COMPONENT & MISCELLANEOUS ABBREVIATIONS

ABS	—	ABSORBER
AE	—	ANALYTICAL ELEMENT
AI	—	ANALYTICAL INDICATOR
AT	—	ANALYTICAL TRANSMITTER
ATM	—	ATMOSPHERE
CHLLR	—	CHILLER
CKV	—	CHECK VALVE
CV	—	CONTROL VALVE
DMST	—	DEMISTER
FC	—	FAIL CLOSED
FCV	—	FLOW CONTROL VALVE
FE	—	FLOW ELEMENT
FET	—	FLOW ELEMENT/TRANSMITTER
FI	—	FLOW INDICATOR
FIC	—	FLOW INDICATING CONTROLLER
FIT	—	FLOW INDICATING TRANSMITTER
FLTR	—	FILTER
FO	—	FAIL OPEN
FT	—	FLOW TRANSMITTER
FV	—	FLOW VALVE
FY	—	FLOW RELAY
HIC	—	HAND INDICATING CONTROLLER
Hg	—	MERCURY
HL	—	HAND LIGHT
HX	—	HEAT EXCHANGER
HS	—	HAND SWITCH
HTR	—	HEATER
I	—	INTERLOCK
IA	—	INSTRUMENT AIR
I/P	—	CURRENT/PNEUMATIC CONVERTER
IX	—	ION EXCHANGER
LAHH	—	LEVEL ALARM HIGH HIGH
LALL	—	LEVEL ALARM LOW LOW
LC	—	LEVEL CONTROL
LET	—	LEVEL ELEMENT/TRANSMITTER
LI	—	LEVEL INDICATOR
LIT	—	LEVEL INDICATING TRANSMITTER
LSHH	—	LEVEL SWITCH HIGH HIGH
LSHL	—	LEVEL SWITCH HIGH LOW
LSLL	—	LEVEL SWITCH LOW LOW
LV	—	LEVEL VALVE
LW	—	LIQUID WASTE
LY	—	LEVEL RELAY
OC	—	OPEN/CLOSED FUNCTION
PMP	—	PUMP
PDI	—	PRESSURE DIFFERENTIAL INDICATOR
PDT	—	PRESSURE DIFFERENTIAL TRANSMITTER
PI	—	PRESSURE INDICATOR
PSV	—	PRESSURE SAFETY VALVE
QD	—	QUICK DISCONNECT
R	—	OXIDATION BED
SAMP	—	SAMPLE STATION
SOV	—	SOLENOID OPERATED VALVE
S.P.	—	SET POINT
SR	—	SPRING RETURN
TI	—	TEMPERATURE INDICATOR
TIC	—	TEMPERATURE INDICATING CONTROLLER
TNK	—	TANK
TSH	—	TEMPERATURE SWITCH HIGH
TT	—	TEMPERATURE TRANSMITTER
UA	—	UNIT (MULTIVARIABLE) ALARM
VLV	—	MANUAL VALVE
VSL	—	VESSEL
ZI	—	POSITION INDICATOR
ZSC	—	POSITION SWITCH–CLOSED
ZSO	—	POSITION SWITCH–OPEN
*	—	SUPPLIED WITH EQUIPMENT

SYSTEM ABBREVIATIONS

CA	—	COMPRESSED AIR
CHWR	—	CHILLED WATER RETURN
CHWS	—	CHILLED WATER SUPPLY
H3R	—	TRITIUM
HGR	—	MERCURY RECOVERY
HOG	—	HOT OFF GAS
IA	—	INSTRUMENT AIR
LLLW	—	LOW LEVEL LIQUID WASTE
LN2	—	LIQUID NITROGEN
LTCF	—	LOW TEMPERATURE CHILLED FLUID
N2	—	NITROGEN GAS
PCE	—	PRIMARY CONFINEMENT EXHAUST
PW	—	PLANT WATER
SCE	—	SECONDARY CONFINEMENT EXHAUST
VENT	—	VENT

LINE # DESIGNATIONS

PCE–2207–6"–897

- LINE SERVICE DESIGNATION
- LINE NUMBER
- SPECIFICATION
- LINE SIZE

EQUIPMENT # DESIGNATIONS

HTR–8003

- COMPONENT ID
- UNIQUE ID

INSTRUMENT # DESIGNATIONS

TI–8203

- COMPONENT ID
- UNIQUE ID (LOOP NUMBER)

VALVE # DESIGNATIONS

VLV–8209

- COMPONENT ID
- UNIQUE ID

INSTRUMENT SOCIETY OF AMERICA, ISA–S5.1, 1984 (REV 1992)

	FIRST LETTER		SUCCEEDING LETTERS		
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE VARIABLE	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		
B	BURNER, COMBUSTION		USERS CHOICE	USERS CHOICE	USERS CHOICE
C	USERS CHOICE			CONTROL	CLOSED
D	USERS CHOICE	DIFFERENTIAL			
E	VOLTAGE		PRIMARY ELEMENT		
F	FLOW RATE	RATIO (FRACTION)			
G	USERS CHOICE		GLASS		
H	HAND				HIGH
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER	SCAN			
K	TIME, TIME SCHEDULE	TIME RATE CHANGE		CONTROL STATION	
L	LEVEL		LIGHT		LOW
M	MOISTURE	MOMENTARY			MIDDLE OR INTERMEDIATE
N	USERS CHOICE		USERS CHOICE	USERS CHOICE	USERS CHOICE
O	USERS CHOICE		ORIFICE, RESTRICT.		OPENED
P	PRESSURE, VACUUM		TEST POINT CONN.		
Q	QUANTITY	TOTALIZE, INTEGRATE			
R	RADIATION		RECORD, PRINT		
S	SPEED, FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION			VALVE, LOUVER	
W	WEIGHT, FORCE		WELL		
X	UNCLASSIFIED	X AXIS	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y	EVENT, STATE, PRESENCE	Y AXIS		RELAY, COMPUTE	
Z	POSITION, DIMENSION	Z AXIS		DRIVE, ACTUATE	

