Beaver Valley Power Station

Unit 1/2

1/2-ODC-1.01

ODCM: Index, Matrix and History of ODCM Changes

Document Owner Manager, Chemistry

Revision Number	10
Level Of Use	General Skill Reference
Safety Related Procedure	Yes
Effective Date	12/22/10

		Beav	er Valley Power Station	Procedure Nu	umber: 1/2-ODC-1.01
Title:				Unit;	Level Of Use:
				1/2	General Skill Reference
ODC	M: In	dex, Matr	ix and History of ODCM Changes	Revision:	Page Number:
				10	<u>2 of 94</u>
			TABLE OF CONTENTS		
1.0					
2.0					
3.0			S AND COMMITMENTS		
	3.1 3.2		ces Used in This Procedure y of References Used Throughout Other Procedu		
	3.2 3.3		ments		
4.0			ND FORMS		
4.0	4.1				
	4.2				
5.0			NS AND LIMITATIONS		
6.0			E CRITERIA		
7.0			TES		
8.0		•			
	8.1	Descript	ion of ODCM Structure		
		8.1.1	1/2-ODC-1.01, ODCM: Index, Matrix and His		
		8.1.2	1/2-ODC-2.01, ODCM: Liquid Effluents		
		8.1.3	1/2-ODC-2.02, ODCM: Gaseous Effluents		
		8.1.4	1/2-ODC-2.03, ODCM: Radiological Environment		<u> </u>
		8.1.5	1/2-ODC-2.04, ODCM: Information Related to		
		8.1.6	1/2-ODC-3.01, ODCM: Dispersion Calculation		
		017	Inputs 1/2-ODC-3.02, ODCM: Bases for ODCM Con		
		8.1.7 8.1.8	1/2-ODC-3.02, ODCM: Bases for ODCM Con 1/2-ODC-3.03, ODCM: Controls for RETS an		
	8.2		Of ODCM Changes		0
	0.2	8.2.1	Change (1) of BV-1 ODCM (Issue 1), Effective		
		8.2.1	Change (2) of BV-1 ODCM (Issue 1), Effective Change (2) of BV-1 ODCM (Issue 1, Rev 1), E	ffective Oc	toher 1984 21
		8.2.3	Change (3) of BV-1 ODCM (Issue 1, Rev 2), E		
		8.2.4	Change (4) of BV-1 ODCM (Issue 2), and BV-		
			Effective July, 1987	,	· · · · ·
		8.2.5	Change (5) of BV-1 ODCM (Issue 2, Rev 1), a		
			Revision 2), Effective December, 1987		
		8.2.6	Change (6) of BV-1 ODCM (Issue 2, Rev 2), a	nd BV-2 O	DCM (Issue 1, Rev
1			3), Effective June, 1989		
		8.2.7	Change (7) of BV-1 and 2 ODCM (Issue 3), Ef	fective Aug	gust, 199526
		8.2.8	Change (8) of BV-1 and 2 ODCM (Issue 3, Rev		-
1		8.2.9	Change (9) of BV-1 and 2 ODCM (Issue 3, Rev	· ·	-
		8.2.10	Change (10) of BV-1 and 2 ODCM (Issue 3, Re		
1		8.2.11	Change (11) of BV-1 and 2 ODCM (Issue 3, Re	· ·	
		8.2.12	Change (12) of BV-1 and 2 ODCM (Issue 3, Re		
1		8.2.13	Change (13) of BV-1 and 2 ODCM (Issue 3, Re		
1		8.2.14	Change (14) of BV-1 and 2 ODCM (Rev 14), E		
		8.2.15	Change (15) of BV-1 and 2 ODCM (Rev 15), E		0
		8.2.16	Change (16) of BV-1 and 2 ODCM (Effective A	April 2002)	
1					

--

Beave	er Valley Power Station	Procedure N	umber: 1/2-ODC-1.01
itle:		Unit:	Level Of Use:
		1/2	General Skill Reference
DDCM: Index, Matri	x and History of ODCM Changes	Revision:	Page Number:
	·····	10	<u>3 of 94</u>
	TABLE OF CONTENTS		
8.2.17	Change (17) of BV-1 and 2 OCDM (Effectiv	e August 200	2)
8.2.18	Change (18) of the BV-1 and 2 ODCM (Effe		
8.2.19	Change (19) of BV-1 and 2 ODCM (Effectiv		
8.2.20	Change (20) of BV-1 and 2 ODCM (Effectiv		
8.2.21	Change (21) of BV-1 and 2 ODCM (Effectiv	e November 1	2004)
8.2.22	Change (22) of BV-1 and 2 ODCM (Effectiv	e August 200	6)
8.2.23	Change (23) of BV-1 and 2 ODCM (Effectiv	e December 2	2006)5.
8.2.24	Change (24) of BV-1 and 2 ODCM (Effectiv	e May 2007).	
8.2.25	Change (25) of BV-1 and 2 ODCM (Effectiv	e May 2009).	5′
8.2.26	Change (26) of BV-1 and 2 ODCM (Effectiv	e May 2009)	62
8.2.27	Change (27) of BV-1 and 2 ODCM (Effectiv		
8.2.28	Change (28) of BV-1 and 2 ODCM (Effectiv	e December 2	2010)6
ATTACHMENT A	LIST OF ODCM TABLES		
ATTACHMENT B	LIST OF ODCM FIGURES		
ATTACHMENT C	ODCM CONTROLS PROCEDURE MATRI	X	

÷ .

	Beaver Valley Power Station	Procedure N	umber: 1/2-ODC-1.01
Title:	• • • • • • • • • • • • • • • • • • •	Unit: 1/2	Level Of Use: General Skill Reference
ODCM: I	ndex, Matrix and History of ODCM Changes	Revision: 10	Page Number: 4 of 94
1.0 <u>P</u>	URPOSE		
1.1 TI	nis procedure provides an index for the entire Offsite Dos	e Calculation	Manual (ODCM).
1.2 TI	nis procedure also provides an historical description of all	changes to th	e ODCM.
Te su	nis procedure also contains a matrix of plant procedure re- echnical Specifications (RETS), Radiological Environmer rveillances that were transferred from the Technical Spec DCM via Change (8) and Change (16).	ntal Monitorin	g Program (REMP)
1.3.1	Prior to issuance of this procedure, these items were lo F of the old ODCM.	cated in the In	dex and Appendix
	and ODCM Controls Tables contained in this procedur sequential. This is intentional, as all ODCM Controls, Requirements and ODCM Controls Tables numbers ren transferred from the Technical Specifications Procedur effort to minimize the amount of plant procedure change associated with numbering changes.	ODCM Surve mained the sar e Matrix. This	illance ne when they were s was done in an
2.0 <u>S</u>	COPE		
	nis procedure is applicable to all station personnel that are escribed and referenced in this procedure.	e qualified to p	erform activities as
3.0 <u>R</u>	EFERENCES AND COMMITMENTS		
3.1 <u>Re</u>	eferences Used in This Procedure		
	NUREG-0472, Draft 7 for Rev. 3, Standard Radiologic Specifications For PWRs September, 1982.	al Effluent Te	chnical
3.1.1	opermetations for f with september, 1962.		
3.1.1 3.1.2	NUREG-0133, Preparation Of Radiological Effluent To Nuclear Power Plants, October, 1978.	echnical Speci	fications For

And the second second second second

1

1

ł

3.1.4 NUREG-1301, Offsite Dose Calculation Manual Guidance: Standard Radiological Effluent Controls For Pressurized Water Reactors, Generic Letter 89-01, Supplement No. 1, April, 1991.

3.1.5 1/2-ODC-3.03, ODCM: Controls for RETS and REMP Programs

	Be	aver Valley Pow	er Station	Procedure N	umber: 1/2-ODC-1.01
Title:			Unit:	Level Of Use:	
ODCM: In	ndex, N	fatrix and History of OD	1/2 Revision: 10	General Skill Reference Page Number: 5 of 94	
3.1.6	1/2	ADM-1640, Control of th	e Offsite Dose Calcul		<u> </u>
3.1.7	1/2	ADM-0100, Procedure W	riter's Guide		
3.1.8	NOF	-SS-3001, Procedure Rev	view and Approval		
3.1.9	Flov to sh Mea	04-09895, Missed ODCM vrate). CA-04, Revise OD ow that the Channel Func- suring Devices delineated e 4.3-13 are being met by	DCM procedure 1/2-0 ctional Test requirement i in ODCM procedure	DC-1.01, Attachr ents for the Unit 1 e 1/2-ODC-3.03, A	nent Ć, Table F:3a Sampler Flowrate Attachment F,
3.1.10	CA-	95-01169 Chemistry Actio 14 thru CA-21, Revise OI nager, Radiation Protectio	DCM procedures to cl	hange document o	owner from
3.1.11	proc [RM Ame a"≤'	6-04908, Radiation Moni edure 1/2-ODC-2.01 to up -1DA-100] for incorporat ndment No. 275. Also, C designation to all alarm s ent monitors.	pdate the alarm setpoi tion of the Extended F A-04; revised ODCM	ints of [RM-1RM- Power Uprate per [procedure 1/2-O	-100] and Unit 1 TS DC-2.02 to add
3.1.12	ODO	6-6476, Procedure 1/2-Ol 2M procedure 1/2-ODC-2 poration of the Extended	2.01 to update the alar	m setpoints of [28	SWS-RQ101] for
3.2 <u>Su</u>	immar	of References Used Three	oughout Other Proced	lures of the ODC	<u>M</u>
3.2.1	<u>BV</u> F	S-1 and 2 UFSAR:			
3.2.	1.1	BVPS-1 UFSAR Sectio	n 11.2.3; Gaseous Wa	aste Disposal Syst	em
3.2.	1.2	BVPS-1 UFSAR Sectio	n 11.2.4; Liquid Wast	te Disposal Syster	n
3.2.	1.3	BVPS-2 UFSAR Sectio	n 11.2; Liquid Waste	Management Sys	tems
3.2.	1.4	BVPS-2 UFSAR Sectio	n 11.3; Gaseous Wast	te Management Sy	ystems
3.2.2	Con	lition Reports and SAP O	Orders:		
3.2.	2.1	CR 971578, MEMBERS Section 4 of the ODCM public (conducting activ	to clarify how doses	due to effluents for	or members of the
3.2.	2.2	CR 980129, ODCM Pro of the ODCM to correct		• · · · ·	

Be	eaver Valley Power Station	Procedure N	umber: 1/2-ODC-1.01
tle:		Unit:	Level Of Use:
		1/2	General Skill Reference
DCM: Index.	Matrix and History of ODCM Changes	Revision:	Page Number:
		10	<u>6 of 94</u>
3.2.2.3	CR 980353, EPMP 2.01 Discrepancies for Enviro CA-01, Revise Section 3 of the ODCM to correct sectors.		
3.2.2.4	CR 981488, Chemistry Related ODCM Procedure References. CA-01, Revise ODCM Appendix F treferences.		11
3.2.2.5	CR 981489, ODCM Table 4.11-2 Row A (Waste Tritium). CA-01, Revise Appendix C of the ODC clarification as to where and when tritium samples discharges.	M (Table 4.)	11-2) to add
3.2.2.6	CR 981490, ODCM Table 4.11-2 Note e, and Rela Procedures. CA-01, Revise Appendix C of the OI specify the proper tritium sample point.		
3.2.2.7	CR 982097, Liquid Discharge Post Release Revie Section 1 of the ODCM to add clarification for ca concentration when the Post Dose Correction Fact	lculation of r	
3.2.2.8	CR 990025, Unnecessary Radiation Monitor Setpo Discharges. No ODCM changes are required for t	-	After Waste
3.2.2.9	CR 992652, Discrepancies Concerning ODCM Su Effluent Instrumentation. CA-02, Revise Append proper reference to the HP Shift logs.		
3.2.2.10	CR 993021, Apparent Failure to Test RM-DA-100 ODCM. No ODCM changes are required for this	-	on as Required by
3.2.2.11	CR 001682, ODCM Action 28 Guidance. CA-02, ODCM (Table 3.3-13, Action 28) to differentiate Inoperable Process Flow Rate Monitors vs. Sampl	actions assoc	iated with
3.2.2.12	CR 02-05533, Procedure 1/2-ODC-3.03, ATTACI CA-01, Revise ODCM procedure 1/2-ODC-3.03 (minimum channels operable and associated action Device [FR-1LW-103] is inoperable.	Table 3.3-12	to include
3.2.2.13	CR 02-05711, TS and ODCM changes not reflected Log. CA-01, Revise 1/2-ODC-3.03 to add a requi groups notification of pending ODCM changes.		

Be	eaver Valley Power Station	Procedure N	umber: 1/2-ODC-1.01
Title:	Matrix and History of ODCM Changes	Unit: <u>1/2</u> Revision: 10	Level Of Use: General Skill Reference Page Number: 7 of 94
3.2.2.14	CR 02-06174, Tracking of Activities for Unit 1 I Implementation. CA-13, Revise ODCM procedu discussion as to why Zn-65 is being added to the procedure 1/2-ODC-2.01 (Tables 1.1-1a and 1b) to ODCM liquid source term.	RCS Zinc Add are 1/2-ODC-3 ODCM. CA-	ition 1.01 to include a 14, Revise ODCM
3.2.2.15	CR 03-02466, RFA-Radiation Protection Effluer Recommendation on Processing when Performin [1LW-TK-7A/7B]. CA-02, Revise ODCM Proc (Attachment D) to show the liquid waste flow pa and Unit 2.	ng Weekly San edure 1/2-OD	nple of C-2.01,
3.2.2.16	CR 03-04830, Containment Vacuum Pump Repl Term. CA-03, Revise Unit 1 Containment Vacu procedure 1/2-ODC-2.02, Attachment A, Table 2	um Pump Sou	
3.2.2.17	CR 03-06123, Enhance Table 3.3-6 of 1/2-ODC Method of Monitoring. CA-01, Revise Table 3.3 Eberline SPING Channel 5 as an additional 2 nd H High Range Noble Gas Effluent Monitors are Ind	3-6 and Table MM when the	4.3-3 to allow use of
3.2.2.18	CR 03-06281, Gaseous Tritium Sampling Required by ODCM (1/2-ODC-3.0 Unclear for Chemistry. CA-01, Revise procedure Attachment K Table 4.11- RP & Chemistry sampling of Gaseous Effluent Pathways to show which effluent pathways need sampled for compliance to ODCM Control 3.11.2.1 requirem		
3.2.2.19	CR 03-07487, Results of NQA Assessment of th CA-01, Revise Calculation Package No. ERS-A' "Surface Water Supply" per guidance presented CA-05, Revise 1/2-ODC3.03 Control 3.11.1.4 to outside storage tanks.	TL-95-007 to 6 in NUREG-08	clarify the term 300 SRP 15.7.3.
3.2.2.20	CR 03-07668, Benchmark Effluent & Environme Presented at 13 th REMP/RETS Workshop. CA-0 Attachment K Table 4.11-2 to reduce the amoun during a power transient.)1, Evaluate p	rocedure
3.2.2.21	CR 03-09288, LAR 1A-321 & 2A-193, Increase CA-19, Review LAR 1A-321/2A-193 to identify procedures, programs, manuals, and applicable p will need to be revised to support implementing	the affected I plant modificat	Rad Effluent
3.2.2.22	CR 03-09959, RFA-Rad Protection Provide Clar Tritium Sample. CA-01, Revise ODCM procedu (Table 4.11-2 note c & note e) to allow sampling atmosphere.	ure 1/2-ODC-3	3.03 Attachment K

•

B	eaver Valley Power Station	Procedure N	umber: 1/2-ODC-1.01
e:		Unit: 1/2	Level Of Use: General Skill Reference
DCM: Index,	Matrix and History of ODCM Changes	Revision: 10	Page Number: 8 of 94
3.2.2.23	CR 03-11726, Typographical Error Found in OD ODCM procedure 1/2-ODC-3.03, Attachment O, typographical error. Specifically, the final word i "nad" to "and".	Control 3.11	2.5 to correct a
3.2.2.24	CR 04-00149, Radiation Protection Performance CA-12. Incorporate the Global Positioning Syster Environmental Monitoring Program.		
3.2.2.25	CR 04-01643, Procedure Correction – Typograph Revise ODCM procedure 1/2-ODC-3.03, Attachn to correct a typographical error. Specifically, the Gauge used for measurement of sample flow (from Device) needs changed from [PI-1GW-13] to [PI-	nent F, (Table Asset Numbe m the Alterna	e 3.3-13 and 4.3-13) er for the Vacuum
3.2.2.26	CR 04-02275, Discrepancies in Table 3.3-13 of th ODCM procedure 1/2-ODC-3.03, Attachment F, clarification that the "Sampler Flow Rate Monitor "Particulate and Iodine Sampling".	(Table 3.3-13	and 4.3-13) to add
3.2.2.27	CR 05-01169, Chemistry Action Plan For Transit CA-14 thru CA-21, Revise ODCM procedures to "Manager, Radiation Protection" to Manager Nuc Chemistry".	change docur	ment owner from
3.2.2.28	CR 05-01390, Include GPS data in 2004 REMP R 1/2-ENV procedures. CA-02, revise ODCM proc an update of REMP sample locations (using the C	edure 1/2-OI	C-2.03 to include
3.2.2.29	CR 05-03306, Incorporated Improved Technical S includes transfer of programmatic controls for BV Monitors [2MSS-RQ101A], [2MSS-RQ101B] and Technical Specifications to ODCM procedure 1/2 Tables 3.3-6 and 4.3-3). This was permitted via U Amendments No. 278/161.	/-2 Noble Gas d [2MSS-RQ 2-ODC-3.03 (4	s Effluent Steam 101C] from the Attachment D
3.2.2.30	CR 05-03854, ODCM Figure for Liquid Effluent CA-01, revise ODCM procedure 1/2-ODC-2.01 (Attachment D, Figure 1.4-3 to incorporate a modi No. 8700-RM-27F.	ODCM: Liqu	id Effluents)

ł

1

1、1月1日、1月1日、1月1日、1月1日、

Beaver Valley Power Station			Procedure Number: 1/2-ODC-1.01		
tle:		Unit: 1/2	Level Of Use: General Skill Reference		
DCM: Index, I	Matrix and History of ODCM Changes	Revision:	Page Number: 9 of 94		
3.2.2.31	CR 06-04908, Radiation Monitor Alarm Setpoint ODCM procedure 1/2-ODC-2.01 to update the ala and [RM-1DA-100] for incorporation of the Exter Amendment No. 275. Also, CA-04; revised ODCI add a"≤" designation to all alarm setpoints for Un gas effluent monitors.	Discrepancie rm setpoints ided Power U M procedure	es. CA-03; revise of [RM-1RM-100] Uprate per Unit 1 TS 1/2-ODC-2.02 to		
3.2.2.32	CR 06-6476, Procedure 1/2-ODC-2.01 Needs Rev revise ODCM procedure 1/2-ODC-2.01 to update [2SWS-RQ101] for incorporation of the Extended Amendment No. 156.	the alarm se	tpoints of		
3.2.2.33	SAP Order 200197646-0110: Revise ODCM proc 1/2-HPP-3.06.001, 1/2-ENV-05-01, Form 1/2-HP Form 1/2-ENV-05.1.F05 to incorporate revised ou limits via Calculation Package No. ERS-ATL-95-	P-3.06.001.F itside liquid	05 and		
3.2.2.34	SAP Order 200240681: Revise ODCM procedure Table 3.3-12) to add an alternate Action when the Measurement Device [FT-1CW-101-1] is not OPE Action (25A) uses local measurements (as describ determine a total dilution flow rate during liquid e	primary Flo ERABLE. T ed in 1MSP-	w Rate he alternate 31.06-I) to		
3.2.2.35	CR 06-04944: ODCM 3.03 Attachment E conflict Action Statement. CA-01; revise ODCM procedu to clarify Applicability for tank level indicating de tank.	re 1/2-ODC-	-3.03, Attachment E		
3.2.2.36	CR 07-12924 and SAP Order 200247228-0410: R 1/2-ODC-3.03 (Attachment F Tables 3.3-13 and 4 Location of the Sampler Flow Rate Monitors for t pathways. Specifically, the procedure was change [2HVS-FIT101-1] instead of [2HVS-FIT101], [2R [2RMQ-FIT301], [2HVL-FIT112-1] instead of [2 [2RMQ-FIT303-1] instead of [2RMQ-FIT303].	.3-13) to cla he BV-2 gas ed to refer to LMQ-FIT301	rify the Functional eous effluent release Functional Location [-1] instead of		
3.2.2.37	CR 09-53803-10: Revise ODCM procedure 1/2-0 area and process monitors to Attachment D Tables				
3.2.2.38	CR 09-53803-13: Revise ODCM procedure 1/2-0 MSP and OST references for EAL related area and procedure matrix.		~~ ~		

P(4)	Beaver Valley Power Station			1/2-ODC-1.01 Unit: Level Of Use:		
fitle:			Unit: 1/2	General Skill Reference		
ODCM: I	ndex, N	Matrix and History of ODCM Changes	Revision:	Page Number: 10 of 94		
3.2.	2.39	SAP Order 200257692-0360 and 0390: Revise t 1/2-ODC-1.01 to remove obsolete forms and pro Checks. Specifically, Form 1/2-ADM-0606.F0 Form 1/2-HPP-3.07.003.F01 and procedures 1/2 and 1/2-HPP-3.06.012 were removed from the A procedure matrix.	ocedures used : 1, Form 1/2-AI 2-HPP-3.06.00	natrix of for ODCM Channel DM-0606.F02, 5, 1/2-HPP-3.06.006		
3.2.	2.40	SAP Order 200197646-0300 and CR 07-31083: procedure 1/2-ODC-3.03 to add a definition for revise the definition for Channel Operational Te have the same requirements and, therefore, are o	Channel Funct est to indicate the	ional Test, and hat these definitions		
3.2.	2.41	SAP Order 200247228-0450: Revise 1/2-ODC- and Attachment F, Tables 3.3-13 & 4.3-13 to pr follows: (1) add the word "or" where it is missin Table 3.3-13 and 4.3-13, (2) remove grab sample (3) add notations in Table 3.3-12 and 3.3-13 to it generation and reporting in the Radioactive Effl Control 3.3.3.9 Action b and 3.3.3.10 Action b) alternate to satisfy inoperability of the primary it (4) remove surveillances for Preplanned Method Table 4.3-3, because surveillances only apply to	ovide added clang from Attach les from the list is an "action", indicate that Co uent Release R do not apply w nstrument beyond of Monitoring	arifications, as iment F, t of alternates in not an "alternate", ondition Report eport (per when using an ond 30 days, and g (PMM) from		
3.2.	2.42	SAP Order 200240681-0020 and 0040: Revise Table 3.3-12, Table 4.3-12 and Action 25A to c the flow rate measurement devices used for the	larify the 1 st an	d 2 nd alternates to		
3.2.	2.43	CR 05-00004-15, CR 05-00004-17 and SAP Or 1/2-ODC-2.01. Add the Coolant Recovery Tank Waste Tanks to Section 8.4 description and Atta Add a default 2-tank volume recirculation time Recovery Tanks [1BR-TK-4A/4B] to Attachmen Cesium Removal Ion Exchangers [1BR-I-1A/1E Section 8.4 description and Attachment B Figur recirculation times in Attachment B Table 1.2-1 for nominal tank volume and maximum tank vol	ks [1BR-TK-44 achment D Figu of 45.7 hrs for nt B Table 1.2- 3 and 2BRS-IO es 1.4-1 and 1.4 a and 1.2-1b to	A/4B] as Liquid ares 1.4-1 and 1.4-2. the Coolant 1a. Add the E21A/21B] to 4-2. Revise the		
3.2.	2.44	SAP Order 200197646-0660. Revise 1/2-ODC- remove STP Outfalls 113 and 203 due to retirem Plants and to remove Outfall 501. Water is no lo	nent of the Sew	age Treatment		

and the set of the set of the set

せいいいい 動きをすい

B	eaver Valley Power Station	Procedure Ni	umber: 1/2-ODC-1.01
Title:		Unit: 1/2	Level Of Use: General Skill Reference
ODCM: Index,	Matrix and History of ODCM Changes	Revision:	Page Number: 11 of 94
3.2.2.45	SAP Order 200197646-0810. Revise 1/2-ODC for all possible detector combinations for [RM-obsolescence of the original Model 843-30 and previously installed in [RM-1DA-100], the ven Model 843-30R and 843-32R detectors, which well.	-2.01 to incorpo 1DA-100]. Spe 843-32 detector dor has upgrade	prate alarm setpoints ecifically, due to rs that were ed them to
3.2.2.46	CR 10-77489, Procedure 1/2-ODC-2.03 needs a Corrected sampling location descriptions for RI sample designation from #49 to #49A; Clarified sampling.	EMP TLD #94 a	and #95; Changed
3.2.2.47	CR 10-86844 revises 1/2-ODC-2.01 to remove liquid waste are processed by recirculation thro Attachment B which referenced minimum liqui times and added description that liquid waste re tank volumes are calculated based upon actual	bugh eductors. I id waste batch re ecirculation time	Deleted elease recirculation es to achieve two
3.2.3 <u>Cal</u>	culation Packages:		
3.2.3.1	ERS-ATL-83-027; Liquid Waste Dose Factor C Issue 3 and Later	Calculation for H	HPM-RP 6.5,
3.2.3.2	ERS-SFL-85-031; Gaseous Effluent Monitor E	fficiency Data	
3.2.3.3	ERS-ATL-86-008; ODCM Alarm Setpoint Rev	visions for Gase	ous Monitors
3.2.3.4	ERS-HHM-87-014; Unit 1/2 ODCM Gaseous I Determinations	Effluent Monito	r Alarm Setpoint
3.2.3.5	ERS-ATL-87-026; BVPS-1 and BVPS-2 ODC	M T Factor Just	ification
3.2.3.6	ERS-ATL-89-014; Verification/Validation of C	DCM R Value:	5
	ERS-ATL-90-021; Justification for Removal of	f Technical Spec	
3.2.3.7	Flowrate Measurement Requirements for 2RM 2HVL-RQ112	Q-RQ301, 2RM	Q-RQ303 and
3.2.3.7 3.2.3.8	Flowrate Measurement Requirements for 2RM		
	Flowrate Measurement Requirements for 2RM 2HVL-RQ112 ERS-ATL-95-006; Re-evaluation of TS/ODCM	1 SR's 4.11.1.1.2	3, 4.11.1.1.4 and

Be	eaver Valley Power Station	Procedure N	umber: 1/2-ODC-1.01		
Title:		Unit: 1/2	Level Of Use: General Skill Reference		
ODCM: Index, I	Matrix and History of ODCM Changes	Revision:	Page Number: 12 of 94		
3.2.3.11	Vendor Calculation Package No. 8700-UR(B)-223 Containment Conversion, Power Uprate, and Alter Alarm Setpoints for the Radiation Monitors at Unit	, Impact of . nate Source	Atmospheric		
3.2.3.12	Engineering Change Package No. ECP-04-0440, E	xtended Pov	wer Uprate (Unit 1)		
3.2.3.13	3.2.3.13 Vendor Calculation Package No. 8700-UR(B)-508, Impact of Atmospheric Containment Conversion, Power Uprate, and Alternate Source Terms on the Alarm Setpoints for the Radiation Monitors at Unit 2				
3.2.3.14	Engineering Change Package No. ECP-04-0440, E	xtended Pov	wer Uprate (Unit 2)		
3.2.3.15	ERS-MPD-93-007, BVPS-1 Gaseous Radioactivity Levels	Monitor E	mergency Action		
3.2.4 <u>Inte</u>	rnal Letters:				
3.2.4.1	DLC Response to NRC Unresolved Item 50-334/83 Study- Particle Distribution Evaluation, November		diation Monitor		
3.2.4.2	ND1SHP:776, BVPS-1 ODCM Table 2.2-2, Apper	ndix B, February 12, 1988			
3.2.4.3	ND3NSM:3431; Technical Specification Verification Effort, August 11, 1988				
3.2.4.4	NDLNSM:3522; Technical Specification Verification Effort Checklist, September 14, 1988				
3.2.4.5	ND1NSM:3652; Technical Specification Verificati	on Effort, N	lovember 21, 1988		
3.2.4.6	NPD3SHP:2466; Self Assessment of the Liquid and BVPS - Final Report, July 16, 1997	d Gaseous E	Effluent Processes at		
3.2.4.7	NPD3SHP:2257; ODCM Liquid Waste Recirculati	on Rates, Fo	ebruary 11, 1998		
3.2.4.8	NPD3SHP:2643; Action 28 of ODCM Appendix C	Table 3.3-2	13, January 14, 1999		
3.2.4.9	ND3MNO:4309; Response to Request for Technica April 20, 1999.	al Specificat	tion Interpretation,		
3.2.5 <u>Con</u>	tractor Technical Evaluation Reports:				
3.2.5.1	EGG-PHY-8194; Technical Evaluation Report for Updated through Issue 2, Revision 1, Beaver Valle September 1988				
3.2.5.2	EGG-PHY-8217; Technical Evaluation Report for updated through Issue 1, Revision 2, Beaver Valley September 1988				

the management of the

Beaver Valley Power Station		Procedure Number: 1/2-ODC-1.01		
itle:		Unit: 1/2	Level Of Use: General Skill Reference	
DCM: Index, I	DCM: Index, Matrix and History of ODCM Changes		Page Number: 13 of 94	
3.2.5.3 NUS-2173; Development of Terrain Adjustmen Valley Power Station for the Straight-Line Atmo June 1978				
3.2.5.4	3.2.5.4 UCRL-50564; Concentration Factors of Chemical Elements in Edible Aquatic Organisms, Revision 1, 1972		Edible Aquatic	
3.2.6 <u>NR</u>	<u>C Letters</u> :			
3.2.6.1	Unit 1 Technical Specification Amendment 66, 1	March 28, 198	3	
3.2.6.2	Beaver Valley Unit 2 - Offsite Dose Calculation July 14, 1987	Manual, ODC	CM (TAC 63996),	
3.2.6.3	Beaver Valley Units 1 and 2 - Acceptance of the Manuals (TAC 93996 and 67421), March 2, 198		Calculation	
3.2.6.4	Unit 1/2 Technical Specification 6.8.6, including Amendments 1A-188/2A-70 (LAR 1A-175/2A-37), Implemented August 7, 1995		: 1A-188/2A-70	
3.2.6.5	Unit 1/2 Technical Specification 6.8.6, including Amendments 1A-194/2A-77 (LAR's 1A-231/2A-101), Implemented December 1, 1995			
3.2.6.6	Unit 1/2 Technical Specification Figure 5.1-2, including Amendments 1A-202/2A-83 (LAR 1A-234/2A-107, Implemented June 9, 1997			
3.2.6.7	Unit 1/2 Technical Specifications 6.9.1.10 and 6 Amendments 1A-220/2A-97 (LAR 1A-246/2A-2			
3.2.6.8	Unit 1/2 Technical Specification 3.3.3.1, includi (LAR 1A-287/2A-159), Implemented April 11, 2	-	nts 1A-246/2A-124	
3.2.6.9	Unit 1/2 Technical Specifications 3.11.1.4, 3.11. Amendments 1A-250/2A-130 (LAR 1A-291/2A 2002		_	
3.2.7 <u>NU</u>	REG's:			
3.2.7.1 NUREG-0017, Calculation of Releases of Radioactive Materia Liquid Effluents from Pressurized Water Reactors, (PWR- Gal 1, April 1985				
3.2.7.2	NUREG 0133; Preparation of Radiological Efflu Nuclear Power Plants, October 1978	lent Technical	Specification for	
3.2.7.3	NUREG-0172; Age-Specific Radiation Dose Co Chronic Intake, November 1977	ommitment Fac	ctors for a One-Year	

•

	Beaver Valley Power Station		umber: 1/2-ODC-1.01
tle:		Unit: 1/2	Level Of Use: General Skill Reference
ODCM: Inde	ex, Matrix and History of ODCM Changes	Revision:	Page Number:
3.2.7.4	3.2.7.4 NUREG-0324, XOQDOQ, Program for the Meteorological Evaluation of Ro Releases at Nuclear Power Stations, September 1977		14 of 94
3.2.7.5	5 NUREG-0472; Radiological Effluent Technic	al Specifications	for PWR's.
3.2.7.6	5 NUREG-0800, Standard Review Plan, Postula Liquid-Containing Tank Failures, July 1981	ated Radioactive	Releases Due to
3.2.7.7	 NUREG-1301; Offsite Dose Calculation Man Radiological Effluent Controls for Pressurized 01, Supplement No. 1), April 1991 		
3.2.7.8	8 NUREG-1431; Standard Technical Specificat Specifications	ion - Westinghou	ise Plants
3.2.7.9	NUREG/CR-2919; Meteorological Evaluation Nuclear Power Stations, September 1982	n of Routine Effl	uent Releases At
3.2.8	Regulatory Guides:		
3.2.8.	RG-1.23; Meteorological Measurement Progr	am For Nuclear I	Power Plants
3.2.8.2	RG-1.109; Calculation of Annual Doses to Ma Effluents for the Purpose of Evaluating Comp Appendix I, April 1977		
3.2.8.3	RG-1.111; Methods For Estimating Atmosphe Gaseous Effluents In Routine Releases From D Revision 1, July 1977	<u>^</u>	-
3.2.8.4	RG-1.113; Estimating Aquatic Dispersion of I Routine Reactor Releases For The Purpose of April 1977		
3.3 <u>Com</u>	mitments		
3.3.1	10 CFR Part 20, Standards for Protection Against R	adiation	
3.3.2	10CFR20.1302, Compliance with Dose Limits for In	ndividual Membe	ers of the Public.
3.3.3	10 CFR Part 50, Domestic Licensing of Production	and Utilization F	acilities
3.3.4	10CFR50.36a, Technical Specifications on Effluent	s from Nuclear P	ower Reactors
	Appendix I to 10 CFR Part 50, Numerical Guides Fo Conditions For Operation to Meet The Criterion "As For Radioactive Material in Light-Water-Cooled Nu	s Low As Reasor	hably Achievable"

.

.

: ;

,i 1

	Beaver Valley Power Station	Procedure N	umber: 1/2-ODC-1.01
Title:		Unit:	Level Of Use:
		1/2	General Skill Reference
ODCM: Ir	ndex, Matrix and History of ODCM Changes	Revision: 10	Page Number: 15 of 94
3.3.6	40 CFR Part 141	- 1 1 - V	 <i>¥_¥_¥&dologia</i>
3.3.7	40 CFR Part 190, Environmental Radiation Protection Sta Operations	ndards For	Nuclear Power
3.3.8	Licensee Response to NRC Unresolved Item 50-334/83-39 Particle Distribution Evaluation showed that the Licensee correction factors to determine particulate activity in samp release pathways.	must conti	nue to use
3.3.9	CR 05-03854, ODCM Figure for Liquid Effluent Release revise ODCM procedure 1/2-ODC-2.01 (ODCM: Liquid Figure 1.4-3 to incorporate a modified version of Plant Dr	Effluents)	Attachment D,
4.0 <u>RI</u>	ECORDS AND FORMS		
4.1 <u>Re</u>	cords		
4.1.1	Any calculation supporting ODCM changes shall be docurretrievable document (e.g.; letter or calculation package) with number.		
4.1.2	Changes to the ODCM shall be documented and records or accordance with the applicable record retention provisions program description included in the Updated Final Safety	s of the qua	lity assurance
4.2 <u>Fo</u>	<u>rms</u>		
4.2.1	None		
5.0 <u>PI</u>	RECAUTIONS AND LIMITATIONS		
me · (B Te	his OFFSITE DOSE CALCULATION MANUAL (ODCM) ethodologies to be used by Beaver Valley Power Station Uni V-2) to assure compliance with the Administrative Controls echnical Specifications. They are intended to show complian CFR 50.36a, ^(3.2.2) Appendix I of 10 CFR Part 50, ^(3.2.3) and 4	t 1 and Un Section of nce with 10	it 2 (BV-1) and The operating CFR 20.1302, ^(3.2.1)
5.2 Tł	nis ODCM is based on the NUREG's and Generic Letter docu aclear Regulatory Commission. ^(3.1.1, 3.1.2, 3.1.3, 3.1.4) Specific pl aplementation of the ODCM are included in various site proc	ant proced	ures for

Beaver Valley Power Station	Procedure N	umber: 1/2-ODC-1.01
Title:	Unit: 1/2	Level Of Use: General Skill Reference
ODCM: Index, Matrix and History of ODCM Changes	Revision: 10	Page Number: 16 of 94
5.3 The ODCM has been prepared as generically as poss future versions. However, some changes to the ODC such changes will be properly prepared, reviewed, an Administrative Control Section of the Technical Spec	M may be necessary d approved as indic	y in the future. Any

- 5.3.1 An implementation procedure for control of the ODCM is included in 1/2-ADM-1640.^(3.1.6)
- 5.4 This procedure also contains information that was previously contained in Appendix F of the previous BV-1 and 2 Offsite Dose Calculation Manual.
 - 5.4.1 In regards to this, the Tables that were transferred from Appendix F to the appropriate ATTACHMENTS of this procedure will still contain a prefix denoting an "F".

6.0 ACCEPTANCE CRITERIA

- 6.1 All changes to this procedure shall contain sufficient justification that the change will maintain the level of radioactive Effluent Control required by 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 50.36a and Appendix I to 10 CFR 50, and not adversely impact the accuracy or reliability of effluent dose or alarm setpoint calculation.^(3.1.7)
 - 6.1.1 All changes to this procedure shall be prepared in accordance with 1/2-ADM-0100^(3.1.7) and 1/2-ADM-1640.^(3.1.6)
 - 6.1.2 All changes to this procedure shall be reviewed and approved in accordance with NOP-SS-3001 ^(3.1.8) and 1/2-ADM-1640. ^(3.1.6)

7.0 **PREREQUISITES**

7.1 The user of this procedure shall be familiar with ODCM structure and content.

8.0 **PROCEDURE**

- 8.1 Description of ODCM Structure
 - 8.1.1 <u>1/2-ODC-1.01, ODCM: Index, Matrix and History of ODCM changes</u> (formerly: ODCM Index and Appendix F)
 - 8.1.1.1 History of ODCM Changes
 - 8.1.1.2 Summary of ODCM References
 - 8.1.1.3 List of Tables (ATTACHMENT A)
 - 8.1.1.4 List of Figures (ATTACHMENT B)

Beaver Valley Power Station		umber: 1/2-ODC-1.01	
Title:	Unit: 1/2	Level Of Use: General Skill Reference	
ODCM: Index, Matrix and History of ODCM Changes	Revision:	Page Number: 17 of 94	
8.1.1.5 Matrix of Procedures Used to Meet ODCM Controls	(ATTACI	HMENT C)	
8.1.1.5.1 BV-1 Radiation Monitor Surveillances			
8.1.1.5.2 BV-1 Liquid Effluent Monitor Surveillances			
8.1.1.5.3 BV-2 Liquid Effluent Monitor Surveillances			
8.1.1.5.4 BV-1 Gaseous Effluent Monitor Surveillances			
8.1.1.5.5 BV-2 Gaseous Effluent Monitor Surveillances			
8.1.1.5.6 BV-1 and 2 Liquid Effluent Concentration Sur	veillances		
8.1.1.5.7 BV-1 and 2 Liquid Effluent Dose Surveillances	S		
8.1.1.5.8 BV-1 and 2 Liquid Effluent Treatment Surveill	lances		
8.1.1.5.9 BV-1 and 2 Gaseous Effluent Air Dose Surveil	BV-1 and 2 Gaseous Effluent Air Dose Surveillances		
8.1.1.5.10 BV-1 and 2 Gaseous Effluent Particulate and Id	BV-1 and 2 Gaseous Effluent Particulate and Iodine Surveillances		
8.1.1.5.11 BV-1 and 2 Gaseous Effluent Treatment Surve	BV-1 and 2 Gaseous Effluent Treatment Surveillances		
8.1.1.5.12 BV-1 and 2 Gaseous Effluent Total Dose Surve	eillances		
8.1.1.5.13 BV-1 and 2 Gaseous Effluent REMP Surveillar	nces		
8.1.1.5.14 BV-1 and 2 Gaseous Effluent Land Use Census	s Surveilla	ances	
8.1.1.5.15 BV-1 and 2 Gaseous Effluent Interlaboratory C Surveillances	Compariso	n Program	
8.1.2 <u>1/2-ODC-2.01, ODCM: Liquid Effluents</u> (formerly; ODCM Sections 1 and 5)			
8.1.2.1 Alarm Setpoints			
8.1.2.1.1 BV-1 Setpoint Determination Based On A Con	servative	Mix	
8.1.2.1.2 BV-1 Setpoint Determination Based On Analys	sis Prior T	o Release	
8.1.2.1.3 BV-2 Setpoint Determination Based On A Con	servative	Mix	
8.1.2.1.4 BV-2 Setpoint Determination Based On Analys	sis Prior T	o Release	

Beave	er Valley Power Station	Procedure N	umber: 1/2-ODC-1.01
e:		Unit:	Level Of Use:
DCM: Index Matri	ix and History of ODCM Changes	<u>1/2</u> Revision:	General Skill Reference Page Number:
		10	18 of 94
8.1.2.2 Co	mpliance With 10 CFR 20 EC Limits		
8.1.2.2.1	Batch Releases		
8.1.2.2.2	Continuous Releases		
8.1.2.3 Co	mpliance With 10 CFR 50 Dose Limits		
8.1.2.3.1	Cumulation Of Doses		
8.1.2.3.2	Projection Of Doses		
8.1.2.4 Lie	quid Radwaste Treatment System		
8.1.2.4.1	BV-1 Liquid Radwaste Treatment System	n Components	
8.1.2.4.2	BV-1 Laundry and Contaminated Shower	r Drain System	Components
8.1.2.4.3	BV-2 Liquid Radwaste Treatment System	n Components	
8.1.2.5 Sit	e Boundary for Liquid Effluents		
8.1.2.5.1	Liquid Effluent Site Boundary		
	C-2.02, ODCM: Gaseous Effluents y; ODCM Sections 2 and 5)		
8.1.3.1 Al	arm Setpoints		
8.1.3.1.1	BV-1 Setpoint Determination Based On A	A Calculated Mi	ix
8.1.3.1.2	BV-1 Setpoint Determination Based On A	Analysis Prior T	o Release
8.1.3.1.3	BV-2 Setpoint Determination Based On A	A Calculated Mi	ix
8.1.3.1.4	BV-2 Setpoint Determination Based On A	Analysis Prior T	o Release
8.1.3.1.5	BV-1/2 Setpoint Determination Based Or	A Calculated I	Mix
8.1.3.1.6	BV-1/2 Setpoint Determination Based Or	n Analysis Prior	To Release
8.1.3.2 Co	mpliance With 10 CFR 20 Dose Rate Limits		
8.1.3.2.1	Dose Rate Due To Noble Gases		
8.1.3.2.2	Dose Rate Due To Radioiodines And Par	ticulates	

Beaver Valley Power Station		Procedure N	Procedure Number: 1/2-ODC-1.01	
Title:		Unit: 1/2	Level Of Use: General Skill Reference	
ODCM: Index, Matrix and History of	ODCM Changes	1/2 Revision: 10	Page Number: 19 of 94	
8.1.3.3 Compliance With 1	0 CFR 50 Dose Limits			
8.1.3.3.1 Doses Due Te	o Noble Gases			
8.1.3.3.2 Doses Due Te	o Radioiodines And Particula	tes		
8.1.3.4 Gaseous Radwaste	Treatment System			
8.1.3.4.1 BV-1 Gaseou	s Radwaste Treatment System	n Components	3	
8.1.3.4.2 BV-2 Gaseou	s Radwaste Treatment Syster	n Components	}	
8.1.3.5 Site Boundary for C	Gaseous Effluents			
8.1.4 <u>1/2-ODC-2.03, ODCM:</u> (formerly; ODCM Sectio	Radiological Environmental) n 3)	Monitoring Pro	ogram	
8.1.4.1 Program Requireme	ents			
8.1.5 <u>1/2-ODC-2.04, ODCM:</u> (formerly; ODCM Sectio	Information Related to 40 CF n 4)	<u>R 190</u>		
8.1.5.1 Compliance with 40	0 CFR 190 Dose Limits			
8.1.5.2 Report Requirement	ts			
8.1.5.3 Inside the Site Bou	ndary Radiation Doses		e.	
8.1.5.3.1 Gaseous Effle	uent Site Boundary			
8.1.6 <u>1/2-ODC-3.01, ODCM:</u> (formerly; ODCM Appen	Dispersion Calculational Productional Productional Products A & B)	cedure and Sou	arce Term Inputs	
8.1.6.1 Dispersion and Dep	position Parameters			
8.1.6.2 BV-1 and 2 Release	e Conditions			
8.1.6.3 BV-1 Liquid Sourc	e Term Inputs			
8.1.6.4 BV-2 Liquid Sourc	e Term Inputs			
8.1.6.5 BV-1 Gaseous Sour	rce Term Inputs			
8.1.6.6 BV-2 Gaseous Sou	TT I (

Be	Beaver Valley Power Station		umber: 1/2-ODC-1.01
Title:			Level Of Use:
ODCM: Index, I	Matrix and History of ODCM Changes	<u>1/2</u> Revision: 10	General Skill Reference Page Number:
	ODC-3.02, ODCM: Bases for ODCM Controls merly; ODCM Appendix D)	<u> </u>	<u>20 of 94</u>
8.1.7.1	Bases 3.3.3.1: Radiation Monitoring Instrumentation	on	
8.1.7.2	Bases 3.3.3.9: Radioactive Liquid Effluent Monitor	ring Instrur	nentation
8.1.7.3	Bases 3.3.3.10: Radioactive Gaseous Monitoring Ir	nstrumentat	tion
8.1.7.4	Bases 3.11.1.1: Liquid Effluent Concentration		
8.1.7.5	Bases 3.11.1.2: Liquid Effluent Dose		
8.1.7.6	Bases 3.11.1.3: Liquid Radwaste Treatment System	n	
8.1.7.7	Bases 3.11.1.4: Liquid Holdup Tanks		
8.1.7.8	Bases 3.11.2.1: Gaseous Effluent Dose Rate		
8.1.7.9	1.7.9 Bases 3.11.2.2: Dose- Noble Gases		
8.1.7.10	Bases 3.11.2.3: Dose - Radioiodines, Radioactive Mand Radionuclides Other Than Noble Gases	Material in	Particulate Form,
8.1.7.11	Bases 3.11.2.4: Gaseous Radwaste Treatment Syste	em	
8.1.7.12	Bases 3.11.2.5: Gas Storage Tanks		
8.1.7.13	Bases 3.11.4.1: Total Dose		
8.1.7.14	Bases 3.12.1: REMP Program Requirements		
8.1.7.15	Bases 3.12.2: REMP - Land Use Census		
8.1.7.16	Bases 3.12.3: REMP - Interlaboratory Comparison	Program	
	ODC-3.03, ODCM: Controls for RETS and REMP Presently; ODCM Appendix C)	rograms	
8.1.8.1	Controls 3.0.1 thru 3.0.4: Applicability		
8.1.8.2	Controls 4.0.1 thru 4.0.4: Surveillance Requirement	ts	
8.1.8.3	Control 3.3.3.1: Radiation Monitoring Instrumentat	ion	
8.1.8.4	Control 3.3.3.9: Radioactive Liquid Effluent Monit	oring Instru	umentation
8.1.8.5	Control 3.3.3.10: Radioactive Gaseous Monitoring	Instrument	ation

Beaver Valley Power Station	Procedure N	umber: 1/2-ODC-1.01	
Title:	Unit: 1/2	Level Of Use: General Skill Reference	
ODCM: Index, Matrix and History of ODCM Changes	Revision:	Page Number: 21 of 94	
8.1.8.6 Control 3.11.1.1: Liquid Effluent Concentration			
8.1.8.7 Control 3.11.1.2: Liquid Effluent Dose	,		
8.1.8.8 Control 3.11.1.3: Liquid Radwaste Treatment System			
8.1.8.9 Control 3.11.1.4: Liquid Holdup Tanks			
8.1.8.10 Control 3.11.2.1: Gaseous Effluent Dose Rate			
8.1.8.11 Control 3.11.2.2: Dose- Noble Gases			
8.1.8.12 Control 3.11.2.3: Dose - Radioiodines, Radioactiv and Radionuclides Other Than Noble Gases	e Material i	n Particulate Form,	
8.1.8.13 Control 3.11.2.4: Gaseous Radwaste Treatment Sy	ystem		
8.1.8.14 Control 3.11.2.5: Gas Storage Tanks			
8.1.8.15 Control 3.11.4.1: Total Dose	8.1.8.15 Control 3.11.4.1: Total Dose		
8.1.8.16 Control 3.12.1: REMP Program Requirements	8.1.8.16 Control 3.12.1: REMP Program Requirements		
8.1.8.17 Control 3.12.2: REMP - Land Use Census			
8.1.8.18 Control 3.12.3: REMP - Interlaboratory Comparis	on Program		
8.1.8.19 Control 6.9.2: Annual REMP Report			
8.1.8.20 Control 6.9.3: Annual RETS Report			
8.2 <u>History Of ODCM Changes</u>			
8.2.1 Change (1) of BV-1 ODCM (Issue 1), Effective January,	, 1984		
8.2.1.1 This is the initial issue of the BV-1 ODCM, as prep Radiological Effluent Technical Specifications (RE manual was commensurate with Amendment No. 6 Specifications as approved by the NRC on March 28	ETS). Imple	ementation of this	
8.2.2 Change (2) of BV-1 ODCM (Issue 1, Rev 1), Effective C	October, 198	4	
8.2.2.1 A description of the changes implemented with this	s revision ar	e as follows:	
8.2.2.1.1 <u>Section 1.0</u> : Table 1.3-1 was revised to inclu nuclides presently identified at BVPS and no			

Beav	ver Valley Power Station	Procedure N	umber: 1/2-ODC-1.01
litle:		Unit:	Level Of Use: General Skill Reference
ODCM: Index. Mat	rix and History of ODCM Changes	<u>1/2</u> Revision:	Page Number:
8.2.2.1.2	<u>Section 2.0</u> : Equations 2.1-19 and 2.1-22 w Meeting No. BVPS-RSC-1-84 on January revised to clarify flow rate terminology.		
8.2.2.1.3	<u>Section 2.0</u> : Section 2.2.2 was revised to de pathways for gaseous dose rate calculation radionuclides in particulate form with half	s of I-131, trit	ium, and
8.2.2.1.4	<u>Section 2.0</u> : Table 2.2-13 was revised to in the maximum organ. Also, the receptor wa and addition/deletion of nuclides to be con Specifications and nuclides identified at B	as changed fro sistent with th	om infant to child,
8.2.3 <u>Change</u>	(3) of BV-1 ODCM (Issue 1, Rev 2), Effective	: July, 1986	
	description of the changes that were implement	nted with this r	revision are as
8.2.3.1.1	Section 1.0: Provide a flow based monitor Section 1.1.2. This change makes Section Section 1.1.1 and current procedures.		
8.2.3.1.2	<u>Section 1.0 and 2.0</u> : Revise the 31-day dos methodology in Sections 1.3.2, 2.3.1.2, and the 31-day dose projection limits and chang methodology to be consistent with propose	1 2.3.2.2. This ged the dose p	s change corrected
8.2.3.1.3	<u>Section 2.0</u> : Revise the Gaseous Effluent M and 2.1.2. They were revised due to pressu detectors, changes in isotopic literature, and Channel 5 alternate monitor data. The calc contained in Calculation Packages ERS-SF	ure corrections d the addition culations supp	s determined for the of SPING orting this item are
8.2.4 <u>Change</u> <u>1987</u>	(4) of BV-1 ODCM (Issue 2), and BV-2 ODCI	<u>M (Issue 1, Re</u>	ev 1), Effective July,
re	With the start-up of BV-2 in the second half of 1 evision and the BV-2 ODCM required initial im he changes are as follows:	-	•
8.2.4.1.1	Produce functionally compatible BV-1 and site dose rate limits and meet regulatory red scope of the revisions to the Unit 1 ODCM Also, for clarity, the draft BV-2 ODCM pro- was regarded as Issue 1 (historical) and ope Issue 1, Revision 1 of the BV-2 ODCM.	quirements. N I, it was re-issi eviously subm	Jote that due to the ued as Issue 2. hitted to the NRC

Bear	ver Valley Power Station	Procedure N	umber: 1/2-ODC-1.01
Fitle:		Unit: 1/2	Level Of Use: General Skill Reference
ODCM: Index, Ma	trix and History of ODCM Changes	1/2 Revision: 10	Page Number: 23 of 94
8.2.4.1.2	<u>Section 1.0</u> : A shared liquid radwaste sysprocessing, the sharing of dilution water, according to NUREG-0133 was incorport	, and the apporti	onment of dose
8.2.4.1.3	Section 2.0: A shared <u>elevated</u> gaseous r mixing of gaseous radwaste and the appo NUREG-0133 was incorporated into bot	ortionment of do	
8.2.4.1.4	Section 2.0: Separate ground level gaseo BV-1 ODCM was updated to incorporate base. Gaseous source terms were revised BV-2 FSAR, and terms were added for c release.	e the BV-2 five the to that calculated	year meteorology ed for BV-1 in the
8.2.4.1.5	Section 2.0: The gaseous effluent monitor were revised as required by revisions to efficiencies, and revised percentages of s	meteorology, so	urce terms, monitor
8.2.4.1.6	<u>Section 2.0</u> : Formal justification was prodescribed in the Containment Purge Dos dose rate for a Containment Purge may be exceed 960 minutes. Since the Containm is 60 minutes, then the maximum value for 960 minutes/60 minutes = 16).	e Rate calculatione averaged over nent air volume	ons. Whereas, the a time period not to change time period
	e (5) of BV-1 ODCM (Issue 2, Rev 1), and BV ve December, 1987	V-2 ODCM (Issi	ue 1, Revision 2),
r t	Section 2.0: Sections 2.1.3 and 2.1.4 of both Onote concerning noble gas nuclides as requeste itled Beaver Valley Unit 2 - Offsite Dose Calc TAC 63996).	d by a NRC lett	er dated July 14, 1987
	e (6) of BV-1 ODCM (Issue 2, Rev 2), and BV ve June, 1989	√-2 ODCM (Issi	ue 1, Rev 3),
8.2.6.1 A	A description of the changes implemented with	n this revision ar	re as follows:
8.2.6.1.1	Section 1.0 and 2.0: Both ODCMs were and 2.4. This addition gives a descriptio the Liquid Radwaste System and the Gas justification 1)	n of and include	s flow diagrams of
8.2.6.1.2	<u>Section 1.0</u> : Corrected typos to BV-1 OI differentiation between the two fs, and a Justification 1)	•	

	Beaver	Valley Power Station	Procedure Nu	umber: 1/2-ODC-1.01
Title:			Unit:	Level Of Use:
			1/2	General Skill Reference
ODCM:	Index, Matrix	and History of ODCM Changes	Revision:	Page Number: 24 of 94
	8.2.6.1.3	Section 1.0: Re-define F_k in equation 1.3-1 of the NRC. (See Justification 1)	ooth ODC	Ms, as allowed by
	8.2.6.1.4	Section 1.0 and 2.0: Typos were corrected to the ODCM equation 1.3-7; add a division sign betwee ODCM equation 1.3-8; add a division sign betwee Equation 2.1-20 of both ODCMs; change the Head to 0.33. (4) Equation 2.1-24 of both ODC HSP multiplier from 0.70 to 0.33. (See Justific	ween the b ween the b IHSP to H CMs, chang	rackets. (2) BV-1 rackets. (3) SP multiplier from
	8.2.6.1.5	Section 1.0 and 2.0: Typos were also corrected words "from each reactor unit" to five places (S 2.3.1.2, and 2.3.2.2) of both ODCMs. This ens current requirements of the Technical Specifica punctuation in Section 2.3.2.1 of the BV-1 OD Table 3.0-1 of both ODCMs. (4) Correct typo ODCMs.	Sections 1. sures comp ations. (2) CM. (3) (3.1, 1.3.2, 2.3.1.1, bliance with the Correct Correct typos in
	8.2.6.1.6	Section 2.0: Add a Reference to Section 2 of th Justification 3)	e BV-1 O	DCM. (See
	8.2.6.1.7	<u>Section 2.0</u> : Add the words "from the site" to S This ensures compliance with the current requi Specifications. (See Justification 2)		
	8.2.6.1.8	Section 2.0: Revise BV-1 ODCM Table 2.2-2 t iodine radionuclide mix for the Unit 1 Ventilat for Xe-135m in the Containment Vacuum Pum	ion Vent a	nd to correct a typo
	8.2.6.1.9	Section 2.0: Provide re-verified $P_{i\tau}$ values for the 2.2-13 of both ODCMs. (See Justification 1)	he Beaver	Valley site in Table
	8.2.6.1.10	Section 2.0: Correct the definition for the t_f value in Section 2.3.2.1 of both ODCMs. (See Justif		cow-meat pathway
	8.2.6.1.11	Section 2.0: Provide re-verified R values for th 2.3-2 through 2.3-20 of both ODCMs. (See Just		
	8.2.6.1.12	<u>Appendix B</u> : Change the particulate and iodine B of the BV-1 ODCM. (See Justification 3)	release fra	actions in Appendix
	8.2.6.1.12		release fra	actions in Appendix

Beaver Valley Power Station	Procedure Nun 1	nber: /2-ODC-1.01
Title:	Unit: 1/2	Level Of Use: General Skill Reference
ODCM: Index, Matrix and History of ODCM Changes	Revision: 10	Page Number: 25 of 94
8.2.6.2 The justification used for Change (6) to the ODCMs a	ire as follo	ws:
8.2.6.2.1 A letter dated March 2, 1989 (from the NRC) w Light regarding acceptance of the Offsite Dose NRC acceptance of the BV-1 and BV-2 ODCM Evaluation Reports (TER No. EGG-PHY-8194 provided by the Idaho National Engineering Lab	Calculations was base and EGG-	n Manuals. The ed on Technical
As stated in the letter, minor concerns are delined In general, these concerns are considered typos impact any of the calculations currently being p contributions. However, one of these concerns reproduce the ODCM R values for the cow-mea pathways when using the ODCM/NUREG-0133 (along with all other ODCM R values) were re- Package No. ERS-ATL-89-014. The results of values for the three aforementioned pathways w values in error do not involve the controlling red the controlling receptor is VIA the Inhalation, O pathways, not the pathways subject to error), <u>TH</u> adversely impact the accuracy or reliability of e	or addition erformed f is regardin at, cow-mil 3 methodo validated V this packag vere in erro ceptor for Ground, and <u>HEN</u> the ch	ns and in one way for dose ag the inability to lk and goat-milk logy. These R values VIA Calculation ge showed that the R or. <u>SINCE</u> the R gaseous release (i.e.; d Vegetation hanges will not
8.2.6.2.2 As requested by DLC letters ND3NSM:3431, N ND1NSM:3652, Technical Specifications were plant implementing procedures. As part of this were identified in various sections of the ODCM anomalies identified during the verification effor	required to effort, wou 1. This rev	o be verified in all rding errors/typos
8.2.6.2.3 As delineated in letter ND1SHP:776, dated Febr ODCM Table 2.2-2, Appendix B) a series of app identified between ODCM Table 2.2-2 and simi FSAR. Evaluation showed that apparent credit filtration of SLCRS releases which is invalid at calculation package on which the BVPS-2 FSA based, is correct (i.e.; no credit was taken for ro releases). Except for revising the ODCM, no fu necessary because the particulates and iodines in for gaseous effluent alarm setpoint. Therefore, adversely impact the accuracy or reliability of set	parent disc ilar tables of was given Unit 1. H R expected utine filtra in the CDC this chang	crepancies were of the BVPS-2 for continuous owever, the d release tables are tion for Unit 1 ective action is CM were not used e does not

-

.

Beave	er Valley Power Station	Procedure Nu	mber: 1/2-ODC-1.01
Title:	<u></u>	Unit: 1/2	Level Of Use: General Skill Reference
ODCM: Index, Matriz	x and History of ODCM Changes	1/2 Revision: 10	Page Number: 26 of 94
8.2.7 <u>Change (</u>	7) of BV-1 and 2 ODCM (Issue 3), Effective Aug	<u>gust, 1995</u>	
8.2.7.1 The	e combined ODCM contains the following change	es:	
8.2.7.1.1	Prior to ISSUE 3, BV-1 and BV-2 had individu generically equal. In an effort to simplify the i ODCMs have been combined. This merger of maintain the level of radioactive effluent contr 20.1302, 40 CFR Part 190, 10 CFR 50.36a, and Part 50. Also, this merger will not adversely in reliability of effluent, dose, or setpoint calculat	implementi the individ ol required d Appendix mpact the a	ng documents, the lual ODCMs will by 10 CFR (1 to 10 CFR
8.2.7.1.2	Section 1.0: Revised Section 1.0 (Liquid Efflu with 10 CFR 20 Appendix B (20.1001 - 20.240 includes the following: (1) Revising the alarm [RM-1LW-104, RM-1LW-116, and 2SGC-RQ monitor detection efficiencies. (3) Updating of parameters for BV-1 and BV-2. (4) Adding th [RM-1RW-100, RM-1DA-100, 2SWS-RQ101	01), Table 2 setpoints f 100]. (2) lischarge ra ne alarm se	2, Col. 2 EC's. This for monitors Updating the BV-1 ate and dilution rate tpoints for monitors
8.2.7.1.3	Section 1.0: Revised Section 1.0 (Liquid Efflu (Gaseous Effluents) to merge the BV-1 alarm s BV-2 alarm setpoint calculations. For all prace Figures, and Equations were transferred to the numbering was kept generically equal. The tw follows: (1) If a table was contained in both C specific to BV-1 or BV-2, then an a or b was a example, Table 1.1-1 was previously included BV-2 ODCM. These tables are now numbered BV-1 and BV-2 respectively. A cross reference provided in the Table Of Contents. (2) If an e ODCMs, but each had data specific to BV-1 or added to the equation. For example, Equation in the BV-1 ODCM and the BV-2 ODCM. The numbered 1.1(1)-1 and 1.1(2)-1, denoting BV- cross reference for ODCM equations is provide	setpoint cal tical purpose combined of o exception DDCMs, but dded to the in the BV- l 1.1-1a and e for ODC quation wa BV-2, the 1.1-1 was p ese equation 1 and BV-2	culations with the ses, when Tables, ODCM, the ns to this are as at each had data table. For 1 ODCM and the d 1.1-1b denoting M tables is s contained in both n a (1) or (2) was previously included ons are now 2 respectively. A
8.2.7.1.4	<u>Section 3.0</u> : Revised Section 3.0 (Radiologica Program) to list the program requirements from Branch Technical Position (Revision 1, 1979).		-
8.2.7.1.5	Section 4.0: Revised Section 4.0 (Information provide clarified reporting requirements for the clarifications were taken from Generic Letter 8 (NUREG-1301).	e Special R	eport. The

_	Beaver	Valley Power Station	Procedure Nu	1/2-ODC-1.01
Title:			Unit: 1/2	Level Of Use: General Skill Referenc
ODCM: Inde	x, Matrix a	nd History of ODCM Changes	Revision:	Page Number:
8.2.		<u>Appendix A</u> : Revised Appendix A to transfer parameters from Appendix A (Tables A-2 thro (Tables 2.3-35 through 2.3-38). This revision For example, all dispersion parameters are nov ODCM.	ugh A-5) t was done f	o Section 2.3 for clarification.
8.2.		<u>Appendix C</u> : This is a new Appendix to the O the Radiological Effluent Technical Specificat from the Technical Specifications to Appendix Letter 89-01 and Generic Letter 89-01, Supple This Appendix also includes selected Definition the Technical Specifications (Section 1) and se Surveillance Requirement statements as deline Specifications (Section 3/4). These were adde purposes, even though they are currently descr Specification.	ions (RET) C of the C ment No. 1 ons and Tal elected Apj ated in the d to Apper	S) were transferred DDCM per Generic (NUREG 1301). bles as delineated in plicability and Technical dix C for reference
8.2.		Appendix D: This is a new Appendix to the O Controls were transferred from the Bases Secti Specifications to Appendix D of the ODCM pe	on of the T	fechnical
8.2.		Appendix E: This is a new Appendix to the O Radioactive Effluent Release Report and the A Environmental Report reporting requirements the ODCM.	nnual Rad	iological
8.2.		There are three differences (i.e., non-editorial or revision when compared to the previous BV-1 Specifications. These are the only changes that bars. These differences are as follows:	and BV-2	Technical
8	2.7.1.10.1	First Difference - LLD Definition Clarifi (1) There was a sentence removed in the Definitions delineated in Appendix C Ta sentence stated: "In calculating the LLD by gamma ray spectrometry, the backgro contributions of other radionuclides norr (e.g., potassium in milk samples)." (2) T justification of NUREG-0472, Rev. 2 (i.d removed the sentence from Tables 4.11- there are <u>no</u> other radionuclides normally However, there is applicability to enviro to the existence of other radionuclides in sentence, therefore, will not be removed Table 4.12-1. (3) Removal of the senter Tables 4.11-1 and 4.11-2 does not adverse	E LLD Star bles 4.11- for a radio und shall i nally prese his senten e., this revi 1 and 4.11- y present in nmental LJ environm from Appe- nce from A	ndard Deviation 1 and 4.11-2. This onuclide determined include the typical ent in the samples ce was removed by ision to the NUREG -2). At BV-1 and 2, n effluent samples. LD calculations due ental samples. This endix C, ppendix C,

-

-

•	Beaver Va	lley Power Station	Procedure Nu	mber: 1/2-ODC-1.01
Title:			Unit: 1/2	Level Of Use: General Skill Reference
ODCM: Inde	x, Matrix and H	listory of ODCM Changes	Revision:	Page Number: 28 of 94
		maintains the level of radioactive effluen 10 CFR 20.1302, 40 CFR Part 190, 10 C 10 CFR Part 50, and does not adversely is reliability of effluent, dose, or setpoint ca brings ODCM Appendix C, Tables 4.11- agreement with NRC guidance (i.e., NUE standard.	FR 50.36a mpact the dculations 1 and 4.11	, and Appendix I to accuracy or . (4) This change -2 in generic
8	3.2.7.1.10.2	Second Difference - Change From Semi- Report as follows: (1) The frequency of Release Report was changed from Semi- change is justified by Federal Register, R (Vol. 57, No. 169, Monday, August 31, 1 50.36a(a)(2) states, in part. "Each license Commission annually that specifies the q principal radionuclides released to unrest gaseous effluents during the previous 12 time between submission of the reports m 12 months" (2) This change maintains effluent control required by 10 CFR 20.1 10 CFR 50.36a, and Appendix I to 10 CF adversely impact the accuracy or reliabilit setpoint calculations.	the Radioa Annual to ules And I 992), when ee shall sul uantity of ricted area months of tust be no the level of 302, 40 CF R Part 50,	Annual. This Annual. This Regulations re as; 10 CFR Part omit a report to the each of the s in liquid and in operationthe longer than of radioactive FR Part 190, and does not
8	3.2.7.1.10.3	Third Difference - Implementation Of Net follows: (1) The definition for MEMBE revised to agree with the definition in 10 definition for UNRESTRICTED AREA definition that was in the Technical Spect to the ODCM. This modification was net ODCM dose model for gaseous releases modification involved adding the followin release dose calculations, the UNRESTR exclude any public road, railway, or wate the site that is not occupied continuously PUBLIC". (3) The limits for liquid effluc changed from 1 times 10 CFR 20 Append II, Col. 2 MPC's to 10 times 10 CFR 20 A 20.2401), Table 2, Col. 2 EC's. This limit the ODCM Effluent Concentration Limit effluents, no changes were made to imple As justification, when the utility adopted compliance to 10 CFR 20 shifted from th Unrestricted Area Dose Rate concept. The preferred method of controlling gaseous of continue to be used in-lieu of the MPC of	R(S) OF T CFR 20.10 was modifi- ifications p cessary to is not affec- ng sentence ICTED AF erway adjace by MEME ent concer- dix B (20.1 Appendix E t will now (OEC). (4 ement the N the RETS e MPC com- ne Dose Ra- effluent rel	HE PUBLIC was 003. (2) The ed from the prior to transferring ensure that the ted. The e: "For gaseous REA should cent to or crossing BER(S) OF THE ntration were - 20.601), Table 8 (20.1001 - be referred to as 4) For gaseous New 10 CFR 20. (1/1/84), ncept to the the concept is the ease rate, and will

Ì

i

A CHERT AND A CHERT

Beaver Valley Power Station	Procedure Nu	mber: 1/2-ODC-1.01
Title:	Unit: 1/2	Level Of Use: General Skill Reference
ODCM: Index, Matrix and History of ODCM Changes	Revision: 10	Page Number: 29 of 94

to the OEC limit for liquid effluents accommodates needed operational flexibility to facilitate implementation of the New 10 CFR 20 requirements. (6) For information, the general intent of the New Part 20 is that radiation doses to members of the public not exceed 100 mrems per year, which is more restrictive than the 500 mrems per year limit in the Old Part 20, and that fuel cycle licensees also comply with 40 CFR 190. The New Part 20 does not include a requirement on limiting radioactivity concentrations in effluents, which is less restrictive than the Old Part 20. (7) The basic requirements for RETS (i.e.; ODCM Appendix C Controls) are stated in 10 CFR 50.36a. These requirements indicate that compliance with the RETS will keep average annual releases of radioactive material in effluents to small percentages of the limits specified in the 10 CFR 20.106 (10 CFR 20.1302). These requirements also indicate that operational flexibility is allowed (with considerations for public health and safety) which may temporarily result in releases higher than such small percentages, but still within the MPC limits specified in the 10 CFR 20.106. The MPC's relate to an annual dose of 500 mrem. Also, 10 CFR 50.36a indicates that when using operational flexibility, best efforts shall be exerted to keep levels of radioactive materials in effluents to ALARA as set forth in 10 CFR 50 Appendix I. (8) As stated in the Introduction to Appendix B of the New 10 CFR 20, the liquid EC's are based on an annual dose of 50 mrem. Since a release concentration corresponding to a limiting dose rate of 500 mrem/year has been acceptable as a RETS limit for liquid effluents, it should not be necessary to reduce this limit by a factor of ten. (9) BV-1 and BV-2 has demonstrated that the use of the MPC's associated with the 10 CFR 20.106 has resulted in calculated maximum individual doses to a member of the public that are small percentages of the limits of 10 CFR 50 Appendix I. Therefore, the use of the OEC's, which correspond to an annual dose of 500 mrem (i.e.; 10 times the 10 CFR 20 EC's) should not have a negative impact on the ability to continue to operate within the limits of 10 CFR 50 Appendix I, and 40 CFR 190. (10) Operational flexibility is also necessary in establishing a basis for effluent monitor setpoint calculations. As previously discussed, the EC's stated in 10 CFR 20 relate to a dose of 50 mrem in a year. This is too restrictive to base effluent monitor setpoint calculations. For many liquid effluent release situations, the monitor background is high, which could result in a monitor setpoint that is approximately equal to the monitor background. (11) In summary, to accommodate operational flexibility needed for effluent releases, the limits associated with the liquid release concentration (i.e.; the OEC) are based on 10 times the EC's stated in the 10 CFR 20. The multiplier of 10 is used because the annual dose of 500 mrem (10 CFR 20 MPC bases) is a factor of 10 higher than the annual dose of 50 mrem (10 CFR 20 EC bases). Compliance with the 100 mrem

		1/2-ODC-1.01
Beaver Valley Power Station	Unit: 1/2	Level Of Use: General Skill Reference
ODCM: Index, Matrix and History of ODCM Changes	Revision: 10	Page Number: 30.of 94
dose limit of the 10 CFR 20.1302 will b within the dose limits of 10 CFR 50 Ap (which are also ODCM Controls for liq Implementation of the 10 CFR 20 for li level of radioactive effluent control requ	ppendix I, an Juid and gase Iquid effluen	d 40 CFR 190 cous effluents). ts maintains the

8.2.7.2 In summary, Per Generic Letter 89-01, the transfer of RETS procedural details fulfills the goal of the USNRC Policy Statement for Technical Specification improvements. It is not the USNRC's (or DLC's) intent to reduce the level of radioactive effluent control. Rather, the intent is to provide programmatic controls for RETS (as delineated in Technical Specification 6.8.6) and allow for relocation of the procedural details of the RETS to the ODCM.

and does not adversely impact the accuracy or reliability of effluent,

8.2.8 Change (8) of BV-1 and 2 ODCM (Issue 3, Rev 1), Effective October, 1995

dose, or setpoint calculations.

- 8.2.8.1 A description of the changes implemented with this revision are as follows:
 - 8.2.8.1.1 Index: Editorial changes were made for clarity. (See justification 1)
 - 8.2.8.1.2 <u>Section 1.0</u>: Revised Nb-95 and Nb-97 dose factors in Table 1.3-1 due to changing the niobium bioaccumulation factor. (see justification 2)
 - 8.2.8.1.3 <u>Appendix A</u>: A change was made to Table 1.1 so that the letter A would proceed the table number. (See justification 1)
 - 8.2.8.1.4 <u>Appendix B</u>: A descriptive paragraph was added at the front of this Appendix. Also, changes were made to the tables so that the letter B would proceed the table numbers. (See justification 1)

8.2.8.1.5 <u>Appendix C</u>: Descriptive paragraphs were added at the front of the Appendix (See justification 1). Removed the process flow rate operability and surveillance requirements for gaseous effluent radiation monitors [2RMQ-RQ301, 2RMQ-RQ303 and 2HVL-RQ112] from Tables 3.3-13 and 4.3-13 (See justification 3). Added alternate system effluent flow rate measuring devices for the three gaseous effluent pathways to Tables 3.3-13 and 4.3-13 (See justification 4). Revised Surveillance Requirements 4.11.1.1.3 and 4.11.1.1.4 and notes e and g of Table 4.11-1 to clarify Turbine Building sump sampling requirements (See justification 5).

8.2.8.1.6 <u>Appendix D</u>: Descriptive paragraphs were added at the front of the Appendix. (See justification 1)

Beave	er Valley Power Station	Procedure Ni	umber: 1/2-ODC-1.01
Title:		Unit:	Level Of Use: General Skill Referenc
DDCM: Index, Matri	x and History of ODCM Changes	<u>1/2</u> Revision: 10	Page Number: 31 of 94
8.2.8.1.7	<u>Appendix E</u> : Descriptive paragraphs wer Appendix. (See justification 1)		
8.2.8.1.8	<u>Appendix F</u> : This is a new Appendix to t procedure references for Radiological Ef (RETS) that were transferred from the Te Matrix. (See justification 1)	fluent Technical	Specification
8.2.8.2 The	e justification used for change (8) to the OD	CM are as follo	ws:
8.2.8.2.1	These changes are considered editorial ir changes will maintain the level of radioa 10 CFR 20.1302, 40 CFR Part 190, 10 C 10 CFR 50. Also the editorial changes w accuracy or reliability of effluent dose or	ctive effluent co FR 50.36a, and vill not adversely	ntrol required by Appendix I to impact the
8.2.8.2.2	This change resulted from revising the biniobium from the value posted in Table A Revision 1, 1977 (30,000 pCi/kg per pCi BF (as documented and justified in Appe No. ERS-ATL-83-027) merely removes organism uptake, then the change will me effluent control required by 10 CFR 20.1 10 CFR 50.36a, and Appendix I to 10 CF conservatism will not adversely impact the dose or setpoint calculation.	A-1 of Regulator /l). Since this cl endix A to Calcu the conservatism aintain the level 302, 40 CFR Pa FR 50. Also, rem	ry Guide 1.109, hange in niobium lation Package h associated with of radioactive rt 190, noving the
8.2.8.2.3	This change removes the process flow rarequirements for BV-2 Gaseous Effluent [2RMQ-RQ301, 2RMQ-RQ303 and 2HW Tables 3.3-13 and 4.3-13. These items we justification provided in Calculation Pack safety analysis and a no significant hazar approved prior to submitted it to the NRC However, it was withdrawn in 1993 in ar delays associated with approval of TSCR Letter 89-01 implementation). Removal ODCM will maintain the level of radioac 10 CFR 20.1302, 40 CFR Part 190, 10 C 10 CFR 50. Also removal of these items accuracy or reliability of effluent dose or following is a summary of the justification currently using, and will continue to use rates in ODCM Dose & Dose Rate Calcu observed during normal plant operation. Section 11.3.3 indicates that the source to significant. These pathways are not inclu-	Radiation Moni VL-RQ112] from vere removed from kage No. ERS-A cds evaluation w C via TSCR No. In effort to allevia R No. 1A-175/2A of these requires ctive effluent con FR 50.36a and A will not adverse resetpoint calculation. (1) BVPS-1 design (maximulations, rather the (2) BVPS-2 Ullerm for these thr	itors n Appendix C om the ODCM by aTL-90-021. A ere prepared and 2A-61 in 1992. ate any further A-37 (Generic ments from the ntrol required by Appendix I to ely impact the ation. The and BVPS-2 is im) system flow han those flow rates FSAR ree pathways are not

.

•

Beaver Valley Power Station		Procedure Number: 1/2-ODC-1.01	
Title:	Unit: 1/2	Level Of Use: General Skill Reference	
ODCM: Index, Matrix and History of ODCM Changes	Revision:	Page Number: 32 of 94	

through 11.3-4 that list the expected and design releases for each potentially radioactive pathway. (3) The DLC commitment to Regulatory Guide 1.97, Rev. 2 (Section 1.8-1 of the BVPS-2 UFSAR) is not affected. This RG applies to instrumentation used during and after postulated accident conditions. These three process flow rate instruments were not used in any accident analysis, nor are they used to assess plant conditions during and following an accident. (4) The DLC commitment to Regulatory Guide 1.21, Rev. 1 (Section 1.8-1 of the BVPS-2 UFSAR) is not affected. RG 1.21, Section C.2 (Location of Monitoring) states in part: "All major and potentially significant paths for release of radioactive material during normal reactor operation, including anticipated operational occurrences, should be monitored. Measurements of effluent volume, rates of release, and specific radionuclides should be made insofar as practical ... " As previously stated, the three process flow rate instruments are located on effluent pathways that do not have a significant source term. (5) BVPS-2 UFSAR Sections 9.4.13 and 9.4.16 indicate that the building ventilation system for these three pathways are non-safety related and are not required to perform any safetyrelated function. (6) There is no effect to the Noble Gas Monitors located on these three pathways. The Noble Gas Monitors are still capable of performing their intended functions as described in BVPS-2 UFSAR Section 11.5.2.4.

8.2.8.2.4 This change adds alternate system effluent flowrate measuring devices for the three BV-1 gaseous effluent pathways to Appendix C Tables 3.3-13 and 4.3-13. A 10 CFR 50.59 safety evaluation has concluded that no unreviewed safety question is involved by adding the alternate measuring devices to Appendix C Tables 3.3-13 and 4.3-13. This conclusion is based on the following: (1) There is no increase in the probability or consequences of accidents or malfunctions of equipment important to safety. (2) There is no creation of a possibility for an accident or malfunction of a different type than any evaluated previously. (3) There is no reduction in the margin of safety. (4) Also, since this change merely adds alternate measuring devices that meet the same surveillance requirements of the primary channel, then the change will maintain the level of radioactive effluent control required by 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 50.36a, and Appendix I to 10 CFR 50. Also, addition of the alternate flow rate measuring devices will not adversely impact the accuracy or reliability of effluent dose or setpoint calculations.

8.2.8.2.5 This change to the ODCM clarifies Turbine Building sump sampling requirements and clarifies effluent related actions associated with detection of radioactivity in the secondary system. These clarifications are documented and justified in Calculation Package No. ERS-ATL-95-006. Also, since these clarifications were shown to meet the intent of NUREG-1301 (superseding NUREG-0472) and the BVPS-1 and 2 UFSAR's, then the clarification will maintain the level of radioactive

Beaver Valley Power Station	Procedure N	mber: 1/2-ODC-1.01
Title:	Unit: 1/2	Level Of Use: General Skill Reference
ODCM: Index, Matrix and History of ODCM Changes	Revision: 10	Page Number: 33 of 94

effluent control required by 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 50.36a and Appendix I to 10 CFR 50. Also, the clarifications will not adversely impact the accuracy or reliability of effluent dose or setpoint calculation. Also, a 10 CFR 50.59 safety evaluation has concluded that no unreviewed safety question is involved by clarifying these actions. This conclusion is based on the following: (1) There is no increase in the probability or consequences of accidents or malfunctions of equipment important to safety. (2) There is no creation of a possibility for an accident or malfunction of a different type than any evaluated previously. (3) There is no reduction in the margin of safety.

8.2.9 Change (9) of BV-1 and 2 ODCM (Issue 3, Rev 2), Effective May 1997

- 8.2.9.1 A description of the changes implemented with this revision are as follows:
 - 8.2.9.1.1 <u>Index</u>: Editorial changes were made for clarity. (See Justification 1)
 - 8.2.9.1.2 <u>Section 1.0</u>: Clarifying statements were added to Tables 1.2-1a and 1.2-1b to show that the recirculation times listed are based on historical recirculation rates. Figure 1.4-3 was added to show BV-1 and 2 liquid Effluent Release Points. (See Justification 1)
 - 8.2.9.1.3 <u>Section 3.0</u>: Removed the option to perform broad leaf vegetation sampling at the site boundary in a sector with the highest D/Q. (See Justification 2)
 - 8.2.9.1.4 <u>Appendix C</u>: Added plant specific Mark Numbers to Tables 3.3-12, 4.3-12, 3.3-13 and 4.3-13 (See Justification 1). Corrected typographical errors on Surveillance Requirement 4.11.4.1.1 (See Justification 1). Added clarifying statements from NUREG-1301 and the Radiological Assessment Branch Technical Position to Tables 3.12-2 and 4.12-1 (See Justification 1). Removed the option to perform broad leaf vegetation sampling at the site boundary in a sector with the highest D/Q (See Justification 2).
 - 8.2.9.1.5 <u>Appendix E</u>: Corrected typographical error on Table 6.9-1. (See Justification 1)
 - 8.2.9.1.6 <u>Appendix F</u>: Added procedure details to Tables 11, 12 and 13. (See Justification 1)

Beaver Valley Power Station	Procedure N	umber: 1/2-ODC-1.01
Title:	Unit: 1/2	Level Of Use: General Skill Reference
ODCM: Index, Matrix and History of ODCM Changes	Revision: 10	Page Number: 34 of 94

8.2.9.2 The justification used for Change (9) to the ODCM are as follows:

8.2.9.2.1 These changes are considered editorial in nature. The changes either correct typographical errors or add editorial details from previously approved station documents. Therefore, these changes will maintain the level of radioactive effluent control required by 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 50.36a and Appendix I to 10 CFR 50. Also, the editorial changes will not adversely impact the accuracy or reliability of effluent dose or setpoint calculations.

8.2.9.2.2 This change removes the option to perform broad leaf vegetation sampling at the site boundary (in a sector with the highest D/Q) in lieu of the garden census. Per NUREG-1301 and the Radiological Branch Technical Position, this option does not apply to plants with elevated releases. Since BV-1 and 2 have elevated releases, the option should not be exercised. A review of past garden census showed that the option was never exercised at BV-1 and 2. Since this change removes an option that should not be exercised, then the change will maintain the level of radioactive effluent control required by 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 50.36a and Appendix I to 10 CFR 50. Also, removal of the option will not adversely impact the accuracy or reliability of effluent dose or setpoint calculations.

8.2.10 Change (10) of BV-1 and 2 ODCM (Issue 3, Rev 3), Effective June 1997

- 8.2.10.1 A description of the changes implemented with this revision are as follows:
 - 8.2.10.1.1 <u>Section 2.0</u>: A release point for the BV-2 Turbine Building Vent was added (for editorial purposes) to Figure 2.4-2.
- 8.2.10.2 The justification used for Change (10) to the ODCM is as follows:
 - 8.2.10.2.1 This change is considered editorial in nature. The change adds an equivalent item that was previously located on BV-2 Technical Specification Figure 5.1-2. Since BV-2 Technical Specification Amendment 83 removed this figure, then the gaseous release point for the BV-2 Turbine Building Vent needed transferred to the ODCM. Therefore, since this change is considered editorial, the change will maintain the level of radioactive effluent control required by 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 50.36a and Appendix I to 10 CFR 50. Also, the editorial change will not adversely impact the accuracy or reliability of effluent dose or setpoint calculations.

8.2.11 Change (11) of BV-1 and 2 ODCM (Issue 3, Rev 4), Effective March 1998

- 8.2.11.1 A description of the changes implemented with this revision are as follows:
 - 8.2.11.1.1 Index: Editorial changes were made for clarity.

Beave	r Valley Power Station	Procedure Nu	umber: 1/2-ODC-1.01
Title:		Unit: 1/2	Level Of Use: General Skill Reference
ODCM: Index, Matrix	and History of ODCM Changes	Revision:	Page Number: 35 of 94
8.2.11.1.2	Section 3.0: The distances for the environment were revised to show a more accurate measure Unit 1 Containment Building. The actual same remain unchanged. Also, the 4 individual qua locations were consolidated into 1 map. This Condition Report CR 980353.	ement from ple location drant maps	the center of the ns and descriptions showing TLD
8.2.11.1.3	Section 4.0: Added clarifying statements as to effluents for MEMBERS OF THE PUBLIC c site boundary are derived and reported. This Condition Report CR 971578.	onducting a	activities inside the
8.2.11.1.4	Appendix C: Added statements to Action 23 of batch liquid releases may also be initiated with resuming the release. This is a recommendati Self-Assessment. A note was also added to the independent signatures on the discharge perm "two technically qualified members of the Fact the release rate calculation" Added Action 27 Table 3.3-13. This addition ensures consisten gaseous effluent pathway Actions for Noble C Added plant specific Mark Numbers for prima instrumentation to Tables 3.3-13 and 4.3-13 a Activity Monitors, [RM-1VS-109 Channel 5] [RM-1VS-101B] and [RM-1V1S-110 Channel to [RM-1VS-107B]. [RM-1GW-109 Channel alternate to [RM-1GW-108B] at this time, bec auto-isolation of gaseous waste decay tank rel alarm. (2) For Particulate Activity Monitors, added as an alternate to [RM-1VS-1107A], and was added as an alternate to RM-1GW-108A.	h the same on from the is table to o it satisfy th cility Staff i 29 to RM-1 cy with the Gas Moniton ary and alte s follows: was added 15] was ad 5] was not cause it doe ease upon [RM-1VS- 4-1VS-111]	Action needed for 2 1997 RETS clarify that e requirement for independently verify GW-108B on 5 other 7 continuous r inoperability. The for Noble Gas as an alternate to ded as an alternate added as an s not perform on upper activity -109 Channel 1] was 0 Channel 1] was
8.2.11.1.5	<u>Appendix E</u> : Corrected typographical errors o	n Table E:6	5.9-1
8.2.11.1.6	<u>Appendix F</u> : Updated the procedure details fo instrumentation included in Appendix C Table the amount of detail contained in reference to so that the position of the surveillance on the having a need to change the Tables in this Ap Action to Condition Report CR 980129.	es 3.3-13 ar the Operati logs can be	nd 4.3-13. Reduced ing Manual L-5 logs changed without

Beaver Valley Power Station		Procedure Number: 1/2-ODC-1.01	
Title:	Unit: 1/2	Level Of Use: General Skill Reference	
ODCM: Index, Matrix and History of ODCM Changes	Revision: 10	Page Number: 36 of 94	

8.2.11.2 The justification used for Change (11) to the ODCM is as follows:

8.2.11.2.1 These changes are considered editorial in nature. The changes either correct typographical errors or add editorial details from previously approved station documents. Therefore, these changes will maintain the level of radioactive effluent control required by 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 50.36a and Appendix I to 10 CFR 50. Also, the editorial changes will not adversely impact the accuracy or reliability of effluent dose or alarm setpoint calculations.

8.2.12 Change (12) of BV-1 and 2 ODCM (Issue 3, Rev 5), Effective November 1998

- 8.2.12.1 A description of the changes implemented with this revision are as follows.
 - 8.2.12.1.1 Index: Editorial changes were made for clarity. (See Justification 1.)
 - 8.2.12.1.2 <u>Section 1.0</u>: Added clarification for calculation of radionuclide concentration when the Post Dose Correction Factor is >1. (See Justification 1).
 - 8.2.12.1.3 <u>Section 3.0</u>: Added an additional site location for the upstream environmental surface water sample. Added additional method after collecting and compositing this sample. (See Justification 2.)
 - 8.2.12.1.4 Appendix C: Revised the definitions for MEMBER(S) OF THE PUBLIC and UNRESTRICTED AREA to ensure compliance with 10 CFR 20.1003. (See Justification 1.) Added a definition for MEMBER(S) OF THE PUBLIC to ensure compliance with 40 CFR 190.02(k). (See Justification 1.) Added plant specific Mark Numbers for primary and alternate instrumentation to Table 3.3-13 that were inadvertently omitted from change (11) to the ODCM. (See Justification 1.) Added clarification to Table 4.11-2 as to where and when H-3 samples of Waste Gas Storage Tanks are to be obtained. This is a Corrective Action to Condition Report CR 981489. (See Justification 1.) Added clarification to note "e" of Table 4.11-2 as to the appropriate ventilation release path. This is a Corrective Action to CR 981490. (See Justification 1.). Corrected an obvious omission on Table 3.12-1 to ensure that 2 TLD's are used for determination of Direct Radiation. (See Justification 1.) Incorporated the appropriate changes to Table 3.12-1 that are described above for Section 3.0. (See Justification 2.)
 - 8.2.12.1.5 <u>Appendix F</u>: Added procedure details from the Chemistry Manual to Table 6. This is a Corrective Action to Condition Report CR 981488. (See Justification 1.)

Beave	er Valley Power Station	Procedure N	umber: 1/2-ODC-1.01
Fitle;		Unit: 1/2	Level Of Use: General Skill Reference
DDCM: Index, Matri	x and History of ODCM Changes	Revision: 10	Page Number: 37 of 94
8.2.12.2 The	e justifications used for Change (12) to the	ODCM are as fo	llows:
8.2.12.2.1	These changes are considered editorial in typographical errors or add editorial deta station documents. Therefore, these cha radioactive effluent control required by 10 CFR 50.36a, and Appendix I to 10 CI will not adversely impact the accuracy of setpoint calculations.	ails from previounges will mainta 10 CFR 20.1302 FR 50. Also, the	usly approved tin the level of , 40 CFR Part 190, e editorial changes
8.2.12.2.2	These changes involve the upstream env method and sample site. Since these cha of NUREG-1301, and BVPS-1 and 2 UF maintain the level of radioactive effluent 10 CFR 20.1302, 40 CFR Part 190, 10 C 10 CFR 50. Also, the change will not ac reliability of effluent dose or alarm setpo 10.50 safety evaluation has concluded th	Anges were show SAR's, then the control required FR 50.36a and a liversely impact to bint calculations. at no unreviewe	n to meet the intent change will d by Appendix I to the accuracy or Also, a 10 CFR d safety question is

reliability of effluent dose or alarm setpoint calculations. Also, a 10 CFR 10.50 safety evaluation has concluded that no unreviewed safety question is involved by adding an additional sample site and sample method. This evaluation is based on the following: (1) There is no increase in the probability or consequences of accidents or malfunctions of equipment important to safety. (2) There is no creation of a possibility for an accident or malfunction of a different type than any evaluated previously. (3) There is no reduction in the margin of safety.

8.2.13 Change (13) of BV-1 and 2 ODCM (Issue 3, Rev 6), Effective May 1999

- 8.2.13.1 A description of the changes implemented with this revision are as follows:
 - 8.2.13.1.1 Index: Editorial changes were made for clarity.
 - 8.2.13.1.2 <u>Section 3.0</u>: Updated figure number and table reference. Removed a redundant upstream environmental surface water sampling location.

Beaver Valley Power Station	Procedure Number: 1/2-ODC-1.01	
Title:	Unit: 1/2	Level Of Use: General Skill Reference
ODCM: Index, Matrix and History of ODCM Changes	Revision: 10	Page Number: 38 of 94

8.2.13.1.3 Appendix C: Made editorial changes for clarity. Added definitions for SHUTDOWN and STARTUP. Changed definition for ODCM to ensure agreement with definition provided in Unit 1/2 Technical Specification Amendments 220/97. Changed designations for primary and alternate instruments on Tables 3.3-12, 4.3-12, 3.3-13 and 4.3-13 from "P" and "A" to "Pri" and "Alt". Clarified use of the Flow Rate Measurement Devices for the Cooling Tower Blowdown Line on Tables 3.3-12 and 4.3-12 to show that the Unit 1/2 combined instrument [FT-1CW-101-1] is the primary and both of the individual Unit 1 and Unit 2 instruments [FT-1CW-101] and [2CWS-FT101] are the alternates. Updated Actions 24, 25 and 26 of Table 3.3-12 to describe use of comparable alternate monitoring channels when the primary channels are INOPERABLE. Clarified Table 3.3-13 Action 28 applicability for Unit 2 gaseous effluent monitors. Clarified Table 3.3-13 Action 30 to show that applicability is for batch purges of the reactor containments. Changed reference of Special Report compliance requirement from Technical Specification 6.9.2f to 10 CFR 20.2203 and 10 CFR 50.4 as permitted by Unit 1/2 Technical Specification Amendments 220/97. Clarified note b of Table 4.11-2 regarding sampling and surveillances frequencies. Clarified Controls 3.12.1 and 3.12.2 to ensure compliance with NUREG-1301.

8.2.13.1.4 <u>Appendix E</u>: Made editorial changes for clarity. Changed reference of Special Report compliance requirement from Technical Specification 6.9.2f to 10 CFR 20.2203 and 10 CFR 50.4 as permitted by Unit 1/2 Technical Specification Amendments 220/97. Changed submittal date of annual REMP report from May 1 to May 15 as permitted by Unit 1/2 Technical Specification Amendments 220/97. Changed column heading in Table E: 6.9-1 to ensure consistency with NUREG-1301.

8.2.13.2 The justification used for change (13) to the ODCM is as follows:

8.2.13.2.1 All changes are considered editorial in nature. The changes either clarify the intent of the original specification or add equivalent items form the standard guidance document (NUREG-1301) or recent Technical Specification Amendments. Therefore, since these changes are considered editorial, the changes will maintain the level of radioactive effluent control required by 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 50.36a and Appendix I to 10 CFR 50. Also, the editorial changes will not adversely impact the accuracy or reliability of effluent dose or setpoint calculations.

8.2.14 Change (14) of BV-1 and 2 ODCM (Rev 14), Effective March 2000

8.2.14.1 Prior to this ODCM change, the change numbers did not match the Issue and Revision numbers. For example, the last implemented ODCM change was (13), but carried an Issue 3, Revision 6 designation. Therefore, as of this ODCM change (14), consecutive Revision numbers will begin with Revision 14.

Beaver Valley Power Station		Procedure N	umber: 1/2-ODC-1.01
Title:		Unit: 1/2	Level Of Use: General Skill Reference
ODCM: Index, Mat	rix and History of ODCM Changes	Revision: 10	Page Number: 39 of 94
8.2.14.2 A	description of the changes implemented with	h this revision ar	re as follows:
8.2.14.2.1	Index: Editorial changes were made for reports CR 982097, CR 992652 and CR	•	
8.2.14.2.2	Appendix C: Editorial changes were made typographical error on Table 3.3-12 in re- the grab sampling requirement from 8 ho Action 24 (NUREG-1301, Table 3.3-12, change). Enhanced the Channel Functio Table 4.3-12 from Q(6) to Q(1) for RM- Condition Report CR 993021). Add clar to show the plant specific Mark Number Sample Flow Rate Measuring Devices. Table 3.3-13 Action 27. Separated Actio Action 28 requirements for System Efflu Devices/Process Flowrate Monitors and for Sample Flow Rate Measuring Devices Added clarification to Table 3.3-13 to sha are applicable for continuous releases. A grab sample collection (i.e., local monitor communication is lost to the Control Roo Table 3.3-13 Action 29. Changed the gr hours to 12 hours for Table 3.3-13 Actio Table 3.3-013, Action 47 allows this cha errors on Table 4.11-1 in regards to liquit table notation.	egards to FT-CW burs to 12 hours Action 36 and 3 nal Test required 1DA-100 (Correctification to Table s for the primary Corrected a type on 28 of Table 3 tent Flow Rate N individual Action Solution Action 2 Added an alternation readings can b om) to show com ab sampling req n 29 and Action ange). Corrected	7-101-1. Changed for Table 3.3-12 7 allow this ments on ective Action to le 3.3-13 and 4.3-13 7 and alternate BV-1 ographical error on .3-13 into individual Measuring on 28 requirements rate Monitors. 29 and Action 32 te method in lieu of te obtained when apliance to uirement from 8 32 (NUREG-1301, typographical
8.2.14.2.3	<u>Appendix F</u> : Made editorial changes for details for primary and alternate instrum Tables 3.3-13 and 4.3-13. Added approp Logs (i.e., HPM Appendix 1) when these Appendix C Surveillances and Actions (Report CR 992652).	entation include priate references e logs are used s	d in Appendix C to the HP Shift atisfy ODCM
8.2.14.3 T	he justification used for change (14) to the O	DCM is as follo	WS:
8.2.14.3.1	Most of these changes are considered ed screened for 10CFR50.59 applicability. UFSAR's are not impacted, because the the original specification, add plant spec equivalent items from the standard guida Therefore, these changes will maintain th	In summary, the changes either c ific Mark Numb ince document (1	BVPS-1 and 2 larify the intent of ers, or add NUREG-1301).

Therefore, these changes will maintain the level of radioactive effluent control required by 10CFR20.1302, 40CFR Part 190, 10 CFR50.36a, and Appendix I to 10CFR50. Also, these changes will not adversely impact the accuracy or reliability of effluent dose or alarm setpoint calculations.

. . .

Beave	Beaver Valley Power Station		nber: /2-ODC-1.01
Title:		Unit: 1/2	Level Of Use: General Skill Reference
ODCM: Index, Matrix	and History of ODCM Changes	Revision:	Page Number: 40 of 94
8.2.15 <u>Change (1</u>	5) of BV-1 and 2 ODCM (Rev 15), Effective Au	gust 2000	
8.2.15.1 A de	escription of the changes implemented with this r	evision are	as follows:
8.2.15.1.1	<u>Index</u> : Editorial changes were made for clarity. Report CR 001682 was added. Reference to N was added.		
8.2.15.1.2 8.2.15.2 The	Appendix C: Editorial changes were made for c of Table 3.3-13 into Action 28A and 28B to sho Action 28A requirements for system/process flo Action 28B requirements for sampler flow rate alternate method in lieu of 4 hour flow rate esti- design values for system/process flow rate) to s Table 3.3-13 Action 28A when the system/proce inoperable. Annotated Actions 30 of Table 3.3- to show differentiation between Action 30A rec containment purges and Action 30B requirement containment purges.	by differen ow rate measureme mations (i.e how compl ess flow ra -13 into Ac quirements nts for BV-	tiation between asurement and ent. Added an e.; assume ODCM liance with te monitor is ction 30A and 30B for BV-1 reactor 2 reactor
8.2.15.2 The	justification used for change (15) to the ODCM 1	s as follow	s:
8.2.15.2.1	Some of these changes are considered editorial were screened for 10CFR50.59 applicability an the BVPS-1 and 2 UFSAR's. Since the editoria of the original specification, then these changes radioactive effluent control required by 10CFR2 10CFR50.36a, and Appendix I to 10CFR50. A impact the accuracy or reliability of effluent do calculation.	d determine al changes o will maint 20.1302, 40 lso, these c	ed not to impact clarify the intent ain the level of OCFR Part 190, hanges will not
8.2.15.2.2	The change to allow use of design (maximum) s 4 hour flow rate estimations (for five of the eigh pathways) was screened for 10CFR50.59 applic impact the BVPS-1 and 2 UFSAR's. The 4 hou these effluent release pathways have never beer Dose Rate Calculations. The method for use of Dose and Dose Rate Calculations remains unch BVPS-1 and BVPS-2 is currently using, and wi (maximum) system flow rates in ODCM Dose a for all eight gaseous effluent release pathways. that DLC response to NRC Unresolved Item 50 compromised. Also this change is considered s justification provided for ODCM change (8) tha flow rate operability and surveillance requirement gaseous effluent release pathways. Based on th maintain the level of radioactive effluent control	at gaseous of cability and ar flow rate a used in O. process flo anged. For anged. For and Dose R This is nec -334/83-30 imilar and at removed ents for the e above, th	effluent release determined not to estimations for DCM Dose and ow rates in ODCM example, to use design ate Calculations cessary to ensure -05 is not within the all of the process other three ese changes will

-

.

