLES AND/OR TWO FUNCTIONS:

   TWO VARIABLES - "FR" FOR TOP BALLOON AND "PR" IN THE BOTTOM - A TWO PEN RECORDER ONE FOR FLOW, ONE FOR PRESSURE

   TWO FUNCTIONS - "LT" FOR TOP BALLOON AND "LC" IN THE BOTTOM - A DUAL FUNCTION LEVEL INSTRUMENT, ONE A TRANSMITTER, ONE A CONTROLLER
7. INSTRUMENT NUMBERS ON P&IDS LIST THE INSTRUMENT FUNCTION CODE AND THE UNIQUE LOOP IDENTIFIER.

PRELIMINARY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
A	ISSUED TO SUPPORT DWPA SUBMISSION				10-19-99

REVISION HISTORY

PROJECT No. W375
SITE HANFORD
AREA 200E
BUILDING No.

BNFL Inc.
RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-99RL13308

	BY	DATE
ORIGINATOR		10/19/99
CHECKER		10/19/99
APPROVED		10/19/99

P&ID SYMBOLS & LEGEND
SHEET 4 OF 5

SCALE: NTS | DWG No. DWG-W375-M00004 | REV A

DWG No. DWG-W375-M00005

INSTRUMENT CODE LETTER IDENTIFICATION

FIRST LETTER

SUCCEEDING LETTERS (* FUNCTION IDENTIFIER COMBINATION IS NOT USED)

MEASURED OR INTIATING VARIABLE (NOTE 1)	SYMBOL	SENSING DEVICE: PRIMARY ELEMENT	SENSING DEVICE: BLIND TRANSMITTER	SENSING DEVICE: INDICATING TRANSMITTER (NOTE 18)	DISPLAY DEVICE: INDICATOR	DISPLAY DEVICE: RECORDER	DISPLAY DEVICE: INTEGRATING INDICATOR	ALARM (NOTE 13): HIGH	ALARM: HIGH HIGH	ALARM: LOW	ALARM: LOW LOW	ALARM: HIGH LOW
TYPICAL SYMBOLS	( )	(1E	(1T	(1IT	(1I	(1R	(1QI*	(1AH	(1AHH	(1AL	(1ALL	(1AHL
ANALYSIS (NOTE 3)	A	AE	AT	AIT	AI	AR	*	AAH	AAHH	AAL	AALL	AAHL
BURNER COMBUSTION (NOTE 7)	B	BE	BT	BIT	BI	BR	*	*	BAHH	BAL	BALL	*
CONDUCTIVITY	C	CE	CT	CIT	CI	CR	*	CAH	CAHH	CAL	CALL	CAHL
DENSITY	D	DE	DT	DIT	DI	DR	*	DAH	DAHH	DAL	DALL	DAHL
VOLTAGE (EMF)	E	EE	ET	EIT	EI	ER	*	EAH	EAHH	EAL	EALL	EAHL
FLOW (NOTE 6) (NOTE 11)	F	FE	FT	FIT	FI	FR	FQI	FAH	FAHH	FAL	FALL	FAHL
HAND (MANUAL) (NOTE 9)	H	*	*	*	*	*	*	*	*	*	*	*
CURRENT	I	IE	IT	IIT	II	IR	*	IAH	IAHH	IAL	IALL	IAHL
POWER	J	JE	JT	JIT	JI	JR	JQI	JAH	JAHH	JAL	JALL	JAHL
TIME	K	*	KT	KIT	KI	*	KQI	KAH	KAHH	KAL	KALL	KAHL
LEVEL	L	LE	LT	LIT	LI	LR	*	LAH	LAHH	LAL	LALL	LAHL
MOISTURE	M	ME	MT	MIT	MI	MR	*	MAH	MAHH	MAL	MALL	MAHL
PRESSURE	P	PE	PT	PIT	PI	PR	*	PAH	PAHH	PAL	PALL	PAHL
PRESSURE DIFFERENTIAL	PD	*	*	PDIT	PDI	PDR	*	PDAH	PDAHH	PDAL	PDALL	*
QUANTITY OR EVENT	Q	QE	QT	QIT	QI	QR	QQI	QAH	QAHH	QAL	QALL	QAHL
RADIOACTIVITY	R	RE	RT	RIT	RI	RR	RQI	RAH	RAHH	RAL	RALL	RAHL
SPEED OR FREQUENCY	S	SE	ST	SIT	SI	SR	*	SAH	SAHH	SAL	SALL	SAHL
TEMPERATURE	T	TE	TT	TIT	TI	TR	*	TAH	TAHH	TAL	TALL	TAHL
TEMPERATURE DIFFERENTIAL	TD	*	*	*	TDI	TDR	*	TDAH	TDAHH	TDAL	TDALL	*
MULTI-VARIABLE	U	*	*	*	UI	UR	*	UAH	UAHH	UAL	UALL	UAHL
VIBRATION/MACH ANALYSIS	V	VE	VT	VIT	VI	VR	*	VAH	VAHH	VAL	VALL	VAHL
WEIGHT	W	WE	WT	WIT	WI	WR	WQI	WAH	WAHH	WAL	WALL	WAHL
USER DEFINED (NOTE 14)	X	XE	XT	XIT	XI	XR	XQI	XAH	XAHH	XAL	XALL	XAHL
EVENT/STATE OR PRESENCE	Y	YE	YT	YIT	YI	YR	*	*	*	*	*	*
POSITION (NOTE 4)	Z	ZE	ZT	ZIT	ZI (L)	ZR	*	ZAH	ZAHH	ZAL	ZALL	ZAHL

