NOTES:

3158

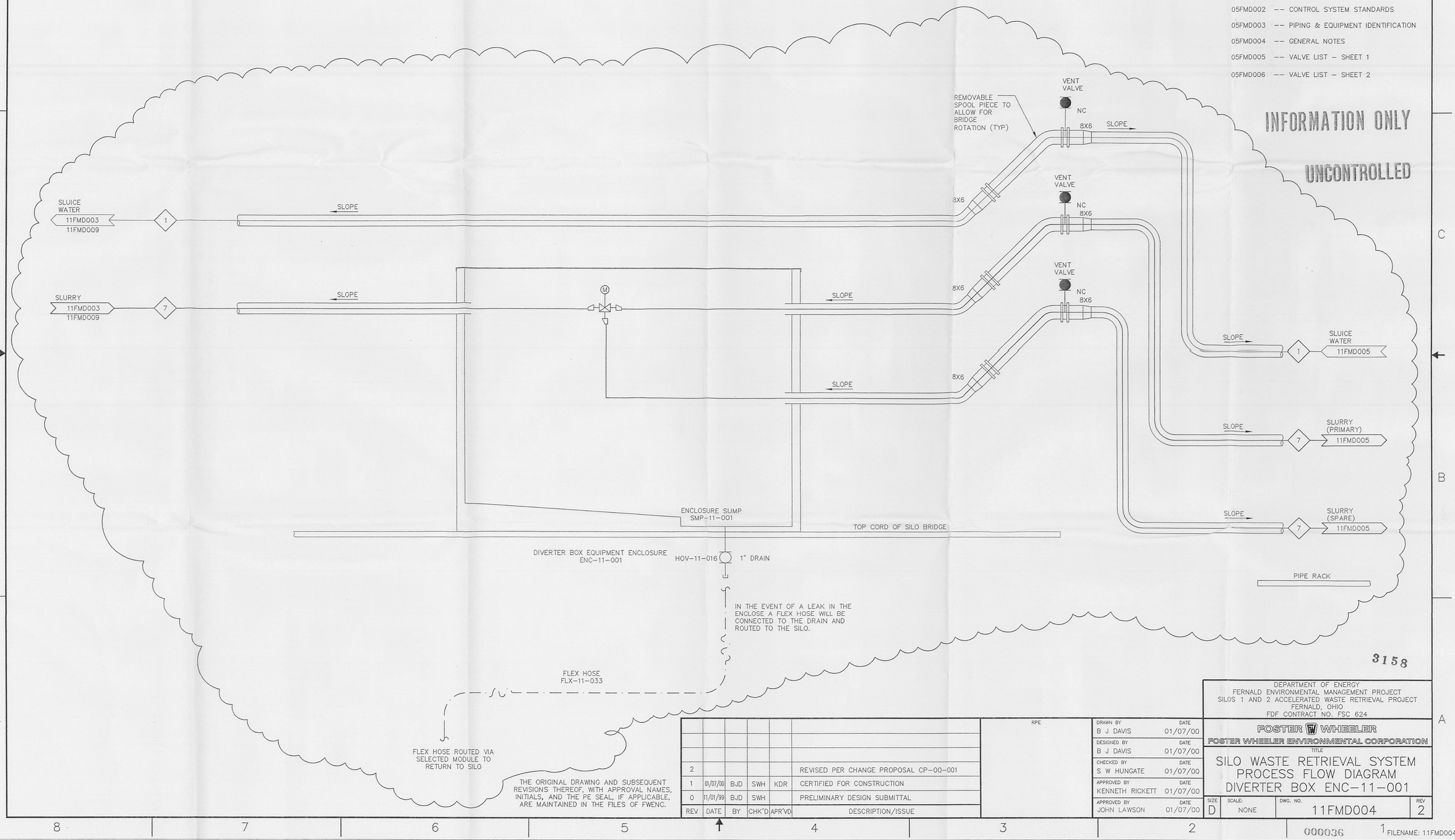
1. FOR GENERAL NOTES SEE DRAWING 05FMD004.
2. FOR MASS BALANCE TABLES SEE DRAWING 11FMD001 & 11FMD002.

REFERENCE DRAWINGS:

05FMD001 -- INSTRUMENT IDENTIFICATION
05FMD002 -- CONTROL SYSTEM STANDARDS
05FMD003 -- PIPING & EQUIPMENT IDENTIFICATION
05FMD004 -- GENERAL NOTES
05FMD005 -- VALVE LIST – SHEET 1
05FMD006 -- VALVE LIST – SHEET 2

INFORMATION ONLY

UNCONTROLLED



3158

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1	01/07/00	BJD	SWH	KDR	CERTIFIED FOR CONSTRUCTION
0	11/01/99	BJD	SWH		PRELIMINARY DESIGN SUBMITTAL

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DRAWN BY / DATE	B J DAVIS 01/07/00
DESIGNED BY / DATE	B J DAVIS 01/07/00
CHECKED BY / DATE	S W HUNGATE 01/07/00
APPROVED BY / DATE	KENNETH RICKETT 01/07/00
APPROVED BY / DATE	JOHN LAWSON 01/07/00

DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
SILOS 1 AND 2 ACCELERATED WASTE RETRIEVAL PROJECT
FERNALD, OHIO
FDF CONTRACT NO. FSC 624

FOSTER WHEELER
FOSTER WHEELER ENVIRONMENTAL CORPORATION

TITLE
SILO WASTE RETRIEVAL SYSTEM
PROCESS FLOW DIAGRAM
DIVERTER BOX ENC-11-001

SIZE	SCALE:	DWG. NO.	REV
D	NONE	11FMD004	2

000036

FILENAME: 11FMD004.DWG

G:\CHARGE\FDF\SILOS\WEC\SYS\11\11fmd004.dwg Thu Jun 22 14:58:04 2000

3158

NOTES:

1. FOR GENERAL NOTES SEE DRAWING 05FMD004.
2. FOR MASS BALANCE TABLES SEE DRAWING 11FMD001 & 11FMD002.

REFERENCE DRAWINGS:

05FMD001 -- INSTRUMENT IDENTIFICATION
05FMD002 -- CONTROL SYSTEM STANDARDS
05FMD003 -- PIPING & EQUIPMENT IDENTIFICATION
05FMD004 -- GENERAL NOTES
05FMD005 -- VALVE LIST - SHEET 1
05FMD006 -- VALVE LIST - SHEET 2

SEE DRAWINGS 10FMD008 & 10FMD013 FOR CONTINUATION

BLIND FLANGE (TYP)

FULL SCALE MOCKUP CONNECTING TO SLURRY AND SLUICE LINES TO BE CUT AND BLIND FLANGED UPON COMPLETION OF DEMONSTRATION.

SLUICE WATER 11FMD004 — 1 — SLOPE — 1 — SLUICE WATER 11FMD007

SLURRY (PRIMARY) 11FMD004 — 7 — SLOPE — 7 — SLURRY (PRIMARY) 11FMD007

SLURRY (SPARE) 11FMD004 — 7 — SLOPE — 7 — SLURRY (SPARE) 11FMD007

PIPE RACK

CLEANOUT & PRESSURE TAP - APPROX. 80'-0" SPACING (TYP)

GRADE

INFORMATION ONLY
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DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
SILOS 1 AND 2 ACCELERATED WASTE RETRIEVAL PROJECT
FERNALD, OHIO
FDF CONTRACT NO. FSC 624

FOSTER WHEELER
FOSTER WHEELER ENVIRONMENTAL CORPORATION

TITLE
SILO WASTE RETRIEVAL SYSTEM
PROCESS FLOW DIAGRAM
SLURRY LINE CLEANOUTS

SIZE	SCALE:	DWG. NO.	REV
D	NONE	11FMD005	2

000037

FILENAME: 11FMD005.DWG

G:\CHARGE\FDF\SILOS\MED\SYS11\11fmd005.dwg Thu Jun 22 15:00:03 2000

NOTES: 3158

1. FOR GENERAL NOTES SEE DRAWING 05FMD004.
2. FOR MASS BALANCE TABLES SEE DRAWING 11FMD001 & 11FMD002.

REFERENCE DRAWINGS:

05FMD001	-- INSTRUMENT IDENTIFICATION
05FMD002	-- CONTROL SYSTEM STANDARDS
05FMD003	-- PIPING & EQUIPMENT IDENTIFICATION
05FMD004	-- GENERAL NOTES
05FMD005	-- VALVE LIST - SHEET 1
05FMD006	-- VALVE LIST - SHEET 2

TO FLUSH WATER CONNECTION
11FMD003
11FMD009

TO SREE FAN JET
11FMD003
11FMD009

TO SPRAY HEADERS
11FMD003 11FMD009
11

TO JET PUMP MODULE (CATS MODE)
11FMD003
11FMD009
13

TO SREE/EMMA
11FMD003
11FMD009
10

HEATER
HTR-11-251

HP DECON PUMP
PMP-11-260

FLEX HOSE
FLX-11-026

FLEX HOSE
FLX-11-027

HIGH PRESSURE HOSE ENCLOSURE

LINES RUNNING TO THE SILOS WILL BE DISCONNECTED AND LINES FOR THE DECANT SUMP WILL BE CONNECTED FOR THE DWRS MODE.

HP JET SUPPLY PUMP
PMP-11-257

SLUICE WATER TO DWRS
14FMD002

SREE HP PUMP
PMP-11-256

95% FINAL FILTER

EXPANSION JOINT
EXP-12-001

6X5

30% PRE-FILTER

HEATING FAN INTAKE FILTER
FLT-12-003

HEATING FAN
FAN-12-001

EXPANSION JOINT
EXP-12-002

DUCT HEATER
DHT-12-001

GRADE

NOTE:

HEATING FAN FAN-12-001 TO SUPPLY HEATED AIR TO THE HIGH PRESSURE PUMP FLEXIBLE HOSE ENCLOSURE FOR THE PURPOSE OF FREEZE PROTECTION.

M

FLEX HOSE
FLX-11-030

12

WATER RECIRCULATION FROM HIGH PRESSURE PUMPS TO FILTRATE STORAGE TANK
12FMD018

WATER SUPPLY FROM FILTRATE STORAGE TANKS
12FMD018

FLEX HOSE
FLX-11-029

SYSTEM 11 (SWRS)

SYSTEM 12 (TTA)

FLEX HOSE
FLX-11-028

COMPRESSED AIR FROM LOCAL STATION
40FMD001

SUMP PUMP
PMP-11-259

SMP
PMP-11-252

HP PUMP SKID
SKD-11-251
SEE P&ID DRAWINGS 11PMD401 & 11PMD402 FOR DETAILS OF THIS EQUIPMENT

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3158

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DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
SILOS 1 AND 2 ACCELERATED WASTE RETRIEVAL PROJECT
FERNALD, OHIO
FDF CONTRACT NO. FSC 624

FOSTER WHEELER
FOSTER WHEELER ENVIRONMENTAL CORPORATION

TITLE
SILO WASTE RETRIEVAL SYSTEM
PROCESS FLOW DIAGRAM
HP PUMP SKID SKD-11-251

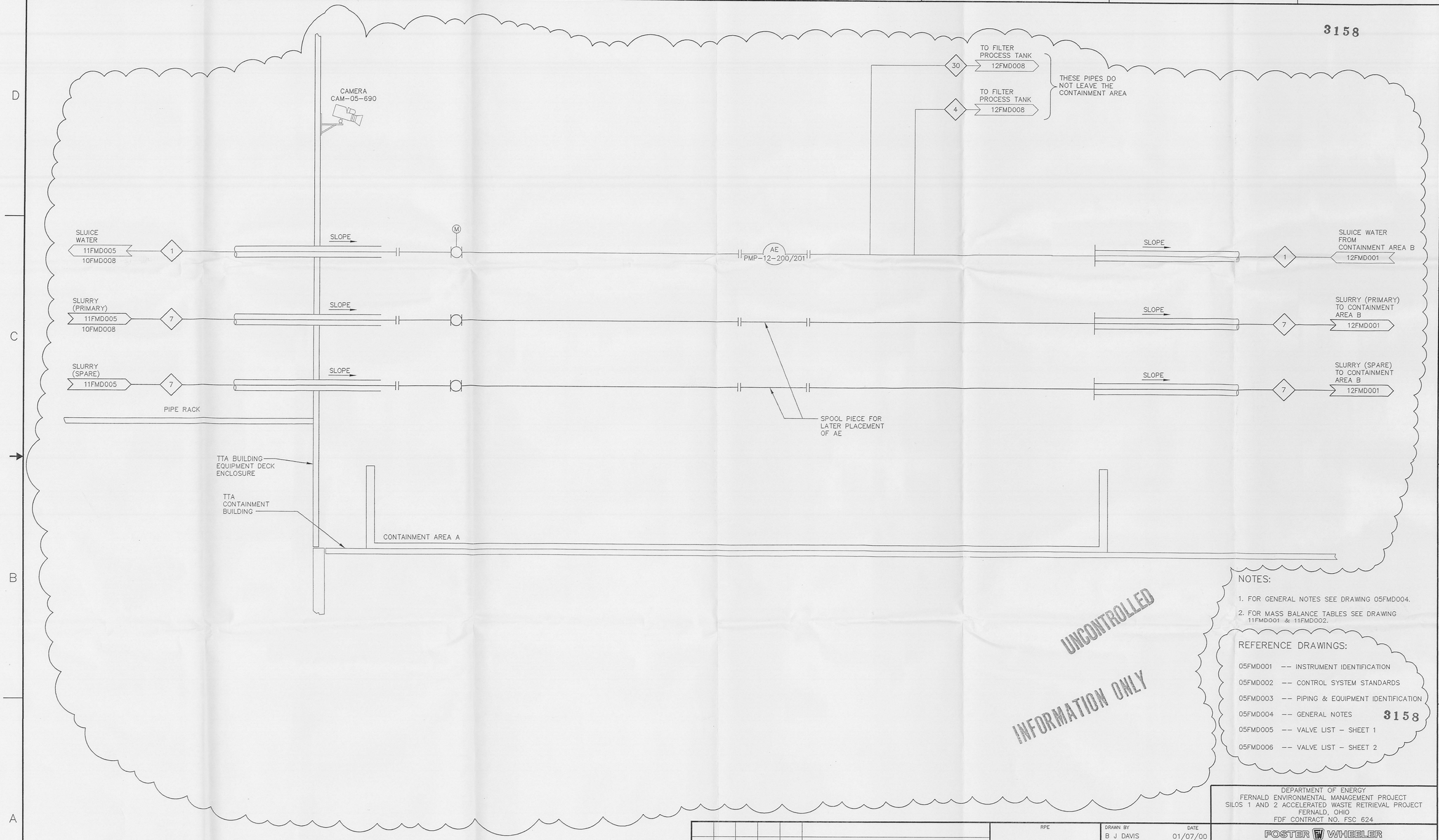
SIZE	SCALE:	DWG. NO.	REV
D	NONE	11FMD006	2

000038

FILENAME: 11FMD006.DWG

G:\CHARGE\FDF\SILOS\MED\SYS11\11fmd006.dwg Thu Jun 22 15:01:34 2000

3158



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INFORMATION ONLY

NOTES:

1. FOR GENERAL NOTES SEE DRAWING 05FMD004.
2. FOR MASS BALANCE TABLES SEE DRAWING 11FMD001 & 11FMD002.

REFERENCE DRAWINGS:

05FMD001	-- INSTRUMENT IDENTIFICATION
05FMD002	-- CONTROL SYSTEM STANDARDS
05FMD003	-- PIPING & EQUIPMENT IDENTIFICATION
05FMD004	-- GENERAL NOTES
05FMD005	-- VALVE LIST - SHEET 1
05FMD006	-- VALVE LIST - SHEET 2

3158

THE ORIGINAL DRAWING AND SUBSEQUENT REVISIONS THEREOF, WITH APPROVAL NAMES, INITIALS, AND THE PE SEAL, IF APPLICABLE, ARE MAINTAINED IN THE FILES OF FWENC.