1

į

9

1

n II. II. N

A . "to to start is made to be a first of the start of the start of the

-

Beaver V	alley Power Station	Procedure N	umber: 1/2-ODC-1.01
Title:		Unit: 1/2 Revision:	Level Of Use: General Skill Reference
ODCM: Index, Matrix and	History of ODCM Changes	10	Page Number: 41 of 94
10	CFR 20.1302, 40 CFR Part 190, 10 CFR 50 CFR 50. Also, these changes will not impa effluent dose or alarm setpoint calculation.		
8.2.16 Change (16) of	f BV-1 and 2 ODCM (Effective April 2002)	<u>.</u>	
8.2.16.1 A descrip	ption of the changes implemented with this	revision ar	re as follows:
del	e entire BV-1 and 2 ODCM was converted i lineated in 1/2-ADM-0100. As part of this p parated into eight procedures as follows:		
8.2.16.1.1.1	<u>1/2-ODC-1.01, Rev 0;</u> ODCM: Index, N Changes (formerly; ODCM Index and A		-
8.2.16.1.1.2	<u>1/2-ODC-2.01, Rev 0;</u> ODCM: Liquid E Section 1 and 5)	Effluents (formerly; ODCM
8.2.16.1.1.3	<u>1/2-ODC-2.02, Rev 0;</u> ODCM: Gaseous Section 2 and 5)	s Effluents	(formerly; ODCM
8.2.16.1.1.4	<u>1/2-ODC-2.03, Rev 0;</u> ODCM: Radiolo Monitoring Program (formerly; ODCM)	•	
8.2.16.1.1.5	<u>1/2-ODC-2.04, Rev 0;</u> ODCM: Informa (formerly; ODCM Section 4)	tion Relate	ed to 40 CFR 190
8.2.16.1.1.6	<u>1/2-ODC-3.01, Rev 0;</u> ODCM: Dispersi and Source Term Inputs (formerly; ODC		
8.2.16.1.1.7	<u>1/2-ODC-3.02, Rev 0;</u> ODCM: Bases for ODCM Appendix D)	or ODCM	Controls (formerly;
8.2.16.1.1.8	<u>1/2-ODC-3.03, Rev 0;</u> ODCM: Controls Programs (formerly; ODCM Appendix C		5 and REMP
wa	ocedure 1/2-ODC-3.02, Rev 0: Technical Sp s duplicated in the Bases for ODCM Contro chnical Specification Amendments 1A-246/	ols as perm	nitted by Unit 1/2

.

•

Beaver Valley Power Station	Procedure Nu	umber: 1/2-ODC-1.01
Title:	Unit: 1/2	Level Of Use: General Skill Reference
ODCM: Index, Matrix and History of ODCM Changes	Revision: 10	Page Number: 42 of 94

8.2.16.1.3 Procedure 1/2-ODC-3.03, Rev 0: Portions of Technical Specification LCO 3.3.3.1 (including portions of Tables 3.3-6 and 4.3-3) were transferred to the ODCM Controls as permitted by Unit 1/2 Technical Specification Amendments 1A-246/2A-124.^(3.2.6.8) Specifically, this includes the Mid and High Range Channels of Noble Gas Effluent Monitors [RM-1VS-109 (7 and 9), RM-1VS-110 (7 and 9), RM-1GW-109 (7 and 9), and 2HVS-RQ109C and 109D], the Atmospheric Steam Dump Valve/Code Safety Relief Valve Discharge Monitors [RM-1MS-100A, B and C] and Auxiliary Feedwater Pump Turbine Exhaust Monitor [RM-1MS-101]. The Preplanned Method of Monitoring (PMM) was also added for clarification of necessary actions when the primary instrument is inoperable. Addition of the PMM's are considered an editorial change because it merely specifies the asset number (or appropriate form number), which were included as PMM's in previously approved station documents.

8.2.16.1.4 <u>Procedure 1/2-ODC-3.03, Rev 0</u>: Added clarifications to ODCM Control 3.3.3.9 Table 3.3-13 to show that Action 30A and Action 3B are applicable to the initial batch purge of the reactor containment atmosphere. All other releases of reactor containment atmosphere (i.e.; after the initial batch purge) are considered continuous releases.

8.2.16.1.5 <u>Procedure 1/2-ODC-3.03, Rev 0</u>: Added specific plant asset numbers to ODCM Control 3.3.3.10 Table 3.3-13 and Table 4.3-13 to show that Sample Flow Rate Monitor flow transmitters [2HVS-FIT101-1, 2RMQ-FIT301-1, 2HVL-FIT112-1 and 2RMQFIT303-1] may be used as comparable alternates when the primary instruments [RM-11 Monitor Item 28 for 2HVS-RQ101, 2RMQ-RQ301, 2HVL-RQ112 and 2RMQ-RQ303], respectively, are INOPERABLE. This is considered an editorial change because the primary monitoring channel (i.e.; RM-11 Monitor Item 28) display already receives its input from these same flow transmitters.

8.2.16.1.6 <u>Procedure 1/2-ODC-3.03, Rev 0</u>: Added notation to ODCM Control 3.3.3.10 Table 3.3-13 and Table 4.3-13 to show that [RM-1GW-109 Channel 5] may be used as a comparable alternate to [RM-1GW-108B] for continuous releases. However, since [RM-1GW-109 Channel 5] cannot perform an automatic isolation of gaseous waste decay or storage tank releases, then notation was also added to prevent using this monitor as a comparable alternate for batch releases. This is considered an editorial change because it merely specifies the asset number of a redundant alternate monitoring channel that was included in previously approved station documents.

Beaver Valley Power Station	Procedure Nu	mber: 1/2-ODC-1.01
Title:	Unit: 1/2	Level Of Use: General Skill Reference
ODCM: Index, Matrix and History of ODCM Changes	Revision: 10	Page Number: 43 of 94

8.2.16.1.7 <u>Procedure 1/2-ODC-3.03, Rev 0</u>: Replaced the requirements for "Particulate Activity Monitors" in ODCM Control 3.3.3.10 Tables 3.3-13 and Table 4.3-13 with requirements for "Particulate and Iodine Samplers". This is considered an editorial change because the NRC guidance document used for preparation of ODCM Controls (NUREG-1301) contains the clarification that the requirements listed in these Tables are for the "Particulate and Iodine Samplers", and not for the "Particulate Activity Monitors".

8.2.16.2 The justification used for change (16) to the ODCM is as follows:

8.2.16.2.1 The specific radiation monitoring channels transferred to the ODCM provide alarms and indications to alert plant personnel of high radiation conditions and to assist in evaluating and trending plant effluents. The Actions applicable if the monitors are inoperable require only that area surveys be performed on a daily basis, or that explanations of inoperability be provided in an annual effluent report. The Actions do not impact or reference the operability of other systems nor do the Actions require that plant operation be terminated at any time.

- 8.2.16.2.2 Some of the radiation monitoring effluent monitors transferred to the ODCM provide indications used to assess selected plant parameters following an accident consistent with the recommendations of NUREG-0737. However, the monitors do not provide indication for post accident variables that have been identified as Regulatory Guide 1.97 Type A or Category I.
- 8.2.16.2.3 The Safety Analysis performed for the License Amendments conclude that the radiating monitoring channels transferred to the ODCM do not reduce the effectiveness of the requirements being relocated. Rather, the transferred results in a change in the regulatory control required for future changes made to the requirements. The requirements will continue to be implemented by the appropriate plant procedures in the same manner as before. However, future changes to the transferred requirements will be controlled in accordance with 10 CFR 50.59 instead of requiring a license amendment per 10 CFR 50.90.

8.2.16.2.4 Based on the above, these changes will maintain the level of radioactive effluent control required by 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 50.36a, and Appendix I to 10 CFR 50. Also, these changes will not impact the accuracy or reliability of effluent dose or alarm setpoint calculation.

Beave	r Valley Power Station	Procedure N	ocedure Number: 1/2-ODC-1.01	
le:		Unit:	Level Of Use:	
		1/2	General Skill Reference	
DCM: Index, Matri	and History of ODCM Changes	Revision: 10	Page Number: 44 of 94	
8.2.17 <u>Change (</u>	7) of BV-1 and 2 OCDM (Effective Aug			
8.2.17.1 A c	escription of the changes implemented wi	th this revision ar	re as follows:	
 8.2.17.1.1 Procedure 1/2-ODC-3.03, Rev 1: Technical S Liquid Storage Tank Activity Limits, and LC Tank Activity Limits were transferred to OD 3.11.2.5 respectively as permitted by Unit 1/2 Amendments 1A- 250/2A-130.^(3.2.6.9) 		nd LCO 3.11.2.5, o ODCM Control	for Gas Storage ls 3.11.1.4 and	
8.2.17.1.	.1 As part of the preparation work for Activity Limits to the ODCM, the re-verified and documented in Ca Package ERS-ATL-95-007. ^(3.2.3.9) provide tank specific activity limit Appendix B Table 2, Col. 2 EC L accidental release of the tank(s) c LCO 3.11.1.4 used a generic limit tanks listed. However, formal do 10 Curie value could not be located	e 10 Curie Limit f lculation The results of th its to ensure that t imits will be main ontents occur. Pr t of 10 Curies for cumentation for d	for these tanks was his calculation he 10 CFR 20 ntained should an reviously, each of the four lerivation of the	
8.2.17.1.1	.2 In addition, individual tank Activ Unit 1 and 2 Refueling Water Sto also added to this ODCM Control determination of RWST Activity 7 days like the other Liquid Stora material is not added to the RWS' surveillance for determination of within 7 days of returning reactor back to the RWST (i.e.; during a	rage Tanks (RWS I. The Surveilland will not be perfor ge Tanks, becaus I's on a weekly be (RWST's) Activit cavity water (rad	ST's), which were ce Requirements for med once per e radioactive asis. Therefore, the y will be performed lioactive material)	
8.2.17.1.2	Procedure 1/2-ODC-3.03, Rev 1: Chang Radioactive Effluent Release Report fro Unit 1/2 Technical Specification Amen	om April 1 to May	y 1 as permitted by	
8.2.17.1.3	Procedure 1/2-ODC-3.03, Rev 1: Change correct an obvious omission of Channel Requirements for Flow Rate Measurement Liquid Waste Containment Drain Line. CR 02-05533. ^(3.2.2.12)	Operability and ent Device [FR-1	Action Statement LW-103] on the	
8.2.17.1.4	<u>Procedure 1/2-ODC-3.03, Rev 1</u> : Made primary asset numbers of the BVPS-2 S on Tables 3.3-13 and 4.3-13 of Control the primary Sampler Flowrate Monitor monitoring sample flowrate through the Flowpath, not the Particulate and Iodine	ample Flowrate M 3.3.3.10. These of is the device that Particulate and I	Monitors as shown changes clarify that is used for odine Sampler	

ł

) .,

.

1

ŝ

· •

Beaver	r Valley Power Station	Procedure Nu	umber: 1/2-ODC-1.01
Title:		Unit: 1/2	Level Of Use: General Skill Reference
ODCM: Index, Matrix	and History of ODCM Changes	Revision:	Page Number: 45 of 94
8.2.17.2 The	justification used for change (17) of the ODCM		
8.2.17.2.1	These changes merely transfers existing storage Technical Specification to the ODCM and char Annual Radioactive Effluent Release Report as Technical Specification Amendments 1A-250/2 change, the ODCM Control for Liquid Storage enhanced to add ODCM Controls and Surveilla Unit 1 and Unit 2 RWST's. Therefore, these ch Technical Specification Amendments) will mate effluent control required by 10 CFR 20.1302, 4 10 CFR 50.36a, and Appendix I to 10 CFR 50. impact the accuracy or reliability of effluent do calculation.	nges the du s permitted 2A-130. A Tank Act ance Requ nanges (as intain the 0 CFR Pa Also, the	ue date for the I by Unit 1/2 As part of this ivity Limits was irements for the delineated in the level of radioactive rt 190, se changes will not
	8) of the BV-1 and 2 ODCM (Effective October		
8.2.18.1 A de	escription of the changes implemented with this r	evision ar	e as follows:
8.2.18.1.1	Procedure 1/2-ODC-3.03, Rev 2: Added requir groups notification of pending ODCM changes CR 09-05711. ^(3.2.2.13)		• •
8.2.18.2 The	justification used for change (18) of the ODCM	is as follo	ws:
8.2.18.2.1	This change is considered editorial in nature, w from Regulatory Applicability Determination. not impact the level of radioactive effluent con 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 50 10 CFR 50. Also this change will not impact th effluent dose or alarm setpoint calculation.	Therefore trol requir .36a, and	e, this change will ed by Appendix I to
	9) of BV-1 and 2 ODCM (Effective November 2		
	escription of the changes implemented with this r		
8.2.19.1.1	Procedure 1/2-ODC-2.01, Rev 1: Changed Tab Zn-65 to the respective BV-1 and 2 Liquid Sou CR 02-06174 (CA-01, CA-13 and CA-14). Fo added to the reactor coolant system in an effort of primary system materials and mitigation of s Added benefits to zinc addition involve prefere cobalt which, in-turn, reduces plant dose rates. Zn-65 Annual Release Activity is delineated in No. ERS-ATL-83-027. ^(3.2.3.1) Addition of Zn-6 caused changes in the Liquid Effluent Monitor appropriate monitor conversion factors.	r informat to reduce stress corre ential relea Developr Calculation 55 to the sc	as described in ion, zinc may be general corrosion osion cracking. se of nickel and nent of the specific on Package ource terms also

-

٠

Beaver Valley Power Station		Procedure Number: 1/2-ODC-1.01	
itle:		Unit:	Level Of Use:
DDCM: Index, Matrix	x and History of ODCM Changes	<u>1/2</u> Revision: 10	General Skill Referenc Page Number: 46 of 94
8.2.19.1.2	<u>Procedure 1/2-ODC-2.01, Rev 1</u> : Table 1.1 remainder of the source term with annual re Webster Calculation Package No. UR(B)-1	elease values o	
8.2.19.1.3	<u>Procedure 1/2-ODC-2.01, Rev 1</u> : Editorial procedure for update of ODCM references Liquid Waste Evaporators are no longer use waste.	and to add dis	cussion of why
8.2.19.2 The	e justification used for change (19) of the ODO	CM is as follow	vs:
8.2.19.2.1	Addition of Zn-65 to the BV-1 and 2 Liquid update of the BV-1 and 2 Liquid Source Te correction, and is enveloped by the Regulat performed for BV-1 ECP-02-0410. Based maintain the level of radioactive effluent co 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 10 CFR 50. Also, these changes will not in of effluent dose or alarm setpoint calculation	orm is consider ory Applicabi on the above, ontrol required 50.36a, and A npact the accu	red a procedure lity Determination these changes will by Appendix I to
8.2.20 <u>Change (</u> 2	20) of BV-1 and 2 ODCM (Effective October	2003)	
8.2.20.1 A d	escription of the changes implemented with the	nis revision are	e as follows:
8.2.20.1.1	Procedure 1/2-ODC-2.01, Rev 2: Changed (Attachment D) to indicate the flow path fo Unit 1 and Unit 2.	•	÷.
8.2.20.1.2	Procedure 1/2-ODC-2.02, Rev 1: Changed term for the Unit 1 Containment Vacuum P CR03-04830 (CA-03).		
8.2.20.1.3	Procedure 1/2-ODC-3.03, Rev 3: Changed Monitoring (PMM) in Attachment D Table Specifically, the 2nd PMM for the Reactor Range Noble Gas Monitors (RM-1VS-110 FROM "(RM-1VS-107B)" TO "(RM-1VS- Also, the 2nd PMM for the Auxiliary Build High Range Noble Gas Monitors (RM-1VS FROM "(RM-1VS-101B)" TO "(RM-1VS- Similarly, the 2nd PMM for the Gaseous W & High Range Noble Gas Monitors (RM-10 changed FROM "(RM-1GW-108B)" TO "(1 109 Ch 5)".	3.3-6 and Tab Building/SLC Ch 7 & Ch 9) 107B, or RM- ing Ventilatio -109 Ch 7 & 0 101B, or RM- faste/ Process GW-109 Ch 7	le 4.3-3. RS Mid & High was changed 1VS-110 Ch 5)". n System Mid & Ch 9) was changed 1VS-109 Ch 5)". Vent System Mid & Ch 9) was

na national of the state of the

-

Beave	r Valley Power Station	Procedure Nu	ure Number: 1/2-ODC-1.01	
Title:		Unit: 1/2	Level Of Use: General Skill Reference	
ODCM: Index, Matriv	and History of ODCM Changes	Revision:	Page Number: 47 of 94	
8.2.20.1.4	Procedure 1/2-ODC-3.03, Rev 3: Changed Att update the activity limits for the liquid storage in Calculation Package No. ERS-ATL-95-007	tanks to th		
8.2.20.1.5	Procedure 1/2-ODC-3.03, Rev 3: Changed Att add more specific guidance for sampling of Ga Specifically, this table is generic for Unit 1 & Pathways, but sampling may only need require Effluent Pathways rather than all of the Gaseo be inferred from the wording in the Table Not unnecessary sampling, applicability statement delineate which ventilation systems are affected note (f) includes a clarification of how compli achieved per response to NRC Unresolved Iter	aseous Effl Unit 2 Gas ed at some us Effluent ation). The s were adde ed by the no ance to this	uent Pathways. eous Effluent of the Gaseous Pathways (as could erefore to prevent ed to this table to ote(s). Also, requirement is	
8.2.20.2 The	justifications used for change (20) of the ODCM	A are as fol	lows:	
8.2.20.2.1	Procedure 1/2-ODC-2.01, Rev 2: Changing the cross connect between Unit 1 and Unit 2 is no configuration, and is considered a procedure of procedure of the ODCM already describes the system. Also, the UFSAR's describe the cross this change will maintain the level of radioacti 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 50 10 CFR 50. Also, this change will not impact effluent dose or alarm setpoint calculation.	t a change to orrection. shared rad s connect. ive effluent 0.36a, and 2	to plant Specifically, this waste treatments Based on the above, control required by Appendix I to	
8.2.20.2.2	Procedure 1/2-ODC-2.02, Rev 1: The original the GW System was based on an operating flo containment vacuum pumps. The flow rate fo Consequently, the source-term was revised pe Package ERS-HHM-87-014 and then transcrift Although the new pumps represent a factor of gaseous effluent monitor alarm setpoints are u previous setpoints were based on a percentage and those values were actually above the rang scale value was substituted. This is also true for so the same on-scale values are used. In summ is considered a procedure correction, and is en Applicability Determination performed for BV the above, this change will maintain the level required by 10 CFR 20.1302, 40 CFR Part 190 Appendix I to 10 CFR 50. Also, this change v reliability of effluent dose or alarm setpoint ca change implements a Corrective Action per C	w rate of 5 r the new p r Calculation bed to this p 15 increase inchanged. of Offsite e of the ins or the re-ca nary, change iveloped by V-1 ECP-02 of radioaction 0, 10 CFR 5 will not imp alculation.	scfm for the Unit 1 pumps is 70 scfm. on procedure. e in flow rate, the Specifically, the Dose Rate Limits, truments, so an on- lculated setpoints, ging the source term of the Regulatory 2-0079. Based on twe effluent control 50.36a, and pact the accuracy or This procedure	

Beaver Valley Power Station	Procedure N	umber: 1/2-ODC-1.01
Title:	Unit: 1/2	Level Of Use: General Skill Reference
ODCM: Index, Matrix and History of ODCM Changes	Revision: 10	Page Number: 48 of 94

8.2.20.2.3 Procedure 1/2-ODC-3.03, Rev 3: Changing the Preplanned Method of Monitoring (PMM) will prevent unnecessary grab sampling (i.e.; the 3rd PMM) when the primary channel for the Mid or High Range Noble Gas Monitor is inoperable. Specifically, **IF** other Noble Gas Monitoring channels are available on that effluent pathway, **THEN** monitoring should be assumed with those channels as the 2nd PMM. In summary, the 3rd PMM (i.e.; obtaining grab gas samples every 12 hours) should only be performed as a last resort to a complete lack of continuous noble gas monitoring channels being available on that effluent pathway. Based on the above, this change will maintain the level of radioactive effluent control required by 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 50.36a, and Appendix I to 10 CFR 50. Also, this change will not impact the accuracy or reliability of effluent dose or alarm setpoint calculation. This procedure change implements a Corrective Action per CR03-06123-01.

8.2.20.2.4 Procedure 1/2-ODC-3.03, Rev 3: Changing the activity limits for liquid storage tanks does not affect original plant accident analyses. Specifically, the original analyses were performed in accordance with NUREG-0800 SRP 15.7.3 using the best available data at that time. The updated analyses were also performed in accordance the same NUREG, but current (more accurate) data was used to determine allowable activity content in each tank. Based on the above, this change will maintain the level of radioactive effluent control required by 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 50.36a, and Appendix I to 10 CFR 50. Also, this change will not impact the accuracy or reliability of effluent dose or alarm setpoint calculation. This procedure change implements a Corrective Action per CR 03-07487-05.

8.2.20.2.5 <u>Procedure 1/2-ODC-3.03, Rev 3</u>: Changing Attachment K Table 4.11-2 to add more specific guidance for sampling of Gaseous Effluent Pathways is considered a simple change. Specifically, this change merely prevents unnecessary sampling of unaffected ventilation pathways. Based on the above, this change will maintain the level of radioactive effluent control required by 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 50.36a, and Appendix I to 10 CFR 50. Also, this change will not impact the accuracy or reliability of effluent dose or alarm setpoint calculation. This procedure change implements a Corrective Action per CR 03-06281-01.

8.2.21 Change (21) of BV-1 and 2 ODCM (Effective November 2004)

- 8.2.21.1 A description of the changes implemented with this revision are as follows:
 - 8.2.21.1.1 <u>Procedure 1/2-ODC-1.01, Rev 4, Procedure 1/2-ODC-2.01, Rev 3 and</u> <u>Procedure 1/2-ODC-3.03, Rev 4</u>: Changed ownership of procedures from the Radiation Protection Section to the Nuclear Environmental & Chemistry Section per CR 05-01169-14, CR 05-01169-15 and CR 05-01169-21.

Beave	r Valley Power Station	Procedure Nu	umber: 1/2-ODC-1.01
Fitle:	and History of ODCM Changes	Unit: <u>1/2</u> Revision: 10	Level Of Use: General Skill Reference Page Number: 49 of 94
8.2.21.1.2	Procedure 1/2-ODC-2.01, Rev 3: Changed Att volume of Liquid Waste Drain Tanks (2LWS- gal/tank to 10,000 gal/tank.		
8.2.21.1.3	Procedure 1/2-ODC-3.03, Rev 4: Changed Att increased flexibility in Mode restraints that is LAR 1A-321/2A 193 and CR 03-09288-19.		
8.2.21.1.4	Procedure 1/2-ODC-3.03, Rev 4: Corrected a Attachment O, Control 3.11.2.5 per CR03-117 word in Action (a) was changed from "nad" to	26-01. Spe	
8.2.21.1.5	Procedure 1/2-ODC-3.03, Rev 4: Revised Atta 4.3-13) to correct a typographical error per CF the Asset Number for the Vacuum Gauge used flow (from the Alternate Sampling Device) wa to [PI-1GW-135].	204-01643- I for measu	01. Specifically, irement of sample
8.2.21.1.6	<u>Procedure 1/2-ODC-3.03, Rev 4</u> : Revised Atta 4.3-13) per CR04-02275-01. Specifically, cla indicate that the "Sampler Flow Rate Monitors "Particulate and Iodine Sampling".	rification v	vas provided to
8.2.21.1.7	<u>Procedure 1/2-ODC-3.03, Rev 4</u> : Revised Atta ACTION a, to add clarification that requires s Part 20 EC's when the individual tank limits a	pecific cald	culation of 10 CFR
8.2.21.2 The	justifications used for change (21) of the ODCM	1 are as fol	lows:
8.2.21.2.1	Procedure 1/2-ODC-1.01, Rev 4, Procedure 1/2 Procedure 1/2-ODC-3.03, Rev 4: Changing ov from Radiation Protection to Nuclear Environ considered a procedure correction. <u>SINCE</u> the RETS, REMP and ODCM responsibilities to a changes will maintain the level of radioactive 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 50 10 CFR 50. Also, the changes will not impact effluent dose or alarm setpoint calculation. Th implement Corrective Actions per CR 05-0116 CR 05-01169-21.	wnership of mental & C e changes r a different r effluent co 0.36a, and the accura ne procedu	f these procedures Chemistry is nerely transfers manager, <u>THEN</u> the ntrol required by Appendix I to acy or reliability of re changes

Beaver Valley Power Station Proce		Procedure Number: 1/2-ODC-1.01	
Title:	Unit: 1/2	Level Of Use: General Skill Reference	
ODCM: Index, Matrix and History of ODCM Changes	Revision: 10	Page Number: 50 of 94	

8.2.21.2.2 Procedure 1/2-ODC-2.01, Rev 3: Changing the volume of the Unit 2 Liquid Waste Tank is considered a procedure correction. <u>SINCE</u> this was a typographical error on the Attachment, <u>THEN</u> it does not impact the actual tank volume that is used in effluent release calculations and offsite dose determinations. Therefore, this change will maintain the level of radioactive effluent control required by 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 50.36a, and Appendix I to 10 CFR 50. Also, this change will not impact the accuracy or reliability of effluent dose or alarm setpoint calculation.

- 8.2.21.2.3 Procedure 1/2-ODC-3.03, Rev 4: Changing Attachment C to implement the increased flexibility in Mode restraints (described in LAR 1A-321/2A-193) is considered a simple change. <u>SINCE</u> the change implements guidance provided in the Technical Specifications, <u>THEN</u> the change will maintain the level of radioactive effluent control required by 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 50.36a, and Appendix I to 10 CFR 50. Also, this change will not impact the accuracy or reliability of effluent dose or alarm setpoint calculation. This procedure change implements a Corrective Action per CR 03-09288-19.
- 8.2.21.2.4 Procedure 1/2-ODC-3.03, Rev 4: The typographical error in Attachment O, Control 3.11.2.5 is considered a procedure correction. Therefore, this change will maintain the level of radioactive effluent control required by 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 50.36a, and Appendix I to 10 CFR 50. Also, this change will not impact the accuracy or reliability of effluent dose or alarm setpoint calculation. This procedure change implements a Corrective Action per CR 03-11726-01.

8.2.21.2.5 <u>Procedure 1/2-ODC-3.03, Rev 4:</u> Correcting the typographical error in Attachment F, (Table 3.3-13 and 4.3-13) is considered a procedure correction. <u>SINCE</u> this change merely corrects an obvious error, <u>THEN</u> this change will maintain the level of radioactive effluent control required by 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 50.36a, and Appendix I to 10 CFR 50. Also, this change will not impact the accuracy or reliability of effluent dose or alarm setpoint calculation. This procedure change implements a Corrective Action per CR04-01643-01.

Beaver Valley Power Station		Procedure N	umber: 1/2-ODC-1.01
Title:		Unit:	Level Of Use:
		<u>1/2</u> Revision:	General Skill Reference Page Number:
ODCM: Index, Matri	ix and History of ODCM Changes	10	51 of 94
8.2.21.2.6	Procedure 1/2-ODC-3.03, Rev 4: Providin Flow Rate Monitors is considered a simple to misinterpret which filter paper sampler the specification was referring to. <u>SINCE</u> samplers used for effluent release calculate determinations, <u>THEN</u> this change will ma effluent control required by 10 CFR 20.13 50.36a, and Appendix I to 10 CFR 50. All accuracy or reliability of effluent dose or a procedure change implements a Corrective	e change, becar (e.g.; moving f no changes we ions or offsite intain the leve 02, 40 CFR Pa so, this change llarm setpoint	use it was possible filter or fixed filter) ere made to actual dose I of radioactive rt 190, 10 CFR will not impact the calculation. This
8.2.21.2.7	<u>Procedure 1/2-ODC-3.03, Rev 4</u> : Providin calculation of 10 CFR Part 20 EC's (when exceeded) is considered a simple change. limits were derived from an assumed source representative of the actual source term at also ensures that a "Special Report" is sub Part 20 EC limits are actually exceeded (i. sample analysis) at the nearest surface wat water supply in the unrestricted area. Per No. ERS-ATL-95-007 ^(3.2.3.9) , the nearest s nearest potable water supply are considere Midland Water Treatment Facility. <u>SINCI</u> bases for the tank activity limits, <u>THEN</u> th of radioactive effluent control required by 190, 10 CFR 50.36a, and Appendix I to 10 not impact the accuracy or reliability of efficient.	the individual Specifically, the ce-term and mathematical formation time of sample mitted only when e.; when calcu- er supply and Calculation Pa- urface water sud d to be the ent E no changes will 10 CFR 20.13 0 CFR 50. Also	tank limits are he individual tank ay not be be. This clarification hen the 10 CFR lated using actual the nearest potable ckage upply and the rance to the were made to the maintain the level 02, 40 CFR Part b, this change will
8.2.22 <u>Change</u>	(22) of BV-1 and 2 ODCM (Effective August	2006)	
8.2.22.1 A	description of the changes implemented with t	his revision ar	e as follows:
8.2.22.1.1	<u>Procedure 1/2-ODC-2.01, Rev 4</u> : Incorpor Specification Reference changes from T.S		

2.22.1.1 Procedure 1/2-ODC-2.01, Rev 4: Incorporated Improved Technical Specification Reference changes from T.S. 6.8.6 to T.S. 5.5.2, per CR 05-03306. Revised the alarm setpoints of [RM-1RM-100] and [RM-1DA-100] via vendor calculation Package No. 8700-UR(B)-223. These changes reflect the Extended Power Uprate (EPU) at Unit 1 per ECP-04-0440, Unit 1 TS Amendment No. 275 and CR 06-04908-03. Updated the figure of Liquid Effluent Release Points (Attachment D, Figure 1.4-3) to incorporate a modified version of Plant Drawing No. 8700-RM-27F per CR 05-03854-01.

Beaver Valley Power Station	Procedure Number: 1/2-ODC-1.01	
Title:	Unit: 1/2	Level Of Use: General Skill Reference
ODCM: Index, Matrix and History of ODCM Changes	Revision: 10	Page Number: 52 of 94

8.2.22.1.2 Procedure 1/2-ODC-2.02, Rev 2: Changed ownership of procedure from the Radiation Protection Section to the Nuclear Environmental & Chemistry Section per CR 05-01169-16. Incorporated a "≤" designation for all low range noble gas effluent monitor alarm setpoints to meet the provisions of vendor calculation Package No. 8700-UR(B)-223. These changes reflect the Extended Power Uprate (EPU) at Unit 1 per ECP-04-0440, Unit 1 TS Amendment No. 275 and CR 06-04908-04.

- 8.2.22.1.3 <u>Procedure 1/2-ODC-3.03, Rev 5</u>: Revised the alarm setpoints of the mid range and high range noble gas effluent monitors via vendor calculation Package No. 8700-UR(B)-223. These changes reflect the Extended Power Uprate (EPU) at Unit 1 per ECP-04-0440, Unit 1 TS Amendment No. 275 and CR 06-04908-03.
- 8.2.22.2 The justifications used for change (22) of the ODCM are as follows:

8.2.22.2.1 Procedure 1/2-ODC-2.01, Rev 4: Updating the alarm setpoints and the figure of liquid effluent release points are considered procedure corrections, because they merely update the ODCM to agree with previously approved documents that were implemented with TS Amendments. <u>SINCE</u> the change merely updates the ODCM, <u>THEN</u> the change will maintain the level of radioactive effluent control required by 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 50.36a, and Appendix I to 10 CFR 50. Also, the change will not impact the accuracy or reliability of effluent dose or alarm setpoint calculation. <u>SINCE</u> PORC review & acceptance is required per TS 6.14 and 1/2-ADM-1640, <u>THEN</u> the review is considered complete per Regulatory Applicability Determination RAD-06-03831, RAD-06-01658 and RAD-06-05070. As previously noted, these procedure changes implement Corrective Actions per CR 06-04908-03, and CR 05-03854-01.

8.2.22.2 Procedure 1/2-ODC-2.02, Rev 2: Changing the ownership of the procedure and updating the alarm setpoints with a "≤"designation are considered procedure corrections, because they merely update the ODCM to agree with previously approved documents that were implemented with TS Amendments. SINCE the change merely updates the ODCM, THEN the change will maintain the level of radioactive effluent control required by 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 50.36a, and Appendix I to 10 CFR 50. Also, the change will not impact the accuracy or reliability of effluent dose or alarm setpoint calculation. SINCE PORC review & acceptance is required per TS 6.14 & 1/2-ADM-1640, THEN the review is considered complete per Regulatory Applicability Determination RAD-06-03831 and RAD-06-01658. As previously noted, these procedure changes implement Corrective Actions per CR 05-01169-16 and CR 06-04908-04.

Beave	er Valley Power Station	Procedure Nu	1/2-ODC-1.01
itle:		Unit:	Level Of Use:
		1/2	General Skill Reference
DCM· Index Matri	x and History of ODCM Changes	Revision:	Page Number:
			53 of 94
8.2.22.2.3	Procedure 1/2-ODC-3.03, Rev 5: Updating a procedure correction, because this merely with previously approved documents that w Amendments. <u>SINCE</u> the change merely u change will maintain the level of radioactiv 10 CFR 20.1302, 40 CFR Part 190, 10 CFH 10 CFR 50. Also, the change will not impa effluent dose or alarm setpoint calculation. acceptance is required per TS 6.14 & 1/2-A considered complete per Regulatory Applie Determination RAD-06-03831 and RAD-0 these procedure changes implement Correct	y updates the O vere implement pdates the OE re effluent con c 50.36a, and c state the accurac <u>SINCE</u> POR DM-1640, <u>TH</u> cability 6-01658. As p	DDCM to agree nted with TS DCM, <u>THEN</u> the atrol required by Appendix I to by or reliability of C review & <u>HEN</u> the review is previously noted,
	03. <u>23) of BV-1 and 2 ODCM (Effective Decemb</u> lescription of the changes implemented with t		e as follows:
8.2.23.1.1	Procedure 1/2-ODC-1.01, Rev 5: Changed	Attachment C	, Table F: 3a of the
8.2.23.1.1	Procedure 1/2-ODC-1.01, Rev 5: Changed procedure matrix to add Form 1/2-ENV-01 performing a Channel Functional Test of th Gaseous Effluent Sampler Flowrate Measu Attachment C Tables were also changed to Channel Checks from Operations (L5 Logs Chemistry (Form 1/2-ADM-0606.F01 & F Improved Technical Specifications (ITS), or reflect change in term from CHANNEL FU CHANNEL OPERATIONAL TEST (COT requirements for ODCM changes record re Revised step 5.3 to require ODCM changes PORC per CR 05-03306.	.04.F01 as do the Unit 1 Prim ring Devices p denote transit) to Nuclear E D2) per CR 05 thanged Attac INCTIONAL), and added s view and reter	cumentation for ary and Alternate ber CR 04-09895. tion of ODCM Environmental & -01422. Also, per hment C Tables to TEST to tep 4.1.2 to identify ntion requirements.
8.2.23.1.1 8.2.23.1.2	procedure matrix to add Form 1/2-ENV-01 performing a Channel Functional Test of th Gaseous Effluent Sampler Flowrate Measu Attachment C Tables were also changed to Channel Checks from Operations (L5 Logs Chemistry (Form 1/2-ADM-0606.F01 & F Improved Technical Specifications (ITS), or reflect change in term from CHANNEL FU CHANNEL OPERATIONAL TEST (COT requirements for ODCM changes record re Revised step 5.3 to require ODCM changes	.04.F01 as do the Unit 1 Prim ring Devices p denote transit) to Nuclear E 02) per CR 05 hanged Attac INCTIONAL), and added s view and reten s be reviewed he alarm setpo kage No. 100 Uprate (EPU)	cumentation for ary and Alternate ber CR 04-09895. ion of ODCM Environmental & -01422. Also, per hment C Tables to TEST to tep 4.1.2 to identify ntion requirements. and accepted by Dints of 80-UR(B)-508. at Unit 2 per
· ·	 procedure matrix to add Form 1/2-ENV-01 performing a Channel Functional Test of the Gaseous Effluent Sampler Flowrate Measure Attachment C Tables were also changed to Channel Checks from Operations (L5 Logs Chemistry (Form 1/2-ADM-0606.F01 & Flimproved Technical Specifications (ITS), or reflect change in term from CHANNEL FUCHANNEL OPERATIONAL TEST (COT requirements for ODCM changes record received step 5.3 to require ODCM changes PORC per CR 05-03306. <u>Procedure 1/2-ODC-2.01, Rev 5</u>: Revised to 12SWS-RQ101] via vendor calculation Pace These changes reflect the Extended Power 	.04.F01 as doe ne Unit 1 Prim ring Devices p denote transit) to Nuclear E D2) per CR 05 hanged Attac INCTIONAL), and added s view and reter s be reviewed he alarm setpo kage No. 100 Uprate (EPU) 156 and CR 0 the existing R ts that were pe	cumentation for ary and Alternate ber CR 04-09895. ion of ODCM invironmental & -01422. Also, per hment C Tables to TEST to tep 4.1.2 to identify ntion requirements. and accepted by oints of 80-UR(B)-508. at Unit 2 per 6-6476-01. EMP sampling

Beave	er Valley Power Station	Procedure N	umber: 1/2-ODC-1.01
Title:	·	Unit: 1/2	Level Of Use: General Skill Reference
ODCM: Index, Matrix	x and History of ODCM Changes	Revision:	Page Number: 54 of 94
8.2.23.1.5	Procedure 1/2-ODC-2.03, Rev 1, Procedure Procedure 1/2-ODC-3.01, Rev 1: Changed of Radiation Protection Section to the Nuclear Section per CR 05-01169-17, CR 05-01169	wnership of Environmen	procedures from the tal & Chemistry
8.2.23.2 The	e justifications used for change (23) of the ODO	CM are as fo	llows:
8.2.23.2.1	<u>Procedure 1/2-ODC-1.01, Rev 5</u> : Changing procedure matrix to add Form 1/2-ENV-01. performing the Channel Functional Test of to Gaseous Effluent Sampler Flowrate Measur procedure correction, because no Acceptance Transition of ODCM Channel Checks from Environmental & Chemistry (Form 1/2-AD) considered a procedure correction, because altered. <u>SINCE</u> these changes merely correct the changes will maintain the level of radioa by 10 CFR 20.1302, 40 CFR Part 190, 10 C 10 CFR 50. Also, the change will not impace effluent dose or alarm setpoint calculation. procedure changes implement Corrective Ac CR 05-01422 and CR 05-03306.	04.F01 as do the Unit 1 Pri- ing Devices is ce Criteria wa Operations (M-0606.F01 the no Accep ct the proced active effluen FR 50.36a, a ct the accurac As previousl	cumentation for imary and Alternate is considered a as altered. L5 Logs) to Nuclear & F02) is also stance Criteria was ure matrix, <u>THEN</u> at control required nd Appendix I to cy or reliability of y noted, these
8.2.23.2.2	Procedure 1/2-ODC-2.01, Rev 5: Updating a a procedure correction, because this merely with previously approved documents that we Amendments. <u>SINCE</u> the change merely up change will maintain the level of radioactive 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 10CFR 50. Also, the change will not impace effluent dose or alarm setpoint calculation. acceptance is required per TS 6.14 & 1/2-Al considered complete per Regulatory Applica Determination RAD-06-04585. As previous changes implement Corrective Actions per C	updates the C ere implement odates the OE e effluent cor 50.36a, and t the accurac <u>SINCE</u> POR DM-1640, <u>TI</u> ability sly noted, the	DDCM to agree nted with TS DCM, <u>THEN</u> the ntrol required by Appendix I to y or reliability of C review & <u>HEN</u> the review is asse procedure
8.2.23.2.3	<u>Procedure 1/2-ODC-2.03, Rev 1</u> : Updating a locations with the most recent survey results Global Positioning System is considered a p change provides more accurate distances to locations, <u>THEN</u> the change will maintain th control required by 10 CFR 20.1302, 40 CF. Appendix I to 10 CFR 50. Also, the change reliability of effluent dose or alarm setpoint change implements Corrective Actions per C CR 05-01390-02.	s that were per rocedure cor existing REM ne level of ra R Part 190, 1 will not imp calculation.	erformed using a rection. <u>SINCE</u> the AP sampling dioactive effluent 0 CFR 50.36a, and act the accuracy or The procedure

Beave	r Valley Power Station	Procedure Nur	mber: 1/2-ODC-1.01
Title:		Unit:	Level Of Use: General Skill Reference
ODCM: Index, Matrix	and History of ODCM Changes	<u>1/2</u> Revision: 10	Page Number: 55 of 94
8.2.23.2.4 8.2.24 <u>Change (2</u>	 Procedure 1/2-ODC-2.03, Rev 1, Procedure 1/2 Procedure 1/2-ODC-3.01, Rev 1: Changing ow from Radiation Protection to Nuclear Environer considered a procedure correction. <u>SINCE</u> the RETS, REMP and ODCM responsibilities to a change will maintain the level of radioactive et 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 50 10 CFR 50. Also, the change will not impact the effluent dose or alarm setpoint calculation. The implement Corrective Actions per CR 05-0116 CR 06-01169-19. 24) of BV-1 and 2 ODCM (Effective May 2007) 	vnership of mental & C changes m different n ffluent cont 0.36a, and A he accuracy use proced	these procedures themistry is herely transfers hanager, <u>THEN</u> the trol required by Appendix I to y or reliability of ure changes
8.2.24.1 A de	escription of the changes implemented with this i	revision are	e as follows:
8.2.24.1.1	<u>Procedure 1/2-ODC-3.03, Rev 6:</u> Incorporated Specifications (ITS). This includes transfer of BV-2 Noble Gas Effluent Steam Monitors [2M [2MSS-RQ101B] and [2MSS-RQ101C] from t ODCM procedure 1/2-ODC-3.03 (Attachment Reference CR 05-03306.	programma ISS-RQ101 the Technic	atic controls for [A], cal Specifications to
8.2.24.1.2	<u>Procedure 1/2-ODC-3.03, Rev 6:</u> Revised Atta liquid storage tank activity limits via Calculation No. ERS-ATL-95-007, R2. Reference SAP Or	on Package	; ;
8.2.24.1.3	Procedure 1/2-ODC-3.03, Rev 6: Revised Atta Applicability for tank level indicating devices Reference CR 06-04944.		
8.2.24.1.4	Procedure 1/2-ODC-3.03, Rev 6: Revised Atta an alternate Action when the primary Flow Ra [FT-1CW-101-1] is not OPERABLE. The alter measurements (as described in 1MSP-31.06-1) flow rate during liquid effluent releases. Referen	te Measure ernate Action to determin	ment Device on (25) uses local ne a total dilution
8.2.24.1.5	Procedure 1/2-ODC-3.03, Rev 6: Revised Atta 4.3-13 to clarify the Functional Location of the for the BV-2 gaseous effluent release pathway was changed to refer to Functional Location [2 [2HVS-FIT101], [2RMQ-FIT301-1] instead of [2HVL-FIT112-1] instead of [2HVL-FIT112], instead of [2RMQ-FIT303]. Reference CR07-1 Order 200247228-0410.	e Sampler F s. Specific 2HVS-FIT1 f [2RMQ-F and [2RM0	Flow Rate Monitors ally, the procedure 01-1] instead of IT301], Q-FIT303-1]

Beaver Valley Power Station	Beaver Valley Power Station Procedure Number: 1/2-ODC-1.01	
Title:	Unit: 1/2	Level Of Use: General Skill Reference
ODCM: Index, Matrix and History of ODCM Changes	Revision: 10	Page Number: 56 of 94

8.2.24.2 The justifications used for change (24) of the ODCM are as follows:

- 8.2.24.2.1 Procedure 1/2-ODC-3.03, Rev 6: Incorporating the Improved Technical Specifications (ITS) is considered a simple change, because this was performed in accordance with the guidance provided in Unit 1/2 Technical Specification Amendments No. 278/161. The ITS upgrade includes transfer of programmatic controls for BV-2 Noble Gas Effluent Steam Monitors [2MSS-RQ101A], [2MSS-RQ101B] and [2MSS-RQ101C] from the Technical Specifications to ODCM procedure 1/2-ODC-3.03 (Attachment D Tables 3.3-6 and 4.3-3. SINCE the change was performed in accordance with the TS Amendments, THEN the change will maintain the level of radioactive effluent control required by 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 50.36a, and Appendix I to 10 CFR 50. Also, the change will not impact the accuracy or reliability of effluent dose or alarm setpoint calculation. PORC review and acceptance of this change was completed in May 2007. The procedure change implements Corrective Actions per CR 05-03306.
- 8.2.24.2.2 Procedure 1/2-ODC-3.03, Rev 6: Revising Attachment J to update the outside liquid storage tank activity limits via Calculation Package No. ERS-ATL-95-007, R2 is considered a simple change, because this change merely implements updated release volumes and source-terms from other station documents. <u>SINCE</u> the change was performed in accordance with the guidance provided in Standard Review Plan 15.7.3 of NUREG-0800, <u>THEN</u> the change will maintain the level of radioactive effluent control required by 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 50.36a, and Appendix I to 10 CFR 50. Also, the change will not impact the accuracy or reliability of effluent dose or alarm setpoint calculation. PORC review and acceptance of this change was completed in May 2007. The procedure change implements Corrective Actions per SAP Order 200197646-0110.

8.2.24.2.3 <u>Procedure 1/2-ODC-3.03, Rev 6:</u> Revising Attachment E to indicate that the Applicability for tank level indicating devices is during additions to the tank is considered a simple change, because this merely clarifies the existing Applicability of the instrument. <u>SINCE</u> this change merely provides clarification of existing Applicability, <u>THEN</u> the change will maintain the level of radioactive effluent control required by 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 50.36a, and Appendix I to 10 CFR 50. Also, the change will not impact the accuracy or reliability of effluent dose or alarm setpoint calculation. PORC review and acceptance of this change was completed in May 2007. The procedure change implements Corrective Actions per CR 06-04944-01.

Beave	r Valley Power Station	Procedure N	umber: 1/2-ODC-1.01
itle:		Unit:	Level Of Use: General Skill Reference
DCM. Index Matrix	and History of ODCM Changes	. 1/2 Revision:	Page Number:
		10	57 of 94
8.2.24.2.4	Procedure 1/2-ODC-3.03, Rev 6: Revising A add an alternate Action when the primary FI [FT-1CW-101-1] is not OPERABLE is consulted of an alternate Action does not modify the when the primary and alternate flow rate instantiated service of the primary and alternate flow rate instantiated flow rate instantiated flow rate during liquid releases, TH level of radioactive effluent control required Part 190, 10 CFR 50.36a, and Appendix I to will not impact the accuracy or reliability of calculation. PORC review and acceptance of May 2007. The procedure change implement Order 200240681.	ow Rate Me idered a sim he intent of e truments are hate means of <u>EN</u> the chan by 10 CFR 10 CFR 50. effluent dos f this change	asurement Device ple change, because estimating flow rate not OPERABLE. of estimating ge will maintain the 20.1302, 40 CFR Also, the change e or alarm setpoint e was completed in
8.2.24.2.5	Procedure 1/2-ODC-3.03, Rev 6: Revising A 4.3-13 to clarify the Functional Location of for the BV-2 gaseous effluent release pathw change, because this merely clarifies the act <u>SINCE</u> this change merely updates a locatio maintain the level of radioactive effluent con 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 10 CFR 50. Also, the change will not impace effluent dose or alarm setpoint calculation. this change was completed in May 2007. The Corrective Actions per CR 07-12924 and SA	the Sampler ays is consid- ual Function in title, <u>THE</u> ntrol required 50.36a, and t the accurate PORC revie- ne procedure	Flow Rate Monitors lered a simple al Location in use. <u>N</u> the change will d by Appendix I to cy or reliability of w and acceptance of c change implements
	25) of BV-1 and 2 ODCM (Effective May 200		
8.2.25.1 A d	escription of the changes implemented with th	s revision a	e as follows:
8.2.25.1.1	<u>Procedure 1/2-ODC-1.01 Rev 7</u> : Removed t and acceptance of changes made to the ODC	-	ent for PORC review
8.2.25.1.2	Procedure 1/2-ODC-1.01, Rev 7: Added MS EPP-EAL area and process monitors to Atta Specifically, this includes area monitors RM RM-1RM-203, RM-1RM-210, RM-1RM-21 2RMP-RQ210, 2RMR-RQ201, 2RMR-RQ2 2RMS-RQ223, and process monitors RM-10 RM-1RW-100A, RM-1RW-100B, RM-1RW RM-1VS-103A, RM-1VS-103B, 2CHS-RQ 2SWS-RQ100A, 2SWS-RQ100B, 2SWS-RQ 2SWS-RQ101, 2SWS-RQ102, 2RMF-RQ30 Reference CR09-53803-13.	chment C, T -1RM-201, 2, 2RMP-R 02B, 2RMR CH-101A, R 7-100C, RM 01A, 2CHS Q100C, 2SW	able F: 1a and 1b. RM-1RM-202, Q204, -RQ203, M-1CH-101B, -1RW-100D, -RQ101B, /S-RQ100D,

Beave	r Valley Power Station	Procedure N	umber: 1/2-ODC-1.01
Title:		Unit:	Level Of Use:
ODCM: Index Matrix	and History of ODCM Changes	1/2 Revision:	General Skill Reference Page Number:
		10	58 of 94
8.2.25.1.3	Procedure 1/2-ODC-1.01, Rev 7: Revised At procedure matrix to remove obsolete forms a Channel Checks. Specifically, Form 1/2-AD Form 1/2-ADM-0606.F02, Form 1/2-HPP-3.0 procedures 1/2-HPP-3.06.005, 1/2-HPP-3.06 removed from the procedure matrix. Referent and 0390.	nd procedur M-0606.F0 07.003.F01 .006 & 1/2-	res used for ODCM 1, and HPP-3.06.012 were
8.2.25.1.4	Procedure 1/2-ODC-2.01, Rev 6: Added the [1BR-TK-4A/4B] as Liquid Waste Tanks to Attachment D Figures 1.4-1 and 1.4-2. Add recirculation time of 45.7 hrs for the Coolant [1BR-TK-4A/4B] to Attachment B Table 1.2 Removal Ion Exchangers [1BR-I-1A/1B and Section 8.4 description and Attachment B Fi the recirculation times in Attachment B Tabl the times for nominal tank volume and maxin Reference CR 05-00004-15, CR 05-00004-1 Order 200197646-0010.	Section 8.4 ed a default Recovery 7 2-1a. Added 2BRS-IOE gures 1.4-1 e 1.2-1a and mum tank vo	description and 2-tank volume Fanks I the Cesium 21A/21B] to and 1.4-2. Revised I 1.2-1b to indicate
8.2.25.1.5	<u>Procedure 1/2-ODC-2.01, Rev 6:</u> Revised At remove Sewage Treatment Plants (STP) Out retirement of the STP and to remove Outfall discharged via these outfalls. Reference SA	falls 113 and 501. Water	d 203 due to is no longer
8.2.25.1.6	<u>Procedure 1/2-ODC-2.01, Rev 6:</u> Revised se alarm setpoints for all possible detector com Specifically, due to obsolescence of the origi detectors that were previously installed in [R upgraded them to Model 843-30R and 843-3 upgraded efficiency data as well. Reference	oinations for nal Model 8 M-1DA-100 2R detectors	r [RM-1DA-100]. 843-30 and 843-32 0], the vendor has s, which include
8.2.25.1.7	Procedure 1/2-ODC-3.03, Rev 7: Added EPI monitors to Attachment D, Tables 3.3-6 and includes area monitors RM-1RM-201, RM-1 RM-1RM-210, RM-1RM-212, 2RMP-RQ20 2RMR-RQ201, 2RMR-RQ202B, 2RMR-RQ process monitors RM-1CH-101A, RM-1CH- RM-1RW-100B, RM-1RW-100C, RM-1RW RM-1VS-103B, 2CHS-RQ101A, 2CHS-RQ 2SWS-RQ100B, 2SWS-RQ100C, 2SWS-RQ 2SWS-RQ102, 2RMF-RQ301A, 2RMF-RQ2 included adding EAL references to existing I monitors provided in Attachment E and Atta Reference CR 09-53803-10.	4.3-3. Spec RM-202, RJ 4, 2RMP-RO 203, 2RMS 101B, RM- -100D, RM 101B, 2SWS 100D, 2SW 001B. Other iquid and ga	fically, this M-1RM-203, Q210, -RQ223, and 1RW-100A, -1VS-103A, S-RQ100A, /S-RQ101, r editorial changes aseous radiation

.

4 - 12 - 14 - 14

· • • • •

1.1

4-12-

-

Beave	er Valley Power Station	Procedure N	Number: 1/2-ODC-1.01
Title:		Unit: 1/2	Level Of Use: General Skill Referenc
ODCM: Index, Matrix	x and History of ODCM Changes	172 Revision: 10	Page Number: 59 of 94
8.2.25.1.8	<u>Procedure 1/2-ODC-3.03, Rev 7:</u> Added Test and revised the definition for Chanr these definitions have the same requirem equal. Reference SAP Order 200197646	el Operational ents and, theref	Test to indicate that fore, are considered
8.2.25.1.9	Procedure 1/2-ODC-3.03, Rev 7: Revise Attachment F, Tables 3.3-13 & 4.3-13 to remove unnecessary information, as follo it is missing from Attachment F, Table 3 samples from the list of alternates in Tab sample is an "action", not an "alternate", and 3.3-13 to indicate that Condition Reg Radioactive Effluent Release Report (per 3.3.3.10 Action b) do not apply when usi inoperability of the primary instrument be surveillances for Preplanned Method of 1 Table 4.3-3, because surveillances only a Reference SAP Order 200247228-0450.	provide added ows: (1) added to .3-13 & 4.3-13, le 3.3-13 and 4 (3) added nota port generation r Control 3.3.3. ing an alternate beyond 30 days, Monitoring (PM	clarifications and to the word "or" where (2) removed grab .3-13, because a grab tions in Table 3.3-12 and reporting in the 9 Action b and to satisfy and (4) removed 1M) from
8.2.25.1.10	<u>Procedure 1/2-ODC-3.03, Rev 7:</u> Revise Table 4.3-12 and Action 25A to clarify t rate measurement devices used for the co Specifically, 1^{st} alternate will use local n and the 2^{nd} alternate will use the individu Order 200240681-0020.	he 1 st and 2 nd al poling tower blo peasurements vi	ternates to the flow owdown line. ia 1MSP-31.06-I,
8.2.25.2 The	e justifications used for change (25) of the C	DCM are as fo	ollows:
8.2.25.2.1	Procedure 1/2-ODC-1.01 Rev 7: Remove and acceptance of changes made to the C requirement of ITS 5.5.1.	-	
8.2.25.2.2	Procedure 1/2-ODC-1.01, Rev 7: Adding EPP-EAL area and process monitors to A does not remove or modify any standard NUREG-1301. Therefore, this change w effluent control required by 10 CFR 20.1 10 CFR 50.36a, and Appendix I to 10 CI impact the accuracy or reliability of efflu calculation. PORC review and acceptan May 2007. This change implements Con CR 09-53803-13.	Attachment C, T ODCM Contro vill maintain the 302, 40 CFR P FR 50. Also, th lent dose or alar ce of this chang	Table F: 1a and 1bIs specified ine level of radioactiveart 190,e change will notrm setpointge was completed in

Beav		r Valley Power Station	Procedure Number: 1/2-ODC-1.01	
Title:			Unit:	Level Of Use:
	Indon No.4.	and History of ODCM Changes	<u>1/2</u> Revision:	General Skill Reference Page Number:
ODCM:	Index, Matrix	and History of ODCM Changes	10	60 of 94
	8.2.25.2.3	Procedure 1/2-ODC-1.01, Rev 7: Revising Atta procedure matrix to remove obsolete forms and Channel Checks does not remove or modify an specified in NUREG-1301. Therefore, this cha radioactive effluent control required by 10 CFR 10 CFR 50.36a, and Appendix I to 10 CFR 50. impact the accuracy or reliability of effluent do calculation. PORC review and acceptance of th May 2007. This change implements Corrective Order 200257692-0360 and 0390.	l procedur y standard nge will n 20.1302, Also, the se or alarr nis change	es used for ODCM I ODCM Controls naintain the level of 40 CFR Part 190, change will not n setpoint was completed in
	8.2.25.2.4	Procedure 1/2-ODC-2.01, Rev 6: Adding; (1) thas Liquid Waste Tanks, (2) adding a default 2-t time for the Coolant Recovery Tanks, (3) addine Exchangers, and (4) revising the recirculation to nominal tank volume and maximum tank volume any standard ODCM Controls specified in NUE change will maintain the level of radioactive ef 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 50. 10 CFR 50. Also, the change will not impact the effluent dose or alarm setpoint calculation. PO this change was completed in May 2007. This Corrective Actions per CR05-00004-15, CR05-Order 200197646-0010.	ank volun ig the Cesi imes to in- ne does no REG-1301 fluent con .36a, and <i>A</i> ne accurac RC review change im	ne recirculation ium Removal Ion dicate the times for ot remove or modify . Therefore, this trol required by Appendix I to by or reliability of v and acceptance of aplements
	8.2.25.2.5	Procedure 1/2-ODC-2.01, Rev 6: Revising Atta remove Sewage Treatment Plants (STP) Outfal remove or modify any standard ODCM Contro Therefore, this change will maintain the level of required by 10 CFR 20.1302, 40 CFR Part 190, Appendix I to 10 CFR 50. Also, the change will reliability of effluent dose or alarm setpoint cal acceptance of this change was completed in Ma implements Corrective Actions per SAP Order	ls 113 and ls specifie f radioact 10 CFR 5 Il not impo culation. ny 2007. 7 20019764	203 does not d in NUREG-1301. ive effluent control 50.36a, and act the accuracy or PORC review and This change 6-0660.
	8.2.25.2.6	Procedure 1/2-ODC-2.01, Rev 6: Revising Sect alarm setpoints for all possible detector combine does not remove or modify any standard ODCN NUREG-1301. Therefore, this change will man effluent control required by 10 CFR 20.1302, 4 10 CFR 50.36a, and Appendix I to 10 CFR 50. impact the accuracy or reliability of effluent do calculation. PORC review and acceptance of the May 2007. This change implements Corrective Order 200197646-0810.	ations for A Controls intain the O CFR Par Also, the se or alarr his change	[RM-1DA-100] s specified in level of radioactive rt 190, change will not n setpoint was completed in

5

.

1115

1

; I -

Beave	r Valley Power Station	Procedure N	umber: 1/2-ODC-1.01
Title:		Unit: 1/2	Level Of Use: General Skill Reference
ODCM: Index, Matrix	and History of ODCM Changes	Revision:	Page Number: 61 of 94
8.2.25.2.7	Procedure 1/2-ODC-3.03, Rev 7: Adding EPI monitors to Attachment D, Tables 3.3-6 and 4 EAL references to existing liquid and gaseous Attachment E and Attachment F) does not rer ODCM Controls specified in NUREG-1301. maintain the level of radioactive effluent cont 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 5 10 CFR 50. Also, the change will not impact effluent dose or alarm setpoint calculation. P this change was completed in May 2007. Thi Corrective Actions per CR 09-53803-10.	P-EAL area 4.3-3 (and a s radiation nove or mo Therefore, trol require 0.36a, and the accura ORC revie	a and process adding monitors odify any standard this change will d by Appendix I to cy or reliability of w and acceptance of
8.2.25.2.8	Procedure 1/2-ODC-3.03, Rev 7: Adding a de Functional Test and revising the definition fo indicate that these definitions have the same re equal) does not remove or modify any standar NUREG-1301. Therefore, this change will me effluent control required by 10 CFR 20.1302, 10 CFR 50.36a, and Appendix I to 10 CFR 50 impact the accuracy or reliability of effluent of calculation. PORC review and acceptance of May 2007. This change implements Correction Order 200197646-0300 and CR 07-31083.	r Channel (requirement rd ODCM (haintain the 40 CFR Pa). Also, the lose or alar this chang	Dperational Test to ts (i.e., considered Controls specified in level of radioactive art 190, e change will not m setpoint e was completed in
8.2.25.2.9	Procedure 1/2-ODC-3.03, Rev 7: Revising At Attachment F, Tables 3.3-13 & 4.3-13 to prov remove unnecessary information does not rem ODCM Controls specified in NUREG-1301. maintain the level of radioactive effluent cont 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 5 10 CFR 50. Also, the change will not impact effluent dose or alarm setpoint calculation. P this change was completed in May 2007. This Corrective Actions per SAP Order 20024722	vide added nove or mo Therefore, trol require 0.36a, and the accura ORC revie s change ir	clarifications and to dify any standard this change will d by Appendix I to cy or reliability of w and acceptance of
8.2.25.2.10	Procedure 1/2-ODC-3.03, Rev 7: Revising At Table 4.3-12 and Action 25A to clarify the 1 ^s rate measurement devices used for the cooling not remove or modify any standard ODCM C 1301. Therefore, this change will maintain th control required by 10 CFR 20.1302, 40 CFR Appendix I to 10 CFR 50. Also, the change w reliability of effluent dose or alarm setpoint c acceptance of this change was completed in M implements Corrective Actions per SAP Order	^t and 2 nd alf g tower blo ontrols spe le level of r Part 190, 1 vill not imp alculation. May 2007.	ternates to the flow wdown line does cified in NUREG- adioactive effluent 0 CFR 50.36a, and bact the accuracy or PORC review and This change

Beave	er Valley Power Station	Procedure N	umber: 1/2-ODC-1.01
le:		Unit:	Level Of Use:
		1/2	General Skill Reference
DCM: Index, Matri	x and History of ODCM Changes	Revision:	Page Number: 62 of 94
8.2.26 Change (26) of BV-1 and 2 ODCM (Effective May 2009		<u> </u>
8.2.26.1 A d	lescription of the changes implemented with thi	s revision ar	e as follows:
8.2.26.1.1	Procedure 1/2-ODC-1.01 Rev 8: Reverted pr Revision 6.	ocedure bac	k to the contents of
8.2.26.1.2	Procedure 1/2-ODC-2.01, Rev 7: Reverted p Revision 5.	rocedure ba	ck to the contents of
8.2.26.1.3	<u>Procedure 1/2-ODC-3.03, Rev 8:</u> Reverted p Revision 6.	rocedure ba	ck to the contents of
8.2.26.2 The	e justifications used for change (26) of the ODC	M are as fol	lows:
8.2.26.2.1	<u>Procedure 1/2-ODC-1.01 Rev 8</u> : It was deter of Revision 7 was premature because suppor not completed and surveillances required by This procedure was reverted back to the cont This change implements Corrective Actions CR 09-59875.	ting procedu these chang ents of the p	re changes were es were not in place. previous revision.
8.2.26.2.2	<u>Procedure 1/2-ODC-2.01, Rev 7:</u> It was deter of Revision 6 was premature because suppor not completed and surveillances required by This procedure was reverted back to the cont This change implements Corrective Actions CR 09-59875.	ting procedu these chang ents of the p	re changes were es were not in place. previous revision.
8.2.26.2.3	<u>Procedure 1/2-ODC-3.03, Rev 8:</u> It was deter of Revision 7 was premature because suppor not completed and surveillances required by This procedure was reverted back to the cont This change implements Corrective Actions CR 09-59875.	ting procedu these chang ents of the p	re changes were es were not in place. previous revision.
8.2.27 <u>Change (</u>	27) of BV-1 and 2 ODCM (Effective August 20	<u>10)</u>	
8.2.27.1 A d	lescription of the changes implemented with this	s revision ar	e as follows:
8.2.27.1.1	<u>Procedure 1/2-ODC-1.01, Rev 9:</u> Added revi Changes 25 and 26.	sion history	to capture

i d

	Beaver	Valley Power Station	Procedure Num	ber: /2-ODC-1.01
Title:	. <u></u>		Unit: 1/2	Level Of Use: General Skill Reference
ODCM: Ir	ndex, Matrix a	and History of ODCM Changes	172 Revision: 10	Page Number: 63 of 94
8	3.2.27.1.3	Procedure 1/2-ODC-1.01, Rev 9: Revised Attac procedure matrix to remove obsolete forms and Channel Checks. Specifically, Form 1/2-ADM Form 1/2-ADM-0606.F02, Form 1/2-HPP-3.07 1/2-HPP-3.06.005, 1/2-HPP-3.06.006 were rem matrix (superseded by 1/2-ADM-1611.F03, 1/2 NOP-OP-4702-01, 1/2-ENV-05.04, and 1/2-EN Reference SAP Order 200257692-0360 and 039 for Operational Surveillance Tests (OSTs) for C have since been split from one large OST into s radiation monitor and obsolete Chemistry and H	procedures -0606.F01, .003.F01 an oved from -ADM-161 IV-05.05, ro 90. Referen Channel Fun specific OS	s used for ODCM nd procedures the procedure 1.F04, espectively). nces were updated nctional Tests that Ts for each
8	3.2.27.1.4	Procedure 1/2-ODC-2.01, Rev 8: Revised Attac remove Sewage Treatment Plants (STP) Outfal retirement of the STP and to remove U1 Steam Backwash Outfall 501. Water is no longer disch Reference SAP Order 200197646-0660.	ls 113 and 2 Generator 2	203 due to Blowdown Filter
8	3.2.27.1.5	<u>Procedure 1/2-ODC-2.01, Rev 8:</u> Revised section alarm setpoints for all possible detector combine Specifically, due to obsolescence of the original detectors that were previously installed in [RM upgraded them to Model 843-30R and 843-32R upgraded efficiency data as well. Reference SA	ations for [1 Model 84 -1DA-100] detectors,	RM-1DA-100]. 3-30 and 843-32 , the vendor has which include
8	3.2.27.1.6	Procedure 1/2-ODC-2.01, Rev 8: Added the Co [1BR-TK-4A/4B] as Liquid Waste Tanks to Se Attachment D Figures 1.4-1 and 1.4-2. Added recirculation time of 45.7 hrs for the Coolant Re [1BR-TK-4A/4B] to Attachment B Table 1.2-1. Removal Ion Exchangers [1BR-I-1A/1B and 2B 8.4 description and Attachment B Figures 1.4-1 recirculation times in Attachment B Table 1.2-1 times for nominal tank volume and maximum ta CR 05-00004-15, CR 05-00004-17 and SAP On	ction 8.4 de a default 2- ecovery Ta a. Added tl 3RS-IOE21 and 1.4-2. la and 1.2-3 ank volume	escription and tank volume nks he Cesium A/21B] to Section Revised the 1b to indicate the c. Reference
8	3.2.27.1.7	Procedure 1/2-ODC-2.03, Rev 2: Corrected sam for TLD #94 and #95; Changed sample designa Clarified program requirements for garden sam implement Corrective Actions for CA #10-7748	tion from # pling. The	49 to #49Å;
8	3.2.27.1.8	<u>Procedure 1/2-ODC-3.03, Rev 9:</u> Added a defir Test and revised the definition for Channel Ope these definitions have the same requirements ar equal. Reference SAP Order 200197646-0300	erational Te	st to indicate that e, are considered

Beaver Valley Power Station		Procedure Ni	Procedure Number: 1/2-ODC-1.01	
Title:		Unit:	Level Of Use:	
		1/2	General Skill Reference	
ODCM: Index Matri	x and History of ODCM Changes	Revision:	Page Number:	
	r and mistory of OB etci enanges	10	64 of 94	
	Attachment F, Tables 3.3-13 & 4.3-13 to p remove unnecessary information, as follow it is missing from Attachment F, Table 3.3	ws: (1) added th	ne word "or" where	

Radioactive Effluent Release Report (per Control 3.3.3.9 Action b and 3.3.3.10 Action b) do not apply when using an alternate to satisfy inoperability of the primary instrument beyond 30 days, and (4) removed surveillances for Preplanned Method of Monitoring (PMM) from Table 4.3-3, because surveillances only apply to instruments, not methods. Reference SAP Order 200247228-0450.

8.2.27.1.10 Procedure 1/2-ODC-3.03, Rev 9: Revised Attachment E, Table 3.3-12, Table 4.3-12 and Action 25A to clarify the 1st and 2nd alternates to the flow rate measurement devices used for the cooling tower blowdown line. Specifically, 1st alternate will use the individual Units' devices, and the 2nd alternate will use local measurements via 1MSP-31.06-I. The alternates were chosen in this particular order to support practicality of plant operations, rather than the way they were initially proposed in the SAP order. Reference SAP Order 200240681-0020.

8.2.27.1.11 <u>Procedure 1/2-ODC-3.03, Rev 9:</u> Revised Attachment D Tables 3.3-6 and 4.3-3 to remove obsolete forms and procedures Specifically, Form 1/2-ENV-05.14.F01 was removed.

8.2.27.2 The justifications used for change (27) of the ODCM are as follows:

- 8.2.27.2.1 <u>Procedure 1/2-ODC-1.01 Rev 9</u>: Because it was determined that the implementation of Revision 7 was premature and this procedure was reverted back to the exact contents of the previous revision, the revision history was not captured. PORC review and acceptance of this change was completed in August 2010.
- 8.2.27.2.2 <u>Procedure 1/2-ODC-1.01, Rev 9:</u> Removed the requirement for PORC review and acceptance of changes made to the ODCM as it is no longer a requirement of ITS 5.5.1. PORC review and acceptance of this change was completed in August 2010.

Beave	er Valley Power Station	Procedure Number: 1/2-ODC-1.01	
Fitle:		Unit:	Level Of Use:
DCM: Index Matri	ix and History of ODCM Changes	1/2 Revision:	General Skill Reference Page Number:
		10	65 of 94
8.2.27.2.3	Procedure 1/2-ODC-1.01, Rev 9: Revising procedure matrix to remove obsolete forms or modify any standard ODCM Controls sp Therefore, this change will maintain the lev required by 10 CFR 20.1302, 40 CFR Part Appendix I to 10 CFR 50. Also, the chang reliability of effluent dose or alarm setpoin implements some of the corrective actions and 0390. PORC review and acceptance of August 2010.	and procedu pecified in NU vel of radioac 190, 10 CFR e will not imp t calculation. per SAP Orde	res does not remove JREG-1301. tive effluent control 50.36a, and pact the accuracy or This change er 200257692-0360
8.2.27.2.4	Procedure 1/2-ODC-2.01, Rev 8: Revising remove Sewage Treatment Plants (STP) Ou Generator Blowdown Filter Backwash Out modify any standard ODCM Controls spec Therefore, this change will maintain the lev required by 10 CFR 20.1302, 40 CFR Part Appendix I to 10 CFR 50. Also, the chang reliability of effluent dose or alarm setpoin acceptance of this change was completed in implements Corrective Actions per SAP On	atfalls 113 and fall 501 does ified in NUR vel of radioac 190, 10 CFR e will not imp t calculation. n August 2010	d 203 and U1 Steam not remove or EG-1301. tive effluent control 50.36a, and bact the accuracy or PORC review and 0. This change
8.2.27.2.5	Procedure 1/2-ODC-2.01, Rev 8: Revising alarm setpoints for all possible detector cor does not remove or modify any standard O NUREG-1301. Therefore, this change will effluent control required by 10 CFR 20.130 10 CFR 50.36a, and Appendix I to 10 CFR impact the accuracy or reliability of effluer calculation. PORC review and acceptance August 2010. This change implements Con Order 200197646-0810.	nbinations fo DCM Contro maintain the 02, 40 CFR Pa 50. Also, the of this chang	r [RM-1DA-100] ls specified in level of radioactive art 190, e change will not rm setpoint e was completed in
8.2.27.2.6	Procedure 1/2-ODC-2.01, Rev 8: Adding; (as Liquid Waste Tanks, (2) adding a defaul time for the Coolant Recovery Tanks, (3) a Exchangers, and (4) revising the recirculati nominal tank volume and maximum tank v any standard ODCM Controls specified in change will maintain the level of radioactiv 10 CFR 20.1302, 40 CFR Part 190, 10 CFF 10 CFR 50. Also, the change will not impa effluent dose or alarm setpoint calculation. this change was completed in August 2010 Corrective Actions per CR 05-00004-15, C Order 200197646-0010.	t 2-tank volu dding the Ces on times to ir olume does n NUREG-130 re effluent cor & 50.36a, and act the accura PORC revie . This change	me recirculation sium Removal Ion ndicate the times for ot remove or modify 1. Therefore, this ntrol required by Appendix I to cy or reliability of w and acceptance of e implements

Beaver Valley Power Station	Procedure N	Procedure Number: 1/2-ODC-1.01	
Title:	Unit: 1/2	Level Of Use: General Skill Reference	
ODCM: Index, Matrix and History of ODCM Changes	Revision: 10	Page Number: 66 of 94	
8.2.27.2.7 Procedure 1/2-ODC-2.03, Rev 2: All cl	10	6	

8.2.27.2.7 Procedure 172-ODC-2.03, Rev 2. All changes in this revision were to correct labeling deficiencies. They did not change program requirements or the implementation of program sampling. There is no impact to the accuracy or reliability of the Radiological Environmental Monitoring Program. This change implements Corrective Action 10-77489-1. PORC review of these changes was completed on August 2010.

8.2.27.2.8 Procedure 1/2-ODC-3.03, Rev 9: Adding a definition for Channel Functional Test and revising the definition for Channel Operational Test to indicate that these definitions have the same requirements (i.e., considered equal) does not remove or modify any standard ODCM Controls specified in NUREG-1301. Therefore, this change will maintain the level of radioactive effluent control required by 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 50.36a, and Appendix I to 10 CFR 50. Also, the change will not impact the accuracy or reliability of effluent dose or alarm setpoint calculation. PORC review and acceptance of this change was completed in August 2010. This change implements Corrective Actions per SAP Order 200197646-0300 and CR 07-31083.

8.2.27.2.9 Procedure 1/2-ODC-3.03, Rev 9: Revising Attachment E Table 3.3-12 and Attachment F, Tables 3.3-13 & 4.3-13 to provide added clarifications and to remove unnecessary information does not remove or modify any standard ODCM Controls specified in NUREG-1301. Therefore, this change will maintain the level of radioactive effluent control required by 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 50.36a, and Appendix I to 10 CFR 50. Also, the change will not impact the accuracy or reliability of effluent dose or alarm setpoint calculation. PORC review and acceptance of this change was completed in August 2010. This change implements Corrective Actions per SAP Order 200247228-0450.

8.2.27.2.10 Procedure 1/2-ODC-3.03, Rev 9: Revising Attachment E, Table 3.3-12, Table 4.3-12 and Action 25A to clarify the 1st and 2nd alternates to the flow rate measurement devices used for the cooling tower blowdown line does not remove or modify any standard ODCM Controls specified in NUREG-1301. Therefore, this change will maintain the level of radioactive effluent control required by 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 50.36a, and Appendix I to 10 CFR 50. Also, the change will not impact the accuracy or reliability of effluent dose or alarm setpoint calculation. PORC review and acceptance of this change was completed in August 2010. This change implements Corrective Actions per SAP Order 200240681-0020.

Douve	r Valley Power Station	Procedure Nu	mber: 1/2-ODC-1.01
		Unit:	Level Of Use:
into.		1/2	General Skill Reference
ODCM: Index Matrix	and History of ODCM Changes	Revision:	Page Number:
		10	67 of 94
8.2.27.2.11	 <u>Procedure 1/2-ODC-3.03, Rev 9:</u> Revising obsolete forms and procedures does not re ODCM Controls specified in NUREG-130 maintain the level of radioactive effluent of 10 CFR 20.1302, 40 CFR Part 190, 10 CF 10 CFR 50. Also, the change will not imp effluent dose or alarm setpoint calculation this change was completed in August 2010 	move or modif 01. Therefore, 1 ontrol required R 50.36a, and 2 act the accurac . PORC review	y any standard this change will by Appendix I to y or reliability of
8.2.28 <u>Change (2</u>	28) of BV-1 and 2 ODCM (Effective Decem	per 2010)	
8.2.28.1 A d	escription of the changes implemented with	this revision are	e as follows:
8.2.28.1.1	<u>Procedure 1/2-ODC-1.01, Rev 10:</u> Revision references to CTS and ITS conversion pro-		
8.2.28.1.2	<u>Procedure 1/2-ODC-2.01, Rev 9:</u> Removed liquid waste are processed by recirculation Attachment B which referenced minimum recirculation times and added description t times to achieve two tank volumes are calc volume and pump capacity.	i through educt liquid waste ba hat liquid wast	ors. Deleted atch release e recirculation
8.2.28.2 The	justifications used for change (28) of the OI	DCM are as fol	lows:
8.2.28.2.1	Procedure 1/2-ODC-1.01 Rev 10: Changes ITS conversion project has been completed		ative only because

Beaver Valley Power Station	Procedure Number: 1/2-ODC-1.01		
Title:	Unit: 1/2	Level Of Use: General Skill Reference	
ODCM: Index, Matrix and History of ODCM Changes	Revision: 10	Page Number: 68 of 94	

8.2.28.2.2 Procedure 1/2-ODC-2.01 Rev 9: Change removes description that batch releases of liquid waste be recirculated through tanks with eductors. Eductors are not currently installed on liquid waste tanks. Per BVPS-1 UFSAR Section 1.3.3.21, the recommendations contained in Regulatory Guide 1.21 (1974) are followed. The RG states that (prior to sampling) "large volumes of liquid waste should be mixed in as short a time interval as practicable to assure that any sediments or particulate solids are distributed uniformly in the waste mixture." BVPS-2 UFSAR Table 1.8-1 contains a similar statement. As such, current licensing bases does not require eductors for processing batch releases of liquid waste. Attachment B was removed. This attachment provided information on minimum recirculation times of liquid waste tanks for batch liquid releases. Recirculation times are calculated based upon actual tank volume and pump capacity and this description was added. The change does not remove or modify any standard ODCM Controls specified in NUREG-1301. Therefore, this change will maintain the level of radioactive effluent control required by 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 50.36a, and Appendix I to 10 CFR 50.

- END -

12-22-10

	Beaver Valley Power Station	Procedure N	umber: 1/2-ODC-1.01
Title:		Unit:	Level Of Use:
	Index Matrix and History of ODCM Changes	1/2 Revision:	General Skill Reference Page Number:
	Index, Matrix and History of ODCM Changes	10	69 of 94
	ATTACHMENT A Page 1 of 6 LIST OF ODCM TABLES		
<u>LIQUID</u>	EFFLUENTS Included in Procedure 1/2-ODC-2.01		γ.
1.1-1a	BV-1 Liquid Source Term		
1.1-1b	BV-2 Liquid Source Term		
1.2-1a	BV-1 Recirculation Times Required Before Sampling	Of Liquid Disc	charge Tanks
1.2-1b	BV-2 Recirculation Times Required Before Sampling	Of Liquid Disc	charge Tanks
1.3-1	$A_{i\tau}$ Values For An Adult For The Beaver Valley Site		
<u>GASEO</u>	US EFFLUENTS Included in Procedure 1/2-ODC-2.02		
2.1-1a	BV-1 Radionuclide Mix For Gaseous Effluents		
2.1-1b	BV-2 Radionuclide Mix For Gaseous Effluents		
2.1-2a	BV-1 Monitor Detector Efficiencies		
2.1-2b	BV-2 Monitor Detector Efficiencies		
2.2-1	Modes Of Gaseous Release From Beaver Valley Site V 20 And 10 CFR 50	Vents For Impl	ementation Of 10 CFF
2.2-2a	BV-1 Radionuclide Mix For Gaseous Effluents		
2.2-2b	BV-2 Radionuclide Mix For Gaseous Effluents		
2.2-3	Distances Of Limiting Maximum Individual Receptors Values	s To Release Po	oints For Annual χ/Q
<u>ANNUA</u>	L AVERAGE χ/Q Included in Procedure 1/2-ODC-2.02		
2.2-4	BV-1 And 2 Containment Vents (Ground Release)		
2.2-5	BV-1 And 2 Ventilation Vents (Ground Release)		
2.2-6	BV-1 And 2 Process Vent (Elevated Release)		
2.2-7	BV-1 And 2 Turbine Building Vents (Ground Release)	
2:2-8	BV-2 Decontamination Building Vent (Ground Releas	se)	

۰.

.

	Beaver Valley Power Station		Procedure Number: 1/2-ODC-1.01		
Title:		Unit:	Level Of Use:		
	Index, Matrix and History of ODCM Changes	1/2 Revision:	General Skill Reference Page Number:		
	ATTACHMENT A	10	70 of 94		
	Page 2 of 6				
	LIST OF ODCM TABLES				
2.2-9	BV-2 Waste Gas Storage Vault Vent (Ground Release)				
2.2-10	BV-2 Condensate Polishing Building (Ground Release)				
NOBLE	GAS DOSE FACTORS AND DOSE PARAMETERS Inclu	ided in 1/2-0	DDC-2.02		
2.2-11	Dose Factors For Noble Gases And Daughters				
2.2-12	Dose Parameters For Finite Elevated Plumes, Beaver Val	ley Site			
<u>P&I DO</u>	SE PARAMETERS Included in 1/2-ODC-2.02				
2.2-13	Pit Values For A Child For The Beaver Valley Site				
MODES	OF GASEOUS RELEASES Included in Procedure 1/2-OD	<u>C-2.02</u>			
2.3-1	Modes Of Gaseous Release From The Beaver Valley Site CFR 20 And 10 CFR 50	Vents For I	mplementation Of 10		
P&I OR	GAN DOSE FACTORS Included in 1/2-ODC-2.02				
2.3-2	R Values for Inhalation - Adult				
2.3-3	R Values for Inhalation - Teen				
2.3-4	R Values for Inhalation - Child				
2.3-5	R Values for Inhalation - Infant				
2.3-6	R Values for Ground				
2.3-7	R Values for Vegetation - Adult				
2.3-8	R Values for Vegetation - Teen				
2.3-9	R Values for Vegetation - Child				
2.3-10	R Values for Meat - Adult				
2.3-11	R Values for Meat - Teen				
2.3-12	R Values for Meat - Child				
2.3-13	R Values for Cow Milk - Adult				

.

	Beaver Valley Power Station	Procedure N	umber: 1/2-ODC-1.01
Title:		Unit: 1/2	Level Of Use: General Skill Reference
ODCM:	Index, Matrix and History of ODCM Changes	Revision:	Page Number: 71 of 94
	ATTACHMENT A Page 3 of 6 LIST OF ODCM TABLES	110	/1.01.94
2.3-15	R Values for Cow Milk - Child		
2.3-16	R Values for Cow Milk - Infant		
2.3-17	R Values for Goat Milk - Adult		
2.3-18	R Values for Goat Milk - Teen		- -
2.3-19	R Values for Goat Milk - Child		
2.3-20	R Values for Goat Milk - Infant		
CONTIN	NUOUS RELEASE DEPOSITION PARAMETERS (0-5 M	iles)Included i	n Procedure 1/2-ODC-2.02
2.3-21	BV-1 And 2 Process Vent (Elevated Release)		
2.3-22	BV-1 And 2 Containment Vents (Ground Release)		
2.3-23	BV-1 And 2 Ventilation Vents (Ground Release)		
2.3-24	BV-1 And 2 Turbine Building Vents (Ground Release)		
2.3-25	BV-2 Condensate Polishing Building (Ground Release)		
2.3-26	BV-2 Decontamination Building Vent (Ground Release)		
2.3-27	BV-2 Waste Gas Storage Vault Vent (Ground Release)		
	VUOUS RELEASE DEPOSITION PARAMETERS (SPE re 1/2-ODC-2.02	CIAL DIST	[ANCES] Included ir
2.3-28	BV-1 And 2 Process Vent (Elevated Release)		
2.3-29	BV-1 And 2 Containment Vents (Ground Release)		
2.3-30	BV-1 And 2 Ventilation Vents (Ground Release)		
2.3-31	BV-1 And 2 Turbine Building Vents (Ground Release)		
2.3-32	BV-2 Condensate Polishing Building (Ground Release)		
2.3-33	BV-2 Decontamination Building Vent (Ground Release)		
2.3-34	BV-2 Waste Gas Storage Vault Vent (Ground Release)		

Beaver Valley Power Station		er Valley Power Station Procedure Number: 1/2-ODC-1.01		
Title:		Unit: 1/2.	Level Of Use: General Skill Reference	
ODCM: I	ndex, Matrix and History of ODCM Changes	Revision:	Page Number: 72 of 94	
	ATTACHMENT A Page 4 of 6 LIST OF ODCM TABLES	•••••••		
BATCH I ODC-2.02	RELEASE DISPERSION PARAMETERS (Special Distance)	es) Include	ed in Procedure 1/2-	
2.3-35	BV-1 And 2 Containment Vents (Ground Release)			
2.3-36	BV-1 And 2 Ventilation Vents (Ground Release)			
2.3-37	BV-1 And 2 Process Vent (Elevated Release)			
BATCH	RELEASE DISPERSION PARAMETERS (0-5 Miles) Inclue	led in Proc	cedure 1/2-ODC-2.02	
2.3-38	BV-1 And 2 Process Vent (Elevated Release)			
<u>ENVIRO</u>	NMENTAL MONITORING Included in Procedure 1/2-ODC	2-2.03		
3.0-1	Radiological Environmental Monitoring Program			
DISPERS	SION CALCULATION Included in Procedure 1/2-ODC-3.01			
A:1	BV-1 And 2 Release Conditions			
INPUTS	TO COMPUTER CODES Included in Procedure 1/2-ODC-3	.01		
B:la	Inputs To GALE Code For Generation Of BV-1 Liquid Sc	ource Term	n Mixes	
B:1b	Inputs To SWEC LIQ1BB Code For Generation Of BV-2	Liquid Sou	urce Term Mixes	
B:2a	Inputs To SWEC GAS1BB Code For Generation Of BV-1	Gaseous S	Source Term Mixes	
B:2b	Inputs To SWEC GAS1BB Code For Generation of BV-2	Gaseous S	Source Term Mixes	
<u>ODCM C</u>	ONTROLS Included in Procedure 1/2-ODC-3.03			
C:1.1	Operational Modes			
C:1.2	Frequency Notation			
C:3.3-6	Radiation Monitoring Instrumentation			
C:4.3-3	Radiation Monitoring Instrumentation Surveillance Require	rements		
C:3.3-12	Radioactive Liquid Effluent Monitoring Instrumentation			
C:4.3-12	Radioactive Liquid Effluent Monitoring Instrumentation S	urveillanc	e Requirements	
C:3.3-13	Radioactive Gaseous Effluent Monitoring Instrumentation			

! . .