LINE LEGEND

- MAJOR PROCESS LINE
- FUTURE MAJOR PROCESS LINE
- MAJOR PROCESS LINE, NOT IN SCOPE
- MINOR PROCESS LINE
- ELECTRICAL SIGNAL
- SOFTWARE SIGNAL
- PNEUMATIC SIGNAL

INSTRUMENT SYMBOLS

	PRIMARY LOCATION NORMALLY ACCESSIBLE TO OPERATOR	FIELD MOUNTED	AUXILIARY LOCATION NORMALLY ACCESSIBLE TO OPERATOR
DISCRETE INSTRUMENTS	PANELBOARD MOUNTED INSTRUMENT	LOCALLY MOUNTED	LOCAL PANEL MOUNTED INSTRUMENT
SHARED DISPLAY SHARED CONTROL	SHARED DISPLAY OPERATOR INTERFACE ON COMM LINK	HIDDEN SHARED DISPLAY INTERFACE ON COMM LINK	AUXILIARY OPERATOR CONSOLE CONNECTED TO COMM LINK
PROGRAMMABLE LOGIC CONTROL OR DIGITAL LOGIC CONTROL	DISTRIBUTED CONTROL INTERCONNECT LOGIC CONTROL WITH BINARY OR SEQ. LOGIC CONTROL	DISTRIBUTED CONTROL INTERCONNECT LOGIC CONTROL WITH BINARY OR SEQ. LOGIC CONTROL	DISTRIBUTED CONTROL INTERCONNECT LOGIC CONTROL WITH BINARY OR SEQ. LOGIC CONTROL

FLOW SHEET SYMBOLS

- BALL VALVE
- BUTTERFLY VALVE
- CHECK VALVE
- NEEDLE VALVE
- GLOBE VALVE
- GATE VALVE
- DRAIN VALVE
- 3–WAY VALVE
- NEEDLE VALVE
- Y STRAINER
- FLOWMETER ELEMENT
- ANNUBAR FLOWMETER ELEMENT
- THERMAL DISPERSION FLOWMETER ELEMENT
- ROTAMETER WITH NEEDLE VALVE
- PRESSURE SAFETY VALVE
- PRESSURE CONTROL VALVE
- DRY BREAK DISCONNECT
- WET BREAK DISCONNECT
- DENOTES SAFETY–SIGNIFICANT COMPONENT (SSC) SUBSTITUTIONS MAY NOT BE MADE WITHOUT THE PROPER AUTHORITY FOR SSC COMPONENTS
- FLOW CONTROL VALVE
- JOINT FLANGE
- FLEX HOSE
- REDUCER
- FLOW ARROW
- CONTROL VALVE
- PNEUMATIC ACTUATOR
- SOLENOID ACTUATOR
- STREAM NUMBER
- PIPE CAP
- HEPA FILTER
- SAMPLE STATION
- PILOT LIGHT
- SPIRAL HEAT EXCHANGER CONDENSING TYPE
- ELECTRICAL HEATER
- DESICANT BED
- FILTER BED INSIDE DEWAR
- RECEIVER TANK
- LOW–TEMPERATURE CHILLER
- AIR OPERATED PUMP
- ION EXCHANGE RESIN FILTER
- REACTOR WITH HEATING JACKET
- LLLW 1 MICRON FILTER WITH SHIELDING
- CENTRIFUGAL PUMP
- MERCURY AMALGAMATION BED
- SULFUR IMPREGNATED CARBON FILTER
- LOW–LEVEL LIQUID WASTE TANK

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NUMBER OF SECTION OR DETAIL

DRAWING ON WHICH SECTION OR DETAIL IS SHOWN

SECTION AND DETAIL KEY

THIS DOCUMENT CONTROLLED BY

CHANGE CONTROL SYSTEM 3

ENGINEERING PROCEDURE SNS-ENG-G001

REV	CHANGE TYPE	CHANGE CONTROL SYSTEM	CHANGE REQUEST NUMBER	DESCRIPTION	DSN	CHK	DEPT	DATE	PE	DATE	PJ	DATE	REQ	DATE	UTB	DATE	RPE	RPE NO	DATE	ST	CV	EC	EE	EM	IE	M	PD	SE	AR
0				CERTIFIED FOR CONSTRUCTION – 10/26/01	RBS	DHM		11/2/01	11/2/01	RAP	11/2/01				11/2/01	DHM	107109	10/26/01											

REVISION OR ISSUE PURPOSE — REVISION APPROVALS — SQUAD CHECK

RPE — DAVID H. MUNDY, REGISTERED PROFESSIONAL ENGINEER, STATE OF TENNESSEE

DSN	Rbd Scotto	10/26/01
DRW	Rbd Scotto	10/26/01
CHK	Dhm	10/26/01
DEPT		
PE		11/2/01
PJ	RG Bean	11/2/01
REQ		
UTB		11/2/01

0 REV. 10/26/01 DATE — DRAWING APPROVALS

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PROJECT NAME:

SPALLATION NEUTRON SOURCE

TARGET BUILDING
PIPING AND INSTRUMENTATION DIAGRAM
LEGEND

I	4B	49	50	PLANT	BLDG	FL	SH.	DF	TYPE	CLASS
3	J	X	X	8	8700		1	1	G	U
51		52		53	WBS					REV
NC		NA		IN	1.8.3.7		J2.10.30			0

J2.10.30