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APPROVED BY	JOHN LAWSON	DATE 01/07/00

DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
SILOS 1 AND 2 ACCELERATED WASTE RETRIEVAL PROJECT
FERNALD, OHIO
FDF CONTRACT NO. FSC 624

FOSTER WHEELER
FOSTER WHEELER ENVIRONMENTAL CORPORATION

TITLE
SILO WASTE RETRIEVAL SYSTEM
PROCESS FLOW DIAGRAM
(PROCESS ANALYZER)

SIZE	SCALE:	DWG. NO.	REV
D	NONE	11FMD007	2

G:\CHARGE\FDF\SILOS\MEC\SYS\11\11FMD007.DWG Thu Jun 22 15:02:43 2000

000039

FILENAME: 11FMD007.DWG

3158

SLURRY FROM SAMPLE VALVES 11FMD007

SLOPE

9

CAMERA CAM-05-011

COMPRESSED AIR 40FMD001

COMPRESSED AIR 40FMD001

SELF C... ...ER

SAMPLE BUILDING

VENT TO RCS SEE SYS 20

VENT TO RCS SEE SYS 20

DECANT PUMP ...MP-11-004

5

SLOPE

DECANT LIQUID AND SOLIDS TO TTA 11FMD007

SAMPLE TANK TNK-11-001A 185 GAL

...MPLE TANK ...K-11-001B 185 GAL

2 TON BRIDGE CRANE CRH-11-001

SLIDE GATE SLG-11-001

CAMERA CAM-05-010

SLIDE GATE SLG-11-003

VOLUMETRIC FEEDER SCM-11-001A

VOLUMETRIC FEED... SCM-11-001B

VENT TO RCS SEE SYS 20

SLIDE GATE SLG-11-002

SLIDE GATE SLG-11-004

22

FLEXIBLE BOOT FLX-11-005

FLEXIBLE FLX

EMPTY 30 GALLON DRUM INSIDE 55 GALLON OVERPACK

SUMP PUMP PMP-11-003

LIFT TABLE

CONTAINMENT CURB (TYP)

STORAGE AREA

DRUM FILLING STATION

CONVEYOR SSS-11-001

DRUM FILLING STATION

WORK ...ATION

SAMPLE BUILDING SUMP SMP-11-003

NOTES:

1. FOR GENERAL NOTES SEE DRAWING 05FMD004.
2. FOR MASS BALANCE TABLES SEE DRAWING 11FMD001 & 11FMD002.

REFERENCE DRAWINGS:

05FMD001	PIPING & INSTRUMENT DIAGRAM – INSTRUMENT IDENTIFICATION
05FMD002	PIPING & INSTRUMENT DIAGRAM – CONTROL SYSTEM STANDARDS
05FMD003	PIPING & INSTRUMENT DIAGRAM – PIPING & EQUIPMENT IDENTIFICATION

VOID

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3158

SAMPLE SYSTEM

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DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
SILOS 1 AND 2 ACCELERATED WASTE RETRIEVAL PROJECT
FERNALD, OHIO
FDF CONTRACT NO. FSC 624

DRAWN BY	DATE
B J DAVIS	01/07/00
DESIGNED BY	DATE
B J DAVIS	01/07/00
CHECKED BY	DATE
S W HUNGATE	01/07/00
APPROVED BY	DATE
KENNETH RICKETT	01/07/00
APPROVED BY	DATE
JOHN LAWSON	01/07/00

FOSTER WHEELER
FOSTER WHEELER ENVIRONMENTAL CORPORATION

TITLE

SILO WASTE RETRIEVAL SYSTEM PROCESS FLOW DIAGRAM SAMPLE SYSTEM

SIZE	SCALE:	DWG. NO.	REV
D	NONE	11FMD008	2

000040

1 FILENAME: 11FMD008.DWG

G:\CHARGE\FDF\SILOS\MEC\SYS14\11fmd008.dwg Thu Jun 22 15:03:27 2000

3158

AIR INLET
SEE SYS 20

BREATHING AIR FROM BOTTLES
41FMD001

SLURRY
11FMD004
7

SLUICE WATER
11FMD004
1

SLUICER MODULE
SLC-11-204
SEE P&ID DRAWING 11PMD001 FOR DETAILS OF THIS EQUIPMENT

MAST HOIST

CAMERA
CAM-05-687

AIR INLET
SEE SYS 20

BREATHING AIR FROM BOTTLES
41FMD001

FLEX HOSE
FLX-11-005

COMPRESSED AIR FROM LOCAL STATION
40FMD001

SLOPE

SLOPE

CAMERA
CAM-05-686

EMMA MODULE
EMA-14-401
SEE P&ID DRAWING 11GID070 FOR DETAILS OF THIS EQUIPMENT

DECON WATER

SLURRY MODULE
SLR-11-201
SEE P&ID DRAWING 11PMD500 & 11PMD501 FOR DETAILS OF THIS EQUIPMENT

FLEX HOSE
FLX-11-015

DECON WATER TO EMMA MODULE EMA-14-401 (THIS DRAWING)

FLEX HOSE
FLX-11-016

DECON WATER TO SLUICER MODULE SLC-11-204 (THIS DRAWING)

FLEX HOSE
FLX-11-010

FLEX HOSE
FLX-11-009

FLEX HOSE
FLX-11-011

FLEX HOSE
FLX-11-012

AIR INLET
SEE SYS 20

BREATHING AIR FROM BOTTLES
41FMD001

FLEX HOSE
FLX-11-007

SREE HYDRAULIC SUPPLY

SREE HYDRAULIC RETURN

HYDRAULIC SKID
SKD-11-254

FLEX HOSE
FLX-11-008

NC

NC

NC

DECON WATER

SEAL WATER

DECON WATER
51FMD004

FLEX HOSE
FLX-11-017

FLEX HOSE
FLX-11-006

FLEX HOSE
FLX-11-022

FLUSH WATER FROM HP DECON PUMP
11FMD006

SREE FAN JET WATER FROM HP DECON PUMP
11FMD006

AIR OUTLET SCREEN

FLEX HOSE
FLX-11-024

FLEX HOSE
FLX-11-025

WATER FROM SREE HP SUPPLY PUMP (CATS MODE)
10
11FMD006

FLEX HOSE
FLX-11-023

FLEX HOSE
FLX-11-027

FLEX HOSE
FLX-11-026

WATER FROM HP JET SUPPLY PUMP (CATS MODE)
13
11FMD006

FROM HP DECON PUMP
11
11FMD006

HIGH PRESSURE HOSE ENCLOSURE

CAMERA
CAM-05-681

FLEX HOSE
FLX-11-016

DECON WATER

CAMERA
CAM-05-680

DEBRIS REMOVAL MODULE
DRM-11-601

CAMERA
CAM-05-688

FLEX HOSE
FLX-11-013

FLEX HOSE
FLX-11-014

FLEX HOSE
FLX-11-019

CAMERA
CAM-05-689

TO EMMA SPRAY WAND

LIFT TABLE

CABLE REEL

SLOPE

SLOPE

SLOPE

SLOPE

SLOPE

NC

RADIATION MONITOR

NC

RADIATION MONITOR

NC

BRIDGE

DECON SPRAY (TYP)

AIR SWEEP FROM RCS SYSTEM
SEE SYS 20

FLEX HOSE
FLX-11-018

TRANSITION SPOOL

FLEX CONNECTION

FLEX HOSE
FLX-11-020

FLEX HOSE
FLX-11-021

GEARMOTOR

FLEX CONNECTION

AIR SWEEP TO RCS SYSTEM
SEE SYS 20

EXISTING 20" NOZZLE

CAMERA
CAM-05-684

CAMERA
CAM-05-683

CAMERA
CAM-05-685

SREE

SLUICING NOZZLE

SLURRY

CAMERA
CAM-05-682

21

JET PUMP

SLURRY PUMP
PMP-11-301

EXISTING 20" NOZZLE

SLURRY

SILO 1 – CATS MODE

NOTES:

1. FOR GENERAL NOTES SEE DRAWING 05FMD004.
2. FOR MASS BALANCE TABLES SEE DRAWING 11FMD001 & 11FMD002.

REFERENCE DRAWINGS:

05FMD001 -- INSTRUMENT IDENTIFICATION
05FMD002 -- CONTROL SYSTEM STANDARDS
05FMD003 -- PIPING & EQUIPMENT IDENTIFICATION
05FMD004 -- GENERAL NOTES
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05FMD006 -- VALVE LIST – SHEET 2

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INFORMATION ONLY
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DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
SILOS 1 AND 2 ACCELERATED WASTE RETRIEVAL PROJECT
FERNALD, OHIO
FDF CONTRACT NO. FSC 624

FOSTER WHEELER
FOSTER WHEELER ENVIRONMENTAL CORPORATION

TITLE
SILO WASTE RETRIEVAL SYSTEM
PROCESS FLOW DIAGRAM
SILO 1 – CATS MODE

SIZE	SCALE:	DWG. NO.	REV
D	NONE	11FMD009	2

000041

FILENAME: 11FMD009.DWG

G:\CHARGE\FDFSILOS\WEC\SYS11\11fmd009.dwg Thu Jun 22 15:04:25 2000

3158

NOTES:

1. FOR GENERAL NOTES SEE DRAWING 05FMD004.
2. FOR MASS BALANCE TABLES SEE DRAWING 11FMD001 & 11FMD002.

REFERENCE DRAWINGS:

05FMD001	-- INSTRUMENT IDENTIFICATION
05FMD002	-- CONTROL SYSTEM STANDARDS
05FMD003	-- PIPING & EQUIPMENT IDENTIFICATION
05FMD004	-- GENERAL NOTES
05FMD005	-- VALVE LIST - SHEET 1
05FMD006	-- VALVE LIST - SHEET 2

SYSTEM 11 (SWRS)

SYSTEM 12 (TTA)

SLUICE WATER TO CONTAINMENT AREA A
11FMD007 (1)
13FMD003 (SEE NOTE BELOW)

SLURRY (PRIMARY) FROM CONTAINMENT AREA A
11FMD007 (7)
13FMD003 (SEE NOTE BELOW)

SLURRY (SPARE) FROM CONTAINMENT AREA A
11FMD007 (7)
13FMD003 (SEE NOTE BELOW)

NOTE:

FLOW DURING TRANSFER TANK WASTE RETRIEVAL (SYSTEM 13) FOR SLUICE WATER WILL BE TOWARD CONTAINMENT AREA B (TO THE RIGHT). FLOW FOR PRIMARY AND SPARE SLURRY LINES WILL BE AWAY FROM CONTAINMENT AREA B (TO THE LEFT).

SLOPE

FILTER CONCENTRATE FROM FILTRATION SYSTEM
12FMD007 (8)

SLURRY FROM/TO TANK TNK-12-001B
12FMD003 (7)

SLURRY FROM/TO TANK TNK-12-001A
12FMD002 (7)

SLURRY FROM/TO TANK TNK-12-002A
12FMD004 (7)
13FMD002

SLURRY FROM/TO TANK TNK-12-002B
12FMD005 (7)

MAKE-UP WATER
51FMD004 (18)

FILTRATE
12FMD018 (14)

SLUICE WATER FROM/TO TANK TNK-12-001A
12FMD002 (37)

SLUICE WATER FROM/TO TANK TNK-12-002A
12FMD004 (37)
13FMD002

SLUICE WATER FROM/TO TANK TNK-12-001B
12FMD003 (37)

SLUICE WATER FROM/TO TANK TNK-12-002B
12FMD005 (37)

FROM BUILDING SUMP
12FMD006 (27)

TTA EQUIPMENT DECK

CONTAINMENT AREA B

SUMP PUMP PMP-12-004

CONTAINMENT AREA B SUMP SMP-12-004

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DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
SILOS 1 AND 2 ACCELERATED WASTE RETRIEVAL PROJECT
FERNALD, OHIO
FDF CONTRACT NO. FSC 624

FOSTER WHEELER
FOSTER WHEELER ENVIRONMENTAL CORPORATION

TITLE
TRANSFER TANK SYSTEM
PROCESS FLOW DIAGRAM
CONTAINMENT AREA B

SIZE D | SCALE: NONE | DWG. NO. 12FMD001 | REV 2

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INFORMATION ONLY
3158

FILENAME: 12FMD001.DWG

G:\CHARGE\FDFSILOS\WEC\SYS12\12fmd001.dwg Thu Jun 22 15:07:18 2000

3158

SELF CONTROLLING SPACE HEATER HTR-77-001

SELF CONTROLLING SPACE HEATER HTR-77-002

SELF CONTROLLING SPACE HEATER HTR-77-003

SELF CONTROLLING SPACE HEATER HTR-77-004

SLURRY TO/FROM CONTAINMENT AREA B 12FMD001 7

SLOPE

QUICK CONNECT SECONDARY CONTAINMENT CAP (CONNECTION USED FOR SLURRY CONNECTION TO SLR-11-202 OR DEC-12-200)

QUICK CONNECT CAP

QUICK CONNECT SECONDARY CONTAINMENT CAP (CONNECTION USED FOR SLUICE WATER CONNECTION TO SLR-11-202 OR DEC-12-200)

FLEX HOSE FLX-12-005

SLUICE WATER TO/FROM CONTAINMENT AREA B 12FMD001 37

SLOPE

FLEXIBLE MAKE-UP WATER CONNECTION

CONN FOR DECON SPRAY RINGS IN SLC-11-204 12FMD018

CONNECTION FOR FLUSH WATER IN SLURRY MODULE SLR-11-202

TO FLUSH WATER FOR SLR-11-202 & SPRAY RINGS FOR SLR-11-202 & DEC-12-200 12FMD018

CONN FOR DECON SPRAY RINGS IN SLC-11-205 12FMD018

QUICK CONNECT SECONDARY CONTAINMENT CAP (CONNECTION USED FOR SLUICE WATER CONNECTION TO SLC-12-205)

QUICK CONNECT CAP

QUICK CONNECT SECONDARY CONTAINMENT CAP (CONNECTION USED FOR SLUICE WATER CONNECTION TO SLC-11-204)

QUICK CONNECT CAP

BLIND FLANGE FITTED WITH QUICK DISCONNECT (SLURRY FILL NOZZLE USED FOR CONNECTION TO DEC-12-200)

FROM DOMESTIC WATER SYSTEM VALVE MOV-51-015 51FMD004

48" RISER SHIELD BOX SHL-12-001A (NOTE 3)

FLEX HOSE FLX-12-017

AIR SWEEP TO RCS SYSTEM SEE SYS 20

AIR SWEEP FROM RCS SYSTEM SEE SYS 20

SPRAY RING

CAMERA VIEWPORT / SPARE

TTA EQUIPMENT DECK

NORTHWEST CAMERA VIEWPORT

CAMERA VIEWPORT / SPARE

CAMERA VIEWPORT / SPARE

CAMERA VIEWPORT / SPARE

CAMERA VIEWPORT / SPARE

CAMERA VIEWPORT / SPARE

OVERFLOW TO/ FROM TANK TNK-12-001B 12FMD003

UNCONTROLLED

3158

TRANSFER STORAGE TANK TNK-12-001A

SHOWN IN SWRS MODE FROM SILO 1

TO BUILDING SUMP 12FMD006

INFORMATION ONLY

CONTAINMENT BUILDING

TANK FOUNDATION

SLOPE

TANK SUMP SMP-12-001A

NOTES:

1. FOR GENERAL NOTES SEE DRAWING 05FMD004.
2. FOR MASS BALANCE TABLES SEE DRAWING 11FMD001 & 11FMD002.
3. SHIELD BOX TO BE PLACED OVER E2-48" RISER WHEN NOT IN USE.

REFERENCE DRAWINGS:

05FMD001 -- INSTRUMENT IDENTIFICATION
05FMD002 -- CONTROL SYSTEM STANDARDS
05FMD003 -- PIPING & EQUIPMENT IDENTIFICATION
05FMD004 -- GENERAL NOTES
05FMD005 -- VALVE LIST - SHEET 1
05FMD006 -- VALVE LIST - SHEET 2

THE ORIGINAL DRAWING AND SUBSEQUENT REVISIONS THEREOF, WITH APPROVAL NAMES, INITIALS, AND THE PE SEAL, IF APPLICABLE, ARE MAINTAINED IN THE FILES OF FWENC.

REV	DATE	BY	CHK'D	APP'VD	DESCRIPTION/ISSUE
2					REVISED PER CHANGE PROPOSAL CP-00-001
1	01/07/00	BJD	SWH	KDR	CERTIFIED FOR CONSTRUCTION
0	11/01/99	BJD	SWH		PRELIMINARY DESIGN SUBMITTAL

RPE

DRAWN BY	B J DAVIS	DATE 01/07/00
DESIGNED BY	B J DAVIS	DATE 01/07/00
CHECKED BY	S W HUNGATE	DATE 01/07/00
APPROVED BY	KENNETH RICKETT	DATE 01/07/00
APPROVED BY	JOHN LAWSON	DATE 01/07/00

DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
SILOS 1 AND 2 ACCELERATED WASTE RETRIEVAL PROJECT
FERNALD, OHIO
FDF CONTRACT NO. FSC 624

FOSTER WHEELER
FOSTER WHEELER ENVIRONMENTAL CORPORATION

TITLE
TRANSFER TANK SYSTEM
PROCESS FLOW DIAGRAM
STORAGE TANK TNK-12-001A

SIZE	SCALE:	DWG. NO.	REV
D	NONE	12FMD002	2

000043

FILENAME: 12FMD002.DWG

G:\CHARGE\FDFSILOS\WES\SYS12\12fmd002.dwg Thu Jun 22 15:08:46 2000

3158

SELF CONTROLLING SPACE HEATER HTR-77-005

SELF CONTROLLING SPACE HEATER HTR-77-006

SELF CONTROLLING SPACE HEATER HTR-77-007

SELF CONTROLLING SPACE HEATER HTR-77-008

NOTES:

1. FOR GENERAL NOTES SEE DRAWING 05FMD004.
2. FOR MASS BALANCE TABLES SEE DRAWING 11FMD001 & 11FMD002.
3. SHIELD BOX TO BE PLACED OVER E2-48" RISER WHEN NOT IN USE.