ł

•

	Beaver Valley Power Station	Procedure N	umber: 1/2-ODC-1.01
Title:		Unit: 1/2	Level Of Use: General Skill Referenc
ODCM: Ir	ndex, Matrix and History of ODCM Changes	Revision:	Page Number: 73 of 94
	ATTACHMENT A Page 5 of 6 LIST OF ODCM TABLES		
C:4.3-13	Radioactive Gaseous Effluent Monitoring Instrumentat	ion Surveilla	nce Requirements
C:4.11-1	Radioactive Liquid Waste Sampling And Analysis Prog	gram	
C:4.11-2	Radioactive Gaseous Waste Sampling And Analysis Pr	ogram	
C:3.12-1	Radiological Environmental Monitoring Program		
C:3.12-2	Reporting Levels For Radioactivity Concentrations In I	Environmenta	l Samples
C:4.12-1	Maximum Values For The Lower Limits Of Detection	(LLD)	
<u>FORMAT</u>	FOR ANNUAL REPORT Included in Procedure 1/2-OE	<u> 0C-3.03</u>	
E:6.9-1	Environmental Radiological Monitoring Program Sumr	nary	
ODCM C	ONTROLS PROCEDURE MATRIX Included in Procedu	re 1/2-ODC-	<u>1.01</u>
F:1a	BV-1 Radiation Monitoring Instrumentation Surveillan	ce	
F:1b	BV-2 Radiation Monitoring Instrumentation Surveillan	се	
F:2a	BV-1 Liquid Effluent Monitor Surveillances		
F:2b	BV-2 Liquid Effluent Monitor Surveillances		
F:3a	BV-1 Gaseous Effluent Monitor Surveillances		
F:3b	BV-2 Gaseous Effluent Monitor Surveillances		
F:4	BV-1 and 2 Liquid Effluent Concentration Surveillance	S	
F:5	BV-1 and 2 Liquid Effluent Dose Surveillances		
F:6	BV-1 and 2 Liquid Effluent Treatment Surveillances		
F:7	BV-1 and 2 Liquid Storage Tank Activity Limit Survei	lances	
F:8	BV-1 and 2 Gaseous Effluent Dose Surveillances		
F:9	BV-1 and 2 Gaseous Effluent Air Dose Surveillances		
F:10	BV-1 and 2 Gaseous Effluent Particulate and Iodine Do	se Surveillan	ces
F:11	BV-1 and 2 Gaseous Effluent Treatment Surveillances		

	Beaver Valley Power Station	Procedure N	umber: 1/2-ODC-1.01
l'itle:	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Unit: 1/2	Level Of Use: General Skill Reference
ODCM: I	Index, Matrix and History of ODCM Changes	Revision: 10	Page Number: 74 of 94
	ATTACHMENT A Page 6 of 6 LIST OF ODCM TABLES		
F:12a	BV-1 Gaseous Storage Tank Activity Limit Surveillances		
F:12a	BV-2 Gaseous Storage Tank Activity Limit Surveillances		
F:13	BV-1 and 2 Total Dose Surveillances		
F:14	BV-1 and 2 REMP Surveillances	·	
F:15	BV-1 and 2 Land Use Census Surveillances		
F:16	BV-1 and 2 Interlaboratory Comparison Program		

	Beaver Valley Power Station	Procedure N	umber: 1/2-ODC-1.01
Title:		Unit:	Level Of Use:
ODCM:	Index, Matrix and History of ODCM Changes	<u>1/2</u> Revision: 10	General Skill Reference Page Number: 75 of 94
	ATTACHMENT B Page 1 of 1 LIST OF ODCM FIGURES		
LIQUIE	EFFLUENTS Included in Procedure 1/2-ODC-2.01		
1.4-1	BV-1 Liquid Radwaste System		
1.4-2	BV-2 Liquid Radwaste System		
1.4-3	BV-1 and 2 Liquid Effluent Release Points		
5-1	Site Boundary For Liquid Effluents		
<u>GASEO</u>	US EFFLUENTS Included in Procedure 1/2-ODC-2.02		
2.4-1	BV-1 and 2 Gaseous Radwaste System		
2.4-2	BV-1 and 2 Gaseous Effluent Release Points		
5-1	Site Boundary For Gaseous Effluents		
RADIO ODC-2.	LOGICAL ENVIRONMENTAL MONITORING PROGE 03	RAM Included	in Procedure 1/2-
3.0-1	Air Sampling Locations		
3.0-2	TLD Locations		•
3.0-3	Shoreline Sediment, Surface Water, And Drinking Wa	ater Sampling I	Locations
3.0-4	Milk Sampling Locations		· .
3.0-5	Foodcrop Sampling Locations		
3.0-6	Fish Sampling Locations		

	Beaver Valley Power S	Station	Procedure Nu	mber: 1/2-ODC-1.01	
itle:			Unit:	Level Of Use:	
			1/2	General Skill Referen	
DCM. Ind	DCM: Index, Matrix and History of ODCM Changes		Revision:	Page Number:	
JDCM: Index, Matrix and History of ODCM Changes		Changes	10	76 of 94	
	ATT	ACHMENT C			
	Р	age 1 of 19			
		LS PROCEDURE MATI	AIX.		
	obem contrio	ESTROCEDORE MAT	U/X		
	BV-1 RADIATION MONITORI	NG INSTRUMENTION SURV		5	
TABLE F: 1a					
	Attachment D Control 3.3.3.1: Maintain R	adiation Monitoring Channels	in Table 3.3	-6 OPERABLE	
	Y: MODES 1 thru 4	~			
0001100	DECODIDION		0050105		
ODCM SR 4.3.3.1	DESCRIPTION Test Monitors at Table 4.3-3		OCEDURE		
4.3.3.1	Frequency				
4.3.3.1.1	Noble Gas Effluent Monitors -	NOTE: Actions for INOPE	RABLE Mor	itors are documented	
	SPINGS	in the Operations & Rad E			
4.3.3.1.1.a	Supplementary Leak Collection and	1MSP-43.59-I: Channel Cali	bration		
4.3.3.1.1.a	Supplementary Leak Collection and Release System	1MSP-43.59-I: Channel Cali Form 1/2-ADM-1611.F03: C		:k	
	Release System (RM-1VS-110 CH7 & CH9)	1	hannel Chec	:k	
4.3.3.1.1.a 4.3.3.1.1.b	Release System (RM-1VS-110 CH7 & CH9) Auxiliary Building Ventilation System	Form 1/2-ADM-1611.F03: C 10ST-43.7: Channel Operat 1MSP-43.60-I: Channel Cali	hannel Chec ional Test bration		
	Release System (RM-1VS-110 CH7 & CH9)	Form 1/2-ADM-1611.F03: C 10ST-43.7: Channel Operat 1MSP-43.60-I: Channel Cali Form 1/2-ADM-1611.F03: C	hannel Chec ional Test bration hannel Chec		
4.3.3.1.1.b	Release System (RM-1VS-110 CH7 & CH9) Auxiliary Building Ventilation System (RM-1VS-109 CH7 & CH9)	Form 1/2-ADM-1611.F03: C 10ST-43.7: Channel Operat 1MSP-43.60-I: Channel Cali Form 1/2-ADM-1611.F03: C 10ST-43.07: Channel Operat	hannel Cheo ional Test bration hannel Cheo ational Test		
	Release System (RM-1VS-110 CH7 & CH9) Auxiliary Building Ventilation System (RM-1VS-109 CH7 & CH9) Process Vent System (RM-1GW-109	Form 1/2-ADM-1611.F03: C 1OST-43.7: Channel Operat 1MSP-43.60-I: Channel Cali Form 1/2-ADM-1611.F03: C 1OST-43.07: Channel Opera 1MSP-43.58-I: Channel Cali	hannel Chec ional Test bration hannel Chec ational Test bration	k	
4.3.3.1.1.b	Release System (RM-1VS-110 CH7 & CH9) Auxiliary Building Ventilation System (RM-1VS-109 CH7 & CH9)	Form 1/2-ADM-1611.F03: C 10ST-43.7: Channel Operat 1MSP-43.60-I: Channel Cali Form 1/2-ADM-1611.F03: C 10ST-43.07: Channel Opera 1MSP-43.58-I: Channel Cali Form 1/2-ADM-1611.F03: C	hannel Chec ional Test bration hannel Chec ational Test bration hannel Chec	k	
4.3.3.1.1.b 4.3.3.1.1.c	Release System (RM-1VS-110 CH7 & CH9) Auxiliary Building Ventilation System (RM-1VS-109 CH7 & CH9) Process Vent System (RM-1GW-109 CH7 & 9)	Form 1/2-ADM-1611.F03: C 1OST-43.7: Channel Operat 1MSP-43.60-I: Channel Cali Form 1/2-ADM-1611.F03: C 1OST-43.07: Channel Operat 1MSP-43.58-I: Channel Cali Form 1/2-ADM-1611.F03: C 1OST-43.7: Channel Operat	hannel Chec ional Test bration hannel Chec ational Test bration hannel Chec ional Test	k k	
4.3.3.1.1.b	Release System (RM-1VS-110 CH7 & CH9) Auxiliary Building Ventilation System (RM-1VS-109 CH7 & CH9) Process Vent System (RM-1GW-109 CH7 & 9) Noble Gas Steam Effluent	Form 1/2-ADM-1611.F03: C 10ST-43.7: Channel Operat 1MSP-43.60-I: Channel Cali Form 1/2-ADM-1611.F03: C 10ST-43.07: Channel Operat 1MSP-43.58-I: Channel Cali Form 1/2-ADM-1611.F03: C 10ST-43.7: Channel Operat NOTE: Actions for INOPE	hannel Chec ional Test bration hannel Chec ational Test bration hannel Chec ional Test RABLE Mon	k k itors are documented	
4.3.3.1.1.b 4.3.3.1.1.c 4.3.3.1.2	Release System (RM-1VS-110 CH7 & CH9) Auxiliary Building Ventilation System (RM-1VS-109 CH7 & CH9) Process Vent System (RM-1GW-109 CH7 & 9) Noble Gas Steam Effluent Monitors	Form 1/2-ADM-1611.F03: C 1OST-43.7: Channel Operat 1MSP-43.60-I: Channel Cali Form 1/2-ADM-1611.F03: C 1OST-43.07: Channel Operat 1MSP-43.58-I: Channel Cali Form 1/2-ADM-1611.F03: C 1OST-43.7: Channel Operat NOTE: Actions for INOPE in the Operations & Rad E	hannel Chec ional Test bration hannel Chec ational Test bration hannel Chec ional Test RABLE Mon ffluent Shift	k k itors are documented Logs.	
4.3.3.1.1.b 4.3.3.1.1.c 4.3.3.1.2 4.3.3.1.2.ci	Release System (RM-1VS-110 CH7 & CH9) Auxiliary Building Ventilation System (RM-1VS-109 CH7 & CH9) Process Vent System (RM-1GW-109 CH7 & 9) Noble Gas Steam Effluent Monitors Atmospheric Steam Dump Valve and	Form 1/2-ADM-1611.F03: C 10ST-43.7: Channel Operat 1MSP-43.60-I: Channel Cali Form 1/2-ADM-1611.F03: C 10ST-43.07: Channel Operat 1MSP-43.58-I: Channel Cali Form 1/2-ADM-1611.F03: C 10ST-43.7: Channel Operat NOTE: Actions for INOPE in the Operations & Rad E 1MSP-43.62-I: RM-1MS-100	hannel Chec ional Test bration hannel Chec ational Test bration hannel Chec ional Test RABLE Mon ffluent Shift DA Channel (k k itors are documented Logs. Calibration	
4.3.3.1.1.b 4.3.3.1.1.c 4.3.3.1.2	Release System (RM-1VS-110 CH7 & CH9)Auxiliary Building Ventilation System (RM-1VS-109 CH7 & CH9)Process Vent System (RM-1GW-109 CH7 & 9)Noble Gas Steam Effluent MonitorsAtmospheric Steam Dump Valve and Code Safety Valve Discharge	Form 1/2-ADM-1611.F03: C 10ST-43.7: Channel Operat 1MSP-43.60-I: Channel Cali Form 1/2-ADM-1611.F03: C 10ST-43.07: Channel Operat 1MSP-43.58-I: Channel Cali Form 1/2-ADM-1611.F03: C 10ST-43.7: Channel Operat NOTE: Actions for INOPE in the Operations & Rad E 1MSP-43.62-I: RM-1MS-100 1MSP-43.63-I: RM-1MS-100	hannel Chec ional Test bration hannel Chec ational Test bration hannel Chec ional Test RABLE Mon ffluent Shift DA Channel (DB Channel (k itors are documented Logs. Calibration Calibration	
4.3.3.1.1.b 4.3.3.1.1.c 4.3.3.1.2 4.3.3.1.2.ci	Release System (RM-1VS-110 CH7 & CH9) Auxiliary Building Ventilation System (RM-1VS-109 CH7 & CH9) Process Vent System (RM-1GW-109 CH7 & 9) Noble Gas Steam Effluent Monitors Atmospheric Steam Dump Valve and	Form 1/2-ADM-1611.F03: C 10ST-43.7: Channel Operat 1MSP-43.60-I: Channel Cali Form 1/2-ADM-1611.F03: C 10ST-43.07: Channel Operat 1MSP-43.58-I: Channel Cali Form 1/2-ADM-1611.F03: C 10ST-43.7: Channel Operat NOTE: Actions for INOPE in the Operations & Rad E 1MSP-43.62-I: RM-1MS-100 1MSP-43.64-I: RM-1MS-100	hannel Chec ional Test bration hannel Chec ational Test bration hannel Chec ional Test RABLE Mon ffluent Shift DA Channel (DC Channel (k itors are documented Logs. Calibration Calibration Calibration	
4.3.3.1.1.b 4.3.3.1.1.c 4.3.3.1.2 4.3.3.1.2.ci	Release System (RM-1VS-110 CH7 & CH9)Auxiliary Building Ventilation System (RM-1VS-109 CH7 & CH9)Process Vent System (RM-1GW-109 CH7 & 9)Noble Gas Steam Effluent MonitorsAtmospheric Steam Dump Valve and Code Safety Valve Discharge	Form 1/2-ADM-1611.F03: C 10ST-43.7: Channel Operat 1MSP-43.60-I: Channel Cali Form 1/2-ADM-1611.F03: C 10ST-43.07: Channel Operat 1MSP-43.58-I: Channel Cali Form 1/2-ADM-1611.F03: C 10ST-43.7: Channel Operat NOTE: Actions for INOPE in the Operations & Rad E 1MSP-43.62-I: RM-1MS-100 1MSP-43.64-I: RM-1MS-100 1MSP-43.64-I: RM-1MS-100 Form 1/2-ADM-1611.F03: C	hannel Chec ional Test bration hannel Chec ational Test bration hannel Chec ional Test RABLE Mon ffluent Shift DA Channel (DC Channel Chec	k itors are documented Logs. Calibration Calibration Calibration	
4.3.3.1.1.b 4.3.3.1.1.c 4.3.3.1.2 4.3.3.1.2.ci v.1.2a	Release System (RM-1VS-110 CH7 & CH9) Auxiliary Building Ventilation System (RM-1VS-109 CH7 & CH9) Process Vent System (RM-1GW-109 CH7 & 9) Noble Gas Steam Effluent Monitors Atmospheric Steam Dump Valve and Code Safety Valve Discharge (RM-1MS-100A, B, C)	Form 1/2-ADM-1611.F03: C 10ST-43.7: Channel Operat 1MSP-43.60-I: Channel Cali Form 1/2-ADM-1611.F03: C 10ST-43.07: Channel Operat 1MSP-43.58-I: Channel Cali Form 1/2-ADM-1611.F03: C 10ST-43.7: Channel Operat NOTE: Actions for INOPE in the Operations & Rad E 1MSP-43.62-I: RM-1MS-100 1MSP-43.63-I: RM-1MS-100 1MSP-43.64-I: RM-1MS-100 Form 1/2-ADM-1611.F03: C 10ST-43.5: Channel Operat	hannel Chec ional Test bration hannel Chec ational Test bration hannel Chec ional Test RABLE Mon ffluent Shift DA Channel (DB Channel (hannel Chec ional Test	k itors are documented Logs. Calibration Calibration Calibration	
4.3.3.1.1.b 4.3.3.1.1.c 4.3.3.1.2 4.3.3.1.2.ci	Release System (RM-1VS-110 CH7 & CH9) Auxiliary Building Ventilation System (RM-1VS-109 CH7 & CH9) Process Vent System (RM-1GW-109 CH7 & 9) Noble Gas Steam Effluent Monitors Atmospheric Steam Dump Valve and Code Safety Valve Discharge (RM-1MS-100A, B, C) Auxiliary Feedwater Pump Turbine	Form 1/2-ADM-1611.F03: C 10ST-43.7: Channel Operat 1MSP-43.60-I: Channel Cali Form 1/2-ADM-1611.F03: C 10ST-43.07: Channel Operat 1MSP-43.58-I: Channel Cali Form 1/2-ADM-1611.F03: C 10ST-43.7: Channel Operat NOTE: Actions for INOPE in the Operations & Rad E 1MSP-43.62-I: RM-1MS-100 1MSP-43.63-I: RM-1MS-100 1MSP-43.64-I: RM-1MS-100 Form 1/2-ADM-1611.F03: C 10ST-43.5: Channel Operat 1MSP-43.65-I: Channel Cali	hannel Chec ional Test bration hannel Chec ational Test bration hannel Chec ional Test RABLE Mon ffluent Shift DA Channel (DB Channel (DC Channel (hannel Chec ional Test bration	k itors are documented Logs. Calibration Calibration Calibration K	
4.3.3.1.1.b 4.3.3.1.1.c 4.3.3.1.2 4.3.3.1.2.ci v.1.2a	Release System (RM-1VS-110 CH7 & CH9) Auxiliary Building Ventilation System (RM-1VS-109 CH7 & CH9) Process Vent System (RM-1GW-109 CH7 & 9) Noble Gas Steam Effluent Monitors Atmospheric Steam Dump Valve and Code Safety Valve Discharge (RM-1MS-100A, B, C)	Form 1/2-ADM-1611.F03: C 10ST-43.7: Channel Operat 1MSP-43.60-I: Channel Cali Form 1/2-ADM-1611.F03: C 10ST-43.07: Channel Operat 1MSP-43.58-I: Channel Cali Form 1/2-ADM-1611.F03: C 10ST-43.7: Channel Operat NOTE: Actions for INOPE in the Operations & Rad E 1MSP-43.62-I: RM-1MS-100 1MSP-43.63-I: RM-1MS-100 1MSP-43.64-I: RM-1MS-100 Form 1/2-ADM-1611.F03: C 10ST-43.5: Channel Operat	hannel Chec ional Test bration hannel Chec ational Test bration hannel Chec ional Test RABLE Mon ffluent Shift DA Channel Chec ional Test bration hannel Chec	k itors are documented Logs. Calibration Calibration Calibration K	

a sere

	Beaver Valley Power S	Station	Procedure Nun	iber:		
			1	/2-ODC-1.01		
Title:			Unit:	Level Of Use:		
			1/2	General Skill Reference		
ODCM: Ind	ex, Matrix and History of ODCM (Changes	Revision:	Page Number:		
	ox, matrix and mistory of oboth		10	77 of 94		
	ATT	ACHMENT C				
	•	age 2 of 19				
	ODCM CONTROLS PROCEDURE MATRIX					
	BV-2 RADIATION MONITORI	NG INSTRUMENTION SURV				
TABLE F: 1b	DV-2 RADIATION MONITOR		LILLANOLO			
	, Attachment D Control 3.3.3.1: Maintain R	adiation Monitoring Channels	in Table 3.3-	6 OPERABLE		
	TY: MODES 1 thru 4	3				
	—					
ODCM SR	DESCRIPTION	PR	ROCEDURE			
4.3.3.1	Test Monitors at Table 4.3-3					
	Frequency					
4.3.3.1.1	Noble Gas Effluent Monitors	NOTE: Actions for INOPE	RABLE Moni	tors are documented		
		in the Operations & Rad E		Logs.		
4.3.3.1.2.						
c.i.1.1.a	Release System (2HVS-RQ109C & D)	Form 1/2-ADM-1611.F04: C		< li>		
] [20ST-43.8: Channel Opera	tional Test			

<u></u>	Beaver Valley Power Station		Procedure Nu	umber: 1/2-ODC-1.01
Title:			Unit:	Level Of Use:
DDCM∙ Ind	ex, Matrix and History of ODCM	Changes	1/2 Revision:	General Skill Reference Page Number:
	· · · · · · · · · · · · · · · · · · ·		10	78 of 94
		ACHMENT C		,
		Page 3 of 19	עומי	
	ODCM CONTRO	LS PROCEDURE MAT	KIX	
	BV-1 LIQUID EFFLU	ENT MONITOR SURVEILLA	NCES	
TABLE F: 2a	, Attachment E Control 3.3.3.9: Maintain L	iquid Effluent Monitors in Tal	ole 3 3-12 OP	FRABLE
	TY: During Releases Through The Flow P			
ODCM SR	DESCRIPTION	Р	ROCEDURE	
4.3.3.9	Test Monitors at Table 4.3-12 Frequency			
4.3.3.9.1	Monitors Providing Alarm and Automatic Termination	NOTE: Actions for INOPER/ Operations & Rad Effluent S		s are documented in the
4.3.3.9.1.a	Liquid Radwaste Effluent Line	1MSP-43.18-I: Channel Calibr Form 1/2-ENV-05.04.F01: Sou		
	(RM-1LW-104)	1/2OM-17.4A.D: Source Chec		
		10M-17.4.AK Source Check 10ST-43.9F: Channel Functio	nal Test	
		Form 1/2-ADM-1611.F03: Cha	innel Check	
4.3.3.9.1.b	Liquid Waste Contaminated Drain Line (RM-1LW-116)	1MSP-43.23-I: Channel Calibr Form 1/2-ENV-05.04.F01: Sou		2
		1/20M-17.4A.D: Source Chec		
		10ST-43.9G: Channel Function Form 1/2-ADM-1611.F03: Cha		
4.3.3.9.1.c	Auxiliary Feed Pump Bay Drain Monitor (RM-1DA-100)	1MSP-43.70-I: Channel Calibr 1OM-54.3 L5 Log: Source Che		
	(((10-10-100)	10ST-43.9B: Channel Functio	nal Test	
4.3.3.9.2	Monitors Providing Alarm, but Not	Form 1/2-ADM-1611.F03: Cha NOTE: Actions for INOPERA		are documented in the
	Providing Auto Termination	Operations & Rad Effluent S	Shift Logs.	
4.3.3.9.2.a	Component Cooling - Recirculation Spray Hx River Water Monitor	1MSP-43.10-I: Channel Calibr 1OST-43.9H: Channel Functio		
	(RM-1RW-100)	10ST-43.9A: Source Check Form 1/2-ADM-1611.F03: Cha	nnol Chook	
4.3.3.9.3	Flow Rate Measurement Devices	NOTE: Actions for INOPERA		s are documented in the
4.3.3.9.3a,b	Liquid Radwaste Effluent Lines	Operations & Rad Effluent S 1MSP-17.05-I: Channel Calibr		1/2-ENV-05.04
4.0.0.9.0a,D	3a: (FR-1LW-104 for RM-1LW-104)	1MSP-17.06-I: F-LW-104-1 Ch	nannel Calibrati	
	3b: (FR-1LW-103 for RM-1LW-116)	1MSP-17.07-I: F-LW-104-2 Ch 1MSP-17.08-I: F-LW-104-1 Ch		
		1MSP-17.09-I: F-LW-104-2 Ch	annel Operatio	onal Test (3a)
		1MSP-17.10-I: F-LW-103 Cha Form 1/2-ADM-1611.F03: Cha		
4.3.3.9.3.c	Cooling Tower Blowdown Line	10M-54.3 L5 Log: FR-1LW-10 1MSP-31.04-I: FT-CW-101 Ch		
	Pri: [FT-1CW-101-1]	1MSP-31.05-I: FT-CW-101 Ch	annel Operatio	nal Test
	Alt: [FT-1CW-101] and [2CWS-FT101]	1MSP-31.06-I: FT-CW-101-1 (1MSP-31.07-I: FT-CW-101-1 (
		2MSP-31.04-I: 2CWS-FT101 (2MSP-31.05-I: 2CWS-FT101 (
		10M-54.3 L5 Log: FT-CW-101	-1 & FT-CW-10	01 Channel Checks
4.3.3.9.4	Tank Level Indicating Devices	20M-54.3 L5 Log: 2CWS-FT1 NOTE: Actions for INOPERA		
•		Operations Shift Logs		
4.3.3.9.4.a	Primary Water Storage Tank (LI-1PG-115A for 1BR-TK-6A)	1MSP-8.01-I: L-PG115A Char 1MSP-8.03-I: L-PG115A Char		
		10M-54.3 L5 Log: Channel Ch	eck (When Add	ding to Tank)
4.3.3.9.4.b	Primary Water Storage Tank (LI-1PG-115B for 1BR-TK-6B)	1MSP-8.02-I: L-PG-115B Cha 1MSP-8.04-I: L-PG-115B Cha	•	
4000		10M-54.3 L5 Log: Channel Ch	eck (When Ad	ding to Tank)
4.3.3.9.4.c	Steam Generator Drain Tank (LI-1LW-110 for 1LW-TK-7A)	1MSP-17.01-I: L-LW110 Chan 1MSP-17.03-I: L-LW110 Chan		ILEST
433044		10M-54.3 L5 Log: Channel Ch	eck (When Add	
4.3.3.9.4.d	Steam Generator Drain Tank (LI-1LW-111 for 1LW-TK-7B)	1MSP-17.02-I: L-LW111 Chan 1MSP-17.04-I: L-LW111 Chan	nel Calibration	
	1	10M-54.3 L5 Log: Channel Ch	eck (When Add	ding to Tank)

ł

1

i

i n

•

	Beaver Valley Power Station		Procedure Number: 1/2-ODC-1.01	
itle:		<u></u>	Unit:	Level Of Use: General Skill Referen
DCM: Ind	ex, Matrix and History of ODCM	1 Changes	<u>1/2</u> Revision: 10	Page Number: 79 of 94
	AT	TACHMENT C	11	1
		Page 4 of 19		
	ODCM CONTRO	OLS PROCEDURE MAT	RIX	
	BV-2 LIQUID EFFL	UENT MONITOR SURVEILLAN	ICES	
TABLE F: 2b 1/2-ODC-3.03, APPLICAPULT	<u>Attachment E Control 3.3.3.9</u> : Maintain Y: During Releases Through The Flow	Liquid Effluent Monitors in Tab	le 3.3-12 OP	ERABLE
ODCM SR 4.3.3.9	DESCRIPTION Test Monitors at Table 4.3-12	PR	OCEDURE	
4.0.0.9	Frequency			
4.3.3.9.1	Monitors Providing Alarm and Automatic Termination	NOTE: Actions for INOPE in the Operations & Rad E		
4.3.3.9.1.a	Liquid Waste Process Effluent Monitor. (2SGC-RQ100)	Form 1/2-ADM-1611.F04: C Form 1/2-ENV-05.04.F01: S 2MSP-43.39-I: Channel Cal 1/2OM-17.4A.C: Source Ch 2OM-25.4.L: Source Check 2OM-25.4.N: Source Check 2OST-43.3: Channel Functi	hannel Chec ource Check ibration eck	ck
4.3.3.9.2	Flow Rate Measurement Devices	NOTE: Actions for INOPE in the Operations & Rad E 05.04	RABLE mor	
4.3.3.9.2.a	Liquid Radwaste Effluent (2SGC-FIS100)	2MSP-25.01-I: 2SGC-P26A 2MSP-25.01-I: 2SGC-P26A 2MSP-43.39-I: Channel Cal Form 1/2-ADM-1611.F04: C 2OM-54.3 L5 Log: Channel	B Channel (ibration hannel Cheo	Operational Test
4.3.3.9.2.b	Cooling Tower Blowdown Line Pri: [FT-1CW-101-1] Alt: [FT-1CW-101] and [2CWS-FT101]	1MSP-31.04-I: FT-CW-101 Cha 1MSP-31.05-I: FT-CW-101 Cha 1MSP-31.06-I: FT-CW-101-1 C 1MSP-31.07-I: FT-CW-101-1 C 2MSP-31.04-I: 2CWS-FT101 C 2MSP-31.05-I: 2CWS-FT101 C 10M-54.3 L5 Log: FT-CW-101- 20M-54.3 L5 Log: 2CWS-FT10	annel Operatio hannel Calibra hannel Operal hannel Calibra hannel Opera 1 & FT-CW-10	nal Test ation tional Test ation tional Test 01 Channel Checks

-

	Beaver Valley Power S	Station	Procedure Nu	umber: 1/2-ODC-1.01
itle:			Unit: 1/2	Level Of Use: General Skill Reference
DCM: Inde	x, Matrix and History of ODCM	Changes	Revision:	Page Number:
	ATT	ACHMENT C	10	80 of 94
		age 5 of 19		
	ODCM CONTRO	LS PROCEDURE MATI	RIX	
	BV-1 GASEOUS EFFL	JENT MONITOR SURVEILLA	ANCES	
	Attachment F Control 3.3.3.10: Maintain <u>Y</u> : During Releases Through The Flow Pa		Table 3.3-13	3 OPERABLE
ODCM SR	DESCRIPTION	PR	OCEDURE	······
4.3.3.10	Test Monitors at Table 4.3-13 Frequency			
4.3.3.10.1	Gaseous Waste / Process Vent System	NOTE: Actions for INOPE in the Operations & Rad E 05.05		
4.3.3.10.1.a	Noble Gas Activity Monitor Pri: (RM-1GW-108B) Alt: (RM-1GW-109 Ch 5): for continuous releases only, not an alternate for batch releases	1MSP-43.22-I: Channel Cal 1OM-19.4.E, H: Channel Ch 1OM-19.4.E, H: Source Che 1/2-OM-19.4A.D: Source Ch 1/2-OM-19.4A.D: Channel C 1OST-43.9D: Channel Func 1OST-43.7A: RM-1GW-109 Form 1/2-ADM-1611.F03: C	eck (Batch I eck heck Check (Batch tional Test Channel Fu hannel Chec	n Release) nctional Test ck
4.3.3.10.1.b	Particulate & lodine Sampler Pri: Filter Paper and Charcoal Cartridge for (RM-1GW-109) Alt: Filter Paper and Charcoal Cartridge for (RM-1GW-110)	Form 1/2-ADM-1611.F03: C	hannel Cheo	Sk
4.3.3.10.1.c	System Effluent Flow Rate Measuring Device Pri: (FR-1GW-108) Alt: (RM-1GW-109 Ch 10)	1MSP-19.05-I: Channel Ope 1MSP-19.06-I: Channel Cali Form 1/2-ADM-1611.F03: C	ibration	
4.3.3.10.1.d	Sampler Flow Rate Measuring Device Pri: (RM-1GW-109 Ch 15) Alt: (Rotometer: FM-1GW-101 and Vacuum Gauge: PI-1GW-135 for RM-1GW-110)	1MSP-43.21-I: Channel Cali Form 1/2-ENV-01.04.F01: C Form 1/2-ADM-1611.F03: C	hannel Ope	
4.3.3.10.2	Auxiliary Building Ventilation System (Ventilation Vent)	NOTE: Actions for INOPE in the Operations & Rad E 05.05	ffluent Shif	
4.3.3.10.2.a	Noble Gas Activity Monitor Pri: (RM-1VS-101B) Alt: (RM-1VS-109 Ch 5)	1MSP-43.13-I: Channel Cali 1OST-43.7A: RM-1VS-109 (1OST-43.9J: Channel Funct 1OST-43.9A: Source Check Form 1/2-ADM-1611.F03: C	Channel Fur tional Test	
4.3.3.10.2.b	Particulate & Iodine Sampler Pri: Filter Paper and Charcoal Cartridge for (RM-1VS-109) Alt: Filter Paper and Charcoal Cartridge for (RM-1VS-111)	Form 1/2-ADM-1611.F03: C		
4.3.3.10.2.c	System Effluent Flow Rate Measuring Device Pri: (FR-1VS-101) Alt: (RM-1VS-109 Ch 10)	1MSP-44.07-I: Channel Ope 1MSP-44.08-I: Channel Cali Form 1/2-ADM-1611.F03: C	bration	

the second s

and the second sec

.

5 - 1997 - 1

ļ

Ι	Beaver Valley Power	Station	1 Procedure Number: 1/2-ODC-1.01	
Title:			Unit:	Level Of Use:
The.			1/2	General Skill Reference
ODCM: Index	x, Matrix and History of ODCM	Changes	Revision: 10	Page Number: 81 of 94
<u></u>	. ATT	ACHMENT C	·····	
	F	Page 6 of 19		
		LS PROCEDURE MAT	RIX	
	BV-1 GASEOUS EFFL	UENT MONITOR SURVEILLA Continued	NCES	
TABLE F: 3a				
	Attachment F Control 3.3.3.10: Maintain (; During Releases Through The Flow P		Table 3.3-13	OPERABLE
<u>MITEONDIENT</u>		4013		
ODCM SR	DESCRIPTION		OCEDURE	
4.3.3.10.2.d	Sampler Flow Rate Measuring	1MSP-44.07-I: Channel Fun 1MSP-44.08-I: Channel Cal		
	Pri: (RM-1VS-109 Ch 15)	Form 1/2-ENV-01.04.F01 C		tional Test
	Alt: (Rotometer: FM-1VS-102 and	Form 1/2-ADM-1611.F03: C		
	Vacuum Gauge: PI-1VS-659			
4.3.3.10.3	for RM-1VS-111) Rx Containment / SLCRS	NOTE: Actions for INOPE		itors are documented
4.0.0.10.0	(Elevated Release)	in the Operations & Rad E		
		05.05		
4.3.3.10.3.a	Noble Gas Activity Monitor	1MSP-43.20-I: Channel Cal		
	Pri: (RM-1VS-107B) Alt: (RM-1VS-110 Ch 5)	10M-54.3 L5 Log: RM-1VS- 10ST-43.7A: RM-1VS-110		
		10ST-43.9L: Channel Func		
		10ST-43.9A: Source Check		
		Form 1/2-ADM-1611.F03: C		
4.3.3.10.3.b	Particulate & Iodine Sampler	Form 1/2-ADM-1611.F03: C	hannel Check	<
	Pri: Filter Paper and Charcoal Cartridge for (RM-1VS-110)			
	Alt: Filter Paper and Charcoal			
	Cartridge for (RM-1VS-112)			
4.3.3,10.3.c	System Effluent Flow Rate	1MSP-44.09-I: Channel Cal		
	Measuring Device	1MSP-44.10-I: Channel Ope		
	Pri: (FR-1VS-112) Alt: (RM-1VS-110 Ch 10)	Form 1/2-ADM-1611.F03: C	nannei Check	
4.3.3.10.3.d	Sampler Flow Rate Measuring	1MSP-43.19-I: Channel Cal	ibration	
	Device	Form 1/2-ENV-01.04.F01: 0	hannel Opera	
	Pri: (RM-1VS-110 Ch 15)	Form 1/2-ADM-1611.F03: C	hannel Check	(
	Alt: (Rotometer: FM-1VS-103 and			
	Vacuum Gauge: PI-1VS-660 for RM-1VS-112)			

•

-

	Beaver Valley Power	Station	Procedure N	
	Beaver valley rower			<u>1/2-ODC-1.01</u>
itle:			Unit:	Level Of Use:
			1/2	General Skill Reference
DCM: Inde	x, Matrix and History of ODCM	1 Changes	Revision:	Page Number:
			10	82 of 94
	AT	TACHMENT C		
		Page 7 of 19		
	·	OLS PROCEDURE MA	TDIY	
	ODEM CONTRO	JEST ROCEDURE IMP		
	BV-2 GASEOUS EEF	LUENT MONITOR SURVEI		
	512 5762000 211	Continued		
TABLE F: 3b				
TABLE F: 3b 1/2-ODC-3.03	Attachment F Control 3.3.3.10: Maintai	n Gaseous Effluent Monitors	in Table 3.3-1	3 OPERABLE
1/2-ODC-3.03, /	Attachment F Control 3.3.3.10: Maintai		in Table 3.3-1	3 OPERABLE
1/2-ODC-3.03, /	<u>Attachment F Control 3.3.3.10</u> : Maintai <u>(</u> : During Releases Through The Flow		in Table 3.3-1	3 OPERABLE
1/2-ODC-3.03, /		Paths	in Table 3.3-1 PROCEDURE	3 OPERABLE
1/2-ODC-3.03, / APPLICABILITY	: During Releases Through The Flow	Paths		3 OPERABLE
1/2-ODC-3.03, / APPLICABILITY ODCM SR 4.3.3.10	During Releases Through The Flow DESCRIPTION Test Monitors at Table 4.3-13 Frequency	Paths	PROCEDURE	
1/2-ODC-3.03, / APPLICABILITY	C: During Releases Through The Flow DESCRIPTION Test Monitors at Table 4.3-13 Frequency SLCRS Unfiltered Pathway	Paths NOTE: Actions for INOP	PROCEDURE	itors are documented
1/2-ODC-3.03, / APPLICABILITY ODCM SR 4.3.3.10	During Releases Through The Flow DESCRIPTION Test Monitors at Table 4.3-13 Frequency	Paths NOTE: Actions for INOP in the Operations & Rad	PROCEDURE	itors are documented
1/2-ODC-3.03, / APPLICABILITY ODCM SR 4.3.3.10 4.3.3.10.1	C: During Releases Through The Flow DESCRIPTION Test Monitors at Table 4.3-13 Frequency SLCRS Unfiltered Pathway (Ventilation Vent)	Paths NOTE: Actions for INOP in the Operations & Rad 1/2-ENV-05.05	PROCEDURE ERABLE mon Effluent Shift	itors are documented
1/2-ODC-3.03, / APPLICABILITY ODCM SR 4.3.3.10	C: During Releases Through The Flow DESCRIPTION Test Monitors at Table 4.3-13 Frequency SLCRS Unfiltered Pathway (Ventilation Vent) Noble Gas Activity Monitor	Paths NOTE: Actions for INOP in the Operations & Rad 1/2-ENV-05.05 2MSP-43.36-I: Channel Ca	PROCEDURE ERABLE mon Effluent Shift alibration	itors are documented
1/2-ODC-3.03, / APPLICABILITY ODCM SR 4.3.3.10 4.3.3.10.1	C: During Releases Through The Flow DESCRIPTION Test Monitors at Table 4.3-13 Frequency SLCRS Unfiltered Pathway (Ventilation Vent)	Paths NOTE: Actions for INOP in the Operations & Rad 1/2-ENV-05.05 2MSP-43.36-I: Channel Ca 2OST-43.9A: Channel Fur	PROCEDURE ERABLE mon Effluent Shift alibration nctional Test	nitors are documented Logs and
1/2-ODC-3.03, / APPLICABILITY ODCM SR 4.3.3.10 4.3.3.10.1	C: During Releases Through The Flow DESCRIPTION Test Monitors at Table 4.3-13 Frequency SLCRS Unfiltered Pathway (Ventilation Vent) Noble Gas Activity Monitor	Paths NOTE: Actions for INOP in the Operations & Rad 1/2-ENV-05.05 2MSP-43.36-I: Channel Ca 2OST-43.9A: Channel Fur Form 1/2-ADM-1611.F04:	PROCEDURE ERABLE mon Effluent Shift alibration Inctional Test Channel Chec	nitors are documented Logs and
1/2-ODC-3.03, / APPLICABILITY ODCM SR 4.3.3.10 4.3.3.10.1 4.3.3.10.1	C: During Releases Through The Flow DESCRIPTION Test Monitors at Table 4.3-13 Frequency SLCRS Unfiltered Pathway (Ventilation Vent) Noble Gas Activity Monitor Pri: (2HVS-RQ101B)	Paths NOTE: Actions for INOP in the Operations & Rad 1/2-ENV-05.05 2MSP-43.36-I: Channel Ca 2OST-43.9A: Channel Fur Form 1/2-ADM-1611.F04: 2-HPP-4.02.018 Source C	PROCEDURE ERABLE mon Effluent Shift alibration nctional Test Channel Chec heck (DRMS A	itors are documented Logs and k Auto Function)
1/2-ODC-3.03, / APPLICABILITY ODCM SR 4.3.3.10 4.3.3.10.1	C: During Releases Through The Flow DESCRIPTION Test Monitors at Table 4.3-13 Frequency SLCRS Unfiltered Pathway (Ventilation Vent) Noble Gas Activity Monitor Pri: (2HVS-RQ101B) Particulate & Iodine Sampler	Paths NOTE: Actions for INOP in the Operations & Rad 1/2-ENV-05.05 2MSP-43.36-I: Channel Ca 2OST-43.9A: Channel Fur Form 1/2-ADM-1611.F04:	PROCEDURE ERABLE mon Effluent Shift alibration nctional Test Channel Chec heck (DRMS A	itors are documented Logs and k Auto Function)
1/2-ODC-3.03, / APPLICABILITY ODCM SR 4.3.3.10 4.3.3.10.1 4.3.3.10.1	C: During Releases Through The Flow DESCRIPTION Test Monitors at Table 4.3-13 Frequency SLCRS Unfiltered Pathway (Ventilation Vent) Noble Gas Activity Monitor Pri: (2HVS-RQ101B) Particulate & Iodine Sampler Pri: Filter Paper and Charcoal	Paths NOTE: Actions for INOP in the Operations & Rad 1/2-ENV-05.05 2MSP-43.36-I: Channel Ca 2OST-43.9A: Channel Fur Form 1/2-ADM-1611.F04: 2-HPP-4.02.018 Source C	PROCEDURE ERABLE mon Effluent Shift alibration nctional Test Channel Chec heck (DRMS A	itors are documented Logs and k Auto Function)
1/2-ODC-3.03, / APPLICABILITY ODCM SR 4.3.3.10 4.3.3.10.1 4.3.3.10.1.a	C: During Releases Through The Flow DESCRIPTION Test Monitors at Table 4.3-13 Frequency SLCRS Unfiltered Pathway (Ventilation Vent) Noble Gas Activity Monitor Pri: (2HVS-RQ101B) Particulate & Iodine Sampler Pri: Filter Paper and Charcoal Cartridge for (2HVS-RQ101A)	Paths NOTE: Actions for INOP in the Operations & Rad 1/2-ENV-05.05 2MSP-43.36-I: Channel Ca 2OST-43.9A: Channel Fur Form 1/2-ADM-1611.F04: 2-HPP-4.02.018 Source C Form 1/2-ADM-1611.F04:	PROCEDURE ERABLE mon Effluent Shift alibration nctional Test Channel Chec heck (DRMS A Channel Chec	itors are documented Logs and k Auto Function)
1/2-ODC-3.03, / APPLICABILITY ODCM SR 4.3.3.10 4.3.3.10.1 4.3.3.10.1	C: During Releases Through The Flow DESCRIPTION Test Monitors at Table 4.3-13 Frequency SLCRS Unfiltered Pathway (Ventilation Vent) Noble Gas Activity Monitor Pri: (2HVS-RQ101B) Particulate & Iodine Sampler Pri: Filter Paper and Charcoal	Paths NOTE: Actions for INOP in the Operations & Rad 1/2-ENV-05.05 2MSP-43.36-I: Channel Ca 2OST-43.9A: Channel Fur Form 1/2-ADM-1611.F04: 2-HPP-4.02.018 Source C	PROCEDURE ERABLE mon Effluent Shift alibration nctional Test Channel Chec heck (DRMS A Channel Chec	itors are documented Logs and k Auto Function) k

•

ł

1.0.0.10.1.0		
	Pri: (Monitor Item 29 for 2HVS-	2MSP-43.36A-I: Channel Operational Test
	VP101)	Work Request: Channel Calibration (Velocity Probe)
		Form 1/2-ADM-1611.F04: Channel Check
4.3.3.10.1.d	Sampler Flow Rate Monitor	2MSP-43.36-I: Channel Calibration
	Pri: (2HVS-FIT101-1)	2MSP-43.36A-I: Channel Operational Test
		Form 1/2-ADM-1611.F04: Channel Check
4.3.3.10.2	SLCRS Filtered Pathway	NOTE: Actions for INOPERABLE monitors are documented
	(Elevated Release)	in the Operations & Rad Effluent Shift Logs and
		1/2-ENV-05.05
4.3.3.10.2.a	Noble Gas Activity Monitor	2MSP-43.32-I: 2HVS-RQ109A Channel Calibration
	Pri: (2HVS-RQ109B)	2MSP-43.33-I: 2HVS-RQ109B,C,D Channel Calibration
		2OST-43.8: Channel Functional Test
		Form 1/2-ADM-1611.F04: Channel Check
		2-HPP-4.02.018 Source Check (DRMS Auto Function)
4.3.3.10.2.b	Particulate & Iodine Sampler	Form 1/2-ADM-1611.F04: Channel Check
	Pri: Filter Paper and Charcoal	· · · · · · · · · · · · · · · · · · ·
	Cartridge for (2HVS-RQ109A)	
4.3.3.10.2.c	Process Flow Rate Monitor	2MSP-43.32A-I: Channel Operational Test
	Pri: (Monitor Item 29 for 2HVS-	2MSP-43.33-I: 2HVS-RQ109B,C,D, Channel Calibration
	FR22)	Form 1/2-ADM-1611.F04: Channel Check
	1 st Alt: (2HVS-FI22A and FI22C)	
· · · · · · · · · · · · · · · · · · ·	2 nd Alt: (2HVS-FI22B and FI22D)	
4.3.3.10.2.d	Sampler Flow Rate Monitor	2MSP-43.32-I: 2HVS-RQ109A Channel Calibration
	Pri: (Monitor Items 28 & 72 for	2MSP-43.32A-I: Channel Operational Test
	2HVS-DAU109A)	2MSP-43.33-I: 2HVS-RQ109B,C,D, Channel Calibration
		Form 1/2-ADM-1611.F04: Channel Check

		~ •	Procedure Nu	mher
-	Beaver Valley Power	Station		1/2-ODC-1.01
itle:			Unit: 1/2	Level Of Use: General Skill Referer
DCM: Inde	x, Matrix and History of ODCM	Changes	Revision:	Page Number:
	Δ.Τ.	TACHMENT C	10	83 of 94
		Page 8 of 19		
		DLS PROCEDURE MAT	RIX	
	BV-2 GASEOUS EFFI	LUENT MONITOR SURVEILLA	ANCES	
	Attachment F Control 3.3.3.10: Maintair <u>Y</u> : During Releases Through The Flow F		Table 3.3-13	OPERABLE
ODCM SR	DESCRIPTION	90	OCEDURE	
4.3.3.10.3	Description Description	NOTE: Actions for INOPER		tors are documented
4.0.0.10.0	Vent	in the Operations & Rad Ef		
4.3.3.10.3.a	Noble Gas Activity Monitor	2MSP-43.35-I: Channel Calib		
	Pri: (2RMQ-RQ301B)	20ST-43.9B: Channel Functi		
		2-HPP-4.02.018 Source Che Form 1/2-ADM-1611.F04: Ch		
4.3.3.10.3.b	Particulate & Iodine Sampler	Form 1/2-ADM-1611.F04. Ch		
1.0.0.10.0.0	Pri: Filter Paper and Charcoal Cartridge for (2RMQ-RQ301A)			
4.3.3.10.3.d	Sampler Flow Rate Monitor	2MSP-43.35-I: Channel Calib	oration	· · · · · · · · · · · · · · · · · · ·
	Pri: (2RMQ-FIT301-1)	2MSP-43.35A-I: Channel Op		
4.3.3.10.4	Condensate Polishing Building	Form 1/2-ADM-1611.F04: Ch NOTE: Actions for INOPER		
,	Vent	in the Operations & Rad Ef		
	· · · · · · · · · · · · · · · · · · ·	1/2-ENV-05.05		
4.3.3.10.4.a	Noble Gas Activity Monitor	2MSP-43.38-I: Channel Calib 2OST-43.9C: Channel Funct		
	Pri: (2HVL-RQ112B)	Form 1/2-ADM-1611.F04: Ch		
		2-HPP-4.02.018 Source Che		
4.3.3.10.4.b	Particulate & lodine Sampler Pri: Filter Paper and Charcoal	Form 1/2-ADM-1611.F04: Ch		
	Cartridge for (2HVL-RQ112A)			
4.3.3.10.4.d	Sampler Flow Rate Monitor Pri: (2HVL-FIT112-1)	2MSP-43.38-I: Channel Calib 2MSP-43.38A-I: Channel Op		+
		Form 1/2-ADM-1611.F04: Ch		
4.3.3.10.5	Waste Gas Storage Vault Vent	NOTE: Actions for INOPER		
		in the Operations & Rad Ef	fluent Shift I	_ogs and
4.3.3.10.5.a	Noble Gas Activity Monitor	1/2-ENV-05.05 2MSP-43.37-I: Channel Calit	oration	
1.0.0.10.0.a	Pri: (2RMQ-RQ303B)	20ST-43.9D: Channel Funct		
		Form 1/2-ADM-1611.F04: Ch		
		2-HPP-4.02.018 Source Che		
4.3.3.10.5.b	Particulate & Iodine Sampler	Form 1/2-ADM-1611.F04: Ch	nannel Check	

.

...*

 4.3.3.10.5.d
 Sampler Flow Rate Monitor
 2MSP-43.37-I: Channel Calibration

 Pri: (2RMQ-FIT303-1)
 2MSP-43.37-I: Channel Operational Test

 Form 1/2-ADM-1611.F04: Channel Check

]	Beaver Valley Power	Station	Procedure Nun	nber: ./2-ODC-1.01
Title:			Unit:	Level Of Use:
			<u>1/2</u> Revision:	General Skill Referen Page Number:
ODCM: Index	x, Matrix and History of ODCM	Changes	10	84 of 94
	AT	TACHMENT C		
		Page 9 of 19		
	ODCM CONTRC	OLS PROCEDURE MATH	RIX	
	BV-1 AND 2 LIQUID EFFLUI	ENT CONCENTRATION SURV	EILLANCES	i
TABLE F: 4 1/2-ODC-3.03, A APPLICABILITY	Attachment G Control 3.11.1.1: Maintair (: At All Times	n Effluent Concentration within	10 Times 100	CFR20 EC's
ODCM SR	DESCRIPTION	PR	OCEDURE	
4.11.1.1.1.A	Batch Waste Release Tanks: Sample and Analyze Radioactive Liquid Wastes per Table 4.11-1	1/2-CHM-ANA-5.3: LW Compositing Form 1/2-ADM-1611.F03 & F04: LW Tank Sampling, Form 1/2-HPP-3.06.001.F01: Activity Check Record Form 1/2-HPP-4.02.002.F02: Rad Monitor Sampling 1/2-ENV-05.25: Sample Analysis Matrix		
4.11.1.1.1.B	Continuous Releases: Sample and Analyze Radioactive Liquid Wastes per Table 4.11-1	Form 1/2-ADM-1611.F03 & F(Form 1/2-HPP-3.06.001.F01: Form 1/2-HPP-4.02.002.F02: 1/2-ENV-05.25: Sample Analy	Activity Chec Rad Monitor vsis Matrix	k Record
4.11.1.1.2	Use ODCM Methodology to Assure Compliance	Form 1/2-ENV-05.04.F01: RW 1/20M-17.4A.D: RWDA-L	VDA-L	
4.11.1.1.3	Take Turbine Building Grab Sample When BV-1 Primary to Secondary Leakage Exceeds 0.1 gpm (142 gpd)	Form 1/2-ADM-1611.F03 & F(Form 1/2-HPP-3.06.001.F01: Form 1/2-ENV-05.04.F01: RW Form 1/2-HPP-4.02.002.F02: 1/2-ENV-05.25: Sample Analy	Activity Chec VDA-L Rad Monitor vsis Matrix	k Record Sampling
4.11.1.1.4	Obtain Turbine Building Grab Sample When BV-2 Primary to Secondary Leakage Exceeds 0.1 gpm (142 gpd)	Form 1/2-ADM-1611.F03 & F(Form 1/2-HPP-3.06.001.F01: Form 1/2-ENV-05.04.F01: RW Form 1/2-HPP-4.02.002.F02: 1/2-ENV-05.25: Sample Analy	04: Sump Sai Activity Chec VDA-L Rad Monitor	k Record
4.11.1.1.5	Obtain Grab Samples Prior to BV-2 Recirculation Drain Pump Discharge to Catch Basin No. 16	Form 1/2-ADM-1611.F03 & F0 Form 1/2-HPP-3.06.001.F01: 2OM-9.2: Rx Plant Vents and 2OM-9.4F: Drain RSS Pump 0 2OM 51: OM Clearance 51-86 1/2-ENV-05.25: Sample Analy	Activity Chec Drains (CB-1 Casing / Pit 3 (2DAS-P21	k Record I6)

State of the state

j

ł,

	Beaver Valley Powe	r Station	Procedure Nur	nber: /2-ODC-1.01
Title:		<u> </u>	Unit: 1/2	Level Of Use: General Skill Reference
ODCM: Ind	ex, Matrix and History of ODC	M Changes	Revision:	Page Number: 85 of 94
	A	TTACHMENT C	<u> </u>	<u> </u>
		Page 10 of 19	0137	
		ROLS PROCEDURE MAT		
	BV-1 AND 2 LIQUI	DEFFLUENT DOSE SURVEILLA	NCES	
TABLE F: 5 1/2-ODC-3.03	, Attachment H Control 3.11.1.2: Liquic TY: At All Times	Effluent Dose		
	• · · · · · · · · · · · · · · · · · · ·		0050105	
ODCM SR 4.11.1.2.1	DESCRIPTION Using the ODCM - Determine	Form 1/2-ENV-05.04.F01: RV	OCEDURE VDA-L	
	Cumulative Dose From Liquid Effluents Every 31 Days	SAP Order (Issue NPD3NRE 1/20M-17.4A.D: RWDA-L	Letter: Month	nly Dose Projection)
				-
		`		
1				

Beaver Valley Power	Station	Procedure Nu	mber: 1/2-ODC-1.01
	-	····· Unit:	Level Of Use:
ex Matrix and History of ODCM	Changes	1/2 Revision:	General Skill Referen Page Number:
		10	86 of 94
		ATRIX	
BV-1 AND 2 LIQUID EFF	LUENT IREATMENT SU	IRVEILLANCES	
. Attachment I Control 3.11.1.3: Liquid Et	fluent Treatment System		
TY: At All Times	,	•.	
DESCRIPTION		PROCEDURE	·····
Using the ODCM - Project the Liquid Release Dose Every 31 Days	SAP Order (Issue NPD	3NRE Letter: Montl	hly Dose Projection)
L			
	2 .		
		,	
	·		
	ex, Matrix and History of ODCM AT BODCM CONTRO BV-1 AND 2 LIQUID EFF Attachment I Control 3.11.1.3: Liquid Eff Y: At All Times DESCRIPTION Using the ODCM - Project the Liquid Release Dose Every 31 Days	Attachment I Control 3.11.1.3: Liquid Effluent Treatment System Y: At All Times DESCRIPTION Using the ODCM - Project the Liquid Form 1/2-ENV-05.04.FG SAP Order (Issue NPD) 1/20M-17.4A.D: RWDA	Beaver Valley Power Station Int unit I/2 ex, Matrix and History of ODCM Changes Int ATTACHMENT C Page 11 of 19 ODCM CONTROLS PROCEDURE MATRIX BV-1 AND 2 LIQUID EFFLUENT TREATMENT SURVEILLANCES Attachment I Control 3.11.1.3: Liquid Effluent Treatment System [Y: AtAll Times] PROCEDURE Using the ODCM - Project the Liquid Form 1/2-ENV-05.04.F01: RWDA-L SAP Order (Issue NPD3NRE Letter: Month 1/2OM-17.4A.D. RWDA-L SAP Order (Issue NPD3NRE Letter: Month 1/2OM-17.4A.D. RWDA-L

1 121 7

	Beaver Valley Power	Station	Procedure Nur	nber: /2-ODC-1.01
Title:			Unit:	Level Of Use: General Skill Reference
ODCM: Inc	dex, Matrix and History of ODCM	Changes	1/2 Revision:	Page Number:
	· · · · · · · · · · · · · · · · · · ·	TACHMENT C	10	87 of 94
		Page 12 of 19		
	ODCM CONTRO	OLS PROCEDURE MATI	RIX	
	BV-1 AND 2 LIQUID STORAGE	TANK ACTIVITY LIMIT	SURVEII	LANCES
TABLE F: 7 1/2-ODC-3.03	3, Attachment J Control 3.11.1.4: Maintain	Liquid Tank Activity within the	following limi	ts:
	Unit 1 Primary Grade Water Storage Tan Unit 1 Primary Grade Water Storage Tan			
	Jnit 1 Steam Generator Drain Tank [1LW- Jnit 1 Steam Generator Drain Tank [1LW-			
6 Curies in l	Jnit 1 Refueling Water Storage Tank [1QS Unit 2 Refueling Water Storage Tank [2Q	S-TK-1]		
	Unit 1 and Unit 2 miscellaneous temporal		rage tanks.	
APPLICABILI	ITY: At All Times			
ODCM SR	DESCRIPTION	PR	OCEDURE	
4.11.1.4.1	Every 7 days Analyze a tank sample when radioactive material is added to	Form 1/2-HPP-3.06.001.F01: Form 1/2-ENV-05.04.F01: RV		k Record
	tanks except the RWST's.	1/2-ENV-05.25: Sample Analy 10M-8.4.Z: Recirculate Test		on Exchanger
	For RWST's, analyze sample within 7 days of reactor cavity drain down	10M-17.4.AJ: LW Transfer to 10M-54.3 L5 Log Item 197:		
	back to the RWST.	10M-54.3 L5 Log Item 132:		
		10M-54.3 L5 Log Item 134: 10M-54.3 L5 Log Item 200:		
	· · · · · · · · · · · · · · · · · · ·	20M-17.4B: LW to SG Blowd	own Tank	
L		L		

