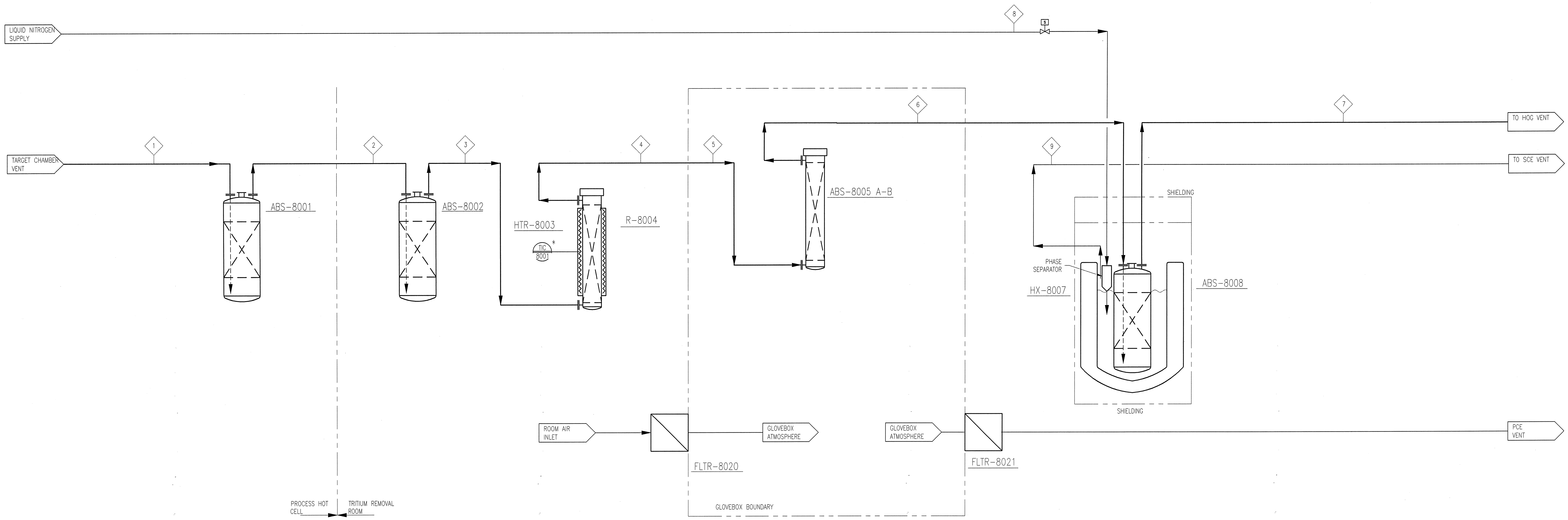
ABS-8001	ABS-8002	HTR-8003	R-8004	FLTR-8020	ABS-8005 A-B	FLTR-8021	HX-8007	ABS-8008
MERCURY AMALGAMATION BED	GUARD MERCURY AMALGAMATION BED	TRITIUM OXIDIZATION BED HEATER	TRITIUM CuO OXIDIZATION BED	GLOVEBOX HEPA INLET FILTER	DESICANT BED	GLOVEBOX HEPA OUTLET FILTER	JACKETED LIQUID NITROGEN DEWAR	XENON CRYOGENIC CARBON BED

NOTES:

1. REFER TO CALCULATION SNS-CALC-02 FOR MASS AND ENERGY BALANCE



Stream #		1	2	3	4	5	6	7	8	9
		Target Off-Gas to Amalgamation Bed (ABS-8001)	Amalgamation Guard Bed Feed (ABS-8002)	Tritium Oxidation Reactor (R-8004) Feed	Tritium Oxidation Reactor (R-8004) Outlet	Feed to Desicant Bed (ABS-8005A-B)	Feed to Cryogenic Carbon Xenon Filter (ABS-8008)	Xenon Filter Discharge to HOG Vent	Liquid Nitrogen	Vaporized Nitrogen
Component	Units									
Design										
Helium	g/min	0.12	0.12	0.12	0.12	0.12	0.12	0.12		
Tritium	g/min	2.8E-06	2.8E-06	2.8E-06						
Deuterium	g/min	2.8E-06	2.8E-06	2.8E-06						
Hydrogen	g/min	5.5E-06	5.5E-06	5.5E-06						
HTO	g/min				1.3E-05	1.3E-05				
HDO	g/min				1.8E-05	1.8E-05				
H_2O	g/min				3.5E-05	3.5E-05				
T_2O	g/min				1.2E-06	1.2E-06				
TDO	g/min				3.4E-06	3.4E-06				
D_2O	g/min				2.4E-06	2.4E-06				
Mercury	g/min	1.3E-04	1.3E-04	trace	trace	trace	trace	trace		
Xenon	g/min	2.2E-04	2.2E-04	2.2E-04	2.2E-04	2.2E-04	2.2E-04	trace		
Liquid Nitrogen	g/min								0.70	
Gaseous Nitrogen	g/min									0.70
Total Mass Flow Rate	g/min	0.12	0.12	0.12	0.12	0.12	0.12		0.70	0.70
Flow Rate	lpm	0.73	0.73	0.73	0.93	0.73	0.73	0.20		0.16
Flow Rate @ STP	lpm	0.75	0.75	0.75	0.75	0.75	0.75	0.75		0.60
Temperature	°F	70	70	70	213	70	70	-319	-319	-319
Pressure	psia	15	15	15	15	15	15	14.6	15	15
Energy Balance	BTU/hr				2.8	-2.8		-7.9		7.9

NO REPRESENTATION OR WARRANTY, EXPRESSED OR IMPLIED, IS MADE AS TO THE ACCURACY, COMPLETENESS OR USEFULNESS OF THE INFOR MATION OR STATEMENTS CONTAINED IN THESE DRAWINGS, OR THAT THE USE OR DISCLOSURE OF ANY INFORMATION, APPARATUS, METHOD, OR PROCESS DISCLOSED IN THESE DRAWINGS MAY NOT INFRINGE PRIVATE RIGHTS OF OTHERS. NO LIABILITY IS ASSUMED WITH RESPECT TO THE USE OF, OR FOR DAMAGES RESULTING FROM THE USE OF ANY INFORMATION, APPARATUS, METHOD, OR PROCESS DISCLOSED IN THESE DRAWINGS. DRAWINGS MADE AVAILABLE FOR INFORMATION TO BIDDER ARE NOT TO BE USED FOR OTHER PURPOSES AND ARE TO BE RETURNED UPON REQUEST OF THE FORWARDING CONTRACTOR.

SECTION AND DETAIL KEY: NUMBER OF SECTION OR DETAIL / DRAWING ON WHICH SECTION OR DETAIL IS SHOWN

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
0				CERTIFIED FOR CONSTRUCTION -10/26/01	RBS	DHM			GJD	11/15/01	RAD	11/14/01			[signature]	11/14/01	DHM	107109	11/13/01

REVISION OR ISSUE PURPOSE — REVISION APPROVALS — SQUAD CHECK: ST CV EC EE EM IE M PD SE AR

RPE — seal: DAVID H. MUNGER, REGISTERED ENGINEER, STATE OF TENNESSEE, No. 107109

DSN	[signature]	10/26/01
DRW	[signature]	10/26/01
CHK	[signature]	10/26/01
DEPT		
PE	P. Danner	11/15/01
PJ	R A Dean	11/14/01
REQ		
UTB	[signature]	11/14/01

REV. 0 DATE 11/13/01 — DRAWING APPROVALS

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MERRICK Engineers & Architects

UT-BATTELLE — Oak Ridge National Laboratory, managed by UT-Battelle, LLC, for the U.S. Dept. of Energy under contract DE-AC05-00OR22725

PROJECT NAME:
SPALLATION NEUTRON SOURCE

TARGET BUILDING PROCESS FLOW DIAGRAM TRITIUM AND XENON REMOVAL SYSTEM

1	48	49	50	PLANT	BLDG	FL	SH.	OF	TYPE	CLASS
3	J	X	X	8	8700		1	1	G	U

51	52	53	WBS		REV
NC	NA	IN	1.8.3.7	J2.10.34	0

NEXT ASS'Y: FINAL ASS'Y:

J2.10.34

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