REFERENCE DRAWINGS:

05FMD001 -- INSTRUMENT IDENTIFICATION

05FMD002 -- CONTROL SYSTEM STANDARDS

05FMD003 -- PIPING & EQUIPMENT IDENTIFICATION

05FMD004 -- GENERAL NOTES

05FMD005 -- VALVE LIST - SHEET 1

05FMD006 -- VALVE LIST - SHEET 2

SLURRY TO/FROM CONTAINMENT AREA B 12FMD001 7

SLOPE

QUICK CONNECT SECONDARY CONTAINMENT CAP (CONNECTION USED FOR SLURRY CONNECTION TO SLR-11-202 OR DEC-12-201)

QUICK CONNECT CAP

QUICK CONNECT SECONDARY CONTAINMENT CAP (CONNECTION USED FOR SLUICE WATER CONNECTION TO SLR-11-202 OR DEC-12-201)

FLEX HOSE FLX-12-010

SLUICE WATER TO/FROM CONTAINMENT AREA B 12FMD001 37

SLOPE

FLEXIBLE MAKE-UP WATER CONNECTION

QUICK CONNECT SECONDARY CONTAINMENT CAP (CONNECTION USED FOR SLUICE WATER CONNECTION TO SLC-12-205)

QUICK CONNECT CAP

CONNECTION FOR FLUSH WATER IN SLURRY MODULE SLR-11-202

CONN FOR DECON SPRAY RINGS IN SLC-11-204 12FMD018

TO FLUSH WATER FOR SLR-11-202 & SPRAY RINGS FOR SLR-11-202 & DEC-12-201 12FMD018

CONN FOR DECON SPRAY RINGS IN SLC-11-205 12FMD018

QUICK CONNECT SECONDARY CONTAINMENT CAP (CONNECTION USED FOR SLUICE WATER CONNECTION TO SLC-11-204)

QUICK CONNECT CAP

FROM DOMESTIC WATER SYSTEM VALVE MOV-51-016 9TFMD004

AIR SWEEP TO RCS SYSTEM SEE SYS 20

48" RISER SHIELD BOX SHL-12-001B (NOTE 3)

FLEX HOSE FLX-12-017

SPRAY RING

AIR SWEEP FROM RCS SYSTEM SEE SYS 20

CAMERA VIEWPORT / SPARE

CAMERA VIEWPORT / SPARE

CAMERA VIEWPORT / SPARE

CAMERA VIEWPORT / SPARE

CAMERA VIEWPORT / SPARE

CAMERA VIEWPORT / SPARE

CAMERA VIEWPORT

TTA EQUIPMENT DECK

OVERFLOW TO/ FROM TANK TNK-12-001A 12FMD002

UNCONTROLLED

INFORMATION ONLY

TO BUILDING SUMP 12FMD006

3158

CONTAINMENT BUILDING

TANK FOUNDATION

TRANSFER STORAGE TANK TNK-12-001B

SHOWN IN SWRS MODE FROM SILO 2

SLOPE

TANK SUMP SMP-12-001B

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APPROVED BY / DATE	KENNETH RICKETT 01/07/00
APPROVED BY / DATE	JOHN LAWSON 01/07/00

DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
SILOS 1 AND 2 ACCELERATED WASTE RETRIEVAL PROJECT
FERNALD, OHIO
FDF CONTRACT NO. FSC 624

FOSTER WHEELER
FOSTER WHEELER ENVIRONMENTAL CORPORATION

TITLE

TRANSFER TANK SYSTEM PROCESS FLOW DIAGRAM STORAGE TANK TNK-12-001B

SIZE	SCALE:	DWG. NO.	REV
D	NONE	12FMD003	2

000044

FILENAME: 12FMD003.DWG

G:\CHARGE\FDF\SILOS\MEC\SYS\12\12fmd003.dwg Thu Jun 22 15:09:49 2000

3158

SLURRY TO/FROM CONTAINMENT AREA B
12FMD001
7

SLOPE

FLEX HOSE FLX-12-001

FLEX HOSE FLX-12-012

DECANT MODULE DEC-12-200

FLEX HOSE FLX-12-019

AIR INLET
12FMD019

FLEX HOSE FLX-12-002

FLEX HOSE FLX-12-014

SLUICE WATER TO/FROM CONTAINMENT AREA B
12FMD001
37

SLOPE

FLEX HOSE FLX-12-018

QUICK CONNECT SECONDARY CONTAINMENT CAP (CONNECTION USED FOR SLUICE WATER CONNECTION TO SLC-12-205)

QUICK CONNECT CAP

CONN FOR DECON SPRAY RINGS IN SLC-11-204
12FMD018

CONNECTION FOR FLUSH WATER IN SLURRY MODULE SLR-11-202

TO FLUSH WATER FOR SLR-11-202 & SPRAY RINGS FOR SLR-11-202 & DEC-12-200
12FMD018

CONN FOR DECON SPRAY RINGS IN SLC-11-205
12FMD018

QUICK CONNECT SECONDARY CONTAINMENT CAP (CONNECTION USED FOR SLUICE WATER CONNECTION TO SLC-11-204)

QUICK CONNECT CAP

FROM DOMESTIC WATER SYSTEM VALVE MOV-51-017
51FMD004

SLOPE

FLEXIBLE IRIS

DECON SPRAY (TYP)

FLEXIBLE SEAL (TYP)

SLOPE

FLEX CONN.

FLEX HOSE FLX-12-017

SPRAY RING

AIR SWEEP FROM RCS SYSTEM
SEE SYS 20

SOUTHWEST CAMERA VIEWPORT

CAMERA VIEWPORT / SPARE

CAMERA VIEWPORT / SPARE

CAMERA VIEWPORT / SPARE

CAMERA VIEWPORT / SPARE

CAMERA VIEWPORT / SPARE

CAMERA CAM-05-693

DECANT PUMP PMP-12-200

AIR SWEEP TO RCS SYSTEM
SEE SYS 20

48" RISER SHIELD BOX SHL-12-002A (NOTE 3)

TTA EQUIPMENT DECK

OVERFLOW TO/FROM TANK TNK-12-002B
12FMD005

SUPERNATE

SLURRY

TANK FOUNDATION

TRANSFER STORAGE TANK TNK-12-002A

SHOWN IN SWRS MODE FROM SILO 2

TO BUILDING SUMP
12FMD006

SLOPE

CONTAINMENT BUILDING

TANK SUMP SMP-12-002A

UNCONTROLLED

3158

INFORMATION ONLY

NOTES:

1. FOR GENERAL NOTES SEE DRAWING 05FMD004.
2. FOR MASS BALANCE TABLES SEE DRAWING 11FMD001 & 11FMD002.
3. SHIELD BOX TO BE PLACED OVER E2-48" RISER WHEN NOT IN USE.

REFERENCE DRAWINGS:

05FMD001 -- INSTRUMENT IDENTIFICATION
05FMD002 -- CONTROL SYSTEM STANDARDS
05FMD003 -- PIPING & EQUIPMENT IDENTIFICATION
05FMD004 -- GENERAL NOTES
05FMD005 -- VALVE LIST - SHEET 1
05FMD006 -- VALVE LIST - SHEET 2

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APPROVED BY	JOHN LAWSON	DATE 01/07/00

DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
SILOS 1 AND 2 ACCELERATED WASTE RETRIEVAL PROJECT
FERNALD, OHIO
FDF CONTRACT NO. FSC 624

FOSTER WHEELER
FOSTER WHEELER ENVIRONMENTAL CORPORATION

TITLE
TRANSFER TANK SYSTEM
PROCESS FLOW DIAGRAM
STORAGE TANK TNK-12-002A

SIZE	SCALE:	DWG. NO.	REV
D	NONE	12FMD004	2

000045

FILENAME: 12FMD004.DWG

G:\CHARGE\FIFSILOS\MECH\SYS12\12fmd004.dwg Thu Jun 22 15:12:17 2000

3158

NOTES:

1. FOR GENERAL NOTES SEE DRAWING 05FMD004.
2. FOR MASS BALANCE TABLES SEE DRAWING 11FMD001 & 11FMD002.
3. SHIELD BOX TO BE PLACED OVER E2-48" RISER WHEN NOT IN USE.

REFERENCE DRAWINGS:

05FMD001 -- INSTRUMENT IDENTIFICATION
05FMD002 -- CONTROL SYSTEM STANDARDS
05FMD003 -- PIPING & EQUIPMENT IDENTIFICATION
05FMD004 -- GENERAL NOTES
05FMD005 -- VALVE LIST - SHEET 1
05FMD006 -- VALVE LIST - SHEET 2

SLURRY TO/FROM CONTAINMENT AREA B 12FMD001 7

SLUICE WATER TO/FROM CONTAINMENT AREA B 12FMD001 37

DECANT MODULE DEC-12-201

HOIST

FLEX HOSE FLX-12-028

AIR INLET 12FMD019

SLOPE

FLEX HOSE FLX-12-006

FLEX HOSE FLX-12-021

FLEX HOSE FLX-12-007

FLEX HOSE FLX-12-023

CONNECTION FOR DECON SPRAY RINGS IN SLR-11-202 OR DECANT MODULE DEC-12-201

CONNECTION FOR FLUSH WATER IN SLURRY MODULE SLR-11-202

CONN FOR DECON SPRAY RINGS IN SLC-11-204 12FMD018

TO FLUSH WATER FOR SLR-11-202 & SPRAY RINGS FOR SLR-11-202 & DEC-12-201 12FMD018

CONN FOR DECON SPRAY RINGS IN SLC-11-205 12FMD018

FROM DOMESTIC WATER SYSTEM VALVE MOV-51-018 51FMD004

FLEX HOSE FLX-12-027

QUICK CONNECT SECONDARY CONTAINMENT CAP (CONNECTION USED FOR SLUICE WATER CONNECTION TO SLC-12-205)

QUICK CONNECT CAP

QUICK CONNECT SECONDARY CONTAINMENT CAP (CONNECTION USED FOR SLUICE WATER CONNECTION TO SLC-11-204)

QUICK CONNECT CAP

FLEX HOSE FLX-12-026

FLEX CONN.

FLEXIBLE IRIS

DECON SPRAY (TYP)

FLEXIBLE SEAL (TYP)

SPRAY RING

AIR SWEEP FROM RCS SYSTEM SEE SYS 20

AIR SWEEP TO RCS SYSTEM SEE SYS 20

48" RISER SHIELD BOX SHL-12-002B (NOTE 3)

TTA EQUIPMENT DECK

SOUTHEAST CAMERA VIEWPORT

CAMERA VIEWPORT / SPARE

CAMERA VIEWPORT / SPARE

CAMERA VIEWPORT / SPARE

CAMERA VIEWPORT / SPARE

CAMERA VIEWPORT / SPARE

CAMERA CAM-05-694

OVERFLOW TO/ FROM TANK TNK-12-002A 12FMD004

DECANT PUMP PMP-12-201

TRANSFER STORAGE TANK TNK-12-002B

SUPERNATE

SLURRY

TANK FOUNDATION

CONTAINMENT BUILDING

SHOWN IN SWRS MODE FROM SILO 2

TANK SUMP SMP-12-002B

TO BUILDING SUMP 12FMD006

SLOPE

UNCONTROLLED

3158

INFORMATION ONLY

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RPE

DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
SILOS 1 AND 2 ACCELERATED WASTE RETRIEVAL PROJECT
FERNALD, OHIO
FDF CONTRACT NO. FSC 624

DRAWN BY / DATE	B J DAVIS 01/07/00
DESIGNED BY / DATE	B J DAVIS 01/07/00
CHECKED BY / DATE	S W HUNGATE 01/07/00
APPROVED BY / DATE	KENNETH RICKETT 01/07/00
APPROVED BY / DATE	JOHN LAWSON 01/07/00

FOSTER WHEELER
FOSTER WHEELER ENVIRONMENTAL CORPORATION

TITLE
TRANSFER TANK SYSTEM
PROCESS FLOW DIAGRAM
STORAGE TANK TNK-12-002B

SIZE	SCALE:	DWG. NO.	REV
D	NONE	12FMD005	2

000046

FILENAME: 12FMD005.DWG

G:\CHARGE\FDFSILOS\MECI\SYS12\12fmd005.dwg Thu Jun 22 15:14:02 2000

NOTES: 3158

1. FOR GENERAL NOTES SEE DRAWING 05FMD004.
2. FOR MASS BALANCE TABLES SEE DRAWING 11FMD001 & 11FMD002.

REFERENCE DRAWINGS:

05FMD001 -- INSTRUMENT IDENTIFICATION
05FMD002 -- CONTROL SYSTEM STANDARDS
05FMD003 -- PIPING & EQUIPMENT IDENTIFICATION
05FMD004 -- GENERAL NOTES
05FMD005 -- VALVE LIST – SHEET 1
05FMD006 -- VALVE LIST – SHEET 2

TO CONTINMENT AREA B
12FMD001
27

TTA EQUIPMENT DECK

WEST CAMERA VIEWPORT

NORTH CAMERA VIEWPORT

CAMERA CAM-05-692

LC

EAST CAMERA VIEWPORT

CAMERA CAM-05-691

FROM TANK SUMP SMP-12-001A
12FMD002
26

FROM TANK SUMP SMP-12-001B
12FMD003
25

FROM TANK SUMP SMP-12-002A
12FMD004
24

FROM TANK SUMP SMP-12-002B
12FMD005
23

M

TTA BUILDING SUMP SMP-12-005

SUMP PUMP PMP-12-005

UNCONTROLLED

INFORMATION ONLY

3158

THE ORIGINAL DRAWING AND SUBSEQUENT REVISIONS THEREOF, WITH APPROVAL NAMES, INITIALS, AND THE PE SEAL, IF APPLICABLE, ARE MAINTAINED IN THE FILES OF FWENC.

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APPROVED BY / DATE	JOHN LAWSON 01/07/00

DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
SILOS 1 AND 2 ACCELERATED WASTE RETRIEVAL PROJECT
FERNALD, OHIO
FDF CONTRACT NO. FSC 624

FOSTER WHEELER
FOSTER WHEELER ENVIRONMENTAL CORPORATION

TITLE
TRANSFER TANK SYSTEM
PROCESS FLOW DIAGRAM
BUILDING SUMP SMP-12-005

SIZE	SCALE:	DWG. NO.	REV
D	NONE	12FMD006	2

FILENAME: 12FMD006.DWG

000017

G:\CHARGE\FVDFSILOS\WECI\SYS12\12fmd006.dwg Thu Jun 22 15:15:16 2000

3158

PERMEATE TO FILTRATE STORAGE TANK 12FMD008

TO FILTER PROCESS TANK 12FMD008

VENTILATION TO FILTER PROCESS TANK 12FMD008

WATER FROM DOMESTIC SUPPLY 12FMD008

ULTRA FILTRATION RACK UFR-12-001

FI SKD-12-001

SPONGEBALL SCREEN

SOAP ADDITIVE

SPONGEBALL RETRIEVAL

CLEANING TANK TNK-12-005

VACUUM BREAKER VBK-12-001

M

RECIRCULATION PUMP PMP-12-007

SPONGEBALL INSERTION

DOUBLE CONTAINED PIPING OUTSIDE CONTAINMENT AREA (TYP)

FILTER CONCENTRATE TO STORAGE TANKS 1A, 1B, 2A & 2B 12FMD001

SLOPE

15

29

28

8

FROM FILTER PROCESS TANK 12FMD008

NOTES:

1. FOR GENERAL NOTES SEE DRAWING 05FMD004.
2. FOR MASS BALANCE TABLES SEE DRAWING 11FMD001 & 11FMD002.

REFERENCE DRAWINGS:

05FMD001 -- INSTRUMENT IDENTIFICATION
05FMD002 -- CONTROL SYSTEM STANDARDS
05FMD003 -- PIPING & EQUIPMENT IDENTIFICATION
05FMD004 -- GENERAL NOTES
05FMD005 -- VALVE LIST - SHEET 1
05FMD006 -- VALVE LIST - SHEET 2

UNCONTROLLED

INFORMATION ONLY

3158

CONTAINMENT AREA A

TTA EQUIPMENT DECK

ULTRA FILTRATION SKID SKD-12-001

REV	DATE	BY	CHK'D	APR'VD	DESCRIPTION/ISSUE
2					REVISED PER CHANGE PROPOSAL CP-00-001
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CHECKED BY S W HUNGATE	DATE 01/07/00
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DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
SILOS 1 AND 2 ACCELERATED WASTE RETRIEVAL PROJECT
FERNALD, OHIO
FDF CONTRACT NO. FSC 624

FOSTER WHEELER
FOSTER WHEELER ENVIRONMENTAL CORPORATION

TITLE
TRANSFER TANK SYSTEM
PROCESS FLOW DIAGRAM
ULTRA FILTRATION SKD-12-001

SIZE	SCALE:	DWG. NO.	REV
D	NONE	12FMD007	2

000018

FILENAME: 12FMD007.DWG

G:\CHARGES\FDF\SILOS\WEC\SYS12\12fmd007.dwg Thu Jun 22 15:17:03 2000

3158

DOMESTIC WATER TO UF CLEANOUT TANK
12FMD007

SYSTEM 51 SYSTEM 12

FROM MAKE-UP WATER SUPPLY
51FMD004
19

PERMEATE FROM UF SYSTEM
12FMD007
15

CONDENSATE FROM RCS HOLD-UP TANKS
12FMD018

PUMP RECIRCULATION
12FMD018

SUPERNATE FEED FROM STORAGE TANKS 1A,1B,2A & 2B
11FMD007

UF FILTER PROCESS RETURN
12FMD007
4

VENTILATION FROM CLEANING TANK TNK-12-005
12FMD007
29

TO RCS SYSTEM
SEE SYS 20

ORIFICE PLATE ORF-12-001

WATER ADDITION
11FMD007

SEE 20FMD014 FOR INST.

SEE 20FMD014 FOR INST.