В	eaver Valley Power S	Station	Procedure Nur	mber: 1/2-ODC-1.01
itle:		••••••••••••••••••••••••••••••••••••••	Unit:	Level Of Use:
~~~ * *		~.	1/2 Revision:	General Skill Referen Page Number:
DCM: Index,	Matrix and History of ODCM	Changes	10	88 of 94
	ATT	ACHMENT C		
	•	age 13 of 19		
		LS PROCEDURE MAT	DIX	
	BV-1 AND 2 GASEOUS	EFFLUENT DOSE SURVEILI	LANCES	
TABLE F: 8		Effect D Deter		
1/2-ODC-3.03, Att APPLICABILITY: /	achment K Control 3.11.2.1: Gaseous At All Times	Effluent Dose Rates		
ODCM SR	DESCRIPTION		ROCEDURE	
4.11.2.1.1	Using the ODCM - Determine the Noble Gas Effluent Dose Rate	Form 1/2-ENV-05.05.F01: RWE Form 1/2-ENV-01.03.F01: Cont		e Permit
	NODIE Gas Enluent Dose Rate	Form 1/2-HPP-3.06.012.F01: A	bnormal Gased	
		10M-19.4E, H: RWDA-G for Ur 1/20M-19.4A.B: RWDA-G for L		
4.11.2.1.2	Sample and Analyze per Table			way Dose
4.11.2.1.2.A	Waste Gas Storage Tank -	Form 1/2-ADM-1611.F03 & F04		
	Grab Sample Each Tank	Form 1/2-HPP-3.06.003.F01: G	W Tank Samp	
		Form 1/2-ENV-05.05.F01: RWE Form 1/2-HPP-4.02.002.F02: R		molina
		1/2-ENV-05.25: Sample Analys		nping
4.11.2.1.2.B	Containment Purge -	Form 1/2-ADM-1611.F03 & F04	4: GW Tank Sa	mpling
	Grab Sample Each Purge	Form 1/2-ENV-05.05.F01: RWE Form NOP-OP-4702-01: Air Sa		
		Form 1/2-HPP-4.02.002.F02; R		npling
		1/2-ENV-05.25: Sample Analys		
4.11.2.1.2.C	Ventilation Systems	5 1/2 ADM 1611 E02 8 E04	CINITank Co	11
4.11.2.1.2.C.1 thru	BV-1 Grab and Continuous Samples	Form 1/2-ADM-1611.F03 & F04 Form 1/2-ENV-01.03.F01: Cont		
4.11.2.1.C.3	Samples	Form 1/2-HPP-4.02.002.F02: R	ad Monitor Sar	mpling
and		Form 1/2-HPP-4.02.017.F01-90		
4.11.2.1.2.D.1		1-HPP-5.01.001: SA-9/10 Emer 1-HPP-5.01.002: SPING-4 Eme		
thru		1/2-ENV-05.25: Sample Analys		
4.11.2.1.2.D.3 4.11.2.1.2.C.4	BV-2 Grab and Continuous	Form 1/2-ADM-1611.F03 & F04	1: GW Tank Sa	mpling
4.11.2.1.2.0.4 thru	Samples	Form 1/2-ENV-01.03.F01: Cont		
4.11.2.1.2.C.8		Form 1/2-HPP-4.02.002.F02: R		
and		Form 1/2-HPP-4.02.017.F01-90 2-HPP-5.04.001: Emergency O		
		1/2-ENV-05.25: Sample Analys		
4.11.2.1.2.D.4				
4.11.2.1.2.D.4 thru 4.11.2.1.2.D.8				

المتعالية المتعالية

ì

1

---

	Beaver Valley Powe	r Station	Procedure Nu	
tle:			Unit:	1/2-ODC-1.01 Level Of Use:
			1/2	General Skill Referer
DCM: Inc	lex, Matrix and History of ODC	M Changes	Revision:	Page Number: 89 of 94
	A	TTACHMENT C	<u> </u>	<b>1</b> 02 01 24
		Page 14 of 19		
	ODCM CONT	ROLS PROCEDURE MAT	<b>TRIX</b>	
	BV-1 AND 2 GASEOUS	S EFFLUENT AIR DOSE SURVI	EILLANCES	
TABLE F: 9				
1/2-ODC-3.03	3, Attachment L Control 3.11.2.2: Gase	ous Effluent Air Doses		
APPLICABILI	<u>TY</u> : At All Times			
ODCM	DESCRIPTION	PR	OCEDURE	
SR 4.11.2.2.1	Using the ODCM - Determine the	Form 1/2-ENV-05.05.F01: RW	DA-G	
	Noble Gas Cumulative Dose Contributions Every 31 Days	Form 1/2-ENV-01.03.F01: Cor Form 1/2-HPP-3.06.012.F01: /		
		Form 1/2-HPP-4.02.002.F02: F	Rad Monitor S	Sampling
		SAP Order (Issue NPD3NRE L	etter: Monthly	y Dose Projection)

	Beaver Valley Power	Station	Procedure Nu	umber: 1/2-ODC-1.01
itle:			Unit:	Level Of Use:
			1/2	General Skill Referen
DCM: Inc	lex, Matrix and History of ODCM	Changes	Revision:	Page Number: 90 of 94
	۸ T ^r	FACHMENT C	10	90 01 94
		Page 15 of 19		
		OLS PROCEDURE N	IATRIX	
	BV-1 AND 2 GASEOUS EFFLUENT PA	ARTICULATE AND IODIN	NE DOSE SURVE	ILLANCES
TABLE F: 10				
	8, Attachment <u>M Control 3.11.2.3</u> : Gaseou <u>TY</u> : At All Times	is Effluent Particulate And	Iodine Doses	
ODCM SR	DESCRIPTION		PROCEDURE	
4.11.2.3.1	Using the ODCM - Determine the	Form 1/2-ENV-05.05.F0	1: RWDA-G	·
	Particulate & Radioiodine Cumulative	Form 1/2-ENV-01.03.F0	1: Continuous Re	
	Dose Contributions Every 31 Days	Form 1/2-HPP-3.06.012 Form 1/2-HPP-4.02.002		
		SAP Order (Issue NPD3		
	-			
	,			

J

;

the second of the second s

. . . . . . .

A THE REPORT OF A THE REPORT OF A

.

	Beaver Valley Power	Station	Procedure Num	nber: /2-ODC-1.01
Title:	·		Unit: 1/2	Level Of Use: General Skill Reference
ODCM: Ind	ex, Matrix and History of ODCM	Changes	Revision: 10	Page Number: 91 of 94
	P	ACHMENT C age 16 of 19	~~~	
		LS PROCEDURE MATI		
	<u>, Attachment N Control 3.11.2.4</u> : Gaseous <u>TY</u> : At All Times	s Effluent Treatment System		
ODCM SR	DESCRIPTION	PR	OCEDURE	
4.11.2.4.1	Using the ODCM - Project the Gas Release Dose from the Site Every 31 Days	Form 1/2-ENV-05.05.F01: RV Form 1/2-ENV-01.03.F01: Co Form 1/2-HPP-3.06.012.F01: SAP Order (Issue NPD3NRE	ontinuous Rele Abnormal Ga	aseous Releases
•				
	· · · · · · · · · · · · · · · · · · ·			

•

	Beaver Valley Power	Station	Procedure Nu	umber: 1/2-ODC-1.01
Title:			Unit: 1/2	Level Of Use: General Skill Reference
ODCM: Inc	dex, Matrix and History of ODCM	Changes	Revision: 10	Page Number: 92 of 94
	Р	FACHMENT C Page 17 of 19		
	ODCM CONTRO	OLS PROCEDURE MAT	RIX	
	<b>BV-1 GASEOUS STORAGE</b>	TANK ACTIVITY LIMIT SUR	VEILLANCE	6
1GW-TK-1B: 1GW-TK-1B:	Source States	e-133)		
ODCM SR	DESCRIPTION	PF	ROCEDURE	
4.11.2.5.1	Determine Tank Gas Contents when Adding Rad Material & (RCS Activity >100uCi/ml)	Form 1/2-HPP-3.06.003.F01 10M-19.4.G: GW Disposal 3 1/2-ENV-05.25: Sample Ana	System	ampling

#### BV-2 GASEOUS STORAGE TANK ACTIVITY LIMIT SURVEILLANCES

ł

 TABLE F: 12b

 1/2-ODC-3.03, Attachment O Control 3.11.2.5: Maintain Gas Storage Tank Activity with the following limit:

2GWS-TK25A thru 25G: <19000 Curies Noble Gas (Considered Xe-133) in any connected group of Gas Storage Tanks

APPLICABILITY: At All Times

ODCM SR	DESCRIPTION	PROCEDURE
4.11.2.5.1	Determine Gaseous Waste Tank Rad Material When Adding Rad Material to the Tank.	Form 1/2-HPP-3.06.003.F01: GW Tank Sampling 2OM-19.2: GW Precautions & Limitations 2OM-19.4G: GW transfer from Unit 2 2OM-54.3 L5 Log Item 133 1/2-ENV-05.25: Sample Analysis Matrix

Beaver Valley Power	Station	Procedure Nu	mber: 1/2-ODC-1.01
<b>_</b>		Unit: 1/2	Level Of Use: General Skill Reference
lex, Matrix and History of ODCM	1 Changes	Revision: 10	Page Number: 93 of 94
DDCM CONTRO BV-1 AND 2 TO Attachment P Control 3.11.4.1: Liquid /	Page 18 of 19 OLS PROCEDURE MAT DTAL DOSE SURVEILLANCES		
DESCRIPTION	PR	OCEDURE	
Using the ODCM - Determine Cumulative Gas & Liquid Dose per Control 3.11.1.2, 3.11.2.2, 3.11.2.3	Form 1/2-ENV-01.05.F01: Annual RETS Report (40CFR190) Form 1/2-ENV-05.04.F01: RWDA-L Form 1/2-ENV-05.05.F01: RWDA-G Form 1/2-ENV-01.03.F01: Continuous Release Permit Form 1/2-HPP-3.06.012.F01: Abnormal Gaseous Releases 1/2-ENV-01.04: Effluent Data Logs (40CFR190)		
	lex, Matrix and History of ODCM AT ODCM CONTR BV-1 AND 2 TO Attachment P Control 3.11.4.1: Liquid A TY: At All Times DESCRIPTION Using the ODCM - Determine Cumulative Gas & Liquid Dose per	BV-1 AND 2 TOTAL DOSE SURVEILLANCES         Attachment P Control 3.11.4.1: Liquid And Gaseous Doses         TY: At All Times         DESCRIPTION         Using the ODCM - Determine Cumulative Gas & Liquid Dose per Control 3.11.1.2, 3.11.2.2, 3.11.2.3       Form 1/2-ENV-01.05.F01: Ar Form 1/2-ENV-05.04.F01: RV Form 1/2-ENV-05.05.F01: RV Form 1/2-ENV-01.03.F01: Co Form 1/2-HPP-3.06.012.F01:	Beaver Valley Power Station       Unit:         Iex, Matrix and History of ODCM Changes       I/2         Revision:       10         ATTACHMENT C       Page 18 of 19         ODCM CONTROLS PROCEDURE MATRIX       BV-1 AND 2 TOTAL DOSE SURVEILLANCES         BV-1 AND 2 TOTAL DOSE SURVEILLANCES       BV-1 AND 2 TOTAL DOSE SURVEILLANCES         Attachment P Control 3.11.4.1: Liquid And Gaseous Doses       PROCEDURE         Ly: At All Times       Form 1/2-ENV-01.05.F01: Annual RETS F         Using the ODCM - Determine       Form 1/2-ENV-05.04.F01: RWDA-L         Control 3.11.1.2, 3.11.2.2, 3.11.2.3       Form 1/2-ENV-01.03.F01: Continuous Rel         Form 1/2-ENV-01.03.F01: Continuous Rel       Form 1/2-ENV-01.03.F01: Continuous Rel

Unit: Level Of Use:		Beaver Valley Power	Station	Procedure Nu	
Index, Matrix and History of ODCM Changes         I/2         General Skill Reference           DDCM: Index, Matrix and History of ODCM Changes         ATTACHMENT C         Page 19 of 19         94 of 94           ATTACHMENT C         Page 19 of 19         ODCM CONTROLS PROCEDURE MATRIX         94 of 94           BV-1 AND 2 REMP PROGRAM SURVEILLANCES         EV-1 AND 2 REMP PROGRAM SURVEILLANCES         TABLE F: 14           12:00C-3:03, Attachment Q Control 3.12.1: Radiological Environmental Monitoring Program (REMP)         APPLICABILITY At All Times           ODCM         DESCRIPTION         PROCEDURE           4.12:1.1         Using Locations in the ODCM -Collect 1/2-ENV-02.01: Radiological Environmental Monitoring Program 1/2-ENV-03.01: Environmental Sampling           TABLE F: 15         1/2-ENV-03.01: Environmental Monitoring Program 1/2-ENV-03.01: Environmental Monitoring Program 1/2-ENV-03.01: Environmental Monitoring Program 1/2-ENV-04.02: REMP Calculations           TABLE F: 16         1/2-ENV-04.02: REMP Calculations           Matrix At All Times         1/2-ENV-04.02: REMP Calculations           TABLE F: 16         1/2-ENV-02.01: Radiological Environmental Monitoring Program 1/2-ENV-04.02: REMP Calculations           TABLE F: 16         1/2-ENV-02.01: Radiological Environmental Monitoring Program 1/2-ENV-04.02: REMP Calculations           TABLE F: 16         1/2-ENV-02.01: Radiological Environmental Monitoring Program 1/2-ENV-02.01: Radiological Environmental Monitoring Program 2/2-ENV-02.01:	Title:				
10     94 of 94       ATTACHMENT C Page 19 of 19 ODCM CONTROLS PROCEDURE MATRIX       BUDGM CONTROLS PROCEDURE       SR       ODCM DESCRIPTION PROCEDURE       1/2-ENV-03.01: Environmental Monitoring Program       1/2-ENV-03.01: Environmental Monitoring Program       1/2-ENV-03.01: Environmental Monitoring Program       APPLICABILITY: At All Times       ODCM DESCRIPTION PROCEDURE       SR       ODCM DESCRIPTION PROCEDURE       SR       ADLESCRIPTION PROCEDURE       SR       ODCM DESCRIPTION PROCEDURE       SR       ODCM DESCRIPTION PROCEDURE       SR       ODCM DESCRIPTION PROCEDURE       TABLE F: 16       1/2-ENV-02 01: Radiol				1/2	General Skill Reference
ATTACHMENT C Page 19 of 19 ODCM CONTROLS PROCEDURE MATRIX         BV1 AND 2 REMP PROGRAM SURVEILLANCES         TABLE F: 14 12: ODC:3:03. Attachment Q Control 3.12.1: Radiological Environmental Monitoring Program (REMP) APPLICABILITY: At All Times         ODCM       DESCRIPTION       PROCEDURE         Additional program (REMP) APPLICABILITY: At All Times         ODCM       DESCRIPTION       PROCEDURE         and Analyze Samples per Tables 3.12- 1, 3.12-2 & 4.12-1       1/2-ENV-02.01: Radiological Environmental Monitoring Program 1/2-ENV-03.01: Environmental Sampling         TABLE F: 15 1/2-ODC: 3.03. Attachment R Control 3.12.2: Land Use Census APPLICABILITY: At All Times         ODCM       DESCRIPTION       PROCEDURE         TABLE F: 15 1/2-ODC: 3.03. Attachment R Control 3.12.2: Land Use Census APPLICABILITY: At All Times         TABLE F: 16 1/2-ENV-02.01: Radiological Environmental Monitoring Program 1/2-ENV-04.02: REMP Calculations         TABLE F: 16 1/2-ODC: 3.03. Attachment S Control 3.12.3: Interlaboratory Comparison Program APPLICABILITY: At All Times         ODCM       DESCRIPTION       PROCEDURE 4.12.3.1         Include Analysis Results of the Interhaboratory Comparison Program Split Sample Program with PA-DEP Split Sample Program with PA-DEP	ODCM: In	dex, Matrix and History of ODCM	I Changes	1	5
ODCM CONTROLS PROCEDURE MATRIX         BY AND 2 REMP PROGRAM SURVEILLANCES         TABLE F: 14         1/2-00C-3.03. Attachment O Control 3.12.1: Radiological Environmental Monitoring Program (REMP)         APPLICABILITY: At All Times         ODCM DESCRIPTION PROCEDURE         APPLICABILITY: At All Times         TABLE F: 15         1/2-DDC-3.03. Attachment R Control 3.12.2: Land Use Census         APPLICABILITY: At All Times         ODCM       DESCRIPTION       PROCEDURE         ATABLE F: 15         1/2-DDC-3.03. Attachment R Control 3.12.2: Land Use Census         APPLICABILITY: At All Times         ODCM       DESCRIPTION       PROCEDURE         3.12-1       Using the Best Available Method -       1/2-ENV-02.01: Radiological Environmental Monitoring Program         4.122.1       Using the Best Available Method -       1/2-ENV-02.01: Radiological Environmental Monitoring Program         1/2-DDC-3.03. Attachment S Control 3.12.3: Interlaboratory Comparison Program       1/2-ENV-02.01: Radiological Environmental Monitoring Program         1/2-DDC-3.03. Attachment S Control 3.12.3: Interlaboratory Comparison Program       1/2-ENV-02.01: Radiological Environmental Monitoring Program         1/2-DDC-3.03. Attachm		AT	TACHMENT C		
EV-1 AND 2 REMP PROGRAM SURVEILLANCES         TABLE F: 12         ICODC:3.03_Attachment Q Control 3.12.1: Radiological Environmental Monitoring Program (REMP)         APPLICABILITY: At All Times         ODCM       DESCRIPTION       PROCEDURE         4.12.1.1       Using Locations in the ODCM -Collect and Analyze Samples per Tables 3.12- 1, 3.12-2 & 4.12-1       1/2-ENV-03.01: Environmental Monitoring Program 1/2-ENV-03.01: Environmental Sampling         TABLE F: 15 1/2-ODC:3.03_Attachment R Control 3.12.2: Land Use Census APPLICABILITY: At All Times         ODCM       DESCRIPTION       PROCEDURE SR         ADESCRIPTION       PROCEDURE SR         4.12.1       Using the Best Available Method - Conduct a Land Use Census Yearly       1/2-ENV-02.01: Radiological Environmental Monitoring Program 1/2-ENV-04.02: REMP Calculations         TABLE F: 16 1/2-CON:03.03_Attachment S_Control 3.12.3: Interlaboratory Comparison Program APPLICABILITY: At All Times         TABLE F: 16 1/2-CON:03.03_Attachment S_Control 3.12.3: Interlaboratory Comparison Program APPLICABILITY: At All Times         TABLE F: 16 1/2-CON:03.03_Attachment S_Control 3.12.3: Interlaboratory Comparison Program APPLICABILITY: At All Times         Control DESCRIPTION       PROCEDURE         Attact II Times         Control		F	Page 19 of 19		
TABLE F: 14 12:ODC:3:03. Attachment Q Control 3:12.1: Radiological Environmental Monitoring Program (REMP) APPLICABILITY: At All Times         ODCM       DESCRIPTION       PROCEDURE         4       12.1:1       Using Locations in the ODCM -Collect and Analyze Samples per Tables 3:12: 1, 3:12-2 & 4:12-1         TABLE F: 15 12:ODC:3:03. Attachment R Control 3:12.2: Land Use Census APPLICABILITY: At All Times         ODCM       DESCRIPTION       PROCEDURE         VII:ODC:3:03. Attachment R Control 3:12.2: Land Use Census APPLICABILITY: At All Times         ODCM       DESCRIPTION       PROCEDURE         4       1:2: Land Use Census         APPLICABILITY: At All Times         ODCM       DESCRIPTION       PROCEDURE         Attachment S Control 3:12.2: Land Use Census         4:12:2.1       Using the Best Available Method - Conduct a Land Use Census Yearly Between 6/1 & 10/1       1/2:ENV-02.01: Radiological Environmental Monitoring Program 1/2:ENV-04:02: REMP Calculations         TABLE F: 16 12:ODC:3:03: Attachment S Control 3:12.3: Interlaboratory Comparison Program APPLICABILITY: At All Times         ODCM       DESCRIPTION       PROCEDURE         ALICABILITY: At All Times		ODCM CONTRO	OLS PROCEDURE MATI	RIX	
12:-DDC-3:03. Attachment Q Control 3.12.1: Radiological Environmental Monitoring Program (REMP)         APPLICABILITY: At All Times       DESCRIPTION       PROCEDURE         4.12.1.1       Using Locations in the ODCM -Collect and Analyze Samples per Tables 3.12-1.1.3.12-2.8.4.12-1       1/2-ENV-02.01: Radiological Environmental Monitoring Program 1/2-ENV-03.01: Environmental Sampling         TABLE F: 15         12:-ODC-3:03. Attachment R Control 3.12.2: Land Use Census         APPLICABILITY: At All Times         ODCM         ODCM         DESCRIPTION         PROCEDURE         SR         ODCM         DESCRIPTION         PROCEDURE         SR         4.12.2.1         Using the Best Available Method - Conduct a Land Use Census Yearly Between 6/1 & 10/1         TABLE F: 16         1/2-ENV-04.02: REMP Calculations         TABLE F: 16         1/2-ODC-3:03. Attachment S Control 3.12.3: Interlaboratory Comparison Program APPLICABILITY: At All Times         ODCM         DESCRIPTION       PROCEDURE         Attachment S Control 3.12.3: Interlaboratory Comparison Program APPLICABILITY: At All Times		BV-1 AND 2 REM	IP PROGRAM SURVEILLANC	ES .	
12:-DDC-3:03. Attachment Q Control 3.12.1: Radiological Environmental Monitoring Program (REMP)         APPLICABILITY: At All Times       DESCRIPTION       PROCEDURE         4.12.1.1       Using Locations in the ODCM -Collect and Analyze Samples per Tables 3.12-1.1.3.12-2.8.4.12-1       1/2-ENV-02.01: Radiological Environmental Monitoring Program 1/2-ENV-03.01: Environmental Sampling         TABLE F: 15         12:-ODC-3:03. Attachment R Control 3.12.2: Land Use Census         APPLICABILITY: At All Times         ODCM         ODCM         DESCRIPTION         PROCEDURE         SR         ODCM         DESCRIPTION         PROCEDURE         SR         4.12.2.1         Using the Best Available Method - Conduct a Land Use Census Yearly Between 6/1 & 10/1         TABLE F: 16         1/2-ENV-04.02: REMP Calculations         TABLE F: 16         1/2-ODC-3:03. Attachment S Control 3.12.3: Interlaboratory Comparison Program APPLICABILITY: At All Times         ODCM         DESCRIPTION       PROCEDURE         Attachment S Control 3.12.3: Interlaboratory Comparison Program APPLICABILITY: At All Times		A			
ODCM SR         DESCRIPTION         PROCEDURE           4.12.1.1         Using Locations in the ODCM -Collect and Analyze Samples per Tables 3.12- 1, 3.12-2 & 4.12-1         1/2-ENV-02.01: Radiological Environmental Monitoring Program 1/2-ENV-03.01: Environmental Sampling           TABLE F: 15         1/2-ODC-3.03, Attachment R Control 3.12.2: Land Use Census APPLICABILITY: At All Times         PROCEDURE           ODCM         DESCRIPTION         PROCEDURE           4.12.2.1         Using the Best Available Method - Conduct a Land Use Census Yearly Between 6/1 & 10/1         1/2-ENV-02.01: Radiological Environmental Monitoring Program 1/2-ENV-04.02: REMP Calculations           TABLE F: 16         1/2-ODC-3.03, Attachment S Control 3.12.3: Interlaboratory Comparison Program APPLICABILITY: At All Times           TABLE F: 16         1/2-ODC-3.03, Attachment S Control 3.12.3: Interlaboratory Comparison Program APPLICABILITY: At All Times           ODCM         DESCRIPTION         PROCEDURE           1/2-ENV-02.01: Radiological Environmental Monitoring Program APPLICABILITY: At All Times         1/2-ENV-02.01: Radiological Environmental Monitoring Program Spike Sample Program with Independent Laboratory	1/2-ODC-3.0	03, Attachment Q Control 3.12.1: Radiologi	ical Environmental Monitoring P	rogram (REI	MP)
SR       4.12.1.1       Using Locations in the ODCM -Collect and Analyze Samples per Tables 3.12-1       1/2-ENV-03.01: Radiological Environmental Monitoring Program 1/2-ENV-03.01: Environmental Sampling         TABLE F: 15       1/2-DC-3.03, Attachment R Control 3.12.2: Land Use Census APPLICABILITY: At All Times       PROCEDURE         ODCM       DESCRIPTION       PROCEDURE         4.12.2.1       Using the Best Available Method - Conduct a Land Use Census Yearly Between 6/1 & 10/1       1/2-ENV-02.01: Radiological Environmental Monitoring Program 1/2-ENV-04.02: REMP Calculations         TABLE F: 16       1/2-COC-3.03, Attachment S Control 3.12.3: Interlaboratory Comparison Program APPLICABILITY: At All Times         TABLE F: 16       1/2-ENV-02.01: Radiological Environmental Monitoring Program 1/2-ENV-04.02: REMP Calculations         TABLE F: 16       1/2-ENV-02.01: Radiological Environmental Monitoring Program 1/2-ENV-04.02: REMP Calculations         TABLE F: 16       1/2-ENV-02.01: Radiological Environmental Monitoring Program 1/2-ENV-04.02: REMP Calculations         TABLE F: 16       1/2-ENV-02.01: Radiological Environmental Monitoring Program Split Sample Program with PA-DEP         ODCM       DESCRIPTION       PROCEDURE         Split Sample Program with PA-DEP       Split Sample Program with PA-DEP	APPLICABIL	<u>.ITY</u> : At All Times			
4.12.1.1       Using Locations in the ODCM -Collect and Analyze Samples per Tables 3.12- 1, 3.12-2 & 4.12-1       1/2-ENV-02.01: Radiological Environmental Monitoring Program 1/2-ENV-03.01: Environmental Sampling         TABLE F: 15 1/2-ODC-3.03, Attachment R Control 3.12.2: Land Use Census APPLICABILITY: At All Times         ODCM       DESCRIPTION         RRCONDUCT         4.12.2.1       Using the Best Available Method - Conduct a Land Use Census Yearly Between 6/1 & 10/1       1/2-ENV-02.01: Radiological Environmental Monitoring Program 1/2-ENV-04.02: REMP Calculations         TABLE F: 16 1/2-ODC-3.03, Attachment S Control 3.12.3: Interlaboratory Comparison Program APPLICABILITY: At All Times         ODCM       DESCRIPTION         PROCEDURE         TABLE F: 16 1/2-ODC-3.03, Attachment S Control 3.12.3: Interlaboratory Comparison Program APPLICABILITY: At All Times         ODCM       DESCRIPTION         PROCEDURE         Spik Sample Program with Independent Laboratory Comparison Program in the Annual Radiological		DESCRIPTION	PR	OCEDURE	
TABLE F: 15         1/2-DC-3.03, Attachment R Control 3.12.2: Land Use Census         APPLICABILITY: At All Times         ODCM         ODCM         DESCRIPTION         SR         4.12.2.1       Using the Best Available Method - Conduct a Land Use Census Yearly Between 6/1 & 10/1       1/2-ENV-02.01: Radiological Environmental Monitoring Program 1/2-ENV-04.02: REMP Calculations         TABLE F: 16 1/2-ODC-3.03, Attachment S Control 3.12.3: Interlaboratory Comparison Program APPLICABILITY: At All Times         ODCM         DESCRIPTION         PROCEDURE         Attachment S Control 3.12.3: Interlaboratory Comparison Program APPLICABILITY: At All Times         ODCM         DESCRIPTION         PROCEDURE         Splic Sample Program with Independent Laboratory Comparison Program In the Annual Radiological		Using Locations in the ODCM -Collect	1/2-ENV-02.01: Radiologica	Fovironme	ntal Monitoring Program
1/2-ODC-3.03. Attachment R Control 3.12.2: Land Use Census         APPLICABILITY:       At All Times         ODCM       DESCRIPTION       PROCEDURE         4.12.2.1       Using the Best Available Method - Conduct a Land Use Census Yearly       1/2-ENV-02.01: Radiological Environmental Monitoring Program 1/2-ENV-04.02: REMP Calculations         TABLE F: 16       1/2-ODC-3.03. Attachment S Control 3.12.3: Interlaboratory Comparison Program APPLICABILITY: At All Times         ODCM       DESCRIPTION       PROCEDURE         SR       1/2-ENV-02.01: Radiological Environmental Monitoring Program APPLICABILITY: At All Times         ODCM       DESCRIPTION       PROCEDURE         4.12.3.1       Include Analysis Results of the Interlaboratory Comparison Program in the Annual Radiological in the An	4.12.1.1	and Analyze Samples per Tables 3.12-			
1/2-ODC-3.03, Attachment R Control 3.12.2: Land Use Census         APPLICABILITY:       All Times         ODCM       DESCRIPTION       PROCEDURE         SR       1/2-ENV-02.01: Radiological Environmental Monitoring Program         4.12.2.1       Using the Best Available Method - Conduct a Land Use Census Yearly       1/2-ENV-02.01: Radiological Environmental Monitoring Program         Between 6/1 & 10/1       1/2-ENV-04.02: REMP Calculations         FABLE F: 16       Procedulations         I/2-ODC-3.03, Attachment S Control 3.12.3: Interlaboratory Comparison Program         APPLICABILITY:       Attachment S Control 3.12.3: Interlaboratory Comparison Program         ODCM       DESCRIPTION       PROCEDURE         4.12.3.1       Include Analysis Results of the Interlaboratory Comparison Program in the Annual Radiological in the Annual Radiological       1/2-ENV-02.01: Radiological Environmental Monitoring Program Split Sample Program with PA-DEP Spike Sample Program with Independent Laboratory			· ·		
1/2-ODC-3.03, Attachment R Control 3.12.2: Land Use Census         APPLICABILITY:       All Times         ODCM       DESCRIPTION       PROCEDURE         SR       1/2-ENV-02.01: Radiological Environmental Monitoring Program         4.12.2.1       Using the Best Available Method - Conduct a Land Use Census Yearly       1/2-ENV-02.01: Radiological Environmental Monitoring Program         Between 6/1 & 10/1       1/2-ENV-04.02: REMP Calculations         FABLE F: 16       Procedulations         I/2-ODC-3.03, Attachment S Control 3.12.3: Interlaboratory Comparison Program         APPLICABILITY:       Attachment S Control 3.12.3: Interlaboratory Comparison Program         ODCM       DESCRIPTION       PROCEDURE         4.12.3.1       Include Analysis Results of the Interlaboratory Comparison Program in the Annual Radiological in the Annual Radiological       1/2-ENV-02.01: Radiological Environmental Monitoring Program Split Sample Program with PA-DEP Spike Sample Program with Independent Laboratory					
1/2-ODC-3.03, Attachment R Control 3.12.2: Land Use Census         APPLICABILITY:       All Times         ODCM       DESCRIPTION       PROCEDURE         SR       1/2-ENV-02.01: Radiological Environmental Monitoring Program         4.12.2.1       Using the Best Available Method - Conduct a Land Use Census Yearly       1/2-ENV-02.01: Radiological Environmental Monitoring Program         Between 6/1 & 10/1       1/2-ENV-04.02: REMP Calculations         FABLE F: 16       Procedulations         I/2-ODC-3.03, Attachment S Control 3.12.3: Interlaboratory Comparison Program         APPLICABILITY:       Attachment S Control 3.12.3: Interlaboratory Comparison Program         ODCM       DESCRIPTION       PROCEDURE         4.12.3.1       Include Analysis Results of the Interlaboratory Comparison Program in the Annual Radiological in the Annual Radiological       1/2-ENV-02.01: Radiological Environmental Monitoring Program Split Sample Program with PA-DEP Spike Sample Program with Independent Laboratory					
I/2-ODC-3.03, Attachment R Control 3.12.2: Land Use Census         APPLICABILITY:       All Times         ODCM       DESCRIPTION       PROCEDURE         SR       1/2-ENV-02.01: Radiological Environmental Monitoring Program         4.12.2.1       Using the Best Available Method - Conduct a Land Use Census Yearly Between 6/1 & 10/1       1/2-ENV-02.01: Radiological Environmental Monitoring Program         I/2-ODC-3.03, Attachment S Control 3.12.3: Interlaboratory Comparison Program APPLICABILITY: At All Times       PROCEDURE         ODCM       DESCRIPTION       PROCEDURE         4.12.3.1       Include Analysis Results of the Interlaboratory Comparison Program in the Annual Radiological       1/2-ENV-02.01: Radiological Environmental Monitoring Program Split Sample Program with PA-DEP Spike Sample Program with Independent Laboratory					
1/2-ODC-3.03, Attachment R Control 3.12.2: Land Use Census         APPLICABILITY:       All Times         ODCM       DESCRIPTION       PROCEDURE         SR       1/2-ENV-02.01: Radiological Environmental Monitoring Program         4.12.2.1       Using the Best Available Method - Conduct a Land Use Census Yearly       1/2-ENV-02.01: Radiological Environmental Monitoring Program         Between 6/1 & 10/1       1/2-ENV-04.02: REMP Calculations         TABLE F: 16         1/2-ODC-3.03, Attachment S Control 3.12.3: Interlaboratory Comparison Program         APPLICABILITY: At All Times         ODCM       DESCRIPTION       PROCEDURE         4.12.3.1       Include Analysis Results of the Interlaboratory Comparison Program in the Annual Radiological in the Annual Radiological       1/2-ENV-02.01: Radiological Environmental Monitoring Program Split Sample Program with PA-DEP Spike Sample Program with Independent Laboratory					
1/2-ODC-3.03, Attachment R Control 3.12.2: Land Use Census         APPLICABILITY:       At All Times         ODCM       DESCRIPTION       PROCEDURE         4.12.2.1       Using the Best Available Method - Conduct a Land Use Census Yearly       1/2-ENV-02.01: Radiological Environmental Monitoring Program 1/2-ENV-04.02: REMP Calculations         Between 6/1 & 10/1       1/2-ENV-04.02: REMP Calculations         TABLE F: 16 1/2-ODC-3.03, Attachment S Control 3.12.3: Interlaboratory Comparison Program APPLICABILITY: At All Times         ODCM       DESCRIPTION         PROCEDURE         SR       1/2-ENV-02.01: Radiological Environmental Monitoring Program APPLICABILITY: At All Times         ODCM       DESCRIPTION       PROCEDURE         4.12.3.1       Include Analysis Results of the Interlaboratory Comparison Program in the Annual Radiological in the Annual Radiological in the Annual Radiological in the Annual Radiological       1/2-ENV-02.01: Radiological Environmental Monitoring Program Split Sample Program with PA-DEP Spike Sample Program with Independent Laboratory	TABLE F: 1	5			
ODCM SR         DESCRIPTION         PROCEDURE           4.12.2.1         Using the Best Available Method - Conduct a Land Use Census Yearly Between 6/1 & 10/1         1/2-ENV-02.01: Radiological Environmental Monitoring Program 1/2-ENV-04.02: REMP Calculations           FABLE F: 16         1/2-ODC-3.03, Attachment S Control 3.12.3: Interlaboratory Comparison Program APPLICABILITY: At All Times           ODCM         DESCRIPTION         PROCEDURE           4.12.3.1         Include Analysis Results of the Interlaboratory Comparison Program in the Annual Radiological         1/2-ENV-02.01: Radiological Environmental Monitoring Program Split Sample Program with Independent Laboratory	1/2-ODC-3.0	03, Attachment R Control 3.12.2: Land Use	Census		
SR       Image: SR       Image: SR         4.12.2.1       Using the Best Available Method - Conduct a Land Use Census Yearly Between 6/1 & 10/1       1/2-ENV-02.01: Radiological Environmental Monitoring Program 1/2-ENV-04.02: REMP Calculations         TABLE F: 16       1/2-ODC-3.03, Attachment S Control 3.12.3: Interlaboratory Comparison Program APPLICABILITY: At All Times         ODCM       DESCRIPTION       PROCEDURE         SR       1/2-ENV-02.01: Radiological Environmental Monitoring Program Interlaboratory Comparison Program in the Annual Radiological	APPLICABIL	<u>ITY</u> : At All Times			
4.12.2.1       Using the Best Available Method - Conduct a Land Use Census Yearly Between 6/1 & 10/1       1/2-ENV-02.01: Radiological Environmental Monitoring Program 1/2-ENV-04.02: REMP Calculations         TABLE F: 16       1/2-ODC-3.03, Attachment S Control 3.12.3: Interlaboratory Comparison Program APPLICABILITY: At All Times       Interlaboratory Comparison Program Interlaboratory Comparison Program in the Annual Radiological		DESCRIPTION	PR	OCEDURE	
Conduct a Land Use Census Yearly Between 6/1 & 10/1       1/2-ENV-04.02: REMP Calculations         Image: TABLE F: 16 I/2-ODC-3.03, Attachment S Control 3.12.3: Interlaboratory Comparison Program APPLICABILITY: At All Times       PROCEDURE         ODCM SR       DESCRIPTION       PROCEDURE         4.12.3.1       Include Analysis Results of the Interlaboratory Comparison Program Split Sample Program with PA-DEP Spike Sample Program with Independent Laboratory		Using the Best Available Method -	1/2-ENV-02.01: Radiologica	I Environme	ntal Monitoring Program
<b>FABLE F: 16</b> 1/2-ODC-3.03, Attachment S Control 3.12.3: Interlaboratory Comparison Program         APPLICABILITY: At All Times <b>ODCM PROCEDURE</b> SR       1/2-ENV-02.01: Radiological Environmental Monitoring Program         A 1/2-ENV-02.01: Radiological Environmental Monitoring Program         Spike Sample Program with Independent Laboratory	1	Conduct a Land Use Census Yearly			ital monitoring riogram.
I/2-ODC-3.03, Attachment S Control 3.12.3: Interlaboratory Comparison Program         APPLICABILITY:       At All Times         ODCM       DESCRIPTION       PROCEDURE         4.12.3.1       Include Analysis Results of the Interlaboratory Comparison Program in the Annual Radiological       1/2-ENV-02.01: Radiological Environmental Monitoring Program Split Sample Program with PA-DEP Spike Sample Program with Independent Laboratory		Between 6/1 & 10/1			
I/2-ODC-3.03, Attachment S Control 3.12.3: Interlaboratory Comparison Program         APPLICABILITY:       At All Times         ODCM       DESCRIPTION       PROCEDURE         4.12.3.1       Include Analysis Results of the Interlaboratory Comparison Program in the Annual Radiological       1/2-ENV-02.01: Radiological Environmental Monitoring Program Split Sample Program with PA-DEP Spike Sample Program with Independent Laboratory					
I/2-ODC-3.03, Attachment S Control 3.12.3: Interlaboratory Comparison Program         APPLICABILITY:       At All Times         ODCM       DESCRIPTION       PROCEDURE         4.12.3.1       Include Analysis Results of the Interlaboratory Comparison Program in the Annual Radiological       1/2-ENV-02.01: Radiological Environmental Monitoring Program Split Sample Program with PA-DEP Spike Sample Program with Independent Laboratory		•			
ODCM       DESCRIPTION       PROCEDURE         4.12.3.1       Include Analysis Results of the Interlaboratory Comparison Program in the Annual Radiological       1/2-ENV-02.01: Radiological Environmental Monitoring Program Split Sample Program with PA-DEP Spike Sample Program with Independent Laboratory					
ODCM       DESCRIPTION       PROCEDURE         4.12.3.1       Include Analysis Results of the Interlaboratory Comparison Program in the Annual Radiological       1/2-ENV-02.01: Radiological Environmental Monitoring Program Split Sample Program with PA-DEP Spike Sample Program with Independent Laboratory		· .			
I/2-ODC-3.03, Attachment S Control 3.12.3: Interlaboratory Comparison Program         APPLICABILITY:       At All Times         ODCM       DESCRIPTION       PROCEDURE         4.12.3.1       Include Analysis Results of the Interlaboratory Comparison Program in the Annual Radiological       1/2-ENV-02.01: Radiological Environmental Monitoring Program Split Sample Program with PA-DEP Spike Sample Program with Independent Laboratory					
ODCM SR       DESCRIPTION       PROCEDURE         4.12.3.1       Include Analysis Results of the Interlaboratory Comparison Program in the Annual Radiological       1/2-ENV-02.01: Radiological Environmental Monitoring Program Split Sample Program with PA-DEP Spike Sample Program with Independent Laboratory					
ODCM SR         DESCRIPTION         PROCEDURE           4.12.3.1         Include Analysis Results of the Interlaboratory Comparison Program in the Annual Radiological         1/2-ENV-02.01: Radiological Environmental Monitoring Program Split Sample Program with PA-DEP Spike Sample Program with Independent Laboratory	<u>1/2-ODC-3.0.</u> APPLICABIL	3, Attachment S Control 3, 12,3: Internadora ITY: At All Times	atory Comparison Program		
SR         Include Analysis Results of the         1/2-ENV-02.01: Radiological Environmental Monitoring Program           4.12.3.1         Include Analysis Results of the         1/2-ENV-02.01: Radiological Environmental Monitoring Program           Interlaboratory Comparison Program         Split Sample Program with PA-DEP           Spike Sample Program with Independent Laboratory					
4.12.3.1       Include Analysis Results of the Interlaboratory Comparison Program in the Annual Radiological       1/2-ENV-02.01: Radiological Environmental Monitoring Program Split Sample Program with PA-DEP Spike Sample Program with Independent Laboratory		DESCRIPTION	PRO	OCEDURE	
Interlaboratory Comparison Program in the Annual Radiological Split Sample Program with PA-DEP Spike Sample Program with Independent Laboratory			1/2-ENV-02.01: Radiological f	Environment	al Monitoring Program
			Split Sample Program with PA	A-DEP	
					•

1

. . . . . . .

. ( ] ]

ļ

and the second sec

i i i

# **Beaver Valley Power Station**

# **Unit 1/2**

## 1/2-ODC-2.01

# **ODCM: LIQUID EFFLUENTS**

Document Owner Manager, Nuclear Environmental and Chemistry

Revision Number	9
Level Of Use	General Skill Reference
Safety Related Procedure	Yes
Effective Date	12/22/10

	Beaver Valley Power Station		Procedure N	Procedure Number:		
					1/2-ODC-2.01	
l'itle:				Unit:	Level Of Use:	
				<u>1/2</u> Revision:	General Skill Referenc	
ODCM: L	Page Number: 2 of 41					
			<u> </u>	9		
		TA	BLE OF CONTENT	S		
1.0 PUR	POSE					
2.0 SCO	PE				••••••••••••••••	
3.0 REF	ERENCE	S AND COMMITME	ENTS`			
3.1	Referen	ces			•••••••••••••••••••••••••••••••••••••••	
3.2	Commit	ments				
4.0 REC	ORDS AI	ND FORMS				
4.1	Records					
4.2	Forms					
5.0 PRE	CAUTIO	NS AND LIMITATIO	ONS			
6.0 ACC	CEPTANC	E CRITERIA				
7.0 PRE	REQUISI	TES		•••••		
8.0 PRO	CEDURE	·····		••••••	• • • • • • • • • • • • • • • • • • • •	
8.1	Alarm S				•••••••••••••••••	
	8.1.1	BV-1 Monitor Ala	rm Setpoint Determin	ation		
	8.1.2					
8.2	1	ance With 10 CFR 20	EC Limits (ODCM C	CONTROL 3.11.1	.1)2	
	8.2.1	Batch Releases		•••••	2	
	8.2.2					
8.3					1.1.2 And 3.11.1.3).2	
	8.3.1					
	8.3.2	5	•		20	
8.4	*					
	8.4.1	*	•		2′	
	8.4.2	•		-	omponents2	
	8.4.3					
					JID SOURCE TERMS	
					MITMENT FACTORS	
ATT	CACHMEN	NT C		LIQUID F	ADWASTE SYSTEN	
ATT	ACHME	NT D	SITE B	UUNDARY FOR	LIQUID EFFLUENTS	

	Beaver Valley	Procedure N	Procedure Number: 1/2-ODC-2.01		
Title:			Unit:	Level Of Use:	
obald I			1/2 Revision:	General Skill Reference Page Number:	
ODCM: L	QUID EFFLUENTS		9	3 of 41	
1.0 <u>PU</u>	RPOSE				
		e calculational methodology rs as denoted in Unit 1/2 Te			
1.1.1	Liquid effluent monitor	r alarm setpoints (ITS 5.5.2	.a)		
1.1.2	Liquid effluent release	concentration calculations	(ITS. 5.5.2.b)		
1.1.3	Liquid effluent dose pr ITS 5.5.2.e)	ojection and cumulative do	se calculations (IT	S 5.5.2.d and	
1.2 Th	s procedure also provide	es information related to the	e following:		
1.2.1	Liquid Radwaste Treat	ment System ITS 5.5.2.f)			
1.2.2	Site Boundary used for	liquid effluents			
	or to issuance of this pro CM.	cedure, these items were co	ontained in Section	1 of the old	
2.0 <u>SC</u>	<u>OPE</u>				
	s procedure is applicable cribed and referenced in	e to all station personnel that this procedure.	at are qualified to p	perform activities as	
3.0 <u>R</u>	FERENCES AND CO	MMITMENTS			
3.1 <u>Re</u>	erences				
3.1.1	References For BV-1 L	iquid Effluent Monitor Set	points		
3.1.	.1 Beaver Valley Po 50-412; Table 2.2	ower Station, Appendix I A 1-3	nalysis - Docket N	o. 50-334 and	
3.1.	.2 Beaver Valley Po 50-412; Table 2.1	ower Station, Appendix I A 1-2	nalysis - Docket N	o. 50-334 and	
3.1.	.3 10 CFR 20, Appe	endix B, (20.1001-20.2402)	Table 2, Column	2 EC's	
3.1.	.4 Calculation Pack Liquid Process M	age No. ERS-SFL-92-039, Ionitors	Isotopic Efficienci	ies For Unit 1	
3.1.	.5 Calculation Pack Effluent Monitor	age No. ERS-ATL-93-021, s	Process Alarm Se	tpoints For Liquid	
3.1.		er Calculation Package No. ncentrations - Expect and D		*	

.

Be	aver Valley Power Station	Procedure N	umber: 1/2-ODC-2.01
Title:		Unit: 1/2	Level Of Use: General Skill Reference
ODCM: LIQUIE	) EFFLUENTS	Revision:	Page Number:
		9	<u>4 of 41</u>
3.1.2 Refe	erences for BV-2 Liquid Effluent Monitor Setpoints		
3.1.2.1	10 CFR 20, Appendix B, (20.1001-20.2402) Table 2	2, Column 1	2 EC's
3.1.2.2	Calculation Package No. ERS-SFL-86-026, Unit 2 I	ORMS Isot	opic Efficiencies
3.1.2.3	Stone and Webster Computer Code LIQ1BB; "Norm Pressurized Water Reactor"	nal Liquid	Releases From A
3.1.2.4	Calculation Package No. ERS-JWW-87-015, Isotop 2SGC-RQ100	ic Efficien	cies For
3.1.2.4.	1 The Isotopic Efficiencies for 2SGC-RQ100 are presented in Calculation Package No. ERS-SF	-	ed by the values
3.1.2.5	Calculation Package No. ERS-WFW-87-021, Conve	ersion Fact	or for 2SGC-RQ100
3.1.2.5.1 The Monitor Conversion Factor $(CF_{11})$ for 2SGC-RQ100 is supersedent the value presented in Calculation Package No. ERS-ATL-93-021.			
3.1.2.6	Calculation Package No. ERS-ATL-93-021, Process Effluent Monitors	Alarm Se	tpoints For Liquid
3.1.2.7	Stone and Webster Calculation Package No. UR(B)- Releases and Concentrations - Expect and Design Ca		
3.1.3 Refe	rences used for Other Portions of this procedure		
3.1.3.1	NUREG-0133, Preparation of Radiological Effluent Nuclear Power Plants	Technical	Specifications for
3.1.3.2 NUREG-1301, Offsite Dose Calculation Manual Guidance: Standard Radiological Effluent Controls for Pressurized Water Reactors (Generic Let 01, Supplement No. 1)			
3.1.3.3	NUREG-0017; Calculation of Releases of Radioacti Liquid Effluents from PWRs, Revision 0	ve Materia	lls in Gaseous and
3.1.3.4	Regulatory Guide 1.113; Estimating Aquatic Dispers Accidental and Routine Reactor Releases for the Pur Appendix I, April 1977		
3.1.3.5	Regulatory Guide 1.109; Calculation of Annual Dos Releases of Reactor Effluents for the Purpose of Eva 10 CFR Part 50, Appendix I		
3.1.3.6	Calculation Package No. ERS-ATL-83-027; Liquid Calculation for HPM-RP 6.5, Issue 3 and Later	Waste Dos	e Factor

,

. . .

1 · · · · ·

1

Townships of the second se

1

5 1 | 1 |

i

Be	eaver Valley Power Station	Procedure N	umber: 1/2-ODC-2.01		
itle:		Unit:	Level Of Use: General Skill Reference		
DCM: LIQUI	D EFFLUENTS	1/2 Revision:	Page Number:		
3.1.3.7	NUREG-0172; Age-Specific Radiation Dose Con Chronic Intake	mmitment Fac	5 of 41 ctors for a One-Year		
3.1.3.8	UCRL-50564; Concentration Factors of Chemical Elements in Edible Aquatic Organisms, Revision 1, 1972				
3.1.3.9	1/2-ADM-1640, Control of the Offsite Dose Cald	ulation Manu	al		
3.1.3.10	1/2-ADM-0100, Procedure Writers Guide				
3.1.3.11	NOP-SS-3001, Procedure Review and Approval				
3.1.3.12	1/2-ODC-3.03, ODCM: Controls for RETS and	REMP Progra	ims		
3.1.3.13	CR 02-06174, Tracking of Activities for Unit 1 F Implementation. CA-014, Revise ODCM Proceed and 1b) to include the addition of Zn-65 to the O	lure 1/2-ODC	-2.01 (Tables 1.1-1a		
3.1.3.14	CR 03-02466, RFA-Radiation Protection Effluen Recommendation on Processing when Performin [1LW-TK-7A/7B]. CA-02, Revise ODCM Proce (Attachment D) to show the liquid waste flow par and Unit 2.	g Weekly San dure 1/2-OD	nple of C-2.01,		
3.1.3.15	CR 05-03306, Incorporated Improved Technical	Specifications	s (ITS).		
3.1.3.16	CR 05-03854, ODCM Figure for Liquid Effluent CA-01, revise ODCM procedure 1/2-ODC-2.01 ( Attachment D, Figure 1.4-3 to incorporate a mod No. 8700-RM-27F.	ODCM: Liqu	uid Effluents)		
3.1.3.17	Unit 1 Technical Specification Amendment No. 2 No. DPR-66. This amendment to the Unit 1 licer July 19, 2006.		-		
3.1.3.18	Vendor Calculation Package No. 8700-UR(B)-223, Impact of Atmospheric Containment Conversion, Power Uprate, and Alternative Source Terms on the Alarm Setpoints for the Radiation Monitors at Unit 1.				
3.1.3.19	Engineering Change Package No. ECP-04-0440,	Extended Pov	wer Uprate.		
3.1.3.20	Engineering Change Package No. ECP-04-0440, Extended Power Uprate. CR 06-04908, Radiation Monitor Alarm Setpoint Discrepancies. CA-03; revise ODCM procedure 1/2-ODC-2.01 to update the alarm setpoints of [RM-1RW-100] and [RM-1DA-100] for incorporation of the Extended Power Uprate per Unit 1 TS Amendment No. 275.				

I	Beaver Valley Power Station	Procedure N	umber: 1/2-ODC-2.01
Title:		Unit: 1/2	Level Of Use: General Skill Reference
DDCM: LIQU	JID EFFLUENTS	Revision:	Page Number:
3.1.3.21	CR 06-6476, Procedure 1/2-ODC-2.01 needs rev revise ODCM procedure 1/2-ODC-2.01 to update [2SWS-RQ101] for incorporation of the Extended (ECP-04-0441) per Unit 2 TS Amendment No. 13	e the alarm set d Power Upda	tpoints of
3.1.3.22	CR 05-00004-15, CR05-00004-17 and SAP Orde 1/2-ODC-2.01. Add the Coolant Recovery Tanks Waste Tanks to Section 8.4 description and Attac Add a default 2-tank volume recirculation time of Recovery Tanks [1BR-TK-4A/4B] to Attachment Cesium Removal Ion Exchangers [1BR-I-1A/1B Section 8.4 description and Attachment B Figures recirculation times in Attachment B Table 1.2-1a for nominal tank volume and maximum tank volu	s [1BR-TK-4/ hment D Figu f 45.7 hrs for t B Table 1.2- and 2BRS-IO s 1.4-1 and 1.4 and 1.2-1b to	A/4B] as Liquid ures 1.4-1 and 1.4-2. the Coolant 1a. Add the DE21A/21B] to 4-2. Revise the
3.1.3.23	SAP Order 200197646-0660. Revise 1/2-ODC-2 remove STP Outfalls 113 and 203 due to retireme Plants and to remove U1 Steam Generator Blowd Outfall 501. Water is no longer discharged via th	ent of the Sew own Filter Ba	age Treatment
3.1.3.24	SAP Order 200197646-0810. Revise 1/2-ODC-2 for all possible detector combinations for [RM-11 obsolescence of the original Model 843-30 and 8 previously installed in [RM-1DA-100], the vendo Model 843-30R and 843-32R detectors, which in well.	DA-100]. Spe 43-32 detecto or has upgrade	ecifically, due to rs that were ed them to
3.1.3.25	CR 10-86844 revises 1/2-ODC-2.01 to remove de liquid waste are processed by recirculation throug Attachment B which referenced minimum liquid times and added description that liquid waste reci two tank volumes are calculated based upon actua capacity.	gh eductors. I waste batch re rculation time	Deleted elease recirculation es to achieve
3.2 <u>Comn</u>	<u>nitments</u>		
3.2.1 U	nit 1 and 2 Technical Specifications: ITS 5.5.2, Radio	active Efflue	nt Controls Program
4.0 <u>RECO</u>	ORDS AND FORMS		
4.1 <u>Recor</u>	ds		
re	ny calculation supporting ODCM changes shall be do trievable document (e.g.; letter or calculation package umber.		

12-22-10

2

and the second second

9 9 1

ы •

a first of the first of the second second

) T

1.11.1.1.1.1.1

i i

Beaver Valley Power Station		Procedure Number: 1/2-ODC-2.01		
		Level Of Use: General Skill Reference		
ODCM: LIQUID EFFLUENTS	1/2 Revision: 9	Page Number: 7 of 41		
4.2 <u>Forms</u>				

# 5.0 PRECAUTIONS AND LIMITATIONS

- 5.1 BV-1 and BV-2 utilize the concept of a shared liquid radioactive waste system according to NUREG-0133.^(3,1,3,1) This permits the mixing of liquid radwaste for processing and allocating of dose due to release as defined in Section 8.4.
  - 5.1.1 In Section 8.1 of this procedure, effluent monitor setpoints for a conservative mix are based on the individual Units' specific parameters, but effluent monitor setpoints for analysis prior to release permit use of the total dilution flow available at the site.
- 5.2 There is a difference in alarm setpoint terminology presentations for the radiation monitoring systems of BV-1 and BV-2.
  - 5.2.1 Where HIGH and HIGH-HIGH terminology are used for BV-1 monitors, Alert and High terminology is used for BV-2 monitors.
  - 5.2.2 BV-2 setpoints are presented in uCi/ml rather than cpm as in BV-1. This difference is due to BV-2 software which applies a conversion factor to the raw data (cpm). Note that the uCi/ml presentation is technically correct only for the specific isotopic mix used in the determination of the conversion factors. Therefore, BV-2 setpoints determined on analysis prior to release will be correct for properly controlling dose rate, but the indicated uCi/ml value may differ from the actual value.
- 5.3 This procedure also contains information that was previously contained in Section 5 of the previous BV-1 and 2 Offsite Dose Calculation Manual.
  - 5.3.1 In regards to this, the site boundary for liquid effluents was included in this procedure.
  - 5.3.2 The Site Boundary for Liquid Effluents is shown in ATTACHMENT E Figure 5-1.

# 6.0 ACCEPTANCE CRITERIA

- 6.1 All changes to this procedure shall contain sufficient justification that the change will maintain the level of radioactive effluent control required by 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 50.36a, and Appendix I to 10 CFR 50, and not adversely impact the accuracy or reliability of effluent dose or alarm setpoint calculation.^(3.1.3.2)
  - 6.1.1 All changes to this procedure shall be prepared in accordance with 1/2-ADM-0100^(3.1.3.10) and 1/2-ADM-1640.^(3.1.3.9)
  - 6.1.2 All changes to this procedure shall be reviewed and approved in accordance with NOP-SS-3001^(3.1.3.1) and 1/2-ADM-1640.^(3.1.3.9)

^{4.2.1} None

Beaver Valley Power Station	Procedure Nu	umber: 1/2-ODC-2.01
Title:	Unit:	Level Of Use:
	1/2	General Skill Reference
ODCM: LIQUID EFFLUENTS	Revision:	Page Number:
	9	<u>8 of 41</u>
7.0 <u>PREREQUISITES</u>		
7.1 The user of this procedure shall be familiar with ODCM str	cucture and for	mat.
8.0 <u>PROCEDURE</u>		
8.1 <u>Alarm Setpoints</u>		
8.1.1 <b>BV-1 Monitor Alarm Setpoint Determination</b>		
This procedure determines the monitor HIGH-HIGH All if the concentration of radionuclides in the liquid effluer	× ·	

unrestricted areas exceeds 10 times the ECs specified in 10 CFR 20, Appendix B (20.1001-20.2402), Table 2, Column 2 for radionuclides other than dissolved or entrained noble gases or exceeds a concentration of 2E-4 uCi/ml for dissolved or entrained noble gases. ^(3.1.1.5)

The methodology described in Section 8.1.1.2 is an alternative method to be used to determine the [RM-1LW-104] or [RM-1LW-116] monitor HHSP. The methodology in Section 8.1.1.2 may be used for any batch release and shall be used when the respective total gamma activity concentration of the liquid effluent prior to dilution exceeds 3.14E-3 uCi/ml and 7.33E-3 uCi/ml. This concentration is equivalent to the respective HHSPs derived in Section 8.1.1.1 and allows for respective tritium concentrations up to 4.26E+0 uCi/ml and 9.94E+0 uCi/ml.^(3.1.1.5)

Beaver Valley Power Station		Procedure Number: 1/2-ODC-2.01		
Title:	Unit: 1/2	Level Of Use: General Skill Reference		
ODCM: LIQUID EFFLUENTS	Revision: 9	Page Number: 9 of 41		

## 8.1.1.1 BV-1 Setpoint Determination Based On A Conservative Mix

The Alarm Setpoints shall be set at the values listed in the following table:

BV-1 L	BV-1 LIQUID MONITOR SETPOINTS						
cpm Above Backgr							
	Monitor	CR	HHSP	HSP			
Liquid Waste Effluent Monitor	RM-1LW-104	3.53E+5	≤ 3.53E+5	≤ 2.47E+5			
Laundry And Contaminated	RM-1LW-116	8.24E+5	≤ 8.24E+5	≤ 5.77E+5			
Shower Drains Monitor							
Component Cooling/	RM-1RW-100	2.57E+4	≤ 2.09E+4	≤ 1.46E+4			
Recirculation Spray Hx River							
Water Monitor							
Component Cooling Hx River	RM-1RW-101	9.02E+3	≤ 9.02E+3	≤ 6.32E+3			
Water Monitor							
Aux Feed Pump Bay Drain	RM-1DA-100	(1)	(1)	(1)			
Monitor	with Detector	1.22E+4	$\leq 1.20E+4$	$\leq 8.43E+3$			
	Model 843-30 or	1.05E+4	≤ 1.05E+4	≤ 7.33E+3			
	843-32	(1)	$\leq 1.05E+4$	$\leq 7.33E+3$ (1)			
	RM-1DA-100	· ·					
	with Detector	1.22E+4	$\leq 1.20E+4$	$\leq 8.43E+3$			
	Model 843-30R or 843-32R	1.22E+4	≤ 1.22E+4	≤ 8.52E+3			

⁽¹⁾ Use these values for a monitor with an analog drawer/meter face. These values are from Calculation No. 8700-UR(B)-223, and are justified for use in Attachment 6 of Calculation Package ERS-ATL-93-021. ^(3.1.1.5) (3.1.3.18)

⁽²⁾ Use these values when the monitor is upgraded to a digital drawer/meter face. These values are justified for use in Attachment 6 of Calculation Package ERS-ATL-93-021^(3.1.1.5)

> The setpoint bases for all monitors can be found in Calculation Package ERS-ATL-93-021 and/or Calculation No. 8700-UR(B)-223.^(3.1.3.18) The setpoints for RM-1LW-104 and RM-1LW-116 are based on the following conditions:

- Source terms given in ATTACHMENT A Table 1.1-1a. These source terms (without Zn-65) have been generated from the GALE Computer Code, as described in NUREG-0017.^(3.1.3.3) The inputs to GALE are given in 1/2-ODC-3.01 Appendix B. The Zn-65 source term was generated via Calculation Package No. ERS-ATL-93-021.^(3.1.1.5, 3.1.3.13)
- Dilution water flow rate of 22,800 gpm = (15,000 gpm BV-1 + 7,800 gpm BV-2).
- Discharge flow rate prior to dilution of 35 gpm for the Liquid Waste Effluent Monitor (RM-1LW-104).
- Discharge flow rate prior to dilution of 15 gpm for the Laundry and Contaminated Shower Drains Monitor [RM-1LW-116].

]	Beav	er Valley Power Station	Procedure N		
Title:			Unit:	1/2-ODC-2.01 Level Of Use:	
			1/2	General Skill Reference	
ODCM: LIQ	UID EF	FLUENTS	Revision:	Page Number:	
		·····	9	10 of 41	
	actua	above setpoints for [RM-1LW-104] and [RM-1LW Il operating conditions resulting in changes in the c Ilows:	-		
	HHSI	$P = \frac{42F}{f}$		[1.1(1)-1]	
	wher	e:			
	HHS	P = Monitor HIGH-HIGH Alarm Setpoint above b	ackground	l (ncpm).	
	542 542 542	<ul> <li>Most restrictive proportionality constant based</li> <li>3.53E+5 ncpm x 35 gpm ÷ 22,800 gpm [RM-1]</li> <li>8.24E+5 ncpm x 15 gpm ÷ 22,800 gpm [RM-1]</li> </ul>	LW-104]	al flow conditions:	
	F	= Dilution water flow rate (gpm), BV-1 plus BV- Rate (not including release through the Emerge	-		
	f	= Discharge flow rate prior to dilution (gpm).			
8.1.1.1.1		BV-1 Mix Radionuclides			
		The "mix" (radionuclides and composition) of the liquid effluent was determined as follows:			
		• The liquid source terms that are representative of the "mix" of the liquid effluent were determined. Liquid source terms are the radioactivity levels of the radionuclides in the effluent from ATTACMENT A Table 1.1-1a.			
		• The fraction of the total radioactivity in the radionuclide "i" (S _i ) for each individual rad was determined as follows:		, , , , , , , , , , , , , , , , , , ,	
		$S_{i} = \frac{A_{i}}{\sum_{i} A_{i}}$		[1.1(1)-2]	
		where:			
		A _i = Annual release of radionuclide "i" (Ci/ ATTACHMENT A Table 1.1-1a.	yr) in the l	liquid effluent from	

... 1

1

and the second se

Beaver Valley Power Station		ey Power Station	Procedure Number: 1/2-ODC-2.01		
Title:			<u> </u>	Unit:	Level Of Use:
				1/2	General Skill Reference
DDCM: I	LIQUID EFFL	JUENTS	5	Revision:	Page Number:
	·····			9	<u> </u>
	8.1.1.1.2	BV-1 M	Maximum Acceptable Concentration (A	ll Radionu	clides)
			aximum acceptable total radioactivity co aclides in the liquid effluent prior to dilu		. ,
		$C_t = F$			[1.1(1)-3]
			<u>Si</u>		
		1	OECi		· · ·
		where:			
		F =	<ul> <li>Dilution water flow rate (gpm), BV-1 Blowdown Rate (not including releas Structure).</li> </ul>	•	-
		=	= 22,800 gpm = (15,000 gpm BV-1 + 7,8	800 gpm B	V-2)
		f =	Maximum acceptable discharge flow r	ate prior to	dilution (gpm).
		=	= 35 gpm for Liquid Waste Effluent Mor	nitor [RM-	1LW-104].
		=	15 gpm for Laundry and Contaminated 1LW-116].	l Shower D	Drains Monitor [RM-
		OEC _i	= The ODCM liquid effluent concent (uCi/ml) from ATTACHMENT A Ta times the 10 CFR 20, Appendix B (20 EC values.	able 1.1-1a	. The OEC is set at 1
		S _i =	The fraction of total radioactivity attrib Equation [1.1(1)-2].	outed to rac	dionuclide "i", from
	8.1.1.1.3	BV-1 N	Maximum Acceptable Concentration (In	dividual R	adionuclide)
			aximum acceptable radioactivity concent he liquid effluent prior to dilution (C _i ) w	•	
		$C_i = S_i$	Ct		[1.1(1)-4]

	ver Valley Power Station		Procedure Number: $1/2$ ODC 2.01		
Title:		Unit: 1/2 Revision:	1/2-ODC-2.01 Level Of Use: General Skill Referenc Page Number:		
ODCM: LIQUID I	JFFLUENTS	9	12 of 41		
8.1.1.1.4	BV-1 Monitor Count Rate The calculated monitor count rate (ncpm) above background attributed to the radionuclides; (CR) was determined by:				
	$CR = \sum_{i} C_{i} E_{i}$	[1.1(1)-5]			
	where:				
	$E_i$ = Detection efficiency of the monitor for ATTACHMENT A Table 1.1-1a. If Package ERS-SFL-92-039. ^(3.1.1.4)				
8.1.1.1.5	BV-1 Monitor HHSP				
	The monitor HHSP above background (ncpm) should be set at the CR value. Since only one tank can be released at a time, adjustment of this value is not necessary to compensate for release from more than one source.				
8.1.1.2	<b>3V-1 Setpoint Determination Based On Anal</b>	lysis Prior To I	Release		
· 1	e following method applies to liquid releases when determining the setpoint for e maximum acceptable discharge flow rate prior to dilution and the associated ISP Alarm Setpoint based on this flow rate for the Liquid Waste Effluent Monitor M-1LW-104] and the Laundry and Contaminated Shower Drains Monitor M-1LW-116] during all operational conditions.				
	RM-1LW-116] during all operational condition	15.	ains Monitor		
, , ; ;	RM-1LW-116] during all operational condition The monitor alarm setpoint is set slightly above esults from the concentration of gamma emittin purious alarms. To compensate for this increas illowable discharge flow rate is reduced by the	(a factor of 1.2 ng radionuclides se in the monito	5) the count rate that in order to avoid		

. . . .

i

and the state of t

Beav	er Valley Power Station	Procedure Number: 1/2-ODC-2.01				
lle:		Unit:	Level Of Use: General Skill Reference			
DCM: LIQUID EF	FLUENTS	<u>1/2</u> Revision:	Page Number:			
		9	13 of 41			
8.1.1.2.1	BV-1 Maximum Acceptable Discharge	Flow Rate				
	The maximum acceptable discharge flow determined by:	w rate (f) prior to	dilution (gpm) is			
	$f = -F_{1.1(1)-6}$					
	$\frac{1.25 \Sigma \frac{C_i}{OEC_i}}{i OEC_i}$					
	where:					
	F = Dilution water flow rate, BV-1 (gpm).	plus BV-2 Cool	ling Tower Blowdowr			
	The dilution water flow rate m blowdown flow from both uni excluding emergency outfall s discharges are administratively	ts exiting the disc tructure flow) wh	charge structure (but			
	C _i = Radioactivity concentration of radionuclide "i" in the liquid effluent prior to dilution (uCi/ml) from analysis of the liquid effluent to be released.					
	1.25 = A factor to prevent spurious alarms caused by deviations in the mixture of radionuclides which affect the monitor response.					
	OEC _i = The ODCM liquid effluent con (uCi/ml) from ATTACHMEN 10 times the 10 CFR 20, Appe 2 EC values.	T A Table 1.1-1a	a. The OEC is set at			
8.1.1.2.2	BV-1 Monitor Count Rate					
	The calculated monitor count rate (ncpm) above background attributed to the radionuclides, (CR) is determined by:					
	$CR = 1.25 \Sigma C_i E_i$ [1.1(1)					
	where:					
	E _i = The detection efficiency of the r (cpm/uCi/ml) from ATTACHM there, from Calculation Package	ENT A Table 1.1	-1a. If not listed			
	1.25 = A factor to prevent spurious alarms caused by deviations in the mixture of radionuclides which affect the monitor response.					

_

	Beaver Valley Power Station				Procedure Number:				
Title:							<u>1/2-ODC-2.01</u> Unit: Level Of Use:		
LILL,							1/2	General Skill Reference	
ODCM: LIQUID EFFLUE		LUEN	TS			•	Revision:	Page Number:	
				9	14 of 41				
8	.1.1.2.3	BV-1 Monitor HHSP							
		The liquid effluent monitor HHSP above background (ncpm) should be the CR value adjusted by any excess dilution factor provided as defined following equation:							
·		HHS	$P = CR \frac{f}{f}$	1				[1.1(1)-8]	
		where	e:						
		HHS	P = Mon	itor HHSF	above bac	kground.			
	·	CR = Calculated monitor count rate (ncpm) from equation [1.1(1)-7].							
		f = Maximum acceptable discharge flow rate prior to dilution determined by equation [1.1(1)-6].							
		f' = Actual maximum discharge flow rate to be maintained for the discharge. The reduced value of f' may be due to pump limitation administrative selection.							
8.1.2	BV-2 Mor	nitor A	Alarm Set	tpoint Det	ermination	<u>1</u>			
	This procedure determines the monitor HIGH Alarm Setpoint (HSP) that indicates if the concentration of radionuclides in the liquid effluent released from the site to unrestricted areas exceeds 10 times the ECs specified in 10 CFR 20, Appendix B (20.1001-20.2402), Table 2, Column 2 for radionuclides other than dissolved or entrained noble gases or exceeds a concentration of 2E-4 uCi/ml for dissolved or entrained noble gases. ^(3.1.2.6)								
	determine used for an concentrat concentrat allows for	the [2S ny batc] ion of t ion is e a tritiu	SGC-RQ1 ch release the liquid equivalen im concer	00] monit and shall l effluent p t to a mon ntration of	or HSP. T be used wh prior to dilu itor respons up to 2.161	he methodo en the total tion exceed se and HSP E+0 uCi/ml.	logy in Se gamma ra s 1.14E-3 derived in . The setp	od to be used to ction 8.1.2.2 may be dioactivity uCi/ml. This Section 8.1.2.1 and oint was obtained by nuclide mix. ^(3.1.2.6)	

.

1

1.111

The second of the second s

and the second second

14.1

};

. . .

1911

5

- .

Beaver Valley Power Station	Procedure Num	iber: /2-ODC-2.01
Title:	Unit: 1/2	Level Of Use: General Skill Reference
ODCM: LIQUID EFFLUENTS	Revision: 9	Page Number: 15 of 41

# 8.1.2.1 <u>BV-2 Setpoint Determination Based On A Conservative Mix</u>

The Alarm Setpoints shall be set at the values listed in the following Table:

BV-2	LIQUID MONITOR	SETPOIN	TS	
		μ(	Ci/ml Above I	Background
	Monitor	DV	HSP	ASP
Liquid Waste Effluent Monitor	2SGC-RQ100	1.14E-3	≤ 1.14E-3	≤ 7.99E-4
Service Water Monitor	2SWS-RQ101	4.30E-5	≤ 4.30E-5	≤ 3.01E-5
Service Water Monitor	2SWS-RQ102	4.30E-5	≤ 4.30E-5	≤ 3.01E-5

The setpoint for [2SGC-RQ100] is based on the following conditions, however, the setpoint bases for [2SWS-RQ101] and [2SWS-RQ102] can be found in Calculation Package ERS-ATL-93-021.^(3.1.2.6)

- Source terms given in ATTACHMENT A Table 1.1-1b. These source terms (without Zn-65) have been generated by using models and input similar to NUREG-0017. The inputs are given in 1/2-ODC-3.01. The Zn-65 source term was generated via Calculation Package No. ERS-ATL-93-021.^(3.1.2.6, 3.1.3.13)
- Dilution water flow rate of 22,800 gpm = (15,000 gpm BV-1 + 7,800 gpm BV-2).
- Discharge flow rate prior to dilution of 80 gpm for the Liquid Waste Effluent Monitor [2SGC-RQ100].
- A software conversion factor of 5.61E-9 uCi/ml/cpm associated with Liquid Waste Effluent Monitor [2SGC-RQ100].^(3.1.2.6)

Beaver Valley Power Station	Procedure N	umber: 1/2-ODC-2.01
itle:	Unit:	Level Of Use:
	1/2 Revision:	General Skill Reference Page Number:
DDCM: LIQUID EFFLUENTS	Revision:	16 of 41
The above setpoint for [2SGC-RQ100] can be varied by conditions resulting in the discharge and dilution flow HSP = $\frac{4.00E-6 F}{f}$		· ·
where:		
HSP = HSP (uCi/ml) above background.		
4.00E-6 = Proportionality constant based on nomi 4.00E-6 = 1.14E-3 net uCi/ml x 80 gpm		
F = Dilution water flow rate, BV-1 plus BV (gpm).	'-2 Cooling	Tower Blowdown Rat
f = Discharge flow rate prior to dilution (gr	om).	
8.1.2.1.1 BV-2 Mix Radionuclides		
The "mix" (radionuclides and composition) or determined as follows:	f the liquid	effluent was
• The liquid source terms that are representation effluent were determined. Liquid source the radionuclides in the effluent from AT	terms are th	e radioactivity levels c
• The fraction of the total radioactivity in the radionuclide "i" (Si) for each individual rational was determined as follows:	-	
$Si = \underline{Ai}$ $\Sigma A_i$ i		[1.1(2)-2]
where:		
Ai =Annual release of radionuclide "i" ATTACHMENT A Table 1.1-1b.	(Ci/yr) in th	ne liquid effluent from

计算机算法

đ

Beave	er Valley Power Station	Procedure Nu	mber: 1/2-ODC-2.01
Fitle:		Unit: 1/2	Level Of Use: General Skill Referenc
ODCM: LIQUID EF	FLUENTS	Revision: 9	Page Number: 17 of 41
8.1.2.1.2	BV-2 Maximum Acceptable Concentration (A	ll Radionu	clides)
	The maximum acceptable total radioactivity corradionuclides in the liquid effluent prior to dilu		· ·
	$C_{t} = \frac{F}{f \Sigma_{i} \frac{S_{i}}{OEC_{i}}}$		[1.1(2)-3]
	where:		
	<ul> <li>F = Dilution water flow rate (gpm), BV-1 p</li> <li>Blowdown Rate (not including release of Outfall Structure).</li> </ul>		
	= 22,800 gpm = (15,000 gpm BV-1 + 7,8	00 gpm B	V-2).
	f = Maximum acceptable discharge flow ra	te prior to	dilution (gpm).
	= 80 gpm for Liquid Waste Process Efflu	ent Monito	or [2SGC-RQ100].
	OECi = The ODCM liquid effluent concentration (uCi/ml) from ATTACHMENT A Table times the 10 CFR 20, Appendix B (20.1) EC values.	e 1.1-1b. 🛾	The OEC is set at 10
·	$S_i$ = The fraction of total radioactivity attrib Equation [1.1(2)-2].	uted to rad	ionuclide "i", from
8.1.2.1.3	BV-2 Maximum Acceptable Concentration (In	dividual R	adionuclide)
	The maximum acceptable radioactivity concen "i" in the liquid effluent prior to dilution (C _i ) w	```	
	$C_i = S_i C_t$		[1.1(2)-4]
	· ·		

Beaver Valley Power Station		Procedure N	umber: 1/2-ODC-2.01
Title:		Unit:	1/2-ODC-2.01 Level Of Use:
		1/2	General Skill Reference
ODCM: LIQUID EF	FLUENTS	Revision: 9	Page Number: 18 of 41
8.1.2.1.4	BV-2 Monitor Display Value		
	The calculated monitor Display Value the radionuclides; (DV), was determine		ckground attributed to
	$DV = 5.61E-9 \Sigma_i C_i E_i$		[1.1(2)-5]
	where:		
	5.61E-9 = Conversion factor (uCi/ml/ source term mix.	/cpm), an average	determined for the
	E _i = Detection efficiency of the (cpm/uCi/ml) from ATTA there, from Calculation Page	CHMENT A Tab	e 1.1-1b. If not listed
8.1.2.1.5	BV-2 Monitor HSP		
	The monitor HIGH Alarm Setpoint abo at the DV value.	ve background (u	Ci/ml) should be set
8.1.2.2 <u>BV</u>	7-2 Setpoint Determination Based On Ar	nalysis Prior To	Release
the HI	e following method applies to liquid releas maximum acceptable discharge flow rate GH Alarm Setpoint based on this flow rate SGC-RQ100) during all operational conditi	prior to dilution a for the Liquid W	nd the associated
rea to	e monitor alarm setpoint is set slightly abo ding that results from the concentration of avoid spurious alarms. To compensate for point, the allowable discharge flow rate is	gamma emitting this increase in the	radionuclides in order ne monitor alarm
	nen the discharge flow rate is limited by the	e radwaste discha than the allowabl	

. . . . . . . . .

Beav	er Vall	ey Power Station	Procedure N	umber: 1/2-ODC-2.01
Title:			Unit:	Level Of Use:
			1/2	General Skill Reference
ODCM: LIQUID EF	FLUENT	S	Revision: 9	Page Number:
				<u> </u>
8.1.2.2.1	BV-2	Maximum Acceptable Discharge Flo	ow Rate	
		aximum acceptable discharge flow in nined by:	rate (f) prior to	dilution (gpm) is
	f = 1.25	$\frac{F}{\sum_{i} \frac{C_{i}}{OEC_{i}}}$		[1.1(2)-6]
	where			
	F	= Dilution water flow rate, BV-1	nlus BV-2 Coc	ling Tower
	T.	Blowdown (gpm).	pius <b>D v</b> -2 COC	Jillig Tower
		The dilution water flow rate ma tower blowdown flow from both structure (but excluding emerge simultaneous liquid discharges prohibited.	h units exiting ncy outfall str	the discharge ucture flow) when
	Ci	<ul> <li>Radioactivity concentration of r prior to dilution (uCi/ml) from a released.</li> </ul>		-
	1.25	= A factor to prevent spurious ala mixture of radionuclides which	•	
	OECi	<ul> <li>The ODCM liquid effluent cond (uCi/ml) from Table 1.1-1b. The 10 CFR 20, Appendix B (20.10) Table 2, Col. 2 EC values.</li> </ul>	ne OEC is set a	it 10 times the

.

aver Valley Power Station2EFFLUENTS2 $BV-2$ Monitor Display Value2 $BV-2$ Monitor Display ValueThe calculated monitor Display Value ( the radionuclides; (DV) is determined b $DV = (1.25) (5.61E-9) \Sigma_i C_i E_i$ where: $E_i$ = The detection efficiency of (cpm/uCi/ml) from ATTAC	,	1/2-ODC-2.01 Level Of Use: General Skill Reference Page Number: 20 of 41 neckground attributed to [1.1(2)-7]
<ul> <li>BV-2 Monitor Display Value</li> <li>The calculated monitor Display Value ( the radionuclides; (DV) is determined b</li> <li>DV = (1.25) (5.61E-9) Σ_i C_i E_i</li> <li>where:</li> <li>E_i = The detection efficiency of</li> </ul>	Revision: 9 uCi/ml) above ba	Page Number: 20 of 41
<ul> <li>BV-2 Monitor Display Value</li> <li>The calculated monitor Display Value ( the radionuclides; (DV) is determined b</li> <li>DV = (1.25) (5.61E-9) Σ_i C_i E_i</li> <li>where:</li> <li>E_i = The detection efficiency of</li> </ul>	9 uCi/ml) above ba	20 of 41
The calculated monitor Display Value ( the radionuclides; (DV) is determined b $DV = (1.25) (5.61E-9) \Sigma_i C_i E_i$ where: $E_i = The detection efficiency of$	,	-
the radionuclides; (DV) is determined b $DV = (1.25) (5.61E-9) \Sigma_i C_i E_i$ where: $E_i = The detection efficiency of$	,	-
where: $E_i = The detection efficiency of$		[1.1(2)-7]
$E_i$ = The detection efficiency of		
there, from Calculation Pac	CHMENT A Tab	le 1.1-1b. If not listed
• •		-
5.61E-9 = Conversion factor (uCi/ml/ source term mix.	cpm), an average	determined for the
BV-2 Monitor HSP		
•		
$HSP = DV \underline{f}$ $f'$		[1.1(2)-8]
where:		
HSP = HSP above background.		
DV = Calculated monitor concentration [1.1(2)-7].	on reading (uCi/r	nl) from equation
F = Maximum acceptable discharge by equation [1.1(2)-6].	e flow rate prior t	o dilution determined
	mixture of radionuclides w 5.61E-9 = Conversion factor (uCi/ml/source term mix.) 3 BV-2 Monitor HSP The liquid effluent monitor HSP above the DV value adjusted by any excess difficution of the DV value adjusted by any excess difficution of the DV value adjusted by any excess difficution of the DV value adjusted by any excess difficution of the DV value adjusted by any excess difficution of the DV value adjusted by any excess difficution of the DV value adjusted by any excess difficution of the DV value adjusted by any excess difficution of the DV value adjusted by any excess difficution of the DV value adjusted by any excess difficution of the DV value adjusted by any excess difficution of the DV value adjusted by any excess difficution of the DV value adjusted by any excess difficution of the DV value adjusted by any excess difficution of the DV value adjusted by any excess difficution of the DV value adjusted by any excess difficution of the DV value adjusted by any excess difficution of the DV value adjusted by any excess difficution of the DV value adjusted by any excess difficution of the DV value adjusted by any excess difficution of the DV value adjusted by any excess difficution of the DV value adjusted by any excess difficution of the DV value adjusted by any excess difficution of the DV value adjusted by any excess difficution of the DV value adjusted by any excess difficution of the DV value adjusted by any excess difficution of the DV value adjusted by any excess difficution of the DV value adjusted by any excess difficution of the DV value adjusted by any excess difficution of the DV value adjusted by any excess difficution of the DV value adjusted by any excess difficution of the DV value adjusted by any excess difficution of the DV value adjusted by any excess difficution of the DV value adjusted by any excess difficution of the DV value adjusted by adjusted by any excess difficution of the DV value adjusted by adjuste	mixture of radionuclides which affect the massive of radionuclides which affect the massive for the massive of the massive form of the second definition of the point of the

したいたいがく うちごう うちがほう シント・コーロ 神経法 されたいれる さいため ひゆうたい

1 × 1

;

Beaver Valley Power Station	Procedure Nur 1	nber: /2-ODC-2.01
Title:	Unit: 1/2	Level Of Use: General Skill Reference
ODCM: LIQUID EFFLUENTS	Revision: 9	Page Number: 21 of 41

# 8.2 Compliance With 10 CFR 20 EC Limits (ODCM CONTROL 3.11.1.1)

# 8.2.1 Batch Releases

# 8.2.1.1 Pre-Release

The radioactivity content of each batch release will be determined prior to release in accordance with 1/2-ODC-3.03, Table 4.11-1. In order to assure representative samples, at least two tank volumes of entrained fluid from each tank to be discharged shall be recirculated. To meet this requirement tank recirculation time is calculated using actual tank volumes and recirculation pump capacity. BV-1 and BV-2 will show compliance with ODCM Control 3.11.1.1 in the following manner:

The activity of the various radionuclides in the batch release, determined in accordance with 1/2-ODC-3.03, Table 4.11-1, is divided by the minimum dilution flow to obtain the concentration at the unrestricted area. This calculation is shown in the following equation:

$$Conc_{i} = \frac{C_{i} R}{MDF}$$

where:

 $Conc_i$  = Concentration of radionuclide "i" at the unrestricted area (uCi/ml).

 $C_i$  = Concentration of radionuclide "i" in the potential batch release (uCi/ml).

R = Release rate of the batch (gpm).

MDF = Minimum dilution flow (gpm). (May be combined BV-1/BV-2 flow when simultaneous liquid discharges are administratively prohibited).

The projected concentrations in the unrestricted area are compared to the OECs. Before a release is authorized, Equation [1.2-2] must be satisfied.

$$\Sigma_i$$
 (Conc_i/OEC_i) < 1

[1.2-2]

[1.2-1]

where:

OEC_i = The ODCM effluent concentration limit of radionuclide "i" (uCi/ml) from ATTACHMENT A Table 1.1-1a and 1.1-1b. The OEC is set at 10 times the 10 CFR 20, Appendix B, (20.1001-20.2402) Table 2, Col. 2 EC values.^(3.1.1.3, 3.1.2.1) 12-22-10

B	eaver '	Valley Power Station	Procedure N	umber: 1/2-ODC-2.01
itle:			Unit:	Level Of Use:
			1/2	General Skill Reference
DCM: LIQUI	D EFFLU	IENTS	Revision:	Page Number:
······			9	22 of 41
8.2.1.2	Post-R	elease		
		ing release from the batch tank, the Posted in the following manner:	st Dose Correctio	n Factor will be
	PDCF	$= (VA_t)/(DFA)$		[1.2-3]
		(VI _t )/(DFI)		
	where:			
· .	PCDF	= Post Dose Correction Factor.		
	$VA_t$	= Actual Volume of tank released (ga	al).	
	DFA	= Actual Dilution Flow during release	e (gpm).	
	VIt	= Initial Volume authorized for release	se (gal).	
	DFI	= Initial Dilution Flow authorized for	release (gpm).	
	calcula	ncentration of each radionuclide follow ted in the unrestricted area in the follow tion Factor shown in equation [1.2-3] is	ving manner whe	
	by the	erage activity of radionuclide "i" during actual dilution flow during the period of estricted area. This calculation is show	f release to obtain	n the concentration in
	Conc _{ik}	$= \frac{C_{ik} V_{tk}}{V_{tk}}$		[1.2-4]
		ADF _k		
	where:	ι.		
	Conc _{ik}	<ul> <li>The concentration of radionuclide during the release period of time k</li> </ul>		ne unrestricted area,
NOTE:	the d	discharge is from an isolated well-mix ifference between average and peak cord is minimal.		-
	C _{ik}	= Concentration of radionuclide "i" of period k.	(uCi/ml) in batch	release during time
	V _{tk}	= Volume of Tank released during ti	me period k (gal	).
	ADF _k	= Actual volume of Dilution Flow d	uring the time pe	riod of release k (gal)

:

The sufficient for a fill server of the

Beaver Valley Power Station	Procedure Nu	umber: 1/2-ODC-2.01
Title:	Unit: 1/2	Level Of Use: General Skill Reference
ODCM: LIQUID EFFLUENTS	Revision: 9	Page Number: 23 of 41

To show compliance with ODCM CONTROL 3.11.1.1, the following relationship must be satisfied:

[1.2-5]

$$\Sigma_i(\text{Conc}_{ik}/\text{OEC}_i) \le 1$$

#### 8.2.2 Continuous Releases

Continuous releases of liquid effluents do not normally occur at BV-1 or BV-2. When they do occur, the concentration of various radionuclides in the unrestricted area would be calculated using Equation [1.2-1] with  $C_{ik}$ , the concentration of isotope i in the continuous release. To show compliance with ODCM CONTROL 3.11.1.1, Equation [1.2-5] must again be satisfied.

# 8.3 Compliance With 10 CFR 50 Dose Limits (ODCM CONTROLS 3.11.1.2 And 3.11.1.3)

BV-1 and 2 utilize the concept of a shared liquid radioactive waste system according to NUREG-0133.^(3.1.3.1) This permits mixing of the liquid radwaste for processing. Since the resulting effluent release cannot accurately be ascribed to a specific reactor unit, the treated effluent releases are allocated as defined below.

#### 8.3.1 Cumulation Of Doses (ODCM CONTROL 3.11.1.2)

The dose contribution from the release of liquid effluents will be calculated monthly for each batch release during the month and a cumulative summation of the total body and organ doses will be maintained for each calendar month, current calendar quarter, and the calendar year to date. The dose contribution will be calculated using the following equation:

$$D_{\tau} = \text{UAF } \Sigma \text{ Air } \Sigma^{m} \Delta t_{k} \text{ Ci}_{k} \text{ F}_{k}$$

$$i \quad k=1$$
[1.3-1]

where:

- $D_{\tau}$  = The cumulative dose commitment to the total body or any organ,  $\tau$ , from the liquid effluents for the total time period m  $\Sigma \Delta t_k$  (mrem) k=1
- $\Delta t_k$  = The length of the kth release over which  $C_{ik}$  and  $F_k$  are averaged for all liquid releases (hours).
- $C_{ik}$  = The average concentration of radionuclide, "i" (uCi/ml), in undiluted liquid effluent during time period  $\Delta t_k$  from any liquid release.

Beaver Valley Power Station	Procedure N	
itle:	Unit:	1/2-ODC-2.01 Level Of Use:
.tre.	1/2	General Skill Reference
DDCM: LIQUID EFFLUENTS	Revision:	Page Number:
	9	24 of 41
$A_{i\tau}$ = The site related ingestion dose commitmen $\tau$ for each identified principal gamma and b from ATTACHMENT B Table 1.3-1.		
m = Number of releases contributing to the cur	nulative dose, D	) _t .
UAF = Unit allocation factor. Provides apportionr BV-2. Normally set at 0.5 for each unit. (1)		
$F_k$ = The near field average dilution factor for O Defined as the ratio of the average undilute the average flow from the site discharge structure unrestricted receiving waters, times 3. (3 is the mixing effect of the BV-1 and BV-2 disc	ed liquid waste : ructure during t s the site specif	flow to the product of he report period to ic applicable factor for
= <u>Waste Flow</u> (3)(Dilution Water Flow)		
The site specific applicable factor of 3 results in a condition factor based upon Regulatory Guide 1.113 ^(3.1) below the limit specified in NUREG-0133, Section 4.	^{1.3.4)} methodolog	nate of the near field gy and is a factor of 10
The dose factor $A_{i\tau}$ was calculated for an adult for eace equation from NUREG-0133. ^(3.1.3.1)	ch isotope using	g the following
$Ai\tau = 1.14E5 (730/D_w + 21BF_i)DF_{i\tau}$		[1.3-2]
where:		
$1.14E5 = \left[\frac{1E6 \text{ pCi}}{\text{uCi}}\right] \times \left[\frac{1E3 \text{ ml}}{\text{l}}\right] \times \left[\frac{1\text{ yr}}{8760 \text{ hr}}\right]$		
730 = Adult water consumption rate (liters/yr).		

 $D_w$  = Far field dilution factor from the near field area within 1/4 mile of the release point to the potable water intake for adult water consumption.

21 = Adult fish consumption (kg/yr).

ł. ,

1

1

ili anti.

	Beave	er Valley Power Station	Procedure Nu	
l'itle:	Douve		Unit:	<u>1/2-ODC-2.01</u> Level Of Use:
			1/2	General Skill Referenc
ODCM: L	IQUID EFF	FLUENTS	Revision: 9	Page Number: 25 of 41
	BF _i	<ul> <li>Bioaccumulation factor for radionuclide Regulatory Guide 1.109^(3.1.3.5) (pCi/kg pe available from that reference, it was obta UCRL-50564.^(3.1.3.8)</li> </ul>	er pCi/l). Howe ained from Tabl	ever, if data was not e 6 of
		The bioaccumulation factor for niobium obtained from either of the above referen IAEA Safety Series No. 57. Justification in Appendix A to Calculation Package N	nces noted. It was for use of this	vas obtained from value is documented
	DF _i	<ul> <li>Dose conversion factor for radionuclide (mrem/pCi) from Table E-11 of Regulate NUREG-0172.^(3.1.3.7)</li> </ul>		
	A table of Table 1.3	f $A_{i\tau}$ values for an adult at BV-1 and BV-2 a s-1.	re presented in	ATTACHMENT B
	dilution fa	ield dilution factor (Dw) for BV-1 and BV-2 factor of 600 applicable to the Midland water	intake located	
	factor of Midland i	e opposite bank from BV-1 and BV-2 (i.e., 2 600 represents a conservative fully mixed an intake is located on the opposite bank and is ed conditions would have to exist for the rad e.	nual average co below the wate	ondition. Since the or surface, essentially
	factor of 6 Midland i fully mixe the intake The cumu	600 represents a conservative fully mixed an intake is located on the opposite bank and is ed conditions would have to exist for the rad	nual average co below the wate lioactive effluer alendar quarter	ondition. Since the r surface, essentially at to be transported to
	factor of o Midland i fully mixe the intake The cumu are compa	600 represents a conservative fully mixed an intake is located on the opposite bank and is ed conditions would have to exist for the rad e. ulative doses (from each reactor unit) for a ca	nual average co below the wate lioactive effluer alendar quarter	ondition. Since the r surface, essentially at to be transported to
	factor of 6 Midland i fully mixe the intake The cumu are compa For the ca	600 represents a conservative fully mixed an intake is located on the opposite bank and is ed conditions would have to exist for the rad e. ulative doses (from each reactor unit) for a ca ared to ODCM CONTROL 3.11.1.2 as follo	nual average co below the wate lioactive effluer alendar quarter	ondition. Since the r surface, essentially at to be transported to
	factor of 6 Midland i fully mixe the intake The cumu are compa For the ca $D_{\tau} < 1$	600 represents a conservative fully mixed an intake is located on the opposite bank and is ed conditions would have to exist for the rad e. ulative doses (from each reactor unit) for a ca pared to ODCM CONTROL 3.11.1.2 as follo alendar quarter,	nual average co below the wate lioactive effluer alendar quarter	ondition. Since the r surface, essentially at to be transported to and a calendar year
	factor of 6 Midland i fully mixe the intake The cumu are compa For the ca $D_{\tau} < 1$ $D_{\tau} < 5$	600 represents a conservative fully mixed an intake is located on the opposite bank and is ed conditions would have to exist for the rad e. ulative doses (from each reactor unit) for a ca ared to ODCM CONTROL 3.11.1.2 as follo alendar quarter, .5 mrem total body	nual average co below the wate lioactive effluer alendar quarter	ondition. Since the r surface, essentially at to be transported to and a calendar year [1.3-3]
	factor of 6 Midland i fully mixe the intake The cumu are compa For the ca $D_{\tau} < 1$ $D_{\tau} < 5$ For the ca	600 represents a conservative fully mixed an intake is located on the opposite bank and is ed conditions would have to exist for the rad e. ulative doses (from each reactor unit) for a ca pared to ODCM CONTROL 3.11.1.2 as follo alendar quarter, .5 mrem total body mrem any organ	nual average co below the wate lioactive effluer alendar quarter	ondition. Since the r surface, essentially at to be transported to and a calendar year [1.3-3]
	factor of 6 Midland i fully mixe the intake The cumu are compa For the ca $D_{\tau} < 1$ $D_{\tau} < 5$ For the ca $D_{\tau} < 3$	600 represents a conservative fully mixed an intake is located on the opposite bank and is ed conditions would have to exist for the rad e. ulative doses (from each reactor unit) for a ca ared to ODCM CONTROL 3.11.1.2 as follo alendar quarter, .5 mrem total body mrem any organ alendar year,	nual average co below the wate lioactive effluer alendar quarter	ondition. Since the r surface, essentially at to be transported to and a calendar year [1.3-3] [1.3-4]

Beaver Valley Power Station		Procedure Number: 1/2-ODC-2.01			
Title:	Unit: 1/2	Level Of Use: General Skill Reference			
ODCM: LIQUID EFFLUENTS	Revision: 9	Page Number: 26 of 41			

# 8.3.2 Projection Of Doses (ODCM CONTROL 3.11.1.3)

Doses due to liquid releases shall be projected at least once per 31 days in accordance with ODCM CONTROL 3.11.1.3 and this section. The Liquid Radwaste Treatment System shall be used to reduce the radioactive materials in each liquid waste batch prior to its discharge, when the projected doses due to liquid effluent releases from each reactor unit, when averaged over 31 days would exceed 0.06 mrem to the total body or 0.2 mrem to any organ. Doses used in the projection are obtained according to equation [1.3-1]. The 31-day dose projection shall be performed according to the following equations:

When including pre-release data,

$$D_{31} = \left[\frac{A+B}{T}\right] \quad 31+C \tag{1.3-7}$$

When not including pre-release data,

$$D_{31} = \left[\frac{A}{T}\right] \quad 31 + C \tag{1.3-8}$$

where:

 $D_{31}$  = Projected 31 day dose (mrem).

A = Cumulative dose for quarter (mrem).

B = Projected dose from this release (mrem).

T = Current days into quarter.

C = Value which may be used to anticipate plant trends (mrem).

# 8.4 Liquid Radwaste System

The liquid radwaste system has the capability to control, collect, process, store, recycle, and dispose of liquid radioactive waste generated as a result of plant operations, including anticipated operational occurrences. This system also uses some of the components of the steam generator blowdown system for processing.

Simplified flow diagrams of the liquid radwaste systems for BV-1 and BV-2 are provided as ATTACHMENT D Figures 1.4-1 and 1.4-2 respectively. A diagram showing the liquid effluent release points is provided as ATTACHMENT D Figure 1.4-3. A diagram of the site boundary for liquid effluents is provided as ATTACHMENT E Figure 5-1.

Since the concept of a shared liquid radwaste system is used, then any liquid waste generated can be stored, processed and discharged from either BV-1 or BV-2.

Be	eaver Valley Power Station	Procedure Nun	1ber: /2-ODC-2.01			
Title:		Unit:	Level Of Use: General Skill Reference			
ODCM: LIQUII	DEFFLUENTS	1/2 Revision: 9	Page Number: 27 of 41			
8.4.1 <u>BV</u> -	1 Liquid Radwaste System Components					
8.4.1.1	[1BR-I-1A/1B]: Cesium Removal Ion Exchangers					
There are two of these ion exchangers, each has a capacity of 35 cubic feet are located on the east side of the Auxiliary Building (elevation 735'). The receive process fluid (liquid waste) from the reactor coolant system when I flow is diverted from the volume control tank.						
8.4.1.2	[1BR-TK-4A/4B]: Coolant Recovery Tanks					
There are two of these tanks, each tank has a nominal capacity of 195,000 ga (maximum capacity = 205,578 gallons). They are located in the Solid Waste Building. They receive diverted letdown flow from the volume control tank various reactor plant non-aerated drains that were processed through the cesi removal ion exchangers. These tanks can also receive liquid wastes that were processed through the cesium removal ion exchangers from Unit 2.						
8.4.1.3	[1LW-TK-2A/2B]: High Level Waste Drain Tanks					
	There are two of these tanks, each tank has a nomina (maximum capacity = 4,899 gallons). They are locat Auxiliary Building (elevation 735'). They receive liq drain system.	ed on the n	orthwest wall of the			
8.4.1.4	[1LW-TK-3A/3B]: Low Level Waste Drain Tanks					
	There are two of these tanks, each tank has a nomina (maximum capacity = 1,998 gallons). They are locat the Auxiliary Building (elevation 735'). They also revent and drain system.	ed in the no	orthwest corner of			
8.4.1.5	[1LW-FL-6]: Liquid Waste Pre-Conditioning Filter					
There is a pre-conditioning filter with a 50 cubic feet capacity. The main purport the pre-conditioning filter is to clean liquid waste water of particulate and disso radioactive contaminants that is stored in [1LW-TK-2A/2B], [1LW-TK-3A/3B [1BR-TK-4A/4B]. The pre-conditioning filter can be customized with varying grades of activated charcoal (carbon) intended for removal of radionuclides in colloidal state. The charcoal may consist of Course Mesh High Activated Cocc Carbon, Medium Mesh High Activated Cocco Carbon, Fine Mesh High Activated Coco Carbon and Cobalt Selective Media. This filter is located in the Decontamination Building (elevation 735').						

Beaver Valley Power Station		Procedure Number: 1/2-ODC-2.01			
Title:	Unit: 1/2	Level Of Use: General Skill Reference			
ODCM: LIQUID EFFLUENTS	Revision:	Page Number: 28 of 41			

#### 8.4.1.6 [1LW-I-2]: Liquid Waste Demineralizer

There are four (4) demineralizer vessels each with a capacity of 30 cubic feet. The main purpose of the demineralizer is to clean liquid waste water of particulate and dissolved radioactive contaminants that was stored in [1LW-TK-2A/2B], [1LW-TK-3A/3B] and [1BR-TK-4A/4B] and pre-conditioned by [1LW-FL-6]. Each of the demineralizer vessels can be customized with different resins for effective removal of chemical contaminants along with radioactive contaminants. Generally, vessels 1 and 2 may contain Cation Resin, vessel 3 may be left empty to accept special resin (e.g., Mixed Bed Resin, Macro-porous Resin, Anion Resin, etc.) and vessel 4 may contain an Antimony Removal Resin. This demineralizer is located in the Decontamination Building (elevation 735').

8.4.1.7 Liquid Waste Evaporator

An evaporator was originally designed to process liquid waste at Unit 1 with a capacity of 6 gpm. However, this evaporator was retired prior to initial issue of the ODCM, because of concerns for creating a mixed-waste. <u>SINCE</u> the evaporator is no longer in-use, <u>THEN</u> it is not shown on Figure 1.4-1.

8.4.1.8 [1LW-TK-7A/7B]: Steam Generator Drain Tanks

There are two of these tanks, each tank has a nominal capacity of 34,500 gallons (maximum capacity = 35,800 gallons). They are located in the Fuel Pool Leakage Monitoring Room (elevation 735'). They normally receive liquid waste that has been processed through the liquid waste demineralizer. These tanks can also receive liquid waste from Unit 2. Upon completion of filling operation, the tank is placed on recirculation through the demineralizer until the radioactivity concentration is acceptable for discharge. A minimum of two tank volumes must be recirculated prior to sampling for discharge permit preparation.

8.4.1.9 [RM-1LW-104]: Liquid Waste Discharge Radiation Monitor

This off-line gamma scintillator radiation monitor continuously analyzes liquid waste as it is being discharged. The normal rate of discharge through this radiation monitor from [1LW-TK-7A/7B] is <35 gpm. The normal rate of discharge through this radiation monitor from [1BR-TK-4A/4B] is <150 gpm. The upper activity alarm on this radiation monitor has a setpoint that would indicate we are approaching OEC limits for radioactive water leaving the site. If an upper activity alarm on this radiation monitor is received, it automatically terminates the discharge by closing the discharge line isolation valve.

Be	eaver Valley Power Station	Procedure Nu	imber: 1/2-ODC-2.01				
Title:		Unit:	Level Of Use:				
ODCM: LIQUII	DEFFLUENTS	<u>1/2</u> Revision: 9	General Skill Reference Page Number: 29 of 41				
8.4.2 BV	-1 Laundry and Contaminated Shower Drain Syster	n Compor					
8.4.2.1	[1LW-TK-6A/6B]: Laundry and Contaminated Show	wer Drain '	Tanks				
	There are two of these tanks, each has a nominal cap (maximum capacity = 1,303 gallons). They are locat the Auxiliary Building (elevation 722'). They receiv shower drains waste from the Service Building. These water waste from Unit 2. The waste in these tanks is demineralizer for cleanup because this waste may co will deplete a resin bed. Upon completion of filling recirculated a minimum of two tank volumes prior to preparation.	ed in the r e laundry a se tanks ca not sent to ntain organ operation,	northwest corner of and contaminated n also receive mop the liquid waste nic compounds that the tank must be				
8.4.2.2	[RM-1LW-116]: Laundry and Contaminated Showe Radiation Monitor	r Drains T	ank Discharge				
	This off-line gamma scintillator radiation monitor co contaminated shower drains waste as it is being disch discharge through this radiation monitor from [1LW- upper activity alarm on this radiation monitor has a s are approaching OEC limits for radioactive water lea activity alarm on this radiation monitor is received, in discharge by closing the discharge line isolation value	discharged. The normal rate of ILW-TK-6A/6B] is <15 gpm. The as a setpoint that would indicate we er leaving the site. If an upper yed, it automatically terminates the					
8.4.3 <u>BV</u> -	-2 Liquid Radwaste System Components						
8.4.3.1	[2BRS-IOE21A/21B]: Cesium Removal lon Exchan	gers.					
	There are two of these ion exchangers, each has a cap are located on the east side of the Auxiliary Building receive and process liquid wastes from the reactor co or letdown operations.	(elevation	718'). They				
8.4.3.2	[2LWS-TK21A/21B]: Waste Drain Tanks						
	There are two of these tanks, each tank has a nominal capacity of 10,000 gallons (maximum capacity = 10,184 gallons). They are located in the northeast corner of the Auxiliary Building (elevation 710'). They receive liquid wastes from the vent and drain system. These tanks can also receive liquid wastes from Unit 1. <u>IF</u> further processing is not necessary, <u>THEN</u> it may be placed on recirculation. A minimum of two tank volumes must be recirculated prior to sampling for discharge permit preparation.						

**.**.

-

.

.

-

	B	eaver Valley Power Station	Procedure N	umber: 1/2-ODC-2.01				
Title:		D REEL LIENTS	Unit: <u>1/2</u> Revision:	Level Of Use: General Skill Reference Page Number:				
		DEFFLUENTS	9	30 of 41				
	8.4.3.3	[2SGC-IOE21A/21B]: Steam Generator Blowdown Cleanup Ion Exchangers						
		The main purpose of the ion exchangers is to clear and dissolved radioactive contaminants through a resin bed, outlets strainer, and cleanup filter associated exchangers. They are located in the Waste Hand	in ion exchang ciated with ea	ge process. There is a ch of these ion				
	8.4.3.4	Liquid Waste Evaporator						
		Two evaporators were originally designed to proc capacity of 20 gpm each. However, these evapor issue of the ODCM, because of concerns for crea evaporators are no longer in-use, <u>THEN</u> they are	ators were ret ting a mixed-v	ired prior to initial waste. <u>SINCE</u> the				
	8.4.3.5	[2SGC-TK23A/23B]: Steam Generator Blowdov	vn Test Tanks					
		There are two of these tanks, each has a nominal (maximum capacity = 17,955 gallons). They are (elevation 755'). They receive liquid waste that h cleanup ion exchangers. Upon completion of fill recirculation through the demineralizer until the r acceptable for discharge. A minimum of two tan prior to sampling for discharge permit preparation	located in the has been proce ing operation, radioactivity c k volumes mu	Auxiliary Building ssed through the the tank is placed on oncentration is				
	8.4.3.6	[2SGC-TK21A/21B]: Steam Generator Blowdow	vn Hold Tank	S				
		There are two of these tanks, each has a nominal (maximum capacity = 51,460 gallons). They are Building (elevation 722'). These tanks are used to radioactive concentration of the steam generator b acceptable for discharge. These tanks can also r The contents of this tank may be drained or proce Liquid Radwaste Treatment System until the radi acceptable for discharge. A minimum of two tank prior to sampling for discharge permit preparation	located in the o store liquid blowdown tes receive liquid essed through oactivity cond k volumes mu	Waste Handling waste when the t tank is not wastes from Unit 1. the Unit 1 or Unit 2 centration is				
	8.4.3.7	[2SGC-RQ100]: Liquid Waste Effluent Monitor						
		This off-line gamma scintillator radiation monitor waste as it is being discharged. The normal rate of monitor is <85 gpm. The upper activity alarm on setpoint that would indicate we are approaching ( leaving the site. If an upper activity alarm is rece the discharge by closing the discharge line isolati	of discharge th this radiation DEC limits for ived, it autom	rough this radiation monitor has a radioactive water				
		- END -						

Beaver Va	lley Power Station	l	Procedure N	umber: 1/2-ODC-2.01
Title:		<u></u>	Unit:	Level Of Use:
			1/2	General Skill Referen
ODCM: LIQUID EFFLUEN		Revision: 9	Page Number: 31 of 41	
	ATTACHME	NT A		
	Page 1 of			
	LIQUID SOURC			
TABLE 1.1-1a				
BV-1 LIQUID SOURCE TERM	M.			
				(4)
	(2)	(3)		Ei
	A			DETECTION
NUCLIDE	ANNUAL RELEASE	OEC;		EFFICIENCY
<u>Cr-51</u>	<u>(Ci)</u> 1.3E-3	<u>(uCi/ml)</u> 5E-3		(cpm/uCi/ml)
Cr-51 Mn-54	1.3E-3 3.1E-4	3E-4		1.18E+7 8.59E+7
Fe-55	1.6E-3	1E-3		(5)
Fe-59	83E-4	1E-4		(3) 9.17E+7
Co-58	1.4E-2	2E-4		1.16E+8
Co-60	2.0E-3	3E-5		1.73E+8
Zn-65 ^(3.1.3.13)	2.69E-2	5E-5		4.67E+7
Np-239	1.4E-4	2E-4		8.49E+7
Br-83	2.5E-5	9E-3		1.36E+6
Br-84	2.5E-5	4E-3		9.75E+7
Br-85	2.7E-6	(5)		6.19E+6
Rb-86	7.5E-5	7E-5		(5)
Sr-89	2.9E-4	8E-5		(5)
Sr-90	1.1E-5	5E-6		(5)
Y-90	9.4E-6	7E-5		(5)
Y-91m	8.7E-6	2E-2		8.98E+7
Y-91	5.7E-5	8E-5		2.60E+5
Y-93 Zr-95	7.4E-7	2E-4 2E-4		(5)
Nb-95	5.1E-5	2E-4 3E-4		8.60E+7
Sr-91	5.2E-5 1.3E-5	2E-4		8.64E+7 6.97E+7
Mo-99	1.1E-2	2E-4	-	2.84E+7
Tc-99m	1.1E-2	1E-2		8.96E+7
Ru-103	3.4E-5	3E-4		9.5E+7
Ru-106	1.0E-5	3E-5		(5)
Rh-103m	3.4E-5	6E-2		(5)
Rh-106	1.0E-5	(5)		(5)
Te-125m	2.5E-5	2E-4		1.83E+5
Te-127m	2.6E-4	9E-5		4.09E+4
Te-127	2.7E-4	1E-3		1.38E+6
Te-129m	1.1E-3	7E-5		4.02E+6
Te-129	6.7E-4	4E-3		1.12E+7
I-130	1.2E-4	2E-4		3.08E+8
Te-131m	1.6E-4	8E-5		1.82E+8
Te-131	3E-5	8E-4		1.20E+8
I-131 Te-132	1.6E-1 4.3E-3	1E-5 9E-5		1.11E+8
I-132 I-132	4.3E-3 4.9E-3	9E-3 1E-3		1.17E+8 2.66E+8
I-132 I-133	4.9E-3 4.0E-2	7E-5		9.90E+7
I-135	4.0E-2 8.0E-5	4E-3		2.70E+8
Cs-134	4.6E-2	9E-6		1.99E+8

-

Beaver Val	1	Procedure Number:		
		1/2-ODC-2.01		
Title:			Unit:	Level Of Use:
			1/2	General Skill Reference
ODCM: LIQUID EFFLUEN	Revision:	Page Number:		
~			9	32 of 41
	ATTACHM	1ENT A		
	Page 2	of 4		
	LIQUID SOUR			
I-135	4.3E-3	3E-4		1.19E+8
Cs-136	8.9E-3	6E-5		2.80E+8
Cs-137	3.3E-2	1E-5		8.01E+7
Ba-137m	3.1E-2	1E-5		8.01E+7
Ba-140	1.1E-4	8E-5		4.37E+7
La-140	1.1E-4	9E-5		2.00E+8
Ce-141	5.1E-5	3E-4		5.07E+7
Ce-143	2.8E-6	2E-4		7.27E+7
Ce-144	3.2E-5	3E-5		1.06E+7
Pr-143	2.7E-5	2E-4		1.04E+0
Pr-144	3.2E-5	6E-3		2.25E+6
H-3	5.50E+2	1E-2		(5)
TOTAL ⁽¹⁾	4.05E-1			

(1) Excluding Tritium and Entrained Noble Gases

(2)

(3)

Source Term for (RM-1LW-104 and RM-1LW-116) from Stone and Webster Calculation Package UR(B)-160 ^(3.1.1.6) ODCM Effluent Concentration Limit = 10 times the EC values of 10 CFR 20 ^(3.1.1.3) Detection Efficiency for (RM-1LW-104 and RM-1LW-116) from Calculation Package ERS-SFL-92-039 ^(3.1.1.4) (4) (5) Insignificant

Beaver Va	Procedure Number: 1/2-ODC-2.01			
itle:			Unit:	Level Of Use:
			1/2	General Skill Reference
DCM: LIQUID EFFLUEN	TS		Revision: 9	Page Number: 33 of 41
	ATTACHMEN	JT A	·2	1
	Page 3 of 4			
	LIQUID SOURCE			
TABLE 1.1-1b				
BV-2 LIQUID SOURCE TE	(2)			(4)
		(3)		
	Ai ANNILLAL DELEASE			DETECTION
	ANNUAL RELEASE	OEC _i		EFFICIENCY
<u>NUCLIDE</u> Cr-51	<u>(Ci)</u> 1.00E-4	<u>(uCi/ml)</u> 5E-3		<u>(cpm/uCi/ml)</u> 2.01E+7
Mn-54	2.50E-5	3E-3 3E-4		127E+8
Fe-55	1.30E-4	1E-3		
Fe-59	6.50E-5	1E-3 1E-4		(5) 1.26E+8
Co-58	1.10E-3	1E-4 2E-4		1.82E+8
Co-60	1.60E-4	2E-4 3E-5		2.38E+8
Zn-65 ^(3.1.3.13)	5.10E-2	5E-5		6.50E+7
Np-239	3.20E-5	2E-4		1.65E+8
Br-83	2.90E-5	9E-3		2.42E+6
Br-85 Br-84	5.90E-9	4E-3		1.38E+8
Rb-86	3.70E-5	7E-5		1.04E+7
Sr-89	2.20E-5	8E-5		1.83E+4
Sr-90	8.50E-7	5E-6		(5)
Sr-91	5.30E-6	2E-4		1.04E+8
Mo-99	230E-3	2E-4		4.47E+7
Tc-99m	2.10E-3	1E-2		1.40E+8
Te-125m	1.90E-6	2E-4		3.94E+5
Te-127m	2.10E-5	9E-5		1.26E+5
Te-127	2.50E-5	1E-3		2.43E+6
Te-129m	820E-5	7E-5		6.53E+6
Te-129	5.30E-5	4E-3		1.96E+7
I-130	2.30E-4	2E-4		5.18E+8
Te-131m	5.20E-5	8E-5		2.85E+8
Te-131	9.40E-6	8E-4		1.88E+8
I-131	1.00E-1	1E-5		1.96E+8
Te-132	7.80E-4	9E-5		1.76E+8
I-132	2.30E-3	1E-3		4.22E+8
I-133	6.50E-2	7E-5		1.73E+8
I-134	4.60E6	4E-3		4.06E+8
Cs-134	3.00E-2	9E-6		3.25E+8
I-135	9.20E-3	3E-4		1.71E+8
Cs-136	3.90E-3	6E-5		4.28E+8
Cs-137	2.20E-2	1E-5		1.28E+8
Ba-137m	2.10E-2	1E-5		1.33E+8
Ba-140	9.30E-6	8E-5		7.50E+7
La-140	8.40E-6	9E-5		3.08E+8

Beaver Valley	Procedure Number: 1/2-ODC-2.01			
Title:			Unit:	Level Of Use:
			1/2	General Skill Reference
ODCM: LIQUID EFFLUENTS			Revision:	Page Number:
			9	34 of 41
	ATTACHM			
	Page 4 c			
	LIQUID SOUR	JE TERMS		
TABLE 1.1-1b (continued)				
BV-2 LIQUID SOURCE TERM				
	(2)		(	4)
	Ai		I	Ξ _i
	ANNUAL	(3)	DETE	CTION
	RELEASE	<b>OEC</b> _i	EFFIC	IENCY
NUCLIDE	<u>(Ci)</u>	<u>(uCi/ml)</u>	<u>(cpm/ı</u>	uCi/ml)
Y-90	6.00E-7	7E-5	-	
Y-91m	3.60E-6	2E-2	1.59	9E+8
Y-91	4.40E-6	8E-5	3.55	5E+5
Y-93	3.00E-7	2E-4	2.03	3E+7
Zr-95	4.00E-6	2E-4	1.35	5E+8
Nb-95	4.00E-6	3E-4	1.33	3E+8
Ru-103	2.70E-6	3E-4	1.71	E+8
Ru-106	8.20E-7	3E-5	(.	5)
Rh-103m	2.70E-6	6E-2		5)
Rh-106	8.20E-7			5E+7
Ce-141	4.00E-6	3E-4		5E+7
Ce-143	8.60E-7	· 2E-4		)E+8
Ce-144	2.60E-6	3E-5		'E+7
Pr-143	2.30E-6	2E-4		5E+0
Pr-144	2.60E-6	6E-3	3.40	)E+6
<u>H-3</u>	<u>5.50E+2</u>	1E-2	(1	5)
TOTAL ⁽¹⁾	2.40E-1			

(1) Excluding Tritium and Entrained Noble Gases

(2)

(3)

Source Term for (2SGC-RQ100) from Computer Code LIQ1BB  $^{(3.1.2.3)}$ ODCM Effluent Concentration Limit = 10 times the EC values of 10 CFR 20  $^{(3.1.2.1)}$ Detection Efficiency for (2SGC-RQ100) from Calculation Package ERS-SFL-86-026  $^{(3.1.2.2)}$ (4)

⁽⁵⁾ Insignificant

Beaver Valley Power Station							Procedure Number: 1/2-ODC-2.01					
Title:		<u> </u>		<u></u>			Unit: 1/2.	Level Of U		rence		
OD	CM: LIQU	ID EFFLUE	ENTS			F	Revision:	Page Num	ber:			
	ATTACHMENT B											
	Page 1 of 3											
	INGESTION DOSE COMMITMENT FACTORS											
TA	BLE 1.3-1											
	VALUES F rem/hr per u		ADULT FOR	. THE BEAV	ER VALLEY	Y SITE						
	NUCLIDE	BONE	LIVER	T-BODY	THYROID	<u>KIDNE</u>	<u> </u>	JNG	GI-LLI			
	H-3	0.00E-01	2.70E-01	2.70E-01	2.70E-01	2.70E-01			2.70E-01			
	C-14 Na-24	3.13E04 4.08E02	6.26E 03 4.08E 02	6.26E 03 4.08E 02	6.26E 03 4.08E 02	6.26E 03 4.08E 02			626E03 4.08E02			
	P-32	4.62E07	2.87E06	1.79E06	0.00E-01	0.00E-01			5.19E06			
	Cr-51 Mn-54	0.00E-01 0.00E-01	0.00E-01 4.38E 03	1.27E 00 8.35E 02	7.62E-01 0.00E-01	2.81E-01 1.30E 03			321E02 1.34E04			
	 Mn-56	0.00E-01	1.10E02	1.95E01	0.00E-01	1.40E 02	2 0.00E	E-01	3.52E 03			
	Fe-55 Fe-59	6.59E02	4.56E 02	1.06E 02 9.38E 02	0.00E-01 0.00E-01	0.00E-01 0.00E-01	1 2.54E	E02	2.61E02			
		1.04E03	2.45E03						8.15E03			
	Co-57 Co-58	0.00E-01 0.00E-01	2.10E01 8.95E01	3.50E01 2.01E02	0.00E-01 0.00E-01	0.00E-01 0.00E-01	1 0.00E	E-01	5.33E02 1.81E03			
	Co-60	0.00E-01	2.57E02	5.67E02	0.00E-01	0.00E-01			4.83E 03			
	Ni-63	3.12E04	2.16E03	1.05E03	0.00E-01	0.00E-01			4.51E02			
	Ni-65 Cu-64	1.27E 02 0.00E-01	1.65E01 1.00E01	7.51E00 4.70E00	0.00E-01 0.00E-01	0.00E-01 2.52E 01			4.17E02 8.53E02			
	Zn-65	2.32E04	7 <i>.</i> 37E04	3.33E04	0.00E-01	4.93E04			4.64E.04			
	Zn-69 Br-83	4.93E01 0.00E-01	9.43E 01 0.00E-01	6.56E00 4.04E01	0.00E-01 0.00E-01	6.13E01 0.00E-01	1 0.00E	E-01	1.42E01 5.82E01			
									******			
	Br-84 Br-85	0.00E-01 0.00E-01	0.00E-01 0.00E-01	524E01 2.15E00	0.00E-01 0.00E-01	0.00E-01 0.00E-01	1 0.00F 1 0.00F	3-01 3-01	4.11E-04 0.00E-01			
	Rb-86	0.00E-01	1.01E05	4.71E04	0.00E-01	0.00E-01			1.99E04			
	Rb-88	0.00E-01	2.90E02	1.54E02	0.00E-01	0.00E-01			4.00E-09			
	Rb-89 Sr-89	0.00E-01 2.22E.04	1.92E 02 0.00E-01	1.35E 02 6.39E 02	0.00E-01 0.00E-01	0.00E-01 0.00E-01			1.12E-11 3.57E 03			
	Sr-90	5.48E05	0.00E-01	1.34E05	0.00E-01	0.00E-01	1 0.00E	<b>-</b> 3-01	1.58E04			
1	Sr-91 Sr-92	4.10E02 1.55E02	0.00E-01 0.00E-01	1.65E 01 6.72E 00	0.00E-01 0.00E-01	0.00E-01 0.00E-01	1 0.00E	E-01	1.95E 03 3.08E 03			
	Y-90 Y-91m	5.80E-01 5.48E-03	0.00E-01 0.00E-01	1.55E-02 2.12E-04	0.00E-01 0.00E-01	0.00E-01 0.00E-01			6.15E03 1.61E-02			
	Y-91	8.50E 00	0.00E-01	2.27E-01	0.00E-01	0.00E-01			4.68E 03			
1	Y-92	5.09E-02	0.00E-01	1.49E-03	0.00E-01	0.00E-01			8.92E02			
	Y-93 Zr-95	1.62E-01 2.53E-01	0.00E-01 8.11E-02	4.46E-03 5.49E-02	0.00E-01 0.00E-01	0.00E-01 1.27E-01			5.12E03 2.57E02			
	Zr-97	1.40E-02	2.82E-03	1.29E-03	0.00E-01	4.26E-03	3 0.00E	 7-01	8.73E 02			
	Nb-95 Nb-97	4.47E00 3.75E02	2.49E 00 9.49E-03	1.34E 00 3.46E-03	0.00E-01 0.00E-01	2.46E 00 1.11E-02	) 0.00E	E-01	1.51E04 3.50E01			
	110-77	3.7312.02	7.4710.5	3.401-03	0.002701	1.111-02	2 0.001.	201	- 10-01			

В	eaver V	alley Po	wer Stat	10n		cedure Numb 1/2	2-ODC-2.01
itle:					Uni	t:	Level Of Use:
							General Skill Refere Page Number:
DCM: LIQUI	D EFFLUE	ENTS			Kev	ision: 9	36 of 41
	· · · · · · · · · · · · · · · · · · ·		ATTACH	IMENT B		L.	<u> </u>
			Page				
		INGESTION	Ų	MMITMENT	FACTOR	S	
TABLE 1.3-1							
A _{it} VALUES F	OR THE A	DULT FOR	THE BEAV	ER VALLEY	SITE		
(mrem/hr per u	Ci/ml)						
<u>NUCLIDE</u>	BONE	LIVER	T-BODY	THYROID	<u>KIDNEY</u>	<u>LU</u>	<u>NG</u> <u>GI-LLI</u>
Mo-99	0.00E-01	1.05E 02	2.00E01	0.00E-01	2.38E02	0.00E-	01 2.43E02
Tc-99m	8.97E-03	2.54E-02	3.23E-01	0.00E-01	3.85E-01	1.24E-	
Tc-101	9.23E-03	1.33E-02	1.30E-01	0.00E-01	2.39E-01	6.79E-	03 4.00E-14
Ru-103	4.51E00	0.00E-01	1.94E00	0.00E-01	1.72E01	0.00E-	
Ru-105 Ru-106	3.75E-01 6.70E 01	0.00E-01 0.00E-01	1.48E-01 8.48E.00	0.00E-01 0.00E-01	4.85E00 1.29E02	0.00E- 0.00E-	
KUF100	0./UEU1	0.001	0.40E.00	0.00E-01	1.29£.02	0.00E4	
Ag-110m	9.48E-01	8.77E-01	5.21E-01	0.00E-01	1.72E00	0.00E4	
Sb-124 Sb-125	7.87E00 5.03E00	1.49E-01 5.62E-02	3.12E00 1.20E00	1.91E-02 5.11E-03	0.00E-01 0.00E-01	6.13E( 3.88E(	
Te-125m Te-127m	2.57E03 6.49E03	930E02 232E03	3.44E02 7.90E02	7.72E.02 1.66E.03	1.04E04 2.63E04	0.00E- 0.00E-	
Te-127	1.05E02	3.78E01	2.28E01	7.81E01	4.29E 02	0.00E-	
Te-129m	1.10E04	4.11E03	1.74E03	3.78E 03	4.60E.04	0.00E-	01 5.55E04
Te-129	3.01E01	1.13E01	7.33E00	2.31E01	1.26E 02	0.00E4	
Te-131m	1.66E 03	8.10E02	6.75E02	1.28E 03	8.21E03	0.00E-(	01 8.05E.04
Te-131	1.89E01	7.88E00	5.96E00	1.55E01	827E01	0.00E-	01 2.67E.00
Te-132	2.41E03	1.56E03	1.47E03	1.72E03	1.50E04	0.00E4	
Te-134	3.10E01	2.03E 01	1.25E01	2.71E01	1.96E.02	0.00E-	01 3.44E-02
I-129	1.19E02	1.02E 02	3.35E02	2.63E05	2.19E02	0.00E-	
I-130 I-131	2.75E01 1.51E02	8.10E 01 2.16E 02	3.20E01 1.24E02	6.87E03 7.08E04	1.26E02 3.71E02	0.00E-1 0.00E-1	
I-132 I-133	7.37E00 5.16E01	1.97E 01 8.97E 01	6.90E00 2.74E01	6.90E.02 1.32E.04	3.14E01 1.57E02	0.00E-0 0.00E-0	
I-133 I-134	3.85E00	8.97E01 1.05E01	2.74E01 3.74E00	1.32E04 1.81E02	1.57E 02 1.66E 01	0.00E4	
I-135 Cs-134	1.61E01 2.98E05	4.21E.01 7.09E.05	1.55E01 5.79E05	2.78E03 0.00E-01	6.76E01 2.29E05	0.00E4 7.61E0	
Cs-136	3.12E04	1.23E05	8.86E 04	0.00E-01	6.85E 04	9.39E(	
 Cs-137	3.82E 05	5.22E.05	3.42E.05	0.00E-01	1.77E05	5.89E(	)4 1.01E04
Cs-138	2.64E 02	522E05	2.59E02	0.00E-01	3.84E 02	3.79E0	)1 2.23E-03
Ba-139	9.69E-01	6.90E-04	2.84E-02	0.00E-01	6.45E-04	3.92E-0	04 1.72E00
Ba-140	2.03E 02	2.55E-01	1.33E01	0.00E-01	8.66E-02	1.46E-(	)1 4.18E02
Ba-141	4.71E-01	3.56E-04	1.59E-02	0.00E-01	3.31E-04	2.02E-(	2.22E-10
Ba-142	2.13E-01	2.19E-04	1.34E-02	0.00E-01	1.85E-04	1.24E-(	04 3.00E-19
La-140	1.51E-01	7.59E-02	2.01E-02	0.00E-01	0.00E-01	0.00E-(	
La-142 Ca 141	7.71E-03	3.51E-03	8.74E-04	0.00E-01 0.00E-01	0.00E-01	0.00E-0	
Ce-141	2.63E-02	1.78E-02	2.02E-03	0.002-01	8.26E-03	0.00E-(	

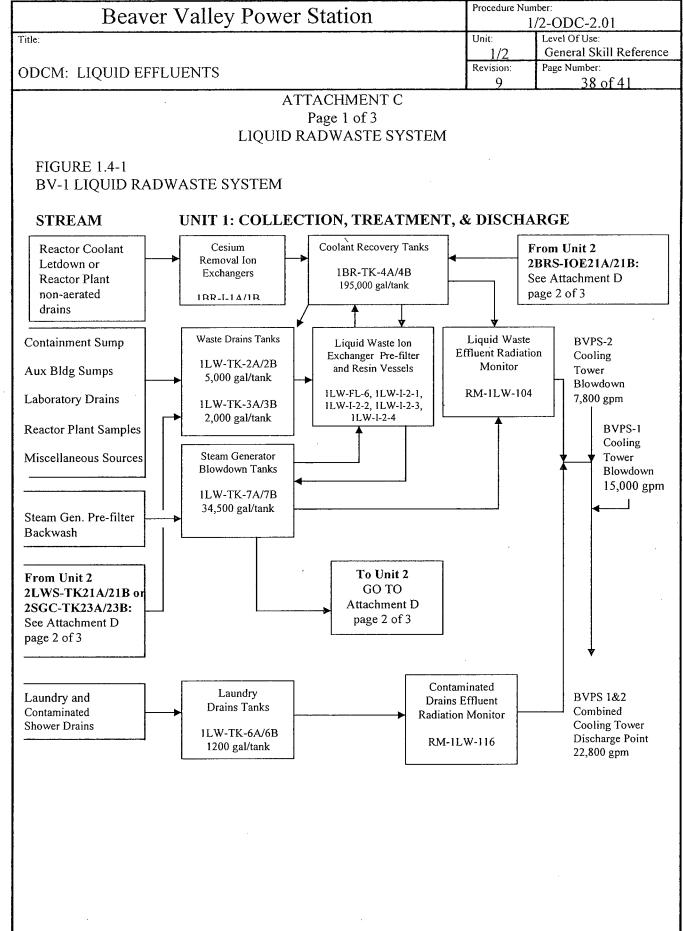
a the first of the second s

----

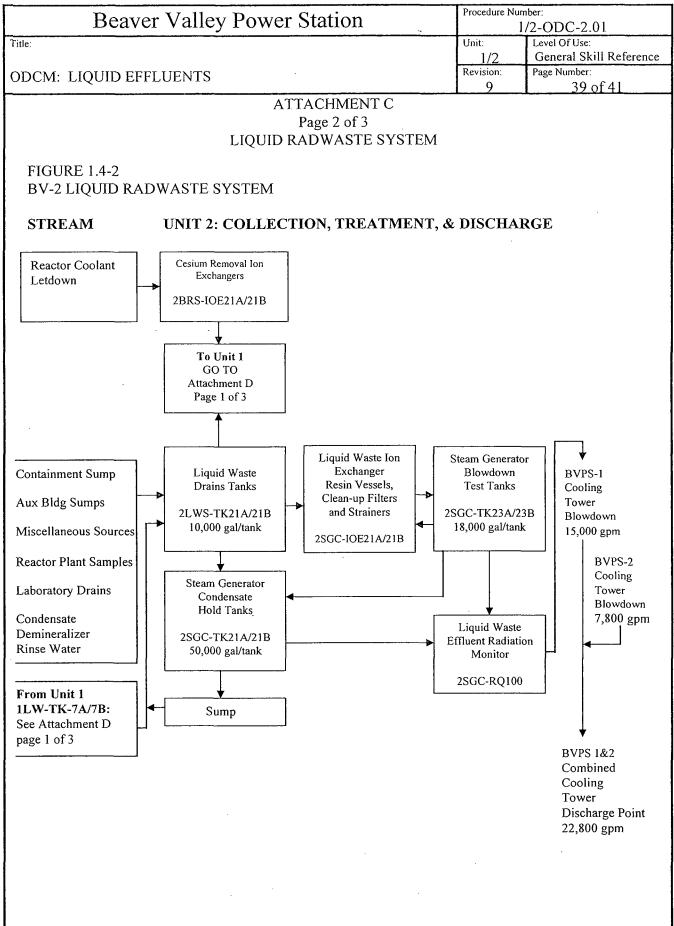
i.

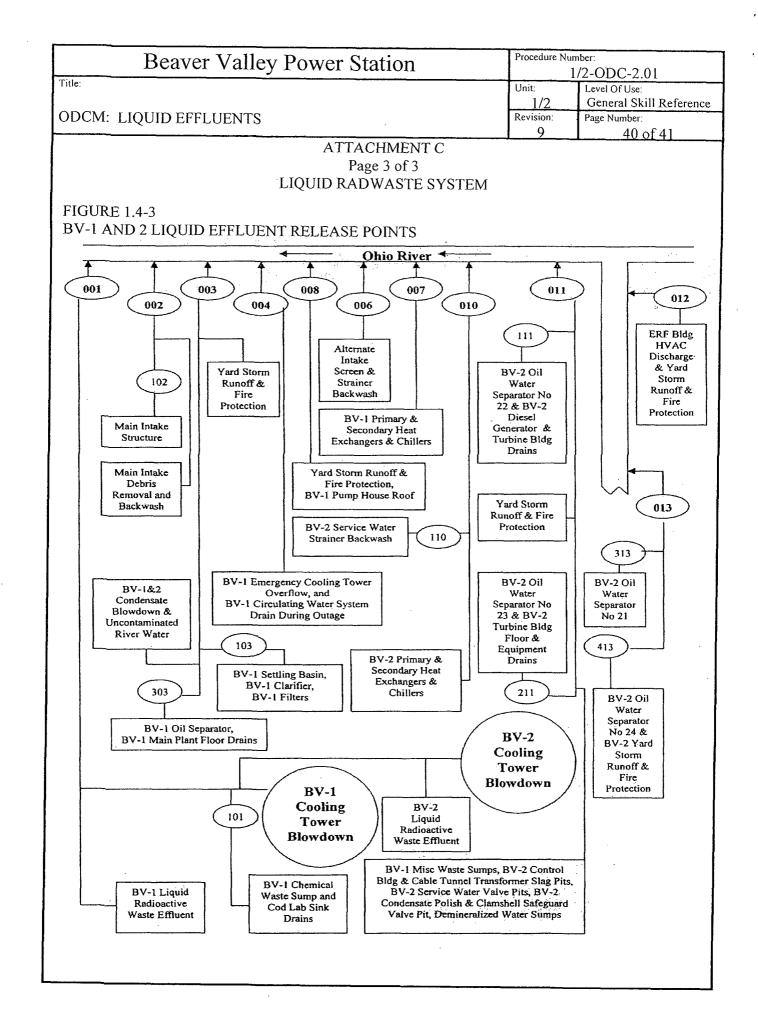
Beaver Valley Power Station						Procedure Number: 1/2-ODC-2.01		
Title:						Unit:	Lev	el Of Use:
						1/2 Revision:		neral Skill Reference e Number:
ODCM: LIQUI	D EFFLUE	NTS				Q	гад	37.of 41
			ATTACH	IMENT B	4			<b>2</b> <u>1</u>
			Page	3 of 3			,	
	I	NGESTION	1 DOSE CON	MMITMENT	FACT	ORS		
TABLE 1.3-1								
A _{it} VALUES F (mrem/hr per u		DULT FOR	THE BEAV	ER VALLEY	SITE			
NUCLIDE	BONE	LIVER	<u>T-BODY</u>	THYROID	<u>KIDN</u>	<u>IEY</u>	<u>LUNG</u>	GI-LLI
Ce-143 Ce-144 Pr-143	4.64E-03 1.37E 00 5.54E-01	3.43E 00 5.73E-01 2.22E-01	3.79E-04 7.36E-02 2.75E-02	0.00E-01 0.00E-01 0.00E-01	1.51E 3.40E 1.28E	-01 0	).00E-01 ).00E-01 ).00E-01	· 4.64E 02
Pr-144 Nd-147 W-187	1.81E-03 3.79E-01 2.96E 02	7.53E-04 4.38E-01 2.47E 02	9.22E-05 2.62E-02 8.65E 01	0.00E-01 0.00E-01 0.00E-01	4.25E 2.56E 0.00E	-01 0	).00E-01 ).00E-01 ).00E-01	2.10E03
 Np-239	2.90E-02	2.85E-03	1.57E-03	0.00E-01	8.89E	-03 0	0.00E-01	5.85E 02

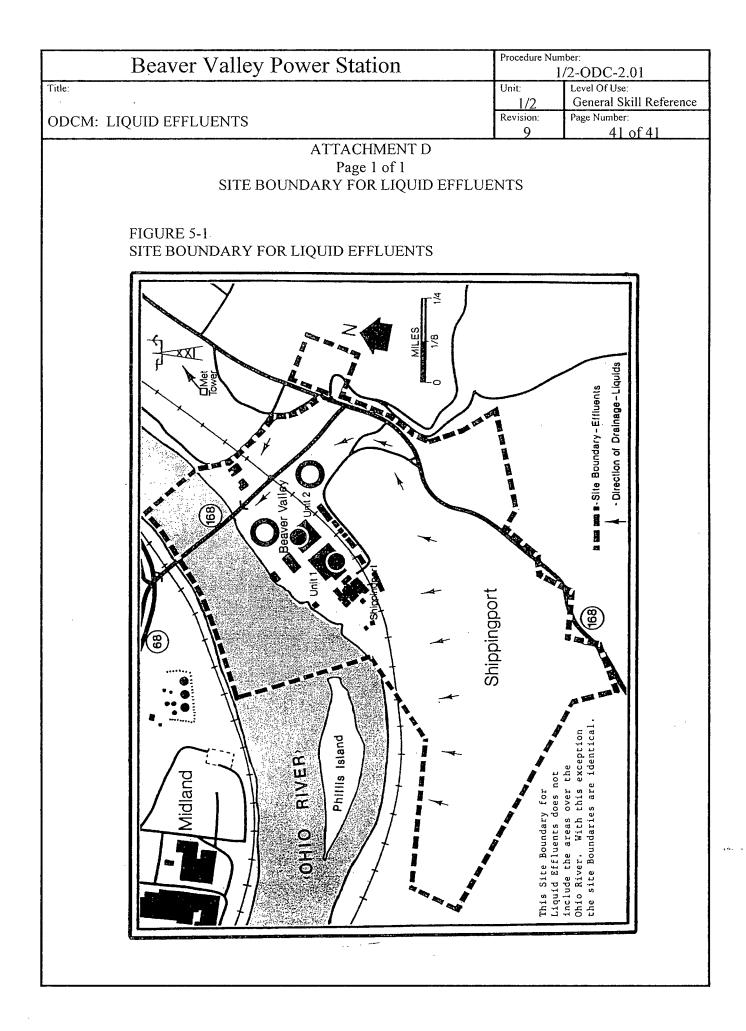
-



_____







# **Beaver Valley Power Station**

(Page 1

of 128)

# **Unit 1/2**

#### 1/2-ODC-2.02

# **ODCM: GASEOUS EFFLUENTS**

# Document Owner Manager, Nuclear Environmental & Chemistry

Revision Number	2		
Level Of Use	In-Field Reference		
Safety Related Procedure	Yes		
Effective Date	08/30/06		

j

1

		Beav	er Valley Power Station	Procedure Nun		
L					/2-ODC-2.02	
Title:				Unit:	Level Of Use: In-Field Reference	
				1/2 Revision:	Page Number:	
lope	(III) $(VI)$					
		<u> </u>		<u> </u>	2 of 128	
			TABLE OF CONTENTS			
1.0	PUR	POSE			4	
2.0						
3.0	REF	ERENCE	S AND COMMITMENTS		4	
	3.1	Referen	ces		4	
	3.2	Commit	tments		6	
4.0	REC	ORDS A	ND FORMS		6	
1	4.1 Records					
	4.2	Forms			6	
5.0						
6.0						
7.0						
8.0						
	8.1	Alarm S	Setpoints		8	
		8.1.1	BV-1 Monitor Alarm Setpoint Determination		8	
}		8.1.2	BV-2 Monitor Alarm Setpoint Determination			
1		8.1.3	BV-1/2 Monitor Alarm Setpoint Determination			
	8.2	Compliar	nce With 10 CFR 20 Dose Rate Limits (ODCM CONTROL 3	3.11.2.1)		
		8.2.1	Dose Rate Due To Noble Gases			
		8.2.2	Dose Rate Due To Radioiodines And Particulate	es	41	
	8.3	Complia	ance With 10 CFR 50 Dose Limits (ODCM CONI	<b>ROLS 3.11</b>	.2.2 And 3.11.2.3)	
	(Gaseous)					
		8.3.1	Dose Due To Noble Gases			
		8.3.2	Dose Due To Radioiodines And Particulates			
	8.4	Gaseou	s Radwaste System			
		8.4.1	BV-1 Gaseous Radwaste System Components			
		8.4.2	BV-2 Gaseous Radwaste System Components			

Beaver Valley Power Station			Procedure Number: 1/2-ODC-2.02		
		Unit: 1/2	Level Of Use: In-Field Reference		
ODCM: GASEOUS	EFFLUENTS	Revision:	Page Number: 3 of 128		
	TABLE OF CONTENTS				
ATTACHMENT A	GASEOUS SOURCE TERM				
ATTACHMENT B	GASEOUS EFFLUENT MONITOR DETI	ECTION EFFIC	CIENCIES7		
ATTACHMENT C	MODES OF GASEOUS RELEASE				
ATTACHMENT D	RADIONUCLIDE MIX				
ATTACHMENT E	DISTANCES TO RELEASE POINTS				
ATTACHMENT F	0-5 MILE DISPERSION PARAMETERS.				
ATTACHMENT G	NOBLE GAS DOSE FACTORS AND DO	SE PARAMET	ERS8		
ATTACHMENT H	ORGAN DOSE PARAMETERS				
ATTACHMENT I	MODES OF GASEOUS RELEASE				
ATTACHMENT J	P&I ORGAN DOSE FACTORS				
ATTACHMENT K	CONTINUOUS RELEASE DEPOSITION	PARAMETER	RS (0-5 MILES) 10		
ATTACHMENT L	CONTINUOUS RELEASE DEPOSITION				
	DISTANCES)		•		
ATTACHMENT M					
	DISTANCES)				
ATTACHMENT N	BATCH RELEASE DISPERSION PARAM				
ATTACHMENT O	GASEOUS RADWASTE SYSTEM	· ·			
ATTACHMENT P	<b>BV-1 AND BV-2 GASEOUS EFFLUENT</b>				
ATTACHMENT Q	SITE BOUNDARY FOR GASEOUS EFFI				

Procedure Number: **Beaver Valley Power Station** 1/2-ODC-2.02 Title: Level Of Use: Unit: In-Field Reference 1/2Revision: Page Number: ODCM: GASEOUS EFFLUENTS 2 4 of 128 1.0 PURPOSE 1.1 This procedure provides the calculational methodology to be used for determination of the following release parameters. Gaseous effluent monitor alarm setpoints 1.1.1 1.1.2 Gaseous effluent dose rate calculations 1.1.3 Gaseous effluent dose calculations 1.2 This procedure also provides information related to the following: 1.2.1 Gaseous Radwaste Treatment System. 1.2.2Site Boundary used for gaseous effluents. 1.3 Prior to issuance of this procedure, these items were located in Section 2 and Section 5 of the old ODCM. 2.0 **SCOPE** 2.1 This procedure is applicable to all station personnel (including subcontractors) that are qualified to perform activities as described and referenced in this procedure. **REFERENCES AND COMMITMENTS** 3.0 3.1 **References** 3.1.1 References for BV-1 Gaseous Effluent Monitor Setpoints 3.1.1.1 Beaver Valley Power Station, Appendix I Analysis - Docket No. 50-334 and 50-412; Table 2.1-3 3.1.1.2 Beaver Valley Power Station, Unit 2 FSAR; Table 11.3-1 3.1.1.3 BVPS Specification No. BVS 414, Table V Nuclide Data,; Table 1 and Figure 1, Table 3, and Figure 2, May 30, 1974 3.1.1.4 Calculation Package No. ERS-SFL-85-031, Unit 1 Gaseous Effluent Monitor Efficiency Data 3.1.1.5 Calculation Package No. ERS-HHM-87-014, Unit 1/Unit 2 ODCM Gaseous Alarm Setpoint Determinations 3.1.1.6 Calculation Package No. ERS-ATL-87-026, BVPS-1 and BVPS-2 ODCM T Factor Justification

•

-

Beaver Valley Power Station			Procedure Number: 1/2-ODC-2.02	
itle:		Unit:	Level Of Use: In-Field Reference	
DCM: GASE	OUS EFFLUENTS	1/2 Revision:	Page Number:	
		2	5 of 128	
3.1.1.7 Letter ND1SHP:776, dated February 12, 1988, BVPS-1 ODCM Appendix B			A Table 2.2-2,	
3.1.1.8	Stone and Webster Calculation No. UR(B)-262, Gaseous Releases From Containment Vacuum Pumps			
3.1.2 Re	ferences for BV-2 Gaseous Effluent Monitor Setpoi	ints		
3.1.2.1	Calculation Package No.ERS-SFL-86-026, Unit	2 DRMS Isoto	pic Efficiencies	
3.1.2.2	Calculation Package No. ERS-HHM-87-014, Ur Alarm Setpoint Determinations	nit 1/Unit 2 OE	DCM Gaseous	
3.1.2.3	Beaver Valley Power Station, Unit 2 FSAR; Tab	ole 11.3-2		
3.1.2.4	Calculation Package No. ERS-ATL-87-026, BVPS-1 and BVPS-2 ODCM T Factor Justification			
3.1.2.5	3.1.2.5 Stone and Webster Calculation No. UR(B)-262, Gaseous Releases From Containment Vacuum Pumps			
3.1.3 Re	ferences Used for other portions of this procedure			
3.1.3.1	NUREG-0133, Preparation of Radiological Efflu Nuclear Power Plants	uent Technical	Specifications for	
3.1.3.2	NUREG-1301, Offsite Dose Calculation Manua Effluent Controls for Pressurized Water Reactor Supplement No. 1)		0	
3.1.3.3	NUREG-0324; XOQDOQ Program for the Meter Releases at Nuclear Power Stations, September		aluation of Routine	
3.1.3.4	NUREG-0017; Calculation of Releases of Radio Liquid Effluents form PWR's Revision 0.	oactive Materia	ls in Gaseous and	
3.1.3.5 Regulatory Guide 1.109, Calculation of Annual Dose to Man from Routine Releases of Reactor Effluents for the Purpose of Implementing Appendix I, Ap 1977				
3.1.3.6	NUREG-0172, Age - Specific Radiation Dose C Chronic Intake	Commitment Fa	actors for a one-year	
3.1.3.7	1/2-ADM-1640, Control of the Offsite Dose Cal	lculation Manu	al	
3.1.3.8	1/2-ADM-0100, Procedure Writers Guide			
3.1.3.9	NOP-SS-3001, Procedure Review and Approval	l		

Beaver Valley Power Station		Procedure Number: 1/2-ODC-2.02		
Title:	······································	Unit: 1/2	Level Of Use: In-Field Reference	
ODCM: GASEOUS EFFLUENTS		Revision: 2	Page Number: 6 of 128	
3.1.3.10	CR03-04830, Containment Vacuum Pump Replacement Increases ODCM Source Term. CA-03, Revise Unit 1 Containment Vacuum Pump Source-Term in ODCM procedure 1/2-ODC-2.02, Attachment A, Table 2.1-1a.			
3.1.3.11	CR 05-01169, Chemistry Action Plan for Transition of RETS, REMP and ODCM. CA-16, Revise procedure 1/2-ODC-2.02 to change document owner from Manager, Radiation Protection to Manager, Nuclear Environmental & Chemistry.			
3.1.3.12	Unit 1 Technical Specification Amendment No. 275 (LAR 1A-302) to License No. DPR-66. This amendment to the Unit 1 license was approved by the NRC on July 19, 2006.			
3.1.3.13 Vendor Calculation Package No. 8700-UR(B)-223, Impact of Atmospheric Containment Conversion, Power Uprate, and Alternative Source Terms on the Alarm Setpoints for the Radiation Monitors at Unit 1.			*	
3.1.3.14	Engineering Change Package No. ECP-04-0440, I	Extended Pov	ver Uprate.	
3.1.3.15	CR 06-04908, Radiation Monitor Alarm Setpoint ODCM procedure 1/2-ODC-2.02 to update the ala radiation monitor for incorporation of the Extended Amendment No. 275.	arm setpoints	of gaseous effluent	
3.2 <u>Comm</u>	<u>itments</u>			
3.2.1 No	ne			
4.0 <u>RECO</u>	RDS AND FORMS			
4.1 <b><u>Record</u></b>	<u>ls</u>			
411 4			• . •	

4.1.1 Any calculation supporting ODCM changes shall be documented, as appropriate, by a retrievable document (e.g.; letter or calculation package) with an appropriate RTL number.

# 4.2 **Forms**

4.2.1 None

# 5.0 **PRECAUTIONS AND LIMITATIONS**

- 5.1 ODCM CONTROLS applicable to dose rate apply to the site. The site dose rate is due to the summation of releases from both units.
- 5.2 ODCM CONTROLS applicable to accumulated dose apply individually to each unit.

	Beaver Valley Power Station	Procedure N	
Title:		Unit:	1/2-ODC-2.02 Level Of Use:
nue.		1/2	In-Field Reference
ODCM: C	GASEOUS EFFLUENTS	Revision: 2	Page Number: 7 of 128
5.3 R	eleases at the Beaver Valley site may be ground level or e	elevated in nati	ure.
5.3.1	All ground level releases are identified with a specific dose rate and dose attributed to that unit.	unit in the det	ermination of site
5.3.2	Elevated releases from both units are considered to ori system and are discharged from a common release poin the BV-1 cooling tower.		
vi O sp	t BV-1 and BV-2, the dose from continuous and batch (G a the shared radwaste system (Process Vent) are normally ther continuous and batch releases via non-shared radwas becific unit. The only exception is a containment purge vi tributed to a specific unit.	y apportioned of ste systems sha	equally to the units. Il be attributed to a
	here is a difference in setpoint terminology presentations vstems of BV-1 and BV-2.	of the radiation	n monitoring
5.5.1	Where HIGH and HIGH-HIGH terminology are used a ALERT and HIGH terminology are used for the BV-1 BV-2 monitors.		-
5.5.2	Also, BV-2 setpoints are presented in uCi/cc rather that difference is due to BV-2 software which applies a cor- data (cpm). The user is cautioned that the uCi/cc prese for the specific isotopic mix used in the determination practice, setpoints determined for a calculated mix are determined on analysis prior to release will be correct but the indicated uCi/cc value may differ from the actu-	nversion factor entation is tech of the convers correct for tha for properly co	to the BV-2 raw nically correct only ion factor. In t mix. Setpoints
5.5.3	All BV-1 and BV-2 effluent monitors specified herein established at 60 percent of the site limit, and Lower A percent of the site limit.		
in	release may be batch or continuous in nature. Batch refe radionuclide concentrations or flow, such as releases frourges and ventings of systems or components with infrequ	m gas storage	
5.6.1	Batch releases may be due to operational variations where greater than 50% of the releases normally considered a		

5.6.2 The batch relative concentration value has been calculated in accordance with the guidelines provided in NUREG-0324^(3.1.3.3) for short-term release.

more than 150 hours in any quarter.

these sources during normal operation, including anticipated operational occurrences, are defined as those which occur for a total of 500 hours or less in a calendar year, but not

Beaver Valley Power Station  Procedure Number: 1/2-ODC-2.0		1.15.15.15.15.15.15.15.15.15.15.15.15.15
Title:	Unit: 1/2	Level Of Use: In-Field Reference
ODCM: GASEOUS EFFLUENTS	Revision: 2	Page Number: 8 of 128

- 5.6.3 IF simultaneous batch and continuous release out of one vent occurs, THEN use the lowest setpoint obtained according to Sections 8.1.1.1 through 8.1.3.2.
- 5.7 This procedure also contains information that was previously contained in Section 5 of the previous BV-1 and BV-2 Offsite Dose Calculation Manual.
  - 5.7.1 In regards to this, the site boundary for gaseous effluents was included in this procedure.
  - 5.7.2 The Site Boundary for Gaseous Effluents is shown in ATTACHMENT P Figure 5-1.

#### 6.0 ACCEPTANCE CRITERIA

- 6.1 All changes to this procedure shall contain sufficient justification that the change will maintain the level of radioactive effluent control required by 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 50.36a, and Appendix I to 10 CFR 50, and not adversely impact the accuracy of effluent dose or alarm setpoint calculation. ^(3.1.3.2)
  - 6.1.1 All changes to this procedure shall be prepared in accordance with 1/2-ADM-0100^(3.1.3.8) and 1/2-ADM-1640. ^(3.1.3.7)
  - 6.1.2 All changes to this procedure shall be reviewed and approved in accordance with NOP-SS-3001^(3.1.3.9) and 1/2-ADM-1640.^(3.1.3.7)

#### 7.0 **PREREQUISITES**

7.1 The user of this procedure shall be familiar with ODCM structure and content.

#### 8.0 **PROCEDURE**

#### 8.1 Alarm Setpoints

#### 8.1.1 **BV-1 Monitor Alarm Setpoint Determination**

ODCM CONTROL 3.11.2.1 require that the dose rate in unrestricted areas due to noble gas radionuclides in the gaseous effluent released from the site shall be limited to  $\leq$  500 mrem/yr to the total body and to  $\leq$  3000 mrem/yr to the skin.

This section describes the methodology used to maintain the release of noble gas radionuclides within ODCM CONTROL 3.11.2.1 for the site, and determines monitor setpoints for BV-1.

The methodologies described in Section 8.1.1.2, 8.1.2.2, and 8.1.3.2 provide an alternate means of determining monitor alarm setpoints that may be used when an analysis is performed prior to release.

Control of the site dose rate limit due to noble gases is shown in the following Table. Dose rate control is exercised through a total of 8 effluent stream monitors, of which 3 are located at BV-1 (alternates exists for these monitors), and 5 are located at BV-2. As previously noted, BV-1 and BV-2 elevated releases are via the PV-1/2 Process Vent.

.

Beaver Valley Power Station			Procedure Number: 1/2-ODC-2.02	
Title:			Level Of Use: In-Field Reference	
ODCM: GASEOUS EFFLUENTS			Page Number: 9 of 128	
Monitor Setpoint Specifi	cations Based On Fraction	Of Site Lim	it	
UNIT RELEASE POINT MONITOR NO.	FRACTION OI Upper Alarm	ON OF SITE LIMITING DOSE RATE Lower Alarm		
(VV-1) Unit 1, Auxiliary Building V Pri.: RM-1VS-101B or Alt.: RM-1VS-109 (5)	/ent 60% (HIGH-HIGH) 60% (HIGH)	30% (HI 30% (AI		
(CV-1) Unit 1, Rχ Containment/SLO Pri.: RM-1VS-107B or Alt.: RM-1VS-110 (5)	/SLCRS Vent 60% (HIGH-HIGH) 30% (HIGH) 60% (HIGH) 30% (ALERT)		-	
(PV-1/2), Unit 1/2, Gaseous Waste/I Pri.: RM-1GW-108B or Alt.: RM-1GW-109 (5)	Process Vent 60% (HIGH-HIGH) 60% (HIGH)	```		
(CV-2), Unit 2, SLCRS Filtered Path 2HVS-RQ109E	(CV-2), Unit 2, SLCRS Filtered Pathway2HVS-RQ109E60% (HIGH)30% (AL)		LERT)	
(VV-2), Unit 2, SLCRS Unfiltered F 2HVS-RQ101B	Pathway 60% (HIGH)	30% (AI	LERT)	
(WV-2), Unit 2, Waste Gas Storage 2RMQ-RQ303B	Vault Vent 60% (HIGH)	30% (AI	LERT)	
(DV-2), Unit 2, Decontamination Bu 2RMQ-RQ301B	uilding Vent 60% (HIGH)	30% (AI	JERT)	
(CB-2), Condensate Polishing Build 2HVL-RQ112B	ing Vent 60% (HIGH)	30% (AI	LERT)	

With the monitor setpoints based on fractions of the site limit as defined above, the following criteria may be applied to determine that the dose rate due to noble gas released from the site complies with ODCM CONTROL 3.11.2.1:

- The site dose rate is 30% of the site dose rate limit when any monitor is indicating a Lower Alarm.
- The site dose rate is 60% of the site dose rate limit when any two monitors are indicating Lower Alarms.
- The site dose rate is 60% of the site dose rate limit when any monitor is indicating an Upper Alarm.
- The site dose rate is 90% of the site dose rate limit when any monitor is indicating an Upper Alarm and any other monitor is indicating a Lower Alarm.

ĝ

The subscription of the second of the

I

	/2-ODC-2.0	12
Unit:	Level Of Use:	
		Reference
2		f 128
ated Mix F	or VV-1 an	<u>d_CV-</u>
n associated Border or 3 (ground (Hl	l with the m 000 mrem/y HSP), and tl	ost r skin). ne
		CROUND
<u>CR</u> 3000 5) 1470 1200 5) 1430 5) 1430 5) 6440 3380 12,700	$60\%$ SITE LIMIT UPPER ALARM $\leq 1800$ $\leq 879$ $\leq 718$ $\leq 860$ $\leq 3870$ $\leq 2030$ $\leq 7630$	$\frac{\text{GROUND}}{30\%}$ $\text{SITE}$ $\text{LIMIT}$ $\text{UPPER}$ $\frac{\text{ALARM}}{\leq 900}$ $\leq 440$ $\leq 359$ $\leq 430$ $\leq 1930$ $\leq 1010$ $\leq 3810$ $\leq 2000$
CONTROL shall be util ons and info a. The gase AS1BB (sim ontainment clude partic ons.	3.3.3.10 is a lized. ormation: ous source to hilar to NUF vacuum pur ulates and is December 3	net for erms XEG- mp odines,
	1/2 Revision: 2ated Mix Fated Mix Frate above b n associated Border or 3 kground (HI SP) for eachND RELEA Cpm AEND RELEA Cpm AEND RELEA Cpm AEND RELEA Cpm AE12005) 1470 12005) 1470 12005) 14306440 5) 3380 12,7005) 6660CONTROL shall be util ons and info a. The gase AS1BB (sim containment clude partic ons.976 through	$1/2$ In-Field $\frac{1}{2}$ Revision:210 oated Mix For VV-1 andrate above background (associated with the mBorder or 3000 mrem/ykground (HHSP), and thSP) for each vent and opJND RELEASEScpm ABOVE BACK60%SITELIMITCRALARM30005)1470287912005)143020305)644020305)12,7005)666064405)12,7005)666064405066606440513380203012,7005066606400CONTROL 3.3.3.10 is not shall be utilized.ons and information:a. The gaseous source the source of th

E	Beaver Valley Power Station		Procedure Number: 1/2-ODC-2.02		
Title:		Unit:	Level Of Use:		
		1/2	In-Field Reference		
ODCM: GAS	EOUS EFFLUENTS	Revision: 2	Page Number: 11 of 128		
٠	Discharge flow rate of 92,000 cfm for a VV-1 Bat This is comprised of 30,000 cfm from the contain				
•	Discharge flow rate of 49,300 cfm for a CV-1 Cor	ntinuous Releas	se.		
•	Discharge flow rate of 56,800 cfm for a CV-1 Bat This is comprised of 7,500 cfm from the containm				
•	Information listed under References for BV-1 Gas	eous Effluent N	Monitor Setpoints.		
	he calculation method given in Sections 8.1.1.1.1 the onitor setpoints for the following operational condit	-	was used to derive the		
•	Continuous release via VV-1.				
•	Continuous release via CV-1.				
•	Batch release of BV-1 Containment Purge via VV	-1.			
•	Batch release of BV-1 Containment Purge via CV	-2.			
8.1.1	.1.1 BV-1 Mix Radionuclides				
	The "mix" (noble gas radionuclides and co was determined as follows:	omposition) of	the gaseous effluent		
	• The gaseous source terms that are repr gaseous effluent were selected. Gased of the noble gas radionuclides in the e obtained from ATTACHMENT A Tal	ous source term ffluent. Gaseo	is are the radioactivity		
	• The fraction of the total radioactivity in noble gas radionuclide "i" (Si) for each the gaseous effluent was determined be	h individual no	<b>4</b>		
	$S_i = \frac{A_i}{\sum_i A_i}$		[2.1(1)-1]		
	where:				
	A _i = The total radioactivity or radioactivity radionuclide "i" in the gaseous efflu Table 2.1-1a.	-			
		ent from ATTA	ACHMENT A		

,

J

, J

1

3

5. . . .

4 1 5

1.g

Beave	er Valley	/ Pc	wer Station	Procedure Ni	umber: 1/2-ODC-2.02
E DCM: GASEOUS				Unit: <u>1/2</u> Revision: 2	Level Of Use: In-Field Reference Page Number: 12 of 128
8.1.1.1.2	BV-1 M:	aximi	ım Acceptable Release Rate		
	The maxi	imum lides i	acceptable total release rate (in the gaseous effluent (Qt) base	uCi/sec) of a	ll noble gas
	$Q_t = \frac{1}{(X/t)}$	$\frac{500}{\text{Q}\sum_{i}}$	K _i S _i		[2.1(1)-2]
	where:				
	(X/Q) _{vv}	-	The highest calculated annual of effluents released via VV- unrestricted area boundary for ATTACHMENT F Table 2.2	-1 for any ar- or all sectors	ea at or beyond the
		=	1.03E-4 sec/m ³ for continuou	us releases.	
	(X/q) _{vv}	=	The highest calculated short effluents released via VV-1 unrestricted area boundary for ATTACHMENT M Table 2.	for any area or all sectors	at or beyond the
			3.32E-4 sec/m ³ for batch rele	ease of conta	inment purge.
	(X/Q) _{cv}	=	The highest calculated annua of effluents released via CV- unrestricted area boundary for ATTACHMENT F Table 2.2	1 for any are	ea at or beyond the
		=	9.24E-5 sec/m ³ for continuou	us releases.	
	(X/q) _{ev}	=	The highest calculated short effluents released via CV-1 f unrestricted area boundary fo ATTACHMENT M Table 2.	or any area a or any sector	at or beyond the
		=	3.08E-4 sec/m ³ for batch rele	ease of conta	inment purge.
	Ki	=	The total whole body dose far from noble gas radionuclide ATTACHMENT G Table 2.2	"i" (mrem/y	
	$S_i$	=	From equation [2.1(1)-1] abo	ove.	
					,

Beav	Beaver Valley Power Station			Procedure Number: 1/2-ODC-2.02		
tle:		- <u></u>	Unit: 1/2	Level Of Use: In-Field Reference		
DCM: GASEOUS	EFFLUENTS		Revision: 2	Page Number: 13 of 128		
8.1.1.1.3	<b>BV-1</b> Maxim	um Acceptable Release Rate	(Skin Expo			
	Qt was also de	etermined based upon the skin	exposure lin	nit by:		
	$Q_t = \frac{1}{(X/Q)\sum_i}$	$\frac{3000}{(L_{i} + 1.1M_{i}) S_{i}}$				
	where:					
	L _i =	The skin dose factor due to b radionuclide "i"(mrem/year/ Table 2.2-11.				
	M _i =	The air dose factor due to ga radionuclide "i"(mrad/year/u Table 2.2-11.				
	1.1 = The ratio of the tissue to air absorption coefficients over the energy range of the photons of interest, (mrem/mrad).					
	(X/Q) =	Same as in Section 8.1.1.1.2				
8.1.1.1.4	BV-1 Maximum Acceptable Release Rate (Individual Radionuclide)					
	the gaseous ef	n acceptable release rate (uCi/seffluent (Qi) for each individual ent was determined by:				
	$Q_i = S_i Q_t$			[2.1(1)-4]		
	NOTE: Use t 8.1.1	he lower of the $Q_t$ values obtain $.1.3$ .	ned in Section	on 8.1.1.1.2 and		
8.1.1.1.5	<b>BV-1 Maximum Acceptable Concentrations (Individual Radionuclide)</b>					
	radionuclide "	n acceptable radioactivity conce i" in the gaseous effluent $(C_i)$ f i" in the gaseous effluent was c	or each indi	vidual noble gas		
	$C_i = \frac{2.12E - 3}{F}$ where:	Q _i		[2.1(1)-5]		
	F · =	The maximum acceptable eff release (cfm) as listed in Sect		ate at the point of		
	2.12E-3 =	Unit conversion factor (60 set	c/min x 3.53	E-5 $ft^3/cc$ ).		

•

J.

Reav	er Valley Power Station	Procedure	
Title:		Unit:	1/2-ODC-2.02 Level Of Use:
ODCM: GASEOUS	EFFLUENTS	1/2 Revision: 2	In-Field Reference Page Number: 14 of 128
8.1.1.1.6	<b>BV-1 Monitor Count Rate</b>	<u></u>	
	The calculated monitor count rate noble gas radionuclide. CR was d		round attributed to the
	$CR = \sum_{i} C_{i} E_{i}$		[2.1(1)-6)]
	where:		
	E _i = The detection efficiency of th (cpm/uCi/cc) from ATTACH	•	
8.1.1.1.7	<b>BV-1 Monitor Setpoints</b>		
	The monitor alarm setpoints above	e background were de	etermined as follows:
	• The monitor HIGH-HIGH Ala determined by:	rm Setpoint above ba	ackground (ncpm) was
	HHSP = 0.60  x CR		[2.1(1)-7]
	• The monitor HIGH Alarm Set determined by:	point above backgrou	ind (ncpm) was
	$HSP = 0.30 \times CR$		[2.1(1)-8]
	NOTE: The values 0.60 for the F the total radioactivity commonitored pathway to en exceeded due to simultar	ncentration that may sure that the site bou	be released via the ndary limit is not
	<u>V-1 Setpoint Determination Based O</u> d CV-1 Ground Releases	On Analysis Prior To	Release For VV-1
pro be an ap ma	hen the setpoints established using "the ovide adequate flexibility for operation used in lieu of that set forth in Step 8. alysis are used to determine the source plies to gaseous releases via VV-1 and aximum acceptable discharge flow rate tpoint based on this flow rate during the	nal needs, the method 1.1.1. In this case, the term "mix." This ca 1 CV-1 when determine and the associated H	I described below may ne results of sample alculational method ning the setpoint for the IIGH-HIGH Alarm
•	Batch release of Containment Purge	via VV-1.	
•	Batch release of Containment Purge	via CV-1.	

8.1.1.2.1 BV-1 Maximum Acceptable Release Rate

Beaver Valley Power Station			Procedure N	Procedure Number: 1/2-ODC-2.02		
Fitle:		·	Unit: 1/2	Level Of Use: In-Field Reference		
ODCM: GASEO	US EFFLUENT	ſS	Revision:	Page Number:		
		-	2	15 of 128		
		imum acceptable discharge flo is determined as follows:	w rate from VV-	1 and CV-1 during		
	CV-	maximum acceptable gaseous o 1 (cfm) during purging based u ilated by:	~	.,		
	$f = \frac{1}{6}$	$\frac{1.06 \text{ S T}}{(X/q) \sum K_i C_i}$		[2.1(1)-17]		
	where:	1				
-	1.06	= 500 mrem/yr x 2.12E-3				
		500  mrem/yr = dose rate	limit			
			version factor nin x 3 53E-5 ft ³ /	cc)		
	S	<ul> <li>Percent of site dose rate re the site dose rate is permis alarm set point rules of Se</li> </ul>	ssible for one rele	<b>.</b>		
	Т	<ul> <li>Maximum valve for T is 1 ODCM CONTROL 3.11.1 containment purge may be exceed 960 minutes. (As period is 60 minutes; T =</li> </ul>	2.1 where the dos e averaged over a containment air v	se rate for a time period not to volume change time		
	(X/q) _{vv}	The highest calculated sho effluents released via VV- unrestricted area boundary ATTACHMENT M Table	-1 for any area at y for all sectors (s	or beyond the		
		$= 3.32\text{E-4 sec/m}^3$				
	(X/q) _{ev}	The highest calculated sho effluents released via CV- area boundary for all sector Table 2.3-37.	1 for areas at or l	beyond the unrestricted		
		$= 3.08\text{E-4 sec/m}^3$				
	Ki	<ul> <li>The total whole body dose noble gas radionuclide "i" ATTACHMENT G Table</li> </ul>	(mrem/year/uCi/			

Beaver Valley Power Station	Procedure Nu	mber: 1/2-ODC-2.02
Title:	Unit:	Level Of Use:
ODCM: GASEOUS EFFLUENTS	1/2 Revision:	In-Field Reference Page Number:
	. 2	16 of 128
C _i = The undiluted radioactivity con radionuclide "i" in the gaseous analysis of the gas to be releas	source (uCi/	- 1
• The flow rate (f) is also determined based follows:	upon the skin	exposure limit as
$f = \frac{6.36 \text{ S T}}{(X/q) \sum_{i} (L_{i} + 1.1 M_{i}) C_{i}}$		[2.1(1)-18]
where:		
6.36 = 3000  mrem/yr x  2.12E-3		
3000  mrem/yr = dose rate limit	t .	
2.12E-3 = unit conversion= (60 sec/min x)	-	c)
L _i = The skin dose factor due to beta en radionuclide "i" (mrem/year/uCi/n 2.2-11.		
M _i = The air dose factor due to gamma radionuclide "i" (mrad/year/uCi/m 2.2-11.		
(X/q) = Same as above.		
• The flow rate (f) is determined by selecting values based on the whole body exposure 1 shown above. The actual purge flow rate (below this calculated (f) value or the discharge	imit, or the sl cfm) must be	cin exposure limit maintained at or
8.1.1.2.2 <b>BV-1 Monitor Setpoints</b>		
The monitor alarm setpoints above backgrou	and are deterr	nined as follows:
• The calculated monitor HIGH-HIGH Alarr (ncpm) attributed to noble gas radionuclide	-	-
HHSP = $\frac{f \sum_{i} C_{i} E_{i}}{F'}$ where:		[2.1(1)-19]

f = The maximum acceptable gaseous discharge flow rate (cfm) determined in Section 8.1.1.2.1.

Beaver Valley Power Station	Procedure N	umber: 1/2-ODC-2.02
Title:	Unit: 1/2	Level Of Use: In-Field Reference
ODCM: GASEOUS EFFLUENTS	Revision: 2	Page Number: 17 of 128
F' = The maximum actual or design of release.	effluent flow ra	tte (cfm) at the point
= 92,000 cfm for VV-1		
= 56,800 cfm for CV-1		
C _i = The undiluted radioactivity cond "i" in the gaseous source (uCi/co gas to be released.		
$E_i$ = The detection efficiency of the r (cpm/uCi/cc) from ATTACHM		
• When a HIGH-HIGH set point has be section, the monitor HIGH Alarm Set determined as follows:		-
$HSP = HHSP \ge 0.5$		[2.1(1)-20]
8.1.2 <b>BV-2 Monitor Alarm Setpoint Determination</b>		
See Section 8.1.1 for a description of Monitor Alarm	Setpoint Deterr	ninations.
8.1.2.1 BV-2 Setpoint Determination Based On A Ca	alculated Mix	For VV-2, CV-2,

1.2.1 <u>BV-2 Setpoint Determination Based On A Calculated Mix For VV-2, CV-2,</u> <u>DV-2, WV-2 and CB-2 Ground Releases.</u>

The table below gives the calculated monitor count rate above background (CR) in ncpm, and provides the equivalent monitor indication (DV) in net uCi/cc associated with the most limiting site dose rate limit (i.e., 500 mrem/yr Total Body or 3000 mrem/yr Skin). The HIGH alarm setpoint (HSP) in uCi/cc above background, and the ALERT alarm setpoint (ASP) in uCi/cc above background for each vent and operational condition shall be as follows:

ć,

2.22

i t

ļ.

	Beaver Valley Powe	r Station		Procedure	Number: 1/2-ODO	C-2.02
				Unit:	Level Of	Use:
~~~				1/2 Revision:	Page Nu	Field Reference
CM:	GASEOUS EFFLUENTS			2		18 of 128
	BV2 ALARM SET	DODITE FOD CD		LEACES	-,,	
	BV2 ALARIVI SET	POINTS FOR GRO			/E BACKG	ROUND
		• •	uci		otherwise s	
				`	60%	30%
					SITE	SITE
					LIMIT	LIMIT
		MONITOD	CR	DV	UPPER	LOWER
		MONITOR	<u>ncpm</u>	<u>DV</u>	ALARM	<u>ALARM</u>
•	Continuous Release Via The BV-2 SLCRS Unfiltered Pathway (VV-2)	2HVS- RQ101B	8260	3.01E-4	≤ 1.81E-4	≤ 9.04E-5
•	Batch Release Of Containment Purge Via The BV-2 SLCRS Unfiltered Pathway (VV-2)	2HVS-RQ101B	2020	7.39E-5	≤ 4.43E-5	≤ 2.22E-5
•	Continuous Release Via The BV-2 SLCRS Filtered Pathway (CV-2)	2HVS-RQ109E	4320	2940 µCi/sec	≤ 1770 μ Ci/sec	≤ 883 µCi/sec
•	Batch Release Of Containment Purge Via The BV-2 SLCRS Filtered Pathway (CV-2)	2HVS-RQ109E	16,400	1130 μCi/sec	≤ 676 µCi/sec	≤ 338 µCi/sec
•	Continuous Release Via The BV-2 Condensate Polishing Building Vent (CB-2)	2HVL-RQ112B	28,900	1.61E-3	≤ 9.63 E- 4	≤ 4.82E-4
•	Continuous Release Via The BV-2 Decontamination Building Vent (DV-2)	2RMQ-RQ301B	56,600	3.15E-3	≤ 1.89E-3	≤9.44E-4
•	Continuous Release Via The BV-2 Waste Gas Storage Vault Vent (WV-2)	2RMQ-RQ303B	912,000	2.58E-2	≤ 1.55E-2	≤7.74E-3