MEASURED OR INTIATING VARIABLE (NOTE 1)	CONTROL DEVICE: CONTROL STATION	CONTROLLER	INDICATING CONTROLLER (NOTE 18)	CONTROL DAMPER (NOTE 16)	SELF-ACTUATED VALVE	CONTROL VALVE (NOTE 13)	FINAL CONTROL ELEMENT (NOTE 5)	SWITCH: HIGH	SWITCH: HIGH HIGH	SWITCH: LOW	SWITCH: LOW LOW	SWITCH: HIGH LOW	MISCELLANEOUS DEVICE: LOCAL OBSERVATION GLASS	MISCELLANEOUS DEVICE: TEST POINT (NOTE 8)	MISCELLANEOUS DEVICE: RELAY/ COMPUTE
TYPICAL SYMBOLS	(1K	(1C	(1IC	(1D	(1CV	(1V	(1Z	(1SH	(1SHH	(1SL	(1SLL	(1SHL	(1G	(1P	(1Y
ANALYSIS (NOTE 3)	AK	AC	AIC	*	*	AV	AZ	ASH	ASHH	ASL	ASLL	ASHL	*	AP	AY
BURNER COMBUSTION (NOTE 7)	*	BC	BIC	BD	*	*	*	BSH	BSHH	BSL	BSLL	BSHL	BG	BP	BY
CONDUCTIVITY	CK	*	*	*	*	CV	CZ	CSH	CSHH	CSL	CSLL	CSHL	*	CP	CY
DENSITY	DK	DC	DIC	*	*	DV	DZ	DSH	DSHH	DSL	DSLL	DSHL	*	DP	DY
VOLTAGE (EMF)	EK	EC	EIC	*	*	*	EZ	ESH	ESHH	ESL	ESLL	ESHL	*	*	EY
FLOW (NOTE 6) (NOTE 11)	FK	FC	FIC	FD	*	FV	FZ	FSH	FSHH	FSL	FSLL	FSHL	FG	FP	FY
HAND (MANUAL) (NOTE 9)	*	HC	HIC	HD	HCV	HV	HZ	HSH	HSHH	HSL	HSLL	HSHL	*	*	HY
CURRENT	IK	IC	IIC	*	*	*	IZ	ISH	ISHH	ISL	ISLL	ISHL	*	*	IY
POWER	JK	JC	JIC	*	*	*	JZ	JSH	JSHH	JSL	JSLL	JSHL	*	*	JY
TIME	*	KC	KIC	*	*	*	KZ	KSH	KSHH	KSL	KSLL	KSHL	*	*	KY
LEVEL	LK	LC	LIC	*	LCV	LV	LZ	LSH	LSHH	LSL	LSLL	LSHL	LG	LP	LY
MOISTURE	MK	MC	MIC	MD	*	*	MZ	MSH	MSHH	MSL	MSLL	MSHL	*	MP	MY
PRESSURE	PK	PC	PIC	*	PCV	PV	PZ	PSH	PSHH	PSL	PSLL	PSHL	*	PP	PY
PRESSURE DIFFERENTIAL	PDK	PDC	PDIC	*	PDCV	PDV	PDZ	PDSH	PDSHH	PDSL	PDSLL	PDSHL	*	*	*
QUANTITY OR EVENT	QK	QC	QIC	*	*	*	QZ	QSH	QSHH	QSL	QSLL	QSHL	*	*	QY
RADIOACTIVITY	RK	RC	RIC	*	*	RV	RZ	RSH	RSHH	RSL	RSLL	RSHL	*	*	RY
SPEED OR FREQUENCY	SK	SC	SIC	*	*	*	SZ	SSH	SSHH	SSL	SSLL	SSHL	*	*	SY
TEMPERATURE	TK	TC	TIC	TD	TCV	TV	TZ	TSH	TSHH	TSL	TSLL	TSHL	*	TP	TY
TEMPERATURE DIFFERENTIAL	*	TDC	TDIC	*	TDCV	TDV	TDZ	TDSH	TDSHH	TDSL	TDSLL	TDSHL	*	*	*
MULTI-VARIABLE	UK	UC	UIC	*	*	UV	UZ	USH	USHH	USL	USLL	USHL	*	*	UY
VIBRATION/MACH ANALYSIS	VK	VC	VIC	*	*	*	VZ	VSH	VSHH	VSL	VSLL	VSHL	*	VP	VY
WEIGHT	WK	WC	WIC	*	*	*	WZ	WSH	WSHH	WSL	WSLL	WSHL	*	*	WY
USER DEFINED (NOTE 14)	XK	XC	XIC	XD	*	XV	XZ	XSH	XSHH	XSL	XSLL	XSHL	XG	XP	XY
EVENT/STATE OR PRESENCE	*	*	*	*	*	*	*	YSH	YSHH	YSL	YSLL	YSHL	*	YP	YY
POSITION (NOTE 4)	*	ZC	ZIC	*	*	*	ZZ	ZSH	ZSHH	ZSL	ZSLL	ZSHL	*	*	ZY