LO

FILTER PROCESS TANK TNK-12-003 7,500 GAL

MIXER MXR-12-001

FILTRATE STORAGE TANK TNK-12-004 7,500 GAL

FILTRATE PUMP PMP-12-003B

FILTRATE PUMP PMP-12-003A

TO SLUICE WATER LINE
12
12FMD018

TO UF PROCESS SUPPLY
12FMD007
28

SUMP PUMP PMP-12-006

FILTRATE SYSTEM SUMP SMP-12-006

CONTAINMENT AREA A

INFORMATION ONLY

UNCONTROLLED

3158

NOTES:

1. FOR GENERAL NOTES SEE DRAWING 05FMD004.
2. FOR MASS BALANCE TABLES SEE DRAWING 11FMD001 & 11FMD002.
3. SEE DRAWING 11PMD403 FOR DETAILS OF HIGH PRESSURE PUMP SKID SKD-11-252.

REFERENCE DRAWINGS:

05FMD001 -- INSTRUMENT IDENTIFICATION
05FMD002 -- CONTROL SYSTEM STANDARDS
05FMD003 -- PIPING & EQUIPMENT IDENTIFICATION
05FMD004 -- GENERAL NOTES
05FMD005 -- VALVE LIST - SHEET 1
05FMD006 -- VALVE LIST - SHEET 2

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DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
SILOS 1 AND 2 ACCELERATED WASTE RETRIEVAL PROJECT
FERNALD, OHIO
FDF CONTRACT NO. FSC 624

FOSTER WHEELER
FOSTER WHEELER ENVIRONMENTAL CORPORATION

TITLE
TRANSFER TANK SYSTEM
PROCESS FLOW DIAGRAM
FILTRATE SYSTEM (TANKS)

SIZE	SCALE:	DWG. NO.	REV
D	NONE	12FMD008	2

000049

FILENAME: 12FMD008.DWG

G:\CHARGE\FDFSILOS\WEC\SYS12\12fmd008.dwg Thu Jun 22 15:18:09 2000

3158

MAKE-UP / RECIRCULATION
12FMD008

FUTURE DISCONNECT

RECIRCULATION FROM HIGH PRESSURE PUMPS
11FMD006

TO HIGH PRESSURE PUMPS
11FMD006

FUTURE DISCONNECT

FILTRATE TO SLUICE WATER LINE
12FMD001

LO

FROM FILTRATE PUMPS PMP-12-003A & B
12FMD008

CONNECTION POINT AFTER RCS IS ONLINE

TO AWWTP VIA RCS BUILDING
20FMD008

CONNECTION POINT AFTER RCS IS ONLINE

CONDENSATE FROM RCS HOLD-UP TANKS
20FMD008

TO FILTRATE STORAGE TANK
12FMD008

CONN FOR DECON SPRAY RINGS IN SLC-11-204
12FMD002

TO FLUSH WATER FOR SLR-11-202 & SPRAY RINGS FOR SLR-11-202 & DEC-12-200
12FMD002

CONN FOR DECON SPRAY RINGS IN SLC-11-205
12FMD002

TNK-12-001A

CONN FOR DECON SPRAY RINGS IN SLC-11-204
12FMD003

TO FLUSH WATER FOR SLR-11-202 & SPRAY RINGS FOR SLR-11-202 & DEC-12-201
12FMD003

CONN FOR DECON SPRAY RINGS IN SLC-11-205
12FMD003

TNK-12-001B

PIPE RACK

NOTE 3

HP DECON PUMP PMP-11-255

HP DECON PUMP SKID SKD-11-252

SEE P&ID DRAWING 11PMD403 FOR DETAILS OF THIS EQUIPMENT

COMPRESSED AIR
40FMD001

CONTAINMENT AREA A

CONN FOR DECON SPRAY RINGS IN SLC-11-204
12FMD004
13FMD002

TO FLUSH WATER FOR SLR-11-202 & SPRAY RINGS FOR SLR-11-202 & DEC-12-200
12FMD002
13FMD002

CONN FOR DECON SPRAY RINGS IN SLC-11-205
12FMD004
13FMD002

TNK-12-002A

CONN FOR DECON SPRAY RINGS IN SLC-13-204
12FMD005

TO FLUSH WATER FOR SLR-11-202 & SPRAY RINGS FOR SLR-11-202 & DEC-12-201
12FMD005

CONN FOR DECON SPRAY RINGS IN SLC-11-205
12FMD005

TNK-12-002B

TTA BUILDING EQUIPMENT DECK ENCLOSURE

TTA CONTAINMENT BUILDING

UNCONTROLLED

INFORMATION ONLY

3158

NOTES:

1. FOR GENERAL NOTES SEE DRAWING 05FMD004.
2. FOR MASS BALANCE TABLES SEE DRAWING 11FMD001 & 11FMD002.

REFERENCE DRAWINGS:

05FMD001 -- INSTRUMENT IDENTIFICATION
05FMD002 -- CONTROL SYSTEM STANDARDS
05FMD003 -- PIPING & EQUIPMENT IDENTIFICATION
05FMD004 -- GENERAL NOTES
05FMD005 -- VALVE LIST - SHEET 1
05FMD006 -- VALVE LIST - SHEET 2

PRELIMINARY
NOT FOR CONSTRUCTION

REV	DATE	BY	CHK'D	APR'VD	DESCRIPTION/ISSUE
A					ISSUED FOR 90% REVIEW

RPE

DRAWN BY DATE
DESIGNED BY DATE
CHECKED BY DATE
APPROVED BY DATE
APPROVED BY DATE

DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
SILOS 1 AND 2 ACCELERATED WASTE RETRIEVAL PROJECT
FERNALD, OHIO
FDF CONTRACT NO. FSC 624

FOSTER WHEELER
FOSTER WHEELER ENVIRONMENTAL CORPORATION

TITLE
TRANSFER TANK SYSTEM
PROCESS FLOW DIAGRAM
FILTRATE RECIRC & TRANSFER

SIZE	SCALE:	DWG. NO.	REV
D	NONE	12FMD018	A

000050

FILENAME: 12FMD018.DWG

G:\CHARGE\FDFSILOS\WEC\SYS12\12fmd018.dwg Thu Jun 22 15:19:09 2000

3158

SLURRY MODULE
SLR-11-202

SLUICER MODULE
SLC-11-204

MAST
HOIST

SLUICER MODULE
SLC-11-205

MAST
HOIST

FLEX HOSE
FLX-12-029

AIR INLET
12FMD019

BREATHING AIR
FROM BOTTLES
41FMD001

SLURRY
TO/FROM
CONTAINMENT AREA B
12FMD001
7

DECON WATER

SLUICE WATER
TO/FROM
CONTAINMENT AREA B
12FMD001
1

FLEX HOSE
FLX-13-004

FLEX HOSE
FLX-13-005

FLEX HOSE
FLX-13-007

FLEX HOSE
FLX-13-006

FLEX HOSE
FLX-13-008

FLEX HOSE
FLX-13-009

LIFT TABLE

2

3

FLEX HOSE
FLX-12-028

AIR INLET
12FMD019

BREATHING AIR
FROM BOTTLES
41FMD001

FLEX HOSE
FLX-13-002

COMPRESSED AIR
FROM LOCAL STATION
40FMD001

DECON WATER

SEAL WATER

FLUSH WATER

DECON WATER TO
SLUICER MODULE
SLC-11-204

FLEX HOSE
FLX-13-014

FLEX HOSE
FLX-13-015

FLEX HOSE
FLX-12-030

AIR INLET
12FMD019

FLEX HOSE
FLX-13-016

BREATHING AIR
FROM BOTTLES
41FMD001

FLEX HOSE
FLX-13-003

SEE 51FMD004

DECON WATER

CONN FOR DECON
SPRAY RINGS IN
SLC-11-204
12FMD018

FLEX HOSE
FLX-13-018

FLEX HOSE
FLX-13-011

FLEX HOSE
FLX-13-017

FLEX HOSE
FLX-13-010

FLEX HOSE
FLX-13-019

TO FLUSH WATER FOR
SLR-11-202 & SPRAY RINGS
FOR SLR-11-202 & DEC-12-200
12FMD018

CABLE
REEL

CABLE
REEL

SLOPE

SLOPE

SLOPE

SLOPE

SLOPE

RAD MONITOR
(TYP)

DECON SPRAY
(TYP)

CONN FOR DECON
SPRAY RINGS IN
SLC-11-205
12FMD018

FLEX HOSE
FLX-13-020

AIR SWEEP FROM
RCS SYSTEM
SEE SYS 20

AIR SWEEP TO
RCS SYSTEM
SEE SYS 20

48" RISER SHIELD BOX
SHL-12-002A
(NOTE 3)

TTA EQUIPMENT DECK

FLEXIBLE
SEAL
(TYP)

BLIND
FLANGE

GEARMOTOR

SOUTHWEST
CAMERA
VIEWPORT

CAMERA
VIEWPORT
/ SPARE

CAMERA
VIEWPORT
/ SPARE

CAMERA
VIEWPORT
/ SPARE

CAMERA
VIEWPORT
/ SPARE

CAMERA
VIEWPORT
/ SPARE

UNCONTROLLED

OVERFLOW TO/
FROM TANK
TNK-12-001B
24
12FMD003

INFORMATION ONLY

3158

TRANSFER STORAGE TANK
TNK-12-001A

SHOWN IN TTA WASTE RETRIEVAL
MODE TO FUTURE REMEDIATION
FACILITY

SLUICING
NOZZLE

SLUICING
NOZZLE

SLURRY PUMP
PMP-11-302

TO BUILDING SUMP
12FMD006

RESIDUE

TANK
FOUNDATION

CONTAINMENT
BUILDING

SLOPE

TANK SUMP
SMP-12-001A

NOTES:

1. FOR GENERAL NOTES SEE DRAWING 05FMD004.
2. FOR MASS BALANCE TABLES SEE DRAWING 13FMD001.
3. SHIELD BOX TO BE PLACED OVER E2-48" RISER WHEN NOT IN USE.

REFERENCE DRAWINGS:

05FMD001 -- INSTRUMENT IDENTIFICATION
05FMD002 -- CONTROL SYSTEM STANDARDS
05FMD003 -- PIPING & EQUIPMENT IDENTIFICATION
05FMD004 -- GENERAL NOTES
05FMD005 -- VALVE LIST - SHEET 1
05FMD006 -- VALVE LIST - SHEET 2

THE ORIGINAL DRAWING AND SUBSEQUENT REVISIONS THEREOF, WITH APPROVAL NAMES, INITIALS, AND THE PE SEAL, IF APPLICABLE, ARE MAINTAINED IN THE FILES OF FWENC.

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1	01/07/00	BJD	SWH	KDR	CERTIFIED FOR CONSTRUCTION
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RPE

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DESIGNED BY	B J DAVIS	DATE 01/07/00
CHECKED BY	S W HUNGATE	DATE 01/07/00
APPROVED BY	KENNETH RICKETT	DATE 01/07/00
APPROVED BY	JOHN LAWSON	DATE 01/07/00

DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
SILOS 1 AND 2 ACCELERATED WASTE RETRIEVAL PROJECT
FERNALD, OHIO
FDF CONTRACT NO. FSC 624

FOSTER WHEELER
FOSTER WHEELER ENVIRONMENTAL CORPORATION

TITLE
TRANSFER TANK WASTE RETRIEVAL
PROCESS FLOW DIAGRAM
STORAGE TANK TNK-12-001A

SIZE	SCALE:	DWG. NO.	REV
D	NONE	13FMD002	2

000051

FILENAME: 13FMD002.DWG

G:\CHARGE\FDFSILOS\MEC\SYS\13\13fmd002.dwg Thu Jun 22 15:20:22 2000

3158

TO FILTER PROCESS TANK 12FMD008

TO FILTER PROCESS TANK 12FMD008

THESE PIPES DO NOT LEAVE THE CONTAINMENT AREA

PREVIOUS LINES FROM SILOS TO BE CUT AND NEW LINES INSTALLED FOR THE FUTURE REMEDIATION FACILITY

SLUICE WATER FROM FUTURE REMEDIATION FACILITY 13FMD004

SLURRY (PRIMARY) TO FUTURE REMEDIATION FACILITY 13FMD004

SLURRY (SPARE) TO FUTURE REMEDIATION FACILITY 13FMD004

SLOPE

M

AE-PMP-12-200/201 RELOCATED FROM TW-11001-3"-105 TO MS-11001-3"-105 FOR TRANSFER TANK WASTE RETRIEVAL

MOVE FROM

MOVE TO

AE PMP-12-200/201

% DENSITY / FLOW

SPOOL PIECE FOR LATER PLACEMENT OF AE IF SPARE LINE IS USED

SLUICE WATER TO TTA TANKS 12FMD001

SLURRY (PRIMARY) FROM TTA TANKS 12FMD001

SLURRY (SPARE) FROM TTA TANKS 12FMD001

EQUIPMENT DECK ENCLOSURE

TTA CONTAINMENT BUILDING

CONTAINMENT AREA A

UNCONTROLLED INFORMATION ONLY

NOTES:

1. FOR GENERAL NOTES SEE DRAWING 05FMD004.
2. FOR MASS BALANCE TABLES SEE DRAWING 13FMD001.

REFERENCE DRAWINGS:

05FMD001 -- INSTRUMENT IDENTIFICATION
05FMD002 -- CONTROL SYSTEM STANDARDS
05FMD003 -- PIPING & EQUIPMENT IDENTIFICATION
05FMD004 -- GENERAL NOTES
05FMD005 -- VALVE LIST - SHEET 1
05FMD006 -- VALVE LIST - SHEET 2

3158

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		DATE
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CHECKED BY	S W HUNGATE	01/07/00
APPROVED BY	KENNETH RICKETT	01/07/00
APPROVED BY	JOHN LAWSON	01/07/00

DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
SILOS 1 AND 2 ACCELERATED WASTE RETRIEVAL PROJECT
FERNALD, OHIO
FDF CONTRACT NO. FSC 624

FOSTER WHEELER
FOSTER WHEELER ENVIRONMENTAL CORPORATION

TITLE
TRANSFER TANK WASTE RETRIEVAL PROCESS FLOW DIAGRAM
PROCESS ANALYZER

SIZE	SCALE:	DWG. NO.	REV
D	NONE	13FMD003	2

FILENAME: 13FMD003.DWG

G:\CHARGE\FDFSILOS\MEC\SYS\13\13fmd003.dwg Thu Jun 22 15:21:31 2000

000052

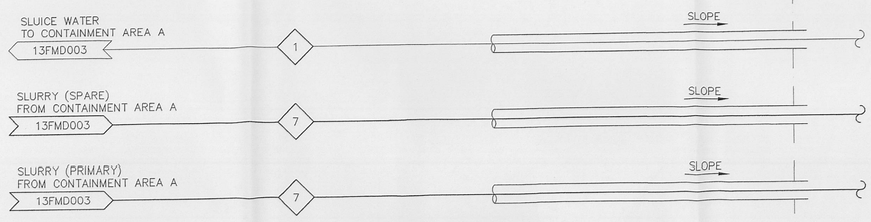
3158

NOTES:

1. FOR GENERAL NOTES SEE DRAWING 05FMD004.
2. FOR MASS BALANCE TABLES SEE DRAWING 13FMD001.
3. CORRESPONDS TO STREAM 11 OF RCS – SYSTEM 20.

REFERENCE DRAWINGS:

05FMD001 -- INSTRUMENT IDENTIFICATION
05FMD002 -- CONTROL SYSTEM STANDARDS
05FMD003 -- PIPING & EQUIPMENT IDENTIFICATION
05FMD004 -- GENERAL NOTES
05FMD005 -- VALVE LIST – SHEET 1
05FMD006 -- VALVE LIST – SHEET 2



FUTURE REMEDIATION FACILITY

UNCONTROLLED

INFORMATION ONLY

3158

THE ORIGINAL DRAWING AND SUBSEQUENT REVISIONS THEREOF, WITH APPROVAL NAMES, INITIALS, AND THE PE SEAL, IF APPLICABLE, ARE MAINTAINED IN THE FILES OF FWENC.

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APPROVED BY / DATE	KENNETH RICKETT 01/07/00
APPROVED BY / DATE	JOHN LAWSON 01/07/00

DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
SILOS 1 AND 2 ACCELERATED WASTE RETRIEVAL PROJECT
FERNALD, OHIO
FDF CONTRACT NO. FSC 624

FOSTER WHEELER
FOSTER WHEELER ENVIRONMENTAL CORPORATION

TITLE
TRANSFER TANK WASTE RETRIEVAL
PROCESS FLOW DIAGRAM
FUTURE REMEDIATION FACILITY

SIZE	SCALE:	DWG. NO.	REV
D	NONE	13FMD004	2

000053

FILENAME: 13FMD004.DWG

G:\CHARGE\FDF\SILOS\MEC\SYS13\13fmd004.dwg Thu Jun 22 15:22:53 2000

3158

COMPRESSED AIR
FROM LOCAL STATIONS
HOV-40-062 & HOV-40-063
40FMD001

FLEX HOSE
FLX-40-001

SLUICE WATER
HIGH PRESSURE
PUMP
11FMD006

DECON /
WASHDOWN
WATER
51FMD003

FLEX HOSE
FLX-51-001

HOSE FOR USE
AS REQUIRED
FOR OPERATION

AIR SWEEP TO
RCS SYSTEM
SEE SYS 20

FI
FLT-11-001

SLURRY AIR FILTER
FLT-11-001

CONCRETE PAD
W/CONTAINMENT DIKE

NOTE:

FILTER FLT-11-001 AND ASSOCIATED INSTRUMENT RACK, DAMPER, &
FLOW INDICATOR WILL BE REMOVED FROM THE SILO BRIDGE.
(FILTER FLT-11-005 SHOWN IN THE ORIGINAL POSITION ON
20FMD013)

SLURRY SUCTION

FLEX HOSE
FLX-14-001

GRADE EL. 586'-0"

2800 GAL.
VACUUM TRUCK

COMPRESSED AIR SUPPLY
FLEX HOSE
FLX-14-001

RCS SUPPLY

RCS RETURN

EXISTING ø30"
CULVERT

TANK WASH SUPPLY

ROAD
~EL. 574.00

AIR DRIVEN TANK
WASHER MOTOR

INTERFACE
FLANGE

DECANT TANK F34-4

EL. 569'-9"

CAM-05-700
CAMERA/LIGHT/P&T
(CAMERA
RELOCATED FROM
SILO 4)

EL. 566-11 1/2" (REF) MAX. LEVEL (70% CAPACITY)

AIR DRIVEN TANK WASH SYSTEM
TKW-14-001

EL. 565'-3"

ROTATING TANK WASH NOZZLE

K65

UNCONTROLLED
INFORMATION ONLY

NOTES:

1. FOR GENERAL NOTES SEE DRAWING 05FMD004.
2. FOR MASS BALANCE TABLES SEE DRAWING 14FMD001.

REFERENCE DRAWINGS:

05FMD001 -- INSTRUMENT IDENTIFICATION
05FMD002 -- CONTROL SYSTEM STANDARDS
05FMD003 -- PIPING & EQUIPMENT IDENTIFICATION
05FMD004 -- GENERAL NOTES
05FMD005 -- VALVE LIST - SHEET 1
05FMD006 -- VALVE LIST - SHEET 2

3158

THE ORIGINAL DRAWING AND SUBSEQUENT REVISIONS THEREOF, WITH APPROVAL NAMES, INITIALS, AND THE PE SEAL, IF APPLICABLE, ARE MAINTAINED IN THE FILES OF FWENC.