Beaver Valley Power Station	Procedure Nu	umber: 1/2-ODC-2.02
Title:	Unit:	Level Of Use: In-Field Reference
ODCM: GASEOUS EFFLUENTS	1/2 Revision: 2	Page Number: 19 of 128
The setpoints were determined using the fo	ollowing conditions a	
• Source terms given in ATTACHMENT terms were derived from Stone & Web NUREG-0017) ^(3.1.3.4) and computer coor vacuum pump sources). ATTACHME particulates and iodines, which are not calculations.	ster computer code (de DRAGON 4 (for 1 NT A Table 2.1-1b (GAS1BB (similar to the containment does not include
• The Containment Building Purge radio of determining an alarm setpoint for the of the proximity of the contiguous area	e SLCRS Unfiltered	
• The Decontamination Building and Co exhaust are not expected to be radioact determining an alarm setpoint, it is con ventilation exhaust at concentrations th rate limits.	ive. However, for p servatively assumed	urposes of that Xe-133 is in the
• The Waste Gas Storage Vault ventilation radioactive. However, the monitor alar the ventilation exhaust radionuclide spa- in the system housed by the waste gas ATTACHMENT A Table 2.1-1b under	rm setpoint is based ectrum is similar to t storage vault. This s	on the assumption that he gaseous inventory pectrum is listed in
Onsite meteorological data for the peri- 1980.	od January 1, 1976 t	hrough December 31,
• Discharge flow rate of 23,700 cfm for	a VV-2 Continuous I	Release.
 Discharge flow rate of 53,700 cfm for Purge. This is comprised of 30,000 cfm cfm from the CV-2. 		
• Discharge flow rate of 59,000 cfm for	a CV-2 Continuous I	Release.
 Discharge flow rate of 59,000 cfm for Purge. This is comprised of 7,500 cfm cfm from CV-2. 		
• Discharge flow rate of 30,556 cfm for	a CB-2 Continuous I	Release.
• Discharge flow rate of 12,400 cfm for	DV-2 Continuous Re	elease.
• Discharge flow rate of 2,000 cfm for W	VV-2 Continuous Re	lease.

Beaver Valley Power Station	Procedure Number: 1/2-ODC-2.02			
Title:	Unit: 1/2	Level Of Use: In-Field Reference		
ODCM. GASEOUS EFFLUENTS	Revision: 2	Page Number: 20 of 128		
• Information listed under References for BV-2 Setpoints.	Gaseous Eff	uent Monitor		
The calculation method given in Sections 8.1.2.1.1 derive the alarm setpoints for the following operat	•			
• Continuous release via VV-2.				
• Continuous release via CV-2.				
• Batch release of BV-2 Containment Purge via	VV-2.			
• Batch release of BV-2 Containment Purge via	CV-2.			
Continuous release via CB-2.				
Continuous release via DV-2.				
Continuous release via WV-2.				
8.1.2.1.1 BV-2 Mix Radionuclides				
The "mix" (noble gas radionuclides and com was determined as follows:	position) of	the gaseous effluent		
• The gaseous source terms that are repres gaseous effluent were selected based on and volumetric flowrate. Gaseous sourc noble gas radionuclides in the effluent. obtained from ATTACHMENT A Table	the relative s e terms are tl Gaseous sour	tream composition ne radioactivity of the		
• The fraction of the total radioactivity in t noble gas radionuclide "i" (Si) for each in the gaseous effluent was determined by:				
$S_i = \frac{A_i}{\sum\limits_i A_i}$		[2.1(2)-1]		
where:				
A _i = The radioactivity concentration of no gaseous effluent (for VV-2, CV-2 an A Table 2.1-1b. However, <u>SINCE</u> re have a valid source term mix. THEN	nd WV-2) is f eleases via C	rom ATTACHMENT B-2 and DV-2 do not		

concentration is assumed to be Xe-133.

ĉ

Beav	Beaver Valley Power Station		ower Station	Procedure Nu	umber: 1/2-ODC-2.02
ïtle:		<u></u>		Unit: 1/2	Level Of Use: In-Field Reference
DDCM: GASEOUS	EFFLUENT	S		Revision: 2	Page Number: 21 of 128
8.1.2.1.2	BV-2 Maximum Acceptable Release Rate (Whole Body Exposure)				
	radionucl	lide	m acceptable total release rate (up s in the gaseous effluent (Q_t) base culated by:		-
	$Q_t = \frac{1}{(X/t)}$	50 Q) 2	$\frac{00}{\sum_{i} \mathbf{K}_{i} \mathbf{S}_{i}}$		[2.1(2)-2]
	where:				
	(X/Q) _{vv}	=	The highest calculated annual aveffluents released via VV-2 for a unrestricted area boundary for al ATTACHMENT F Table 2.2-5.	any area at	or beyond the
		=	1.03E-4 sec/m ³ for continuous re	eleases.	
	(X/q) _{vv}	Ξ	The short term relative concentrative vV-2 for any area at or beyond all sectors (sec/m ³) from ATTAC	the unrestri	cted area boundary fo
		=	3.32E-4 sec/m ³ for batch release	of contain	ment purge.
	(X/Q) _{cv}	-	The highest calculated annual av effluents released via CV-2 for a unrestricted area boundary for al ATTACHMENT F Table 2.2-4.	any area at	or beyond the
		-	9.24E-5 sec/m ³ for continuous re-	eleases.	
	(X/q) _{cv}	=	The short term relative concentr CV-2 for any area at or beyond all sectors (sec/m ³) from ATTA	the unrestri	cted area boundary fo
		=	3.08E-4 sec/m^3 for batch release	of contain	ment purge.
	(X/Q) _{cp}	=	The highest calculated annual aveffluents released via CB-2 for a unrestricted area boundary for a ATTACHMENT F Table 2.2-10	any area at o ll sectors (s	or beyond the
		=	7.35E-5 sec/m ^{3} for continuous re	eleases.	

Beav	er Valle	y F	Power Station	Procedure Nur	mber: 1/2-ODC-2.02
itle:	····			Unit: 1/2	Level Of Use: In-Field Reference
DCM: GASEOUS	EFFLUEN	TS		Revision: 2	Page Number: 22 of 128
	(X/Q) _{dv}	. =	The highest calculated annual ave effluents released via DV-2 for an unrestricted area boundary for all ATTACHMENT F Table 2.2-8.	ny area at c	ve concentration of or beyond the
		=	9.24E-5 sec/m ³ for continuous rel	leases.	
	(X/Q) _{w1}	, =	The highest calculated annual ave effluents released via WV-2 for a unrestricted area boundary for all ATTACHMENT F Table 2.2-9.	ny area at o	or beyond the
		=	9.24E-5 sec/m ^{3} for continuous rel	eases.	
	K _i	=	The total whole body dose factor noble gas radionuclide "i" (mrem. ATTACHMENT G Table 2.2-11.	/year/uCi/n	
	S_i	=	From equation [2.1(2)-1].		
8.1.2.1.3	<u>BV-2 Maximum Acceptable Release Rate (Skin Exposure)</u>				
	Qt was a	also	determined based upon the skin exp	posure limi	t by:
	-		determined based upon the skin exp $\frac{3000}{\sum_{i} (L_{i} + 1.1M_{i}) S_{i}}$	posure limi	t by: [2.1(2)-3]
	-		-	posure limi	-
	$Q_t = \frac{1}{(X)}$		-	emissions fi	[2.1(2)-3]
	$Q_t = \frac{1}{(X)}$ where:		$\frac{3000}{\sum_{i} (L_{i} + 1.1M_{i}) S_{i}}$ The skin dose factor due to beta e radionuclide "i"(mrem/year/uCi/n	emissions fi n ³) from A' emissions	[2.1(2)-3] rom noble gas TTACHMENT G from noble gas
	$Q_t = \frac{1}{(X)}$ where: L_i	(/Q) =	$\frac{3000}{\sum_{i} (L_{i} + 1.1M_{i}) S_{i}}$ The skin dose factor due to beta e radionuclide "i"(mrem/year/uCi/m Table 2.2-11. The air dose factor due to gamma radionuclide "i"(mrad/year/uCi/m	emissions fr n ³) from A' emissions ³) from AT ption coeff	[2.1(2)-3] Form noble gas TTACHMENT G from noble gas TTACHMENT G Accients over the

đ

5

j

31947

Contraction of the

d,

Beave	er Valley Power Station	Procedure N	umber: 1/2-ODC-2.02
Title:		Unit:	Level Of Use:
		1/2 Revision:	In-Field Reference Page Number:
DDCM: GASEOUS	EFFLUENIS	2	23 of 128
8.1.2.1.4	BV-2 Maximum Acceptable Release Ra	<u>ate (Individual</u>	Radionuclide)
	The maximum acceptable release rate (up in the gaseous effluent (Q_i) for each nobl effluent was determined by:		-
	$Q_i = S_i Q_t$		[2.1(2)-4]
	NOTE: Use the lower of the Q _t values of 8.1.2.1.3.	btained in Sect	ion 8.1.2.1.2 and
8.1.2.1.5	BV-2 Maximum Acceptable Concentra	tions (Individu	al Radionuclide)
	The maximum acceptable radioactivity corradionuclide "i" in the gaseous effluent (or radionuclide in the gaseous effluent was	Ci) for each ind	
	$C_i = \frac{2.12E - 3 Q_i}{F}$		[2.1(2)-5]
	where:		
	F = The maximum acceptable et (cfm) as listed in Section 8.1		e at the point of release
	2.12E-3 = Unit conversion factor (60 s	ec/min x 3.53E	-5 ft ³ /cc).
8.1.2.1.6	BV-2 Monitor Count Rate	,	
	The calculated monitor count rate (ncpm) noble gas radionuclide (CR) was determi		ound attributed to the
	$CR = \sum_{i} C_{i} E_{i}$		[2.1(2)-6)]
	where:		
	Ei = The detection efficiency of the r (cpm/uCi/cc) from ATTACHM		

Beaver Valley Power Station		Procedure Number: 1/2-ODC-2.02		
Title:	Unit: 1/2	Level Of Use: In-Field Reference		
ODCM: GASEOUS EFFLUENTS	Revision: 2	Page Number: 24 of 128		

8.1.2.1.7 BV-2 Monitor Setpoints

The monitor alarm setpoints above background were determined as follows:

• The monitor HIGH Alarm Setpoint above background (uCi/cc) was determined by:

HSP =
$$\frac{0.60 \text{ x CR}}{E_{i \text{ ave}}}$$
 [2.1(2)-7]

where;

- $E_{i ave}$ = The CR of equation [2.1(2)-6] divided by the sum of the C_i for the respective mix.
- The monitor ALERT Alarm Setpoint above background (uCi/cc) was determined by:

$$ASP = \frac{0.30 \text{ x CR}}{E_{i \text{ ave}}}$$
[2.1(2)-8]

8.1.2.2 <u>BV-2 Setpoint Determination Based On Analysis Prior To Release for VV-2</u> and CV-2 Ground Releases

When the setpoints established using "the calculated mix" do not provide adequate flexibility for operational needs, the method described below may be used in lieu of that set forth in Section 8.1.2.1. In this case, the results of sample analysis are used to determine the appropriate nuclide mix. This calculational method applies when determining the setpoint for the maximum acceptable discharge flow rate and the associated HIGH Alarm Setpoint based on respective vent flow rate during the following operational conditions:

- Batch release of Containment Purge via VV-2.
- Batch release of Containment Purge via CV-2.

2-ODC-2.02 Level Of Use: In-Field Reference Page Number: 25 of 128 or CV-2 during (f) from VV-2 or exposure limit is [2.1(2)-17]
Page Number: 25 of 128 or CV-2 during (f) from VV-2 or exposure limit is
or CV-2 during (f) from VV-2 or exposure limit is
(f) from VV-2 or exposure limit is
(f) from VV-2 or exposure limit is
exposure limit is
[2.1(2)-17]
exposure
c)
way. Up to 60% of e point under the
ting restriction in rate for a me period not to ume change time
centration of beyond the /m ³) from
centration of beyond the /m ³) from

į

ł

1

1.000

4

Be	aver Valley Power Station	Procedure 1	Number: 1/2-ODC-2.02
itle:	DUS EFFLUENTS	Unit: 1/2 Revision:	Level Of Use: In-Field Reference Page Number:
		2	26 of 128
	K _i = The total whole body noble gas radionuclic ATTACHMENT G	le "i" (mrem/year/uCi	
	C _i = The undiluted radioa radionuclide "i" in th analysis of the gas to	e gaseous source (uC	of noble gas i/cc) as determined by
	• The flow rate (f) is also determ follows:	ined based upon the s	skin exposure limit as
	$f = \frac{6.36 \text{ S T}}{(X/q) \sum_{i} (L_{i} + 1.1M_{i}) C_{i}}$		[2.1(2)-18]
	where:		
	6.36 = 3000 mrem/yr x 2.12E-3		
·	3000 mrem/yr = dose r	ate limit, skin exposu	re
		onversion factor c/min x 3.53E-5 ft ³ /co	c)
	L _i = The skin dose factor due radionuclide "i" (mrem/y 2.2-11.		
	M _i = The air dose factor due to radionuclide "i" (mrad/ye 2.2-11.		
	(X/q) = Same as above.		
	• The flow rate (f) is determined values based on the whole body shown above. The actual purg below this calculated (f) value vent.	y exposure limit, or th e flow rate (cfm) mus	he skin exposure limit t be maintained at or

.~

Beave	er Valley P	Procedure Number: 1/2-ODC-2.02			
e:				Unit: 1/2	Level Of Use: In-Field Reference
DCM: GASEOUS	EFFLUENTS			Revision: 2	Page Number: 27 of 128
8.1.2.2.2	BV-2 Monit	or Se	etpoints		
	The monitor	alarn	n setpoints above backgroun	d are deten	mined as follows:
			l monitor HIGH Alarm Setp tted to the noble gas radionu		
	$HSP = \frac{f \sum_{i} C}{F' E}$	$E_i E_i$	·		[2.1(2)-19]
	where:				
	f	=	The maximum acceptable (cfm) determined in Sectio		
	F'	=	The maximum actual or de the point of release.	sign effluer	nt flow rate (cfm) at
		=	53,700 cfm for VV-2		
		-	59,000 cfm for CV-2		
	C _i	=	The undiluted radioactivity radionuclide "i" in the gase determined by analysis of t	ous source	(uCi/cc) as
	Ei	=	The detection efficiency of radionuclide "i" (cpm/uCi/e Table 2.1-2b.		
	$E_{i ave}$	=	The CR of equation [2.1(2) for the respective mix.	-6] divided	l by the sum of the C
	uCi "ca ave a mo	i/cc in lcula above nitor	le maintaining a constant co n the Digital Radiation Moni- ted mix" is used rather than e. This does not cause any c setpoint to properly control d uCi/cc value may differ fro	toring Syst the analysis hange in th dose rate.	tem software, the s mix to calculate E _i te function of the However, the monito
	section, the	he m	I Alarm Setpoint has been ca onitor ALERT Alarm Setpoi rmined as follows:		-
	ASP = H	SP x	0.5		[2.1(2)-20]

ł

÷

]	Beaver Valley Power	r Station	Procedure N	Jumber: 1/2-ODC-2.	02
l'itle:			Unit:	Level Of Use:	
DDCM: GAS	EOUS EFFLUENTS		1/2 Revision: 2	Page Number:	Reference
8.1.3 <u>H</u>	8V-1/2 Monitor Alarm Setpoi	int Determination			
S	ee Section 8.1.1 for a descripti	on of Monitor Alarm Set	point Deter	mination.	
8.1.3.1	<u>BV-1/2 Setpoint Determ</u> Elevated Releases	ination Based On A Ca	lculated Mi	ix For PV-1/	2
	The calculated monitor co HIGH-HIGH alarm setpoint alarm setpoint above back the following Table:	int above background (H	HSP), and t	he monitor H	IGH
	BV-1/2 ALAI	RM SETPOINTS FOR E		RELEASES BOVE BACI	
	-	(P)PRIMARY* <u>MONITOR</u> (A)ALTERNATE <u>MONITOR</u>	CR	60% SITE LIMIT UPPER <u>ALARM</u>	30% SITE LIMIT LOWEF <u>ALARN</u>
	Continuous Release	(P)RM-1GW-108B (A)RM-1GW-109(5)	3.49E7 2.61E7	≤ 3.60E5 ≤ 3.60E5	≤ 1.20E ≤ 1.20E
	 Batch Release Of BV-1 Decay Tanks or BV-2 Storage Tanks 	(P)RM-1GW-108B (A)RM-1GW-109(5)	3.93E5 7.87E6	≤ 2.36E5 ≤ 3.60E5	≤ 1.18E ≤ 1.20E
	* <u>IF</u> the primary monitor is for the respective alterna	s out of service, <u>THEN</u> C ate monitor. The alternat			
	The setpoints were determ flow rate of 1450 cfm for		nix from the	e FSAR and o	lischarge
	The calculational method following operational con		e the monito	or setpoints fo	or the
	• Continuous release via	a PV-1/2.			
	• Batch release of BV-1	or BV-2 Waste Gas Dec	ay Tank via	a PV-1/2.	
	 Batch release of PV 1 	or RV-2 Containment P	urge via DV	-1/2 is not sh	own in

÷

• Batch release of BV-1 or BV-2 Containment Purge via PV-1/2 is not shown in the above table. However, if it is necessary to perform a BV-1 or BV-2 Containment Purge via this release point, the alarm setpoint shall be calculated in accordance with Section 8.1.3.2.

8.1.3.1.1 BV-1/2 Mix Radionuclides

The "mix" (noble gas radionuclides and composition) of the gaseous effluent was determined as follows:

Beaver Valley Power Station		Procedure Number: 1/2-ODC-2.02		
Title:	Unit: 1/2	Level Of Use: In-Field Reference		
ODCM: GASEOUS EFFLUENTS	Revision: 2	Page Number: 29 of 128		

- The gaseous source terms that are representative of the "mix" of the gaseous effluent were evaluated. Gaseous source terms are the radioactivity of the noble gas radionuclides in the effluent. The gaseous source terms can be obtained from ATTACHMENT A Tables 2.1-1a. and 2.1-1b.
- The fraction of the total radioactivity in the gaseous effluent comprised by noble gas radionuclide "i" (Si) for each individual noble gas radionuclide in the gaseous effluent was calculated by:

$$S_i = \frac{A_i}{\sum\limits_i A_i}$$
[2.1-9]

where:

A_i = The total radioactivity or radioactivity concentration of noble gas radionuclide "i" in the gaseous effluent from ATTACHMENT A Table 2.1-1a and 2.1.1b.

8.1.3.1.2 BV-1/2 Maximum Acceptable Release Rate (Whole Body Exposure)

The maximum acceptable total release rate (uCi/sec) of all noble gas radionuclides in the gaseous effluent (Q_t) based upon the whole body exposure limit was determined by:

$$Q_{t} = \frac{500}{\sum_{i} V_{i} S_{i}}$$
[2.1.10]

where:

- V_i = The constant for noble gas radionuclide "i" accounting for the gamma radiation from the elevated finite plume (mrem/year/uCi/sec) from ATTACHMENT G Table 2.2-12.
- S_i = From equation [2.1-9]

8.1.3.1.3 BV-1/2 Maximum Acceptable Release Rate (Skin Exposure)

Qt was also determined based upon the skin exposure limit as follows:

$$Q_{t} = \frac{3000}{\sum_{i} [L_{i}(X/Q)_{pv} + 1.1B_{i}]S_{i}}$$
[2.1-11]

where:

ì

J

: ť

A CONTRACT AND CONTRACT

;

J

ť,

	Beaver	r Valle	y F	Power Station	Procedure Ni	umber: 1/2-ODC-2.02
Title:					Unit: 1/2	Level Of Use: In-Field Reference
DDCM:	GASEOUS E	FFLUENT	۲ S		Revision: 2	Page Number: 30 of 128
		L _i		The skin dose factor due to beta e radionuclide "i"(mrem/year/uCi/r Table 2.2-11.	emissions f n ³) from A	from noble gas ATTACHMENT G
	• •	(X/Q) _{pv}	=	The highest calculated annual ave effluents releases via PV-1/2 for a unrestricted area boundary for all ATTACHMENT F Table 2.2-6.	any area at	or beyond the
			=	$2.31\text{E-6 sec/m}^3 (0.5 - 1.0 \text{ miles})$		
		(X/q) _{pv}	=	The highest calculated short term effluents released via PV-1/2 for unrestricted area boundary for all ATTACHMENT N Table 2.3-38	any area a sectors (s	t or beyond the
			=	$1.07\text{E-5 sec/m}^3 (0.5 - 1.0 \text{ miles})$		
		Bi	=	The constant for long term release noble gas radionuclide "i" accound dose from the elevated finite plun ATTACHMENT G Table 2.2-12	ting for th	e gamma radiation
	8.1.3.1.4	<u>BV-1/2</u>	Max	ximum Acceptable Release Rate	(Individu:	al Radionuclide)
		the gase	ous	im acceptable release rate (uCi/sec effluent (Q_i) for each individual not use the determined by:		
		$Q_i = S_i Q_i$) t			[2.1-12]
		NOTE:		the lower of the Q_t values obtain 1.3.1.3.	ed in Secti	on 8.1.3.1.2 and
	8.1.3.1.5	<u>BV-1/2</u>	Max	ximum Acceptable Concentration	ns (Individ	lual Radionuclide)
		radionuc	lide	im acceptable radioactivity concent "i" in the gaseous effluent (C _i) for in the gaseous effluent was determ	each indiv	
		$C_i = \frac{2.1}{2}$	2E - F	$-3 Q_i$		[2.1-13]
		where:				

2.12E-3 = Unit conversion factor (60 sec/min x $3.53E-5 \text{ ft}^3/\text{cc}$).

Beav	er Valley Power Station	Procedure N	Procedure Number: 1/2-ODC-2.02		
Title:		Unit: 1/2	Level Of Use: In-Field Reference		
ODCM: GASEOUS	EFFLUENTS	Revision: 2	Page Number: 31 of 128		
	F = The maximum acceptable efflu (cfm) as listed in Section 8.1.3		e at the point of release		
8.1.3.1.6	BV-1/2 Monitor Count Rate				
	The calculated monitor count rate (ncpm) at noble gas radionuclide. (CR) was determined		ound attributed to the		
·	$\mathbf{CR} = \sum_{i} \mathbf{C}_{i} \mathbf{E}_{i}$		[2.1-14]		
	where:				
	E _i = The detection efficiency of the mo (cpm/uCi/cc) from ATTACHMEN		•		
8.1.3.1.7	BV-1/2 Monitor Setpoints				
	The monitor alarm setpoints above backgrou	and were det	ermined as follows:		
	• The monitor HIGH-HIGH Alarm Setpoi determined by:	nt above bac	kground (ncpm) was		
	HHSP = 0.60 x CR		[2.1-15]		
	• The monitor HIGH Alarm Setpoint above determined by:	e backgroun	d (ncpm) was		
	HSP = 0.30 x CR		[2.1-16]		
	V-1/2 Setpoint Determination Based On Anal /2 Elevated Releases	<u>ysis Prior T</u>	o Release For PV-		
G oy m S G	he following calculation method applies to gased aseous Waste/Process Vent when the "calculated perational flexibility. This method is used to det aximum acceptable discharge flow rate and the etpoint based on this flow rate for the BV-1/2 Ga W-108B) or alternate (RM-1GW-109 CH 5) dur onditions:	l mix" does r ermine the se associated H aseous Waste	not provide adequate etpoint for the IGH-HIGH Alarm e Gas Monitor (RM-		
•	Continuous release via PV-1/2.				
•	Batch release of BV-1 or BV-2 Waste Gas De	cay Tank via	PV-1/2.		
•	Batch release of BV-1 or BV-2 Containment F	Purge via PV	-1/2.		
8.1.3.2.1	BV-1/2 Maximum Acceptable Release Ra	te			

•

CI REPUBLICATION

1.111

:

Ì

ł

i i

Beav	er Valle	ey Power St	ation	Procedure Number: 1/2-ODC-2.02		
Fitle:				Unit: 1/2	Level Of Use: In-Field Reference	
ODCM: GASEOUS	EFFLUEN	ITS		Revision: 2	Page Number: 32 of 128	
		nine the maximum cess Vent for the	acceptable discharge analyzed mix.	e flow rate	for the release from	
		-	table gaseous dischar on the whole body ex	-	e (f) from the Process t is determined by:	
	f=	$\frac{1.06 \text{ S}}{\sum\limits_{i} \text{V}_{i} \text{ C}_{i}}$			[2.1-21]	
	where:					
	1.06	= 500 mrem/yr	x 2.12E-3			
		500 mrem/yr	= dose rate limit,	whole body	y exposure	
		2.12E-3	= unit conversion = (60 sec/min x 3		сс)	
	S	the site dos	ite dose rate released e rate is permissible f int rules of Section 8	for one rele	thway. Up to 60% of ase point under the	
	Vi	gamma radi	nt for noble gas radio ation from the elevat CHMENT G Table 2	ed plume (
	Ci	radionuclid	ed radioactivity conc e "i" in the gaseous so the gas to be released	ource (uCi/	f noble gas cc) as determined by	
	• Based	upon the skin exp	osure limit, (f) is calc	culated by:		
	$f = \frac{1}{\sum_{i} [}$	$\frac{6.36 \text{ S}}{\text{L}_{i} (\text{X/Q})_{pv} + 1.1\text{E}}$	$\overline{B_i]C_i}$		[2.1-22]	
wher	e:					
	6.36	= 3000 mrem/y	r x 2.12E-3			
	3	000 mrem/yr	= dose rate limit,	skin expos	ure	
		2.12E-3	= unit conversion = (60 sec/min x 3	-	cc)	
	Li	= The skin dose	e factor due to beta er	nissions fro	om noble gas	

 The skin dose factor due to beta emissions from hoble gas radionuclide "i" (mrem/year/uCi/m³) from ATTACHMENT G Table 2.2-11.

Beaver Valley Power Station	Procedure Number:
Title:	1/2-ODC-2.02 Unit: Level Of Use:
nuc.	1/2 In-Field Reference
DDCM: GASEOUS EFFLUENTS	Revision:Page Number:233 of 128
effluents released via PV	mual average relative concentration of $-1/2$ for any area at or beyond the ry for all sectors (sec/m ³) from $2.2-6$.
$= 2.31E-6 \text{ sec/m}^3$	
released via PV-1/2 for a	ort term relative concentration of effluent ny area at or beyond the unrestricted area sec/m ³) from ATTACHMENT N Table
$= 1.07 \text{E-5 sec/m}^3$	
noble gas radionuclide "i	m releases (greater than 500 hrs/year) for " accounting for the gamma radiation fror (mrad/year/uCi/sec) from e 2.2-12.
 Select the smaller of the calculated f value and based on the skin exposure limit show (cfm) must be maintained at or below this 	n above. The actual discharge flow rate
8.1.3.2.2 BV-1/2 Monitor Setpoints	
The monitor alarm setpoints above b	ackground are determined as follows:
• The calculated monitor HIGH-HI (ncpm) attributed to the noble gas	IGH Alarm Setpoint above background s radionuclides is determined by:
$HHSP = \frac{f \sum_{i} C_{i} E_{i}}{F'}$	[2.1-23]
where:	
f = The maximum acceptable g determined in Section 8.1.3	gaseous discharge flow rate (cfm) 0.2.1.
F' = The maximum actual or de	sign effluent flow rate (cfm) at the point

= 1450 cfm for PV-1/2

of release.

C_i = The undiluted radioactivity of noble gas radionuclide "i" in the gaseous source (uCi/cc) as determined by analysis of the gas to be released.

Beaver Valley Power Station	Procedure Number: 1/2-ODC-2.02	
Title:	Unit: 1/2	Level Of Use: In-Field Reference
ODCM: GASEOUS EFFLUENTS	Revision: 2	Page Number: 34 of 128

 E_i = The detection efficiency of the respective monitor (RM-1GW-108B) or (RM-1GW-109 CH 5) for noble gas radionuclide "i" (cpm/uCi/cc) from ATTACHMENT B Table 2.1-2a and 2.1-2b.

When a HIGH-HIGH Alarm Setpoint has been calculated according to this section the monitor HIGH Alarm setpoint above background (ncpm) is determined by:

 $HSP = HHSP \ge 0.5$

[2.1-24]

8.2 Compliance With 10 CFR 20 Dose Rate Limits (ODCM CONTROL 3.11.2.1)

8.2.1 Dose Rate Due To Noble Gases

The dose rate in unrestricted areas resulting from noble gas effluents from the site is limited to 500 mrem/yr to the total body and 3,000 mrem/yr to the skin. Site gaseous effluents are the total of BV-1 and BV-2 specific ground releases and a shared elevated release, the PV-1/2 Gaseous Waste/Process Vent. Based upon NUREG-0133 ^(3.1.3.1) the following equations are used to show compliance with ODCM CONTROL 3.11.2.1.a.

$$\sum_{i} \left[V_i Q_{is} + K_i (\overline{X/Q})_v Q_{iv} \right] < 500 \text{ mrem/yr}$$
[2.2-1]

$$\sum_{i} \left[[L_{i}(\overline{X/Q})_{s} + 1.1B_{i}] Q_{is} + [L_{i} + 1.1M_{i}] (\overline{X/Q})_{v} Q_{iv} \right] \le 3000 \text{ mrem/yr}$$
 [2.2-2]

where:

- K_i = The total body dose factor due to gamma emissions for each identified noble gas radionuclide "i", mrem/year/uCi/m³.
- L_i = The skin dose factor due to beta emissions for each identified noble gas radionuclide "i", mrem/year/uCi/m³.
- M_i = The air dose factor due to gamma emissions for each identified noble gas radionuclide "i", mrad/year/uCi/m³.
- V_i = The constant for each identified noble gas radionuclide "i" accounting for the gamma radiation from the elevated finite plume, mrem/year/uCi/sec.
- B_i = The constant for long-term releases (greater than 500 hrs/year) for each identified noble gas radionuclide "i" accounting for the gamma radiation from the elevated finite plume, mrad/year/uCi/sec.
- 1.1 = The ratio of the tissue to air absorption coefficients over the energy range of the photon of interest, mrem/mrad.
- Q_{is} = The release rate of noble gas radionuclide "i" in gaseous effluents from freestanding stack, uCi/sec.

Beave	er Valley Power Station	Procedure Nu	umber: 1/2-ODC-2.02
Title:		Unit:	Level Of Use: In-Field Reference
ODCM: GASEOUS	EFFLUENTS	<u>1/2</u> Revision: 2	Page Number: 35 of 128
Q _{iv} =	 The release rate of noble gas radionuclide "i' vent releases, uCi/sec. 	' in gaseous	effluents from all
$(\overline{X/Q})_{s}$	= The highest calculated annual average relative beyond the unrestricted area boundary for elements of the second		- 1
$(\overline{X/Q})_{v}$	$(\overline{X/Q})_v$ = The highest calculated annual average relative concentration for any area at or beyond the unrestricted area boundary for elevated releases (sec/m ³).		
	aver Valley site gaseous releases may occur from shown in ATTACHMENT P Figure 2.4.2:	the followi	ng Release Points
RP 1 & 4.	RP 1 & 4. The BV-1 Auxiliary Building Vent and the BV-2 SLCRS Unfiltered Pathway atop the Auxiliary Buildings (VV-1 and VV-2)		
RP 2 & 5.	RP 2 & 5. The BV-1 Rx Containment/SLCRS Vent and the BV-2 SLCRS Filtered Pathway atop the Containment Domes (CV-1 and CV-2)		
RP 3.	RP 3. The BV-1/2 Gaseous Waste/Process Vent atop the BV-1 Cooling Tower (PV-1/2)		
RP 6.	RP 6.The BV-2 Condensate Polishing Building Vent (CB-2)		
RP 7.	RP 7.The BV-2 Waste Gas Storage Vault Vent (WV-2)		
RP 8.	The BV-2 Decontamination Building Vent (D	V-2)	
RP 9.	The BV-2 Turbine Building Vent (TV-2)		
of thes	fluents from Release Point 1 & 4 are ground levelse releases are Containment Purges and normal A the sources of these releases are Containment Purget ation.	uxiliary Bu	ilding Ventilation. At
source (SLCR	nt from the Release Point 2 & 5 are assumed gro of these releases is the Supplementary Leak Co RS). At BV-2 the source of these releases is norr ation. It is also possible to release Containment	llection and nal Auxiliar	Release System y Building
• Releas	• Release Points 6, 7, 8 and 9 are not normally radioactive release points.		
Main (fluent from Release Point 3 are elevated, and the Condenser Air Ejectors, the Waste Gas Decay Ta im Pumps.		
complianc	releases may normally occur from Release Poin we with the site limits of ODCM CONTROL 3.11 ressed in terms of the actual release points for th		tions [2.2-1] and [2.2-

Beaver Valley Power Station	Procedure Number: 1/2-ODC-2.02	
Title:	Unit: 1/2	Level Of Use: In-Field Reference
ODCM: GASEOUS EFFLUENTS	Revision: 2	Page Number: 36 of 128

for release points 6, 7, 8 and 9 are included for use if radioactive releases via these release points are identified in the future.

8.2.1.1 Total Body Dose Rate (All Release Points)

$$\sum_{i} V_{i} Q_{i_{pv}} + \sum_{i} K_{i} \left[(\overline{X/Q})_{cv} Q_{i_{cv1}} + (\overline{X/Q})_{vv} Q_{i_{vv1}} + (\overline{X/Q})_{cv} Q_{i_{cv2}} + (\overline{X/Q})_{vv} \right]$$

$$Q_{i_{vv2}} + (\overline{X/Q})_{tv} Q_{i_{tv2}} + (\overline{X/Q})_{cb} Q_{i_{cb2}} + (\overline{X/Q})_{dv} Q_{i_{dv2}} + (\overline{X/Q})_{wv} Q_{i_{wv2}}]$$

$$\leq 500 \text{ mrem/yr} \qquad [2.2-3]$$

$$\sum_{i} \left[L_{i} (\overline{X/Q})_{pv} + 1.1B_{i} \right] Q_{i_{pv}} + \sum_{i} \left[L_{i} + 1.1M_{i} \right] \left[(\overline{X/Q})_{cv} Q_{i_{cv2}} + (\overline{X/Q})_{vv} Q_{i_{vv1}} + (\overline{X/Q})_{cv} Q_{i_{cv2}} + (\overline{X/Q})_{vv} Q_{i_{vv2}} + (\overline{X/Q})_{tv} Q_{i_{tv2}} + (\overline{X/Q})_{cb} Q_{i_{cb2}} + (\overline{X/Q})_{dv} Q_{i_{dv2}} + (\overline{X/Q})_{dv} Q_{i_{dv2}} + (\overline{X/Q})_{wv} Q_{i_{wv2}} \right] \le 3000 \text{ mrem/yr} \qquad [2.2-4]$$

where:

Q_itv2

Q_i

$$Q_{i_{pv}} = Release rate of radionuclide "i" from the PV-1/2, uCi/sec.$$

$$Q_{i_{cv1}}$$
 = Release rate of radionuclide "i" from CV-1, uCi/sec.

$$=$$
 Release rate of radionuclide "i" from CV-2, uCi/sec

 $Q_{i_{vvl}}$ = Release rate of radionuclide "i" from VV-1 Auxiliary Building, uCi/sec.

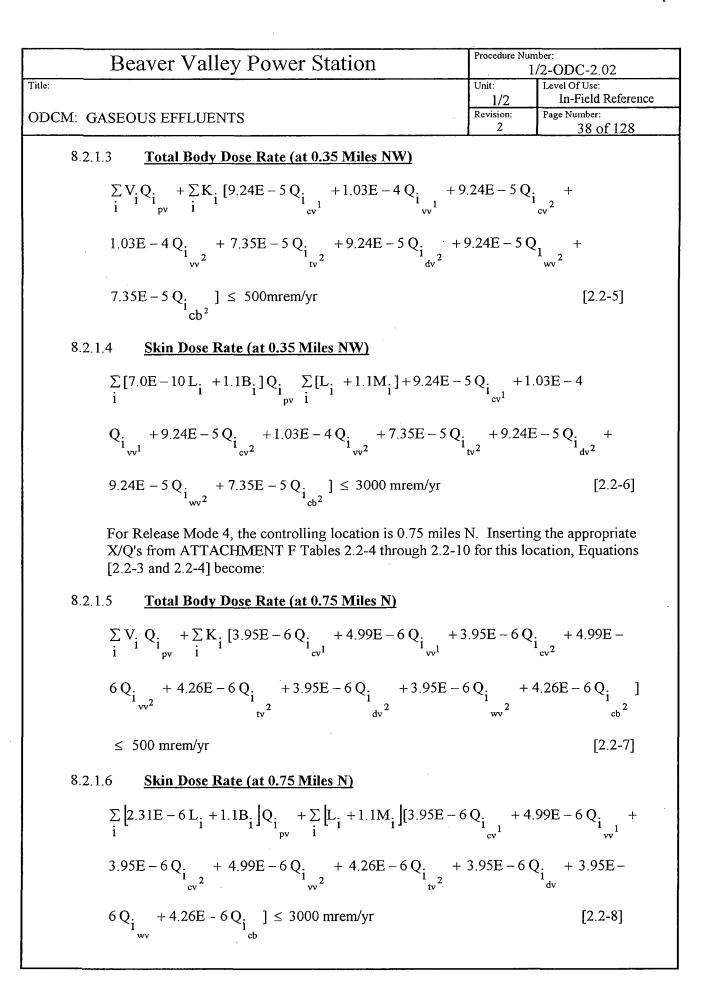
$$Q_{i_{vv2}}$$
 = Release rate of radionuclide "i" from VV-2, uCi/sec.

= Release rate of radionuclide "i" from TV-2, uCi/sec.

= Release rate of radionuclide "i" from CB-2, uCi/sec.

Beaver Valley Power Station		Procedure N	Procedure Number:	
itle:		Unit:	1/2-ODC-2.02	
ille.		1/2	In-Field Reference	
DDCM: GASEOUS	EFFLUENTS	Revision: 2	Page Number: 37 of 128	
Q _i	= Release rate of radionuclide "i" from	n DV-2, uCi/sec.		
Q _i wv2	= Release rate of radionuclide "i" from	u WV-2, uCi/sec.		
$(\overline{X/Q})_{pv}$	 Highest calculated annual average re the PV-1/2, sec/m³. 	elative concentrat	ion for releases from	
$(\overline{X/Q})_{cv}$	 Highest calculated annual average re CV-1 and CV-2, sec/m³. 	elative concentrat	ion for releases from	
$(\overline{\mathrm{X/Q}})_{\mathrm{vv}}$	 Highest calculated annual average re VV-1 and VV-2, sec/m³. 	elative concentrat	ion for releases from	
$(\overline{X/Q})_{tv}$	 Highest calculated annual average re TV-2, sec/m³. 	lative concentrat	ion for releases for	
$(\overline{\mathrm{X/Q}})_{cb}$	 Highest calculated annual average re CB-2, sec/m³. 	elative concentrat	ion for releases for	
$(\overline{X/Q})_{dv}$	 Highest calculated annual average re DV-2, sec/m³. 	elative concentrat	ion for releases for	
$(\overline{X/Q})_{wv}$	Highest calculated annual average rewrite WV-2, sec/m3.	elative concentrat	ion for releases for	
	ase rate for a containment purge is based or e purge (not to exceed 960 min in accordan	Ų		
All other	terms remain the same as those defined pr	eviously.		
For the s	ite, 4 potential modes of release are possibl	e. The release m	odes identify the	

For the site, 4 potential modes of release are possible. The release modes identify the various combinations of sources of radioactivity and their release points which are used to determine the controlling locations. They are presented in ATTACHMENT C Table 2.2-1. For Release Modes 1, 2, and 3, the controlling location for implementation of ODCM CONTROL 3.11.2.1.a is 0.35 miles NW. Inserting the appropriate X/Q's from ATTACHMENT F Tables 2.2-4 through 2.2-10 for this location, Equations [2.2-3] and [2.2-4] become:



Beaver Valley Power Station		Procedure Number: 1/2-ODC-2.02	
Title:	Unit: 1/2	Level Of Use: In-Field Reference	
ODCM: GASEOUS EFFLUENTS	Revision: 2	Page Number: 39 of 128	

8.2.1.7 Determination of Controlling Location

The determination of controlling location for implementation of ODCM CONTROL 3.11.2.1.a for noble gases is a function of the following parameters:

- Radionuclide mix and their isotopic release rate
- Release Mode
- Meteorology

The incorporation of these 3 parameters into Equations [2.2-3] and [2.2-4] resulted in the equations for the controlling locations as presented in Equations [2.2-5 through 2.2-8].

The radionuclide mix used to determine controlling locations was based on source terms calculated with the Stone and Webster Engineering Corporation computer code GAS1BB (similar to NUREG-0017.^(3.1.3.4) Inputs were based on operating modes of the respective plants. The code inputs utilized are presented in 1/2-ODC-3.01. The source term is presented in ATTACHMENT D Tables 2.2-2a and 2.2-2b as a function of release type and Release Point.

The X/Q values utilized in the equations for implementation of ODCM CONTROL 3.11.2.1.a are based upon the maximum long-term annual average X/Q in the unrestricted area. ATTACHMENT E Table 2.2-3 presents the distances from the Release Points to the nearest unrestricted area for each of the 16 sectors as well as to the nearest vegetable garden, cow, goat, and beef animal. ATTACHMENT F Tables 2.2-4 through 2.2-10 present the long-term annual average (X/Q) values for all Release Points to the special locations presented in ATTACHMENT E Table 2.2-3. A description of their derivation is provided in 1/2-ODC-3.01.

For Release Modes 1, 2, and 3, dose calculations were performed using the highest calculated site boundary X/Q values applicable to the release points involved and the projected radionuclide mix applicable to the release source. In that a simultaneous, continuous elevated release could contribute to the dose at a given location, the selection of the two highest sector X/Q values at the site boundary considered this contribution. From these results, the distance and sector associated with the highest calculated site boundary dose were selected as the controlling location.

For Release Modes 1, 2, and 3 the controlling location is 0.35 miles NW. In Release Mode 1, the dominant release is via VV-1 and CV-2. In Release Modes 2 and 3, the dominant release is a Containment Purge from the VV-1 or VV-2.

Beaver Valley Power Station	Procedure Number: 1/2-ODC-2.02	
Title:	Unit: 1/2	Level Of Use: In-Field Reference
ODCM: GASEOUS EFFLUENTS	Revision: 2	Page Number: 40 of 128

For Release Mode 4, a similar evaluation was performed. Long-term annual average X/Q values were calculated at the mid-point of the 10 standard distances listed in ATTACHMENT F Table 2.2-4 through 2.2-10. In that a simultaneous, ground level release could contribute to the dose at a given location, the selection of the two highest X/Q values at the controlling distance considered this contribution. Since the two maximum X/Q values occurred in the 0.5 - 1.0 mile radial band, the controlling distance was selected at 0.75 miles. From the calculated dose results, the controlling sector was shown to be North. In this Release Mode, the dominant release is a Containment Purge via the PV-1/2 Gaseous Waste/Process Vent. Neither of the controlling receptor locations are presently inhabited.

Values for K_i, L_i, and M_i, which were used in the determination of the controlling receptor location and which are to be used in Equations [2.2-5] through [2.2-8] to show compliance with ODCM CONTROL 3.11.2.1.2, are presented in Table 2.2-11. Values taken from Table B-1 of NRC Regulatory Guide 1.109, Revision 1,^(3.1.3.5) were multiplied by 1E6 to convert picocuries to microcuries for use in ATTACHMENT G Table 2.2-11.

Values for V_i and B_i for the finite plume model can be expressed as shown in Equation [2.2-9] and [2.2-10]. Values were calculated using the NRC code RABFIN at the site boundary location which would receive the highest total dose from all Release Points. These values are presented in ATTACHMENT G Table 2.2-12 and calculated from the following equation:

$$B_{i} = \frac{K}{r_{d}} \sum_{j} \sum_{k} \sum_{l} \frac{f_{jk} A_{li} u_{a} E_{l} I}{u_{j}}$$
[2.2-9]

where:

I = The results of numerical integration over the plume spatial distribution of the airborne activity as defined by the meteorological condition of wind speed (u_i) and atmospheric stability class "k" for a particular wind direction.

K = A numerical constant representing unit conversions.

 $\frac{(260 \text{ mrad})(\text{radians}) \text{ (m}^3) \text{ (transformation)}}{(\text{sec})(\text{Mev})(\text{Ci})} \left[\frac{16 \text{ sectors}}{2\pi \text{ radians}} \right]$

$$\left[1E - 6 \frac{Ci}{uCi}\right] \left[3.15E7 \frac{sec}{yr}\right]$$

= 2.1E4 mrad (m³) (transformation)/yr(Mev)(uCi).

 r_d = The distance from the release point to the receptor location, meters.

 u_j = The mean wind speed assigned to the "j" th wind speed class, meters/sec.

			Departure 31	umb an
	Beaver V	Valley Power Station	Procedure N	umber: 1/2-ODC-2.02
Title:			Unit:	Level Of Use: In-Field Reference
ODCM: G	ASEOUS EFF	LUENTS	1/2 Revision:	Page Number:
		· · · · · · · · · · · · · · · · · · ·	2	41 of 128
	f_{jk} =	The joint frequency of occurrence of the "j' stability class (dimensionless).	' th wind sp	eed class and kth
	$A_{li} =$	The number of photons of energy corresponenties of the second sec	Ŷ	0,0 1
	$E_1 =$	The energy assigned to the "l" th energy gro	oup, Mev.	
	u _a =	The energy absorption coefficient in air for	photon ene	ergy H_{l} , meters ⁻¹ .
	The V _i factor	is computed with conversion from air dose t	o tissue dep	oth dose, thus:
	$V_{i} = 1.1 \frac{K}{r_{d}} \sum_{j=1}^{n} \frac{1}{j}$	$\sum_{k=1}^{\infty} \sum_{k=1}^{f} \frac{f_{jk} A_{li} u_{a} E_{1} I_{e} - u_{T} T_{d}}{u_{j}}$		[2.2-10]
	where:			
	u _T =	The tissue energy absorption coefficient for	photons of	f energy E ₁ , cm ² /gm.
	T _d =	The tissue density thickness taken to repres (5gm/cm ²).	ent the tota	l body dose
	1.1 =	The ratio of the tissue to air absorption coel photons of interest, mrem/mrad.	fficients over	er the energy range of
8.2.2	Dose Rate D	ue To Radioiodines And Particulates		
	radionuclides released in ga Based upon l	e in unrestricted areas resulting from the of in s in particulate form (excluding C-14) with haseous effluents from the site shall be limited NUREG-0133, ^(3.1.3.1) the following basic equa CONTROL 3.11.2.1.b:	alf lives gre l to 1,500 m	eater than 8 days rem/yr to any organ.
	$\sum_{i} P_{i\tau} \left[(\overline{X/Q}) \right]$	$\left[Q_{is} + (\overline{X/Q})_{v} Q_{iv}\right] \le 1,500 \text{ mrem/yr}$		[2.2-11]
	where:			
	P _{it}	 Dose parameter for any organ τ for each mrem/yr per uCi/m3. 	n identified	radionuclide "i",
	Q_{is}	 The release rate of radionuclide "i", in g releases, uCi/sec. 	aseous effl	uents from elevated
	$Q_{i\nu}$	 The release rate of radionuclide "i", in g level releases, uCi/sec. 	gaseous effl	uents from ground

ġ

1

Beaver Valley Power Stati	tion Procedure Number: 1/2-ODC-2.02
Title:	Unit: Level Of Use:
	1/2 In-Field Reference
ODCM: GASEOUS EFFLUENTS	Revision:Page Number:242 of 128
	ed annual average relative concentration at the ndary for elevated releases, sec/m ³ .
	ed annual average relative concentration at the ndary for ground level releases, sec/m ³ .
NOTE: The dispersion parame site boundary as define	neters specified in Section 8.2.2 are limited to the ned above.
	Point in the Release Modes listed in now compliance with ODCM CONTROL 3.11.2.1.b, terms of the actual Release Points for the site.
$\sum_{i} P_{i\tau} \left[\left(\overline{X/Q} \right)_{pv} Q_{i}_{pv} + \left(\overline{X/Q} \right)_{cv} Q_{i}_{cv} \right]_{cv}$	$+ (\overline{X/Q})_{vv} Q_{ivv}^{1} + (\overline{X/Q})_{cv} Q_{ivv}^{1} + (\overline{X/Q})_{vv}^{1} $
$(\overline{X/Q})_{tv} Q_{i_{tv^2}} + (\overline{X/Q})_{cb} Q_{i_{cb^2}} + (\overline{X})_{cb^2}$	$\overline{X/Q}_{dv} Q_{i_{dv^2}} + (\overline{X/Q})_{wv} Q_{i_{wv^2}}] \le 1500 \text{ mrem.}$
	[2.2-12]
where:	
$(\overline{X/Q})_{pv}$ = Highest calculated and from PV-1/2, sec/m ³ .	nnual average relative concentration for releases
$(\overline{X/Q})_{cv}$ = Highest calculated and from CV-1 and CV-2,	mual average relative concentration for releases 2 , sec/m ³ .
$(\overline{X/Q})_{w}$ = Highest calculated and from VV-1 and VV-2,	nnual average relative concentration for releases 2 , sec/m ³ .

- $(\overline{X/Q})_{tv}$ = Highest calculated annual average relative concentration for releases from TV-2, sec/m³.
- $(\overline{X/Q})_{cb}$ = Highest calculated annual average relative concentration for releases from CB-2, sec/m³.
- $(\overline{X/Q})_{dv}$ = Highest calculated annual average relative concentration for releases from DV-2, sec/m³.

Title:		1/2-ODC-2.02
	Unit:	Level Of Use:
	1/2	In-Field Reference
ODCM: GASEOUS EFFLUENTS	Revision: 2	Page Number: 43 of 128
$(\overline{X/Q})_{wv}$ = Highest calculated annual average relative WV-2, sec/m ³ .	ve concent	ration for release from
Q _i = Long-term release rate of radionuclide "	i" from PV	′-1/2, uCi/sec.
Q _i = Long-term release rate of radionuclide "	i" from CV	⁷ -1, uCi/sec.
Q_{i}_{cv2} = Long-term release rate of radionuclide "	i" from CV	⁷ -2, uCi/sec.
$Q_{i_{vv1}}$ = Long-term release rate of radionuclide "	i" from VV	/-1, uCi/sec.
Q_{i} = Long-term release rate of radionuclide " vv2	i" from VV	7-2, uCi/sec.
$Q_i = Long$ -term release rate of radionuclide " $tv2$	i" from TV	⁷ -2, uCi/sec.
Q _i = Long-term release rate of radionuclide " cb2	i" from CB	I-2, uCi/sec.
$Q_i = Long$ -term release rate of radionuclide " dv2	i" from DV	7-2, uCi/sec.
Q _i = Long-term release rate of radionuclide " wv2	i" from W	V-2, uCi/sec.

All other terms are the same as those defined previously.

TV-2, CB-2, DV-2 and WV-2 are not normal radioactive Release Points. These Release Points are included only for use if radioactive releases via these vents are identified in the future. In the calculation to show compliance with ODCM CONTROL 3.11.2.1.b only the inhalation pathway is considered.

Values of the organ dose parameters, $P_{i\tau}$, were calculated using methodology given in NUREG-0133.^(3.1.3.1) For the child age group, the following equation was used for all nuclides. The $P_{i\tau_2}$ values are presented in ATTACHMENT H Table 2.2-13.

 $P_{ir} = 3.79E9 DFA_{ir}$

[2.2-13]

where:

3.7E9 = Breathing rate of child (3,700 m³/yr) x unit conversion factor (1E6 pCi/uCi).

Beaver Valley Power Station	Procedure Number: 1/2-ODC-2.02	
Title:	Unit: 1/2	Level Of Use: In-Field Reference
ODCM: GASEOUS EFFLUENTS	Revision: 2	Page Number: 44 of 128

DFA_i τ = The organ inhalation dose factor for a child from Table 6 of NUREG-0172,^(3.1.3.6) for organ τ , nuclide "i", in units of mrem/pCi.

For Release Modes 1 through 4, the controlling location is the site boundary, 0.35 miles NW.

Equation [2.2-12] becomes:

$$\sum_{i} P_{i\tau} [7.00E - 10Q_{i} + 9.24E - 5Q_{i} + 1.03E - 4Q_{i} + 7.35E - 5Q_{i} + 1.03E - 4Q_{i} + 7.35E - 5Q_{i} + 1.03E - 4Q_{i} + 7.35E - 5Q_{i} + 1.03E - 4Q_{i} + 1.03E +$$

$$9.24E - 5Q_{i}$$
 + 1.03E - 4 Q_{i} + 7.35E - 5 Q_{i} + 7.35E - 5 Q_{i} + 9.24E - 9

 $5 Q_{i dv2} + 9.24E - 5 Q_{i wv2}] \le 1500 \text{ mrem/yr}$ [2.2-14]

8.2.2.1 Determination of Controlling Location

The determination of the controlling location for implementation of ODCM CONTROL 3.11.2.1.b for radioiodines and particulates is a function of the same 3 parameters as for noble gases plus a fourth, the actual receptor pathways. The incorporation of these parameters into Equation [2.2-12] results in the respective equations for each Release Mode at the site boundary controlling locations. The radionuclide mix was again based upon the source terms presented in ATTACHMENT D Tables 2.2-2a and 2.2-2b as a function of release type and Release Point.

In the determination of the controlling site boundary for each Release Mode, the highest 2 site boundary X/Q values for each Release Point were utilized in conjunction with the radionuclide mix and the release rate for each Release Point to determine the controlling location.

The Pit values are presented in ATTACHMENT H Table 2.2-13.

The X/Q values in Equation [2.2-14] were obtained from ATTACHMENT F Tables 2.2-4 through 2.2-10.

A description of the derivation of the X/Q values is provided in 1/2-ODC-3.01.

8.3 <u>Compliance With 10 CFR 50 Dose Limits (ODCM CONTROLS 3.11.2.2 And 3.11.2.3)</u> (Gaseous)

At the Beaver Valley site all elevated gaseous releases are considered to originate from a shared radwaste system. The effluent from both units are mixed and discharged from a common Release Point, the PV-1/2 Gaseous Waste/Process Vent, at the top of the Unit 1 Cooling Tower. The resulting dose for the purpose of implementing 10 CFR 50 is normally apportioned equally to each unit. The only exception would be a Containment Purge via the

Beaver Valley Power Station	Procedure Number: 1/2-ODC-2.02	
Title:	Unit: 1/2	Level Of Use: In-Field Reference
ODCM: GASEOUS EFFLUENTS	Revision: 2	Page Number: 45 of 128

Process Vent. The resulting dose shall be attributed to the contributing reactor unit. Since this operation is expected to be rare, equations are shown throughout this section with the apportionment set at 0.5.

8.3.1 Dose Due To Noble Gases

8.3.1.1 Cumulation Of Doses

Section II.B.1 of Appendix I of 10 CFR 50 (ODCM CONTROL 3.11.2.2) limits the releases of gaseous effluents from each reactor such that the estimated annual gamma air dose is limited to 10 millirad and the beta air dose is limited to 20 millirad. In addition, ODCM CONTROL 3.11.2.4 requires use of radwaste system if air doses when averaged over 31 days exceed 0.2 mrad for gamma and 0.4 mrad for beta. Based upon NUREG-0133,^(3.1.3.1) the air dose limits in the unrestricted area due to noble gases released in gaseous effluents are defined by the following equations:

8.3.1.1.1 Gamma Radiation Quarter Limit

$$3.17E - 8\sum_{i} \left[M_{i} \left[(\overline{X/Q})_{V} Q_{iV} + (\overline{X/q})_{V} q_{iV} \right] + \left[B_{i} Q_{iS} + b_{i} q_{iS} \right] \le 5 \text{ mrad} \qquad [2.3-1]$$

8.3.1.1.2 Beta Radiation Quarter Limit

$$3.17E - 8\sum_{i} N_{i} \left[(\overline{X/Q})_{V} Q_{iV} + (\overline{X/q})_{V} q_{iV} + (\overline{X/Q})_{S} Q_{iS} + (\overline{X/q})_{S} q_{iS} \right] \le 10 \text{ mrad} [2.3-2]$$

8.3.1.1.3 Gamma Radiation Year Limit

 $3.17E - 8 \sum_{i} [M_{i}[(\overline{X/Q})_{V} Q_{iV} + (\overline{X/q})_{V} q_{iV}] + [B_{i}Q_{iS} + b_{i}q_{iS}]] \le 10 \text{ mrad}$

8.3.1.1.4 Beta Radiation Year Limit

$$3.17E - 8\sum_{i} N_{i} \left[(\overline{X/Q})_{V} Q_{iV} + (\overline{X/q})_{V} q_{iV} + (\overline{X/Q})_{S} Q_{iS} + (\overline{X/q})_{S} q_{iS} \right] \le 20 \text{ mrad}$$

$$[2.3-4]$$

8.3.1.1.5 Gamma Radiation Projection Averaged Over 31 Days

$$3.17E - 8\sum_{i} \left[M_{i} \left[\left(\overline{X/Q} \right)_{V} Q_{iV} + \left(\overline{X/q} \right)_{V} q_{iV} \right] + \left[B_{i} Q_{iS} + b_{i} q_{iS} \right] \le 0.2 \text{ mrad} \qquad [2.3-5]$$

Beave	er V	Procedure Number: 1/2-ODC-2.02		
lle:			Unit: 1/2	Level Of Use: In-Field Reference
DCM: GASEOUS	EFF	LUENTS	Revision:	Page Number:
8.3.1.1.6	<u></u>	Beta Radiation Projection Averaged Over 3	1	46 of 128
3.17E –	8∑ i	$N_{i} \left[(\overline{X/Q})_{v} Q_{iv} + (\overline{X/q})_{v} q_{iv} + (\overline{X/Q})_{s} Q_{is} \right]$	$+(\overline{X/q})_{s}q$	$ s \le 0.4 \text{ mrad} [2.3-6]$
where:	-			
Mi	_	The air dose factor due to gamma emissions radionuclide "i" (mrad/yr per uCi/m ³).	for each i	dentified noble gas
Ni	=	The air dose factor due to beta emissions for radionuclide "i" (mrad/yr per uCi/m ³).	each iden	tified noble gas
$(\overline{\mathrm{X/Q}})_{\mathrm{v}}$	=	The annual average relative concentration fo unrestricted area boundary for long-term ven hrs/year (sec/m ³).		
$(\overline{X/q})_v$	-	The relative concentration for areas at or bey boundary for short-term vent releases equal t (sec/ m^3).		
$(\overline{X/Q})_{s}$	H	The annual average relative concentration fo unrestricted area boundary for long-term free than 500 hrs/year (sec/m ³).		-
$(\overline{\mathrm{X/q}})_{\mathrm{s}}$	=	The relative concentration for areas at or bey boundary for short-term free standing stack r hrs/year (sec/m ³).		
q_{is}	=	Release of noble gas radionuclide "i" in gase stack releases equal to or less than 500 hrs/ye		nts for short-term
$q_{i\nu}$	=	Release of noble gas radionuclide "i" in gase releases equal to or less than 500 hrs/year (u		nts for short-term vent
Q _{is}	<u></u>	Release of noble gas radionuclide "i" in gase standing stack releases greater than 500 hrs/y		-
$Q_{i\nu}$	=	Release of noble gas radionuclide "i" in gase releases greater than 500 hrs/year (uCi).	ous efflue	nts for long-term vent
B _i	=	The constant for long-term releases (greater i identified noble gas radionuclide "i" account from the elevated finite plume (mrad/yr per u	ing for the	

	Beaver Valley Power Station		Procedure Number: 1/2-ODC-2.02		
Title:		Unit:	Level Of Use:		
		1/2	In-Field Reference		
ODCM:	GASEOUS EFFLUENTS	Revision: 2	Page Number: 47 of 128		
	b _i = The constant for short-term releas each identified noble gas radionuc radiation from the elevated finite	lide "i" accounting for	or the gamma		
	3.17E-8 = The inverse of the number of second	onds in a year.			
	NUREG 0133 ^(3.1.3.1) permits eliminating the shor meteorological terms in the determination of dos sufficiently random in both time of day and dura dispersion conditions. This special consideratio [2.3-6], however, a summary of the "real time" r corresponding releases shall be included in the A Report.	ses when short-term r ation to be represente n is applied in Equati neteorological data c	eleases are d by annual average ons [2.3-1] through oupled with the		
	Short-term releases are also evaluated annually i with XOQDOQ and GASPAR for inclusion in the Report.	-	-		
	The incorporation of this option and the Release results in the following equations to show comp quarter or year.				
	8.3.1.1.7 Gamma Radiation Dose Equation				
	$3.17E - 8 \sum_{i} [M_{i} [(\overline{X/Q})_{cv} Q_{i}_{cv} + (\overline{X/Q})_{vv} Q_{i}_{vv}]$	+ $(\overline{X/Q})_{cb}Q_{i_{cb}}$ + ($(\overline{X/Q})_{dv} Q_{i_{dv}} +$		
	$(\overline{X/Q})_{WV}Q_{i_{WV}}] + 0.5B_{i}Q_{i_{pV}}]$		[2.3-7]		
	\leq 0.2 mrad (per 31 days), or \leq 5.0 mrad (per quarter), or \leq 10.0 mrad (per year)				

1.000

1

Beave	r Valley Power Station	Procedure N	Procedure Number: 1/2-ODC-2.02		
Title:	· · · · · · · · · · · · · · · · · · ·	Unit: 1/2	Level Of Use: In-Field Reference		
ODCM: GASEOUS	EFFLUENTS	Revision:	Page Number: 48 of 128		
8.3.1.1.8	Beta Radiation Dose Equation	I	1		
3.17E-8	$3\sum_{i} N_{i} \left[\left(\overline{X/Q} \right)_{cv} Q_{i_{cv}} + \left(\overline{X/Q} \right)_{vv} Q_{i_{vv}} + \left(\overline{X/Q} \right)_{vv} Q_{i_{vv}} \right]_{vv}$	$\overline{Q}_{cb} Q_{i_{cb}} +$	$(\overline{X/Q})_{dv} Q_{i_{dv}} +$		
	$(\overline{X/Q})_{WV} Q_{i_{WV}} + 0.5 (\overline{X/Q})_{pV} Q_{i_{pv}}]$		[2.3-8]		
≤ 10.0	mrad (per 31 days), or mrad (per quarter), or mrad (per year)				
where:					
$(\overline{\mathrm{X/Q}})_{\mathrm{cv}}$	 Annual average relative concentration for (sec/m³). 	r releases from	n CV-1 and CV-2		
$(\overline{\mathrm{X/Q}})_{\mathrm{vv}}$	 Annual average relative concentration for (sec/m³). 	r releases from	n VV-1 and VV-2		
$(\overline{\mathrm{X/Q}})_{pv}$	= Annual average relative concentration for	r releases from	n PV-1/2 (sec/m ³).		
$(\overline{X/Q})_{tv}$	= Annual average relative concentration for	r releases from	n TV-2 (sec/m ³).		
Q _i	= Release of radionuclide "i" from CV-1 ar	nd CV-2 (uCi)			
Q _i	= Release or radionuclide "i" from VV-1 ar	nd VV-2 (uCi)).		
Q _i	= Release of radionuclide "i" from PV-1/2	(uCi).			
Q _i tv	= Release of radionuclide "i" from TV-2 (u	Ci).			
Q _i	= Release of radionuclide "i" from the CB-2	2 (uCi).			
Q _i	= Release of radionuclide "i" from DV-2 (u	ıCi).			
. Q _i	= Release of radionuclide "i" from WV-2 (uCi).			

	Beave	r Valley Power Station	Procedure N	umber: 1/2-ODC-2.02
Title:			Unit: 1/2	Level Of Use: In-Field Reference
ODCM:	GASEOUS E	EFFLUENTS	Revision: 2	Page Number: 49 of 128
		use Modes 1, 2, 3, and 4 the controlling location propriate X/Q values into Equations [2.3-7] and		
	8.3.1.1.9	Gamma Radiation Dose Determination		
	3.17E-8	$\sum_{i} [M_{i}] [9.24E - 5 Q_{i} + 1.03E - 4 Q_{i} + 7.3]$	$5E-5Q_{i_{tv}}$	$+7.35E - 5Q_{i_{cb}} +$
		$9.24E - 5Q_{i_{dv}} + 9.24E - 5Q_{i_{wv}}] + 0.5B_{i}Q$). 1 pv	[2.3-9]
	$\leq 5.0 \mathrm{mra}$	ad (per 31 days), or ad (per quarter), or rad (per year)		
	8.3.1.1.10	Beta Radiation Dose Determination		
	3.17E - 8	$\sum_{i} N_{i} [9.24E - 5Q_{i_{vv}} + 1.03E - 4Q_{i_{vv}} + 7.35]$	$E - 5 Q_{i_{tv}} +$	$7.35E - 5Q_{i_{cb}} +$
		$9.24E - 5Q_{i_{dv}} + 9.24E - 5Q_{i_{wv}} + (0.5)$) 7.0E – 10 Ç	2.] [2.3-10]
	$\leq 10.0 \text{ mm}$	ad (per 31 days), or rad (per quarter), or rad (per year)		
	8.3.1.1.11	Determination of Controlling Location		
		The determination of the controlling location 50 is a function of the following parameters:	is for implen	nentation of 10 CFR
		• Radionuclide mix and their isotopic relea	se	
		Release Mode		

• Meteorology

The incorporation of these parameters into Equations [2.3-7] and [2.3-8] resulted in the equations for the controlling locations as presented in Equations [2.3-9] and [2.3-10]. The radionuclide mix was based upon source terms calculated using the NRC GALE Code (see 1/2-ODC-3.01 for inputs) and are shown in ATTACHMENT D Tables 2.2-2a and 2.2-2b as a function of release type and Release Point.

Beaver Valley Power Station		Procedure Number: 1/2-ODC-2.02		
Title:	Unit: 1/2	Level Of Use: In-Field Reference		
ODCM: GASEOUS EFFLUENTS	Revision: 2	Page Number: 50 of 128		

As in Section 8.2.1, for each Release Mode, the two highest boundary X/Q values for each release point and release duration were utilized in conjunction with the radionuclide mix and release for each release point to determine the controlling site boundary location. Since elevated releases occur from the BVPS site and their maximum X/Q values may not decrease with distance (i.e., the site boundary may not have highest X/Q values), the two highest X/Q values for those distances, greater than the site boundary, were also considered in conjunction with the radionuclide mix to determine the controlling location. These values of X/Q were obtained for the midpoint of the 10 standard distance intervals previously presented in ATTACHMENT F Tables 2.2-4 through 2.2-10.

For each Release Mode, a particular combination of Release Point mix and meteorology dominates in the determination of the controlling location. For Release Modes 1, 2, 3, and 4 the controlling release is VV-1 and VV-2. For Release Mode 3, the controlling release is CV-1 and CV-2.

Values for M_i and N_i , which were used in the determination of the controlling location and which are to be used by BV-1 and BV-2 in Equations [2.3-9] and [2.3-10] to show compliance with 10 CFR 50 were presented in ATTACHMENT G Table 2.2-11. Values taken from Table B-1 of Regulatory Guide 1.109, Revision $1^{(3.1.3.5)}$ were multiplied by 1E6 to convert from picocuries to microcuries for use in ATTACHMENT G Table 2.2-11.

In determination of the controlling location for Release Modes 1, 2, 3, and 4, ATTACHMENT F Tables 2.2-4 through 2.2-7 are utilized for X/Q values. The B_i values to be utilized are the same values which were presented in ATTACHMENT G Table 2.2-12. A description of the derivation of the various X/Q values is presented in 1/2-ODC-3.01.

The following relationship must hold for BV-1 or BV-2 to show compliance with ODCM CONTROL 3.11.2.2:

For The Calendar Quarter

$D_{\gamma} \leq 5.0 \text{ mrad}$	[2.3-11]
$D_{\beta} \leq 10 \ mrad$	[2.3-12]
<u>For The Calendar Year</u>	
$D_{\gamma} \leq 10 \text{ mrad}$	[2.3-13]
$D_{\beta} \leq 20 mrad$	[2.3-14]
where:	

 D_{γ} = The air dose from gamma radiation (mrad).

,

Α

Beave	er Valley Power Station	Procedure N	umber: 1/2-ODC-2.02
Title:	<u>.</u>	Unit:	Level Of Use: In-Field Reference
ODCM: GASEOUS	CECI LIENITS	1/2 Revision:	Page Number:
		2	51 of 128
	D_{β} = The air dose from beta radia	tion (mrad).	
	The quarterly limits given above represen of Section II.B.1 of Appendix I of 10 CFF [2.3-11] through [2.3-14] are exceeded, a Section IV.A of Appendix I of 10 CFR 50 must be filed with the NRC at the identified	8 50. If any of special report p and ODCM C	the limits of Equations oursuant to both
	In addition, ODCM CONTROL 3.1.2.4 re system must be used to reduce radioactive projected doses from each reactor unit wh of the following:	materials in the	nat waste when
	$D_{\gamma} \leq 0.2 \text{ mrad}$		[2.3-15]
	$D_{\beta} \leq 0.4 \text{ mrad}$		[2.3-16]
8.3.1.2 <u>Pr</u>	<u>ojection Of Doses (Noble Gas)</u>		
use acc do da (A do an	Idwaste Treatment System and the Ventilation ed to reduce radioactive materials in gaseous cordance with ODCM CONTROL 3.11.2.4 w se due to gaseous effluent releases from each ys, would exceed 0.2 mrad for gamma radiati lso see Section 8.3.2.2 <u>Projection Of Doses</u> for ses used in the 31-day dose projection will be d [2.3-10] as appropriate. The 31-day dose p cording to the following equations:	waste prior to t when the project reactor unit, w on and 0.4 mra or additional sp calculated usi	their discharge in ted gaseous effluent ai then averaged over 31 ad for beta radiation. pecifications). The ng Equations [2.3-9]
8.3.1.2.1	When Including Pre-Release Data,		
0.5.1.2.1			
	$D_{31} = \left[\frac{A+B}{T}\right](31) + C$		[2.3-17]
8.3.1.2.2	When Not Including Pre-Release Data,		
	$D_{31} = \left[\frac{A}{T}\right](31) + C$		[2.3-18]
wh	nere:		
D_3	$_1$ = Projected 31 day dose (mrad).		

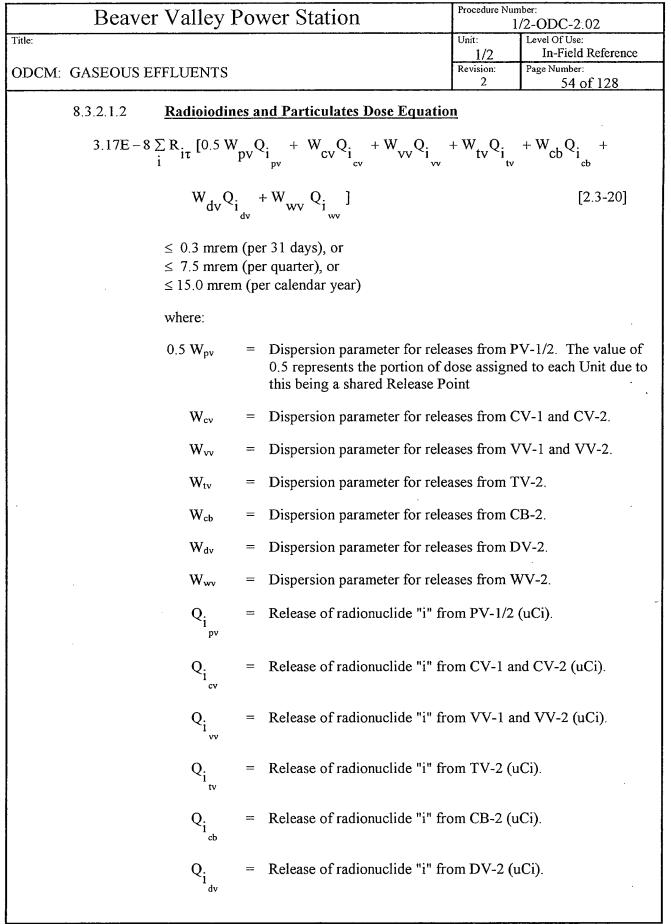
= Cumulative dose for quarter (mrad).

į

ή

Be	Beaver Valley Power Station				Procedure Number: 1/2-ODC-2.02		
itle:				Unit:	Level Of Use:		
				1/2	In-Field Reference		
DDCM: GASE	OUS EFFLUENT	S		Revision: 2	Page Number: 52 of 128		
	B = Proje	cted do	ose from this release (mra				
	T = Curre	ent day:	s into quarter.				
		-	n may be used to anticipa	te plant trends (mrad).		
8.3.2 Dos			And Particulates).		
8.3.2.1	<u>Cumulation O</u>	Doses	<u>8</u>				
8.3.2.1	 15 mrem to any gaseous radwas releases from ea mrem to any orgindividual from gases with halfareas, can be de .1 <u>Radioiod</u> 	organ te treat ach rea gan. B radioid lives g termin	ricted area from all pathy In addition, ODCM CC ment system when the protor unit, when averaged ased upon NUREG-0133 odines and particulates, a reater than 8 days in gase ed by the following equand nd Particulates Month , $[W_{s}Q_{is} + w_{s}q_{is} + W_{v}]$	ONTROL 3.11.2 rojected dose du over 31 days, w 3, ^(3.1.3.1) the dose and radionuclide eous effluents re tion: Quarter, and Y	.4 requires the use of the to gaseous effluent yould exceed 0.3 to an organ of an s other than noble cleased to unrestricted		
	≤ 0.3 m	rem (p	er 31 days), or		[2.3-19]		
			er quarter), or				
	≤ 15.0 m	rem (p	er calendar year)				
	where:						
	Q _{is}	=	Release of radionuclide releases greater than 500	-	n free standing stack		
	$Q_{i\nu}$	=	Release of radionuclide than 500 hrs/yr (uCi).	"i" for long-terr	n vent releases greate		
	q _{is}	=	Release of radionuclide releases equal to or less				
	q_{iv}	=	Release of radionuclide to or less than 500 hrs/y		m vent releases equal		
	Ws	=	Dispersion parameter fo the controlling location releases greater than 500	for long-term fr			

Beaver Valley Power Station			Procedure Number: 1/2-ODC-2.02		
itle:			Unit:	Level Of Use:	
DDCM: GASEOUS EFFLUENTS			1/2 Revision:	In-Field Reference Page Number:	
			2	53 of 128	
	=	sec/m ³ for the inhalation path	way, (W/(\overline{Q})s.	
	=	meters ⁻² for the food and grou	nd plane p	bathway, $(\overline{D/Q})$ s.	
Wv		The dispersion parameter for estimating the dose to an individual at the controlling location for long-term vent releases greater than 500 hrs/yr.			
	=	sec/m ³ for the inhalation path	way, (X/Q	() _v .	
	=	meters ⁻² for the food and grou	nd plane p	bathway, $(\overline{D/Q})_{v}$.	
Ws	=	Dispersion parameter for estimating the dose to an individual at the controlling location for short-term stack releases equal to or less than 500 hrs/yr.			
		sec/m ³ for the inhalation pathway, $(\overline{W/q})_{s}$.			
	=	meters ⁻² for the food and grou	nd plane p	bathway, $(\overline{D/q})_{s}$.	
Wv	=	The dispersion parameter for individual at the controlling lo releases equal to or less than 5	ocation for	short-term vent	
	=	sec/m ³ for the inhalation path	way, (X/q)v.	
	=	meters ⁻² for the food and grou	nd plane p	bathway, $(\overline{D/q})_{v}$.	
3.17E-8	3 =	The inverse of the number of	seconds in	a year.	
$R_{i\tau}$	=	The dose factor for each ident organ " τ " of interest (mrem/yr per uCi/m ³).			
2 Release P 2.3-1. As d use of long- release mod compliance	oint escr tern les o with	and particulates may be released is in the Release Modes identified ibed previously in Section 8.3.1 in annual average dispersion calc if Table 2.3-1 results in the follo in ODCM CONTROLS 3.11.2.3 [2.3-19] becomes:	ed in ATT. 1.1, NURE culations (owing equa	ACHMENT I Table G 0133 ^(3.1.3.1) permits which with the ations) to show	



Beaver Valley Power Station	Procedure Number: 1/2-ODC-2.02		
Title:	Unit: 1/2	Level Of Use: In-Field Reference	
ODCM: GASEOUS EFFLUENTS	Revision: 2	Page Number: 55 of 128	

 $Q_{i_{WV}}$ = Release of radionuclide "i" from WV-2 (uCi).

TV-2, CB-2, DV-2 and WV-2 are not normally radioactive Release Points. These are included only for use if a radioactive release is identified in the future.

In determining the dose at a particular location, dispersion parameter W is a function of the pathway. For the food and ground plane pathway, W is in terms of D/Q. If the inhalation pathway is considered, W is in terms of X/Q. Incorporation of the various pathways into Equation [2.3-20] results in the following equation for a particular organ:

8.3.2.1.2.1 Radioiodines and Particulates Dose Determination

 $3.17E - 8 \sum_{i} [[R_{i\tau_{G}} + R_{i\tau_{M}} + R_{i\tau_{V}} + R_{i\tau_{B}}][0.5 W_{pv}Q_{i_{pv}} + W_{cv}Q_{i_{cv}} + W_{vv}Q_{i_{vv}} + W_{tv}Q_{i_{tv}} + W_{cb}Q_{i_{cb}} + W_{dv}Q_{i_{dv}} + W_{wv}Q_{i_{wv}}]$ $+ R_{i\tau_{I}} [0.5 (X/Q)_{pv}Q_{i_{pv}} + (X/Q)_{cv}Q_{i_{cv}} + (X/Q)_{vv}Q_{i_{vv}} + (X/Q)_{tv}Q_{i_{vv}} + (X/Q)_{cb}Q_{i_{cb}} + (X/Q)_{dv}Q_{i_{dv}} + (X/Q)_{wv}]$ $Q_{i_{wv}}]$ (2.3-21]

 \leq 0.3 mrem (per 31 days), or \leq 7.5 mrem (per quarter), or

 \leq 15.0 mrem (per year)

where:

- $R_{i\tau_G}$ = Dose factor for an organ " τ " for radionuclide "i" for the ground plane exposure pathway (mrem/yr per uCi/sec per m⁻²).
- $R_{i\tau_{M}}$ = Dose factor for an organ " τ " for radionuclide "i" for either the cow milk or goat milk pathway (mrem/yr per uCi/sec per m⁻²).

$$R_{i\tau_v}$$
 = Dose factor for an organ " τ " for radionuclide "i" for the vegetable pathway (mrem/yr per uCi/sec per m⁻²).

1

and a rest from a second

Beaver Valley Power Station	Procedure N	Procedure Number: 1/2-ODC-2.02		
Title:	Unit: 1/2	Level Of Use: In-Field Reference		
ODCM: GASEOUS EFFLUENTS	Revision: 2	Page Number: 56 of 128		
$R_{1\tau_B} = Dose factor for an organpathway (mrem/yr per u$		lide "i" for the meat		
		lide "i" for the		
$R_{i\tau_{I}} = Dose factor for an organinhalation pathway (mro$	2			
It should be noted that W_{pv} , W_{cv} , W_{vv} ,	W _{tv} , W _{cp} , W _{dv} , an	d W_{wv} in Equation		
Values of the dose factor, $R_{i\tau}$, were calc NUREG-0133 ^(3.1.3.1) The following eq except tritium:				
8.3.2.1.2.2 Dose Factors For Inhalation Pa	athway			
$R_{i\tau_{I}} = K' (BR)_{a} (DFA_{i\tau})_{a}$				
= mrem/yr per uCi/m ³		[2.3-22]		
where:				
K' = A constant of unit constant of	onversion (1E6 p	Ci/uCi).		
$(BR)_a$ = The breathing rate of	of the receptor of a	age group "a" (m ³ /yr).		
dose factors (DFA _{it}	' th radionuclide (t) by organ for the E-7 through E-10 e	mrem/pCi). Inhalation e various age groups of Regulatory Guide		
The breathing rates (BR)a used for the as given in Table E-5 of the Regulatory	various age group Guide 1.109 ^{(3.1.3}	os are tabulated below, 3.5)		
Age Group(a) Breathing Rate (m ³ /yr)			
Infant 1400				
Child 3700				
Teen 8000				
Adult 8000				

8.3.2.1.2.3

Dose Factors For Ground Plane Pathway

.

Title: ODCM: GASEOUS EFFLUENTS	Unit:	1/2-ODC-2.02	
ODCM: GASEOUS EFFLUENTS	1/2	Level Of Use: In-Field Reference	
	Revision:	Page Number:	
$R_{i\tau_{G}} = K'K'' (SF)DFG_{i\tau}[(1 - e^{-\lambda_{i}t})/\lambda_{i}]$	2	57 of 128	
$= m^2$ -mrem/yr per uCi/sec		[2.3-23]	
where:			
K' = A constant of unit converses	ersion (1E6 p (Ci/uCi)	
K'' = A constant of unit conve	ersion (8760 h	r/year).	
λi = The decay constant for t	the "i" th radic	onuclide (sec ⁻¹).	
t = The exposure time (4.73)	3E8 sec or 15	years).	
the "i" th radionuclide (The groundplane dose conversion factor for organ " τ " the "i" th radionuclide (mrem/hr per pCi/m ²). A tabul of DFG _i τ values is presented in Table E-6 of Regulato Guide 1.109. ^(3.1.3.5)		
SF = The shielding factor (dia 0.7 as suggested in Tablician is used. ^(3.1.3.5)			
8.3.2.1.2.4 Dose Factors For Cow Milk or Goa	<u>at Milk Pathv</u>	vay	
$\mathbf{R}_{i\tau_{M}} = \mathbf{K}' \frac{\mathbf{Q}_{F} \left(\mathbf{U}_{ap} \right)}{\lambda_{i} + \lambda_{w}} \mathbf{F}_{m} \left(\mathbf{r} \right) \left(\mathbf{DFL}_{i\tau} \right)_{a} \left[\frac{\mathbf{f}_{p} \mathbf{f}_{s}}{\mathbf{Y}_{p}} \right]$	$\frac{f_s}{f_s} + \frac{\left(1 - f_p f_s\right)e}{Y_s}$	$\frac{-\lambda i^{t}h}{2} e^{-\lambda i^{t}f}$	
= m ² -mrem/yr per uCi/sec		[2.3-24]	
where:			
K' = A constant of unit converses	ersion (1E6 pC	Ci/uCi).	
QF = The animal's consumpti	ion rate, wet w	reight (kg/day).	
U_{ap} = The receptor's milk con-	sumption rate,	for age "a" (liters/yr).	
Y_p = The agricultural product grass (kg/m2).	tivity by unit a	area of pasture feed	
$Y_s = The agricultural product (kg/m2).$	tivity by unit a	area of stored feed	
F_m = The stable element trans	sfer coefficien	ts (days/liter).	

Beaver Valley Po	ow	er Station	Procedure Nu	imber: 1/2-ODC-2.02
le:			Unit: 1/2	Level Of Use: In-Field Reference
DCM: GASEOUS EFFLUENTS			Revision: 2	Page Number: 58 of 128
Г	=	Fraction of deposited activit grass.	y retained	on animals feed
(DFL _{it}) _a	-	The maximum organ ingesti radionuclide for the recepto Ingestion dose factors (DFI are given in Table E-11 thro $1.109^{(3.1.3.5)}$ or Tables 1 thro	r in age gr L _{iτ}) _a for the ough E-14	oup "a" (mrem/pCi). e various age groups of Regulatory Guide
λ_i	=	The decay constant for the	"i" th radio	onuclide (sec-1).
λ_w	=	The decay constant for remo plant surfaces by weathering to a 14 day half-life).		
t_{f}	=	The transport time from pas receptor (sec).	ture, to an	imal, to milk, to
t _h	=	The transport time from pas milk, to receptor (sec).	ture, to ha	rvest, to animal, to
$\mathbf{f}_{\mathbf{p}}$	=	Fraction of the year that the (dimensionless).	animal is	on pasture
$\mathbf{f_s}$	=	Fraction of the animal feed animal is on pasture (dimen	-	cure grass while the
Tabulated bel reference to F	ow a Regu	are the parameter values used latory Guide 1.109. ^(3.1.3.5)	for cow's	milk and their

Beaver Valley Power Station		Procedure Number: 1/2-ODC-2.02	
Title:		Unit: 1/2	Level Of Use: In-Field Reference
ODCM: GASEOUS EFFLUENTS		Revision: 2	Page Number: 59 of 128
Parameter	Value	R	G. 1.109 Table
r (dimensionless)	1.0 for radioiodine 0.2 for particulates	E-15 E-15	
F _m (days/liter)	each stable element	•	ow milk) oat milk)
U _{ap} (liters/yr) - infant child teen adult	330 330 400 310	E-5 E-5 E-5 E-5	
(DLF _{it}) _a (mrem/pCi)	each radionuclide	E-11 t	o E-14
$Y_p (kg/m^2)$	0.7	E-15	
$Y_s (kg/m^2)$	2.0	E-15	
t _f (seconds)	1.73E5 (2 days)	E-15	
t _h (seconds)	7.78E6 (90 days)	E-15	
Q _F (kg/day)	50	E-3	
f_p	0.5		
\mathbf{f}_{s}	1.0		

For goat's milk, all values remain the same except for Q_F , which is 6 kg/day.