NOTES

1. THE INSTRUMENT LEGEND IS BASED ON ISA STANDARD S5.1-1984. EXCEPTIONS SPECIFIC TO RPP-WTP ARE NOTED IN THIS LEGEND. REFER TO THE ISA STANDARD FOR FURTHER DETAILS AND CLARIFICATION. THE COMPONENT FUNCTIONAL IDENTIFIER FOR AN INSTRUMENT CONSISTS OF LETTERS DERIVED FROM THE INSTRUMENT LEGEND SHEET (AND THESE NOTES). THE FIRST LETTER IS SELECTED ACCORDING TO MEASURED OR INITIATING VARIABLE. SUCCEEDING LETTERS IDENTIFY FUNCTIONS PERFORMED. MODIFYING LETTERS MAY BE USED TO MODIFY EITHER A FIRST LETTER OR SUCCEEDING LETTERS AS APPLICABLE.

2. PILOT OR INDICATOR LIGHTS ARE NORMALLY NOT SHOWN ON P&ID'S, ESPECIALLY THOSE LIGHTS ASSOCIATED WITH HAND SWITCHES. HOWEVER, THE FOLLOWING EXCEPTIONS APPLY:

   WHEN A PILOT LIGHT IS PART OF AN INSTALLED LOOP, IT SHOULD BE DESIGNATED BY A FIRST LETTER, FOLLOWED BY THE SUCCEEDING LETTER "L".

   STATUS INDICATOR LIGHTS ASSOCIATED WITH VALVE STATUS SWITCHES USED IN FIRE SYSTEMS, MAY USE THE DESIGNATION "ZL".

   SPECIFIC CASES WHERE THE PILOT LIGHT IS ESSENTIAL FOR EXPLAINING SPECIAL FUNCTION OR LOCATION OF THE LIGHT, ALSO USED AS VALVE LIMIT SWITCH INDICATION IN PES SYSTEM.

3. WHEN "A" IS USED FOR ANALYSIS VARIABLES NOT ASSIGNED FIRST LETTER DESIGNATORS, THE FOLLOWING TERMS MAY BE PLACED OUTSIDE THE INSTRUMENT CIRCLE TO DENOTE THE SPECIFIC MEASURED VARIABLES, FOR EXAMPLE:

   H -DISSOLVED HYDROGEN NOx -NITROGEN OXIDE
   H_2 -GASEOUS HYDROGEN pH -pH
   Na -SODIUM TRB -TURBIDITY

4. MODIFYING LETTERS "H" HIGH AND "L" LOW SHALL HAVE THE FOLLOWING MEANING (EXAMPLES GIVEN WITH POSITION SWITCH, ZS AND EVENT/STATE OR PRESENCE SWITCH, YS):

   YSH/ZSH - HIGH, UP, RAISED, OPEN, EXTENDED ON, ENERGIZED, VERTICAL, INFLATED.

   YSL/ZSL - LOW, DOWN, LOWERED, CLOSED, RETRACTED, OFF, DE-ENERGIZED, HORIZONTAL, DEFLATED.

6. THE LETTER "Q" WHEN FOLLOWS A MEASURED VARIABLE REPRESENTS FINAL CONTROL ELEMENT, OTHER THAN CONTROL VALVES, SUCH AS HYDRAULIC COUPLING, VARIABLE SPEED MOTOR/DEVICE, etc.