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DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
SILOS 1 AND 2 ACCELERATED WASTE RETRIEVAL PROJECT
FERNALD, OHIO
FDF CONTRACT NO. FSC 624

FOSTER WHEELER
FOSTER WHEELER ENVIRONMENTAL CORPORATION

TITLE
DECANT SUMP RETRIEVAL SYSTEM
PROCESS FLOW DIAGRAM
DECANT SUMP RETRIEVAL

SIZE	SCALE:	DWG. NO.	REV
D	NONE	14FMD002	2

FILENAME: 14FMD002.DWG

G:\CHARGE\FDF\SILOS\MECS\SYS14\14fmd002.dwg Thu Jun 22 15:23:57 2000

3158

REFERENCE DRAWINGS:

05FMD001 -- INSTRUMENT IDENTIFICATION
05FMD002 -- CONTROL SYSTEM STANDARDS
05FMD003 -- PIPING & EQUIPMENT IDENTIFICATION
05FMD004 -- GENERAL NOTES
05FMD005 -- VALVE LIST - SHEET 1
05FMD006 -- VALVE LIST - SHEET 2

BACKFLOW PREVENTER (TYP)

SLUICER AIR FILTER FLT-11-003

FI FLT-11-003

EMMA MODULE EMA-14-401

EMMA AIR FILTER FLT-14-001

FI FLT-14-001

SLUICER MODULE SLC-11-204

SLURRY MODULE SLR-11-201

SLURRY AIR FILTER FLT-11-001

FI FLT-11-001

BRIDGE AND BRIDGE COMPONENTS SHOWN IN SILO 2 POSITION

DEBRIS REMOVAL MODULE DRM-11-601

FROM PIPE RACK 20FMD004

TO PIPE RACK 20FMD004

TO PIPE RACK 20FMD004

FLEX DUCT FLX-20-001

PHASE 1 PHASE 2

18 19 20

FLEX DUCT FLX-20-003

PHASE 1 PHASE 2

EXISTING 2" NOZZLE

FLEX DUCT FLX-20-002

EXISTING 2" NOZZLE

EXISTING 20" NOZZLE

DURING PHASE 1 THIS SECTION OF FLEX DUCT WILL BE ROUTED DIRECTLY TO CONNECTION POINT 6.

SILO 2 (EXISTING)

UNCONTROLLED INFORMATION ONLY

3158

FLEX DUCT FLX-20-004

8 SILO 2 SUPPLY

FROM PIPE RACK 20FMD004

FLEX DUCT FLX-20-005

2 SILO 2 SUCTION

TO PIPE RACK 20FMD004

THE ORIGINAL DRAWING AND SUBSEQUENT REVISIONS THEREOF, WITH APPROVAL NAMES, INITIALS, AND THE PE SEAL, IF APPLICABLE, ARE MAINTAINED IN THE FILES OF FWENC.

REV	DATE	BY	CHK'D	APR'VD	DESCRIPTION/ISSUE
2	5/15/00	BJD	GCH	KDR	REVISED PER CHANGE PROPOSAL CP-00-001
1	01/07/00	BJD	SWH	KDR	CERTIFIED FOR CONSTRUCTION
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APPROVED BY KENNETH RICKETT	DATE 01/07/00	
APPROVED BY JOHN LAWSON	DATE 01/07/00	

DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
SILOS 1 AND 2 ACCELERATED WASTE RETRIEVAL PROJECT
FERNALD, OHIO
FDF CONTRACT NO. FSC 624

FOSTER WHEELER
FOSTER WHEELER ENVIRONMENTAL CORPORATION

TITLE
RADON CONTROL SYSTEM
PROCESS FLOW DIAGRAM
SILO 2

SIZE	SCALE:	DWG. NO.	REV
D	NONE	20FMD003	2

000055

FILENAME: 20FMD003.DWG

G:\CHARGE\FDF\SILOS\MEC\SYS20\20fmd003.dwg Thu Jun 22 15:25:14 2000

3158

BLIND FLANGE WHEN NOT IN USE

SPOOL PIECE 4 REMOVABLE TO ALLOW BRIDGE ROTATION (TYP)

SPOOL PIECE 1

PHASE 2 PHASE 1

FROM RECIRCULATION FANS 20FMD010

INFORMATION ONLY
UNCONTROLLED

BACKFLOW PREVENTER (TYP)

FI FLT-11-003

SLUICER AIR FILTER FLT-11-003

SLUICER MODULE SLC-11-204

EMMA MODULE EMA-14-401

FI FLT-14-001

EMMA AIR FILTER FLT-14-001

SLURRY MODULE SLR-11-201

FI FLT-11-001

SLURRY AIR FILTER FLT-11-001

SPOOL PIECE 2

SPOOL PIECE 5 REMOVABLE TO ALLOW BRIDGE ROTATION (TYP)

BRIDGE AND BRIDGE COMPONENTS SHOWN IN SILO 1 POSITION

DEBRIS REMOVAL MODULE DRM-11-601

BLIND FLANGE WHEN NOT IN USE

SPOOL PIECE 6 REMOVABLE TO ALLOW BRIDGE ROTATION (TYP)

SPOOL PIECE 3

TO TREATMENT SYSTEM 20FMD009

FLEX DUCT FLX-20-001

PHASE 1 PHASE 2

FLEX DUCT FLX-20-003

AIR FLOW

BLIND FLANGE WHEN NOT IN USE

CONDENSATE TRAP

1 DETAIL SCALE: NONE

20FMD004 20FMD013

20FMD004 20FMD013

PIPE RACK

EXISTING 20" NOZZLE

EXISTING 2" NOZZLE

FLEX DUCT FLX-20-002

DURING PHASE 1 THIS SECTION OF FLEX DUCT WILL BE ROUTED DIRECTLY TO CONNECTION POINT 7.

EXISTING 20" NOZZLE

FLEX DUCT FLX-20-007

SILO 1 (EXISTING)

NOTES:

1. FOR NOTES SEE DRAWINGS 20FMD003, & 20FMD012

LEGEND:

(1) = INDICATES CONNECTION POINTS FOR PIPING.

= INDICATES FLEX PIPING FOR PHASE 1

REFERENCE DRAWINGS:

05FMD001 -- INSTRUMENT IDENTIFICATION

05FMD002 -- CONTROL SYSTEM STANDARDS

05FMD003 -- PIPING & EQUIPMENT IDENTIFICATION

05FMD004 -- GENERAL NOTES

05FMD005 -- VALVE LIST - SHEET 1

05FMD006 -- VALVE LIST - SHEET 2

3158

FLEX DUCT FLX-20-006

TO SILO 2 20FMD003

FLEX DUCT FLX-20-004

FLEX DUCT FLX-20-005

FROM SILO 2 20FMD003

SILO 1 SUCTION

SILO 1 SUPPLY

SILO 2 SUPPLY

SILO 2 SUCTION

FROM DWRS SYSTEM 20FMD011

RCS PHASE 2 PIPE RACK CONSTRUCTION

RCS PHASE 1 PIPE RACK CONSTRUCTION

LETTER OR NUMBER OF SECTION OR DETAIL

DRAWING ON WHICH SECTION OR DETAIL IS TAKEN

DRAWING ON WHICH SECTION OR DETAIL IS SHOWN

SECTION & DETAIL KEY

THE ORIGINAL DRAWING AND SUBSEQUENT REVISIONS THEREOF, WITH APPROVAL NAMES, INITIALS, AND THE PE SEAL, IF APPLICABLE, ARE MAINTAINED IN THE FILES OF FWENC.

REV	DATE	BY	CHK'D	APR'VD	DESCRIPTION/ISSUE
3					REVISED PER --------
2	05/15/00	BJD	GCH	KDR	REVISED PER CHANGE PROPOSAL CP-00-001
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DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
SILOS 1 AND 2 ACCELERATED WASTE RETRIEVAL PROJECT
FERNALD, OHIO
FDF CONTRACT NO. FSC 624

FOSTER WHEELER
FOSTER WHEELER ENVIRONMENTAL CORPORATION

TITLE
RADON CONTROL SYSTEM
PROCESS FLOW DIAGRAM
SILO 1

SIZE	SCALE:	DWG. NO.	REV
D	NONE	20FMD004	3

FILENAME: 20FMD004.DWG

000056

G:\CHARGE\FDF\SILOS\MEC\SYS20\20fmd004.dwg Thu Jun 22 15:31:11 2000

3158

AIR INLET SCREEN

MAKEUP AIR FROM OUTSIDE BUILDING

UNCONTROLLED INFORMATION ONLY

BACKFLOW PREVENTER

TTA RECIRC AIR FILTER FLT-20-005

RCS RETURN TO FILTRATE TANKS
20FMD005

FROM RECIRCULATION FANS
20FMD010

9

9A

TTA EQUIPMENT DECK

TRANSFER STORAGE TANK TNK-12-001A

TRANSFER STORAGE TANK TNK-12-001B

TRANSFER STORAGE TANK TNK-12-002A

TRANSFER STORAGE TANK TNK-12-002B

3158

TRANSFER TANK STORAGE AREA BUILDING (94C)

NOTES:

1. FOR GENERAL NOTES SEE DRAWING 05FMD004.
2. FOR MASS BALANCE TABLES SEE DRAWINGS 20FMD001 & 20FMD002.

REFERENCE DRAWINGS:

- 05FMD001 -- INSTRUMENT IDENTIFICATION
- 05FMD002 -- CONTROL SYSTEM STANDARDS
- 05FMD003 -- PIPING & EQUIPMENT IDENTIFICATION
- 05FMD004 -- GENERAL NOTES
- 05FMD005 -- VALVE LIST - SHEET 1
- 05FMD006 -- VALVE LIST - SHEET 2

THE ORIGINAL DRAWING AND SUBSEQUENT REVISIONS THEREOF, WITH APPROVAL NAMES, INITIALS, AND THE PE SEAL, IF APPLICABLE, ARE MAINTAINED IN THE FILES OF FWENC.

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DESIGNED BY: B J DAVIS	DATE: 01/07/00
CHECKED BY: S W HUNGATE	DATE: 01/07/00
APPROVED BY: KENNETH RICKETT	DATE: 01/07/00
APPROVED BY: JOHN LAWSON	DATE: 01/07/00

DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
SILOS 1 AND 2 ACCELERATED WASTE RETRIEVAL PROJECT
FERNALD, OHIO
FDF CONTRACT NO. FSC 624

FOSTER WHEELER
FOSTER WHEELER ENVIRONMENTAL CORPORATION

TITLE
RADON CONTROL SYSTEM
PROCESS FLOW DIAGRAM
TTA STORAGE TANKS

SIZE	SCALE:	DWG. NO.	REV
D	NONE	20FMD006	2

000058

FILENAME: 20FMD006.DWG

G:\CHARGE\FIF\S1L05\MEC\SYS20\20fmd006.dwg Thu Jun 22 15:32:34 2000

3158

NC
LC
M
ROOF
INSIDE
RAR-20-001
RAR-20-002
RAR-20-003
RAR-20-004
CARBON BED CBD-20-002B
CARBON BED CBD-20-002A
CARBON BED CBD-20-001B
CARBON BED CBD-20-001A
RCS CARBON BED BUILDING
BYPASS
DRYING FAN FAN-20-003
EXPANSION JOINT EXP-20-009
EXPANSION JOINT EXP-20-010
TO DESICCANT DRYER 20FMD009
TO HEPA FILTERS 20FMD010
TO RECIRCULATION FANS 20FMD010
FROM DESICCANT DRYER 20FMD009
FROM RECIRCULATION FANS 20FMD010
DUCT HEATER DHT-20-001
RCS CARBON BED BUILDING (94D)

UNCONTROLLED
INFORMATION ONLY

NOTES:

1. FOR GENERAL NOTES SEE DRAWING 05FMD004.
2. FOR MASS BALANCE TABLES SEE DRAWINGS 20FMD001 & 20FMD002.

REFERENCE DRAWINGS:

- 05FMD001 -- INSTRUMENT IDENTIFICATION
- 05FMD002 -- CONTROL SYSTEM STANDARDS
- 05FMD003 -- PIPING & EQUIPMENT IDENTIFICATION
- 05FMD004 -- GENERAL NOTES
- 05FMD005 -- VALVE LIST - SHEET 1
- 05FMD006 -- VALVE LIST - SHEET 2

THE ORIGINAL DRAWING AND SUBSEQUENT REVISIONS THEREOF, WITH APPROVAL NAMES, INITIALS, AND THE PE SEAL, IF APPLICABLE, ARE MAINTAINED IN THE FILES OF FWENC.

REV	DATE	BY	CHK'D	APR'VD	DESCRIPTION/ISSUE
2	05/15/00	BJD	GCH	KDR	REVISED PER CHANGE PROPOSAL CP-00-001
1	01/07/00	BJD	SWH	KDR	CERTIFIED FOR CONSTRUCTION
0	11/01/99	BJD	KR		PRELIMINARY DESIGN SUBMITTAL

RPE

DRAWN BY	B J DAVIS	DATE 01/07/00
DESIGNED BY	B J DAVIS	DATE 01/07/00
CHECKED BY	S W HUNGATE	DATE 01/07/00
APPROVED BY	KENNETH RICKETT	DATE 01/07/00
APPROVED BY	JOHN LAWSON	DATE 01/07/00

DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
SILOS 1 AND 2 ACCELERATED WASTE RETRIEVAL PROJECT
FERNALD, OHIO
FDF CONTRACT NO. FSC 624

FOSTER WHEELER
FOSTER WHEELER ENVIRONMENTAL CORPORATION

TITLE
RADON CONTROL SYSTEM
PROCESS FLOW DIAGRAM
CARBON BEDS

SIZE	SCALE:	DWG. NO.	REV
D	NONE	20FMD007	2

000059

FILENAME: 20FMD007.DWG

G:\CHARGE\FDF\SILOS\WEC\SYS20\20fmd007.dwg Thu Jun 22 15:38:47 2000

3158

TO FILTRATE STORAGE TANK 12FMD018

FROM FILTRATE STORAGE TANK 12FMD018

PIPE RACK

17 TO AWWT 05FCD014

10 CONDENSATE FROM DESICCANT DRYER DDS-20-001A, 001B 20FMD009

HOLD-UP TANK TNK-20-002A 3000 GAL

TRANSFER PUMP PMP-20-001A

SYSTEM 20.1.2 (TTA)

SYSTEM 20.1.2 (RCS)

FE AWT-20-001

OPERATIONS CONNECTION FOR REMOVAL OF CONDENSATE FROM STACK BY USE OF PORTABLE PUMP. TEMPORARY PIPE CONNECTION LOCATED ON OUTSIDE OF RCS AIR HANDLING BUILDING.

BLIND FLANGE WHEN NOT IN USE

CONDENSATE FROM DUCT WORK TRAP 20FMD009

OVERFLOW

CONDENSATE - GRAVITY DRAIN TO TNK-20-002B

HOLD-UP TANK TNK-20-002B 3000 GAL

TRANSFER PUMP PMP-20-001B

UNCONTROLLED INFORMATION ONLY

RCS BUILDING SUMP SMP-20-001

SUMP PUMP PMP-20-003

3158

TO DESSICANT DRYERS 20FMD009

RCS AIR HANDLING BUILDING (94E)

NOTES:

1. FOR GENERAL NOTES SEE DRAWING 05FMD004.
2. FOR MASS BALANCE TABLES SEE DRAWINGS 20FMD001 & 20FMD002.
3. DESICCANT DRYING SYSTEM INCLUDES PRECOOLING COIL, DESICCANT WHEEL, POST-COOLING COIL, CLOSED LOOP REACTIVATION SYSTEM, CONDENSATE COLLECTION TRANSFER SYSTEM, AND INSTRUMENTATION.