8.3.2.1.2.5

Dose Factors For Meat Pathway

$$R_{i\tau_{B}} = K' \frac{Q_{F}\left(U_{ap}\right)}{\lambda_{i} + \lambda_{w}} F_{f}(r) (DFL_{i\tau})_{a} \left[\frac{f_{p}f_{s}}{Y_{p}} + \frac{\left(1 - f_{p}f_{s}\right)e^{-\lambda_{i}t}h}{Y_{s}}\right] e^{-\lambda_{i}t}f$$

$$=$$
 m² -mrem/yr per uCi/sec [2.3-25]

where:

 F_f = The stable element transfer coefficients (days/kg).

 U_{ap} = The receptor's meat consumption rate for age "a" (kg/yr).

 t_f = The average time from slaughter of meat animal to consumption (sec).

Beaver Valley Power Station		Procedure Number: 1/2-ODC-2.02	
Title:	Unit: 1/2	Level Of Use: In-Field Reference	
ODCM: GASEOUS EFFLUENTS	Revision: 2	Page Number: 60 of 128	

 t_h = The transport time from crop field to receptor (sec).

All parameter values are the same as the milk pathway parameter values except F_f which is obtained from Table E-1. Parameter t_f is obtained from Table E-15, and U_{ap} is obtained from Table E-5. These values, as obtained from Regulatory Guide 1.109,^(3.1.3.5) are as follows:

Parameter	Value	RG-1.109 Table
F _f (days/kg)	each stable element	E-1
t _f (seconds)	1.73E6 (20 days)	E-15
U _{ap} (kg/yr) - infant Child Teen Adult	0 41 65 110	E-5 E-5 E-5 E-5

Man is considered to consume 2 types of vegetation (fresh and stored) that differ only in the time period between harvest and consumption; therefore:

8.3.2.1.2.6

Dose Factors For Vegetation Pathway

$$R_{i\tau_{v}} = K' \left[\frac{(r)}{Y_{v} (\lambda_{i} + \lambda_{w})} \right] (DFL_{i\tau})_{a} \left[U_{a}^{L} f_{L} e^{-\lambda_{i} t} L + U_{a}^{S} f_{g} e^{-\lambda_{i} t} h \right]$$

$$=$$
 m²-mrem/yr per uCi/sec [2.3-26]

where:

K' = A constant of unit conversion (1E6 pCi/uCi).

 U_a^L = The consumption rate of fresh leafy vegetation by the receptor in age group "a" (kg/yr).

 U_a^S = The consumption rate of stored vegetation by the receptor in age group "a" (kg/yr).

 f_L = The fraction of the annual intake of fresh leafy vegetation grown locally.

 f_g = The fraction of the annual intake of stored vegetation grown locally.

 t_L = The average time between harvest of leafy vegetation and its consumption (seconds).

Beaver Valley Power Station		Floceaule IV	Procedure Number:	
		1/2-ODC-2.02		
Title:		Unit: 1/2	Level Of Use: In-Field Reference	
ODCM: GASEOUS EFFLUENTS		Revision:	Page Number:	
		2	61 of 128	
consump $Y_v = The vegen all other factors are de Tabulated below are t Regulatory Guide 1.1$	he appropriate parameter v 09. ^(3.1.3.5)	alues and th	neir reference to	
Parameter	Value		-1.109 Table	
r (dimensionless)	1.0 for radioiodines	E-15		
	0.2 for particulates	E-15		
(DFL _{it}) _a (mrem/pCi)	each stable element	E-11 to	E-14	
U_a^L (kg/yr) -infant	0	E-5		
Child	26	E-5		
teen	42	E-5		
adult	64	E-5		
U_a^S (kg/yr) - infant	0	E-5		
child	520	E-5		
	630	E-5		
teen adult	520	E-5		
f_L (dimensionless)	1.0	E-15		
Fg (dimensionless)	0.76	E-15		
t _L (seconds)	8.6E4 (1 day)	E-15		
t _h (seconds)	5.18E6 (60 days)	E-15		
$Y_V (kg/m^2)$	2.0	E-15		

As discussed in Section 8.2.2 for tritium, the parameter W for the food pathway is based upon X/Q. The ground plane pathway is not appropriate for tritium. Therefore, the left-hand portion of Equation [2.3-20] may be expressed for purposes of implementation of 40 CFR 190, discussed in 1/2-ODC-2.04, as follows:

J,

h P

1

ļ,

à

	•·····	
Beaver Valley Power Station	Procedure Nun 1	nber: /2-ODC-2.02
Title:	Unit: 1/2	Level Of Use: In-Field Reference
ODCM: GASEOUS EFFLUENTS	Revision: 2	Page Number: 62 of 128
8.3.2.1.2.7 <u>Tritium Dose Equation</u>	I	
$3.17E - 8(R_{T\tau_{M}} + R_{T\tau_{V}} + R_{T\tau_{B}} + R_{T\tau_{I}}) [0.5(X/Q)]$	_{pv} Q _{T_{pv}} +	$(X/Q)_{cv} Q_{T_{cv}} +$
$(X/Q)_{vv}Q_{T_{vv}} + (X/Q)_{tv}Q_{T_{tv}} + (X/Q)_{cb}Q_{\tau_{cb}} + (X/Q)$	$dv^{Q}\tau_{dv}^{+}$	$(X/Q)_{WV} Q_{\tau_{WV}}$]
		[2.3-27]
where:		
$R_{T\tau_M}$ = Dose factor for organ " τ " for tritium for the n uCi/m ³).	nilk pathwa	ay (mrem/yr per
$R_{T\tau_V}$ = Dose factor for organ " τ " for tritium for the v uCi/m ³).	egetable pr	athway (mrem/yr per
$R_{T\tau_B}$ = Dose factor for organ " τ " for tritium for the b uCi/m ³).	eef pathwa	y (mrem/yr per
$R_{T\tau_I}$ = Dose factor for organ " τ " for tritium for the in uCi/m ³).	nhalation p	athway (mrem/yr per
Equation [2.3-27] is used to show compliance with 40 CF. ODC-2.04.	R 190, as d	iscussed in 1/2-
The concentration of tritium in milk is based on the airbor deposition. Therefore, the $R_{T\tau_M}$ is based on [X/Q]:	ne concent	ration rather than the
8.3.2.1.2.8 <u>Tritium Dose Factors For Milk Pathwa</u>	<u>ay</u>	
$R_{T\tau_M} = K'K''F_mQ_FU_{ap}(DLF_{i\tau})_a[0.75(0.5/H)]$		
= mrem/yr per uCi/m ³		[2.3-28]
where:		
K'' = A constant of unit conversion (1000 gm/kg).		
H = Absolute humidity of the atmosphere (8 gm/r)	m ³).	
0.75 = The fraction of total feed that is water.		
0.5 = The ratio of the specific activity of the feed g	rass water f	to the atmospheric

water.

.

į۲

Beaver Valley Power Station	Procedure N	/umber: 1/2-ODC-2.02
Title:	Unit: 1/2	Level Of Use: In-Field Reference
ODCM: GASEOUS EFFLUENTS	Revision: 2	Page Number: 63 of 128
and other parameters and values are the same as f	for R _{itm} .	
The concentration of tritium in vegetation is based than the deposition. Therefore, the $R_{t\tau_v}$ is based of		e concentration rather
8.3.2.1.2.9 <u>Tritium Dose Factors For Veget</u>	ation Pathway	
$R_{T\tau_{V}} = K'K'' \left[U_{a}^{L}f_{L} + U_{a}^{S}f_{g} \right] \left(DFL_{i\tau} \right)_{a} \left[0.75 (t_{s})_{a} \right] \left(0.75 (t_{s})_{a} \right)_{a} \left[0.75 (t_{s})_{a$	0.5/H)]	
= mrem/yr per uCi/m ³		[2.3-29]
where all terms have been defined above.		
The concentration of tritium in meat is based on it the deposition. Therefore, the $RT\tau_B$ is based on [3]		entration rather than
8.3.2.1.2.10 <u>Tritium Dose Factors For Beef F</u>	Pathway	
$R_{T\tau_{B}} = K'K''F_{f}Q_{F}U_{ap}(DFL_{i\tau})_{a} [0.75(0.5/H)]$		
= mrem/yr per uCi/m ³		[2.3-30]
where all terms have been defined above.		
To show compliance with ODCM CONTROLS 3 21] is evaluated at the controlling pathway location		

the controlling location is a residence 0.89 miles in the NW sector. Inserting appropriate X/Q values from ATTACHMENT F Tables 2.2-4 to 2.2-10 and D/Q values from ATTACHMENT L Tables 2.3-28 to 2.3-34, Equation [2.3-21] becomes:

8.3.2.1.3 Radioiodines and Particulates Dose Determination

 $3.17E - 8 \sum_{i} [[R_{i\tau_{G}} + R_{i\tau_{V}}][(0.5)4.22E - 10 Q_{ipv} + 1.56E - 8 Q_{cv} + 1.56E - 8 Q_{cv} + 1.56E - 8 Q_{ivv} + 1.55E - 8 Q_{itv} + 1.55E - 8 Q_{icb} + 1.56E - 8 Q_{idv} + 2.52E - 5 Q_{idv} + 2.00E - 5 Q_{idv}$

Beaver Valley Power Station	Procedure Nur 1	nber: /2-ODC-2.02
Title:	Unit: 1/2	Level Of Use: In-Field Reference
ODCM: GASEOUS EFFLUENTS	Revision: 2	Page Number: 64 of 128
\leq 0.3 mrem (per 31 days), or \leq 7.5 mrem (per quarter), or \leq 15.0 mrem (per year)		[2.3-31]
For tritium, for purposes of implementation of 1/2-ODC-2.04, Equation [2.3-28] reduces to:	40 CFR 19	0, as discussed in
$3.17E - 8[R_{T\tau_{v}} + R_{T\tau_{I}}][(0.5)7.30E - 9Q_{i_{pv}}]$, + 2.00E –	$5 Q_{i_{cv}} + 2.71E -$
$5Q_{i_{vv}} + 2.22E - 5Q_{i_{tv}} + 2.22E -$	$5 Q_{i_{cb}} + 2.$	$00E - 5Q_{i_{dv}} +$
2.00E – 5 Q _{iwv}]		[2.3-32]
8.3.2.1.4 Determination of Controlling Location		
The determination of a controlling locating for	implement	ation of ODCM

The determination of a controlling locating for implementation of ODCM CONTROLS 3.11.2.3 and 3.11.2.4 for radioiodines and particulates is a function of:

- Radionuclide mix and their isotopic release
- Release Mode
- Meteorology
- Exposure pathway
- Receptor's age

The incorporation of these parameters into Equation [2.3-19] results in the respective equations for each Release Mode at the controlling location.

In determination of the controlling location for each Release Mode, the radionuclide mix of radioiodines and particulates was based upon the source terms calculated using the GALE code. This mix was presented in ATTACHMENT D Tables 2.2-2a and 2.2-2b as a function of Release Mode and Release Point. For the ground plane exposure pathway, all radionculides (excluding H-3 and C-14) were considered in determination of the controlling location. For the inhalation and food pathways H-3 and C-14 were also considered in determination of the controlling location.

In determination of the controlling location for each Release Mode, all of the exposure pathways, as presented in ATTACHMENT E Table 2.2-3, were evaluated. These include cow milk, goat milk, beef and vegetable ingestion and inhalation and ground plane exposure. An infant was assumed to be present at all milk pathway locations. A child was assumed to be present at all vegetable garden and beef animal locations. The ground plane and inhalation exposure pathways were considered to be present at all locations.

Beaver	· Valley Power Station	Procedure Nu	mber: 1/2-ODC-2.02
Title:		Unit: 1/2	Level Of Use: In-Field Reference
ODCM: GASEOUS EI	FFLUENTS	Revision: 2	Page Number: 65 of 128
	For determination of the controlling location, t for each Release Point and Release Mode for t and goat milk pathways were selected. The or of these locations using the radionuclide mix a ATTACHMENT D Tables 2.2-2a and 2.2-2b H was determined that the controlling location fo the residence (vegetable garden)/child pathway	he vegetab gan dose w nd Release Based upon r Release I	le garden, cow milk, vas calculated at each Points of these calculations, it
	For Release Modes 1 through 4, the controlling and VV-2.	g Release F	Point and mix is VV-1
	ATTACHMENT J Tables 2.3-2 through 2.3-20 body, GI-LLI, bone, liver, kidney, thyroid, and plane, inhalation, cow milk, goat milk, vegetab for the infant, child, teen, and adult age groups These values were calculated using the method 0133 ^(3.1.3.1) using a grazing period of 6 months.	lung orgation lung orgation lung orgation lung and methods and met	ns for the ground at ingestion pathways riate to the pathways.
	In determination of the controlling location for Release Modes 1-4, ATTACHMENT F Tables 2.2-4 through 2.2-10 are utilized for X/Q's, and ATTACHMENT L Tables 2.3-28 through 2.3-34 are utilized for long term D/Q values. A description of the derivation of the various X/Q and D/Q values is presented in 1/2-ODC-3.01.		
	Long-term D/Q values for PV-1/2, CV-1, CV- DV-2 AND WV-2 are provided for the midpoi		,
	0.0-0.5 mi., 0.5-1.0 mi., 1.0-1.5 mi., 1.5-2.0 mi 2.5-3.0 mi., 3.0-3.5 mi., 3.5-4.0 mi., 4.0-4.5 mi		
	The values appear in ATTACHMENT K Table values may be utilized if an additional special l those presented in the special locations of ATT	location ar	ises different from
	The following relationship must hold for BV-1 with ODCM CONTROL 3.11.2.3.	or BV-2 t	o show compliance
	For The Calendar Quarter:		
	$D_{\tau} \leq 7.5$ mrem to any organ		[2.3-33]
	For The Calendar Year:		
	$D_{\tau} \leq 15$ mrem to any organ		[2.3-34]
	where:		
	D_{τ} = The dose to any organ from radioiodine	s and parti	culates (mrem).

Beaver Valley Power Station Procedure Number: 1/2-OD		umber: 1/2-ODC-2.02
Title:	Unit: 1/2	Level Of Use: In-Field Reference
ODCM: GASEOUS EFFLUENTS	Revision: 2	Page Number: 66 of 128

The quarterly limits given above represent one-half the annual design objective of Section II.C of Appendix I of 10 CFR 50. If any of the limits of Equations [2.3-33] and [2.3-34] are exceeded, a Special Report pursuant to both Section IV.A of Appendix I of 10 CFR 50 and ODCM CONTROL 3.11.2.3.a must be filed with the NRC at the identified locations.

8.3.2.2 Projection Of Doses (Radioiodines And Particulates)

Doses due to gaseous releases from BV-1 or BV-2 shall be projected at least once per 31 days in accordance with ODCM CONTROL 4.11.2.4 and this section. (Also see Section 8.3.1.2, <u>Projection Of Doses</u> for additional specifications). The appropriate portions of the Ventilation Exhaust Treatment System shall be used to reduce radioactive materials in gaseous waste prior to their discharge in accordance with ODCM CONTROL 3.11.2.4 when the projected doses due to gaseous effluent releases from each reactor unit, when averaged over 31 days, would exceed 0.3 mrem to any organ. (Also see Section 8.3.1.2, <u>Projection Of Doses</u> for additional specifications). Doses resulting from the gaseous effluent release of radioiodines and particulates will be calculated for use in the 31-day dose projection using Equation [2.3-31]. The 31-day dose projection shall be performed according to the following equations:

8.3.2.2.1 When Including Pre-Release Data,

$$D_{31} = \left[\frac{A+B}{T}\right](31) + C$$
 [2.3-35]

8.3.2.2.2 When Not Including Pre-Release Data,

$$D_{31} = \left[\frac{A}{T}\right](31) + C$$
 [2.3-36]

where:

 D_{31} = Projected 31 day dose (mrem).

A = Cumulative dose for quarter (mrem).

B = Projected dose for this release (mrem).

T = Current days into quarter.

C = Value which may be used to anticipate plant trends (mrem).

Beaver Valley Power Station Procedure Number: 1/2-ODC-2.		mber: 1/2-ODC-2.02
Title:	Unit: 1/2	Level Of Use: In-Field Reference
ODCM: GASEOUS EFFLUENTS	Revision: 2	Page Number: 67 of 128

8.4 Gaseous Radwaste System

The gaseous radwaste system has the capability to control, collect, process, store, recycle, and dispose of gaseous radioactive waste generated as a result of plant operations, including anticipated operational occurrences.

A simplified flow diagram of the gaseous radwaste system for BV-1 and BV-2 is provided as ATTACHMENT N Figure 2.4-1. A diagram showing the gaseous effluent Release Points is provided as ATTACHMENT P Figure 2.4-2. Since the concept of a shared gaseous radwaste system is used, then gaseous waste generated can be stored, processed, and discharged from either BV-1 or BV-2.

8.4.1 BV-1 Gaseous Radwaste System Components

8.4.1.1 BR-1EV-2A/2B: Degasifiers

There are two Degasifiers. They are designed to continuously process reactor coolant letdown for reducing entrained noble gases in the liquid.

8.4.1.2 GW-1E-1A/1B: Waste Gas Chillers

There are two Chillers. Non-condensable gases from the degasifiers are directed by system pressure to the Waste Gas Chillers.

8.4.1.3 GW-1TK-3A thru 3D: Gaseous Waste Charcoal Delay Beds

There are four Charcoal Beds. The dry effluent from the Chillers is directed to the Waste Gas Charcoal Delay Beds for holdup of xenon and krypton and adsorption of radioiodines. When four beds are operated in series, they provide a holdup of xenon isotopes for about 30 days.

8.4.1.4 <u>GW-1FL-5A/5B: Overhead Gas Compressor Prefilters</u>

There are two Prefilters. The gaseous effluent (primarily hydrogen) is directed from the Gaseous Waste Charcoal Delay Beds to one of the Overhead Gas Compressor Prefilters. The filters remove carbon solids from the gas stream.

8.4.1.5 GW-1C-1A/1B: Gas Compressors

There are two Compressors. The waste gas enters one of the compressors after passing through the Prefilters.

8.4.1.6 GW-1TK-2: Gaseous Waste Surge Tank

There is one Surge Tank. It has a capacity of 52 cuft. After compression to about 65 psig, the waste gas is sent to the Surge Tank. This can be done automatically or manually.

8.4.1.7 GW-1TK-1A thru 1C: Waste Gas Decay Tanks

Beaver Valley Power Station Procedure Number: 1/2-ODC-2.0		nber: /2-ODC-2.02
Title:	Unit: 1/2	Level Of Use: In-Field Reference
ODCM: GASEOUS EFFLUENTS	Revision: 2	Page Number: 68 of 128

There are three Decay Tanks. Each has a capacity of 132 cuft. The contents of the Surge Tank is transferred to the Decay Tanks for storage and decay. After 30 days of storage, all xenon and iodine should have decayed, and the resulting predominant nuclide should be krypton 85.

8.4.1.8 RM-1GW-108 And RM-1GW-109: Gaseous Effluent Radiation Monitors

There are redundant Radiation Monitors on the combined PV-1/2 Gaseous Waste/Process Vent release path. These Radiation Monitors continuously analyze gaseous waste as it is being discharged. Gaseous Monitor RM-1GW-108B is an offline gamma scintillator, while RM-1GW-109 Channel 5 is an off-line beta scintillator. The upper activity alarm on the gaseous Channels of these Radiation Monitors have setpoints that would indicate we are approaching the Total Body Dose Rate or Skin Dose Rate limits for radioactive gas leaving the site. If an upper activity alarm on RM-1GW-108B is received, it automatically terminates the discharge by closing an isolation valve downstream of the Decay Tanks.

8.4.2 BV-2 Gaseous Radwaste System Components

8.4.2.1 **2BRS-EV21A/21B: Degasifiers**

There are four Degasifiers (two at Unit 1 and two at Unit 2). They are designed to continuously process reactor coolant letdown for reducing entrained noble gases in the liquid.

8.4.2.2 2GWS-E21A/21B: Waste Gas Chillers

There are four Chillers (two at Unit 1 and two at Unit 2). Non-condensable gases from the degasifiers are directed by system pressure to the Waste Gas Chillers.

8.4.2.3 2GWS-TK22A thru 22D: Waste Gas Charcoal Delay Beds

There are four Charcoal Beds (four at Unit 1 and four at Unit 2). The dry effluent from the Chillers is directed to the Waste Gas Charcoal Delay Beds for holdup of xenon and krypton and adsorption of radioiodines. When four beds are operated in series, they provide a holdup of xenon isotopes for about 30 days.

8.4.2.4 <u>2GWS-FLT24A/24B: Overhead Gas Compressor Prefilters</u>

There are two Prefilters. The gaseous effluent (primarily hydrogen) is directed from the Waste Gas Charcoal Delay Beds to one of the Overhead Gas Compressor Prefilters. The filters remove carbon solids from the gas stream.

8.4.2.5 2GWS-C21A/21B: Gas Compressors

There are two Compressors. The waste gas enters one of the compressors after passing through the Prefilters.

Beaver Valley Power Station	Procedure Nu	^{mber:} 1/2-ODC-2.02
Title:	Unit: 1/2	Level Of Use: In-Field Reference
ODCM: GASEOUS EFFLUENTS	Revision: 2	Page Number: 69 of 128

8.4.2.6 2GWS-TK21: Gaseous Waste Surge Tank

There is one Surge Tank. It has a capacity of 52 cuft. After compression to about 65 psig, the waste gas is sent to the Surge Tank. This can be done automatically or manually.

8.4.2.7 2GWS-TK25A thru 25G: Gaseous Waste Storage Tanks

There are seven Storage Tanks. Each has a capacity of 132 cuft. The contents of the Surge Tank is transferred to the Storage Tanks for storage and decay. After 30 days of storage, all xenon and iodine should have decayed, and the resulting predominant nuclide should be krypton 85.

8.4.2.8 RM-1GW-108 And RM-1GW-109: Gaseous Effluent Radiation Monitors

Previously described in Section 8.4.1.

- END -

	Beav	er Valley P	ower Stati	on	Procedure Numb	er: 2-ODC-2.02
Title:					Unit:	Level Of Use:
					1/2	In-Field Reference
ODCM:	GASEOUS	EFFLUENTS			Revision: 2	Page Number: 70 of 128
•••••		<u> </u>	ATTACHI	MENT A		70 01 120
			Page 1			
			GASEOUS SO			
			ጥ ል ነን የ ጉ	0110		
			TABLE	∠.1 - 1a		
		BV-1 RADION	UCLIDE MIX I	FOR GASEOU	S EFFLUENTS	
			(Ci/	yr)		
		RX	AUXILIARY			
		CONTAINMENT/	BUILDING			
		SLCRS VENT	VENT	GASEOUS	WASTE/PROCES	S VENT
		Long Term, And				
			AUXILIARY	MAIN	CONTAINMENT	GASEOUS
		CONTAINMENT	BUILDING	CONDENSER/	VACUUM	WASTE
	NUCLIDE ⁽²⁾	BUILDING ⁽¹⁾	VENTILATION	AIR EJECTOR	PUMPS ⁽³⁾	SYSTEM
		Short Term	Long Term	Long Term	Long Term	Short Term
	Kr-83m	2.2E-02	4.2E-01	2.7E-01	5.2E-03	0.0
	Kr-85m	1.5E-01	1.9E+00	1.2E+00	5.5E-02	7.3E-02
	Kr-85	6.1E+01	2.5E+00	1.6E+00	1.0E+01	2.3E+02
	Kr-87	5.4E-02	1.3E+00	8.2E-01	1.1E-02	0.0
	K.r-88	2.4E-01	3.8E+00	2.4E+00	7.0E-02	0.0
	Kr-89	4.7E-04	1.2E-01	7.7E-02	4.3E-05	0.0
	Xe-131m	7.4E-01	1.3E-01	8.0E-02	1.8E-01	1.3E+00
	Xe-133m	8.9E-01	8.9E-01	5.6E-01	3.1E-01	0.0
	Xe-133	8.9E+01	3.6E+01	2.3E+01	2.7E+01	2.3E+01
			3.2E-01	2.0E-01	6.2E-04	0.0
	Xe-135m	4.5E-03	J.ZL-01			
	Xe-135m Xe-135	7.0E-01	4.5E+00	2.8E+00	2.7E-01	0.0
	Xe-135m Xe-135 Xe-137	7.0E-01 1.0E-03	4.5E+00 2.1E-01	1.3E-01	8.8E-05	0.0
	Xe-135m Xe-135	7.0E-01	4.5E+00			

⁽¹⁾ Containment can be purged via VV-1 (Auxiliary Building Vent), CV-1 (Rx Containment/SLCRS Vent), or PV-1/2 (Gaseous Waste/Process Vent)

(2) Source Term from BVPS-2 UFSAR Table $11.3.1^{(3.1.1.2)}$

(Page 70 of 128)

⁽³⁾ Original Source Term from Calculation No. UR(B)-262 was adjusted for a factor of 14 increase in pump flowrate due to installation of high capacity pumps during 1R15. This change in Source Term is documented in Condition Report CR03-04830 and Calculation No. ERS-HHM-87-014.^(3,1,1,5)(3,1,1,8)(3,1,3,10)

		11 D			Procedure Nu	unber:	
	Beaver Va	alley Powe	r Station		-	1/2-ODC-2	2.02
Title:					Unit:	Level Of Use	
					1/2		l Reference
ODCM: GA	ASEOUS EFFLU	JENTS			Revision: 2	Page Number	
			TTACHMENT	<u>^</u>	4	/1	of 128
		А		A			
		G 1 (T)	Page 2 of 2				
		GASE	OUS SOURCE	IERM			
			TABLE 2.1-1b				
	BV-2 B		E MIX FOR G		FFI LIFNI	27	
	D V 2 1		(Ci/yr)	ISLOUS LI			
	SLCRS	SLCRS	TURBINE				
[UNFILTERED	FILTERED	BUILDING				
	PATHWAY	<u>PATHWAY</u>	VENT	GASE	OUS WAST	FE/PROCESS	<u>S VENT</u>
	Long Term, And						
		AUXILIARY	TURBINE	MAIN	CON	FAINMENT	GASEOUS
NUCLIDE ⁽²	CONTAINMENT	BUILDING	BUILDING	CONDENSE		ACUUM	WASTE
)	BUILDING ⁽¹⁾	VENTILATION	VENTILATION	AIR EJECT	<u>OR PI</u>	UMPS ⁽³⁾	SYSTEM
	Short Term	Long Term	Long Term	Long Tern	n Lo	ong Term	Short Term
					_		
Kr-83m	4.0E-05	4.2E-01	3.9E-05	2.7E-01		7E-04	0.0
Kr-85m Kr-85	1.4E-02 6.1E+01	1.9E+00 2.5E+00	1.7E-04 2.3E-04	1.2E+00 1.6E+00		9E-03 2E-01	1.2E-02 2.3E+02
Kr-85 Kr-87	5.3E-06	1.3E+00	2.3E-04 1.1E-04	1.0E+00 8.2E-01		8E-04	2.3E+02 0.0
Kr-88	4.1E-03	3.8E+00	3.5E-04	2.4E+00		0E-04	0.0
Kr-89	0.0	1.2E-01	1.1E-05	7.7E-02		1E-06	0.0
Xe-131m	7.2E-01	1.3E-01	1.2E-05	8.0E-02		3E-02	8.3E-01
Xe-133m	7.6E-01	8.9E-01	8.1E-05	5.6E-01		2E-02	0.0
Xe-133	8.4E+01	3.6E+01	3.4E-03	2.3E+01	1.	9E-00	8.2E+00
Xe-135m	0.0	3.2E-01	2.9E-05	2.0E-01	4.	4E-05	0.0
Xe-135	2.4E-01	4.5E+00	4.2E-04	2.8E+00	1.	9E-02	0.0
Xe-137	0.0	2.1E-01	2.1E-05	1.3E-01		3E-06	0.0
Xe-138	0.0	1.1E+00	9.7E-05	6.6E-01		2E-04	0.0
Ar-41	2.5E+01	0.0	0.0	0.0	0.	.0	0.0
1							

⁽¹⁾ Containment can be purged via VV-2 (SLCRS Unfiltered Pathway), CV-2 (SLCRS Filtered Pathway), or PV-1/2 (Gaseous Waste/Process Vent)
 ⁽²⁾ Source Term from BVPS-2 UFSAR Table 11.3.2^(3,1,2,3)
 ⁽³⁾ Source Term from Calculation No. UR(B)-262^(3,1,2,5)

Contraction of the

the second se

ć

· · · · • •	Beaver V	alley Pow	er Station	1	Procedure Number: 1/2-O	DC-2.02
Title:				τ	Jnit: Level	Of Use:
					A / 22	I-Field Reference
ODCM: G	ASEOUS EFFL	UENTS		1,	2 Page	72 of 128
			ATTACHMEN	ГВ		
			Page 1 of 2			
	GASEOU	JS EFFLUENT	MONITOR DE	TECTION EFI	FICIENCIES	
			TABLE 2.1-2	2a		
		BV-1 MONIT	OR DETECTO	R EFFICIENC	ΈS	
			(cpm/uCi/cc			
				S WASTE/		AINMENT/
NUCLIDE		JILDING VENT		SS VENT		RS VENT
	PRIMARY MONITOR ⁽¹⁾	ALTERNATE MONITOR ⁽²⁾	PRIMARY MONITOR ⁽¹⁾	ALTERNATE MONITOR ⁽²⁾	PRIMARY MONITOR ⁽¹⁾	ALTERNATI MONITOR ⁽²
	RM-VS-101B	RM-VS-109	RM-GW-108B	RM-GW-109	RM-VS-107B	RM-VS-110
		Channel 5		Channel 5		Channel 5
K r-8 3m						
Kr-85m	9.80 E7	2.39 E7	9.00 E7	2.43 E7	5.16 E7	2.57 E7
Kr-85	3.88 E5	2.47 E7	3.56 E5	2.51 E7	5.04 E7	2.67 E7
Kr-87	7.38 E7	2.95 E7	6.78 E7	3.00 E7	9.60 E7	3.19 E7
Kr-88	1.14 E8	2.11 E7	1.05 E8	2.14 E7	5.16 E7	2.28 E7
Kr-89	1.39 E8	2.93 E7	1.28 E8	2.98 E7	9.59 E7	3.16 E7
Kr-90	1.34 E8	3.05 E7	1.23 E8	3.10 E7	9.87 E7	3.29 E7
Xe-131m	2.25 E6	1.56 E7	2.07 E6	1.59 E7	2.94 E7	1.68 E7
Xe-133m	1.26 E7	1.94 E7	1.16 E7	1.97 E7	4.17 E7	2.09 E7
Xe-133	1.01 E7	1.24 E7	9.24 E6	1.26 E7	2.28 E7	1.33 E7
Xe-135m	7.15 E7	5.70 E6	6.58 E7	5.80 E6	1.51 E7	6.15 E6
Xe-135	1.12 E8	2.91 E7	1.03 E8	2.96 E7	6.42 E7	3.14 E7
Xe-137	3.16 E7	2.96 E7	2.91 E7	3.01 E7	1.05 E8	3.19 E7
Xe-138	1.15 E8	2.66 E7	1.06 E8	2.70 E7	7.35 E7	2.87 E7
Ar-41	7.17 E7	3.00 E7	6.59 E7	3.05 E7	7.19 E7	3.23 E7
(1)						. *
			respective prim nented during of	-	victoreen) are o	corrected for th
(-		v .		amontal fam d	to oton unio
1 ne alt	ernate monitors	(EDEFINE SPIN	IG Channel 5) e	metencies are (corrected for de	exector unique

B	eaver Valley	Power Stat	tion	Procedure Numi 1/	ber: 2-ODC-2.02
Title:	<u></u>	<u></u>		Unit:	Level Of Use:
				1/2	In-Field Reference
ODCM: GASE	OUS EFFLUENTS	5		Revision:	Page Number:
				2	<u>73 of 128</u>
			IMENT B		
		Page	2 of 2		
	GASEOUS EFF	LUENT MONIT	OR DETECTION	EFFICIENCI	ES
		TADI	E 2.1-2b		
	DVA				,
	вү-2		ECTOR EFFICIE	NUES	
		(cpm/	uCi/cc)		
	SLCRS	SLCRS	WASTE GAS	DECON	CONDENSATE
NUCLIDE ⁽¹⁾	UNFILTERED	FILTERED	STORAGE	DECON	POLISHING
NUCLIDE	PATHWAY	PATHWAY	<u>VAULT VENT</u> 2RMQ-RQ303B	2RMQ-RQ301	ENT BUILDING VENT
	2HVS-RQ101B	2HVS-RQ109B	2KMQ-KQ303B	2KMQ-RQ301	B 2HVL-RQ112B
Kr-83m					·
Kr-85m	3.20E7	5.83E7	3.20E7	3.20E7	3.20E7
Kr-85	3.60E7	7.19E7	3.60E7	3.60E7	3.60E7
Kr-87	3.73E7	8.85E7	3.73E7	3.73E7	3.73E7
Кг-88	3.05E7	6.80E7	3.05E7	3.05E7	3.05E7
Kr-89	3.72E7	8.73E7	3.72E7	3.72E7	3.72E7
Kr-90	3.86E7	8.80E7	3.86E7	3.86E7	3.86E7
Xe-131m	2.44E7	4.61E4	2.44E7	2.44E7	2.44E7
Xe-133m	2.86E7	6.06E4	2.86E7	2.86E7	2.86E7
Xe-133	1.80E7	2.94E7	1.80E7	1.80E7	1.80E7
Xe-135m	7.22E6	1.55E4	7.22E6	7.22E6	7.22E6
Xe-135 Xe-137	3.86E7	7.48E7	3.86E7 3.78E7	3.86E7	3.86E7
Xe-137 Xe-138	3.78E7 3.52E7	9.07E7 7.74E7	3.52E7	3.78E7 3.52E7	3.78E7 3.52E7
Ar-41	3.79E7	7.90E7	3.79E7	3.79E7	3.32E7 3.79E7
AT	5.7957	1.90E7	J. (7Ľ)	5.77177	3.7911
(1) Efficienci			(3.121)		
Efficienci	es from Calculation	n Package ERS-S	SFL-86-026.		

1

.

Beaver Va	alley Power St	tation	Procedure Numl	oer: 2-ODC-2.02
Title:			Unit:	Level Of Use:
ODCM: GASEOUS EFFLU	JENTS		1/2 Revision: 2	In-Field Reference Page Number: 74 of 128
	Pa	CHMENT C ge 1 of 1 ASEOUS RELEA	SE	<u></u>
		able 2.2-1	-	
	EOUS RELEASE FI	ROM BEAVER V.		ENTS FOR
<u>RELEASE POINT</u>	RELEASE MODE 1	RELEASE MODE 2	RELEASE MODE 3	RELEASE MODE 4
RP 1; VV-1, Auxiliary Building Vent ⁽¹⁾	Aux. Bldg. Ventilation	Containment Purge ⁽³⁾	Same As Mode	I Same As Mode
RP 2; CV-1, Rx Containment/SLCRS Vent ⁽¹⁾	Leakage Collection Exhaust	Same As Mode 1	Same As Mode and Containmen Purge ⁽³⁾	
RP 3; PV-1/2, Gaseous Waste/Process Vent ⁽²⁾	Main Cond. Air Ejector, Waste Gas, Containment Vacuum	Same As Mode 1	Same As Mode	l Same As Mode and Containmer Purge
RP 4; VV-2 SLCRS Unfiltered Pathway ⁽¹⁾	Contiguous Areas	Containment Purge ⁽³⁾	Same As Mode	Same As Mode
RP 5; CV-2, SLCRS Filtered Pathway Vent ⁽¹⁾	Aux. Bldg. Ventilation	Same As Mode 1	Same As Mode 1 and Containment Purge ⁽³⁾	
RP 6; CB-2, Condensate Polishing Bldg Vent ⁽¹⁾	(4)	(4)	(4)	(4)
RP 7; WV-2, Waste Gas Storage Vault Vent ⁽¹⁾	(4)	(4)	(4)	(4)
RP 8; DV-2, Decontamination Bldg Vent ⁽¹⁾	(4)	(4)	(4)	(4)
RP 9; TV-2, Turbine Bldg Vent ⁽¹⁾	(4)	(4)	(4)	(4)

NOTE: For the purpose of implementing 10 CFR 50, batch discharges may use continuous meteorology since short term meteorology is used at the time of the annual report.

⁽¹⁾ Continuous ground level meteorology is applicable

⁽²⁾ Continuous elevated meteorology is applicable

⁽³⁾ Mode established by purge from one unit, all other release points remain same as Mode 1

⁽⁴⁾ Not normally a radioactive release point

				Procedure Numbe	
	Beaver Valle	ey Power Stat	tion	•	-ODC-2.02
Title:			· · · · · · · · · · ·	Unit: L 1/2	evel Of Use: In-Field Reference
ODCM: GA	SEOUS EFFLUEN	ITS			Page Number: 75 of 128
		ΔΤΤΔΟΈ	IMENT D		/3 01 120
			1 of 2		
		RADIONU	CLIDE MIX		
			E 2.2-2a		
	BV-1 RAL	DIONUCLIDE MIX		S EFFLUENTS	
		(C ²	i/yr)		
	RX				
	CONTAINMENT/	AUXILIARY	a 1 a b c		· · <u>-</u> <u>-</u> <u></u>
-	SLCRS VENT	BUILDING VENT	GASEC	OUS WASTE/PROC	ESS VENT
	Long Term, And				
		AUXILIARY	MAIN	CONTAINMENT	ſ
NUCLIDE ⁽²	CONTAINMENT	BUILDING	CONDENSER/	VACUUMM	GASEOUS
)	BUILDING ⁽¹⁾	VENTILATION	AIR EJECTOR	PUMPS ⁽³⁾	WASTE SÝSTEM
	Short Term	Long Term	Long Term	Long Term	Short Term
Kr-83m	2.2E-02	4.2E-01	2.7E-01	5.2E-03	0.0
Kr-85m	1.5E-01	1.9E+00	1.2E+00	5.5E-02	1.2E-02
Kr-85	6.1E+01	2.5E+00	1.6E+00	1.0E+01	2.3E+02
Kr-87	5.4E-02	1.3E+00	8.2E-01	1.1E-02	0.0
Kr-88	2.4E-01	3.8E+00	2.4E+00	7.0E-02	0.0
Kr-89	4.7E-04	1.2E-01	7.7E-02	4.3E-05	0.0
Xe-131m	7.4E-01	1.3E-01	8.0E-02	1.8E-01	8.3E-01
Xe-133m	8.9E-01	8.9E-01	5.6E-01	3.1E-01	0.0
Xe-133	8.9E+01	3.6E+01	2.3E+01	2.7E+01	8.2E+00
Xe-135m	4.5E-03	3.2E-01	2.0E-01	6.2E-04	0.0
Xe-135	7.0E-01	4.5E+00	2.8E+00	2.7E-01	0.0
Xe-137	1.0E-03	2.1E-01	1.3E-01	8.8E-05	0.0
Xe-138	1.5E-02	1.1E+00	6.6E-01	1.7E-03	0.0
I-131	1.2E-03	4.6E-02	2.1E-02	6.6E-03	0.0
I-132	0.0	0.0	0.0	3.5E-05	0.0
I-133	2.0E-04	6.7E-02	3.0E-02	1.2E-03	0.0
I-134 I 125	0.0	0.0	0.0	6.6E-06	0.0
I-135 Co. 58	0.0 7 5E 04	0.0 6 OF 02	0.0	2.0E-04	0.0
Co-58 Co-60	7.5E-04	6.0E-02	0.0 0.0	2.2E-04	0.0 0.0
Mn-54	3.4E-04 2.2E-04	2.7E-02 1.8E-02	0.0	1.0E-04 6.9E-05	0.0
Fe-59	7.5E-05	6.0E-03	0.0	2.2E-05	0.0
Sr-89	1.7E-05	1.3E-03	0.0	5.2E-06	0.0
Sr-90	3.0E-06	2.0E-04	0.0	9.2E-00	0.0
Cs-134	2.2E-04	1.8E-02	0.0	6.9E-05	0.0
Cs-137	3.8E-04	3.0E-02	0.0	1.2E-04	0.0
C-14	1.0E+00	0.0	0.0	0.0	7.0E+00
Ar-41	2.5E+01	0.0	0.0	0.0	0.0
- <u>-</u>		0,0	••••		0.0

⁽¹⁾ Containment can be purged via VV-1 (Auxiliary Building Vent), CV-1 (Rx Containment/SLCRS Vent), or PV-1/2 (Gaseous Waste/Process Vent)
 ⁽²⁾ Source Term from BVPS-2UFSAR Table 11.3-1^(3.1.1.2)
 ⁽³⁾ See Note ⁽³⁾ from ATTACHMENT A Table 2.1-1a ^(3.1.1.5) (3.1.1.8) (3.1.3.10)

	Beaver Va	lley Power	Station	Proceat	ure Number: 1/2-ODC-2	02
Title:				Unit: 1/2	Level Of Use	Reference
ODCM G	ASEOUS EFFLU	ENTS		Revisio		
			<u> </u>	2	76 0	of 128
		AT	TACHMENT D			
			Page 2 of 2			
		RAD	IONUCLIDE MIX	ζ		
			FABLE 2.2-2b		•	
	BV-2 B		E MIX FOR GASI	OUS FEFU	FNITS	
	D V - 2 R	ADIOROCLIDI		SOUS LITEO		
			(Ci/yr)			
	SLCRS	SLCRS				
	UNFILTERED	FILTERED	TURBINE			
	PATHWAY	<u>PATHWAY</u>	BUILDING VENT	GASEOUS	WASTE/PROCES	S VENT
	Long Term, And					
		AUXILIARY	TURBINE	MAIN	CONTAINMENT	GASEOU
NUCLIDE ⁽²	CONTAINMENT	BUILDING	BUILDING	CONDENSER/	VACUUM	WASTE
)	BUILDING ⁽¹⁾	VENTILATION	VENTILATION	AIR EJECTOR	PUMPS ⁽³⁾	SYSTEM
	Short Term	Long Term	Long Term	Long Term	Long Term	Short Ter
Kr-83m	4.0E-05	4.2E-01	3.9E-05	2.7E-01	3.7E-04	0.0
Kr-85m	1.4E-02	1.9E+00	1.7E-04	1.2E+00	3.9E-03	1.2E-02
Кг-85	6.1E+01	2.5E+00	2.3E-04	1.6E+00	7.2E-01	2.3E+02
Kr-87	5.3E-06	1.3E+00	1.1E-04	8.2E-01	7.8E-04	0.0
Kr-88	4.1E-03	3.8E+00	3.5E-04	2.4E+00	5.0E-03	0.0
Kr-89	0.0	1.2E-01	1.1E-05	7.7E-02	3.1E-06	0.0
Xe-131m	7.2E-01	1.3E-01	1.2E-05	8.0E-02	1.3E-02	8.3E-01
Xe-133m	7.6E-01	8.9E-01	8.1E-05	5.6E-01	2.2E-02	0.0
Xe-133	8.4E+01	3.6E+01	3.4E-03	2.3E+01	1.9E-00	8.2E+00
Xe-135m	0.0	3.2E-01	2.9E-05	2.0E-01	4.4E-05	0.0
Xe-135	2.4E-01	4.5E+00	4.2E-04	2.8E+00	1.9E-02	0.0
Xe-137	0.0	2.1E-01	2.1E-05	1.3E-01	6.3E-06	0.0
Xe-138	0.0	1.1E+00	9.7E-05	6.6E-01	1.2E-04	0.0
I-131	2.7E-05	4.6E-03	6.5E-04	2.1E-02	4.7E-04	0.0
I-132 I-133	0.0 2.6E-06	0.0 6.7E-03	0.0 8.7E-04	0.0 3.0E-02	2.5E-06	0.0 0.0
I-135 I-134	0.0	0.0	0.0	0.0	8.4E-05 4.7E-07	0.0
I-134 I-135	0.0	0.0	0.0	0.0	4.7E-07 1.4E-05	0.0
Co-58	7.5E-02	6.0E-04	0.0	0.0	1.6E-05	0.0
Co-60	3.4E-02	2.7E-04	0.0	0.0	7.4E-06	0.0
Mn-54	2.2E-02	1.8E-04	0.0	0.0	4.9E-06	0.0
Fe-59	7.5E-03	6.0E-05	0.0	0.0	1.6E-06	0.0
Sr-89	1.7E-03	1.3E-05	0.0	0.0	3.7E-07	0.0
Sr-90	3.0E-04	2.0E-06	0.0	0.0	6.6E-08	0.0
Cs-134	2.2E-02	1.8E-04	0.0	0.0	4.9E-06	0.0
Cs-137	3.8E-02	3.0E-04	0.0	0.0	8.4E-06	0.0
C-14	1.0E+00	0.0	0.0	0.0	0.0	7.0E+00
Ar-41	2.5E+01	0.0	0.0	0.0	0.0	0.0

⁽¹⁾ Containment can be purged via VV-2 (SLCRS Unfiltered Pathway), CV-2 (SLCRS Filtered Pathway), or PV-1/2 (Gaseous Waste/Process Vent)
 ⁽²⁾ Source Term from BVPS-2UFSAR Table 11.3-2^(3.1.1.3)
 ⁽³⁾ See Section 8.1.1.1

	210					NNUAL (mete	X/Q VAI	RECEPTOI LUES			UNIT D				ODCM: GA	
DOWNWIND	SITE	BOUNI	DARY*	VEGETA GARD		MILK	COW	MILK C	ЮАТ	MEAT A	NIMAL	RESID	ENT		GASEOUS	
SECTOR	GRC	UND	ELEV	GROUND	ELEV	GROUN	D ELEV	GROUND	ELEV	GROUND	ELEV	GROUND	ELEV			
	(1)	(2)													EFFLUENTS	
N	670	579	413	2,623	2,423			4,651	4,418	4,152	3,919	2,527	2,295		UL,	
NNE	535	792	632	2,740	2,461			6,276	6,033	2,848	2,605	2,639	2,461		Ž	J
NE	490	442	327	724	901	7,741	7,526	20,760	20,545	7,741	7,526	708	790	DI	rs	14
ENE	490	448	394	1,674	1,658			6,824	6,671			708	1,562	ATT DISTANCES		
E	545	546	551	1,979	1,922	7.065	6.998	4,265	4,200	4,265	4,200	756	1,922	ANCI		
- ESE	575	607	672	1,577	1,619			2,865	2,899	1,577	1,619	1,577	1,650	ATTA Pa CES T		
SE	575	701	815	1,835	1,961	5,729	5,848	5,729	5,848	3,299	3,420	1,835	1,961	TACH Page 7 TO 1		
SSE	655	762	912	1,738	1,933	5,053	5,244	9,977	10,166	1,770	1,964	1,432	1,628	CHMENT ge 1 of 1 O RELEA		
5	850	887	1,054	3,138	3,372	3,347	3,539			2,253	2,487	2,189	2,423	HMENT E 1 of 1 RELEASE		
SSW	975	1,064	1,226	2,317	2,560		3,590	5,616	5,859	2,317	2,560	1,223	1,466	I E		
SW	1,435	1,439	1,574	2,221	2,439			2,993	3,210	2,414	2,632	2,221	2,439			
WSW	595	561	660	2,301	2,463	5,182	5,341			2,446	2,608	2,301	2,463	POINTS		
N	685	640	681	3,556	3,635	5,118	5,195			4,088	4,166	3,556	3,635	JTS		
WNW	810	701	676	3,605	3,590	4,538	4,521	22,529	22,507	3,605	3,590	3,605	3,590		Re	ç 🗍
NW	655	567	482	1,464	1,415			10,944	10,832	4,570	4,461	1,432	1,383			Unit
NNW	645	558	420	1,464	1,285			15,450	15,262	3,959	3,774	1,143	1,253		/2 2	

.

*Distances for ground releases are measured from the center point between the BV-1 and BV-2 Containment Buildings. Distances for elevated release are measured from the BV-1 Cooling Tower. Elevated release is applicable to PV-1/2. Ground release is applicable to all other release points.

(1) TV-2 and CB-2 (2) VV-1, CV-1, VV-2, CV-2, DV-2, WV-2

.

Page 77 of 128)

Number: 1/2-ODC-2.02 Level Of Use: In-Field Reference Page Number: 77 of 128

<u> </u>		(IDENTI		VALU	AND CV- ES FOR CO CHMENT	2 ANNU ONTINU È, TABI	OUS RE	ERAGE ELEASI (), AND	ES, SPE	CIAL I	DISTAN		CATION	IS				ODCM: GASEOUS	Title:	В
		IND	IVIDU	AL REC	EPTORS			D	ISTAN	CES TO) THE (CONTR	OL LOC	ATION	I, IN MI	LES		SDO		eaver
DOWN- WIND SECTOR	SITE BOUND -ARY	VEGE- TABLE GARDEN		MILK GOAT	MEAT ANIMAL	RESI- DENCE	0- 0.5	0.5- 1.0	1.0- 1.5	1.5- 2.0	2.0- 2.5	2.5- 3.0	3.0- 3.5	3.5- 4.0	4.0- 4.5	4.5- 5.0	0	EFFLUENTS		er valley
N NNE NE ENE	125.0 50.2 102.0 85.8	12.80 6.92 47.40 12.50	 1.200 	5.360 2.040 0.265 0.124	6.27 6.42 1.20	13.50 7.16 49.10 42.20	233.0 148.0 120.0 103.0	39.5 26.8 21.6 18.4	18.70 10.80 11.60 9.55	11.80 6.62 6.99 5.70	7.68 4.60 4.81 4.14	5.82 3.44 3.55 3.04	4.240 2.690 2.370 2.340	3.480 2.190 1.910 1.880	2.660 1.830 1.450 1.260	2.280 1.560 1.230 1.060	A 0-5 MILE DI			ey rower
E ESE SE SSE	54.5 31.1 27.8 24.1	6.16 6.92 6.70 6.68	0.807 0.994 1.030	1.910 3.010 0.994 0.372	1.91 6.92 2.74 6.50	32.60 6.92 6.70 9.01	89.5 59.1 65.9 67.2	15.7 10.5 12.0 12.0	6.08 5.16 5.89 5.46	3.65 3.10 3.54 3.30	2.49 1.95 2.41 1.91	1.83 1.43 1.77 1.41	1.300 1.020 1.160 0.997	1.040 0.815 0.931 0.803	0.859 0.612 0.768 0.665	0.726 0.517 0.649 0.563	ATTACHMENT F Page 1 of 7 MILE DISPERSION PARAMETERS			
S SSW SW WSW	27.5 23.8 22.3 163.0	3.40 6.31 13.90 19.30	3.090 3.700 5.720	 1.740 9.050 	5.57 6.31 12.30 17.70	5.81 19.30 13.90 19.30	99.9 110.0 160.0 283.0	17.5 19.9 29.2 49.8	6.77 7.83 16.10 23.50	4.11 4.80 9.94 14.60	2.84 3.33 5.85 10.30	2.10 2.48 4.37 7.72	1.490 1.940 3.430 5.690	1.200 1.580 2.790 4.650	0.999 1.190 2.110 3.620	0.848 1.020 1.800 3.090	T F ARAMETER			
W WNW NW NNW	278.0 487.0 924.0 302.0	15.70 40.70 194.00 63.00	9.540 30.100 	 1.810 8.660 1.720	13.00 40.70 40.50 15.40	15.70 40.70 200.00 92.30	615.0 1290.0 1710.0 547.0	103.0 203.0 262.0 86.4	49.00 92.10 123.00 40.80	31.00 59.20 79.80 26.20	15.40 40.60 55.00 17.60	11.70 31.20 42.30 13.50	9.320 25.000 34.000 10.100		6.460 14.200 19.400 6.560	5.550 12.200 16.700 5.660	S	Revision: 2	Unit: 1/2	1/
																		Page Number: 78 Of 128	Level Of Use: In-Field Reference	2-0DC-2.02

.

(Page 78 of 128)

٠

_

В	eaver	er Vallev	ev Power	· Station		Procedure Number:
Title:						Unit: Level Of Use:
ODCM: GASEOUS	SNO	EFFLUENTS	SLI			
			A	い片	ſF	-
		0	0-5 MILE DI	Page 2 of 7 MILE DISPERSION PARAMETERS	ARAMETER	S
	ES	4.5- 5.0	2.470 1.630 1.270 1.080	0.774 0.531 0.666 0.531	0.885 1.070 1.900 3.300	
	N MIL	4.0- 4.5	2.900 1.920 1.500 1.290	0.883 0.630 0.790 0.688	1.050 1.260 2.230 3.880	
	TION, I	3.5- 4.0	3.810 2.320 1.980 1.930	1.070 0.842 0.960 0.833	1.260 1.670 2.960 5.020	8.440 23.400 32.300 9.460
TIONS	LLOCA	3.0- 3.5	4.69 2.87 2.47 2.41	1.34 1.05 1.20 1.04	1.57 2.07 3.66 6.19	10.40 28.70 39.50 11.60
	NTRO	2.5- . 3.0	6.52 3.69 3.73 3.14	1.90 1.49 1.84 1.48	2.23 2.66 4.71 8.49	13.20 36.40 50.10 15.80
STANC	THE CO	2.0- 2.5	8.75 4.99 5.09 4.31	2.61 2.05 2.53 2.02	3.04 3.60 6.38 11.40	17.70 48.50 66.60 21.00
IAL DI	ES TO I	1.5- 2.0	13.70 7.31 7.51 6.01	3.86 3.29 3.75 3.53	4.48 5.28 11.40 16.60	
S, SPEC	TANC	1.0- 1.5	22.70 12.20 12.70 10.20	6.57 5.59 6.37 5.98	7.56 8.87 18.40 27.70	60.30 120.00 164.00 52.80
ERAGE, LEASES), AND S	DIS	0.5- 1.0	24.8	17.7 11.9 13.5 13.7	20.3 23.6 34.8 61.3	132.0 269.0 350.0 114.0
JOUS RE	<u>.</u>	0- 0.5	276.0 189.0 156.0 135.0	116.0 76.7 86.2 87.0	127.0 140.0 204.0 347.0	715.0 1410.0 1820.0 601.0
V-2 ANNU CONTINU IT E, TAB		RESI- DENCE	15.90 7.95 60.20 50.40	38.80 7.64 7.27 10.10	6.38 22.90 15.70 22.40	18.00 48.60 271.00 121.00
ES FOR (EPTORS	MEAT ANIMAL	7.06 7.08 1.24	1.99 7.64 2.88 7.19	6.10 7.08 13.80 20.40	14.70 48.60 47.80 18.10
VALU	AL REC	MILK GOAT	5.980 2.150 0.269 1.270	1.990 3.200 1.030 0.382	 1.850 9.980 	
	IVIDUA		 1.240 	0.828 1.030 1.080	3.300 4.040 6.230	10.600 35.000
(IDENT	IND	VEGE- TABLE GARDEN	15.00 7.66 57.90 13.60	6.66 7.64 7.27 7.41	3.65 7.08 15.70 22.40	18.00 48.60 262.00 83.40
		SITE BOUND -ARY	152.0 62.3 132.0 110.0	67.8 38.0 33.3 29.1	32.8 28.7 26.2 201.0	345.0 598.0 1030.0 345.0
		DOWN- WIND SECTOR	N NNE NE ENE	E ESE SE SSE	S SSW SW WSW	W WNW NW NNW
	ĺ					

(Page 79 of 128)

Page
03
of
128)

namena and a second second

DOWN- WIND SECTOR		IND	IVIDU	AL REC	EPTORS		(1E-7 se	c/m ⁻) DISTANCES TO THE CONTROL LOCATION, IN MILES											
	SITE BOUND -ARY	VEGE- TABLE GARDEN		MILK GOAT	MEAT ANIMAL	RESI- DENCE	0- 0.5	0.5 <u>-</u> 1.0	1.0- 1.5	1.5- 2.0	2.0- 2.5	2.5- 3.0	3.0- 3.5	3.5- 4.0	4.0- 4.5	4.5- 5.0		GASEOUS EFFLUENTS	
N NNE NE ENE	0.0082 0.0280 0.0110 0.0110	6.720 6.690 .074 9.090	 1.610	1.910 1.430 0.350 1.770	2.27 6.14 1.61	6.790 6.890 0.055 0.525	0.0289 0.0175 0.0069 0.0135	23.1000 14.5000 0.1160 0.3310	8.2700 6.9800 .2300 7.2800	5.32 5.47 7.10 6.02	2.56 3.27 5.38 4.75	1.91 2.69 3.68 3.22	1.480 1.770 2.880 2.620	1.200 1.430 2.090 2.030	0.996 1.290 1.880 1.710	0.846 1.100 1.570 1.100	A-5 MILE DI	VTS	
E ESE SE . SSE	0.0360 0.0420 0.0750 0.2060	8.300 11.600 7.890 7.390	1.240 1.230 1.160	2.870 4.570 1.230 0.357	2.87 11.60 3.05 7.20	8.300 11.200 7.890 9.770	0.0124 0.0208 0.4770 0.3030	17.1000 12.7000 7.4000 9.4400	8.1400	6.20 4.78 4.45 4.06	3.67 3.00 2.79 2.58	2.83 2.20 2.05 1.89	2.190 1.360 1.460 1.170	1.730 1.160 1.180 0.937	1.280 0.830 0.811 0.646	1.200 0.737 0.686 0.546	ATTACHMENT F Page 3 of 7 MILE DISPERSION PARAMETERS		
S SSW SW WSW	5.740 7.640 6.500 0.126	3.760 3.610 3.900 4.350	3.490 2.140 1.420	0.872 2.560	6.06 3.61 3.47 3.98	6.310 5.820 3.900 4.350	0.7960 26.1000 36.1000 0.3870	9.1000	8.4900 4.0300 4.9300 4.9000	4.98 3.11 3.12 3.53	3.37 2.11 1.77 2.36	2.47 1.56 1.57 1.64	1.380 1.030 1.201 1.460	1.110 0.834 1.060 1.210	0.774 0.807 1.150 0.920	0.655 0.684 0.977 0.781	T F ARAMETER		
WNW NW	0.029 0.033 0.007	2.490 2.530 0.074	0.764 1.780	0.163 0.305	2.02 2.53 1.67	2.490 2.530 0.073	0.0147 0.0202 0.0084	0.0549 0.0650		3.68 3.07 3.66	2.50 2.50 2.30	1.84 1.84 1.69	0.741 1.110 1.210	1.120 0.686 0.903	0.851 0.791 0.804	0.795 0.731 0.683	S	1/2 Revision: 2	Unit: 1/2
W WNW NW NNW *Elevated	0.033 0.007 0.008	2.530	1.780 	0.163 0.305 0.224	2.53 1.67 1.81	2.530 0.073 6.590	0.0202 0.0084 0.0135	0.0549 0.0650 6.7800	0.0809 0.1170 5.0200	3.07 3.66 2.96	2.50	1.84	1.110	0.686	0.791	0.731		Pag	1/7 In-Field Reference

'**-**

(Page 81 of 128)

·	·			FOI N ATT	R CONTIN	AVERA JUOUS I T E, TAI	RELEAS	OUND LEVEL, X/Q VALUES ES, SPECIAL DISTANCES 3), AND SELECTED CONTROL LOCATIONS c/m ³) DISTANCES TO THE CONTROL LOCATION, IN MILES										ODCM: GASEOUS	Title:	Beaver
N-) OR	SITE BOUND -ARY	VEGE- TABLE GARDEN			MEAT ANIMAL	RESI- DENCE	0- 0.5	0.5- 1.0	1.0- 1.5	1.5- 2.0	2.0-2.5	2.5- 3.0	3.0- 3.5	3.5- 4.0	4.0-	4.5- 5.0	0	EFFLUENTS		er Valley
E E	105.0 102.0 96.6 84.1	14.00 7.37 51.90 13.20	 1.230 	5.740 2.130 0.268 1.280	6.74 6.83 1.23	14.80 7.64 53.80 46.30	244.0 161.0 132.0 115.0	42.6 28.8 23.0 19.4	20.50 11.40 12.10 9.89	12.70 6.94 7.24 5.85	8.18 4.79 4.95 4.23	6.15 3.56 3.64 3.09	4.45 2.78 2.42 2.38	3.640 2.250 1.950 1.900	2.770 1.870 1.480 1.270	2.380 1.590 1.250 1.070	A 0-5 MILE DI			ey Power
SE E SE	60.7 37.1 41.8 34.0	6.49 7.25 7.06 7.16	.829 1.020 1.070	1.980 3.100 1.020 0.384	1.98 7.25 2.85 6.96	35.70 7.25 7.06 9.69	99.2 65.8 73.5 74.2	16.6 11.1 12.6 12.7	6.32 5.36 6.12 5.71	3.75 3.19 3.64 3.41	2.55 2.00 2.47 1.97	1.87 1.46 1.81 1.45	1.32 1.03 1.18 1.02	1.060 0.829 0.945 0.818	0.871 0.621 0.779 0.676	0.735 0.524 0.658 0.572	ATTACHMENT F Page 4 of 7 MILE DISPERSION PARAMETERS		·	r Station
SW W /SW	32.7 29.7 24.1 159.0	3.64 6.73 14.80 20.80	3.310 3.890 6.010	1.800 9.550	6.00 6.73 13.10 19.10	6.27 20.90 14.80 20.80	109.0 120.0 174.0 301.0	18.6 21.3 31.2 53.6	7.13 8.31 17.20 25.30	4.29 5.03 10.40 15.60	2.94 3.46 6.10 10.80	2.17 2.57 4.54 8.09	1.53 2.00 3.54 5.93	1.230 1.620 2.870 4.830	1.020 1.230 2.170 3.750	0.866 1.040 1.850 3.200	T F ARAMETER			
V VNW IW	264.0 404.0 735.0	16.90 44.50 216.00	10.100 32.500 	1.870 9.100	13.90 44.50 43.90	16.90 44.50 222.00	636.0 1310.0 1720.0	111.0 218.0 279.0	53.90 104.00 140.00		16.50 44.20 60.30	12.40 33.60 45.90	9.82 26.70 36.60		6.760 15.000 20.600		č.	Revision: 2	Unit: 1/2	Procedure Number 1/2-
NNW	247.0	71.00		1.820	17.00	99.40	557.0	924.0	45.90	28.90	19.20	14.60	10.80	8.880	6.950	5.980		Page Number: 81 of 128	Level Of Use: In-Field Reference	umber: 1/2-ODC-2.02

Beaver Valley Power Station	Procedure N	Procedure Number: 1/2-ODC-2.02		
Title:	Unit:	Level Of Use:		
	<u>1/2</u> Revision:	In-Field Reference Page Number:		
ODCM: GASEOUS EFFLUENTS	2	82 of 128		
ATTACHMENT F				
Page 5 of 7				
0-5 MILE DISPERSION PARAM	ETERS			
TABLE 2.2-8				
DUA ADDILAL AVEDACE CONDUCT				

DV-2 ANNUAL AVERAGE, GROUND LEVEL, X/Q VALUES FOR CONTINUOUS RELEASES, SPECIAL DISTANCES (IDENTIFIED IN ATTACHMENT E, TABLE 2.2-3), AND SELECTED CONTROL LOCATIONS (1E-7 sec/m³)

Same as Table 2.2-4

Beaver Valley Power Station	Procedure Number: 1/2-ODC-2.02			
Title;	Unit: 1/2	Level Of Use: In-Field Reference		
ODCM: GASEOUS EFFLUENTS	Revision: 2	Page Number: 83 of 128		
ATTACHMENT F	2	<u>83 0I 128</u>		

ATTACHMENT F Page 6 of 7 0-5 MILE DISPERSION PARAMETERS

TABLE 2.2-9

WV-2 ANNUAL AVERAGE, GROUND LEVEL, X/Q VALUES FOR CONTINUOUS RELEASES, SPECIAL DISTANCES (IDENTIFIED IN ATTACHMENT E, TABLE 2.2-3), AND SELECTED CONTROL LOCATIONS (1E-7 sec/m³)

Same as Table 2.2-4

(Page 84 of 128)

Beaver Valley Power Station	1/2-ODC-2.02				
Title:	Unit: 1/2	Level Of Use: In-Field Reference			
ODCM: GASEOUS EFFLUENTS	Revision: 2	Page Number: 84 of 128			
ATTACHMENT F					

Page 7 of 7 0-5 MILE DISPERSION PARAMETERS

TABLE 2.2-10

CB-2 ANNUAL AVERAGE, GROUND LEVEL, X/Q VALUES FOR CONTINUOUS RELEASES, SPECIAL DISTANCES (IDENTIFIED IN ATTACHMENT E, TABLE 2.2-3), AND SELECTED CONTROL LOCATIONS

Same as Table 2.2-7

Bea	ver Valley Pov	Procedure Nur 1	nber: /2-ODC-2.02				
Title:		Unit:	Level Of Use:				
			1/2 Revision:	In-Field Reference Page Number:			
ODCM: GASEOU	DCM: GASEOUS EFFLUENTS Revision: 2 Page Number: 2 85 of 123						
		ATTACHMENT G					
		Page 1 of 2					
	NOBLE GAS DOSE	0	OSE PARAMETER	S			
:		TABLE 2.2-11					
	DOSE FACTORS F	OR NOBLE GASES	S AND DAUGHTER	S			
	K _i	· L _i	Mi	Ni			
	TOTAL BODY	SKIN DOSE	GAMMA AIR	BETA AIR DOSE			
NUCLIDE ⁽¹⁾	DOSE FACTOR	FACTOR	DOSE FACTOR	FACTOR			
	mromolym	mrem/yr	mrad/yr	mrad/yr			
	mrem/yr Per	Per	Per	Per			
	uCi/m^3	uCi/m ³	uCi/m ³	uCi/m ³			
Kr-83m			1.93E+01	2.88E+02			
KI-85m	7.56E-02 1.17E+03	1.46E+03	1.23E+01 1.23E+03	2.88E+02 1.97E+03			
Kr-85	1.61E+01	1.34E+03	1.72E+03	1.97E+03			
KI-83 Kr-87	5.92E+03	9.73E+03	6.17E+03	1.03E+04			
Kr-88	1.47E+04	2.37E+03	1.52E+04	2.93E+03			
Kr-89	1.66E+04	1.01E+04	1.73E+04	1.06E+04			
Kr-90	1.56E+04	7.29E+03	1.63E+04	7.83E+03			
Xe-131m	9.15E+01	4.76E+02	1.56E+02	1.11E+03			
Xe-131m Xe-133m	2.51E+02	9.94E+02	3.27E+02	1.48E+03			
Xe-133	2.94E+02	3.06E+02	3.53E+02	1,05E+03			
Xe-135m	3.12E+03	7.11E+02	3.36E+03	7.39E+02			
Xe-135	1.81E+03	1.86E+03	1.92E+03	2.46E+03			
Xe-137	1.42E+03	1.22E+04	1.51E+03	1.27E+04			
Xe-138	8.83E+03	4.13E+03	9.21E+03	4.75E+03			
Ar-41	8.84E+03	2.69E+03	9.30E+03	3.28E+03			

(1) The listed dose factors are for radionuclides that may be detected in gaseous effluents.

Beav	ver Valley Pow		Procedure Number: 1/2-ODC-2.02		
Fitle:	<u></u>		Unit: 1/2	Level Of Use: In-Field Reference	
DDCM: GASEOUS	S EFFLUENTS		Revision: 2	Page Number: 86 of 128	
		ATTACHMENT G	I		
		Page 2 of 2			
-	NOBLE GAS DOSE	FACTORS AND DO	SE PARAMETERS	3	
		TABLE 2.2-12			
	DOSE PARAMETE	ERS FOR FINITE EL	EVATED PLUMES	5	
	$V_i^{(1)}$	$B_{i}^{(1),(2)}$	M _i ⁽³⁾	B _i ⁽³⁾	
NUCLIDE ⁽⁴⁾	TOTAL BODY DOSE FACTOR	GAMMA AIR DOSE FACTOR	TOTAL BODY DOSE FACTOR	GAMMA AIR DOSE FACTOR	
	mrem/yr	mrad/yr	mrem/yr	mrad/yr	
	Per	Per	Per	Per	
	uCi/sec	uCi/sec	uCi/sec	uCi/sec	
Kr-83m	3.19E-10	1.75E-8	4.58E-8	3.96E-5	
Kr-85m	7.81E-5	1.16E-4	4.70E-4	7.06E-4	
Kr-85	1.55E-6	2.35E-6	5.54E-6	8.40E-6	
Kr-87	5.13E-4	7.74E-4	1.45E-3	2.19E-3	
Kr-88	1.39E-3	2.09E-3	4.09E-3	6.16E-3	
Kr-89	7.99E-4	1.20E-3	1.25E-3	1.88E-3	
Xe-131m	1.64E-5	2.47E-5	1.67E-4	3.09E-4	
Xe-133m	1.38E-5	2.11E-5	1.32E-4	2.61E-4	
Xe-133	1.05E-5	1.56E-4	1.54E-4	2.76E-4	
Xe-135m	2.41E-4	3.66E-4	6.21E-4	9.50E-4	
Xe-135	1.41E-4	2.12E-4	6.96E-4	1.05E-3	
210 133		0.055.5		1.46E-4	
Xe-137	6.00E-5	9.05E-5	9.66E-5	1.4015-4	
	6.00E-5 8.11E-4	9.05E-5 1.22E-3	9.00E-5 2.22E-3	3.34E-3	

V_i and B_i values used to implement Modes 1, 2, and 3 of Section 2.2.1 (10CFR20) (2)

B_i values used to implement Modes 1, 2, 3, and 4 of Section 2.3.1 (10CFR50)

 V_i and B_i values to implement Mode 4 of Section 2.2.1 (10CFR20) and to implement monitor setpoint determinations of Section 2.1.2 and 2.1.4 The listed dose parameters are for radionuclides that may be detected in gaseous effluents. (3)

(4)

I	Beaver Valle	y Po	wer S	Statio	on		Pr	ocedure Nu	^{mber:} 1/2-ODC-2.02
Title:		<u> </u>			<u></u>		U	nit: 1/2	Level Of Use: In-Field Reference
ODCM: GAS	EOUS EFFLUEN	ГS					R	1/2 evision: 2	Page Number:
			ATT	ACHI	IENT I	4	<u> </u>		87 of 128
				Page 1					
		ORC		OSE P		ETER	S		
	1								i
	•								
				Table 2.2-	13				
		P VALU it	ES FOR A CH	ILD FOR THE	BRAVER VAL	LEY SITE			
			(pren	/yr per uCi,	(cu meter)				
	Naclide	Bone	Liver	T. Body	Thyroid	Lidney	Lung	GI-LLI	
	1 H-3	0.00 8 +00	1.128+03	1.12 E+03	1.128+03	1_12 E+0 3	1.12 6 +03	1_12 E +03	
	2 P-32 3 Cr-51	2.60E+06 0.00E+00	1.142+05 0.002+00	9.88 8+04 1.54 8+ 02	0.00X+00 8.55X+01	0.00 E+00 2.43E+01	0.00 E+00 1.70 E+04	4.228+04 1.088+03	
	4 Kn-54	0.00 B+0 0	4.298+04	9.51 8 +03	0.008+00	1.00 8+04	1.588+06	2.29B+04	
	5 Fe-59	2.07 E +04	3.348+04	1.678+04	0.008+00	0.008+00	1.278+06	7.07 8 +04	
	6 Co-57 7 Co-58	0.00 E+00 0.00 E+00	9.03B+02 1.77 E +03	1.07E+03 3.16E+03	0.00E+00 0.00E+00	0.00E+00 0.00E+00	5.07E+05 1.11E+06	1.32E+04 3.44E+04	
	8 Co-60 9 Zn-65	0.00 B+00 4.25 B+04	1.318+04 1.138+05	2.26 E+04 7.03 E+04	0.00 E +00 0.00 E +00	0.00E+00 7.14E+04	7.078+06 9.958+05	9.62 8 +04 1.63 8 +04	
	10 Rb-86	0.00 E +00	1.98 E +05	1.141+05	0.001+00	0.00E+00	0.00 E +00	7.99B+03	
	11 Sr-89	5.998+05	0.00 2+00	1.72 E+04	0.00E+00	0.00E+00	2.16 E+06	1.67E+05	
	12 Sr-90 13 Y-91	1.01E+08 9.14E+05	0.00K+00 0.00K+00	6.44 8 +06 2.44 8 +04	0.00 E+ 00 0.00 E+ 00	0.008+00 0.008+00	1,488+07 2,638+06	3.438+05 1.848+05	
	14 Zr-95 15 Hb-95	1.90E+05 2.35E+04	4.188+04 9.188+03	3.70E+04 6.55E+03	0.00 5 +00 0.00 5 +00	5.96E+04 8.62E+03	2.23 E +06 6.14E+05	6.11 8+04 3.708+04	
	16 Kb-97		7.70K-02		0.00 8 +00	8.55X-02		2.78E+04	
	17 No-99	0.00B+00	1.72 E+02	4.26B+01	0.00 E +00	3.92 E +02	1.35B+05	1.278+05	
	18 Tc-99m 19 Ru-103	1.78K-03 2.79K+03	3.48E-03 0.00E+00	5.77K-02 1.07K+03	0.00 2 +00 0.00 2 +00	5.078-02 7.038+03	9.518+02 6.628+05	4.81E+03 4.48E+04	,
	20 Ru-106	1.368+05	0.00 E +00	1.698+04	0.00 0 +00	1.848+05	1.43 8+0 7	4.298+05	
	21 Ag-110m	1.69E+04	1.14E+04		0.00E+00 1.26E+02	2.128+04	5.48E+06 3.24E+06	1.00 E+ 05 1.64 E +05	
	22 Sb-124 23 Sb-125	5.74B+04 9.84B+04		2.071+04	9.10E+01	0.008+00 0.008+00	2.328+06	4.03E+04	
	24 Te-127m 25 Te-129m	2.498+04 1.928+04	8.55E+03 6.85E+03		6.07E+03 6.33E+03	6.368+04 5.038+04	1.48E+06 1.76E+06	7.14E+04 1.82E+05	
							0.00E+00	2.848+03	
	26 I-131 27 I-133	4.81E+04 1.66E+04	4.818+04 2.038+04	7.708+03	1.628+07 3.858+06	7.88X+04 3.38X+04	0.00 E+ 00	5.48 8+ 03	
	28 Ca-134 29 Ca-136	6.51B+05 6.51B+04	1.01E+06 1.71E+05	2.258+05 1.168+05	0.00E+00 0.00E+00	3.308+05 9.558+04	1.218+05 1.458+04	3.85E+03 4.18E+03	
	30 Cs-137	9.07 8 +05		1.288+05	0.00E+00	2.828+05	1.048+05	3.628+03	
	31 Ba-140	7.40E+04	6.48 E+ 01	4.33 8 +03	0.00 E+00		1.74 E +06	1.028+05	
	32 La-140 33 Ce-141	6.448+02 3.928+04		7.558+01 2.908+03	0.00E+00 0.00E+00	0.00 8+00 8.55 8+03	1.83 E+05 5.44E+05	2.26E+05 5.66E+04	
	34 Ce-144			3.81E+05	0.00E+00	1.178+06	1.20E+07		

Ş

Beaver Va	lley Power St	tation	Procedure Num 1/	2-ODC-2.02
Title:			Unit: 1/2	Level Of Use: In-Field Reference
ODCM: GASEOUS EFFLU	ENTS		Revision: 2	Page Number:
	ATTA	CHMENT I		88 of 128
	Pa	ge 1 of 1		
	MODES OF G	ASEOUS RELEA	SE	
	ТА	BLE 2.3-1		
	EOUS RELEASE FI LEMENTATION C			ENTS FOR
RELEASE POINT	RELEASE <u>MODE 1</u>	RELEASE MODE 2	RELEASE <u>MODE 3</u>	RELEASE <u>MODE 4</u>
RP 1; VV-1, Auxiliary Building Vent ⁽¹⁾	Aux. Bldg. Ventilation	Containment Purge ⁽³⁾	Same As Mode	1 Same As Mode
RP 2, CV-1, Rx Containment/SLCRS Vent ⁽¹⁾	Leakage Collection Exhaust	Same As Mode 1	Same As Mode and Containmen Purge ⁽³⁾	
RP 3; PV-1/2, Gaseous Waste/Process Vent ⁽²⁾	Main Cond. Air Ejector, Waste Gas, Containment Vacuum	Same As Mode 1	Same As Mode	1 Same As Mode and Containme Purge
RP 4; VV-2 SLCRS Unfiltered Pathway ⁽¹⁾	Contiguous Areas	Containment Purge ⁽³⁾	Same As Mode	1 Same As Mode
RP 5; CV-2, SLCRS Filtered Pathway ⁽¹⁾	Aux. Bldg. Ventilation	Same As Mode 1	Same As Mode and Containmen Purge ⁽³⁾	
RP 6; CB-2, Condensate Polishing Bldg Vent ⁽¹⁾	(4)	(4)	(4)	(4)
RP 7, WV-2, Waste Gas Storage Vault Vent ⁽¹⁾	(4)	(4)	(4)	(4)
RP 8; DV-2, Decontamination Bldg Vent ⁽¹⁾	(4)	(4)	(4)	(4)
RP 9; TV-2, Turbine Bldg Vent ⁽¹⁾	(4)	(4)	(4)	(4)

⁽¹⁾ Continuous ground level meteorology is applicable
 ⁽²⁾ Continuous elevated meteorology is applicable
 ⁽³⁾ Mode established by purge from one unit, all other release points remain same as Mode 1
 ⁽⁴⁾ Not normally a radioactive release point

Beaver Valley Power Station							Рг	ocedure Nu	umber: 1/2-ODC-2,02
Title:								nit:	Level Of Use:
								1/2	In-Field Reference
ODCM: GASEOUS	EFFLUEN	ГS					R	evision: 2	Page Number:
			A (T) (1	ACID	(ENT)	т	l		89 of 128
				TACHN		J			
				age 1 d			~		
		P&I	ORGA	N DO	SE FA	CTORS	5		
1									I.
				Table 2.3-	2				
						_			
			R VALUES	FOR BEAVER	VALLEY SIT	8			
			(area	/yr per uCi	/cu meter)				
	Pathway = Age Group	= Inhalation p = Adult							
	Nuclide	Bone	Liver	T. Body	Thyroid	Lidney	Lung	GI-LLI	
	1 H-3	0.00 E+0 0	1-262+03	1.26E+03	1.26E+03	1.26 8+0 3	1.268+03	1.26E+03	
	2 P-32	1.328+06	7.718+04	5.01E+04	0.00E+00	0.008+00	0.00E+00	8.64E+04	
	3 Cr-51	0.00 K+ 00	0.008+00	1.002+02	5.95E+01	2.28E+01	1.448+04	3.32 8+03	
	4 Mn-54 5 Fe-59	0.00 E+00 1.18E+04	3.96X+04 2.78X+04	6.30 x+03 1.06 x+04	0.00E+00 0.00E+00	9.84 8+0 3 0.008+00	1.40E+06 1.02E+06	7.74E+04 1.88E+05	
	8 Co-57 7 Co-58	0.00E+00 0.00E+00	6.928+02 1.588+03	8.71X+02 2.07X+03	0.00E+00 0.00E+00	0.00E+00 0.00E+00	3.708+05 9.288+05	3.14E+04 1.06E+05	
	8 Co-60	0.00B+00	1.158+04	1.488+04	0.00B+00	0.008+00	5.978+06	2.85B+05	
	9 Zn-65	3.24 B+ 04	1.03E+05	4.66E+04	0.00 E+ 00	6.90E+04	8.641+05	5.34 5 +04	
	10 Rb-86	0.00 E+ 00	1.358+05	5.90X+04	0.00 E+00	0.00 E+0 0	0.008+00	1.662+04	
	11 Sr-89	3.04 8 +05	0.00E+00	8.72 E +03	0.00 2+0 0	0_00 E +00	1.408+06	3.50 E+0 5	
	12 Sr-90	9.928+07	0.00B+00	6.10E+06	0.00E+00	0.00E+00	9.60E+06	7.228+05	
	13 I-91 14 Zr-95	4.62E+05 1.07E+05	0.00E+00 3.44E+04	1.248+04 2.338+04	0.00E+00 0.00E+00	0.00B+00 5.42B+04	1.70E+06 1.77E+06	3.85E+05 1.50E+05	
	15 Nb-95	1.41E+04	7.828+03	4.218+03	0.00E+00	7.74 E+03	5.05E+05	1.04E+05	
	16 86 07	3 20P A.	6 610 AA	0 0FP 00	0 002.00	8 5/2 AA	2 408.03	2 178.00	
	16 Hb-97 17 Ho-99	2.22E-01 0.00E+00	5.628-02 1.218+02	2.058-02 2.308+01	0.00 8+00 0.00 8+00	6.54 X- 02 2.91X+02	2.408+03 9.128+04	2.42E+02 2.48E+05	
	18 Tc-99m	1.03E-03	2.918-03	3.70E-02	0.008+00	4.42E-02	7.64E+02	4.16E+03	
	19 Ru-103	1.53 E+03	0.00 E +00	6.58E+02	0.00B+00	5.83 8 +03	5.05E+05	I.10E+05	
	20 Ru-108	6.91 B +04	0.001+00	8.72E+03	0.00E+00	1.34 E+0 5	9.36E+06	9.12 8+0 5	
	21 Ag-110m	1.08 E+04	1.00E+04	5.948+03	0.008+00	1.978+04	4.638+06	3.02E+05	
	22 Sb-124	3.12 8 +04	5.898+02	1.248+04	7.55 8+ 01	0.00E+00	2. 48 8+06	4.06B+05	
	23 Sb-125	5.34B+04	5.95E+02	1.268+04	5.40E+01	0.00E+00	1.74E+06	1.018+05	
	24 Te-127m 25 Te-129m	1.26E+04 9.76E+03	5.778+03 4.678+03	1.57E+03 1.58E+03	3.29E+03 3.44E+03	4.58E+04 3.66E+04	9.60 8+ 05 1.16 8+ 06	1.50K+05 3.83E+05	
	26 I-131 27 I-133	2.52E+04 8.64E+03	3.58X+04 1.48X+04	2.058+04 4.528+03	1.198+07 2.158+06	6,13B+04 2.58B+04	0.008+00 0.008+00	6.28E+03 6.8EE+03	
	28 Ca-134	3.73 E +05	1.468+04 8.488+05	4.528+03 7.288+05	0.00E+00	2.875+05	9.76E+04	1.04 E +04	
	29 Ca-138	3.90E+04	1.46E+05	1.10E+05	0.008+00	8.56E+04	1.208+04	1.178+04	
	30 Ca-137	4.78B+05	6.21E+05	4.288+05	0.00E+00	2.228+05	7.528+04	8.40E+03	

Calculated per ODCH equation 2.3-22

ļ

'n

المراجع فسأفسط المراجع الرابي المراجع ا

Beav	er Valle	v Po	wer	Statio	on		Pro	ocedure Nu	
		<u>y 10</u>		<u> </u>					1/2-ODC-2.02
Title:							Un	ut: 1/2	Level Of Use: In-Field Reference
		ma					Ra	1/2 vision:	Page Number:
ODCM: GASEOUS	EFFLUEN	18					I Re	2	90 of 128
			AT	FACHN	AENT .	T			1 90 01 120
				Page 2 c		-			
		P&I		N DO		CTORS	\$		
		~			~~~~~				
				•					
				Table 2.3-	3				
			D VATIF	FOR BRAVER	VALIBY CIT	8			
						5			
			(nren	/yr per uCi,	/cu meter)				
	Pathway = Age Group	Inhalation							
	Nuclide	Bone	Liver	T. Body	Thyroid	Kidney	Lung	GI-LLI	
				-	•	-	-		
	1 H-3 2 P-32	0.00E+00 1.89E+06	1.27 X +03 1.10 X +05	1.278+03 7.168+04	1.27E+03 0.00E+00	1.27K+03 0.00K+00	1.27E+03 0.00E+00	1.278+03 9.288+04	
	3 Cr-51	0.00 E+0 0	0.001+00	1.35 E+02	7.50 E +01	3.07 8 +01	2.10B+04	3.008+03	
	4 Hn-54 5 Fe-59	0.008+00 1.598+04	5.11 8 +04 3.70 8 +04	8.40 E +03 1.43 E +04	0.00E+00 0.00E+00	1.27%+04 0.00%+00	1.98E+06 1.53E+06	6.688+04 1.788+05	
	8 Co-57 7 Co-58	0.00E+00 0.00E+00	9.44E+02 2.07E+03	9.20E+02 2.78E+03	0.00 E +00 0.00 E +00	0.00E+00 0.00E+00	5.86E+05 1.34E+06	3.14B+04 9.52B+04	
	8 Co-80	0.00E+00	1.518+04	1.988+04	0.001400	0.008+00	8.728+06	2.598+05	
	9 Zn-85	3.86E+04	1.348+05	6.24E+04	0.00R+00	8.64E+04	1.248+06	4.668+04	
	10 Rb-86	0.00%+00	1.901+05	8.40E+04	0.00 2 +00	0.008+00	0.008+00	1.778+04	
	11 Sr-89	4.348+05	0.002+00	1.258+04	0.00 E +00	0.00 E+0 0	2.42 8+ 06	3.71 8+0 5	
	12 Sr-90	1.08E+08	0.001+00	6.68 8+ 06	0.00E+00	0.00E+00	1.658+07	7.65E+05	
	13 Y-91 14 Zr-95	6.612+05 1.462+05	0.00X+00 4.58X+04	1.778+04 3.158+04	0.008+00 0.008+00	0.00E+00 6.74E+04	2.94E+06 2.69E+06	4.09E+05 1.49E+05	
	15 Nb-95	1.862+04	1.038+04	5.66E+03	0.00E+00	1.00E+04	7.51 E+0 5	9.688+04	
	16 Nb-97	3.14E-01	7.78X-02	2.84E-02	0.00 E +00	9.12 E -02	3.93E+03	2.17 E +03	
	17 No-99	D. 00E+00	1.691+02	3.22E+01	0.00E+00		1.54E+05	2.698+05	
	18 Tc-99m	1.38E-03	3.86K-03	4.99 E -02	0.00 E +00	5.76 E -02	1.15 E+03	6.138+03	
	19 Ru-103 20 Ru-106	2,108+03 9.848+04	0.008+00 0.008+00	8.96E+02 1.24E+04	0.00E+00 0.00E+00	7.438+03 1.908+05	7.838+05 1.618+07	1.098+05 9.608+05	
	21 Ag-110m 22 Sb-124	1.38B+04 4.30E+04	1.318+04 7.948+02	7.99 8+ 03 1.68 8+04	0.00 E +00 9.76 E +01	2.508+04 0.008+00	6.75 E+ 06 3.34 E +06	2.738+05 3.988+05	
	23 Sb-125	7.38E+04	8.08X+02	1.72B+04	7.04E+01	0.008+00	2.748+06	9.928+04	
	24 Te-127m	1.808+04	8.16 5 +03	2.18E+03	4.38E+03	6.54 8+0 4	1.66 8+0 6	1.598+05	
	25 Te-129m	1.398+04	6.58 8+0 3	2.25 E+03	4.58 8+03	5.19 R+04	1.988+06	4.058+05	
	26 I-131	3.54E+04	4.91 R+0 4	2.648+04	1.468+07	8.40E+04	0.00E+00	6.49E+03	
	27 I-133 28 Ca-134	1.228+04	2.058+04	6.228+03 5.498+05	2.92E+06	3.59 8+04 3.75 8+0 5	0.00E+00	1.03 8+04 9.76 8+0 3	
	20 Ca-134 29 Ca-136	5.028+05 5.158+04	1.138+08 1.948+05	5.498+05 1.378+05	0.00E+00 0.00E+00	3.751+05 1.108+05	1.468+05 1.788+04	9.761703 1.098+04	
	30 Ca-137	6.70E+05	8.48K+05	3.11E+05	0.00E+00	3.048+05	1.218+05	8.48E+03	
	31 Ba-140	5.47B+04	6.70 E+0 1	3.52E+03	0.00 E +00	2.288+01	2.03 E +06	2.298+05	
	32 La-140	4.79B+02	2.368+02	6.26E+01	0.00E+00	0.002+00	2.14 E+ 05	4.87E+05	
	33 Ce-141	2.848+04	1.908+04	2.17E+03	0.00E+00	8.88E+03	6.14E+05	1.268+05	
	34 Ce-144	4.89 8+ 06	2.028+05	2.62 8+ 05	0_COE+CO	1.218+05	1.34E+07	8.64 8 +05	

Calculated per ODCM equation 2.3-22

37

Beaver Valley Power Station	Procedure N	Procedure Number: 1/2-ODC-2.02			
Title:	Unit: 1/2	Level Of Use: In-Field Reference			
ODCM: GASEOUS EFFLUENTS	Revision: 2	Page Number: 91 of 128			
ATTACHMENT J					

Page 3 of 19 P&I ORGAN DOSE FACTORS

Table 2.3-4

R VALUES FOR BEAVER VALLEY SITE

(mrem/yr per uCi/cu meter)

Pathway =	Inhalation
Age Group	= Child

	Buclide	Bone	Liver	T. Body	Thyroid	lidney	Lung	GI-LLI
1	H-3	0.008+00	1,128+03	1.128+03	1,128+03	1,12E+03	1.128+03	1.128+03
-	P-32	2.608+06	1.14E+05	9.888+04	0.001+00	0.008+00	0.00E+00	4.22B+04
	Cr-51	0.008+00	0.008+00	1.54K+02	8.558+01	2.438+01	1.708+04	1.08E+03
	Ka-54	0.008+00	4.29E+04	9.518+03	0.008+00	1.008+04	1.58E+06	2.29E+04
	Fe-59	2.078+04	3.34E+04	1.67E+04	0.008+00	0.00E+00	1.27E+06	7.07E+04
•								
6	Co-57	0.008+00	9.038+02	1.078+03	0.00 E+0 0	0.00 E+00	5.07 E+ 05	1.32E+04
7	Co-58	0.00E+00	1.77E+03	3.16E+03	0.008+00	0.00 2+00	1.11E+06	3.44E+04
8	Co-80	0.008+00	1.31E+04	2.268+04	0.008+00	0.00 8+0 0	7.07E+06	9.628+04
9	Zn-65	4.258+04	1.13E+05	7.03E+04	0.008+00	7.14 E+ 04	9.95E+05	1.638+04
10	Rb-86	0.00%+00	1.988+05	1.14E+05	0.00E+00	0.002+00	0.00E+00	7.99E+03
-11	Sr-89	5.99 8 +05	0.00 E+ 00	1.72 E+04	0.00E+00	0.00 E+00	2.16 E+ 06	1.67 E+05
12	Sr-90	1.018+08	0.00 E+ 00	6.442+06	0.008+00	0.002+00	1.488+07	3.43 R +05
13	Y-91	9.148+05	0.00 8+0 0	2.44 8 +04	0.00E+00	0.00 5+00	2.63E+06	1.848+05
	Zr-95	1.908+05	4.18E+04	3.708+04	0.00E+00	5.968+04	2.238+06	6.11E+04
15	Nb-95	2.35E+04	9.18 E +03	6.551+03	0.00 E+0 0	8.621+03	6.14 8+0 5	3.70E+04
	Hb-97	4.29E-01	7.70 E-0 2	3.601-02	0.00E+00	8.551-02	3.42E+03	2.78E+04
	Ho-99	0.00 K+00	1.728+02	4.268+01	0.002+00	3.921+02	1.358+05	1.278+05
	Tc-99m	1.78K-03	3.48E-03	5.778-02	0.00#+00	5.078-02	9.518+02	4.81E+03
	Ru-103	2.79E+03	0.00E+00	1.07E+03	0.008+00	7.03 E+03	6.62 E +05	4.488+04
20	Ru-106	1.368+05	0.00 E +00	1.698+04	0.002+00	1.84 E +05	1.43E+07	4.29 8 +05
	1. 116	1.000.01	1 147.44	6 1 IP. 66	A AAT. AA'	0 108.01	E 408.00	1 008.00
	Åg-110m	1.69E+04	1.148+04	9.14E+03	0.008+00	2.128+04	5.48E+06 3.24E+06	1.00E+05
	Sb-124	5.748+04	7.40K+02	2.008+04	1.268+02	0.001+00	2.328+06	1.648+05
	Sb-125	9.848+04	7.59E+02	2.07E+04	9.108+01	0.005+00		4.03R+04
-	Te-127m	2.49E+04	8.55E+03	3.028+03 3.048+03	6.078+03 6.338+03	6.368+04 5.038+04	1.48E+06 1.76E+06	7.14E+04 1.82E+05
23	Te-129m	1.928+04	6.85E+03	3.048403	0.338403	3.035404	1.105100	1.028403
26	1-131	4.818+04	4.81 E+ 04	2.73 8+04	1.628+07	7.86 X+04	0.00 E +00	2.848+03
	I-133	1.668+04	2.038+04	7.708+03	3.858+06	3.38 E+04	0.008+00	5.48E+03
	Cs-134	6.511+05	1.018+08	2.258+05	0.008+00	3.30 E +05	1.21E+05	3.858+03
	Cs-136	6.518+04	1.71E+05	1.16E+05	0.008+00	9.55 E+04	1.458+04	4.188+03
	Св-137	9.071+05	8.258+05	1.288+05	0.008+00	2.828+05	1.048+05	3.628+03
		5.414.40		2.040.40				
31	Ba-140	7.40E+04	6. 48E+01	4.33E+03	0.00E+00	2.11 8+0 1	1.74B+06	1.022+05
32	La-140	5.44B+02	2.25E+02	7.55 8+0 1	0.008+00	0.00 E+00	1.83E+05	2.268+05
33	Ce-141	3.92E+04	1.95E+04	2.90E+03	0.008+00	8.558+03	5.44E+05	5.66 8+04
34	Ce-144	6.778+06	2.12E+06	3.61 E +05	0.008+00	1.178+06	1.20 E+0 7	3.89E+05

Calculated per ODCH equation 2.3-22

14.15

1. 11 I.I.

ł

5.2.6.111

9 11 11

Beaver Valley Power Station	Procedure N	Procedure Number: 1/2-ODC-2.02			
Title:	Unit: 1/2	Level Of Use: In-Field Reference			
ODCM: GASEOUS EFFLUENTS	Revision: 2	Page Number: 92 of 128			
ATTACHMENT J					
Page 4 of 19	C				
P&I ORGAN DOSE FACTOR	.5				

1

Table 2.3-5

R VALUES FOR BRAVER VALLEY SITE

(mrem/yr per uCi/cu meter)

Pathway = Inhalation

	Age Group	= Infant						
	Nuclide	Bone	Liver	T. Body	Thyroid	Kidney	Lung	GI-LLI
1	H-3	0.008+00	6.478+02	6.47E+02	6.47K+02	6.47E+02	6.478+02	6.47 8 +02
2	P-32	2.035+06	1.128+05	7.74E+04	0.00E+00	0.008+00	0.00E+00	1.61B+04
3	Cr-51	0.008+00	0.00E+00	8.95 E+01	5.75E+01	1.328+01	1.288+04	3.57E+02
4	Na-54	0.002+00	2.538+04	4.98K+03	0.00E+00	4.98K+03	1.008+06	7.06E+03
5	Fe-59	1.362+04	2.35 E +04	9. 488 +03	0.008+00	0.00 8 +00	1.018+06	2.46E+04
	Co-57	0.00E+00	6.51 E+02	6.418+02	0.00 X+0 0	0.00 8 +00	3.79E+05	4.86E+03
	Co-58	0.00 R +00	1.228+03	1.825+03	0.00 E+ 00	0.00 B +00	7.771+05	1.11E+04
	Co-60	0.00 8+ 00	8.02E+03	1.188+04	0.00 E+0 0	0.00E+00	4.51 8 +08	3.198+04
	Zn~65	1.93 8+ 04	6.26E+04	3.11 E+ 04	0.00 E+0 0	3.25 E+ 04	6.47 8 +05	5.14E+04
10	Rb-86	0.00E+00	1.908+05	8.82E+04	0.008+00	0.00 E+00	0.00 E +00	3.04E+03
11	Sr-89	3.988+05	0.00 E+00	1.14E+04	0.00 1+0 0	0.00E+00	2.038+06	6.40 8 +04
12	Sr-90	4.098+07	0.008+00	2.598+08	0.00 8+0 0	0.00 E+00	1.12E+07	1.31 E+ 05
13	Y-91	5.888+05	0.00 E+00	1.578+04	0.00K+00	0.00 E+0 0	2.45 E +08	7.03 E +04
- 14	Zr-95	1.158+05	2.798+04	2.038+04	0.00 K +00	3.11 8 +04	1.758+06	2.17 E +04
15	Nb-95	1.578+04	6.43E+03	3.788+03	0.008+00	4.72B+03	4.798+05	1.278+04
	₩Ъ-97	3.42E-01	7.2 91 -02	2.63 R-0 2	0.00 8+0 0	5.70 K -02	3.328+03	2.69E+04
	No~99	0.00 E+00	1.65 X+02	3.23 E +01	0.008+00	2.65 X+ 02	1.35 8+05	4.878+04
	Tc-99m	1.408-03	2.88E-03	3.72 8-0 2	0.00E+00	3.118-02	8.11E+02	2.03 X +03
	Ru-103	2.02 E+ 03	0.00 E+ 00	6.79E+02	0.008+00	4.248+03	5.528+05	1.618+04
20	Ru-106	8.688+04	0.00 E+00	1.098+04	0.008+00	1.078+05	1.16 E +07	1.648+05
	Ag-110m	9.98 8+ 03	7.22 E+0 3	5.00 E+ 03	0.008+00	1.09 R+04	3.672+06	3.30 E+04
	Sb-124	3.79 8 +04	5.56E+02	1.20E+04	1.01E+02	0.00E+00	2.65 E+ 06	5.918+04
	Sb-125	5.17 8+04	4.77E+02	1.098+04	6.238+01	0.008+00	1.64 E +06	1.47E+04
	Te-127m	1.678+04	6.908+03	2.078+03	4.878+03	3.75 8+04	1.318+06	2.73E+04
25	Te-129 n	1.418+04	6.09 1 +03	2.238+03	4.21 E +03	3.18 5+04	1.688+06	6.90E+04
26	I-131	3.798+04	4.448+04	1.968+04	1.48E+07	5.18 8+0 4	0.00 E+ 00	1.06 8+ 03
27	I-133	1.328+04	1.928+04	5.60B+03	3.56E+06	2.24 8+04	0.00 0+00	2.168+03
28	Cs-134	3.968+05	7.03 E +05	7.45B+04	0.00 2+00	1.90 R+0 5	7.978+04	1.33 8+0 3
29	Cs-136	4.838+04	1.358+05	5.29B+04	0.00 8+ 00	5.64 8 +04	1.18 8+04	1.43 8+ 03
30	Cs-137	5.498+05	\$.12 E+ 05	4.558+04	0.00 E +00	1.728+05	7.13 B+ 04	1.33 E+03
	Ba-140	5.60 E+04	5.60E+01	2.908+03	0.00 2+00	1.348+01	1.60 E+ 06	3.84E+04
	La-140	5.05 B+0 2	2.00 E +02	5.158+01	0.008+00	0.00 8+0 0	1.68 X+ 05	8.48 X+ 04
	Ce-141	2.77 E+04	1.678+04	1.998+03	0.00 2+0 0	5.25 E+ 03	5.178+05	2.16E+04
34	Ce-144	3.19K+06	1.212+05	1.768+05	0.008+00	5.38 8 +05	9.84 8 +06	1.488+05

Calculated per ODCH equation 2.3-22

Beaver Valle	ey Po	wer	Statio	on		Pro	cedure Nun 1	nber: /2-ODC-2.02
Title:						Uni		Level Of Use:
ODCM: GASEOUS EFFLUEN	ITS					Rev	1/2 ision: 2	In-Field Referenc Page Number: 93 of 128
	·	AT	FACHN	/ENT J		<u> </u>		93 01 128
			Page 5 c					
	P&1	I ORGA			CTORS			
1								4
-								
			Table 2.3-	6				
		R VALUES	FOR BEAVER	VALLEY SIT	ß			
				.	,			
		(sq met	er-mrem/yr	per uCi/sec)			
Pathway :	= Ground							
	_			.		•		
Wuclide	Bone	Liver	T. Body	Thyroid	Kidney	Lung	GI-LLI	
1 H-3 2 F-32	0.00K+00 0.00E+00	0.00E+00 0.00E+00	0.00 x+ 00 0.00 x+ 00	0_00E+00 0_00E+00	0.00E+00 0.00E+00	0.00 E+00 0.00 E+00	0.00 E+00 0.00 E+00	

1	H-3	0.00 K+ 00	0.008+00	0.00 X +00	0_00E+00	0.00 E +00	0.00 E+0 0	0.00E+00
2	F-32	0.00E+00	0.002+00	0.008+00	0.00 E +00	0.00 8 +00	0.00 5+00	0.00 E+00
3	Cr-51	4.66E+06	4.668+06	4.66E+06	4.66E+06	4.668+06	4.668+08	4.66E+06
- 4	Hni-54	1.398+09	1.398+09	1.398+09	1.39 E+0 9	1.39 E +09	1.398+09	1.39 E+ 09
5	Fe-59	2.73 E+08	2.73E+08	2.731+08	2.73 K +08	2.735+08	2.738+08	2.73 E+08
6	Co-57	0.00 E+00	0.001+00	0.008+00	0.000+00	0.00 E +00	0.008+00	0.00 K+00
	Co-58	3.798+08	3.798+08	3.798+08	3.79E+08	3.798+08	3.798+08	3.79 8+08
	Co-60	2.15E+10	2.15E+10	2.15E+10	2.158+10	2.15E+10	2.15E+10	2.15E+10
-	2n-65	7.478+08	7.478+08	7.47E+08	7.478+08	7.47E+08	7.478+08	7.47E+08
	Rb-86	8.998+06	8.998+06	8.99 K +06	8.99 E+ 06	8.99 E +06	8.998+06	8.99 1 +06
	Sr-89	2.16 E+04	2.168+04	2.16 E +04	2.16E+04	2.16 E +04	2.168+04	2.16E+04
	Sr-89 Sr-90	0.008+00	0.008+00	0.008+00	0.00E+00	0.008+00	0.00E+00	0.008+00
	3r-30 Y-91	1.078+06	1.071+06	1.07E+06	1.07E+08	1.078+08	1.07E+06	1.078+06
	Zr-95	2.45E+08	2.458+08	2.458+08	2.45K+08	2.458+08	2.458+08	2.458+08
	86-95	1.378+08	1.378+08	1.378+08	1.378+08	1.378+08	1.378+08	1.378+08
13	NU-2 0	1.312400	1.3/6700	1.915700	1.375790	1-918-00	1.0/8/00	1.514100
16	Nb-97	0.00 E+ 00	0.002+00	0.00E+00	0.00 E+0 0	0.00E+00	Q. 008+00	0.008+00
17	No-99	4.00 E+ 06	4.00E+06	4.00E+06	4.00E+08	4.00E+06	4.008+06	4.00 E+ 06
18	Tc-99m	1.848+05	1.84E+05	1.848+05	1.848+05	1.84E+05	1.848+05	1.842+05
19	Ru-103	1.08E+08	1.088+08	1.088+08	1.08E+08	1.085+08	1.088+08	1.08E+08
20	Ru-106	4.228+08	4.228+08	4.228+08	4.228+08	4.22E+08	4.22E+0B	4.228+08
21	Ag-110m	3.448+09	3.44 8 +09	3.448+09	3.44E+09	3.44 8 +09	3. 448+09	3,448+09
22	Sb-124	0.00 E+0 0	0.00E+00	0.00E+00	0.005+00	0.008+00	0.008+00	0.00 E+00
23	Sb-125	0.00 E+0 0	0.00E+00	0.00E+00	0.002+00	0.00 E+00	0.008+00	0.008+00
24	Te-127m	9.178+04	9.17E+04	9.17 E+04	9.178+04	9.17 E+04	9.178+04	9.178+04
25	Te-129a	1.988+07	1.98 E+0 7	1.988+07	1.98 E+0 7	1.988+07	1.988+07	1.98%+07
26	J-131	1.728+07	1.728+07	1.728+07	1.728+07	1.72 E+0 7	1.728+07	1.728+07
	I-133	2.45E+06	2.458+06	2.45E+08	2.45E+08	2.45E+06	2.458+06	2.45E+06
_	Cs-134	6.86E+09	6.862+09	6.868+09	6.86E+09	6.86E+09	6.658+09	6.868+09
	Ca-136	1.51E+08	1.51E+08	1.518+08	1.518+08	1.518+08	1.518+08	1.51E+08
	Ca-137	1.03 E+1 0	1.03 K+ 10	1.038+10	1.038+10	1.03 R+1 0	1.038+10	1.038+10
31	Ba-140	2.05E+07	2.05%+07	2.05 E +07	2.05E+07	2.058+07	2.05B+07	2.058+07
	La-140	1.928+07	1.928+07	1.928+07	1.928+07	1.928+07	1.928+07	1.92E+07
	Ce-141	1.378+07	1.378+07	1.37E+07	1.378+07	1.378+07	1.378+07	1.37E+07
	Ce-144	6.96 1 +07	6.96K+07	6.96B+07	6.96E+07	6.961+07	6.96E+07	6.968+07
	VU 111	0.008.01	0.002/0/			*****	*****	

Calculated per ODCM equation 2.3-23

li L

5

Ĵ t q

1 1

1

the state of the state of the state

1

Í

Beaver Valley Power Station	Procedure N	umber: 1/2-ODC-2.02	
Title:	Unit: Level Of Use: 1/2 In-Field Reference		
ODCM: GASEOUS EFFLUENTS	Revision: 2	Page Number: 94 of 128	
ATTACHMENT J		· · · · · · · · · · · · · · · · · · ·	
Page 6 of 19			

Page 6 of 19 P&I ORGAN DOSE FACTORS

Table 2.3-7

.