8. "FO" - DESIGNATES FLOW RESTRICTION ORIFICE.

7. BURNER/COMBUSTION "B" SHALL BE USED FOR ALL FIRE PROTECTION AND BURNER/COMBUSTION APPLICATIONS.

8. A TEST POINT IS A PROCESS CONNECTION TO WHICH NO INSTRUMENT IS PERMANENTLY CONNECTED, BUT WHICH IS INTENDED FOR TEMPORARY, INTERMITTENT OR FUTURE CONNECTION OF AN INSTRUMENT.
   AP-ANALYSIS POINT TP-TEMPERATURE POINT
   AW-SAMPLE PROBE TW-THERMOWELL
   PP-PRESSURE POINT

9. A HAND CONTROL VALVE "HCV" IS A VALVE MANUALLY OPERATED (HAND WHEEL /CHAIN DRIVEN) THAT IS USED TO CONTROL SYSTEM/PROCESS PARAMETERS AND MIGHT INCLUDE POSITION INSTRUMENTATION. "HV" IS A DESIGNATION FOR A POWERED VALVE OPERATED MANUALLY FROM A CONSOLE THROUGH A PROGRAMMABLE ELECTRONIC SYSTEM OR FROM A SWITCH ON A PANEL LOCAL TO THE VALVE.

10. A CONTROL OR SENSING DEVICE OR RELAY HAVING A DISPLAY FUNCTION SHALL PLACE "I" AFTER THE MEASURED VARIABLE DESIGNATION. e.g. "AIC" DESIGNATES ANALYSIS INDICATING CONTHOLLER. OMIT THE "I" WHEN THE INDICATING CONTROLLER FUNCTION IS DEPICTED FOR PROGRAMMABLE ELECTRONIC SYSTEMS DESIGNATORS. THE "I" IS UNDERSTOOD TO BE INCLUDED WITH SOFTWARE CONTHOLLER FUNCTIONS AND IS NOT EXPLICITLY INCLUDED.

11. THE TYPE OF FLOW INSTRUMENT MAY BE NAMED OUTSIDE THE INSTRUMENT CIRCLE e.g. MAGNETIC FLOW METER, DISPLACEMENT METER, MASS FLOW METER, etc.

12. THE FOLLOWING ABBREVIATIONS ARE SUGGESTED TO DENOTE THE TYPES OF POWER SUPPLY AND PURGE FLUID:
   AS-AIR SUPPLY NS-NITROGEN SUPPLY
   ES-ELECTRIC SUPPLY GS-GAS SUPPLY
   WS-WATER SUPPLY

13. 3-WAY SOLENOID VALVES USED TO ACTUATE AIR OPERATED VALVES ARE NAMED USING RELAY/COMPUTE NAMES FROM THE TABLE IN THIS DRAWING.

14. EXAMPLES OF EQUIPMENT USING "X" INCLUDE BARCODE OR OCR SYSTEMS, TELEVISION SYSTEMS, PHOTOCELL, ETC.

15. "RSE" - DESIGNATES RUPTURE DISKS
   "PSV" - DESIGNATES RELIEF VALVES

16. THE DESIGNATION "D" REPRESENTS HVAC CONTROL DAMPERS.

17. ANY FIRST LETTER, WHEN COMBINED WITH MODIFYING LETTER "D" (RATIO), "F" (INCREMENTARY), "Q" (TOTALIZER) OR "K" (TIME RATE OF CHANGE), REPRESENTS A SINGLE MEASURED VARIABLE AND IS CONSIDERED THE SAME AS A FIRST-LETTER-ONLY VARIABLE.

18. USING "X" AS A MODIFIER DESIGNATES AN ACCESSORY PURCHASED WITH AN INSTRUMENT SYSTEM, SUCH AS SAMPLE CONDITIONING SYSTEM.

PRELIMINARY

REV	DESCRIPTION	DRAWN	CHKD	APVD	DATE
A	ISSUED TO SUPPORT DWPA SUBMISSION				12/22/99

REVISION HISTORY

PROJECT No. W375
SITE HANFORD
AREA 200E
BUILDING No.

	BY	DATE
ORIGINATOR		12/22/99
CHECKER		12/22/99
APPROVED		12/22/99

BNFL Inc.

RIVER PROTECTION PROJECT
WASTE TREATMENT PLANT
3000 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

CONTRACT No. DE-AC06-96RL13308

P&ID SYMBOLS & LEGEND
SHEET 5 OF 5

SCALE: NTS | DWG No. DWG-W375-M00005 | REV A

FORM MM6.001 | 8.5X11 - 44x34 | 20 DEC 1999 13:09:45 | COMPUTER GENERATED - MANUAL CHANGES NOT PERMITTED