REFERENCE DRAWINGS:

05FMD001	-- INSTRUMENT IDENTIFICATION
05FMD001	-- CONTROL SYSTEM STANDARDS
05FMD001	-- PIPING & EQUIPMENT IDENTIFICATION
05FMD001	-- GENERAL NOTES
05FMD001	-- VALVE LIST - SHEET 1
05FMD001	-- VALVE LIST - SHEET 2

THE ORIGINAL DRAWING AND SUBSEQUENT REVISIONS THEREOF, WITH APPROVAL NAMES, INITIALS, AND THE PE SEAL, IF APPLICABLE, ARE MAINTAINED IN THE FILES OF FWENC.

REV	DATE	BY	CHK'D	APR'VD	DESCRIPTION/ISSUE
2	05/15/00	BJD	GCH	KDR	REVISED PER CHANGE PROPOSAL CP-00-001
1	01/07/00	BJD	SWH	KDR	CERTIFIED FOR CONSTRUCTION
0	11/01/99	BJD	KR		PRELIMINARY DESIGN SUBMITTAL

RPE

DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
SILOS 1 AND 2 ACCELERATED WASTE RETRIEVAL PROJECT
FERNALD, OHIO
FDF CONTRACT NO. FSC 624

FOSTER WHEELER
FOSTER WHEELER ENVIRONMENTAL CORPORATION

DRAWN BY B J DAVIS	DATE 01/07/00	
DESIGNED BY B J DAVIS	DATE 01/07/00	
CHECKED BY S W HUNGATE	DATE 01/07/00	
APPROVED BY KENNETH RICKETT	DATE 01/07/00	
APPROVED BY JOHN LAWSON	DATE 01/07/00	

TITLE
RADON CONTROL SYSTEM
PROCESS FLOW DIAGRAM
HOLD-UP TANKS & CONDENSATE

SIZE	SCALE:	DWG. NO.	REV
D	NONE	20FMD008	2

000060

FILENAME: 20FMD008.DWG

G:\CHARGE\FDF\SILOS\MEC\SYS20\20fmd008.dwg Thu Jun 22 15:39:30 2000

3158

NOTES:

1. FOR GENERAL NOTES SEE DRAWING 05FMD004.
2. FOR MASS BALANCE TABLES SEE DRAWINGS 20FMD001 & 20FMD002.
3. DESICCANT DRYING SYSTEM INCLUDES PRECOOLING COIL, DESICCANT WHEEL, POST-COOLING COIL, CLOSED LOOP REACTIVATION SYSTEM, CONDENSATE COLLECTION TRANSFER SYSTEM, AND INSTRUMENTATION.

REFERENCE DRAWINGS:

05FMD001 -- INSTRUMENT IDENTIFICATION
05FMD002 -- CONTROL SYSTEM STANDARDS
05FMD003 -- PIPING & EQUIPMENT IDENTIFICATION
05FMD004 -- GENERAL NOTES
05FMD005 -- VALVE LIST - SHEET 1
05FMD006 -- VALVE LIST - SHEET 2

RCS AIR HANDLING BUILDING (94E)

EQUIPMENT PAD

CHILLED WATER RETURN

CHILLED WATER SUPPLY

WATER SEE 51FMD001

CHILLER PACKAGE CHR-20-001A

DRAIN

WATER SEE 51FMD001

DESICCANT DRYING SYSTEM DDS-20-001A NOTE 3

ROUGHING FILTER FLT-20-001A

CONDENSATE

CHILLER PACKAGE CHR-20-001B

DRAIN

CHILLED WATER RETURN

CHILLED WATER SUPPLY

FROM CARBON BED DRYERS 20FMD007

FROM TTA AND FILTRATE TANKS 20FMD005

3

CONDENSATE TO HOLD-UP TANKS 20FMD008

10

5

UNCONTROLLED INFORMATION ONLY

CONNECTION TO BE BLIND FLANGED DURING PHASE 1 ONLY

PHASE 2

PHASE 1

DESICCANT DRYING SYSTEM DDS-20-001B NOTE 3

ROUGHING FILTER FLT-20-001B

CONDENSATE

FUTURE DISCONNECT POINT (TYP)

FROM SILOS 20FMD004

3158

4

CONDENSATE TO HOLD-UP TANKS 20FMD008

CONDENSATE - GRAVITY DRAIN TO TNK-20-002B

FUTURE TIE-IN POINT

FROM FUTURE WASTE TREATMENT AREA 13FMD004

11

PHASE 1

CONDENSATE TRAP

RCS FROM HOLD-UP TANKS 20FMD008

FROM SECOND FLOOR

EXITS ROOF

TO CARBON BEDS 20FMD007

THE ORIGINAL DRAWING AND SUBSEQUENT REVISIONS THEREOF, WITH APPROVAL NAMES, INITIALS, AND THE PE SEAL, IF APPLICABLE, ARE MAINTAINED IN THE FILES OF FWENC.

REV	DATE	BY	CHK'D	APR'VD	DESCRIPTION/ISSUE
2	05/15/00	BJD	GCH	KDR	REVISED PER CHANGE PROPOSAL CP-00-001
1	01/07/00	BJD	SWH	KDR	CERTIFIED FOR CONSTRUCTION
0	11/01/99	BJD	KR		PRELIMINARY DESIGN SUBMITTAL

RPE

DRAWN BY	B J DAVIS	DATE 01/07/00
DESIGNED BY	B J DAVIS	DATE 01/07/00
CHECKED BY	S W HUNGATE	DATE 01/07/00
APPROVED BY	KENNETH RICKETT	DATE 01/07/00
APPROVED BY	JOHN LAWSON	DATE 01/07/00

DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
SILOS 1 AND 2 ACCELERATED WASTE RETRIEVAL PROJECT
FERNALD, OHIO
FDF CONTRACT NO. FSC 624

FOSTER WHEELER
FOSTER WHEELER ENVIRONMENTAL CORPORATION

TITLE
RADON CONTROL SYSTEM
PROCESS FLOW DIAGRAM
DRYERS & AIR HANDLING

SIZE	SCALE:	DWG. NO.	REV
D	NONE	20FMD009	2

000061

FILENAME: 20FMD009.DWG

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3158

TO SILOS
20FMD004

CONNECTION TO BE BLIND FLANGED DURING PHASE 1 ONLY

PHASE 1 | PHASE 2

TO TTA
20FMD006

PIPE RACK TO TTA

UNCONTROLLED INFORMATION ONLY

TO CARBON BED DUCT HEATER DHT-20-001
20FMD007

15

16

MAKEUP AIR FROM OUTSIDE BUILDING

BACKFLOW PREVENTER

MAKE-UP AIR FILTER FLT-20-004

AIR INLET SCREEN

FROM DRYING FAN
20FMD007

FROM CARBON BEDS
20FMD007

6

TEST TEST

HEPA FILTER FLT-20-002A

EXPANSION JOINT EXP-20-001

6A

EXHAUST / RECIRCULATION FAN FAN-20-001A

EXPANSION JOINT EXP-20-002

RCS BUILDING - 2ND FLOOR

TO ATM

14

STACK SAMPLE TO CEM BUILDING 94J
20FMD023

STACK SAMPLE RETURN FROM CEM BLDG. 94J
20FMD023

EXPANSION JOINT EXP-20-003

6A

EXHAUST / RECIRCULATION FAN FAN-20-001B

EXPANSION JOINT EXP-20-004

HEPA FILTER FLT-20-002B

BACKDRAFT DAMPER

12

3158

FROM VENTILATION SYSTEM
77FMD005

13

RCS AIR HANDLING BUILDING (94E) - 2ND FLOOR

CONNECTION FOR REMOVAL OF CONDENSATE FROM STACK BY USE OF PORTABLE PUMP BY OPERATIONS. TEMPORARY PIPE TO BE CONNECTED TO OUTSIDE OF RCS AIR HANDLING BUILDING.

BLIND FLANGE WHEN NOT IN USE

STACK STK-20-001

NOTES:

1. FOR GENERAL NOTES SEE DRAWING 05FMD004.
2. FOR MASS BALANCE TABLES SEE DRAWINGS 20FMD001 & 20FMD002.

REFERENCE DRAWINGS:

- 05FMD001 -- INSTRUMENT IDENTIFICATION
- 05FMD002 -- CONTROL SYSTEM STANDARDS
- 05FMD003 -- PIPING & EQUIPMENT IDENTIFICATION
- 05FMD004 -- GENERAL NOTES
- 05FMD005 -- VALVE LIST - SHEET 1
- 05FMD006 -- VALVE LIST - SHEET 2

THE ORIGINAL DRAWING AND SUBSEQUENT REVISIONS THEREOF, WITH APPROVAL NAMES, INITIALS, AND THE PE SEAL, IF APPLICABLE, ARE MAINTAINED IN THE FILES OF FWENC.

REV	DATE	BY	CHK'D	APR'VD	DESCRIPTION/ISSUE
2	05/15/00	BJD	GCH	KDR	REVISED PER CHANGE PROPOSAL CP-00-001
1	01/07/00	BJD	SWH	KDR	CERTIFIED FOR CONSTRUCTION
0	11/01/99	BJD	KR		PRELIMINARY DESIGN SUBMITTAL

RPE

DRAWN BY	B J DAVIS	DATE 01/07/00
DESIGNED BY	B J DAVIS	DATE 01/07/00
CHECKED BY	S W HUNGATE	DATE 01/07/00
APPROVED BY	KENNETH RICKETT	DATE 01/07/00
APPROVED BY	JOHN LAWSON	DATE 01/07/00

DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
SILOS 1 AND 2 ACCELERATED WASTE RETRIEVAL PROJECT
FERNALD, OHIO
FDF CONTRACT NO. FSC 624

FOSTER WHEELER
FOSTER WHEELER ENVIRONMENTAL CORPORATION

TITLE
RADON CONTROL SYSTEM
PROCESS FLOW DIAGRAM
EXHAUST & RECIRC FANS

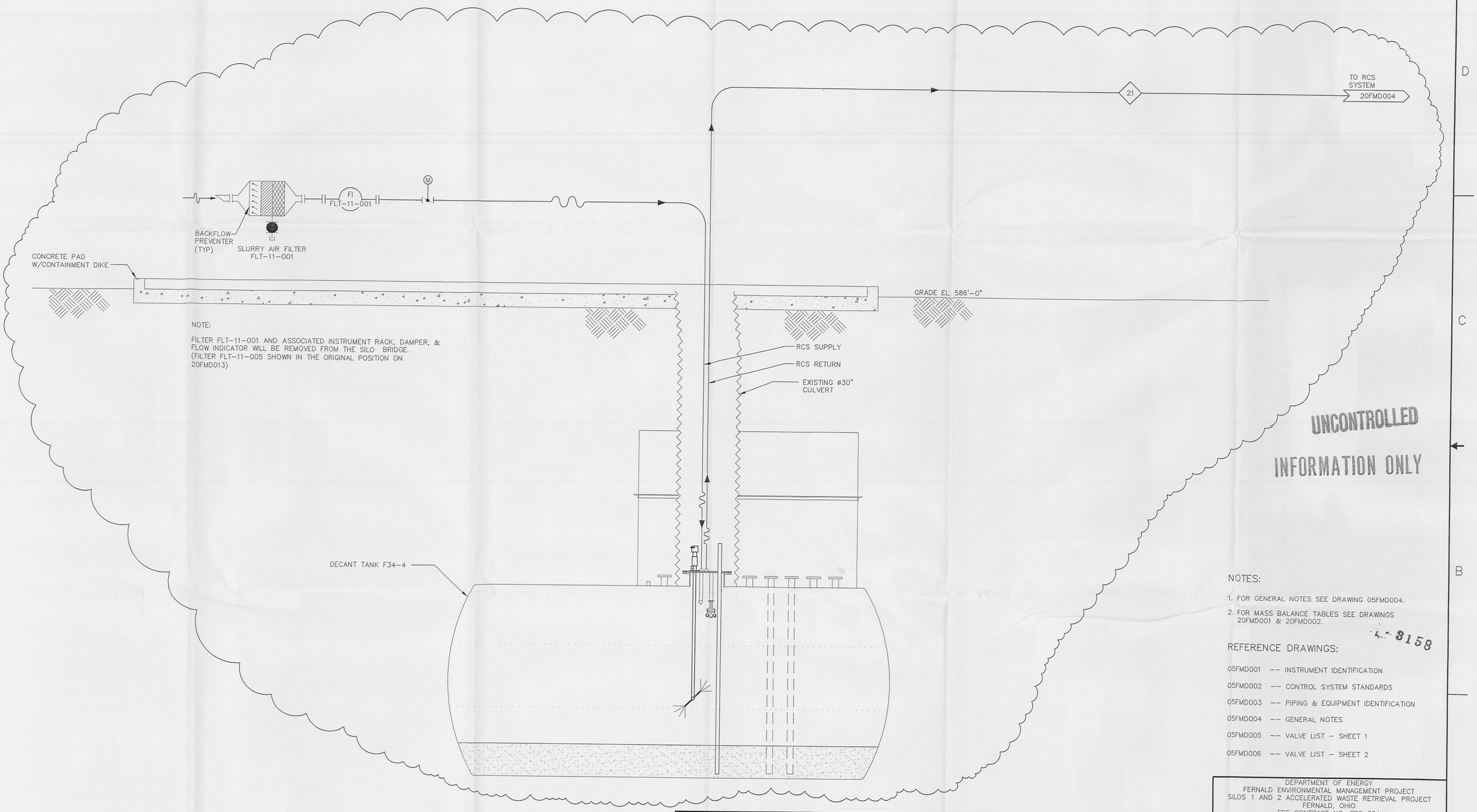
SIZE	SCALE:	DWG. NO.	REV
D	NONE	20FMD010	2

000062

FILENAME: 20FMD010.DWG

G:\CHARGE\FDFSILOS\WEC\SYS20\20fmd010.dwg Thu Jun 22 15:42:09 2000

3158



NOTE:

FILTER FLT-11-001 AND ASSOCIATED INSTRUMENT RACK, DAMPER, & FLOW INDICATOR WILL BE REMOVED FROM THE SILO BRIDGE. (FILTER FLT-11-005 SHOWN IN THE ORIGINAL POSITION ON 20FMD013)

UNCONTROLLED

INFORMATION ONLY

NOTES:

1. FOR GENERAL NOTES SEE DRAWING 05FMD004.
2. FOR MASS BALANCE TABLES SEE DRAWINGS 20FMD001 & 20FMD002.

3158

REFERENCE DRAWINGS:

05FMD001 -- INSTRUMENT IDENTIFICATION
05FMD002 -- CONTROL SYSTEM STANDARDS
05FMD003 -- PIPING & EQUIPMENT IDENTIFICATION
05FMD004 -- GENERAL NOTES
05FMD005 -- VALVE LIST - SHEET 1
05FMD006 -- VALVE LIST - SHEET 2

THE ORIGINAL DRAWING AND SUBSEQUENT REVISIONS THEREOF, WITH APPROVAL NAMES, INITIALS, AND THE PE SEAL, IF APPLICABLE, ARE MAINTAINED IN THE FILES OF FWENC.