R VALUES FOR BRAVER VALLEY SITE

(sq meter-mrem/yr per uCi/sec)

Pathway = Vegetation Age Group = Adult

	Nuclide	Bone	Liver	Ť. Body	Thyroid	Kidney	Lung	GI-LLI
1	H-3	0,00 E+00	2.28 1 +03	2.26 E +03	2.26E+03	2.26 %+0 3	2.26 E +03	2.26 E+0 3
	P-32	1.408+09	8.74E+07	5.43E+07	0.00E+00	0.005+00	0.00E+00	1.588+08
3	Cr-51	0.00E+00	0.008+00	4.648+04	2.78E+04	1.02E+04	6.16E+04	1.178+07
4	Mn-54	0.002+00	3.131+08	5.97E+07	0.008+00	9.31K+07	0.00E+00	9.59E+08
5	Je-59	1.268+08	2.96 E+ 08	1.148+08	0.00E+00	0.00%+00	8.28 E+ 07	9.88 E+ 08
6	Ca-57	0.00E+00	1.17 5+ 07	1_95E+07	0.008+00	0.00E+00	0.00 8 +00	2.97 E+ 08
7	Co-58	0.002+00	3.07 E+ 07	6.89E+07	0.008+00	0.00 %+ 00	0.00 E+ 00	6.23 E+ 08
8	Co-60	0.002+00	1.67 E+ 08	3.698+08	0.005+00	0.002+00	0.00E+00	3.14 E+ 09
9	Zn-65	3.178+08	1.01 E+ 09	4.56E+08	0.008+00	6.75 8+ 08	0.00 E+0 0	6.36 E+ 08
10	Rb-86	0.00 E+ 00	2.198+08	1.028+08	0.001+00	0.008+00	0.00 8+ 00	4.33E+07
11	Sr-89	9.97 E+ 09	0.00 E+0 0	2.86 E +08	0.00 8+0 0	0.00 E +00	0.00 E +00	1.60 E +09
12	Sr-90	6.05B+11	0.00 E+0 0	1.488+11	0.00E+00	0.008+00	0.00 R+00	1.75 E+10
13	Y-91	5.11 E+06	0.00 E+0 0	1.378+05	0.00X+00	0.00 2+ 00	0.008+00	2.81E+09
14	Zr-95	1.178+06	3.77 8+0 5	2.55 E+ 05	0.00E+00	5.91 E+0 5	0.00E+00	1_19 R+0 9
15	Nb-95	1.428+05	7.92 8 +04	4-26 8 +04	0.008+00	7.83 E+04	0.008+00	4.81 E+ 08
16	Nb-97	2.16 B-0 6	5.46 E-0 7	1.99K-07	0.00E+00	6.37 8- 07	0.00 E+00	2.02 E -03
17	Ko-99	0.00 B+00	6.15 E+0 6	1.178+06	0.00 E+0 0	1.398+07	0.00 8+ 00	1.438+07
18	Tc-99m	3.10B+00	8.77E+00	1.128+02	0.008+00	1.338+02	4.30E+00	5.198+03
19	Ru-103	4.77E+06	0.00 E+0 0	2.061+06	0.002+00	1.828+07	0.002+00	5.578+08
20	Ru-106	1.938+08	0.00 8 +00	2.44 8 +07	0.00E+00	3.72 E+ 08	0.00 E+ 00	1.25 E+10
	Ag-110m	1.05B+07	9.75 E +06	5.798+06	0.008+00	1.928+07	0.00 0+0 0	3.98E+09
22	Sb-124	1.048+08	1.96 8+0 6	4.118+07	2.51 E+05	0.00 E +00	8.07E+07	2.94 E +09
23	Sb-125	1.37 E+08	1.53 R+06	3.25 X+ 07	1.398+05	0.008+00	1.05 E+ 08	1.50 E+09
	Te-127m	3. 498+0 8	1.25 E+ 08	4.268+07	8.928+07	1.428+09	0.00 B+ 00	1.17 E+ 09
25	Te-129m	2.51E+08	9.362+07	3_981+07	8.64E+07	1.058+09	0.00E+00	1.278+09
	I-131	8.088+07	1.18 E+0 8	6.62X+07	3.798+10	1.988+08	0.00 8+0 0	3.058+07
27	I-1 3 3	2.09 8+ 06	3.63 8 +06	1.118+06	5.33 8 +08	6.33 8 +06	0.00 E+ 00	3.26E+05
	Cs-134	4.67 8 +09	1.11 B +10	9.088+09	0.00 E+0 0	3.59 8 +09	1.19 E+0 9	1.94 E +08
29	Cs-136	4.27B+07	1.698+08	1.21 X +08	0.00 E+00	9.382+07	1.29 6+0 7	1.91 E+0 7
30	Ca-137	6.36 8+0 9	8.70 E +09	5.701+09	0.00 E+00	2.958+09	9.812+08	1.68 E +08
	Ba-140	1.298+08	1.618+05	8.425+08	0.00 E+00	5.498+04	9.248+04	2.65 E +08
	La-140	1.98 E+0 3	9.97 E +02	2.63 E +02	0.00 R +00	0.00E+00	0.00E+00	7.32 X+0 7
	Ce-141	1.978+05	1.33 8 +05	1.51 E+04	0.008+00	6.198+04	0.00 E+ 00	5.10E+08
34	Ce-144	3.298+07	1.381+07	1.778+06	0.00 E+0 0	8.16 E +06	0.00E+00	1.11 E +10

All nuclides (except H-3) calculated per ODCH equation 2.3-26 H-3 calculated per ODCH equation 2.3-29

	Beaver Valle	ey Po	wer S	Static	on		Pro	cedure Nun 1	nber: /2-ODC-2.02
Title:		<u> </u>		·			Uni		Level Of Use:
								 1/2	In-Field Reference
	ASEOUS EFFLUEN	TC					Rey	vision:	Page Number;
ODCM. O	ASEUUS EFFLUEN	15						2	95 of 128
	······································		ATT	ACHN	IENT J				
				age 7 c					
		nor							
		Pæi	OKGA		SE FAC	JUKS			
	L								1
				Table 2.3-	5				
			R VALUES	FOR BRAVER	VALLEY SIT	8			
						\			
			fed mer	st-stem/At	per uCi/sec	,			
		• Vegetation							
	Age Group) = Teen							
	Nuclide	Bone	Liver	1. Body	Thyroid	Kidney	Lung	GI-LLI	
	1 11 2	A 008-00	9 608-04	4 E07.03	3 508.03	9 508.03	1 508.03	0 507.00	
	1 H-3 2 P-32	0.00E+00 1.61E+09	2.598+03 9.988+07	2.59 8+03 6.2 48+ 07	2.59 8 +03 0.00 8 +00	2.591+03 0.001+00	2.59E+03 0.00E+00	2.59E+03 1.35E+08	
	3 Cr-51	0.008+00	0.005+00	6.17 8 +04	3.43 8+ 04	1.353+04	8.81 8 +04	1.048+07	
	4 Hn-54	0.00 E+0 0	4.548+08	9.01 E+0 7	0.00E+00	1.361+08	0.008+00	9.32 8 +08	
	5 Fe-59	1.798+08	4.19 8 +08	1.628+08	0.001+00	0.00B+00	1.32 E +08	9.906+08	
	8 Co-57	0.00E+00	1.79 8+07	3,008+07	0.00 E+ 00	0.008+00	0.00 <u>\$</u> +00	3.33 8+ 08	
	7 Co-58	0.00E+00	4.36 X+ 07	1.008+08	0.00 X +00	0.00 1 +00	0.00 E+0 0	6.01 E +08	
	B Co-60	0.00E+00	2.49 E+0 8	5.60 %+0 8	0.00 E+ 00	0.00E+00	0.001+00	3.24 E +09	
	9 Zn-65	4.248+08	1.478+09	6.87E+08	0.00E+00	9.42E+08 0.00I+00	0.00 1 +00 0.00 1 +00	6.238+08 4.058+07	
	10 Rb-86	0.008+00	2.748+08	1.298+08	0.00E+00	0.001100	0.001+00	4.035407	
	11 Sr-89	1.51B+10	0.001+00	4.348+08	0.008+00	0.001+00	0.008+00	1.801+09	
	12 Sr-90	7.51B+11	0.008+00	1.85 E+ 11	0.00E+00	0.001+00	0.00E+00	2.11E+10	
	13 ¥-91	7.848+05	0.00K+00		0.00K+00	0.00 1 +00	0.008+00	3.21E+09	
	14 Zr-95 15 Nb-95	1.72 8+0 5 1.92 8+ 05	5.43 8 +05 1.07 8 +05	3.74 8 +05 5.87 8+04	0.00E+00 0.00E+00	7.98 8 +05 1.03 8 +05	0.00 8+00 0.00 8+00	1.25%+09 4.56%+08	
	20 00								
	16 Nb-97		4.97K-07	1.81K-07	0.00E+00	5.818-07	0.008+00	1.198-02	
	17 Mo-99 18 Tc-99m	0.00E+00 2 74E+00	5.65E+06	0 007101	0.00 E+00 0.00 E+0 0	1.298+07	0.008+00 4.248+00	1.01E+07 5 02E+03	
	10 10-99 19 Ru-103	8.828+06	0.008+00	2.92 E +06	0.00E+00	2.418+02	0.00E+00	5.70E+08	
	20 Ru-106	2.388+08	0.008+00	3.90E+07	0.00E+00	5.971+08	0.00 E +00	1.488+10	
	21 Ag-110m	1,528+07	1.43 8+ 07	8.72 8 +06	0.00 E +00	2.741+07	0.00 8+00	4.03 X+0 9	
	21 Ag-110 22 Sb-124	1.54E+00	1.43E+07 2.84E+06	6.02 8+ 05	3.50 8 +05	0.001+00	1.351+08	4.038+09 3.118+09	
	23 Sb-125	2.14E+08	2.34B+06	5.01 E+0 7	2.055+05	0.00 E +00	1.888+08	1.67 E+0 9	
	24 Te-127a	5.528+08	1.968+08	6.56 E+ 07	1.31E+08	2.248+09	0.00E+00	1.378+09	
	25 Te-129m	3.628+08	1.348+08	5.738+07	1.17 5+ 08	1.518+09	0.00E+00	1.36 X+09	
	26 I-131	7.69 E+0 7	1.088+08	5.78 8+ 07	3.14 E +10	1.858+08	0.001+00	2.13 8+0 7	
	27 I-133	1.94E+08	3.29E+06	1.008+06	4.598+08	5.77 B +06	0.008+00	2.498+06	
	28 Ca-134	7.10E+09	1.678+10	7.758+09	0.008+00	5.31 E+0 9	2.031+09	2.088+08	
	29 Cs-136 30 Cs-137	4.38E+07 1.01E+10	1.72 8+08 1.35 8+ 10	1.16E+08 4.69E+09	0.00 E+0 0 0.00 E+ 00	9.37 8+ 07 4.59 8+ 09	1.48E+07 1.78E+09	1.39 8+ 07 1.92 8+ 08	
	90 VD-191	1.018710	1.035110	1.000102	V.VV2+UV	1.000103	1.705703	1.063100	
	31 Ba-140	1.388+08	1.698+05	8.90 X +06	0.008+00	5.74 E +04	1.14 E +05	2.13E+08	
	32 La-140	1.818+03	8.88E+02	2.365+02	0.00E+00	0.00E+00	0.00E+00	5.10E+07	
	33 Ce-141 34 Ce-144	2.83E+05 5.27E+07	1.898+05 2.188+07	2.17E+04 2.83E+06	0.00 E+00 0.00 E+0 0	8.90 5+04 1.30 5+ 07	0.00X+00 0.00X+00	5.41X+08 1.33X+10	

H-3 calculated per ODCM equation 2.3-29

ý

21 ALL 1 L

ч ,

ł

ł

i

	Procedure Number: 1/2-ODC-2.02		
Unit:	Level Of Use:		
1/2	In-Field Reference		
Revision:	Page Number		
2	96 of 128		
	Unit: 1/2		

ATTACHMENT J Page 8 of 19 P&I ORGAN DOSE FACTORS

Table 2.3-9

R VALUES FOR BEAVER VALLEY SITE

(sq meter-mrem/yr per uCi/sec)

Pathway = Vegetation Age Group = Child

	Nuclide	Bone	Liver	T. Body	Thyroid	Kidney	Lung	GI-LLI
1	8-3	0.00 E+00	4.01 E +03	4.01E+03	4.01E+03	4.01E+03	4.01 E+03	4.01E+03
-	P-32	3.378+09	1.588+08	1.308+08	0.008+00	0.00E+00	0.00E+00	9.32B+07
	Cr-51	0.008+00	0.008+00	1.178+05	6.508+04	1.788+04	1.198+05	6.21B+06
-	Bn-54	0.008+00	6.65E+08	1.77E+08	0.008+00	1.868+08	0.008+00	5.58R+08
	Fe-59	3.98E+08	8.43E+08	3.20E+08	0.00E+00	0.00E+00	1.878+08	6.70E+08
·				•••••				
6	Co-57	0.00 E+ 00	2.99 E +07	6.04 E+0 7	0.00 E+00	0.00E+00	0.00 x+00	2.458+08
7	Co-58	0.00 E+00	6.44E+07	1.978+08	0.00 X+00	0.00 2+00	0.008+00	3.76E+08
8	Co-60	0.00E+00	3.78X+08	1.12 E+0 9	0.00 E+00	0.008+00	0,00 E+ 00	2.108+09
9	Zn-65	8.13E+08	2.17 E+09	1.35E+09	0.00E+00	1.36E+09	0.00E+00	3.808+08
	Rb-86	0.008+00	4.52B+08	2.78E+08	0.00E+00	0.00X+00	0.00E+00	2.91E+07
11	Sr-89	3.60E+10	0.00 8+00	1.038+09	0.00E+00	0.00E+00	0.00K+00	1.398+09
	Sr-90	1.248+12	0.00E+00	3.15E+11	0.00E+00	0.00E+00	0.00E+00	1.678+10
	Y-91	1.868+07	0.00E+00	4.998+05	0.00E+00	0.002+00	0.00E+00	2.488+09
	Zr-95	3.86E+06	8.488+05	7.558+05	0.00E+00	1.21E+06	0.00E+00	8.858+08
	Nb-95	4.118+05	1.60E+05	1.148+05	0.00E+00	1.50E+05	0.00E+00	2.968+08
16	Rb-97	3.658-06	6.598-07	3.088-07	0.00 8+ 00	7.31 5-0 7	0.00E+00	2.03E-01
17	No-99	0.00 E+ 00	7.71 8+ 06	1.918+06	0.002+00	1.65 E+07	0.00E+00	6.38E+06
18	Tc-99m	4.71E+00	9.248+00	1.538+02	0.008+00	1.34E+02	4.69E+00	5.26B+03
19	Bu-103	1.53E+07	0.008+00	5.90E+06	0.008+00	3.86E+07	0.00E+00	3.978+08
20	Bu-106	7.458+08	0.00 E+0 0	9.308+07	0.00E+00	1.01E+09	0.00E+00	1.16E+10
21	Ag-110m	3.218+07	2.17 8+0 7	1.73E+07	0.008+00	4.04E+07	0.00E+00	2.58R+09
22	Sb-124	3.521+08	4.57B+06	1.238+08	7.778+05	0.00 2+00	1.958+08	2.208+09
23	Sb-125	4.998+08	3.85E+06	1.058+08	4.638+05	0.008+00	2.78E+08	1.19E+09
24	Te-127m	1.321+09	3.56E+08	1.578+08	3.16 E +0B	3.77 8 +09	0.002+00	1.07E+09
25	Te-129m	8.41 8+0 8	2.35E+08	1.318+08	2.718+08	2.47 8 +09	0.008+00	1.03 E+09
26	I-131	1.43E+08	1.44B+08	8.17 8+0 7	4.76 <u>8</u> +10	2.368+08	0.008+00	1.288+07
27	I-133	3.53 8+ 06	4.37E+06	1.658+06	8.12 E+ 08	7.28E+06	0.00 E+ 00	1.761+06
28	Св-134	1.60E+10	2.63E+10	5.558+09	0.00 E+00	8.15 8+ 09	2.938+09	1_428+08
29	Ca-136	B.24E+07	2.27E+08	1.478+08	0.00 6+0 0	1.21 E+08	1.808+07	7.968+06
30	Cs-137	2.39E+10	2.29 E+ 10	3.385+09	0.002+00	7.46E+09	2.68E+09	1.438+08
	Ba-140	2.77E+08	2.428+07	1.62 R+ 07	0.00 8+00	7.89 K+04	1.458+05	1.408+08
	La-140	3.25 E+03	1.13 8 +03	3.83 8+ 02	0.00 E +00	0.00 8+00	0.00 E+0 0	3.162+07
	Ce-141	6.56 E+ 05	3.278+05	4.86 8 +05	0.00 E+00	1.43 8+05	0.008+00	4.08E+08
34	Ce-144	1.27 E+ 08	3.96 E+ 07	6.78 E +06	0.00 E +00	2.21E+07	0.00 E+0 0	1.04 E +10

All nuclides (except H-3) calculated per ODCM equation 2.3-26 H-3 calculated per ODCM equation 2.3-29

Beaver Valley Power Station		Procedure Number: 1/2-ODC-2.02		
Title:	Unit: 1/2	Level Of Use: In-Field Reference		
ODCM: GASEOUS EFFLUENTS	Revision: 2	Page Number: 97 of 128		
ATTACHMENT J Page 9 of 19				
P&I ORGAN DOSE FACTORS				
		L		

Table 2.3-10

R VALUES FOR BEAVER VALLEY SITE

(sq meter-mrem/yr per uCi/sec)

Pathway = Age Group	
Kuclide	Воле

	Nuclide	Bone	Liver	T. Body	Thyroid	Kidney	Lung	61-LL1
1	H-3	0.008+00	3.258+02	3.25E+02	3.25 E+ 02	3.25 K +02	3.25 E +02	3.258+02
2	P-32	3.95 B+0 9	2.468+08	1.538+08	0.00E+00	0.008+00	0.00E+00	4.44 8 +08
3	Cr-51	0.00E+00	0.00 E +00	5.868+03	3.508+03	1.298+03	7.788+03	1.478+06
4	Hn-54	0.008+00	6.49E+06	1.248+06	0.00E+00	1.93 E+ 06	0.00E+00	1.99E+07
5	Fe-59	2.148+08	5.04E+08	1.938+08	0.008+00	0.00E+00	1.41 B +08	1.688+09
6	Co-57	0.00E+00	4.01 8 +06	6.66 8 +06	0.00 E+ 00	0.008+00	0.00 R +00	1.028+08
7	Co-58	0.008+00	1.428+07	3.188+07	0.008+00	0.00 x +00	0.00E+00	2.87E+08
8	Co-60	0.00E+00	5.12E+07	1.13B+0B	0.00 E+ 00	0.00 R+ 00	0.00E+00	9.61E+08
9	Zn-65	2.54E+08	8.0 98 +08	3.668+08	0.008+00	5.41E+08	0.00 E +00	5.10 2+08
10	Rb-86	0.008+00	4.11 8 +08	1.928+08	0.008+00	0.00 8+00	0.00 E +00	8.11E+07
11	Sr-89	2.41E+08	0.00 E+ 00	6.92 8 +06	0.00 E+ 00	0.00E+00	0.00 E+ 00	3.87 8 +07
12	Sr-90	8.41E+09	0.00 E +00	2.068+09	0.00 E+ 00	0.00 8+00	0.00R+00	2.43 <u>8</u> +08
13	Y-91	8.94E+05	0.00 0+0 0	2.398+04	0.008+00	0.008+00	0.00 E +00	4.928+08
- 14	2 1 -95	1,478+06	4.718+05	3. 192+05	0.008+00	7.39 E+ 05	0.00E+00	1.49 2 +09
15	ND-95	1.898+06	1.052+06	5.648+05	0.00E+00	1.0 42+06	0.00 R +00	6.37 8 +09
	NB-97					******		*******
	Ko-99	0.00E+00	8.51E+04	1.622+04	0.00 B +00	1.93 E+ 05	0.00 R+ 00	1.978+05
	Tc-99a	3.83E-21	1.08E-20	1.388-19	0.00 E+0 0	1.648-19	5.30E-21	6.40E-18
19	Ru-103	8.57B+07	0.00 E+00	3.698+07	0.00 E+0 0	3.27E+08	0.00E+00	1.00E+10
20	Ru-106	1.978+09	0.008+00	2.498+08	0.00 8+ 00	3.80 2+09	0.00 E +00	1.278+11
	Ag-110m	4.77 8 +06	4.418+06	2.62 8+ 06	0.00 8 +00	8.87E+06	0.00E+00	1.80E+09
	Sb-124	0.002+00	0.00 0 +00	0.008+00	0.00 E+ 00	0.00E+00	0.00 R +00	0.00 E +00
23	Sb-125	0.008+00	0.00 E+ 00	0.008+00	0.008+00	0.00 R +00	0.00 &+00	0.00 E +00
	Te-127#	B. 388+08	3.00 0+ 08	1.028+08	2.148+08	3.40B+09	0.008+00	2.818+09
25	Te-129 n	9.33 8 +08	3.48 8 +08	1.48E+08	3.21 8 +08	3.89 X +09	0.008+00	4.70E+09
	I-131	9.13 E+06	1.318+07	7.488+06	4.288+09	2.24 8+ 07	0.008+00	3. 458 +06
	I-133	3.128-01	5.428-01	1.65E-01	7.96 8 +01	9.468-01	0.008+00	4.678-01
	Ca-134	4.538+08	1.068+09	8.81 8+08	0.00 E+ 00	3.498+08	1.168+08	1.895+07
	Cs-136	1.02E+07	4.04B+97	2.91 6 +07	0.00 E +Q0	2.25B+07	3.08B+06	4.59 8 +06
30	Ca-137	5.908+08	8.06E+08	5.288+08	0.00 E+00	2.748+08	9.10 8 +07	1.568+07
	Ba-140	2.44 E +07	3.06E+04	1.60E+06	0.00 E+00	1.048+04	1.75 B +04	5.02 B +07
32	La-140	3.168-02	1.59 8-0 2	4.218-03	0.00E+00	0.00E+00	0.00B+00	1.17E+03
33	Ce-141	1.168+04	7.832+03	8.888+02	0.00 E+00	3.648+03	0.008+00	2.998+07
34	Ce-144	1.03 E+0 6	4.328+05	5.55 8+04	0.00 E+00	2.568+05	0.00 8+ 00	3.508+08

All nuclides (except H-3) calculated per ODCH equation 2.3-25 H-3 calculated per ODCH equation 2.3-30 ì

1900 - 11 H H H

þ

л

ł

ļ

i

i i i

j

Ĵ.

t

1 - 9 -

ą

Ì

100

Beave	Beaver Valley Power Station								Procedure Number: 1/2-ODC-2.02			
Title:	;						Ūni	it: 1/2	Level Of Use: In-Field Reference			
ODCM: GASEOUS	EFFLUEN	ITS					Rev	vision:	Page Number:			
·····			2	98 of 128								
			AT	ГАСНМ	AENT J	ſ						
			Р	age 10	of 19							
		P&1			SE FAC	CTORS						
				Table 2.3-	11							
			R VALUES	FOR BEAVER	VALLEY SIT	ß						
			(aq met	er-mrem/yr (per uCi/sec)						
	Pathway = Age Group		•									
	Nuclide	Bone	Liver	T. Body	Thyroid	Kidney	Lung	GI-LLI				
	1 H-3	0.00 E+0 0	1.948+02	1.94E+02	1.948+02	1.948+02	1.948+02	1.94 E+ 02				
	2 P-32	3.348+09	2.078+08	1.298+08	0.00 E+00	0.008+00	0.00 E +00	2.80 E +08				
	3 Cr-51	0.005+00	0.008+00	4.69E+03	2.60E+03	1.03E+03	6.698+03	7.888+05				
	4 Mn-54	0.00E+00	4.958+06	9.81 8 +05	0.00 E+00	1.46R+06	0.001+00	1.01E+07				
	5 Fe-59	1.718+08	4.008+08	1.548+08	0.008+00	0.008+00	1.261+08	9.45 8 +08				
	6 Co-57	0.00E+00	3.228+06	5.40 8 +06	0.00E+00	0.00 %+00	0.008+00	6.018+07				
	7 Co-58	0.00E+00	1.091+07	2.528+07	0.00E+00	0.00 2+00	0.00E+00	1.518+08				
	6 Co-60	0.008+00	3.97 8+ 07	8.95 E+ 07	0.00 E+00	0.00 1+00	0.00 E+ 00	5.178+08				
	9 Zn-65	1.798+08	6.21E+08	2.90 E+08	0.005+00	3.97 X+ 08	0.00 E+00	2.638+08				
	10 Rb-86	0.002+00	3.43 8 +08	1.61E+08	0.008+00	0.008+00	0.00 8+0 0	5.08E+07				

2.038+08 0.00E+00 5.83E+06 0.00E+00 0.00E+00 0.00E+00 2.42E+07 · 11 Sr-89 5.448+09 0.008+00 1.348+09 0.008+00 0.008+00 0.008+00 1.53**E+**08 12 Sr-90 7.538+05 0.008+00 2.028+04 0.00E+00 0.00E+00 0.00E+00 3.09E+08 13 Y-91 14 Zr-95 1.18E+06 3.71E+05 2.55**E+**05 0.00**E+00** 5.45E+05 0.00E+00 8.56**8+**08 1.478+06 8.178+05 4.508+05 0.008+00 7.928+05 0.008+00 3.498+09 15 Nb-95 16 Nb-97 0.008+00 7.038+04 1.348+04 0.008+00 1.618+05 0.008+00 1.268+05 17 No-99 18 Tc-99m 3.048-21 8.48**8-**21 1.10**8-**19 0.00E+00 1.26**E-19** 4.71B-21 5.578-18 6.96E+07 19 Ru-103 0.00E+00 2.98E+07 0.00E+00 2.46E+08 0.008+00 5.83**E**+09 1.28E+09 0.008+00 2.09E+08 0.00E+00 3.198+09 0.008+00 7.948+10 20 Ru-106 3.61E+06 3.428+06 2.088+06 0.002+00 6.528+06 0.008+00 9 608+08 21 Ag-110m 0.00E+00 0.00E+00 0.008+00 0.008+00 0.001+00 22 Sb-124 0.00E+00 0.00E+00 23 Sb-125 0.00B+00 0.00E+00 0.00E+00 0.00**E+**00 0.008+00 0.008+00 0.00E+00 24 Te-127m 7.07E+08 2.51**E+**0B 8.41E+07 1.68%+08 2.878+09 0.00**X+**00 1.768+09 25 Te-129m 7.828+08 2.90E+08 1.248+08 2.52E+08 3.278+09 0.008+00 2.93**E**+09 5.71E+06 . 3.10E+09 1.83**E+0**7 0.00E+00 2.10E+06 26 I-131 7.598+06 1.06E+07 27 1-133 2.61E-01 4.428-01 1.35**E**-01 6.17E+01 7.75E-01 0.00E+00 3.34E-01 28 Cs-134 3.608+08 8.488+08 3.938+08 0.00**5+00** 2.69**E+08** 1.03E+08 1.05E+07 29 Cs-136 7.988+06 3.148+07 2.118+07 0.008+00 1.718+07 2.691+06 2.53**K**+06 4.908+08 2.27E+08 0.00**8+00** 30 Cs-137 6.518+08 2.228+08 8.618+07 9.278+06 31 Ba-140 2.028+07 2.478+04 1.308+06 0.00E+00 8.38E+03 1.66E+04 3.11E+07 2.608-02 1.288-02 3.408-03 0.008+00 0.005+00 0.00B+00 32 La-140 7.331+02 9.728+03 7.46E+02 0.00E+00 3.068+03 0.00E+00 33 Ce-141 6.49R+03 1.868+07 6.72E+05 3.61E+05 4.688+04 0.008+00 2.151+05 0.00E+00 2.198+08 34 Ce-144

All nuclides (except H-3) calculated per ODCM equation 2.3-25 H-3 calculated per ODCM equation 2.3-30

E	Beaver Valle	ey Po	wer s	Static	n		Proc	cedure Nun 1	nber: /2-ODC-2.02
Title:		<u> </u>				·····	Unit		Level Of Use:
1 1.10.							1	1/2	In-Field Reference
	EOUS EFFLUEN	TC						ision:	Page Number:
ODCM. GASI	COUS EFFLUEN	12						2	99 of 128
			AT	TACHN	IENT J				
				age 11 d					
		D_{r}		N DOS		ידרים כ			
		rαı		IN DO	SE PAC				
	i								1
				Table 2.3-1	12				
			R VALUES	FOR BEAVER	VALLEY SIT	K			
			(sq met	er-mrem/yr (per uCi/sec)			
	Pathway =								
x	Age Group	= Child							
	Nuclide	Bone	Liver	7. Body	Thyroid	Kidney	Lung	GI-LLI	
	1 8-3	0.00E+00	2.348+02	2.34 E+ 02	2.34 E +02	2.348+02	2.348+02	2.348+02	
	2 P-32	8.29E+09	2.948+08	2.438+08	0.00E+00	0.008+00	0.00 R+00	1.74E+08	
	3 Cr-51	0.008+00	0.00 E+0 0	7.31 E+0 3	4.06 E +03	1.11 E+ 03	7.41E+03	3.888+05	
	4 No-54	0.00 E+ 00	5.86 8+ 08	1.51 E+0 B	0.00 E+ 09	1.598+06	0.00B+00	4.75B+06	
	5 Fe-59	3.04E+08	4.918+08	2.458+08	0.00 E +00	0.00E+00	1.428+08	5.128+08	
	6 Co-57	0.00B+00	4.21B+06	8.52 E+ 06	0.00E+00	0.00E+00	0.00E+00	3.45E+07	
	7 Co-58	0.00 B+00	1.288+07	3.91E+07	0.008+00	0.00E+00	0.00E+00	7.45B+07	
	8 Co-60	0.008+00	4.72E+07	1.39 E+ 08	0.008+00	0.00B+00	0.00E+00	2.61E+08	
	9 Zn-65	2.688+08	7.15B+08	4.448+08	0.00E+00	4.50 8 +08	0.008+00	1.258+08	
	10 Rb-86	0.00 8+00	4.878+08	2.99 E +08	0.008+00	0.008+00	0.008+00	3.13B+07	
	11 Sr-89	3.858+08	0.00 K+0 0	1.108+07	0.001+00	0.00 8+ 00	0.008+00	1.49B+07	
	12 Sr-90	7.03E+09	0.008+00	1.788+09	0.008+00	0.00 E +00	0.00 E+00	9.478+07	
	13 Y-91	1.42E+06	0.00 E+0 0	3.81 E+04	0.00 %+0 0	0.00 8 +00	0.00 B +00	1.908+08	
	14 Zr-95	2.09E+06	4.59E+05	4.09E+05	0.005+00	6.57 E +05	0.008+00	4.79E+08	
	15 Nb-95	2.5 4E +06	9.908+05	7.078+05	0.00\$+00	9.30E+05	0.008+00	1.838+09	
	16 Nb-97	*******							
	17 Mo-99			2.42E+04					
	18 Tc-99m	5.33E-21	1.058-20	1.73 E -19	0.002+00	1.52E-19	5.318-21	5.958-16	
	19 Ru-103 20 Ru-106	1.26E+08 3.12E+09	0.008+00 0.008+00	4.85E+07 3.89E+08	0.00 E+00 0.00 E+0 0	3.18E+08 4.21E+09	0.00 E+00 0.00 E+00	3.26E+09 4.85E+10	
	70 M-100	0.165703	0.005100	0.008100	0.005100	1.410103	0.000100	1.000110	
	21 Ag-110m	5.99 8 +06	4.048+06	3.23E+06	0.002+00	7.53E+06	0.00E+00	4.81E+08	
	22 Sb-124	0.008+00	0.008+00	0.00E+00	0.008+00	0.008+00	0.00B+00	0.008+00	
	23 Sb-125 24 Te-127m	0.00E+00 1.33E+09	0.00E+00 3.59E+08	0.00E+00 1.58E+08	0.00 E+00 3.19 E+0 8	0.00E+00 3.80E+09	0.008+00 0.008+00	0.00E+00 1.08E+09	
	25 Te-129m	1.478+09	4.11E+08	2.298+08	4.758+08	4.33 8 +09	0.00E+00	1.80E+09	
•									
	26 1-131	1.41E+07	1.42B+07	8.04 E+0 6	4.685+09	2.32 B+0 7	0.00E+00	1.268+06	
	27 I-133 28 Co-134	4.848-01	5.998-01	2.278-01	1.118+02	9.98K-01	0.008+00	2.41E-01	
	28 Cs-134 29 Cs-136	6.35X+08 1.38X+07	1.04K+09 3.78K+07	2.20 E +08 2. 45E +07	0.00 6+0 0 0.00 6+0 0	3.23E+08 2.01E+07	1.168+08 3.008+06	5.62 E +06 1.33 E +06	
	30 Cs-137	9.028+08	8.638+08	1.271+08	0.008+00	2.81E+08	1.018+08	5.408+06	
							•		
	31 Ba-140	3.72 E+07	3.288+06	2.178+06	0.00 8 +00	1.06 E+ 04	1.94E+04	1.698+07	
			1 000 00	5 015 00	A A89.44	A AA#			
	32 La-140 33 Ce-141	4.76B-02 1.83B+04	1.65E-02 9.13E+03	5.618-03 1.368+04	0.00E+00 0.00E+00	0.00 8+ 00 4.00 8+ 03	0.008+00 0.008+00	4.63E+02 1.14E+07	

All nuclides (except H-3) calculated per ODCH equation 2.3-25 H-3 calculated per ODCH equation 2.3-30

on an annar ta ann

5

,

1

l

Beaver Valley Power Station	Procedure Number: 1/2-ODC-2.02			
Title:	Unit: 1/2	Level Of Use: In-Field Reference		
ODCM: GASEOUS EFFLUENTS	Revision: 2	Page Number: 100 of 128		
ATTACHMENT J	,			

Page 12 of 19 P&I ORGAN DOSE FACTORS

Table 2.3-13

R VALUES FOR BRAVER VALLEY SITE

(sq meter-mrem/yr per uCi/sec)

Pathway = Cow Hilk Age Group = Adult

Nucli	le Bone	Liver	T. Body	Thyroid	Kidney	Lung	GI-LLI
1 H-3	0.00E+00	7.63E+02	7.63E+02	7.63E+02	7.63 E +02	7.63 E+0 2	7.63 E+0 2
2 P-32	1.458+10	9.018+08	5.60E+08	0.00E+00	0.00E+00	0.001+00	1.638+09
3 Cr-51	0.008+00	0.00E+00	2.368+04	1.428+04	5.24 E +03	3.15E+04	5.98 8 +06
4 Km-54	0.00E+00	5.958+06	1.138+06	0.00E+00	1.77E+06	0.00E+00	1.82E+07
5 Fe-59	2.40 E +07	5.638+07	2.16E+07	0.008+00	0.00E+00	1.578+07	1.88 E+ 08
6 Co-57	0.00 8 +00	9.10 8 +05	1.518+06	0.00E+00	0.008+00	0.00 %+00	2.31 8+0 7
7 Co-58	0.00 E +00	3.67 E +06	8.228+06	0.00 E +00	0.00E+00	0.00 E+ 00	7.43 8+ 07
8 Co-60	0.00E+00	1.12E+07	2.46E+07	0.00E+00	0.00E+00	0.008+00	2.10E+08
9 Zn-65	9.80 E +08	3.128+09	1.41 E +09	0.00 E+00	2.09E+09	0.00 E+0 0	1.96E+09
10 Rb-86	0.008+00	2.198+09	1.02 E+09	0.00E+00	0.00E+00	0.002+00	4.328+08
11 Sr-89	1.168+09	0.00 K+00	3.33 8 +07	0.00 E+00	0.00 R +00	0.00 E+00	1.862+08
12 Sr-90	3.16 8 +10	0.002+00	7.768+09	0.00E+00	0.00 R +00	0.00E+00	9.14 E+ 08
13 Y-91	6.78 8+ 03	0.00 E +00	1.81E+02	0.00 E +00	0.008+00	0.00 E+00	3.73 8+0 6
14 Zr-95	7.40 E+ 02	2.378+02	1.611+02	0.00 E +00	3.72 E +02	0.00 E +00	7.52 E+ 05
15 Nb-95	6.77E+04	3.778+04	2.03 8+04	0.00 E+00	3.72 B +04	0.00E+00	2.298+08
16 ND-97	2.81 E-12	7.11 8-1 3	2.60E-13	0_008+00	8.30R-13	0.008+00	2.628-09
17 Ko-99	0.00 E+00	2.11 E+0 7	4.018+08	0.002+00	4.778+07	0.008+00	4.888+07
18 Te-99		7. 998+ 00	1.028+02	0.008+00	1.218+02	3.91E+00	4.73 <u>8</u> +03
19 R u-103		0_00 E+0 0	3.578+02	0.00E+00	3.16 R+03	0.002+00	9.682+04
20 Ru-10	6 1.43B+04	0.008+00	1.818+03	0.00E+00	2.77 8+04	0.008+00	9.27 E+ 05
21 Ag-11		3.84 E +07	2.288+07	0.00E+00	7.56E+07	0.008+00	1.57E+10
22 Sb-12		0_00E+00	0.008+00	0.00 8+0 0	0.00 8+00	0.00 x+00	0.00 E+00
23 Sb-12		0.00 E +00	0.008+00	0.00 8+0 0	0.00 R+ 00	0.00 E+ 00	0.008+00
24 Je-12		1.231+07	4.198+06	8.79 K+0 6	1.40 R+08	0.008+00	1.158+08
25 Te-12	9m 4.95X+07	1.851+07	7.848+08	1.708+07	2.078+08	0.008+00	2.498+08
26 1-131	2.52 8+ 08	3.60 1 +08	2.06 E +08	1.188+11	6.17 8+ 08	0.00 8+ 00	9.50B+07
27 J-133	3.29 1 +06	5.72 X+ 06	1.758+06	8. 418+0 8	9.99 8+06	0.00 E +00	5.148+06
28 Cs-13		9.275+09	7.588+09	0.00 K+00	3.00 8 +09	9.968+08	1.628+08
29 Ca-13		8.821+08	6.35 X+ 08	0.00 E+0 0	4.918+08	6.73 E +07	1.00K+08
30 Ca-13	7 4.998+09	6.821+09	4.47E+09	0.00 8 +00	2.321+09	7.70 E +08	1.328+08
31 Ba-14		2.872+04	1.498+06	0.00 8 +00	9.74 8 +03	1.64 E +04	4.70B+07
32 La-14		1.93 K+ 00	5.11 B-0 1	0.00 E+0 0	0.00B+00	0.00 B +00	1.42E+05
33 Ce-14		2.70 E+0 3	3.06 E +02	0.00 E +00	1.258+03	0.00 x +00	1.03E+07
34 Ce-14	4 2.54 B +05	1.08 E+0 5	1.368+04	0.00 E+0 0	6.298+04	0.008+00	8.58 B+07

All nuclides (except H-3) calculated per ODCM equation 2.3-24 H-3 calculated per ODCM equation 2.3-28

Веач	ver Valle	y P0	wer :	static	JN			1	/2-ODC-2.02
Fitle:							Uni	t:	Level Of Use:
								1/2	In-Field Referenc
ODCM: GASEOU	S EFFLUEN	TS					Rev	vision: 2	Page Number: 101 of 128
			ΔTT	ACHN	/ENT J	г			<u> </u>
				age 13					
		P&I	ORGA			TORS			
		1 6.1	01(01		012171	1010			
· ·									
				Table 2.3-	14				
			R VALUES	FOR BRAVER	VALLEY SIT	E			
			(sq meta	er-mrem/yr :	per uCi/sec)			
	Pathway =	Con Nill							
	Age Group								
	Nuclide	Bone	Liver	1. Body	Thyroid	Kidney	Lung	GI-LLI	
	1 A-3	0.00 8+ 00	9.94 6 +02	9.94 8 +02	9.94 E +02	9.948+02	9.94 8 +02	9. 94E +02	
	2 P-32	2.678+10	1.86E+09	1.04 E +09	0.00 E+ 00	0.00E+00	0.00E+00	2.258+09 6.978+06	
	3 Cr-51 4 Min-54	0.00E+00 0.00E+00	0.00E+00 9.91E+06	4.15 % +04 1.96 % +06	2.31 E+04 0.00 E+00	9.108+03 2.958+06	5.93E+04 0.00E+00	2.03E+07	
	5 Fe-59	4.188+07	9.768+07	3.77 8 +07	0.00 X+00	0.008+00	3.08E+07	2.31 E +08	
	6 Co-57	0.00 E+0 0	1.60%+06	2.688+06	0.00 8+00	0.00\$+00	0.00 E +00	2.98 8+0 7	
	7 Co-58 8 Co-60	0.008+00 0.008+00	6.17 E+ 06 1.89 E+ 07	1.428+07 4.268+07	0.00E+00 0.00E+00	0.008+00 0.008+00	0.00E+00 0.00E+00	8.518+07 2.468+08	
	9 Zn-65	1.518+09	5.23K+09	2. 448+0 9	0.00K+00	3.34 1 +09	0.008+00	2.21 E+ 09	
	10 Rb-86	0.00E+00	3_99 E +09	1.87 K+09	0.008+00	0.00 E+ 00	0.008+00	5.91 E +08	
	11 Sr-89	2.14E+09	0.00E+00	6.12K+07	0.00E+00 0.00E+00	0.008+00 0.008+00	0.001+00	2.558+08 1.258+09	
	12 Sr-90 13 Y-91	4.478+10 1.258+04	0.00 8+ 00 0.00 8+ 00	1.10 5+1 0 3.355+02	0.00K+00	0.00X+00	0.008+00 0.008+00	5.118+06	
	14 Zr-95 15 Nb-95	1.29E+03 1.16E+05	4.08 E+0 2 6.41 E+0 4	2.81E+02 3.53E+04	0.00X+00 0.00X+00	6.00 E+02 6.21 E+04	0.008+00 0.008+00	9.428+05 2.748+08	
	16 Nb-97 17 Во-99	5.13E-12 0.00E+00	1_27E-12 3_80E+07	4.658-13 7.258+06	0.00 2+ 00 0.00 2+ 00	1.498-12 8.708+07	0.00 x+00 0.00 x+00	3.04E-08 6.81E+07	,
	18 Tc-99	4.908+00	1.378+01	1.778+02	0.00E+00	2.048+02	7.59 E+ 00	8.98 E +03	
	19 Ru-103 20 Ru-106	1.478+03 2.038+04	0.00 % +00 0.00 % +00	6.30K+02 3.32K+03	0.00E+00 0.00E+00	5.208+03 5.088+04		1.23 8+ 05 1.26 8+0 6	
	21 Ag-110m	6.87E+07	6.50 8+0 7	3.95 8+ 07	0.00 E +00	1.241+08	0.00 X+0 0	1.83%+10	
	22 Sb-124	0.008+00	0.00E+00	0,00 E+00	0.00 E +00	0.00 x+ 00	0.00E+00	0.00 8 +00	
	23 Sb-125 24 Te-127m	0.00E+00 6.34E+07	0.00 8+0 0 2.25 8+0 7	0.00 8+0 0 7.54 8+0 6	0.008+00 1.518+07	0.008+00 2.578+08	0.00E+00 0.00E+00	0.00 1 +00 1.581+08	
	25 Te-129	9.068+07	3.368+07	1.438+07	2.921+07	3.791+08	0.008+00	3.401+08	
	26 I-131	4.57E+08	6.39 8 +08	3.43E+08	1.87 8 +11	1.10 E+ 09	0.00B+00	1.26 E+ 08	
	27 I-133 28 Cm-134	6.01E+06 6.76E+09	1.02 8+ 07 1.59 8+1 0	3.118+06 7.388+09	1.42 5 +09 0.00 8 +00	1.79 8 +07 5.068+09	0.008+00 1.938+09	7.71E+06 1.98E+08	
	29 Cs-136	3.802+08	1.508+09	1.01 E+ 09	0.00 E+ 00	8.15 R+ 08	1.281+08	1.20 E+ 08	
	30 Ca-137	9.058+09	1.208+10	4.19 8 +09	0.008+00	4.10 E +09	1.59 E+ 09	1.71 E+ 08	
	31 Ba-140	4.128+07	5.05E+04	2.658+06	0.008+00	1.71 E+04	3.398+04	6.35 E +07	
	32 La-140 33 Ce-141	6.898+00 7.328+03	3.39 8+0 0 4.89 8+0 3	9.01 8 -01 5.62 8+ 02	0.008+00 0.008+00	0.008+00 2.308+03	0.00K+00 0.00 x +00	1.94E+05 1.40E+07	
	34 Ce-144	4.678+05		2.518+04	0.00 8 +00	1.158+05	0.001+00	1.178+08	
		des (except			DCM equatio	n 2.3-24			
	H-3 calcu	lated per 0	DCM equation	n 2.3-28					

 $^{\rm O}_{\rm P}$

1í

į

1

4

ł

1

4

đ

20 분기

è

ы 1 1

l t

4

ł

Bea	wer Valle	Pro	Procedure Number: 1/2-ODC-2.02						
Title:		Un	iit: 1/2	Level Of Use: In-Field Reference					
ODCM: GASEOU	JS EFFLUEN	Re	vision: 2	Page Number: 102 of 128					
			ATT	TACHN	ÆNT.	J			
			P	age 14	of 19				
		D 8-1		•	SE FAG		4		
		Γœι	ONUF		SE FAU	JUK	>		
	-								
				Table 2.3-	15				
	1		R VALUES	FOR BRAVER	VALLEY SIT	R			
			(sg met	er-mrem/yr ;	per uCi/sec)			
	Pathway =	Cow Hilk							
	Age Group	= Child							
	Nuclide	Bone	Liver	T. Body	Thyroid	Lidney	Lung	GI-LLI	
				-	-	-	-		
	1 B-3	0.00E+00	1.571+03	1.578+03	1.57E+03	1.578+03	1.571+03	1.578+03	
	2 P-32	6.59 8+10	3.098+09	2.548+09	0.00E+00	0.00E+00	0.008+00	1.828+09	
	3 Cr-51	0.008+00	0.002+00	8.46 E+04	4.708+04	1.288+04	8.58E+04	4.498+06	
	4 Kn-54	0.008+00	1.481+07		0.00E+00	4.16E+08	0.008+00	1.248+07	
	5 Fe-59	9.708+07	1.578+08	7.82 8 +07	0.008+00	0.00E+00	4.558+07	1.638+08	
	6 Co-57	0.00 E+0 0	2.73 X+0 6	5.52 E+ 08	0.00 E +00	0.00E+00	0.00 8+00	2.24E+07	
	7 Co-58	0.00 E+0 0	9.43K+06	2.89E+07	0.00E+00	0.00E+00	0.00E+00	5.508+07	
	8 Co-60	0.008+00	2.948+07	8.67 E+ 07	0.00E+00	0.00 E+00	0.00E+00	1.63 K+0 8	

10 Rb-86 0.008+00 7.408+09 4.558+09 0.008+00 0.008+00 0.008+00 4.768+08 5.29**E+0**9 0.008+00 1.518+08 0.008+00 0.008+00 11 Sr-89 0.008+00 2.05E+08 12 Sr-90 7.558+10 0.00E+00 1.91E+10 0.00E+00 0.00**E+00** 0.001+00 1.028+09 0.00E+00 4.11E+06 13 Y-91 3.08R+04 0.00E+00 8.24E+02 0.00E+00 0.008+00 14 Zr-95 3.00E+03 6.608+02 5.888+02 0.00E+00 9.45X+02 0.00B+00 6.89E+05 15 Nb-95 2.61**E+0**5 1.028+05 7.268+04 0.002+00 9.54**8**+04 0.00B+00 1.888+08 16 85-97 1.25E-11 2.25E-12 1.05E-12 0.00E+00 2.50E-12 0.008+00 6.94E-07 17 No-99 0.008+00 6.92E+07 1.71E+07 0.00E+00 1.488+08 0.008+00 5.728+07 18 Tc-99m 1.128+01 2.208+01 3.658+02 0.008+00 3.20B+02 1.12R+01 1 25R+04 3.49E+03 0.00E+00 1.342+03 0.008+00 8.78E+03 0.008+00 19 Ru-103 9 01R+04 20 Ru~106 6.49E+04 0.00E+00 B.108+03 0.00E+00 8.76E+04 0.001+00 1.018+06 21 Ag-110m 1.498+08 1.018+08 8.05E+07 0.00E+00 1.878+08 0.001+00 1.208+10 22 Sb-124 0.008+00 0.008+00 0.00**E+**00 0.00E+00 0.00E+00 0.008+00 0.00E+00 23 Sb-125 0.008+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 1.86E+07 4.46E+08 24 Te-127m 1.568+08 4.218+07 3.74E+07 0.00E+00 1.278+08 25 Te-129m 2.238+08 6.24E+07 3.47**8**+07 7.20E+07 6.568+08 0.008+00 2.728+08 26 1-131 1.11**E+**09 1.118+09 6.338+06 3.68**8**+11 1.835+09 0.00**R+0**0 9.928+07 27 1-133 1.46E+07 1.618+07 6.838+06 3.36E+09 3.01E+07 0.001+00 7.288+06 28 Ca-134 1.56E+10 2.56E+10 5.40**8**+09 2.85**X+09** 0.008+00 7.93E+09 1 388+08 29 Ca-136 8.588+08 2.381+09 0.008+00 1.538+09 1.871+08 8.29E+07 1.268+09 30 Ca-137 2.188+10 2.098+10 3.08E+09 0.002+00 6.80E+09 2.45E+09 1.318+08 31 Ba-140 9.94E+07 8.71E+06 5.80E+06 0.00E+00 2.848+04 5.198+04 5.048+07 32 La-140 1.658+01 5.778+00 1.948+00 0.00E+00 0.00E+00 0.001+00 1.61E+05 33 Ce-141 1.808+04 8.998+03 1.348+04 0.001+00 0.00E+00 3.94E+03 1.128+07 34 Ce-144 1.15**E+**06 3.61E+05 6.15E+04 0.00E+00 2.00E+05 0.008+00 9.41R+07

All nuclides (except H-3) calculated per ODCM equation 2.3-24 H-3 calculated per ODCM equation 2.3-28

.

Bea	ver Valle		Proc	cedure Num 1	ber: /2-ODC-2.02				
Title:		2					Unit		Level Of Use:
								1/2	In-Field Referen
ODCM: GASEOU	IS EFFLUEN	TS						ision:	Page Number:
								2	<u>103 of 128</u>
			ATT	FACHN	ÆNT J				
			P	age 15	of 19				
		P&1	(ORGA	AN DO	SE FAC	CTORS			
				Table 2.3-	18				
			R VALUES	FOR BEAVER	VALLEY SIT	ſ			
			(sg met	er-ares/yr	per uCi/sec)			
		: Cow Milk) = Infant						,	
	Nuclide	Bone	Liver	T. Body	Thyroid	Lidney	Lung	GI-LLI	
	1 H-3	0.00 8+00	2.38 E +03	2.38 E+03	2.38 E+ 03	2.38 E +03	2.38E+03	2.38E+03	
	2 P-32	1.368+11	7.998+09	5.27 E+ 09	0.00 E+00	0.008+00	0.00 E+0 0	1.848+09	
	3 Cr-51 4 Mn-54	0.00E+00 0.00E+00	0.00E+00 2.76E+07	1.34E+05 6.25E+06	8.75E+04 0.00E+00	1.91 X+ 04 6.11 X+ 06	1.70E+05 0.00E+00	3.91E+06 1.01E+07	
	5 Fe-59	1.81E+08	3.16E+08	1.258+08	0.008+00	0.00 E +00	9.358+07	1.518+08	
	6 Co-57	0.00E+00	6.368+06	1.03 E+ 07	0.008+00	0.001+00	0.008+00	2.17E+07	
	7 Co-58	0.00E+00	1.898+07	4.70E+07	0.00E+00	0.008+00	0.00E+00	4.70E+07	
	8 Co-60	0.008+00	6.008+07	1.428+08	0.008+00	0.00 E+0 0	0.002+00	1.438+08	
	9 Zn-65	3.975+09	1.36E+10	5.278+09	0.00E+00	6.60X+09	0.008+00	1.15E+10	
	10 Rb-86	0.008+00	1.888+10	9.288+09	0.008+00	0.00 1 +00	0.008+00	4.818+08	
	11 Sr-89	1.018+10	0.008+00	2.89K+08	0.008+00	0.001+00	0.00 E +00	2.078+08	
	12 Sr-90 13 Y-91	8.22E+10 5.79E+04	0.008+00 0.008+00	2.09 E +10 1.54E+03	0.00 E+ 00 0.00 E+ 00	0.00 1 +00 0.00 1 +00	0.00 8+00 0.00 8+0 0	1.03E+09 4.15E+06	
,	14 Zr-95	5.33E+03	1.30B+03	9.228+02	0.008+00	1.408+03	0.00E+00	6.478+05	
	15 Kb-95	4.878+05	2.01 E+0 5	1.168+05	0.00E+00	1.448+05	0.008+00	1.692+08	•
	16 Wb-97	2.63E-11	5.628-12	2.03E-12	0.00 %+ 00	4.398-12	0.00E+00	1.77 8-0 6	
	17 No-99	0.00E+00	1.778+08	3.45 8+ 07	0.00 E +00	2.648+08	0.00 E+00	5.83E+07	
	18 Tc-99		4.82E+01		0.00E+00				
	19 Ru-103 20 Ru-106	7.06E+03 1.34E+05	0.00E+00 0.00E+00	2.36 8+0 3 1.67 8+04	0.008+00 0.008+00	1.478+04 1.588+05	0.00 E+00 0.00 E+0 0	8.598+04 1.018+06	
	21 Ag-110m 22 Sb-124	2.75E+08 0.00E+00	2.01E+08 0.00E+00	1.33E+08 0.00E+00	0.008+00 0.008+00	2.88X+08 0.00X+00	0.00E+00 0.00E+00	1.04E+10 0.00E+00	
	23 Sb-125	0.00E+00	0.002+00	0.00 E+00	0.008+00	0.001+00	0.00E+00	0.00 E+0 0	
	24 Te-127m	3.16E+08	1.05 E+08	3.83E+07	9.148+07	7.791+06	0.008+00	1.288+08	
	25 Te-129m	4.562+08	1.578+08	7.068+07	1.76 E+08	i.15 I+09	0.008+00	2.74E+0B	
	26 1-131	2.31 8+0 9	2.72 8+ 09	1.208+09	8.958+11	3.18 E +09	0.00 B +00	9.72 8+0 7	
	27 I-133 28 Ca-134	3.08X+07	4.498+07	1.318+07	8.178+09 0.008+00	5.28 8 +07	0.008+00	7.608+06	
	28 Св-134 29 Св-136	2.51X+10 1.68X+09	4.698+10 4.938+09	4.73E+09 1.84E+09	0.00 %+ 00 0.00 %+ 00	1.21 5+1 0 1.97 5+0 9	4.958+09 4.028+08	1.278+08 7. 498+07	
	30 Cs-137	3.48X+10	4.07E+10	2.898+09	0.00E+00	1.09 X+1 0	4.438+09	1.278+08	
	31 8-140	2 068100	2 05 BTUE	1 058107	0.007+00	A RRPLOA	1 268105	5 028+07	
	31 Ba-140 32 La-140	2.05E+08 3.45E+01	2.058+05 1.368+01	1.058+07 3.508+00	0.00 1+00 0.00 1+00	4.888+04 0.008+00	1.26 E+05 0.00 E+0 0	5.028+07 1.608+05	

All nuclides (except H-3) calculated per ODCM equation 2.3-24 H-3 calculated per ODCM equation 2.3-28

ł

The Charles and the American Street

A DESCRIPTION OF A DESC

÷ e

1

יוויד ביוויד היוברי בייברי בייברי היוברי היוברי בייברי

j,

į,

Beaver Valley Power Station	Procedure Ni	umber: 1/2-ODC-2.02
Title:	Unit: 1/2	Level Of Use: In-Field Reference
ODCM: GASEOUS EFFLUENTS	Revision: 2	Page Number: 104 of 128
ATTACHMENT J Page 16 of 19 P&I ORGAN DOSE FACTORS		
Table 2.3-17		

R VALUES FOR BRAVER VALLEY SITE

(sq meter-mrem/yr per uCi/sec)

Pathway = Goat Hilk Age Group = Adult

	Nuclide	Bone	Liver	T. Body	Thyroid	Lidney	Lung	GI-LLI
1	H-3	0.00E+00	1.568+03	1.568+03	1.561+03	1.562+03	1.56E+03	1.56 E+0 3
	P-32	1.74E+10	1.08E+09	6.72E+08	0.00E+00	0.001+00	0.00E+00	1.96%+09
3	Cr-51	0.00E+00	0.00 2+00	2.858+03	1.70E+03	6.282+02	3.78E+03	7.17E+05
4	Mn-54	0.00E+00	7.148+05	1.36E+05	0.00E+00	2.128+05	0.00E+00	2.19E+06
5	Fe-59	3.128+05	7.321+05	2.818+05	0.00 1 +00	0.001+00	2.058+05	2.44 8 +05
2	Co-57	0.00 E+00	1.092+05	1.82 E +05	0.00 E+ 00	0.003+00	0.00E+00	2.77 8 +08
	Co-58	0.008+00	4.408+05	9.86 E +05	0.001+00	0.008+00	0.008+00	8.91E+06
	Co-60	0.002+00	1.348+06	2.968+05	0.008+00	0.001+00	0.008+00	2.528+07
	Zn-65	1.168+08	3.748+08	1.69E+08	0.008+00	2.50X+0B	0.00E+00	2.368+08
-	Rb-86	0.008+00	2.63E+08	1.228+08	0.00B+00	0.008+00	0.008+00	5.18E+07
10	00-00	0.005700	2.035100	1.225700	V. VV5+00	0.005100	0.000100	J. 102101
11	Sr-89	2.43E+09	0.00 8+ 00	6.99 E +07	0.00 E+0 0	0.00 E +00	0.00 8+0 0	3.91 E +08
	Sr-90	6.64 R +10	0.00B+00	1.638+10	0.00E+00	0.00E+00	0.00E+00	1.92E+09
	Y-91	8.148+02	0.00E+00	2.18E+01	0.00X+00	0.008+00	0.008+00	4.48E+05
	Zr-95	8.871+01	2.65E+01	1.93E+01	0.001+00	4.478+01	0.001+00	9.02E+04
	Nb-95	8.138+03	4.52B+03	2.43E+03	0.001+00	4.47B+03	0.008+00	2.74B+07
						•		
16	Nb-97	3.388-13	8.54B-14	3.12 K-14	0.00X+00	9.968-14	0.00 % +00	3.15K-10
17	Mo-99	0.00E+00	2.538+06	4.81 E+ 05	0.00E+00	5.721+06	0.00 5 +00	5.86 E+ 06
18	Tc-99m	3.398-01	9.59 8- 01	1.228+01	0.00E+00	1.46E+01	4.70B-01	5.67 E+ 02
19	Ru-103	9.95E+01	0.008+00	4.29 K +01	0.00 E +00	3.80 5 +02	0.00 8 +00	1.168+04
20	Ro-106	1.72 E+0 3	0.06E+00	2.18E+02	0.00E+00	3.32 E+ 03	0.00B+00	1.11E+05
	Ag-110m	4.99 8 +06	4.61 8 +06	2.74 8+ 06	0.00 8 +00	9.07 8 +06	0.00B+00	1.88 %+0 9
	Sb-124	0.00E+00	0.00 8+0 0	0.00E+00	0.00 K +00	0.00X+00	0.00E+00	0.002+00
	Sb-125	0.008+00	0.008+00	0.00 B+0 0	0.00 E+ 00	0.00 2 +00	0.00 E +00	0.00 %+ 00
	Te-127n	4.13E+05	1.48 X+ 06	5.03 E+05	1.05 E+06	1.681+07	0.00B+00	1.381+07
25	Te-129m	5.948+06	2.228+06	9.41 8 +05	2.04 E +06	2.48 X+ 07	0.00 E+00	2.998+07
26	I-131	3.02 8+ 08	4.328+08	2.48E+08	1.42 5+11	7.40X+08	0.008+00	1.141+08
	I-133	3.958+06	6.87 R +06	2.09E+06	1.01E+09	1.201+07	0.00E+00	6.17E+06
	Cs-134	4.678+08	1.11E+09	9.098+08	0.00E+00	3.601+08	1.198+08	1.951+07
	Cs-136	6.708+08	2.65E+09	1.908+09	0.008+00	1.471+09	2.028+08	3.011+08
	Cs-137	1.508+10	2.05K+10	1.34E+10	0.00E+00	6.951+09	2.318+09	3.961+08
31	Ba-140	2.74 8+ 05	3,44B+03	1.798+05	0.00 6 +00	1.178+03	1.978+03	5.648+06
32	La-140	4,608-01	2.32 8- 01	6.13 K-0 2	0.00E+00	0.001+00	0.00E+00	1.70E+04
33	Ce-141	4.79E+02	3.24E+02	3.688+01	0.00 E +00	1.518+02	0.00E+00	1.24E+06
34	Ce-144	3.05E+04	1.27E+04	1.648+03	0.00 E +00	7.55 E+ 03	0.00E+00	1.03E+07

All nuclides (except H-3) calculated per ODCM equation 2.3-24 H-3 calculated per ODCM equation 2.3-28

Be	aver Valle	ey Po	wer	Static	on		Proc	edure Num	.ber: /2-ODC-2.02
Title:							Unit		Level Of Use:
								1/2	In-Field Refere
ODCM: GASEO	US EFFLUEN	ITS					Revi	ision: 2	Page Number:
				TACHN	TENT I			Z	<u>105 of 12</u>
				age 17					
		P&1		AN DO		CTORS			
			0	1,20.					
ı									I
				Table 2.3-	18				
			R VALUES	FOR BEAVER	VALLEY SIT	B			
			(sq met	er-mrem/yr	per uCi/sec)			
	Pathway =	Goat Milk							
	Age Group	= Теев							
	Nuclide	Bone	Liver	T. Body	Thyraid	Lidney	Lung	GI-LLI	
	1 H-3	0.00 E +00	2.0 31+0 3	2.03 E +03	2.03 E +03	2.03 E +03	2.03E+03	2.032+03	
	2 P-32 3 Cr-51	3.21E+10 0.00E+00	1.99 E+0 9 0.00 E+ 00	1.24K+09 4.98X+03	0.00 5+0 0 2.77 5+0 3	0.008+00 1.098+03	0.00E+00 7.11E+03	2.70E+09 8.37E+05	
	4 Nn-54	0.008+00	1.19E+06	2.36E+05	0.008+00	3.55E+05	0.00E+00	2.44 E+ 06	
	5 Je-59	5.448+05	1.278+06	4.90 E +05	0.00 E+0 0	0.008+00	4.00E+05	3.00 8 +05	
	6 Co-57	0.005+00	1.928+05	3.21 E+05	0.00E+00	0.00 8 +00	0.008+00	3.578+06	
	7 Co-58	0.008+00	7.408+05	1.711+06	0.008+00	0.008+00	0.00E+00	1.028+07	
	8 Co-60 9 Zn-65	0.00E+00 1.81E+08	2.27 8 +08 6.27 8 +08	5.11 E+06 2.93 E+0 8	0.00 E+0 0 0.00 E+0 0	0.00 % +00 4.01 % +08	0.00 8 +00 0.00 8 +00	2.96 8+07 2.66 8 +08	
	10 Rb-86	0.0011+00	4.798+08	2.251+08	0.001+00	0.002+00	0.008+00	7.09E+07	
	11 Sr-89	4.49 8 +09	0.00 8 +00	1.29K+08	0.00 E+0 0	0.00 8 +00	0.00 E +00	5.35 X+08	
	12 Sr-90	9.398+10	0.00 E+0 0	2.32E+10	0.00E+00	0.00 x +00	0.00E+00	2.64 E+0 9	
	13 Y-91	1.50E+03	0.00 E +00	4.01E+01	0.008+00	0.008+00	0.00E+00	6.14X+05	
	14 Zr-95 15 Nb-95	1.55E+02 1.39E+04	4.908+01 7.698+03	3.37E+01 4.23E+03	0.00 E+0 0 0.00 E+0 0	7.198+01 7.458+03	0.00E+00 0.00E+00	1.13E+05 3.29E+07	
	16 Nb-97	C 169 13	1 598 19	E E78 14	0.00 %+0 0	1.79 E -13	0.008+00	3.65 8-0 9	
	17 No-99	6.15E-13 0.00E+00	1.53E-13 4.56E+06	5.578-14 8.708+05	0.00E+00	1.048+07	0.008+00	8.17 E +06	
	18 Tc-99m	5.88E-01	1.648+00	2.13E+01	0_008+00	2.458+01	9.11E-01	1.08E+03	
	19 Ru-103	1.77E+02	0.008+00	7.56E+01	0.00E+00	6.24E+02	0.008+00	1.488+04	
	20 Ru-106	2.448+03	0.00 8+00	3.98 E+0 2	0.00 E+0 0	6.10 8 +03	0.00 E +00	1.528+05	
	21 Ag-110	8.24B+06	7.808+06	4.75E+06	0.00E+00	1.49E+07	0.00E+00	2.19E+09	
	22 Sb-124 23 Sb-125	0.00 E+ 00 0.00 E+ 00	0.00 E +00 0.00 E +00	0.00 8+0 0 0.00 8+0 0	0.00 E+0 0 0.00 E+0 0	0.00 E +00 0.00 E +00	0.00E+00 0.00E+00	0.00E+00 0.00E+00	
	24 Te-127m	7.61E+06	2.70E+06	9.05E+05	1.818+06	3.08E+07	0.00E+00	1.90E+07	
	25 Te-129	1.09 E +07	4.038+06	1.728+06	3.51 E+06	4.55E+07	0.00B+00	4.088+07	
	26 1-131	5.488+08	7.672+08	4.12 E+ 08	2.24E+11	1.328+09	0.00E+00	1.528+08	
	27 1-133	7.21E+06	1.228+07	3.73E+06	1.71E+09	2.15 E+0 7 6.07 E+0 8	0.00E+00	9.268+06	
	28 Cs-134 29 Cs-136	8.118+08 1.148+09	1.918+09 4.498+09	8.868+08 3.028+09	0.008+00 0.008+00	2.44B+09	2.328+08 3.858+08	2.388+07 3.618+08	
				1.268+10	0.00 E+ 00	1.238+10	4.77E+09	5.14E+08	
	30 Cs-137	2.71 E +10	3.61 5 +10	1.208+10	0.008700				
		2.71E+10 4.94E+06			0.00 E+0 0	2.05 E +03	4.07 E +03	7.628+06	
	30 Cs-137		6.06E+03 4.06E-01 5.87E+02	· 3.18%+05 1.08%-01 6.74%+01					

All nuclides (except 8-3) calculated per ODCM equation 2.3-24 H-3 calculated per ODCM equation 2.3-28

.

ų,

.

こう とうとう ちょうりょう

i

A CONTRACTOR OF A CONTRACTOR OF

1

ų, 1

- Survey and address of

a state and the second s

į

1

Beaver Valley Power Station	Procedure Nu	mber: 1/2-ODC-2.02
Title:	Unit: 1/2	Level Of Use: In-Field Reference
ODCM: GASEOUS EFFLUENTS	Revision: 2	Page Number: 106 of 128
ATTACHMENT J		
Page 18 of 19		
P&I ORGAN DOSE FACTORS		

Table 2.3-19

R VALUES FOR BEAVER VALLEY SITE

(sq meter-mrem/yr per uCi/sec)

Pathway = Goat Milk Age Group = Child

	Nuclide	Bone	Liver	T. Body	Thyroid	Lidney	Lung	GI-LLI
1	R-3	0.00 E +00	3,208+03	3.20E+03	3.20E+03	3.208+03	3.20E+03	3.208+03
-	P-32	7.91 E +10	3.70E+09	3.05E+09	0.008+00	0.00E+00	0.00E+00	2.19B+09
-	Cr-51	0.008+00	0.00E+00	1.02E+04	5.648+03	1.548+03	1.03E+04	5.39E+05
	Ho-54	0.008+00	1.78E+06	4.74E+05	0.008+00	4.998+05	0.00E+00	1.49E+06
	Fe-59	1.268+06	2.04E+06	1.028+06	0.008+00	0.00E+00	5.91E+05	2.128+06
			••••					
6	Co-57	0.002+00	3,27 E+ 05	6.63E+05	0.008+00	0.00E+00	0.008+00	2.68E+06
7	Co-58	0.00 E+00	1.13 E+06	3.46E+06	0_00 E+00	0.008+00	0.008+00	6.60E+06
8	Co-60	0.008+00	3.53X+06	1.04E+07	0.00 E +00	0.008+00	0.002+00	1.95E+07
9	Zn-65	3.54E+08	9.448+08	5.878+08	0.00E+00	5.958+08	0.002+00	1.662+08
10	Rb-86	0.002+00	8.882+08	5.468+08	0.008+00	0.001+00	0.008+00	5.718+07
11	Sr-89	1.11 E+10	0.00 E +00	3.172+08	0.00 E+0 0	0.008+00	0.002+00	4.30E+0B
12	Sr-90	1. 598+ 11	0.00 B+ 00	4.02B+10	0.09 E+ 00	0.00 E+00	0.00 E+ 00	2.14 E +09
13	Y-91	3.70 1+ 03	0.00 E+ 00	9.898+01	0.00 E+ 00	0.00 E+ 00	0.00B+00	4.93 8 +05
14	Zr-95	3.60 E+ 02	7.92 E+ 01	7.05B+01	0.00E+00	1.13E+02	0.00E+00	8.27 8+ 04
15	Nb-95	3.13 E+04	1.228+04	8.71 E+ 03	0.00E+00	1.14 8 +04	0.002+00	2.25E+07
	Rb-97	1.49 K -12	2.70 E -13	1.26E-13	0_00 E +00	2.99 B-1 3	0.008+00	8.332-08
	Mo-99	0.001+00	8.30 E+0 6	2.05 E+06	0.00 %+00	1.77 8+0 7	0.008+00	6.872+06
-	Tc-99m	1.358+00	2.65 E+ 00	4.398+01	0.00 E +00	3.84 8 +01	1.34E+00	1.51 E+03
	Ru-103	4.18 X+ 02	0.00 8+ 00	1.61B+02	0.00 E +00	1.058+03	0.00E+00	1.088+04
20	Bu-106	7.798+03	0.00E+00	9.728+02	0.00 8+ 00	1.058+04	0.00 E+00	1.218+05
••								
	Ag-110m	1.791+07	1.218+07	9.658+06	0.008+00	2.25E+07	0.00E+00	1.44E+09
	Sb-124	0.001+00	0.00 E+ 00	0.00 E +00	0.008+00	0.001+00	0.00E+00	0.00E+00
	Sb-125	0.002+00	0.00 E+ 00	0.00E+00	0.00E+00	0.001+00	0.002+00	0.00E+00
	Te-127a	1.885+07	5.05K+06	2.23E+06	4.488+08	5.358+07	0.00B+00	1.52E+07
25	Te-129m	2.688+07	7. 48E+06	4.16B+06	B.64E+06	7.871+07	0.008+00	3.278+07
26	I-131	1_335+09	1.348+09	7.60E+08	4.428+11	2.198+09	0.00E+00	1.19E+08
	I-131 I-133	1.758+07	2.178+07	8,20E+06	4.03E+09	2.158+05 3.618+07	0.00E+00	1.198+00 8.738+06
	Cs-134	1.878+09	3.071+09	6.488+08	4.038+05 0.008+00	9.528+08	3.42E+08	1.66E+07
	Cs-134	2.588+09	7.08E+09	4.588+09	0.008+00	3.7714+09	5.628+08	2.498+08
	Ca-130 Ca-137	8.54E+10	6.26E+10	9.24E+09	0.008+00	2.04E+10	7.34E+09	2.458+08 3.928+08
10	03-101	0.346710	0.108110	3.248403	0.008100	4.042410	1.040773	J.JLBTVO
31	Ba-140	1.198+07	1.058+06	6.96E+05	0.00E+00	3.405+03	6.23E+03	6.04 2+0 6
	La-140	1.988+00	6.928-01	2.33E-01	0.00E+00	0.008+00	0.008+00	1.93E+04
	Ce-141	2.16E+03	1.088+03	1.608+03	0.008+00	4.738+02	0.008+00	1.358+06
	Ce-144	1.388+05	4.338+04	7.378+03	0.008+00	2.408+04	0.00E+00	1.138+07
•••						5.100.VI	0.002100	1.100.01

All nuclides (except H-3) calculated per ODCM equation 2.3-24 H-3 calculated per ODCM equation 2.3-28

Beaver Valley Power Station						110	Procedure Number: 1/2-ODC-2		
Title:						_	Uni	^{t:} 1/2	Level Of Use: In-Field Reference
ODCM: GASEOUS	EFFLUEN	ГS					Rev	ision:	Page Number:
				ACHI	IENT I			2	107 of 128
				age 19 d					
		P&I		N DOS		CTORS			
ŧ									I
				Table 2.3-	20				
			R VALUES	FOR BEAVER	VALLET SIT	Ê			
			(sg met	er-nren/yr (per uCi/sec)			
	Pathway = Age Group	Goat Hilk = Infant							
	Nuclide	Bone	Liver	T. Body	Thyroid	Kidney	Lung	GI-LLI	
	1 H-3	0.00 8+0 0	4.86E+03	4.868+03	4.86 E +03	4.86E+03	4.86 E +03	4.86 E +03	
	2 P-32 3 Cr-51	1.63E+11 0.00E+00	9.598+09 0.008+00	6.32 8+ 09 1.61 8+04	0.00 8+00 1.05 8+04	0.008+00 2.298+03	0.00E+00 2.04E+04	2.21 E+ 09 4.69 E+ 05	
	4 Mn-54 5 Fe-59	0.008+00 2.358+06	3.318+06 4.118+06	7.50 E+ 05 1.62 E+ 06	0.00 0;00	7.338+05 0.008+00	0.00E+00 1.21E+06	1.21E+06 1.96E+06	
	6 Co-57 7 Co-58	0.00 8+0 0 0.00 8+00	7.64 8+ 05 2.26 8+ 06	1.24E+06 5.64E+06	0.00 E+ 00 0.00 E+ 00	0.008+00 0.008+00	0.00 E +00 0.00 E +00	2.60X+06 5.64K+06	
	8 Co-60 9 Zn-65	0.00E+00 4.76E+08	7.20 8+ 06 1.63 8 +09	1.70 8+ 07 7.53 8+ 08	0.00 E+00 0.00 E+00	0.00 E+00 7.92 E+ 08	0.00 E +00 0.00E+00	1.71 8+07 1.38 8 +09	
	10 Rb-86	0.008+00	2.25 E +09	1.118+09	0.00B+00	0.00E+00	0.00E+00	5.77E+07	
	11 Sr-89	2.11 E+ 10	0.00 8+ 00	6.06 K +08	0.00 x +00	0.00 E+00	0.00 E+ 00	4.34E+08	
	12 Sr-90 13 Y-91	1.73 E +11 6.94 E +03	0.00 8+ 00 0.00 8+ 00	4.398+10 1.858+02	0.008+00 0.008+00	0.008+00 0.008+00	0.00E+00 0.00E+00	2.16E+09 4.98E+05	
	14 Zr-95		1.56 E +02	1.11E+02	0.002+00	1.68 E +02	0.00E+00	7.77 E +04	
	15 Kb-95	5.848+04	2. 418 +04	1.398+04	0.008+00	1.72 E +04	0.00 E+0 0	2.03 E+0 7	
	16 Nb-97	3.16E-12	6.74E-13	2.43E-13	0.00E+00	5.27 E -13	0.008+00	2.138-07	
	17 No-99 18 Tc-99∎	0.00 %+00 2.81 % +00	2.128+07 5.798+00	4.148+06 7.468+01	0.00E+00 0.00E+00	3.17E+07 6.23E+01	0.00 E+00 3.03 E +00	6.99X+06 1.68X+03	
	19 Ru-103	8.47 E +02	0.00 % +00	2.832+02	0.00 E +00	1.76 E +03	0.00 E +00		
	20 Ru-106	1.608+04	0.00 <u>K</u> +00	2.001+03	0.008+00	1.902+04	0.00 E +00	1.228+05	
	21 Ag-110m	3.30 E +07	2.41 E+0 7	1.602+07	0.008+00	3.458+07	0.00 2 +00	1.258+09	
	22 Sb-124 23 Sb-125	0.00 8+ 00 0.00 8+ 00	0.008+00 0.008+00	0.008+00 0.008+00	0.00E+00 0.00E+00	0.00E+00 0.00E+00	0.00E+00 0.00E+00	0.00E+00 0.00E+00	
	24 Te-127m	3.80E+07	1.26E+07	4.598+06	1.10 E+ 07	9.35 E +07	0.00E+00	1.53E+07	
	25 Te-129m	5.508+07	1.891+07	8.478+06	2.11E+07	1.388+08	0.00 R +00	3.28E+07	
	26 I-131	2.77 E +09	3.27 E +09	1.448+09	1.072+12	3.82 E +09	0.00 E+0 0	1.17 E +08	
	27 1-133 28 Cs-134	3.70 8 +07 3.02 8 +09	5.39 k +07 5.62 k +09	1.58 E+ 07 5.68 E +08	9.80 1 +09 0.00 1 +00	6.34E+07 1.45E+09	0.008+00 5.938+08	9.12E+06 1.53E+07	
	29 Cs-136	5.03E+09	1.48 E+10	5.52 E+09	0.008+00	5.90 E+0 9	1.218+09	2.25 E+08	
	30 Cs-137	1.048+11	1.221+11	B.66E+09	0.008+00	3.28 E +10	1.33E+10	3.82 K +08	
	31 Ba-140	2.45 8 +07	2.458+04	1.26 E +06	0.008+00	5.832+03	1.51 R +04	6.03E+06	
	32 La-140 33 Ce-141	4.148+00 4.298+03	1.632+00 2.622+03	4.198-01 3.068+02	0.00E+00 0.00E+00	0.008+00 8.078+02	0.008+00 0.008+00	1.92E+04 1.35E+06	
	34 Ce-144	1.981+05	8.11E+04	1.118+04		3.288+04	0.008+00	1.148+07	
	6114	lon (arrest	U 21 1	1	VM annahl-				
			n-s) calcu DCM equation	lated per Ol	na eguario	4.J-29			

TABLE 2.3-21

•

÷

		С	CONTINUOU	JS RELEASI	ES > 500 HRS (meters-2)		50 HRS/QTF				ATTACHMENT K Page 1 of 7 CONTINUOUS RELEASE DEPOSITION PARAMETERS	ODCM: GASEOUS	
SECTOR	0.0.05	05 10					TIONS, IN N		4.0.4.5	45.50	rinu	EFFLUENTS	
SECTOR	0.0 - 0.5	0.5 - 1.0	1.0 - 1.5	1.5 - 2.0	2.0 - 2.5	2.5 - 3.0	3.0 - 3.5	3.5 - 4.0	4.0 - 4.5	4.5 - 5.0	ou	UE	v uivy
N	6.00E-10	8.60E-09	3.14E-09	1.76E-09	8.12E-10	5.70E-10	4.24E-10	3.29E-10	2.63E-10	2.15E-10	SR	TN	5,
NNE NE	6.66E-10 1.03E-09	5.64E-09 1.57E-09	1.98E-09 1.32E-09	2.55E-09 3.62E-09	1.33E-09 2.63E-09	1.07 E- 09 1.64 E- 09	6.75E-10 1.23E-09	5.23E-10 6.13E-10	4.56E-10 7.85E-10	3.74E-10 6.42E-10	ELE	Ś	
ENE	1.13E-09	1.55E-09	3.69E - 09	3.27E-09	2.31E-09	1.29E-09	1.21E-09	6.78E-10	6.72E-10	3.89E-10	ASE		
E	1.35E-09	1.28E-08	4.09E-09	3.12E-09	1.91E-09	1.36E-09	1.01E-09	7.83E-10	4.15E-10	5.10E-10	DE		
ESE	9.82E-10	7.85E-09	4.40E-09	2.46E-09	1.47E-09	1.03E-09	5.65E-10	5.05E-10	3.25E-10	3.00E-10	ATTACHMENT K Page 1 of 7 E DEPOSITION PA		
SE	2.76E-09	6.41E-09	3.52E-09	1.97E-09	1.18E-09	8.27E-10	5.68E-10	4.40E-10	2.93E-10	2.43E-10	HME 1 of SITIO		
SSE S	2.22E-09 3.00E-09	4.66E-09 4.81E-09	3.01E-09 3.76E-09	1.68E-09 2.10E-09	1.02E-09 1.36E-09	7.14E-10 9.52E-10	4.25E-10 5.12E-10	3.29E-10 3.96E-10	2.19E-10 2.68E-10	1.80E-10 2.20E-10	U Z Z		F
SSW	1.44E-08	4.81E-09 2.89E-09	7.83E-10	8.84E-10	5.70E-10	4.00E-10	2.55E-10	1.98E-10	1.84E-10	1.51E-10	Γ K PA		
SW	1.89E-08	5.55E-09	1.55E-09	8.71E-10	2.61E-10	3.94E-10	1.57E-10	2.50E-10	2.54E-10	2.08E-10	RAN		
wsw	1.57E-09	6.63E-09	1.36E-09	1.04E-09	5.44E-10	2.39E-10	3.84E-10	2.98E-10	2.17E-10	1.78E-10	IETE		
W	3.78E-10	2.95E-09	1.84E-09	1.03E-09	6.63E-10	4.66E-10	1.37E-10	2.68E-10	1.12E-10	1.75E-10	RS	Re	Unit:
WNW NW	4.54E-10 4.52E-10	4.13E-10 4.09E-10	3.09E-10 2.86E-10	4.71E-10 1.18E-09	7.35E-10 7.04E-10	5.16E-10 4.94E-10	1.93E-10 3.37E-10	1.10E-10 2.10E-10	1.12E-10 2.09E-10	1.80E-10 1.71E-10	(0	1/2 Revision: 2	Ŧ
NNW	3.40E-10	2.05E-09	1.63E-09	9.12E-10	5.86E-10	4.13E-10	2.79E-10	2.16E-10	1.73E-10	1.42E-10	-5 M		
											(0-5 MILES)	Page	1/2-ODC-2 Level Of Use
												In-Field Page Numbe 108	Level Of Us
												8 of	2.02
												d Reference r: 3 of 128	, [``

27

the second se

(Page 109 of 128)

			CV-1 AND (ONTINUOU	CV-2 DEPOS		AMETERS					C	ODCM: GASEOUS EFFLUENTS	Title:
		į	DIST	ANCES TO	THE CONT	ROL LOCA	FIONS, IN M	IILES			ATTACHMENT K Page 2 of 7 CONTINUOUS RELEASE DEPOSITION PARAMETERS (0-5 MILES)	US EFI	eaver
SECTOR	0.0 - 0.5	0.5 - 1.0	1.0 - 1.5	1.5 - 2.0	2.0 - 2.5	2.5 - 3.0	3.0 - 3.5	3.5 - 4.0	4.0 - 4.5	4.5 - 5.0	JOL	Π	
N	4.46E-08	7.73E-09	3.24E-09	1.81E-09	1.08E-09	7.57E-10	5.16E-10	4.00E-10	2.91E-10	2.38E-10	SU	EN	alley
NNE	5.42E-08	9.39E-09	3.37E-09	1.89E-09	1.22E-09	8.54E-10	6.35E-10	4.92E-10	3.94E-10	3.22E-10	RE	TS	N N
NE	7.32E-08	1.27E-08	6.21E-09	3.47E-09	2.24E-09	1.57E-09	1.00E-09	7.77E-10	5.69E-10	4.66E-10	LEA	•1	
ENE	7.77E-08	1.35E-08	6.51E-09	3.64E-09	2.50E-09	1.76E - 09	1.31E-09	1.01E-09	6.58E-10	5.39E-10	A		Power
E	6.08E-08	1.05E-08	3.79E-09	2.12E-09	1.37E-09	9.59E-10	6.54E-10	5.06E-10	4.05E-10	3.32E-10	DE		
ESE	3.23E-08	5.60E-09	2.54E-09	1.42E-09	8.46E-10	5.94E-10	4.05E-10	3.14E-10	2.28E-10	1.87E-10	TACHN Page 2 EPOSIT		Sta
SE	3.29E-08	5.70E-09	2.59E-09	1.45E-09	9.32E-10	6.55E-10	4.12E-10	3.19E-10	2.55E-10	2.09E-10	ATTACHMENT K Page 2 of 7 3 DEPOSITION PA		Station
SSE	2.84E-08	4.92E-09	2.06E-09	1.15E-09	6.29E-10	4.42E-10	2.99E-10	2.32E-10	1.85E-10	1.52E-10	ON F 7		n
S	3.67E-08	6.37E-09	2.26E-09	1.26E-09	8.14E-10	5.71E-10	3.86E-10	2.99E-10	2.39E-10	1.96E-10	T]		
SSW	2.61E-08	4.52E-09	1.60E-09	8.97E-10	5.78E-10	4.06E-10	3.02E-10	2.34E-10	1.70E-10	1.39E-10	AR		1
SW	3.06E-08	5.30E-09	2.62E-09	1.47E-09	8.01E-10	5.62E-10	4.18E-10	3.24E-10	2.35E-10	1.93E-10	AM		
WSW	4.60E-08	7.97E-09	3.34E-09	1.87E-09	1.20E-09	8.45E-10	5.87E-10	4.55E-10	3.38E-10	2.77E-10	ETE		
W	6.49E-08	1.13E-08	4.72E-09	2.64E-09	1.19E-09	8.36E-10	6.22E-10	4.82E-10	3.85E-10	3.15E-10	RS	Re	Unit:
WNW	9.25E-08	1.60E-08	6.43E-09	3.60E-09	2.21E-09	1.55E-09	1.16E-09	8.96E-10	5.79E-10	4.75E-10	(C	Revision: 2	₹ [₩]
NW NNW	1.19E-07	2.07E-08	8.68E-09	4.86E-09	2.99E-09	2.10E-09	1.56E-09	1.21E-09	7.83E-10	6.41E-10 2.94E-10)-S	В I	Unit: 1/2-
	5.22E-08	9.04E-09	3.79E-09	2.12E-09	1.28E-09	9.00E - 10	6.25E-10	4.84E-10	3.59E-10	2.94E-10	Μ		
						·					LE	Page	
												Z Z	/2-ODC-2. Level Of Use: In-Field
												umber: 109 (C-2. FUse:
												of 128	02 Reference
												∞	enc
												· ['	. P

-

1

and the second second

A hard a second of the second s

ś

Beaver Valley Power Station	Procedure N	umber: 1/2-ODC-2.02
Title:	Unit:	Level Of Use:
ODOM. CASEOUS EEELLENTS	1/2 Revision:	In-Field Reference Page Number:
ODCM: GASEOUS EFFLUENTS	2	110 of 128
ATTACHMENT K Page 3 of 7 CONTINUOUS RELEASE DEPOSITION PARAM	ETERS (0-5 M	
TABLE 2.3-23		
VV-1 AND VV-2 DEPOSITION PARAMETE CONTINUOUS RELEASES >500 HRS/YR OF (meters ⁻²)		
Same as Table 2.3-22		
· · · ·		
		• •

· 4

.

Beaver Valley Power Station	Procedure Nu	mber: 1/2-ODC-2.02
Title:	Unit: 1/2	Level Of Use: In-Field Reference
ODCM: GASEOUS EFFLUENTS	Revision: 2	Page Number: 111 of 128
ATTACHMENT K		
Page 4 of 7		
CONTINUOUS RELEASE DEPOSITION PARAM	ETERS (0-5 N	AILES)
TABLE 2.3-24		
TV-2 DEPOSITION PARAMETERS (J	D/Q) FOR	
CONTINUOUS RELEASES >500 HRS/YR OI	R >150 HRS/Q	TR
(meters ⁻²)		

Same as Table 2.3-22

and the second second

8 9 • •

: : :

	Beaver Valley Power Station	Procedure N	1/2-ODC-2.02
Title:		Unit:	Level Of Use:
		1/2	In-Field Reference
ODCM: G	ASEOUS EFFLUENTS	Revision: 2	Page Number: 112 of 128
<u>.</u>	ATTACHMENT K		112 01 120
	Page 5 of 7		
	CONTINUOUS RELEASE DEPOSITION PARAM	METERS (0-5 N	MILES)
	TABLE 2.3-25		
	CB-2 DEPOSITION PARAMETERS	$(\overline{D/Q})$ FOR	
	CONTINUOUS RELEASES >500 HRS/YR C		TR
	(meters ⁻²)		-
	Same as Table 2.3-22		
	· · · · ·		
	··		
			-

,

~*

.