REV	DATE	BY	CHK'D	APR'VD	DESCRIPTION/ISSUE
2					REVISED PER CHANGE PROPOSAL CP-00-001
1	01/07/00	BJD	SWH	KDR	CERTIFIED FOR CONSTRUCTION
0	11/01/99	BJD	KR		PRELIMINARY DESIGN SUBMITTAL

RPE

DRAWN BY / DATE	B J DAVIS 01/07/00
DESIGNED BY / DATE	B J DAVIS 01/07/00
CHECKED BY / DATE	S W HUNGATE 01/07/00
APPROVED BY / DATE	KENNETH RICKETT 01/07/00
APPROVED BY / DATE	JOHN LAWSON 01/07/00

DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
SILOS 1 AND 2 ACCELERATED WASTE RETRIEVAL PROJECT
FERNALD, OHIO
FDF CONTRACT NO. FSC 624

FOSTER WHEELER
FOSTER WHEELER ENVIRONMENTAL CORPORATION

TITLE
RADON CONTROL SYSTEM
PROCESS FLOW DIAGRAM
DECANT WASTE RETRIEVAL

SIZE	SCALE:	DWG. NO.	REV
D	NONE	20FMD011	1

FILENAME: 20FMD011.DWG

G:\CHARGEYD\FSILOS\MECSYS20\20fmd011.dwg Thu Jun 22 15:43:08 2000

NOTES:

3158

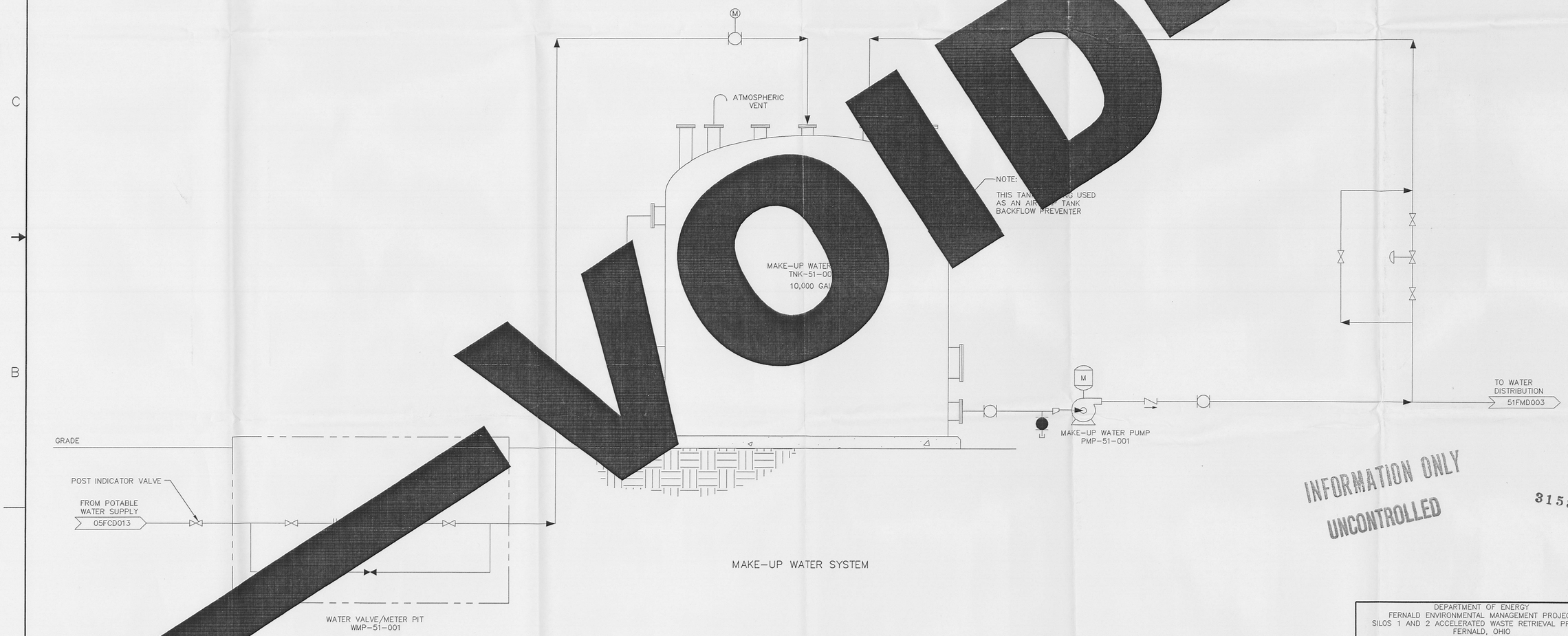
1. FOR GENERAL NOTES SEE [illegible]
2. FOR MASS BALANCE [illegible] 11FMD001 & 11FM[illegible]

REFERENC[illegible]

05F[illegible] [illegible]RUMENT DIAGRAM – [illegible] IDENTIFICATION

[illegible]G & INSTRUMENT DIAGRAM – [illegible]ONTROL SYSTEM STANDARDS

[illegible]03 PIPING & INSTRUMENT DIAGRAM – PIPING & EQUIPMENT IDENTIFICATION



MAKE-UP WATER SYSTEM

INFORMATION ONLY
UNCONTROLLED

3158

THE ORIGINAL DRAWING AND SUBSEQUENT REVISIONS THEREOF, WITH APPROVAL NAMES, INITIALS, AND THE PE SEAL, IF APPLICABLE, ARE MAINTAINED IN THE FILES OF FWENC.

REV	DATE	BY	CHK'D	APR'VD	DESCRIPTION/ISSUE
2	05/15/00	BJD	GCH	KDR	DRAWING VOID PER CHANGE PROPOSAL CP-00-001
1	01/07/00	BJD	SWH	KDR	CERTIFIED FOR CONSTRUCTION
0	11/01/99	BJD	SWH		PRELIMINARY DESIGN PACKAGE

RPE

		DATE
DRAWN BY	B J DAVIS	01/07/00
DESIGNED BY	B J DAVIS	01/07/00
CHECKED BY	S W HUNGATE	01/07/00
APPROVED BY	KENNETH RICKETT	01/07/00
APPROVED BY	JOHN LAWSON	01/07/00

DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
SILOS 1 AND 2 ACCELERATED WASTE RETRIEVAL PROJECT
FERNALD, OHIO
FDF CONTRACT NO. FSC 624

FOSTER WHEELER
FOSTER WHEELER ENVIRONMENTAL CORPORATION

TITLE
POTABLE/DOMESTIC WATER SYS
PROCESS FLOW DIAGRAM
MAKE-UP WATER

SIZE	SCALE:	DWG. NO.	REV
D	NONE	51FMD001	2

G:\CHARGE\FDFSILOS\MEC\SYS51\51fmd001.dwg Thu Jun 22 15:45:43 2000

000064

FILENAME: 51FMD001.DWG

3158

STORAGE TRAILER (T-411)

STORAGE TRAILER (T-412)

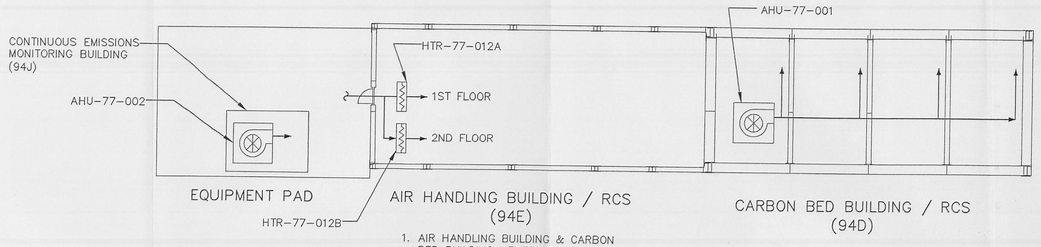
CONTROL TRAILER (T-409)

ELECTRICAL EQUIPMENT BUILDING (94G)

SUPPORT TRAILERS

STORAGE TRAILERS WILL NOT BE HEATED OR COOLED.

CONTROL TRAILER SUPPLIED WITH INDEPENDENT HEATING AND COOLING UNITS.



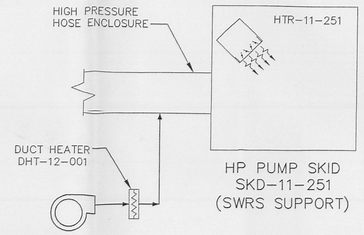
EQUIPMENT PAD

AIR HANDLING BUILDING / RCS (94E)

CARBON BED BUILDING / RCS (94D)

1. AIR HANDLING BUILDING & CARBON BED BUILDING HEATED BY AN ELECTRIC DUCT HEATER.
2. VENTILATION PROVIDED BY A VENTILATION SYSTEM. SEE DRAWINGS 77FMD003, 77FMD005, 77FMD006, & 77FMD008 FOR DETAILS.

HP PUMP SKID SKD-11-250 (FSM SUPPORT)

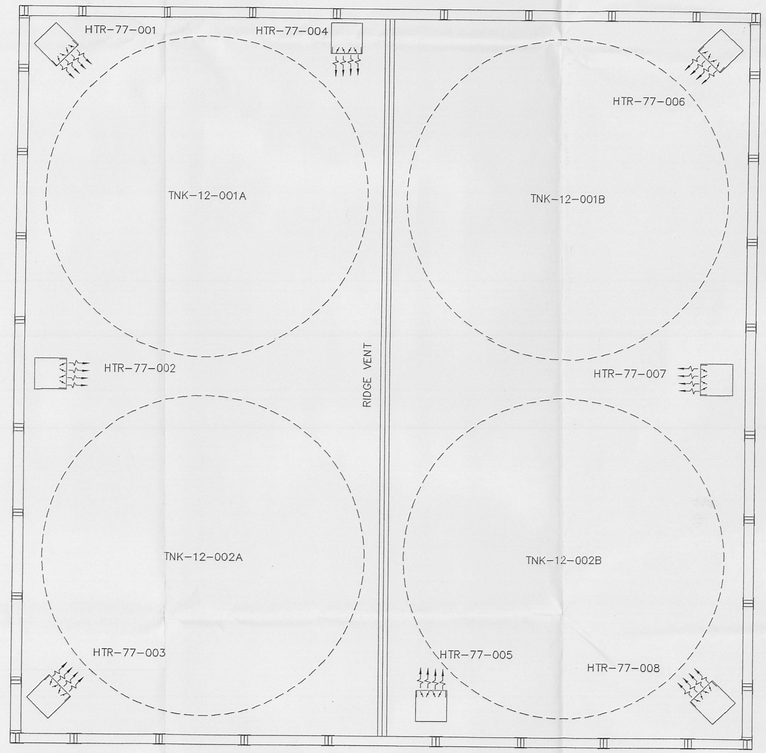


HP PUMP SKID SKD-11-251 (SWRS SUPPORT)

EQUIPMENT MODULES

1. AIR LOCKS ARE PROVIDED WITH EACH ENCLOSURE.
2. RADIANT HEATERS ARE PROVIDED WITH EACH ENCLOSURE FOR FREEZE PROTECTION.
3. VENTILATION OF MODULES ARE PROVIDED BY THE RADON CONTROL SYSTEM. SEE SYSTEM 20 DRAWING FOR DETAILS.
4. SEE DRAWING 05FMD005 FOR MODULE LOCATIONS.

DECANT MODULE DEC-12-200	SLUICER MODULE SLC-11-204
DECANT MODULE DEC-12-201	SLUICER MODULE SLC-11-205
SLURRY MODULE SLR-11-200	EMMA MODULE EMA-14-400
SLURRY MODULE SLR-11-201	EMMA MODULE EMA-14-401
SLURRY MODULE SLR-11-202	DEBRIS REMOVAL MODULE DRM-11-600
SLUICER MODULE SLC-11-203	DEBRIS REMOVAL MODULE DRM-11-601



TANK TRANSFER AREA BUILDING (94C)

1. VENTILATION PROVIDED BY LOUVERS AND A RIDGE VENT.

HOLD

SUPPORT TRAILERS

1. ALL TRAILERS SUPPLIED WITH INDEPENDENT HEATING AND COOLING UNITS

H&S TRAILER (T-408)

H&S TRAILER (T-407)

BREAK TRAILER (T-406)

BREAK TRAILER (T-405)

OFFICE TRAILER (T-404)

OFFICE TRAILER (T-403)

3158

INFORMATION ONLY
UNCONTROLLED

PRELIMINARY
NOT FOR CONSTRUCTION

REV	DATE	BY	CHK'D	APR'VD	DESCRIPTION/ISSUE
C	05/15/00	BJD			REVISED PER CP-00-001 & ISSUED FOR 90% REVIEW
B	01/07/00	BJD			ISSUED FOR OHIO EPA REVIEW
A		BJD			PRELIMINARY DESIGN SUBMITTAL

RPE

DRAWN BY BJD	DATE 5-15-00
DESIGNED BY BJD	DATE 5-15-00
CHECKED BY	DATE
APPROVED BY	DATE
APPROVED BY	DATE

DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
SILOS 1 AND 2 ACCELERATED WASTE RETRIEVAL PROJECT
FERNALD, OHIO
FDF CONTRACT NO. FSC 624

FOSTER WHEELER
FOSTER WHEELER ENVIRONMENTAL CORPORATION

TITLE
MISC FACILITIES HVAC SYSTEM
HVAC FLOW DIAGRAM
LOCATION AND CONTROL

SIZE	SCALE:	DWG. NO.	REV
D	NONE	77FMD001	C

000065

FILENAME: 77FMD001.DWG

G:\CHARGE\F&FSILOS\MECH\SYS77\77fmd001.dwg Thu Jun 22 15:46:54 2000

3158

DIRECT EXPANSION COOLING COIL
95% FINAL FILTER
30% PRE-FILTER
BACK DRAFT DAMPER
EQUIPMENT LOCATED ON (94D) CARBON BED BUILDING ROOF
AIR HANDLING UNIT AHU-77-001

3A

(94E) AIR HANDLING BUILDING – RCS 1ST FLOOR

(94D) CARBON BED BUILDING – RCS 1ST FLOOR

ROUGHING FILTER FLT-20-001A
DESICCANT DRYER DDS-20-001A
SAD-77-003
SAD-77-005
SAD-77-001
EAR-77-001
EAR-77-003
TRANSFER PUMP PMP-20-001A
HOLD-UP TANK TNK-20-001A
EAR-77-004
EAR-77-013

INSIDE
OUTSIDE
SAD-77-007
SAD-77-008
SAD-77-009
SAD-77-010
CARBON BED CBD-20-001A
CARBON BED CBD-20-001B
CARBON BED CBD-20-002A
CARBON BED CBD-20-002B

30% PRE-FILTER
95% FINAL FILTER
EXPANSION JOINT EXP-77-007
M
1
RCS BUILDING FILTER FLT-77-001
BACK DRAFT DAMPER
RCS BLDG SUPPLY FAN FAN-77-003
EXPANSION JOINT EXP-77-008
2
DUCT HEATER HTR-77-012A
DUCT HEATER HTR-77-012B

EAR-77-002
SAD-77-002
SAD-77-004
SAD-77-006
TRANSFER PUMP PMP-20-001B
HOLD-UP TANK TNK-20-001B
EAR-77-005

EAR-77-009
EAR-77-010
EAR-77-011
EAR-77-012

TO 2ND FLOOR RCS VENTILATION 77FMD005
3
ROUGHING FILTER FLT-20-001B
DESICCANT DRYER DDS-20-001B

TO 2ND FLOOR (TYP)

5
TO BUILDING VENT FANS 77FMD005

3158

INFORMATION ONLY

UNCONTROLLED

NOTES:

1. FOR MASS BALANCE TABLE SEE DRAWING 77FMD002.

REFERENCE DRAWINGS:

05FMD001 -- INSTRUMENT IDENTIFICATION
05FMD001 -- CONTROL SYSTEM STANDARDS
05FMD001 -- PIPING & EQUIPMENT IDENTIFICATION
05FMD001 -- GENERAL NOTES
05FMD001 -- VALVE LIST – SHEET 1
05FMD001 -- VALVE LIST – SHEET 2

PRELIMINARY
NOT FOR CONSTRUCTION

REV	DATE	BY	CHK'D	APR'VD	DESCRIPTION/ISSUE
C	05/15/00	BJD			REVISED PER CP-00-001 & ISSUED FOR 90% REVIEW
B	01/07/00	BJD			ISSUED FOR OHIO EPA REVIEW
A		BJD			PRELIMINARY DESIGN SUBMITTAL

RPE

DRAWN BY / DATE	BJD 5-15-00
DESIGNED BY / DATE	BJD 5-15-00
CHECKED BY / DATE	
APPROVED BY / DATE	
APPROVED BY / DATE	

DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
SILOS 1 AND 2 ACCELERATED WASTE RETRIEVAL PROJECT
FERNALD, OHIO
FDF CONTRACT NO. FSC 624

FOSTER WHEELER
FOSTER WHEELER ENVIRONMENTAL CORPORATION

TITLE
MISC FACILITIES HVAC SYSTEM
HVAC FLOW DIAGRAM
RCS BLDG VENTILATION–1ST FL

SIZE	SCALE:	DWG. NO.	REV
D	NONE	77FMD003	C

000066

FILENAME: 77FMD003.DWG

G:\CHARGE\FDFSILOS\MECH\SYS77\77fmd003.dwg Thu Jun 22 15:46:16 2000

VOID

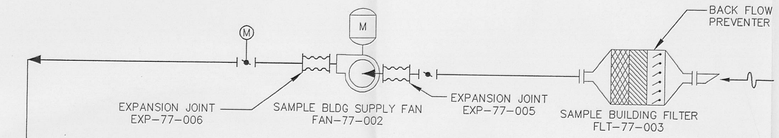
NOTES:

3158

1. FOR GENERAL NOTES SEE DRAWI
2. FOR MASS BALANCE TABLE
   77FMD002.

REFERENC

05FM
RUMENT DIAGRAM –
IDENTIFICATION
G & INSTRUMENT DIAGRAM –
ONTROL SYSTEM STANDARDS
3 PIPING & INSTRUMENT DIAGRAM –
PIPING & EQUIPMENT IDENTIFICATION



INFORMATION ONLY

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3158

REV	DATE	BY	CHK'D	APR'VD	DESCRIPTION/ISSUE
C	05/15/00	BJD	GCH	KDR	DRAWING VOIDED
B	01/07/00	BJD			ISSUED FOR OHIO EPA REVIEW
A		BJD			PRELIMINARY DESIGN SUBMITTAL

RPE

DRAWN BY BJD	DATE
DESIGNED BY BF	DATE
CHECKED BY	DATE
APPROVED BY	DATE
APPROVED BY	DATE

DEPARTMENT OF ENERGY
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SILOS 1 AND 2 ACCELERATED WASTE RETRIEVAL PROJECT
FERNALD, OHIO
FDF CONTRACT NO. FSC 624

FOSTER WHEELER
FOSTER WHEELER ENVIRONMENTAL CORPORATION

TITLE
MISC FACILITIES HVAC SYSTEM
HVAC FLOW DIAGRAM
SAMPLE BUILDING VENTILATION

SIZE	SCALE:	DWG. NO.	REV
D	NONE	77FMD004	C

000067

FILENAME: 77FMD004.DWG

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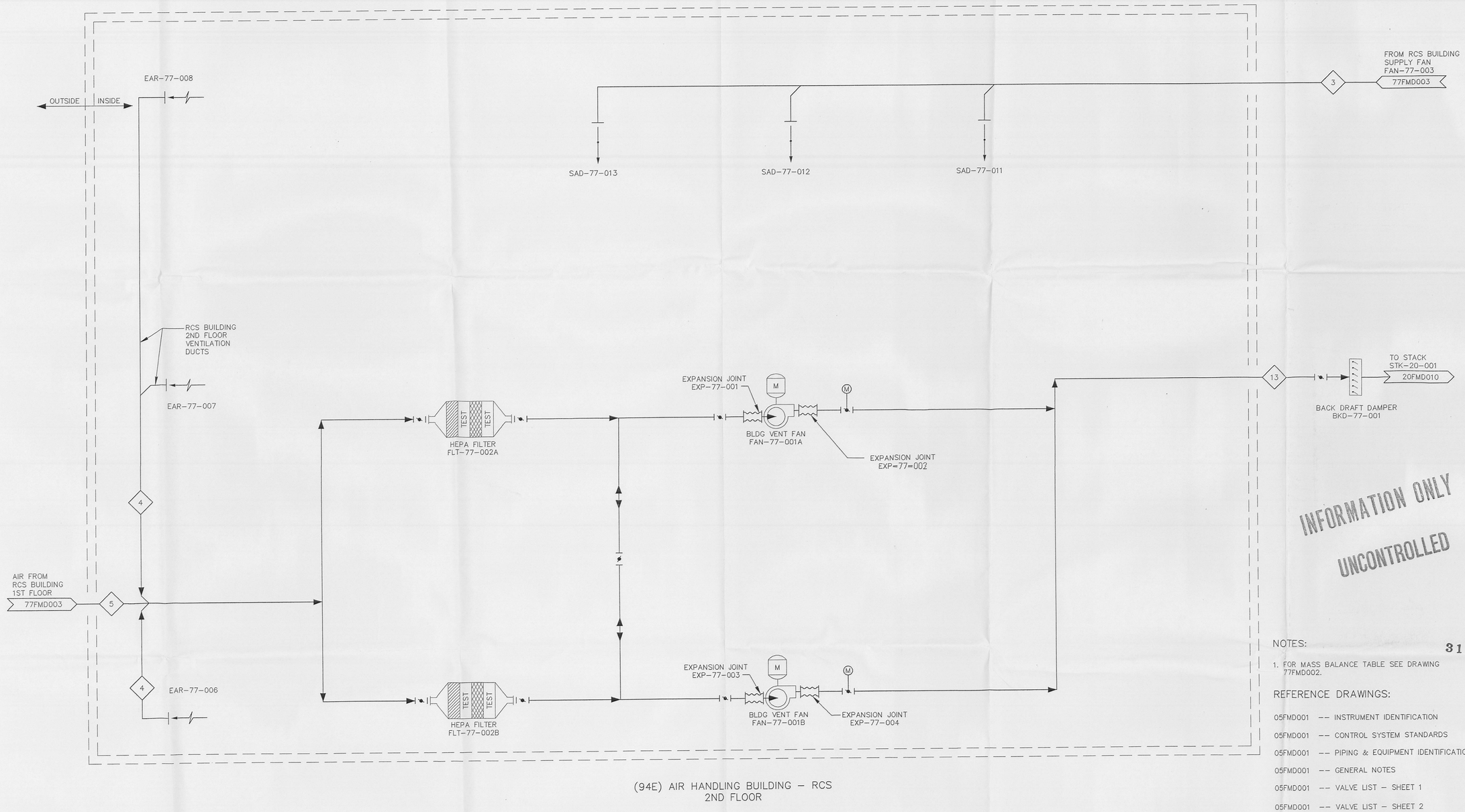
3158



(94E) AIR HANDLING BUILDING – RCS 2ND FLOOR

INFORMATION ONLY

UNCONTROLLED

NOTES: 3158

1. FOR MASS BALANCE TABLE SEE DRAWING 77FMD002.

REFERENCE DRAWINGS:

05FMD001 -- INSTRUMENT IDENTIFICATION
05FMD001 -- CONTROL SYSTEM STANDARDS
05FMD001 -- PIPING & EQUIPMENT IDENTIFICATION
05FMD001 -- GENERAL NOTES
05FMD001 -- VALVE LIST – SHEET 1
05FMD001 -- VALVE LIST – SHEET 2

PRELIMINARY
NOT FOR CONSTRUCTION

REV	DATE	BY	CHK'D	APR'VD	DESCRIPTION/ISSUE
C	05/15/00	BJD			REVISED PER CP-00-001 & ISSUED FOR 90% REVIEW
B	01/07/00	BJD			ISSUED FOR OHIO EPA REVIEW
A		BJD			PRELIMINARY DESIGN SUBMITTAL

RPE

DRAWN BY: BJD	DATE: 5-15-00
DESIGNED BY: BJD	DATE: 5-15-00
CHECKED BY	DATE
APPROVED BY	DATE
APPROVED BY	DATE

DEPARTMENT OF ENERGY
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FERNALD, OHIO
FDF CONTRACT NO. FSC 624

FOSTER WHEELER
FOSTER WHEELER ENVIRONMENTAL CORPORATION

TITLE
MISC FACILITIES HVAC SYSTEM
HVAC FLOW DIAGRAM
RCS BLDG VENTILATION–2ND FL

SIZE	SCALE:	DWG. NO.	REV
D	NONE	77FMD005	C

000068

FILENAME: 77FMD005.DWG

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3158

(94E) AIR HANDLING BUILDING – RCS
1ST FLOOR

(94D) CARBON BED BUILDING – RCS
1ST FLOOR

RAC–RCS–023

H PDIT L FLT–77–001

HOV–90–110 HOV–90–107

H PDI L FLT–77–001A H PDI L FLT–77–001B

HOV–90–109 HOV–90–106

HOV–90–108 INT–900320–3/8T–17050

HOV–90–105

HOV–90–103 HOV–90–104

INT–900320A–3/8T–17050 INT–900320B–3/8T–17050

A C B

HOA DMP–77–002

ZS DMP–77–002A/B

HOA FAN–77–003 LOCAL

30% PRE–FILTER

95% FINAL FILTER

MOD I&C

DMP–77–001

EXPANSION JOINT EXP–77–007

M

RCS BUILDING FILTER FLT–77–001

BACK DRAFT DAMPER

RCS BLDG SUPPLY FAN FAN–77–003 10 HP

EXPANSION JOINT EXP–77–008

DMP–77–002

VA–77019–30"–891

VA–77020–34"–891 34X30

VA–77020–30"–891

VA–77021–20"–891

DMP–77–004

DUCT HEATER HTR–77–012A 125 KW

VA–77020–26"–891 30X26

VA–77020–22"–891 26X22

DMP–77–003

DUCT HEATER HTR–77–012B 50 KW

IZ HTR–77–012B

VA–77021–20"–891

TO 2ND FLOOR RCS VENTILATION 77FMD008

ROUGHING FILTER FLT–20–001A

DESICCANT DRYER DDS–20–001A

ROUGHING FILTER FLT–20–001B

DESICCANT DRYER DDS–20–001B

EAR–77–001 1510 CFM

EAR–77–002 1510 CFM

SAD–77–003 960 CFM

SAD–77–001 960 CFM

SAD–77–002 960 CFM

SAD–77–004 960 CFM

SAD–77–005 950 CFM

SAD–77–006 950 CFM

VA–77003–14"–893

VA–77004–14"–893

VA–77022–14"–891

VA–77023–14"–891

VA–77024–14"–891

VA–77025–14"–891

VA–77026–14"–891

VA–77027–14"–891

EAR–77–003 1010 CFM

EAR–77–005 1010 CFM

TRANSFER PUMP PMP–20–001A

TRANSFER PUMP PMP–20–001B

HOLD–UP TANK TNK–20–001A

HOLD–UP TANK TNK–20–001B

VA–77001–12"–893

VA–77002–12"–893

VA–77002–8"–893

EAR–77–004 1000 CFM

VA–77034–8"–893

EAR–77–013 1000 CFM

16X12 12x8

VA–77001–16"–893

VA–77003–20"–893 26x20

VA–77001–28"–893 28x26

VA–77001–26"–891

VA–77005–12"–893

30X28

TO 2ND FLOOR (TYP)

DIRECT EXPANSION COOLING COIL

95% FINAL FILTER

30% PRE–FILTER

BACK DRAFT DAMPER

EQUIPMENT LOCATED ON (94D) CARBON BED BUILDING ROOF

DMP–77–023

VA–77031–14"–891

AIR HANDLING UNIT AHU–77–001 2 HP

VA–77031–12"–891 14X12

VA–77031–8"–891 12X8

INSIDE OUTSIDE

VA–77028–8"–891

VA–77029–8"–891

VA–77030–8"–891

DMP–77–005 SAD–77–007 225 CFM

DMP–77–006 SAD–77–008 225 CFM

DMP–77–007 SAD–77–009 225 CFM

DMP–77–008 SAD–77–010 225 CFM

CARBON BED CBD–20–001A

CARBON BED CBD–20–001B

CARBON BED CBD–20–002A

CARBON BED CBD–20–002B

VA–77006–12"–893 12X10

VA–77006–10"–893 10X8

VA–77006–8"–893 8X6

VA–77006–6"–893

VA–77009–6"–893

VA–77008–6"–893

VA–77007–6"–893

DMP–77–012 EAR–77–009 250 CFM

DMP–77–011 EAR–77–010 250 CFM

DMP–77–010 EAR–77–011 250 CFM

DMP–77–009 EAR–77–012 250 CFM

RAC–RCS–024

H PDIT RCS–77–001 L

H PDIT RCS–77–003 L

H PDIT RCS–77–004 L

H PDIT RCS–77–005 L

H PDIT RCS–77–006 L

INT–900334–3/8T–17050 INT–900339–3/8T–17050 HOV–90–111

INT–900348–3/8T–17050 INT–900349–3/8T–17050 HOV–90–112

INT–900358–3/8T–17050 INT–900359–3/8T–17050 HOV–90–113

INT–900368–3/8T–17050 INT–900369–3/8T–17050 HOV–90–114

INT–900378–3/8T–17050 INT–900379–3/8T–17050 HOV–90–115

A ATM B ATM C D ATM E F ATM G H ATM I J

VA–77001–30"–893

DMP–77–013

TO BUILDING VENT FANS 77FMD008

3158

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NOTES:

1. FOR MASS BALANCE TABLE SEE DRAWING 77FMD002.

REFERENCE DRAWINGS:

05FMD001 -- INSTRUMENT IDENTIFICATION

05FMD001 -- CONTROL SYSTEM STANDARDS

05FMD001 -- PIPING & EQUIPMENT IDENTIFICATION

05FMD001 -- GENERAL NOTES

05FMD001 -- VALVE LIST – SHEET 1

05FMD001 -- VALVE LIST – SHEET 2

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A		BJD			PRELIMINARY DESIGN SUBMITTAL

RPE

DRAWN BY BJD	DATE 5–15–00
DESIGNED BY BJD	DATE 5–15–00
CHECKED BY	DATE
APPROVED BY	DATE
APPROVED BY	DATE

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FERNALD, OHIO
FDF CONTRACT NO. FSC 624

FOSTER WHEELER
FOSTER WHEELER ENVIRONMENTAL CORPORATION

TITLE
MISC FACILITIES HVAC SYSTEM
HVAC CONTROL DIAGRAM
RCS BLDG VENTILATION–1ST FL

SIZE	SCALE:	DWG. NO.	REV
D	NONE	77FMD006	B

000069 1

FILENAME: 77FMD006.DWG

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VOID

NOTES:

3158

1. FOR GENERAL NOTES SEE DRAWI
2. FOR MASS BALANCE TABL
77FMD002.

REFERENC

05FM RUMENT DIAGRAM –
M IDENTIFICATION

G & INSTRUMENT DIAGRAM –
CONTROL SYSTEM STANDARDS

03 PIPING & INSTRUMENT DIAGRAM –
PIPING & EQUIPMENT IDENTIFICATION

3158
INFORMATION ONLY
UNCONTROLLED

PRELIMINARY
NOT FOR CONSTRUCTION

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A					PRELIMINARY DESIGN SUBMITTAL

RPE

DRAWN BY BJD	DATE
DESIGNED BY BF	DATE
CHECKED BY	DATE
APPROVED BY	DATE
APPROVED BY	DATE

DEPARTMENT OF ENERGY
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SILOS 1 AND 2 ACCELERATED WASTE RETRIEVAL PROJECT
FERNALD, OHIO
FDF CONTRACT NO. FSC 624

FOSTER WHEELER
FOSTER WHEELER ENVIRONMENTAL CORPORATION

TITLE
MISC FACILITIES HVAC SYSTEM
HVAC CONTROL DIAGRAM
SAMPLE BUILDING VENTILATION

SIZE	SCALE:	DWG. NO.	REV
D	NONE	77FMD007	B

FILENAME: 77FMD007.DWG

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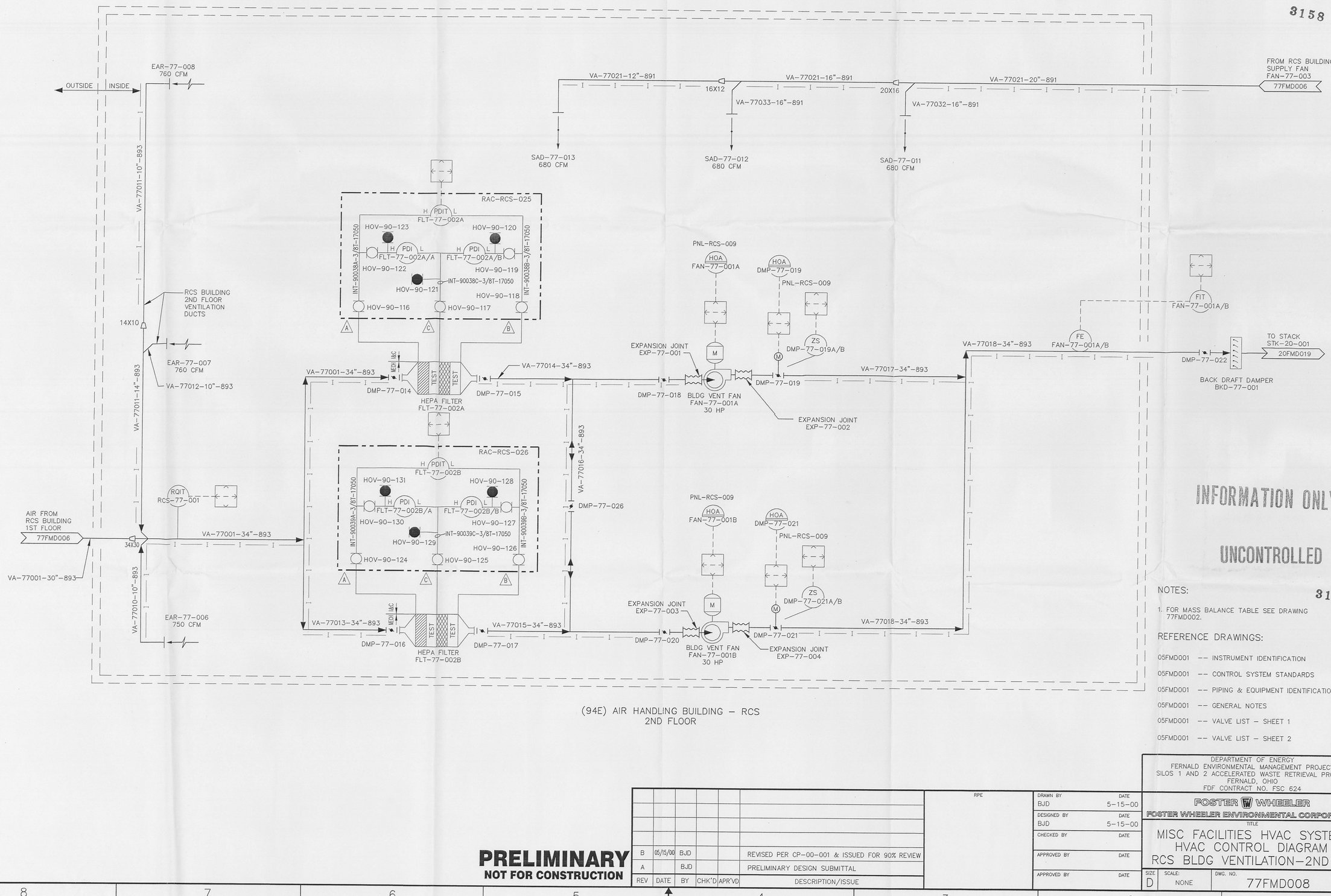

(94E) AIR HANDLING BUILDING – RCS
2ND FLOOR

INFORMATION ONLY

UNCONTROLLED

NOTES: 3158

1. FOR MASS BALANCE TABLE SEE DRAWING 77FMD002.

REFERENCE DRAWINGS:

05FMD001 -- INSTRUMENT IDENTIFICATION
05FMD001 -- CONTROL SYSTEM STANDARDS
05FMD001 -- PIPING & EQUIPMENT IDENTIFICATION
05FMD001 -- GENERAL NOTES
05FMD001 -- VALVE LIST – SHEET 1
05FMD001 -- VALVE LIST – SHEET 2

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NOT FOR CONSTRUCTION

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A		BJD			PRELIMINARY DESIGN SUBMITTAL

RPE

DRAWN BY / DATE	BJD 5-15-00
DESIGNED BY / DATE	BJD 5-15-00
CHECKED BY / DATE	
APPROVED BY / DATE	
APPROVED BY / DATE	

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FDF CONTRACT NO. FSC 624

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TITLE
MISC FACILITIES HVAC SYSTEM
HVAC CONTROL DIAGRAM
RCS BLDG VENTILATION–2ND FL

SIZE	SCALE:	DWG. NO.	REV
D	NONE	77FMD008	B

000071

FILENAME: 77FMD008.DWG

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