Beaver Valley Power Station	Procedure Nu	umber: 1/2-ODC-2.02
Title:	Unit:	Level Of Use:
	1/2	In-Field Reference
ODCM: GASEOUS EFFLUENTS	Revision:	Page Number:
	2	113 of 128
ATTACHMENT K		
Page 6 of 7		
CONTINUOUS RELEASE DEPOSITION PAR.	AMETERS (0.5 N	ATT ES)
		viii.co)
TABLE 2.3-26		
DV-2 DEPOSITION PARAMETER	S (D/Q) FOR	
CONTINUOUS RELEASES >500 HRS/YR	R OR >150 HRS/Q	DTR
(meters^{-2})		•
()		
Same as Table 2.3-22		
	·	

ì

Beaver Valley Power Station	Procedure Nu	1/2-ODC-2.02
Title:	Unit:	Level Of Use:
ODCM: GASEOUS EFFLUENTS	1/2 Revision:	In-Field Reference Page Number:
······································	2	114 of 128
ATTACHMENT K		
Page 7 of 7 CONTINUOUS RELEASE DEPOSITION PARAM	ETERS (0-5 N	(TLES)
		11115)
TABLE 2.3-27		
WV-2 DEPOSITION PARAMETERS (I		
CONTINUOUS RELEASES >500 HRS/YR OR		TR
(meters^{-2})	· 150 III(5/Q	II
Same as Table 2.3-22		
· ·		

•

Be	eaver Valley	y Power Sta	tion		Procedure Nurr		DC-2.02
Title:					Unit:	Level (
The.					1/2		-Field Reference
ODCM GASE	OUS EFFLUENT	S			Revision:	Page N	umber:
					2	l	115 of 128
			HMENT L				
		-	e 1 of 7		_		
CONTI	NUOUS RELEA	SE DEPOSITION	I PARAME	ETERS (SI	PECIAL D	ISTAI	NCES)
		TARI	E 2.3-28				
		IADL	L 2.J-20				
PV-3	1/2 DEPOSTION	PARAMETERS	(D/O) FOI	R CONTIN	JUOUS RE	ELEA	SES
		OR >150 HRS/0					
		TIFIED IN ATTA					
	``		meters ⁻²)		,		
		INDIVIDUA	L RECEP	FORS			
DOWNWIND	SITE	VEGETABLE	MILK	MILK	. ME	AT	
SECTOR	BOUNDARY	GARDEN	COW	GOAT	I ANIN	<u>IAL</u>	RESIDENCE
N	.600	2.340		.572	.70)7	2.510
NNE	.673	3.220		.524	2.92	20	3.220
NE	.766	1.280	.660	.111	.66	50	1.200
ENE	1.010	5.080		.702		-	1.760
_						_	
E	1.370	4.420	.401	1.290	1.29		4.420
ESE	.984	6.390		2.340	6.39		6.180
SE	11.000	3.680	.466	.466	1.30		3.680
SSE	7.060	3.220	.423	.105	3.14	-0	4.320
S	5.780	1.540	1.410		2.61	0	2.730
SSW	2.040	1.040	.578	.208	1.04		1.460
SW	1.610	1.120		.693	.97		1.120
WSW	1.710	1.310	.370		1.19		1.310
W	.377	.659	.138		.51	8	.659
WNW	.424	.746	.497	.029	.74		.746
NW	.447	.425		.070	.48		.422
NNW	.340	1.840		.043	.54		1.92
							_
1							

ų

Title: ODCM: GASEOUS EFF CONTINUOUS CV-1 AND CV-2 >500 DOWNWIND SI	FLUENTS RELEASE DEPOSTIO HRS/YR OF (IDENTIFI ITE VI NDARY 40 80 40 90	Pag DEPOSITIO TAB N PARAME R >150 HRS/ ED IN ATT/	CHMENT L e 2 of 7 N PARAME LE 2.3-29 TERS (D/Q QTR FOR S ACHMENT 9 meters ⁻²)) FOR CO SPECIAL I E TABLE	Unit: 1/2 Revision: 2 PECIAL DIS' NTINUOUS DISTANCES 2.2-3) MEAT	RELEASES
CONTINUOUS CV-1 AND CV-2 >500 2 DOWNWIND SI SECTOR BOUN N 25.4 NNE 18.3 NE 63.4 ENE 65.5 E 38.0 ESE 17.1 SE 13.5	DEPOSTIO HRS/YR OF (IDENTIFI ITE VI NDARY 40 80 40 90	Pag DEPOSITIO TAB N PARAME R >150 HRS/ ED IN ATTA (1E-9 INDIVIDUA EGETABLE GARDEN 2.05 2.02 29.30	e 2 of 7 N PARAME LE 2.3-29 TERS (D/Q QTR FOR S ACHMENT meters ⁻²) AL RECEPT MILK COW) FOR CO SPECIAL I E TABLE FORS MILK GOAT .693 .459 .078	1/2 Revision: 2 PECIAL DIST NTINUOUS DISTANCES 2.2-3) MEAT ANIMA .847 1.850	In-Field Reference age Number: 116 of 128 TANCES) RELEASES RELEASES C AL RESIDENCE 2.19 2.11
CONTINUOUS CV-1 AND CV-2 >500 2 DOWNWIND SI SECTOR BOUN N 25.4 NNE 18.3 NE 63.4 ENE 65.5 E 38.0 ESE 17.1 SE 13.5	DEPOSTIO HRS/YR OF (IDENTIFI ITE VI NDARY 40 80 40 90	Pag DEPOSITIO TAB N PARAME R >150 HRS/ ED IN ATTA (1E-9 INDIVIDUA EGETABLE GARDEN 2.05 2.02 29.30	e 2 of 7 N PARAME LE 2.3-29 TERS (D/Q QTR FOR S ACHMENT meters ⁻²) AL RECEPT MILK COW) FOR CO SPECIAL I E TABLE FORS MILK GOAT .693 .459 .078	2 PECIAL DIST NTINUOUS DISTANCES 2.2-3) MEAT ANIMA .847 1.850	116 of 128 TANCES) RELEASES S C AL RESIDENCE 2.19 2.11
CV-1 AND CV-2 >500 DOWNWIND SI SECTOR BOUN N 25.4 NNE 18.3 NE 63.4 ENE 65.9 E 38.0 ESE 17.1 SE 13.3	DEPOSTIO HRS/YR OF (IDENTIFI ITE VI NDARY 40 80 40 90	Pag DEPOSITIO TAB N PARAME R >150 HRS/ ED IN ATTA (1E-9 INDIVIDUA EGETABLE GARDEN 2.05 2.02 29.30	e 2 of 7 N PARAME LE 2.3-29 TERS (D/Q QTR FOR S ACHMENT meters ⁻²) AL RECEPT MILK COW) FOR CO SPECIAL I E TABLE FORS MILK GOAT .693 .459 .078	PECIAL DIS NTINUOUS DISTANCES 2.2-3) MEAT ANIMA .847 1.850	TANCES) RELEASES L RESIDENCE 2.19 2.11
CV-1 AND CV-2 >500 DOWNWIND SI SECTOR BOUN N 25.4 NNE 18.3 NE 63.4 ENE 65.9 E 38.0 ESE 17.1 SE 13.3	DEPOSTIO HRS/YR OF (IDENTIFI ITE VI NDARY 40 80 40 90	Pag DEPOSITIO TAB N PARAME R >150 HRS/ ED IN ATTA (1E-9 INDIVIDUA EGETABLE GARDEN 2.05 2.02 29.30	e 2 of 7 N PARAME LE 2.3-29 TERS (D/Q QTR FOR S ACHMENT meters ⁻²) AL RECEPT MILK COW) FOR CO SPECIAL I E TABLE FORS MILK GOAT .693 .459 .078	NTINUOUS DISTANCES 2.2-3) MEAT ANIMA .847 1.850	RELEASES C AL RESIDENCE 2.19 2.11
CV-1 AND CV-2 >500 DOWNWIND SI SECTOR BOUN N 25.4 NNE 18.3 NE 63.4 ENE 65.5 E 38.0 ESE 17.1 SE 13.3	DEPOSTIO HRS/YR OF (IDENTIFI ITE VI NDARY 40 80 40 90	DEPOSITIO TAB N PARAME >150 HRS/ ED IN ATTA (1E-9 INDIVIDU EGETABLE GARDEN 2.05 2.02 29.30	N PARAME LE 2.3-29 TERS (D/Q QTR FOR S ACHMENT meters ⁻²) AL RECEPT MILK COW) FOR CO SPECIAL I E TABLE FORS MILK GOAT .693 .459 .078	NTINUOUS DISTANCES 2.2-3) MEAT ANIMA .847 1.850	RELEASES C AL RESIDENCE 2.19 2.11
CV-1 AND CV-2 >500 DOWNWIND SI SECTOR BOUN N 25.4 NNE 18.3 NE 63.4 ENE 65.9 E 38.0 ESE 17.1 SE 13.3	DEPOSTIO HRS/YR OF (IDENTIFI ITE VI NDARY 40 80 40 90	TAB N PARAME R >150 HRS/ ED IN ATTA (1E-9 INDIVIDUA EGETABLE GARDEN 2.05 2.02 29.30	LE 2.3-29 TERS (D/Q QTR FOR S ACHMENT meters ⁻²) AL RECEPT MILK COW) FOR CO SPECIAL I E TABLE FORS MILK GOAT .693 .459 .078	NTINUOUS DISTANCES 2.2-3) MEAT ANIMA .847 1.850	RELEASES C AL RESIDENCE 2.19 2.11
>500 DOWNWIND SI <u>SECTOR</u> BOUN N 25.4 NNE 18.3 NE 63.4 ENE 65.9 E 38.0 ESE 17.1 SE 13.5	HRS/YR OF (IDENTIFI ITE VI NDARY 40 80 40 90	N PARAME R >150 HRS/ ED IN ATTA (1E-9 INDIVIDUA EGETABLE GARDEN 2.05 2.02 29.30	TERS (D/Q QTR FOR S ACHMENT meters ⁻²) AL RECEPT MILK COW 	SPECIAL I E TABLE FORS MILK GOAT .693 .459 .078	DISTANCES 2.2-3) MEAT ANIMA .847 1.850	Г <u>AL RESIDENCE</u> 2.19 2.11
>500 DOWNWIND SI <u>SECTOR</u> BOUN N 25.4 NNE 18.3 NE 63.4 ENE 65.9 E 38.0 ESE 17.1 SE 13.5	HRS/YR OF (IDENTIFI ITE VI NDARY 40 80 40 90	R >150 HRS/ ED IN ATTA (1E-9 INDIVIDUA EGETABLE GARDEN 2.05 2.02 29.30	QTR FOR S ACHMENT 9 meters ⁻²) AL RECEPT MILK COW 	SPECIAL I E TABLE FORS MILK GOAT .693 .459 .078	DISTANCES 2.2-3) MEAT ANIMA .847 1.850	Г <u>AL RESIDENCE</u> 2.19 2.11
SECTOR BOUN N 25.4 NNE 18.5 NE 63.4 ENE 65.5 E 38.6 ESE 17.7 SE 13.5	NDARY 40 80 40 90	EGETABLE GARDEN 2.05 2.02 29.30	MILK COW 	MILK GOAT .693 .459 .078	ANIMA .847 1.850	L RESIDENCE 2.19 2.11
SECTOR BOUN N 25.4 NNE 18.5 NE 63.4 ENE 65.5 E 38.6 ESE 17.7 SE 13.5	NDARY 40 80 40 90	GARDEN 2.05 2.02 29.30		<u> </u>	ANIMA .847 1.850	L RESIDENCE 2.19 2.11
SECTOR BOUN N 25.4 NNE 18.5 NE 63.4 ENE 65.5 E 38.6 ESE 17.7 SE 13.5	NDARY 40 80 40 90	GARDEN 2.05 2.02 29.30		<u> </u>	ANIMA .847 1.850	L RESIDENCE 2.19 2.11
NNE 18.9 NE 63.4 ENE 65.9 E 38.0 ESE 17.1 SE 13.9	.80 .40 .90	2.02 29.30	 .455 	.459 .078	1.850	2.19 2.11
NNE 18.9 NE 63.4 ENE 65.9 E 38.0 ESE 17.1 SE 13.9	.80 .40 .90	2.02 29.30	 .455 	.459 .078	1.850	2.11
ENE 65.9 E 38.0 ESE 17.1 SE 13.9	.90		.455	.078		
E 38.0 ESE 17.1 SE 13.8		8.92		661		
ESE 17. SE 13.8				.001		32.20
SE 13.8	.00	3.90	.382	1.020	1.020	22.70
	.10	3.56		1.380	3.560	3.56
SSE 10.5	.80	3.03	.350	.350	1.100	3.03
	.50	2.65	.317	.094	2.570	3.68
S 10.0	.60	1.05	.934		1,860	1.95
	59	1.26	.663	.266	1.260	4.42
	.94	2.21		1.320	1.920	2.21
WSW 27.5	50	2.65	.596		2.380	2.65
W 31.6	60	1.23	.645		.960	1.23
WNW 39.1		2.23	1.490	.045	2.230	2.23
NW 70.6	.60	15.00		.276	1.990	15.60
NNW 31.5	50	6.52		.068	1.090	9.91

Beaver Valley Power Station	Procedure N	1/2-ODC-2.02
Title:	Ünit:	Level Of Use:
	1/2	In-Field Reference
DDCM: GASEOUS EFFLUENTS	Revision:	Page Number:
	2	<u>117 of 128</u>
ATTACHMENT L		
Page 3 of 7		
CONTINUOUS RELEASE DEPOSITION PARAMETER	RS (SPECIAL I	DISTANCES)
TABLE 2.3-30		
TABLE 2,3-30		
VV-1 AND VV-2 DEPOSTION PARAMETERS (D/Q) FO		
>500 HRS/YR OR >150 HRS/QTR FOR SPEC		LES .
(IDENTIFIED IN ATTACHMENT E TA $(1E \circ materia)$	ABLE $2.2-3$)	,
$(1E-9 \text{ meters}^{-2})$		
Same as Table 2.3-29		
Same as Table 2.3-27		

1411

1 1 1

ij.

1

1

	Re	aver Valley	y Power Sta	tion	I	Procedure Numbe	
÷.							-ODC-2.02
11	tle:				ľ	Jnit: L 1/2	evel Of Use: In-Field Reference
\sim	DOM CASEC	US EFFLUENT	0		- F	and the second	age Number:
0	DCM. GASEC	JUS EFFLUENI	۵		_	2	118 of 128
				HMENT L			
			•	e 4 of 7			
	CONTIN	NUOUS RELEA	SE DEPOSITION	VPARAME	TERS (SP	ECIAL DIS	TANCES)
			TABL	E 2.3-31			
	TV-	>500 HRS/YR	PARAMETERS OR >150 HRS/O IFIED IN ATTA (1E-9	TR FOR S	PECIAL D	ISTANCES	
			INDIVIDUA	L RECEPT	ORS		
	DOWNWIND	SITE	VEGETABLE	MILK	MILK	MEA	Г
	SECTOR	BOUNDARY	GARDEN	COW	GOAT	ANIMA	AL RESIDENCE
	N	20.20	2.05		.693	.847	2.190
	NNE	34.90	2.02		.459	1.850	2.110
	NE	54.20	29.30	.455	.078	.455	30.400
	ENE	57.50	8.92		.661		32.200
	Е	38.10	3.90	.382	1.020	1.020	22.700
	E	50.10					
	ESE	18.60	3.56		1.380	3.560	3.560
	ESE	18.60	3.56				
				 .351 .318	1.380 .351 .094	3.560 1.100 2.570	3.030
	ESE SE SSE	18.60 19.00 13.30	3.56 3.03 2.65	.351 .318	.351 .094	1.100 2.570	3.030 3.690
	ESE SE SSE S	18.60 19.00 13.30 11.30	3.56 3.03 2.65 10.40	.351 .318 .934	.351 .094	1.100 2.570 1.860	3.030 3.690 1.950
	ESE SE SSE S SSW	18.60 19.00 13.30 11.30 6.44	3.56 3.03 2.65 10.40 1.26	.351 .318 .934 .664	.351 .094 .266	1.100 2.570 1.860 1.260	3.030 3.690 1.950 4.430
	ESE SE SSE S SSW SW	18.60 19.00 13.30 11.30 6.44 3.95	3.56 3.03 2.65 10.40 1.26 2.21	.351 .318 .934 .664	.351 .094	1.100 2.570 1.860 1.260 1.920	3.030 3.690 1.950 4.430 2.210
	ESE SE SSE S SSW	18.60 19.00 13.30 11.30 6.44	3.56 3.03 2.65 10.40 1.26	.351 .318 .934 .664	.351 .094 .266	1.100 2.570 1.860 1.260	3.030 3.690 1.950 4.430
	ESE SE SSE S SSW SW	18.60 19.00 13.30 11.30 6.44 3.95	3.56 3.03 2.65 10.40 1.26 2.21	.351 .318 .934 .664	.351 .094 .266	1.100 2.570 1.860 1.260 1.920	3.030 3.690 1.950 4.430 2.210
	ESE SE SSE S SSW SW WSW	18.60 19.00 13.30 11.30 6.44 3.95 25.10	3.56 3.03 2.65 10.40 1.26 2.21 2.65	.351 .318 .934 .664 .597	.351 .094 .266	1.100 2.570 1.860 1.260 1.920 2.380	3.030 3.690 1.950 4.430 2.210 2.650
	ESE SE SSE S SSW SW WSW	18.60 19.00 13.30 11.30 6.44 3.95 25.10 28.40	3.56 3.03 2.65 10.40 1.26 2.21 2.65 1.23	.351 .318 .934 .664 .597 .646	.351 .094 .266 1.320 	1.100 2.570 1.860 1.260 1.920 2.380 .961	3.030 3.690 1.950 4.430 2.210 2.650 1.230

Beaver Valley Power Station	Procedure Nu	^{mber:} 1/2-ODC-2.02
Title:	Unit:	Level Of Use:
	1/2 Revision:	In-Field Reference Page Number:
ODCM: GASEOUS EFFLUENTS	2	119 of 128
ATTACHMENT L		
Page 5 of 7 CONTINUOUS RELEASE DEPOSITION PARAME	ΤΈΡς (ΟΡΕΛΊΑΙ Γ	NGTANCES
	TERS (STECIAL E	JISTANCES)
TABLE 2.3-32		
CB-2 DEPOSTION PARAMETERS (D/Q) FOR	CONTINUOUS RE	ELEASES
>500 HRS/YR OR >150 HRS/QTR FOR S	PECIAL DISTANC	
(IDENTIFIED IN ATTACHMENT I (1E-9 meters ⁻²)	E TABLE 2.2-3)	
(IE-9 meters)		
Same as Table 2.3-3	1	
. · · ·		
· · · · · · · · · · · · · · · · · · ·		

1	(Page	120	of	128)
1				
į.				
į.			1	
1				
ì		•		Title:
				ODOM
				ODCM

计算法 计错误 化化学 化化化物化物化物 化分子机 化分子机 化分子子 化分子子 化化合物化合物

The second se

Beaver Valley Power Station	Procedure Nu	
		1/2-ODC-2.02 Level Of Use:
Title:	Unit: 1/2	In-Field Reference
ODCM: GASEOUS EFFLUENTS	Revision:	Page Number:
ATTACHMENT L		120 of 128
Page 6 of 7		
CONTINUOUS RELEASE DEPOSITION PARAMETER	S (SPECIAL I	DISTANCES)
TABLE 2.3-33		
DV-2 DEPOSTION PARAMETERS (D/Q) FOR COM >500 HRS/YR OR >150 HRS/QTR FOR SPEC (IDENTIFIED IN ATTACHMENT E TA (1E-9 meters ⁻²)	IAL DISTAN	
Same as Table 2.3-29		
· · · ·		

-È

•

•

	Beaver Valley Power Stat	ion	Procedure Nur 1	nber: ./2-ODC-2.02
Title:			Unit:	Level Of Use:
ODCM:	GASEOUS EFFLUENTS		1/2 Revision: 2	In-Field Reference Page Number: 121 of 128
• • • <u></u>	ATTACH	MENT L	2	121 01 120
	Page			
(CONTINUOUS RELEASE DEPOSITION	PARAMETERS (S	PECIAL D	ISTANCES)
	TABLI	E 2.3-34		
	WV-2 DEPOSTION PARAMETERS (D/Q) FOR CONTIN	IUOUS RE	ELEASES
	>500 HRS/YR OR >150 HRS/Q			ES
	(IDENTIFIED IN ATTAC	CHMENT E TABLE neters ⁻²)	. 2.2-3)	
	Same as T	able 2.3-29		
		·		
	-			
			•	

Be	eaver Valley	y Power Sta	tion	Pro	cedure Number: 1/2- (DDC-2.02
Title:				Uni	t: Lev	el Of Use:
						In-Field Reference
DDCM: GASEC	OUS EFFLUENT	Rev	vision: Pag 2	e Number: 122 of 128		
		ATTACI	HMENT M			
		Page	:1 of 3			
BAT	CH RELEASE I	DISPERSION PA	RAMETER	S (SPECIAI	L DISTAN	CES)
		TADI	E 9 2 25			
		TABL	E 2.3-35			
CV-1	AND CV-2 DISE	PERSION PARA	METERS (X		ATCH REI	FASES
011		$OR \ge 150 HRS/Q$	•	-,		
		TFIED IN ATTA	-			
			c/m^3)			
		(~ -	····)			
		INDIVIDUA	L RECEPT	ORS		
DOWNWIND	SITE	VEGETABLE	MILK	MILK	MEAT	
SECTOR*	BOUNDARY	GARDEN	COW	GOAT	ANIMA	L RESIDENCE
Ν	8.21E-5	8.38E-6		3.72E-6	4.34E-6	8.82E-6
NNE	3.04E-5	4.71E-6		1.40E-6	4.38E-6	4.87E-6
NE	4.59E-5	2.21E-5	6.05E-7	1.38E-7	6.05E-7	2.28E-5
ENE	3.72E-5	5.25E-6		5.66E-7		1.88E-5
Е	2.93E-5	3.79E-6	5.15E-7	1.17E-6	1.17E-6	1.78E-5
ESE	2.95E 5 2.47E-5	5.61E-6	J.15L /	2.34E-6	5.61E-6	
SE	2.14E-5	5.00E-6	8.13E-7	8.13E-7	2.03E-6	
SSE	2.21E-5	6.31E-6	1.11E-6	3.92E-7	6.13E-6	
S	2.15E-5	3.03E-6	2.76E-6		4.93E-6	5.14E-6
	2.18E-5	6.58E-6	3.81E-6	1.82E-6	6.58E-6	1.78E-5
SSW	2.101-5	0.00000				
SSW SW	1.82E-5	1.03E-5		6.67E-6	9.12E-6	1.03E-5
			 4.10E-6	6.67E-6 	9.12E-6 1.19E-5	1.03E-5 1.29E-5
SW WSW	1.82E-5 1.09E-4	1.03E-5 1.29E-5			1.19E-5	1.29E-5
SW WSW W	1.82E-5 1.09E-4 1.49E-4	1.03E-5 1.29E-5 1.05E-5	6.55E-6		1.19E-5 8.77E-6	1.29E-5 1.05E-5
SW WSW	1.82E-5 1.09E-4	1.03E-5 1.29E-5			1.19E-5	1.29E-5

Period of Record: 1976 - 1980

1

Be	eaver Valley	y Power Sta	tion	Pro	cedure Number: 1/2O	DC-2.02
Title:				Uni	t: Leve	l Of Use:
					112	n-Field Reference
ODCM: GASEC	OUS EFFLUENT	ſS		Rev	vision: Page 2	Number: 123 of 128
	· · · · · · · · · · · · · · · · · · ·	ΔΤΤΔΟΙ	IMENT M			123 01 128
			2 of 3			
RAT	CHRELEASE	DISPERSION PA		S (SPECIAL	DISTANC	FS)
Ditt					2 210 11 11 (0	.25)
		TABL	E 2.3-36			
VV-1	AND VV-2 DISI	PERSION PARA	METERS (X	(/O) FOR B	ATCH RELI	EASES
		COR ≥150 HRS/Q	•			
		LIFIED IN ATTA	•			
	(ec/m^3)		- /	
			/			
		INDIVIDUA	L RECEPT	ORS		
DOWNWIND	SITE	VEGETABLE	MILK	MILK	MEAT	
SECTOR*	BOUNDARY	GARDEN	COW	GOAT	ANIMAL	RESIDENC
N	9.75E-5	1.00E-5		4.21E-6	4.95E-6	1.06E-5
NNE	3.78E-5	5.11E-6		1.43E-6	4.72E-6	5.30E-6
NE	6.13E-5	2.70E-5	6.20E-7	1.40E-7	6.20E-7	2.81E-5
ENE	4.83E-5	5.58E-6		5.71E-7		2.24E-5
		a a a 777 - 6		1 105 6	1 105 (a 1075 c
E	3.66E-5	3.99E-6	5.25E-7	1.19E-6	1.19E-6	2.10E-5
ESE	2.99E-5	6.13E-6		2.43E-6	6.13E-6	6.13E-6
ESE SE	2.99E-5 2.55E-5	6.13E-6 5.29E-6	 8.24E-7	2.43E-6 8.24E-7	6.13E-6 2.13E-6	6.13E-6 5.29E-6
ESE	2.99E-5	6.13E-6		2.43E-6	6.13E-6	6.13E-6
ESE SE	2.99E-5 2.55E-5	6.13E-6 5.29E-6	 8.24E-7	2.43E-6 8.24E-7	6.13E-6 2.13E-6	6.13E-6 5.29E-6
ESE SE SSE	2.99E-5 2.55E-5 2.65E-5	6.13E-6 5.29E-6 6.72E-6	 8.24E-7 1.12E-6	2.43E-6 8.24E-7	6.13E-6 2.13E-6 6.53E-6	6.13E-6 5.29E-6 9.22E-6
ESE SE SSE S	2.99E-5 2.55E-5 2.65E-5 2.52E-5	6.13E-6 5.29E-6 6.72E-6 3.14E-6	 8.24E-7 1.12E-6 2.83E-6	2.43E-6 8.24E-7 3.95E-7	6.13E-6 2.13E-6 6.53E-6 5.29E-6	6.13E-6 5.29E-6 9.22E-6 5.53E-6
ESE SE SSE S SSW	2.99E-5 2.55E-5 2.65E-5 2.52E-5 2.60E-5	6.13E-6 5.29E-6 6.72E-6 3.14E-6 7.34E-6	 8.24E-7 1.12E-6 2.83E-6	2.43E-6 8.24E-7 3.95E-7 1.92E-6	6.13E-6 2.13E-6 6.53E-6 5.29E-6 7.34E-6	6.13E-6 5.29E-6 9.22E-6 5.53E-6 2.09E-5
ESE SE SSE S SSW SW WSW	2.99E-5 2.55E-5 2.65E-5 2.52E-5 2.60E-5 2.13E-5 1.34E-4	6.13E-6 5.29E-6 6.72E-6 3.14E-6 7.34E-6 1.18E-5 1.51E-5	8.24E-7 1.12E-6 2.83E-6 4.15E-6 4.46E-6	2.43E-6 8.24E-7 3.95E-7 1.92E-6 7.41E-6	6.13E-6 2.13E-6 6.53E-6 5.29E-6 7.34E-6 1.04E-5 1.38E-5	6.13E-6 5.29E-6 9.22E-6 5.53E-6 2.09E-5 1.18E-5 1.51E-5
ESE SE SSE SSW SW WSW	2.99E-5 2.55E-5 2.65E-5 2.60E-5 2.13E-5 1.34E-4 1.77E-4	6.13E-6 5.29E-6 6.72E-6 3.14E-6 7.34E-6 1.18E-5 1.51E-5 1.25E-5	8.24E-7 1.12E-6 2.83E-6 4.15E-6 4.46E-6 7.40E-6	2.43E-6 8.24E-7 3.95E-7 1.92E-6 7.41E-6 	6.13E-6 2.13E-6 6.53E-6 5.29E-6 7.34E-6 1.04E-5 1.38E-5 1.02E-5	6.13E-6 5.29E-6 9.22E-6 5.53E-6 2.09E-5 1.18E-5 1.51E-5 1.25E-5
ESE SE SSE SSW SW WSW WSW	2.99E-5 2.55E-5 2.65E-5 2.60E-5 2.13E-5 1.34E-4 1.77E-4 2.33E-4	6.13E-6 5.29E-6 6.72E-6 3.14E-6 7.34E-6 1.18E-5 1.51E-5 1.25E-5 2.07E-5	8.24E-7 1.12E-6 2.83E-6 4.15E-6 4.46E-6 7.40E-6 1.49E-5	2.43E-6 8.24E-7 3.95E-7 1.92E-6 7.41E-6 1.30E-6	6.13E-6 2.13E-6 6.53E-6 5.29E-6 7.34E-6 1.04E-5 1.38E-5 1.02E-5 2.07E-5	6.13E-6 5.29E-6 9.22E-6 5.53E-6 2.09E-5 1.18E-5 1.51E-5 1.25E-5 2.07E-5
ESE SE SSE SSW SW WSW	2.99E-5 2.55E-5 2.65E-5 2.60E-5 2.13E-5 1.34E-4 1.77E-4	6.13E-6 5.29E-6 6.72E-6 3.14E-6 7.34E-6 1.18E-5 1.51E-5 1.25E-5	8.24E-7 1.12E-6 2.83E-6 4.15E-6 4.46E-6 7.40E-6	2.43E-6 8.24E-7 3.95E-7 1.92E-6 7.41E-6 	6.13E-6 2.13E-6 6.53E-6 5.29E-6 7.34E-6 1.04E-5 1.38E-5 1.02E-5	6.13E-6 5.29E-6 9.22E-6 5.53E-6 2.09E-5 1.18E-5 1.51E-5 1.25E-5

Period of Record: 1976 - 1980

•

1.1.1

ţ,

12-2-1

Be	eaver Valley	Power Sta	tion	Proc	cedure Number: 1/2_OT	DC-2.02
Title:	2			Unit		Of Use:
					114	-Field Reference
ODCM: GASE	OUS EFFLUENT	S		Rev	ision: Page N 2	Jumber:
		I	2	124 of 128		
			IMENT M 3 of 3			
BA	TCH RELEASE I	Ŷ		S (SPECIAI	. DISTANCI	ES)
		TABL	E 2.3-37			
]	PV-1/2 DISPERS	ION PARAMETI	ERS (X/Q) F	FOR BATCH	I RELEASES	5
		OR ≥150 HRS/Q	,			
		TIFIED IN ATTA				
			c/m ³)			
		INDIVIDUA	L RECEPT	ORS		,
DOWNWIND	SITE	VEGETABLE	MILK	MILK	MEAT	
SECTOR*	BOUNDARY	GARDEN	COW	GOAT	ANIMAL	RESIDENCE
Ν	3.09E-9	3.30E-6		1.13E-6	1.34E-6	3.36E-6
NNE	2.85E-9	2.68E-6		6.52E-7	2.47E-6	2.68E-6
NE	2.02E-10	7.42E-9	5.44E-7	1.24E-7	5.44E-7	5.51E-9
ENE	1.02E-9	3.21E-6		6.29E-7		1.67E-9
Е	2.15E-9	2.91E-6	4.96E-7	1.14E-6	1.14E-6	2.91E-6
ESE	6.90E-9	4.97E-6				4.81E-6
				1958-6	4 97E-6	
SE				1.95E-6 6.02E-7	4.97E-6 1.43E-6	
SE SSE	2.91E-6 4.91E-6	3.52E-6 3.56E-6	6.02E-7 6.53E-7	1.95E-6 6.02E-7 2.18E-7	4.97E-6 1.43E-6 3.47E-6	3.52E-6 4.71E-6
SSE	2.91E-6 4.91E-6	3.52E-6 3.56E-6	6.02E-7 6.53E-7	6.02E-7 2.18E-7	1.43E-6 3.47E-6	3.52E-6 4.71E-6
SSE S	2.91E-6 4.91E-6 2.41E-6	3.52E-6 3.56E-6 1.78E-6	6.02E-7 6.53E-7 1.65E-6	6.02E-7 2.18E-7 	1.43E-6 3.47E-6 2.84E-6	3.52E-6 4.71E-6 2.96E-6
SSE S SSW	2.91E-6 4.91E-6 2.41E-6 4.83E-6	3.52E-6 3.56E-6 1.78E-6 2.52E-6	6.02E-7 6.53E-7 1.65E-6 1.50E-6	6.02E-7 2.18E-7 6.60E-7	1.43E-6 3.47E-6 2.84E-6 2.52E-6	3.52E-6 4.71E-6 2.96E-6 3.96E-6
SSE S SSW SW	2.91E-6 4.91E-6 2.41E-6 4.83E-6 4.82E-6	3.52E-6 3.56E-6 1.78E-6 2.52E-6 2.75E-6	6.02E-7 6.53E-7 1.65E-6 1.50E-6	6.02E-7 2.18E-7 6.60E-7 1.78E-6	1.43E-6 3.47E-6 2.84E-6 2.52E-6 2.44E-6	3.52E-6 4.71E-6 2.96E-6 3.96E-6 2.75E-6
SSE S SSW	2.91E-6 4.91E-6 2.41E-6 4.83E-6	3.52E-6 3.56E-6 1.78E-6 2.52E-6	6.02E-7 6.53E-7 1.65E-6 1.50E-6	6.02E-7 2.18E-7 6.60E-7	1.43E-6 3.47E-6 2.84E-6 2.52E-6	3.52E-6 4.71E-6 2.96E-6 3.96E-6
SSE S SSW SW	2.91E-6 4.91E-6 2.41E-6 4.83E-6 4.82E-6	3.52E-6 3.56E-6 1.78E-6 2.52E-6 2.75E-6	6.02E-7 6.53E-7 1.65E-6 1.50E-6	6.02E-7 2.18E-7 6.60E-7 1.78E-6	1.43E-6 3.47E-6 2.84E-6 2.52E-6 2.44E-6	3.52E-6 4.71E-6 2.96E-6 3.96E-6 2.75E-6
SSE S SSW SW WSW	2.91E-6 4.91E-6 2.41E-6 4.83E-6 4.82E-6 5.77E-7	3.52E-6 3.56E-6 1.78E-6 2.52E-6 2.75E-6 2.81E-6	6.02E-7 6.53E-7 1.65E-6 1.50E-6 8.79E-7	6.02E-7 2.18E-7 6.60E-7 1.78E-6 	1.43E-6 3.47E-6 2.84E-6 2.52E-6 2.44E-6 2.57E-6	3.52E-6 4.71E-6 2.96E-6 3.96E-6 2.75E-6 2.81E-6
SSE S SSW SW WSW W	2.91E-6 4.91E-6 4.83E-6 4.82E-6 5.77E-7 2.88E-9	3.52E-6 3.56E-6 1.78E-6 2.52E-6 2.75E-6 2.81E-6 1.68E-6	6.02E-7 6.53E-7 1.65E-6 1.50E-6 8.79E-7 4.89E-7	6.02E-7 2.18E-7 6.60E-7 1.78E-6 	1.43E-6 3.47E-6 2.84E-6 2.52E-6 2.44E-6 2.57E-6 1.37E-6	3.52E-6 4.71E-6 2.96E-6 3.96E-6 2.75E-6 2.81E-6 1.68E-6

*Measured relevant to BV-1 natural draft cooling tower

Period of Record: 1976 - 1980

(Page 125 • of 128)

Title: ODCM: **TABLE 2.3-38** PV-1/2 DISPERSION PARAMETERS (D/O) FOR CONTINUOUS RELEASES ≥500 HRS/YR OR ≥150 HRS/OTR GASEOUS EFFLUENTS (sec/m^3) Beaver BATCH RELEASE DISPERSION PARAMETERS (0 - 5 MILES) DISTANCES TO THE CONTROL LOCATIONS. IN MILES Valley 0.0 - 0.5 0.5 - 1.0 1.0 - 1.5 1.5 - 2.0 2.0 - 2.5 2.5 - 3.0 3.0 - 3.5 4.0 - 4.5 4.5 - 5.0 3.5 - 4.02.75E-15 1.07E-5 4.10E-6 2.61E-6 1.51E-6 1.13E-6 8.84E-7 7.13E-7 5.93E-7 5.06E-7 5.90E-17 2.83E-6 8.05E-7 4.81E-7 5.39E-6 2.19E-6 1.36E-6 1.13E-6 6.51E-7 5.64E-7 4.45E-16 1.67E-8 7.39E-8 2.28E-6 1.72E-6 1.19E-6 9.28E-7 6.76E-7 7.34E-7 5.32E-7 **Power Station** 1.92E-15 8.87E-8 2.60E-6 2.21E-6 1.66E-6 1.13E-6 9.25E-7 7.23E-7 6.06E-7 3.82E-7 ATTACHMENT 1.84E-15 2.77E-6 1.44E-6 5.10E-6 2.23E-6 1.12E-6 8.74E-7 6.92E-7 5.11E-7 4.82E-7 Page 1 of 1 2.96E-13 5.26E-6 3.48E-6 2.04E-6 1.34E-6 9.93E-7 6.70E-7 4.37E-7 3.83E-7 5.76E-7 9.16E-8 3.13E-6 3.38E-6 1.99E-6 1.31E-6 9.58E-7 7.14E-7 5.74E-7 4.32E-7 3.68E-7 3.50E-8 4.86E-6 3.33E-6 1.95E-6 1.29E-6 9.42E-7 6.55E-7 5.24E-7 3.95E-7 3.32E-7 1.22E-7 4.12E-6 3.97E-6 2.34E-6 7.75E-7 1.59E-6 1.17E-6 6.24E-7 4.74E-7 4.00E-7 z 1.75E-5 6.22E-6 2.84E-6 2.18E-6 1.48E-6 1.08E-6 7.83E-7 6.31E-7 5.62E-7 4.77E-7 2.08E-5 9.11E-6 3.47E-6 2.19E-6 1.25E-6 1.11E-6 8.19E-7 7.17E-7 6.89E-7 5.85E-7 8.56E-8 9.35E-6 3.16E-6 2.29E-6 1.46E-6 1.01E-6 9.06E-7 7.52E-7 5.99E-7 5.07E-7 1/2 Revision: 2 Unit: Procedure Number: 1/2-ODC-2.02 5.44E-17 4.52E-6 4.21E-6 2.49E-6 1.25E-6 5.80E-7 5.48E-7 1.69E-6 4.86E-7 7.68E-7 9.25E-18 1.44E-8 5.66E-8 1.92E-6 1.59E-6 7.75E-7 5.28E-7 1.17E-6 4.61E-7 4.89E-7 2.61E-16 1.98E-8 8.37E-8 2.24E-6 1.46E-6 1.08E-6 8.09E-7 6.12E-7 5.42E-7 4.60E-7 1.91E-15 3.91E-6 3.66E-6 2.15E-6 1.40E-6 1.08E-6 8.03E-7 6.48E-7 5.37E-7 4.56E-7 Level Of Use Page Number In-Field Reference 125 of 128

SECTOR

Ν

NNE

ENE

NE

Ε

ESE

SE

SSE

SSW

WSW

SW

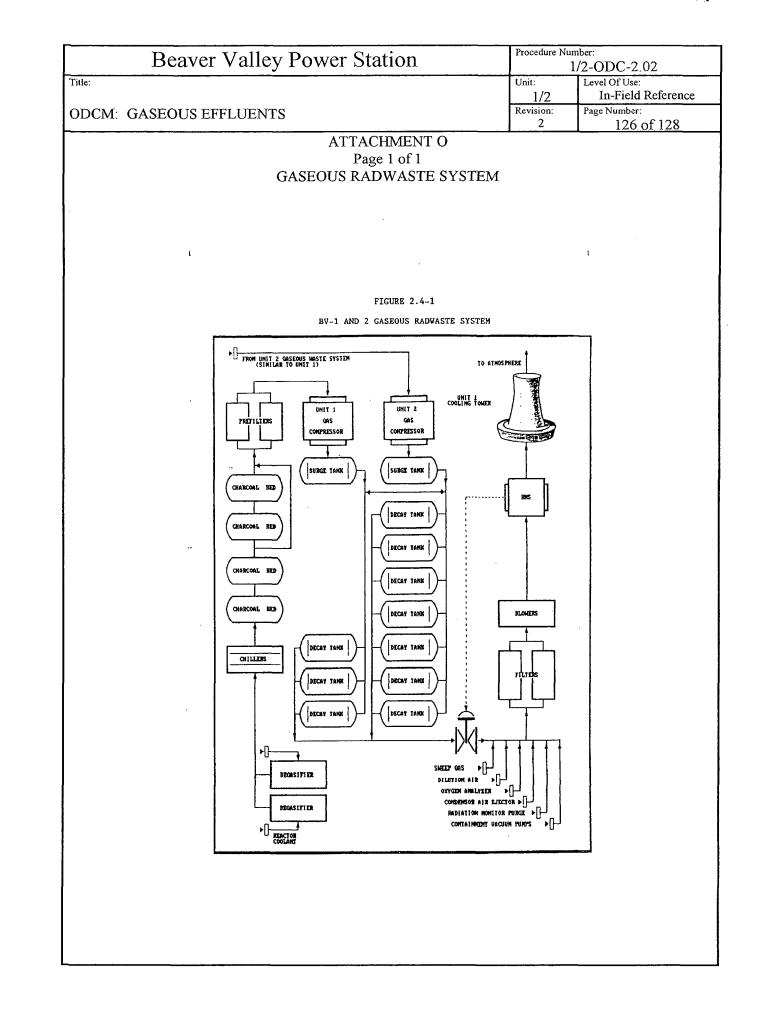
W

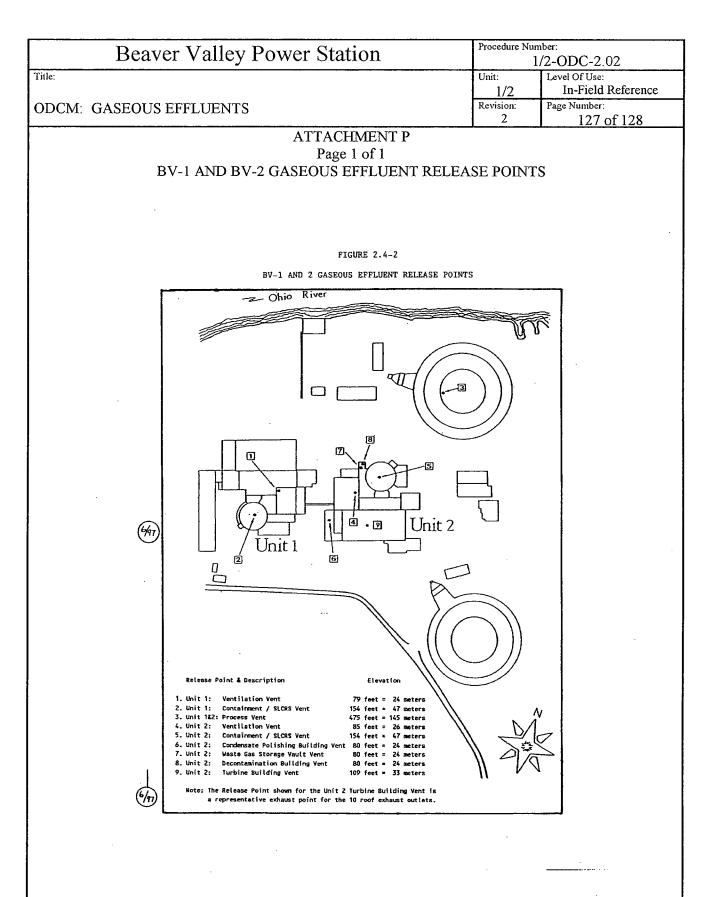
WNW

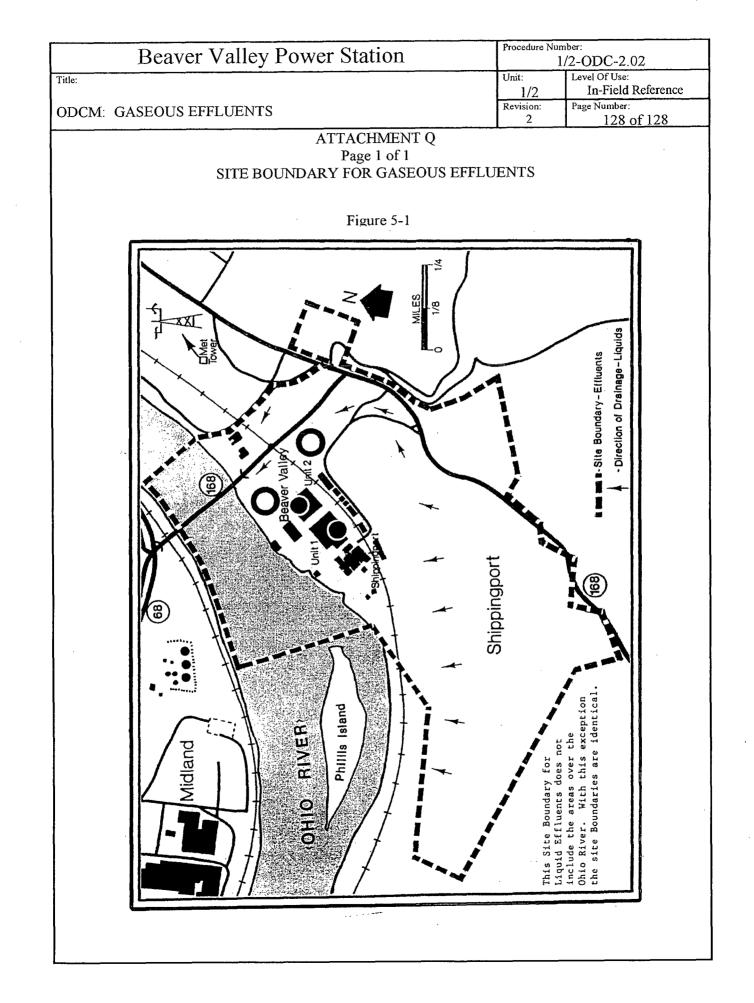
NW

NNW

S







£* ü

Beaver Valley Power Station

Unit 1/2

1/2-ODC-2.03

ODCM: Radiological Environmental Monitoring Program

Document Owner Manager, Nuclear Environmental and Chemistry

Revision Number	2
Level Of Use	General Skill Reference
Safety Related Procedure	Yes
Effective Date	08/09/10

I	Beaver V	/alley Po	wer Station	Procedure N	umber: 1/2-ODC-2.03
ritle: ODCM: Radi	ological Env	vironmental M	lonitoring Program	Unit: 1/2 Revision:	Level Of Use: General Skill Reference Page Number:
		ĵ	FABLE OF CONTENTS	2	<u>2 of 24</u>
			MENTS		
0.00					
5.0 PRECA	UTIONS A	ND LIMITAT	TIONS	••••••	4
6.0 ACCEP	TANCE CR	ITERIA			4
	•				
			••••••		
			gram		
8.3 C	rosscheck P	0			
		n			
8.4 L	and Use Cer	•	a Drogram		
8.4 L 8.5 D	and Use Cer Direct Radiat	ion Monitorin	g Program		7
8.4 L 8.5 D	and Use Cer Direct Radiat ENT A EX	ion Monitorin POSURE PA'		NG REQUIREM	
8.4 L 8.5 D ATTACHME	and Use Cer Direct Radiat ENT A EX	ion Monitorin POSURE PA'	g Program THWAY AND SAMPLI	NG REQUIREM	
8.4 L 8.5 D ATTACHME	and Use Cer Direct Radiat ENT A EX	ion Monitorin POSURE PA'	g Program THWAY AND SAMPLI	NG REQUIREM	
8.4 L 8.5 D ATTACHME	and Use Cer Direct Radiat ENT A EX	ion Monitorin POSURE PA'	g Program THWAY AND SAMPLI	NG REQUIREM	
8.4 L 8.5 D ATTACHME	and Use Cer Direct Radiat ENT A EX	ion Monitorin POSURE PA'	g Program THWAY AND SAMPLI	NG REQUIREM	
8.4 L 8.5 D ATTACHME	and Use Cer Direct Radiat ENT A EX	ion Monitorin POSURE PA'	g Program THWAY AND SAMPLI	NG REQUIREM	
8.4 L 8.5 D ATTACHME	and Use Cer Direct Radiat ENT A EX	ion Monitorin POSURE PA'	g Program THWAY AND SAMPLI	NG REQUIREM	
8.4 L 8.5 D ATTACHME	and Use Cer Direct Radiat ENT A EX	ion Monitorin POSURE PA'	g Program THWAY AND SAMPLI	NG REQUIREM	
8.4 L 8.5 D ATTACHME	and Use Cer Direct Radiat ENT A EX	ion Monitorin POSURE PA'	g Program THWAY AND SAMPLI	NG REQUIREM	
8.4 L 8.5 D ATTACHME	and Use Cer Direct Radiat ENT A EX	ion Monitorin POSURE PA'	g Program THWAY AND SAMPLI	NG REQUIREM	
8.4 L 8.5 D ATTACHME	and Use Cer Direct Radiat ENT A EX	ion Monitorin POSURE PA'	g Program THWAY AND SAMPLI	NG REQUIREM	
8.4 L 8.5 D ATTACHME	and Use Cer Direct Radiat ENT A EX	ion Monitorin POSURE PA'	g Program THWAY AND SAMPLI	NG REQUIREM	
8.4 L 8.5 D ATTACHME	and Use Cer Direct Radiat ENT A EX	ion Monitorin POSURE PA'	g Program THWAY AND SAMPLI	NG REQUIREM	
8.4 L 8.5 D ATTACHME	and Use Cer Direct Radiat ENT A EX	ion Monitorin POSURE PA'	g Program THWAY AND SAMPLI	NG REQUIREM	
8.4 L 8.5 D ATTACHME	and Use Cer Direct Radiat ENT A EX	ion Monitorin POSURE PA'	g Program THWAY AND SAMPLI	NG REQUIREM	
8.4 L 8.5 D ATTACHME	and Use Cer Direct Radiat ENT A EX	ion Monitorin POSURE PA'	g Program THWAY AND SAMPLI	NG REQUIREM	
8.4 L 8.5 D ATTACHME	and Use Cer Direct Radiat ENT A EX	ion Monitorin POSURE PA'	g Program THWAY AND SAMPLI	NG REQUIREM	
8.4 L 8.5 D ATTACHME	and Use Cer Direct Radiat ENT A EX	ion Monitorin POSURE PA'	g Program THWAY AND SAMPLI	NG REQUIREM	
8.4 L 8.5 D ATTACHME	and Use Cer Direct Radiat ENT A EX	ion Monitorin POSURE PA'	g Program THWAY AND SAMPLI	NG REQUIREM	
8.4 L 8.5 D ATTACHME	and Use Cer Direct Radiat ENT A EX	ion Monitorin POSURE PA'	g Program THWAY AND SAMPLI	NG REQUIREM	
8.4 L 8.5 D ATTACHME	and Use Cer Direct Radiat ENT A EX	ion Monitorin POSURE PA'	g Program THWAY AND SAMPLI	NG REQUIREM	
8.4 L 8.5 D ATTACHME	and Use Cer Direct Radiat ENT A EX	ion Monitorin POSURE PA'	g Program THWAY AND SAMPLI	NG REQUIREM	
8.4 L 8.5 D ATTACHME	and Use Cer Direct Radiat ENT A EX	ion Monitorin POSURE PA'	g Program THWAY AND SAMPLI	NG REQUIREM	
8.4 L 8.5 D ATTACHME	and Use Cer Direct Radiat ENT A EX	ion Monitorin POSURE PA'	g Program THWAY AND SAMPLI	NG REQUIREM	

:

i, N

i i

Beaver Valley Power Station	Procedure Nu	mber: 1/2-ODC-2.03
Title: ODCM: Radiological Environmental Monitoring Program	Unit: 1/2	Level Of Use: General Skill Reference
	Revision: 2	Page Number: 3 of 24

1.0 <u>PURPOSE</u>

- 1.1 This procedure provides the Radiological Environmental Monitoring Program (REMP) requirements from the Radiological Branch Technical Position.^(3.1.1)
 - 1.1.1 Prior to issuance of this procedure, these items were located in Section 3 of the old ODCM.

2.0 <u>SCOPE</u>

2.1 This procedure is applicable to all station personnel that are qualified to perform activities as described and referenced in this procedure.

3.0 <u>REFERENCES AND COMMITMENTS</u>

3.1 **<u>References</u>**

- 3.1.1 Radiological Branch Technical Position, Revision 1, 1979.
- 3.1.2 Regulatory Guide 1.109, Calculation of Annual Dose to Man From Routine Releases of Reactor Effluents For the Purpose of Evaluating Compliance with 10 CFR Part 50, Appendix I, Revision 1, 1977.
- 3.1.3 NUREG-1301, Offsite Dose Calculation Manual Guidance; Standard Radiological Effluent Controls for Pressurized Water Reactors (Generic Letter 89-01, Supplement No. 1).
- 3.1.4 Regulatory Guide 1.111, Methods For Estimating Atmospheric Transport and Dispersion of Gaseous Effluents in Routine Releases From Light-Water-Cooled Reactors, Revision 1, July 1977.
- 3.1.5 1/2-ADM-1640, Control of the Offsite Dose Calculation Manual
- 3.1.6 1/2-ADM-0100, Procedure Writers Guide
- 3.1.7 1/2-ADM-0101, Review and Approval of Documents
- 3.1.8 CR 04-00149, Radiation Protection Performance Committee Actions Items. CA-12 required obtaining GPS satellite data for use in the REMP.
- 3.1.9 CR 05-01169, Chemistry Action Plan for transition of RETS, REMP and ODCM. CA-17, revise procedure 1/2-ODC-2.03 to convert Radiation Protection responsibilities to Nuclear Environmental and Chemistry.
- 3.1.10 CR 05-01390, Include GPS data in 2004 REMP Report and related 1/2-ODC and 1/2-ENV procedures. CA-02, revise ODCM procedure 1/2-ODC-2.03 to include an update of REMP sample locations (using the GPS Satellite data).

Beaver Valley Power Station	Procedure Number: 1/2-ODC-2.03
Title: ODCM: Radiological Environmental Monitoring Program	Unit: Level Of Use: <u>1/2</u> General Skill Reference Revision: Page Number: <u>2</u> 4 of 24
3.1.11 CR 10-77489, Fixed incorrect sample designation sample point designation #49 to #49A; clarified g	ns for TLD #94 and #95; changed
3.2 <u>Commitments</u>	
3.2.1 10 CFR 50 Appendix I	
4.0 <u>RECORDS AND FORMS</u>	
4.1 <u>Records</u>	
4.1.1 Any calculation supporting ODCM changes shall retrievable document (e.g., letter or calculation provide number.	
4.2 <u>Forms</u>	
4.2.1 None.	
5.0 PRECAUTIONS AND LIMITATIONS	
5.1 The specified detection capabilities are state-of-the-ar measurements in industrial laboratories.	t for routine environmental
6.0 <u>ACCEPTANCE CRITERIA</u>	
 6.1 Any change to this procedure shall contain sufficient maintain the level of radioactive effluent control requ 40 CFR Part 190, 10 CFR 50.36a and Appendix I to 1 accuracy or reliability of effluent dose or setpoint calculation. 	ired by 10 CFR 20.1302, 0 CFR 50, and not adversely impact the
6.1.1 All changes to this procedure shall be prepared ir and 1/2-ADM-1640 ^(3.1.5) .	accordance with $1/2$ -ADM-0100 ^(3.1.6)
6.1.2 All changes to this procedure shall be reviewed a $1/2$ -ADM-0101 ^(3.1.7) and $1/2$ -ADM-1640 ^(3.1.5) .	nd approved in accordance with
7.0 <u>PREREQUISITES</u>	
7.1 The user of this procedure shall be familiar with ODC	CM structure and format.

ter en al de la companyation de la

5

化二乙基基 建合金 计分

*** *** 6

ì

1

Beaver Valley Power Station	Procedure Nu	mber: 1/2-ODC-2.03
Title: ODCM: Radiological Environmental Monitoring Program	Unit: 1/2	Level Of Use: General Skill Reference
	Revision: 2	Page Number: 5 of 24

8.0 <u>PROCEDURE</u>

8.1 **REMP Overview**

8.1.1 Attachment A, Table 3.0-1 contains the site number, sector, distance, sample point description, sampling and collection frequency, analysis, and analysis frequency for various exposure pathways in the vicinity of the Beaver Valley Power Station for the REMP. Attachment B, Figures 3.0-1 through 3.0-6 show the location of the various sampling points.

8.2 Sampling and Analysis Program

- 8.2.1 Environmental samples shall be collected and analyzed according to Attachment A, Table 3.0-1. Analytical techniques used shall be such that the detection capabilities in 1/2-ODC-3.03, Table 4.12-1 are achieved.
- 8.2.2 The results of the radiological environmental monitoring are intended to supplement the results of the radiological effluent monitoring by verifying that the measurable concentrations of radioactive materials and levels of radiation are not higher than expected on the basis of the effluent measurements and modeling of the environmental exposure pathways.
 - 8.2.2.1 The specified environmental monitoring program provides measurements of radiation and of radioactive materials in those exposure pathways and for those radionuclides which lead to the highest potential radiation exposures of individuals resulting from the station operation.
 - 8.2.2.2 The initial radiological environmental monitoring program should be conducted for the first 3 years of commercial operation (or other period corresponding to a maximum burnup in the initial core cycle). Following this period, program changes may be proposed based on operational experience.
- 8.2.3 Deviations are permitted from the required sampling schedule if specimens are unobtainable due to hazardous conditions, seasonal unavailability, malfunction of automatic sampling equipment and other legitimate reasons.
 - 8.2.3.1 <u>IF</u> specimens are unobtainable due to sampling equipment malfunction, <u>THEN</u> every effort shall be made to complete corrective action prior to the end of the next sampling period.
 - 8.2.3.2 All deviations from the sampling schedule shall be documented in the annual REMP report.

Beaver Valley Power Station	Procedure Number: 1/2-ODC-2.03			
Title: ODCM: Radiological Environmental Monitoring Program	Unit: 1/2	Level Of Use: General Skill Reference		
	Revision:	Page Number: 6 of 24		

8.3 Crosscheck Program

- 8.3.1 The laboratories of the licensee and licensee's contractors which perform analyses shall participate in the Environmental Protection Agency's (EPA's) Environmental Radioactivity Laboratory Intercomparisons Studies (Crosscheck) Program or equivalent program.
 - 8.3.1.1 This participation shall include all of the determinations (sample mediumradionuclide combination) that are offered by EPA and that also are included in the monitoring program.
 - 8.3.1.2 The results of analysis of these crosscheck samples shall be included in the annual REMP report. The participants in the crosscheck program may provide their program code so that the NRC can review the participant data directly in lieu of submission in the annual REMP report.
 - 8.3.1.3 <u>IF</u> the results of a determination in the crosscheck program are outside the specified control limits, <u>THEN</u> the laboratory shall investigate the cause of the problem and take steps to correct it. The results of this investigation and corrective action shall be included in the annual REMP report.
- 8.3.2 The requirement for the participation in the crosscheck program, is based on the need for independent checks on the precision and accuracy of the measurements of radioactive material in environmental sample matrices as part of the quality assurance program for environmental monitoring in order to demonstrate the results are reasonably valid.

8.4 Land Use Census Program

- 8.4.1 A census shall be conducted annually during the growing season to determine the location of the nearest milk animal, and nearest garden greater than 50 square meters (500 sq. ft.) producing broad leaf vegetation in each of the 16 meteorological sectors within a distance of 8 km (5 miles).
 - 8.4.1.1 For elevated releases as defined in Regulatory Guide 1.111^(3.1.4), the census shall also identify the locations of <u>all</u> milk animals, and gardens greater than 50 square meters producing broad leaf vegetation out to a distance of 5 km (3 miles) for each radial sector.
 - 8.4.1.2 <u>IF</u> it is learned from this census that the milk animals or gardens are present at a location which yields a calculated thyroid dose greater than those previously sampled, or if the census results in changes in the location used in ODCM dose calculations, <u>THEN</u> a written report shall be submitted to the Director of Operating Reactors, NRR (with a copy to the Director of the NRC Regional Office) within 30 days identifying the new location (distance and direction).
 - 8.4.1.2.1 Milk animal or garden locations resulting in higher calculated doses shall be added to the surveillance program as soon as practicable.

Beaver Valley Power Station	Procedure Nu	mber: 1/2-ODC-2.03
Title: ODCM: Radiological Environmental Monitoring Program	Unit: 1/2	Level Of Use: General Skill Reference
	Revision: 2	Page Number: 7 of 24

- 8.4.1.3 The sampling location (excluding the control sample location) having the lowest calculated dose may then be dropped from the surveillance program at the end of the grazing or growing season during which the census was conducted. Any location from which milk can no longer be obtained may be dropped from the surveillance program after notifying the NRC in writing that they are no longer obtainable at that location.
 - 8.4.1.4 The results of the land-use census shall be reported in the annual REMP report.
 - 8.4.1.5 The census of milk animals and gardens producing broad leaf vegetation is based on the requirement in Appendix I of 10 CFR Part 50^(3.2.1) to "Identify changes in the use of unrestricted areas (e.g., for agricultural purposes) to permit modifications in monitoring programs for evaluating doses to individuals from principal pathways of exposure." The consumption of milk from animals grazing on contaminated pasture and of leafy vegetation contaminated by airborne radioiodine is a major potential source of exposure. Samples from milk animals are considered a better indicator of radioiodine in the environment than vegetation.
 - 8.4.1.5.1 <u>IF</u> the census reveals milk animals are not present or are unavailable for sampling, <u>THEN</u> vegetation must be sampled.
 - 8.4.1.6 The 50 square meter garden, considering 20% used for growing broad leaf vegetation (i.e., similar to lettuce and cabbage), and a vegetation yield of 2 kg/m², will produce the 26 kg/yr assumed in Regulatory Guide 1.109^(3.1.2), for child consumption of leafy vegetation.

8.5 Direct Radiation Monitoring Program

8.5.1 The increase in the number of direct radiation stations is to better characterize the individual exposure (mrem) and population exposure (man-rem) in accordance with Criterion 64 - monitoring radioactivity releases, of 10 CFR Part 50, Appendix A. The NRC will place a similar amount of stations in the area between the two rings designated in 1/2-ODC-3.03, Table 3.12-1.

- END -

					TABLE 3.0-1 PROGRAM DETAILS				Title: ODCM:	
	EXPOSURE PATHWAY AND/OR SAMPLE	<u>SITE</u> <u>NO.</u>	SECTOR	MILES ²	SAMPLE POINT DESCRIPTION ³	SAMPLING AND COLLECTION FREQUENCY	<u>TYPE AND</u> <u>FREQUENCY OF</u> <u>ANALYSES</u>			Be
1.	AIRBORNE Radioiodine and Particulates	13 30 32 46.1 48	11 4 15 2/3 10	1.49 0.43 0.75 2.28 16.40	Old Meyer Farm Shippingport (Cook's Ferry S.S.) Midland (North S.S.) Industry, McKeel's Service - Rt. 68 Weirton Water Tower, Collier Way	Continuous sampler operation with collection at least weekly	Radioiodine Cartridge: I-131 analysis weekly. Particulate Sampler: Gross beta analysis following filter change ⁵ ; Gamma isotopic analysis on composite (by location)	ATTACH Page EXPOSURE PATHWAY AND	Radiological Environmental Monitoring Program	Beaver Valley Power Station
2.	DIRECT RADIATION	10 13 14 15 27 28 29B 30 32 45 45.1	3/4 11 14 7 1 3 4 15 5 6	0.94 1.49 2.53 3.75 6.14 8.60 7.97 0.43 0.75 2.19 1.92	Shippingport Post Office Old Meyer Farm Hookstown Boro Georgetown Post Office Brunton Farm Sherman Farm Friendship Ridge Shippingport (Cook's Ferry S.S.) Midland (North S.S.) Christian House Baptist Chapel - Rt. 18 Racoon Twp., Kennedy's Corner	Continuous measurement with quarterly collection.	Gamma dose quarterly.	ATTACHMENT A Page 1 of 4 AY AND SAMPLING REQUIREMENTS	nitoring Program	er Station
		46 46.1 47 48 51 59 60 70 71	3 2/3 14 10 5 6 13 1 2	2.49 2.28 4.88 16.40 8.00 0.99 2.51 3.36 6.01	Industry, Midway Drive Industry - McKeel's Service - Rt. 68 East Liverpool Water Dept. Weirton Water Tower, Collier Way Aliquippa (Sheffield S.S.) 236 Green Hill Rd. 444 Hill Rd. 236 Engle Rd. Brighton Twp., First Western Bank	· ·			Unit: Level Of Use: <u>1/2</u> General Skill Reference Revision: Page Number: 2 8 of 24	dure Numbe 1/2

н. **н**

EXPOSURE			<u></u>	TABLE 3.0-1 PROGRAM DETAILS	SAMPLING AND			ODCM:	1
PATHWAY AND/OR SAMPLE	<u>site</u> <u>NO.</u>	SECTOR	MILES ²	SAMPLE POINT DESCRIPTION ³	<u>COLLECTION</u> FREQUENCY	<u>TYPE AND FREQUENCY</u> OF ANALYSES		Radiological Environmental Monitoring Program	Be
2. DIRECT RADIATION	72	3	3.25	Ohioview Luthern Church - Rear	Continuous	Gamma dose quarterly.		oigc	Beaver
(continued)	73	4	2.48	618 Squirrel Run Road	measurement with		ЕХ	cal	
· · ·	74	4	6.92	137 Poplar Ave CCBC	quarterly		(Pe	ក្ម	
	75	5	4.08	117 Holt Road	collection.		SC	ivr.	Valley
	76	6	3.80	Raccoon Elementary School			U I	ro	[a]
	77	6	5.52	3614 Green Garden Road			RE	nn	E
	78	7	2.72	Raccoon Municipal Building			P	ler	N.
	79	8	4.46	106 Rt. 151 - Ted McWilliams Auto Body			ATH	ntal N	Power
	80	9	8.27	Raccoon Park Office, Rt. 18			W	ſo	1 ×
	81	9	3.69	Millcreek United Presby. Church			A A	nit	õ
	82	9	6.99	2697 Rt. 18			ATTACHMENT Page 2 of 4 AY AND SAMPI	ori.	
	83	10	4.26	735 Mill Creek Road			TACH Page AND	'ne	Station
	84	11	8.35	Hancock Co. Senior Center			E 않 단	σ	1 a
	85	12	5.73	2048 Rt. 30			HMEN 2 of 4 SAM	ſŐ	17
	86	13	6.18	1090 Ohio Ave., E. Liverpool				gra	Ιă
	87	· 14	7.04	50103 Calcutta Smith's Ferry Rd.			Ê ⁴ SI	Ħ	ľ
	88	15	2.74	110 Summit Rd., Midland Heights	1				1
	89	15	4.72	488 Smith Ferry Rd., Ohioville					
	90	16	5.20	6286 Tuscarawras Rd.			Ϋ́R		
	91	2	3.89	Pine Grove & Doyle Roads			E		
	92	12	2.81	Georgetown Rd. (Georgetown S.S.)			ATTACHMENT A Page 2 of 4 EXPOSURE PATHWAY AND SAMPLING REQUIREMENTS	~ ~ ~ ~	P
	93	16	1.10	104 Linden - Sunrise Hills			Ē	Unit: Revis	FOCE
	94	10	2.37	McCleary Road & Pole Cat Hollow Rd.			MEN	Unit: <u>1/2</u> Revision: 2	dure
	95	8	2.25	832 McCleary Road			T		Number: 1/2-
		·				· · · ·	01	Level Of Use: General Skill Reference Page Number: 9 of 24	^{nber:} /2-ODC-2
								umb 9	Õ
									2.03
								Jse: Skill Ru ber: 9 of 24	ω
							ľ	tefe	
							1	erei	[
								ICe	

8-9-10

.

				TABLE 3.0-1 (continued) <u>PROGRAM DETAILS</u>				Title: ODCM:	-
<u>EXPOSURE</u> <u>PATHWAY AND/OR</u> <u>SAMPLE</u>	<u>site</u> <u>NO.</u>	<u>SECTOR¹</u>	MILES ²	SAMPLE POINT DESCRIPTION ³	SAMPLING AND COLLECTION FREQUENCY	<u>TYPE AND FREQUENCY</u> <u>OF ANALYSES</u>			
3. WATERBORNE	49A	3	4.92	Upstream of Montgomery Dam ⁴		Gamma isotopic analysis	ц	ogica	av
a) Surface (River)	2.1	14	1.43	Midland – ATI Allegheny Ludlam	with sample collection at least monthly ⁶ .	monthly; tritium analysis on composite (by location) quarterly.	XPOSUF	l Enviro	
b) Drinking Water	4 5	15 14	1.26 4.90	Midland Water Dept. East Liverpool Water Dept.	Composite sample with sample collection at least bi-weekly ⁶ .	I-131 analysis bi-weekly; gamma isotopic analysis on composite (by location) monthly; tritium analysis on composite (by location) quarterly.	ATTACHMENT A Page 3 of 4 EXPOSURE PATHWAY AND SAMPLING REQUIREMENTS	Radiological Environmental Monitoring Program	
c) Ground Water				None required ⁷			FACHMEN Page 3 of 4 AND SAM	g Pro	run,
d) Shoreline Sediment	2A	12	0.31	BVPS Outfall Vicinity	Semi-annually.	Gamma isotopic analysis semi-annually.	ATTACHMENT A Page 3 of 4 AY AND SAMPLI	gram	
 INGESTION a) Milk 	25 * ⁸ * ⁸	10	2.10 	Searight Farm	At least bi-weekly when animals are on pasture; at least monthly at	Gamma isotopic and I-131 analysis on each sample.	NG REQUI		
	96	10	10.48	Windsheimer Farm	other times.		REN	Unit: <u>1/2</u> Revision: 2	1
b) Fish	2A	12	0.31	BVPS Outfall Vicinity	Semi-annually one sample of	Gamma isotopic analysis. On edible portion.	IENT	<u>n</u> 2	-
	49A	3	4.92	Upstream of Montgomery Dam	available species.	on curble portion.		Level Of Use General S Page Number 10	/2-0DC-2.03
c) Food Products (Leafy Vegetables)	 	 		Three (3) locations within 5 miles of BVPS (Shippingport, Industry, and Georgetown) ⁹ One (1) control location (Weirton, W. Va. area) ⁹	Annually at harvest time.	Gamma isotopic and I-131 analysis on edible portion.		Level Of Use: General Skill Reference Page Number: 10 of 24	-2.03

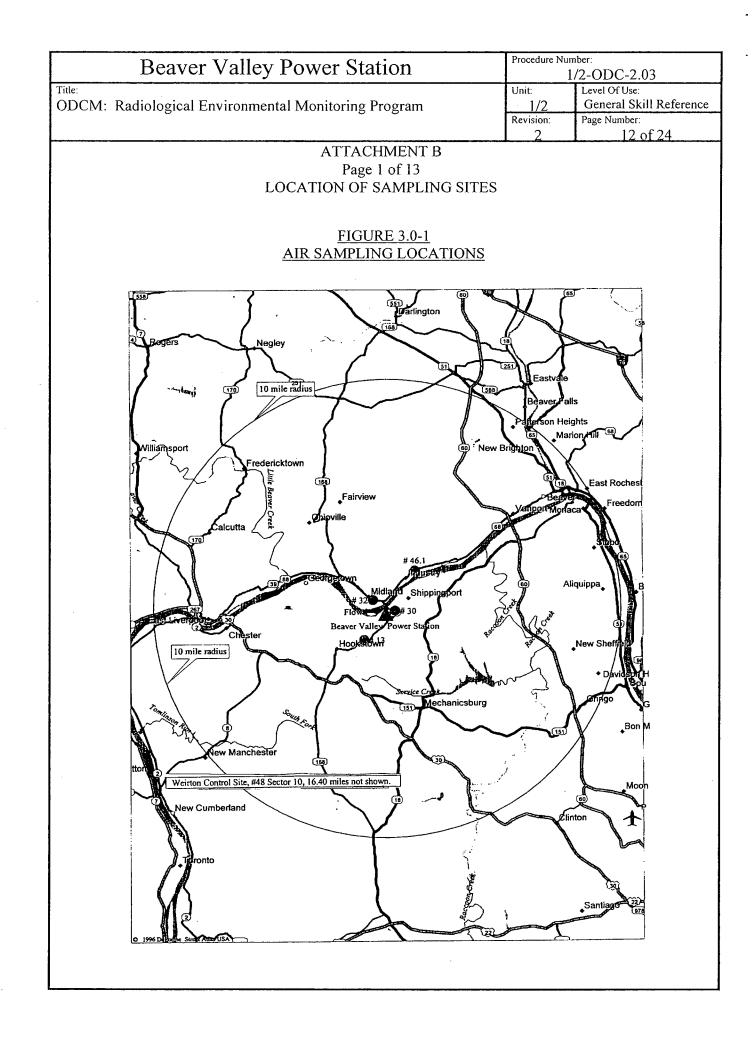
en ander ander a

8-9-10

TABLE 3.0-1 (continued) PROGRAM DETAILS EXPOSURE SITE SECTOR! MILES? SAMPLE POINT SAMPLING PATHWAY AND/OR NO. DESCRIPTION3 COLLECTIO SAMPLE * PREQUENCE ¹ Sector numbers 1-16 correspond to the 16 compass direction sectors N - NNW. * ² Distance (in miles) is as measured from the midpoint between Unit 1 and Unit 2 Containment Buildin * ³ All Sample Points are in the Commonwealth of Pennsylvania and the states of Ohio and West Virgini locations of the Sample Points are provided as Attachment B, Figures 3.0-1 through 3.0-6 and Attach ⁴ This is a Control Station and is presumed to be outside the influence of BVPS effluents. * ⁵ A gamma isotopic analysis is to be performed on each sample when the gross beta activity is found to of the Control Station sample. * ⁶ Composite samples are obtained by collecting an aliquot at intervals not exceeding 2 hours. For the t 49A, a weekly grab sample, composited each month is also acceptable. * ⁷ Collection of Ground Water samples is not required as the hydraulic gradient or recharge properties a of the high terrain in the river valley at the BVPS; thus, station effluents do not affect local wells and ⁸ These Sample Points will vary and are chosen based upon calculated annual deposition factors (higher	DN OF ANALYSES ATTACHMENT A Page 4 of 4 are directed toward the river because ground water sources in the area.	ODCM: Radiological Environmental Monitoring Program	Beaver Valley Power Station
⁹ Exact location may vary due to availability of food products.		Unit: Level Or Use: 1/2 General Skill Reference Revision: Page Number: 2 11 of 24	dure Numb

8-9-10

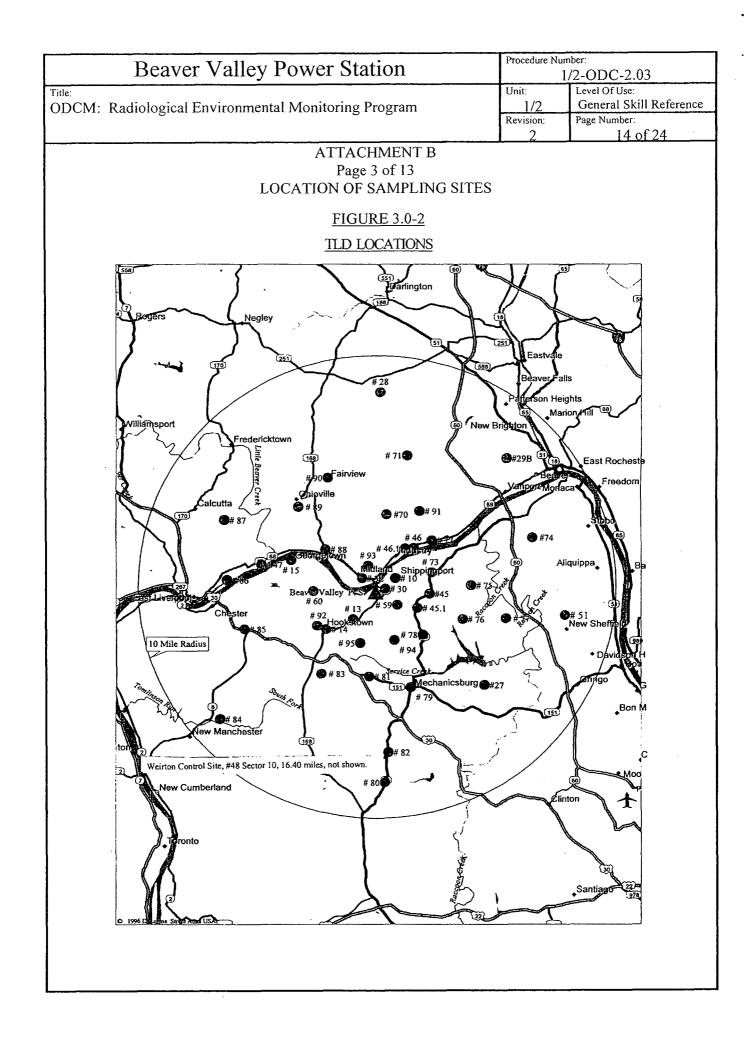
.



Beaver Valley Power Station	Procedure N	Procedure Number: 1/2-ODC-2.03			
Title: ODCM: Radiological Environmental Monitoring Program	Unit: 1/2 Revision:	Level Of Use: General Skill Reference Page Number:			
	2	13 of 24			
ATTACHMENT B					
Page 2 of 13					
LOCATION OF SAMPLING SI	ΓES				

FIGURE 3.0-1 (Continued) AIR SAMPLING LOCATIONS

Sector	Site #	Distance (miles)	Location
11	13	1.49	Old Meyer Farm
4	30	0.43	Shippingport (Cook's Ferry S.S.)
15	32	0.75	Midland (North S.S.)
2/3	46.1	2.28	Industry - McKeel's Service - Rt. 68
10	48	16.40	Weirton Water Tower, Collier Way



		Beav	er Valley Power Sta	ati	on		Pro	cedure Nur	
Title: ODCN	1: Rac		l Environmental Monitoring				Ur		/2-ODC-2.03 Level Of Use: General Skill Refere Page Number:
								2	15 of 24
			ATTAC	CHN	AENT	В			
			Page						
			LOCATION OF	SA	MPLI	NG SI	TES		
			FIGURE 3	0-2	(cont	inued)			
			TLD L						
				<u>.</u>	AIIOI	<u>u0</u>			
			So	uth	east				
Sector	Site #	Distance (miles)	Location		Sector	Site #	Distance (miles)		Location
7	27		Brunton Farm		7	78		Raccoon	Municipal Bldg.
6	45.1		Raccoon Twp., Kennedy Corners	ALC 2365	8	79	4.46		51- Ted McWilliams A
	ļ					ļ		Body	
5	51	8.00	Aliquippa (Sheffield S.S.)		9	80			Park Office, Rt. 18
6 6	59 76	0.99	236 Green Hill Road Raccoon Elementary School		<u>9</u> 8	82 94	6.99 2.25	2697 Rt.	18 y & Pole Cat Hollow R
6	77	5.52	3614 Green Garden Road				2.25		y & Fole Cal Hollow K
Lawa	L			rth	west		201.18 (Sec. 19.19)		
Sector	Site #	Distance	Location		Sector	Site #	Distance		Location
		(miles)					(miles)		
14	15	3.75	Georgetown Post Office		14	87	7.04		Calcutta Smith's Ferry R
15	32	0.75	Midland (North S.S.)		15	88	2.74		nmit Rd., Midland
14	47	4.88	E. Liverpool Water Dept.		15	89	4.72	Heights	ith Ferry Rd., Ohioville
14	60		444 Hill Road		16	90	5.20		iscarawras Rd.
13	86	6.18	1090 Ohio Avenue, E. Liverpool		16	93	1.10		den - Sunrise Hills
		<i></i>		rth	east	<u> </u>	<u></u>		
	S:40 #	Distance	···		Sector	Site #	Distance		Location
Sector	1 SHE #		Location	10000	~~~~		(miles)		2000000
Sector	Sile #	(miles)					(mnes)		
Sector 3/4	10	(miles) 0.94	Shippingport Post Office		1	70	3.36	236 Eng	
3/4 1	10 28	(miles) 0.94 8.60	Sherman Farm		2	71	3.36 6.01	Brightor	n Twp., First Western B
3/4 1 3	10 28 29B	(miles) 0.94 8.60 7.97	Sherman Farm Friendship Ridge		23	71 72	3.36 6.01 3.25	Brightor Ohiovie	1 Twp., First Western B w Luthern Church - Re
3/4 1 3 4	10 28 29B 30	(miles) 0.94 8.60 7.97 0.43	Sherman Farm Friendship Ridge Shippingport (Cook's Ferry S.S.)		2 3 4	71 72 73	3.36 6.01 3.25 2.48	Brightor Ohiovie 618 Squ	n Twp., First Western B w Luthern Church - Re hirrel Run Rd.
3/4 1 3	10 28 29B	(miles) 0.94 8.60 7.97	Sherman Farm Friendship Ridge Shippingport (Cook's Ferry S.S.) Christian House Baptist		23	71 72	3.36 6.01 3.25	Brightor Ohiovie 618 Squ	1 Twp., First Western B w Luthern Church - Re
3/4 1 3 4 5	10 28 29B 30	(miles) 0.94 8.60 7.97 0.43	Sherman Farm Friendship Ridge Shippingport (Cook's Ferry S.S.) Christian House Baptist Chapel - Rt 18		$ \begin{array}{r} 2 \\ 3 \\ 4 \\ 4 \end{array} $	71 72 73	3.36 6.01 3.25 2.48	Brightor Ohiovie 618 Squ	i Twp., First Western B w Luthern Church - Re irrel Run Rd. Ilar Ave CCBC
3/4 1 3 4	10 28 29B 30 45	(miles) 0.94 8.60 7.97 0.43 2.19	Sherman Farm Friendship Ridge Shippingport (Cook's Ferry S.S.) Christian House Baptist	282	2 3 4	71 72 73 74	3.36 6.01 3.25 2.48 6.92	Brightor Ohiovie 618 Squ 137 Pop 117 Hol	i Twp., First Western B w Luthern Church - Re iirrel Run Rd. Ilar Ave CCBC
3/4 1 3 4 5 3	10 28 29B 30 45 46	(miles) 0.94 8.60 7.97 0.43 2.19 2.49	Sherman Farm Friendship Ridge Shippingport (Cook's Ferry S.S.) Christian House Baptist Chapel - Rt 18 Industry, Midway Dr.	282	2 3 4 4 5	71 72 73 74 75	3.36 6.01 3.25 2.48 6.92 4.08	Brightor Ohiovie 618 Squ 137 Pop 117 Hol	n Twp., First Western B w Luthern Church - Re nirrel Run Rd. Iar Ave CCBC t Rd.
3/4 1 3 4 5 3 2/3	10 28 29B 30 45 46 46.1	(miles) 0.94 8.60 7.97 0.43 2.19 2.49 2.28	Sherman Farm Friendship Ridge Shippingport (Cook's Ferry S.S.) Christian House Baptist Chapel - Rt 18 Industry, Midway Dr. Industry – McKeel's Service – Rt 68 So		2 3 4 4 5 2 west	71 72 73 74 75 91	3.36 6.01 3.25 2.48 6.92 4.08 3.89	Brightor Ohiovie 618 Squ 137 Pop 117 Hol	n Twp., First Western B w Luthern Church - Re hirrel Run Rd. blar Ave CCBC t Rd. ove Rd. & Doyle Rd.
3/4 1 3 4 5 3	10 28 29B 30 45 46 46.1 Site #	(miles) 0.94 8.60 7.97 0.43 2.19 2.49 2.28 Distance (miles)	Sherman Farm Friendship Ridge Shippingport (Cook's Ferry S.S.) Christian House Baptist Chapel - Rt 18 Industry, Midway Dr. Industry – McKeel's Service – Rt 68 So Location		2 3 4 5 2 west Sector	71 72 73 74 75 91 Site #	3.36 6.01 3.25 2.48 6.92 4.08 3.89 Distance (miles)	Brightor Ohiovie 618 Squ 137 Pop 117 Hol Pine Gr	Twp., First Western B w Luthern Church - Re irrel Run Rd. blar Ave CCBC t Rd. ove Rd. & Doyle Rd. Location
3/4 1 3 4 5 3 2/3 Sector 11	10 28 29B 30 45 46 46.1 Site #	(miles) 0.94 8.60 7.97 0.43 2.19 2.49 2.28 Distance (miles) 1.49	Sherman Farm Friendship Ridge Shippingport (Cook's Ferry S.S.) Christian House Baptist Chapel - Rt 18 Industry, Midway Dr. Industry – McKeel's Service – Rt 68 So Location Old Meyer Farm	uth	2 3 4 5 2 west Sector	71 72 73 74 75 91 Site #	3.36 6.01 3.25 2.48 6.92 4.08 3.89 Distance (miles) 8.35	Brightor Ohiovie 618 Squ 137 Pop 117 Hol Pine Gro Hancoc	n Twp., First Western B w Luthern Church - Re nirrel Run Rd. olar Ave CCBC t Rd. ove Rd. & Doyle Rd. Location k Co. Senior Center
3/4 1 3 4 5 3 2/3 Sector 11 11	10 28 29B 30 45 46 46.1 Site # 13 14	(miles) 0.94 8.60 7.97 0.43 2.19 2.29 2.28 Distance (miles) 1.49 2.53	Sherman Farm Friendship Ridge Shippingport (Cook's Ferry S.S.) Christian House Baptist Chapel - Rt 18 Industry, Midway Dr. Industry – McKeel's Service – Rt 68 So Location Old Meyer Farm Hookstown Boro	uth	2 3 4 4 5 2 west Sector 11 12	71 72 73 74 75 91 Site # 84 85	3.36 6.01 3.25 2.48 6.92 4.08 3.89 Distance (miles) 8.35 5.73	Brightor Ohiovie 618 Squ 137 Pop 117 Hol Pine Gro Hancocl 2048 Rt	n Twp., First Western B w Luthern Church - Re nirrel Run Rd. olar Ave CCBC t Rd. ove Rd. & Doyle Rd. Location k Co. Senior Center . 30
3/4 1 3 4 5 3 2/3 Sector 11	10 28 29B 30 45 46 46.1 Site #	(miles) 0.94 8.60 7.97 0.43 2.19 2.49 2.28 Distance (miles) 1.49	Sherman Farm Friendship Ridge Shippingport (Cook's Ferry S.S.) Christian House Baptist Chapel - Rt 18 Industry, Midway Dr. Industry – McKeel's Service – Rt 68 So Location Old Meyer Farm	uth	2 3 4 5 2 west Sector	71 72 73 74 75 91 Site #	3.36 6.01 3.25 2.48 6.92 4.08 3.89 Distance (miles) 8.35	Brightor Ohiovie 618 Squ 137 Pop 117 Hol Pine Gr Hancocl 2048 Rt Georgeto	i Twp., First Western B w Luthern Church - Re irrel Run Rd. olar Ave CCBC t Rd. ove Rd. & Doyle Rd. Location k Co. Senior Center

•

•

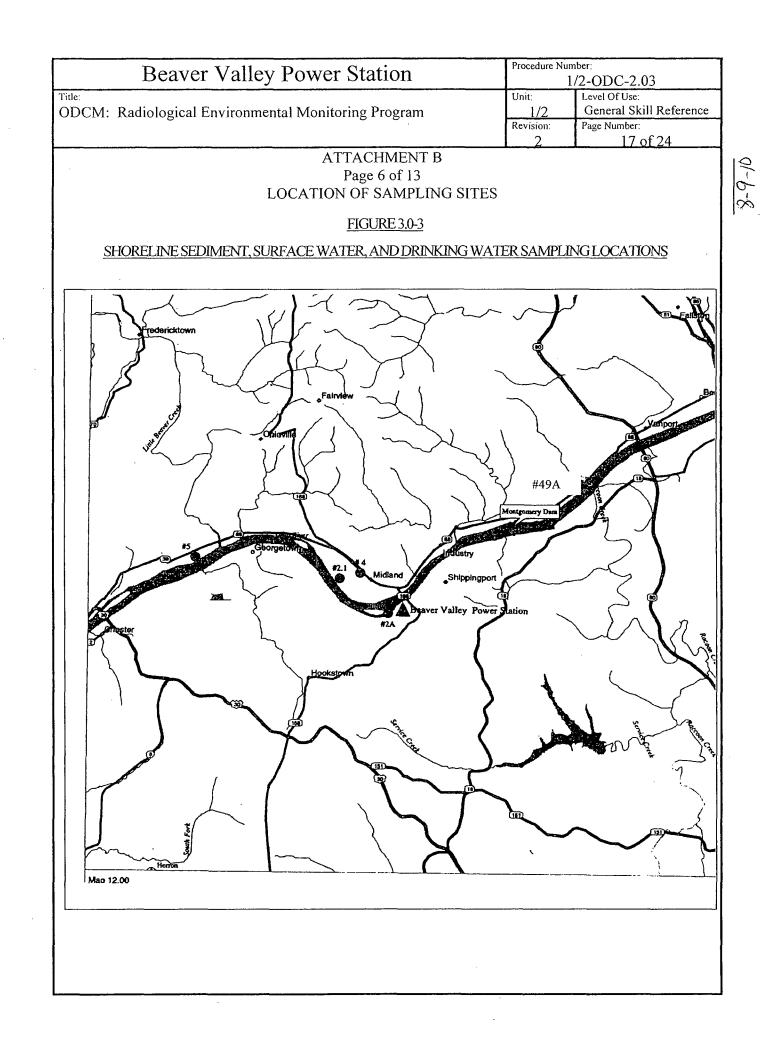
.

		Beaver Valley Power Station Procedure Number: 1/2-ODC-2.03					
Title: ODC	M: Ra	·····	al Environmental Moi		1	Unit: <u>1/2</u> Revision:	Level Of Use: General Skill Refi Page Number:
					2	16 of 24	
			ТВ				
			LOCAT	Page 5 of 13 ION OF SAMPI	LING SITES	5	
10	83	4.26	735 Mill Creek Rd.				
	05	1 4.20	1755 Will Creek Rd.				
							. •
							-

. . 1

如此,如此是一个,这些,这些是一个,这些是一个,这些是一个,这些是一个,这些是是这些事件,这些是是一个,这些是一个,我们就是一个是是是是一个,我们们也是一个,我们也

ij



Beaver Valley Power Station

ODCM: Radiological Environmental Monitoring Program

Title:

 Procedure Number:							
1/2-ODC-2.03							
Unit:	Level Of Use:						
1/2	General Skill Reference						
Revision:	Page Number:						
2	18 of 24						

ATTACHMENT B Page 7 of 13 LOCATION OF SAMPLING SITES

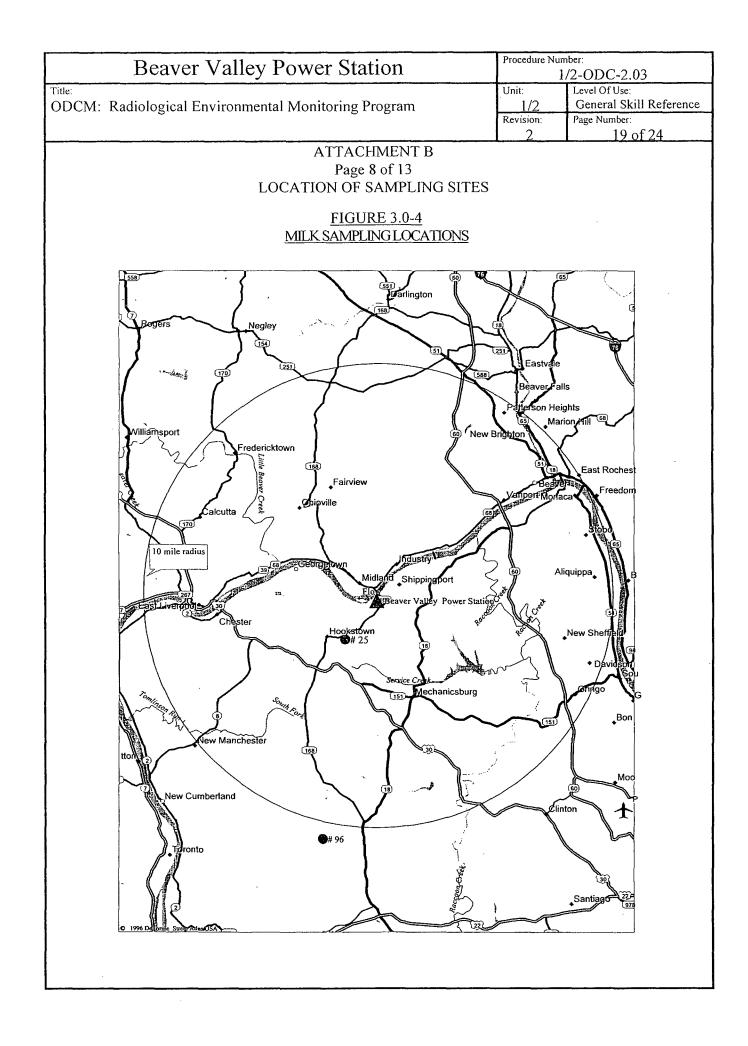
FIGURE 3.0-3 (Continued)

SHORELINE SEDIMENT, SURFACE WATER, AND DRINKING WATER SAMPLING LOCATIONS

Sample Type	Sector	Site #	Distance (miles)	Location
Surface Water	14	2.1	1.43	Midland - ATI Allegheny Ludlam
Surface Water	3	49A	4.92	Upstream of Montgomery Dam
Sediment	12	2A	0.31	BVPS Outfall Vicinity
Sediment*	3	49A	4.93	Upstream of Montgomery Dam
Drinking Water	15	4	1.26	Midland Water Dept.
Drinking Water	14	5	4.90	East Liverpool Water Dept.

* Site #49A added - control site.

8-9-10



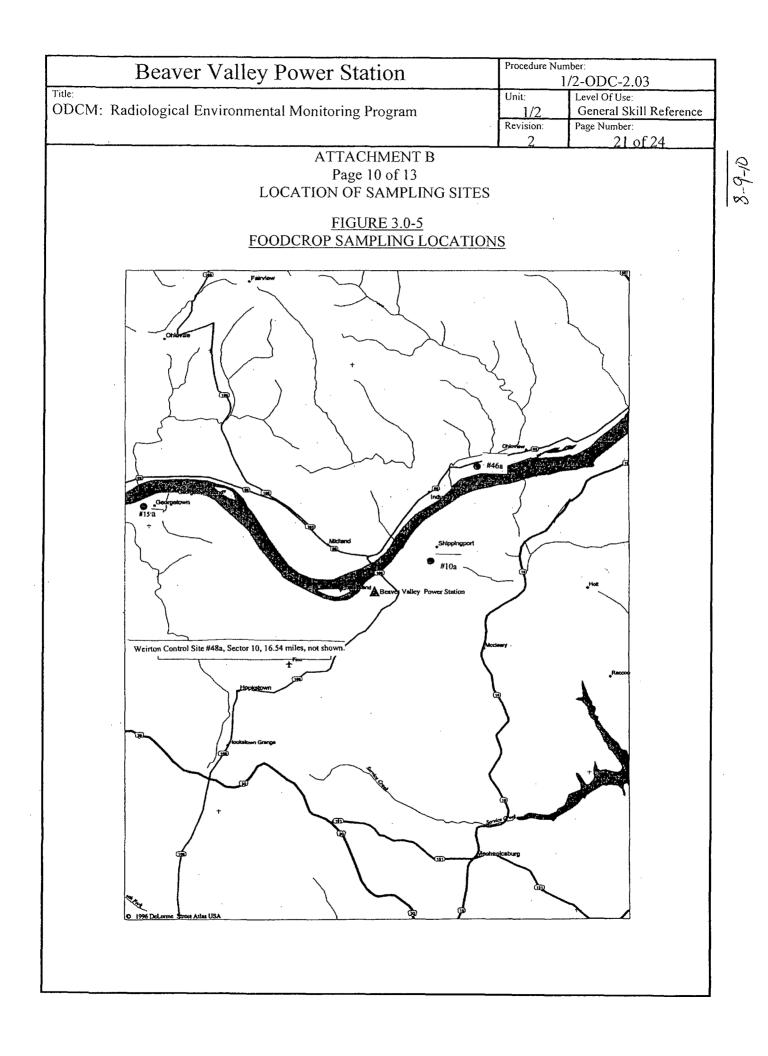
Beaver		Procedure Number: 1/2-ODC-2.03				
Title: ODCM: Radiological E	nvironme	ental Mor	nitoring Program	<u></u>	Unit: 1/2	Level Of Use: General Skill Reference
C C			5 5		Revision:	Page Number: 20 of 24
		FIG	Page 9 of 13 ION OF SAMPLIN <u>GURE 3.0-4 (Conti</u> KSAMPLINGLOCA	inued)		
	Sector	Site #	Distance (miles)	Loca	tion	
	10	25	2.10	Searight Fa	rm	
	10	96	10.48	Windsheim	er Farm	
		*				
		*				
		*				

.

-

1

đ



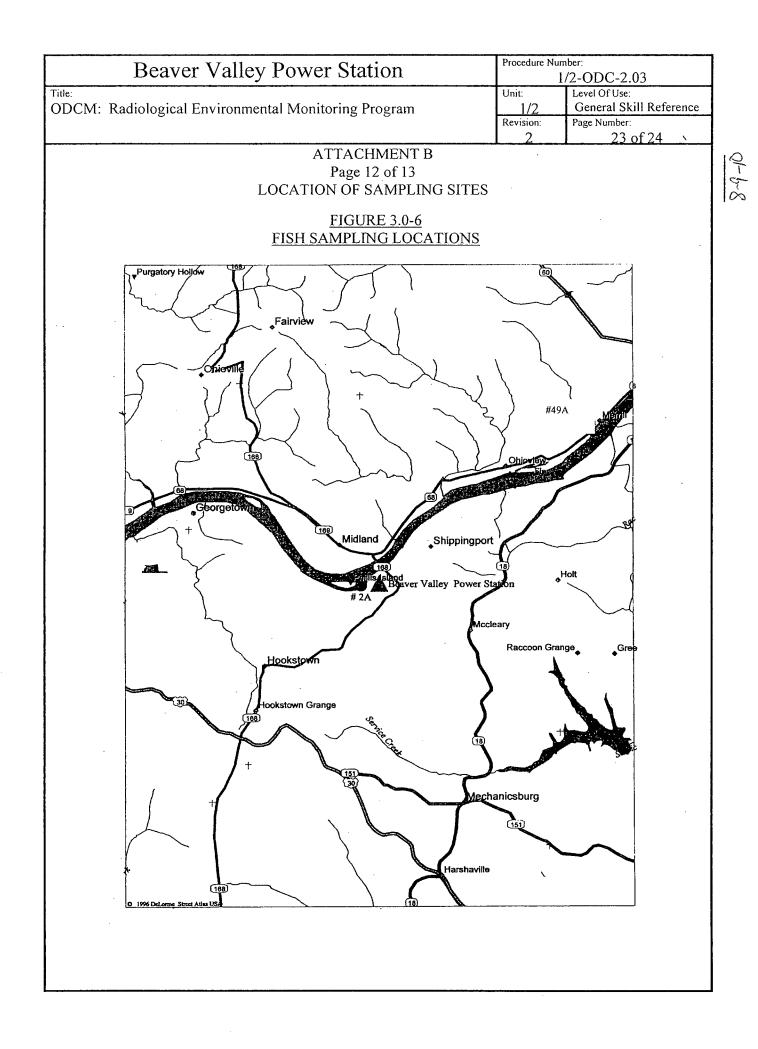
Beaver Valley Power Station	Procedure N	Procedure Number: 1/2-ODC-2.03		
Title: ODCM: Radiological Environmental Monitoring Program	Unit: <u>1/2</u> Revision: 2	Level Of Use: General Skill Reference Page Number: 22 of 24		
ATTACHMENT B Page 11 of 13 LOCATION OF SAMPLING SI	ΓES	andersen and the View International		

Page 11 of 13 LOCATION OF SAMPLING SITES

FIGURE 3.0-5 (Continued) FOODCROP SAMPLING LOCATIONS

Site #	Description	
10*	Shippingport Boro	
15*	Georgetown Boro	_
46*	Industry Boro	
48*	Weirton Area	

* Individual garden locations may change based upon availability. The requirements are met as long as one garden is sampled from each of these communities.



Beaver Valley Power Station	Procedure N	Procedure Number: 1/2-ODC-2.03		
Title: ODCM: Radiological Environmental Monitoring Program	Unit: 1/2	Level Of Use: General Skill Reference		
	Revision: 2	Page Number: 24 of 24		
ATTACHMENT B	····			
Page 13 of 13				
LOCATION OF SAMPLING S	ITES			

Page 13 of 13 LOCATION OF SAMPLING SITES

FIGURE 3.0-6 (Continued) FISH SAMPLING LOCATIONS

Sector	Site #	Distance (miles)	Location
12	2A	0.31	BVPS Outfall Vicinity
3	49A	4.93	Upstream of Montgomery Dam

Beaver Valley Power Station

Unit 1/2

1/2-ODC-2.04

ODCM: Information Related to 40 CFR 190

Document Owner Manager, Nuclear Environmental & Chemistry

Revision Number	1		
Level Of Use	General Skill Reference		
Safety Related Procedure	Yes		
Effective Date	12/29/06		

ي

	Beaver Valley Power Station	Procedure N	Procedure Number: 1/2-ODC-2.04		
Title:		Unit:	Level Of Use:		
<u></u>		1/2 Revision:	General Skill Reference Page Number:		
ODC	M: Information Related to 40 CFR 190	1	<u>2 of 6</u>		
	TABLE OF CONTENTS				
1.0	PURPOSE		3		
2.0	SCOPE				
3.0	REFERENCES AND COMMITMENTS				
	3.1 References				
	3.2 Commitments				
4.0	RECORDS AND FORMS				
	4.1 Records				
	4.2 Forms				
5.0	PRECAUTIONS AND LIMITATIONS				
6.0	ACCEPTANCE CRITERIA		4		
7.0	PREREQUISITES		4		
8.0	PROCEDURE		5		
	8.1 Information Related To 40 CFR 190		5		
	8.2 Inside The Site Boundary Radiation Doses		6		

.

ų,

	Beaver Valley Power Station	Procedure Ni	umber: 1/2-ODC-2.04	
Title: ODCM: Information Related to 40 CFR 190		Unit:	Level Of Use:	
		1/2 Revision: 1	General Skill Reference Page Number: 3 of 6	
1.0 <u>P</u>	URPOSE			
C	his procedure provides the steps to be taken when the To pontrol 4.11.4.1 exceeds twice the limit of any of the ODC ose Limit. ^(3.1.2)			
1.1.1	Prior to issuance of this procedure, these items were lood ODCM.	ocated in Sectio	on 4 of the old	
2.0 <u>S</u>	COPE			
	nis procedure is applicable to all station personnel that are escribed and referenced in this procedure.	e qualified to pe	erform activities as	
3.0 <u>R</u>	EFERENCES AND COMMITMENTS			
3.1 <u>R</u>	eferences			
3.1.1	40 CFR Part 190			
3.1.2	1/2-ODC-3.03, ODCM: Controls for RETS and REMP Programs			
3.1.3	1/2-ADM-1640, Control of the Offsite Dose Calculation Manual			
3.1.4	1/2-ADM-0100, Procedure Writer's Guide			
3.1.5	1/2-ADM-0101, Review and Approval of Documents			
3.1.6	CR 05-01169, Chemistry Action Plan for Transition of CA-18, Revise procedure 1/2-ODC-2.04 to change do Radiation Protection to Manager, Nuclear Environment	ocument owner	from Manager,	
3.2 <u>C</u>	ommitments			
3.2.1	10 CFR 20.405(c), Special Reports			
3.2.2	NUREG-1301, Offsite Dose Calculation Manual Guid Effluent Controls for Pressurized Water Reactors (Gen No. 1)		_	
4.0 <u>R</u>	ECORDS AND FORMS			
4.1 <u>R</u>	ecords			
4.1.1	Any calculation supporting ODCM changes shall be do retrievable document (e.g.; letter or calculation packag number.			

	Beaver Valley Power Station	Procedure Nu		
Title:		Unit:	1/2-ODC-2.04 Level Of Use:	
		1/2	General Skill Reference	
ODCM: In	formation Related to 40 CFR 190	Revision:	Page Number: 4 of 6	
4.2 <u>Fo</u>	rms	1 ,		
4.2.1	None			
5.0 <u>PR</u>	ECAUTIONS AND LIMITATIONS			
5.1 Th	e Offsite Dose Limits used to show compliance to this proceed	lure are as	follows:	
5.1.1	ODCM Control 3.11.2.a; Liquid Effluents: ≤ 1.5 mrem/qua ≤ 5 mrem/quarter any Organ.	arter Total	Body or	
5.1.2	ODCM Control 3.11.2.b; Liquid Effluents: \leq 3 mrem/year \leq 10 mrem/year any Organ.	Total Bod	y or	
5.1.3	ODCM Control 3.11.2.2.a; Gas Effluent-Noble Gas: $\leq 5 \text{ m}$ $\leq 10 \text{ mrad/quarter Beta}$	rad/quarte	er Gamma, or	
5.1.4	ODCM Control 3.11.2.2.b; Gas Effluents-Noble Gas: $\leq 10 \leq 20$ mrad/year Beta	e Gas: ≤ 10 mrad/year Gamma		
5.1.5	ODCM Control 3.11.2.3.a; Gas Effluents-Particulates & Iou any organ	2.3.a; Gas Effluents-Particulates & Iodines: \leq 7.5 mrem/quarter		
5.1.6	ODCM Control 3.11.2.3.b; Gas Effluents-Particulates & Io organ	dines: ≤ 1	5 mrem/year any	
5.1.7	ODCM Control 3.11.4.1; All Fuel Cycle Sources: ≤ 25 mr Organ, except the thyroid, which is limited to ≤ 75 mrem/ye		otal Body or any	
6.0 <u>AC</u>	CEPTANCE CRITERIA			
mai Par	y changes to this procedure shall contain sufficient justification intain the level of radioactive effluent control required by 10 t 190, 10 CFR 50.36a, and Appendix I to 10 CFR 50, and no uracy or reliability of effluent dose or setpoint calculation. ^(3.2.)	CFR 20.13 ot adversely	02, 40 CFR	
6.1.1	All changes to this procedure shall be prepared in accordance and $1/2$ -ADM-1640. ^(3.1.3)	ce with 1/2	2-ADM-0100 ^(3.1.4)	
6.1.2	All changes to this procedure shall be reviewed and approve 1/2-ADM-0101 ^(3.1.5) and 1/2-ADM-1640. ^(3.1.3)	ed in accor	dance with	
7.0 <u>PR</u>	<u>EREQUISITES</u>		,	
7.1 The user of this procedure shall be familiar with ODCM structure and content.				

¥

		Procedure Nu	umber:
	Valley Power Station	Station 1/2-ODC-2.04	
Title:		Unit: 1/2	Level Of Use: General Skill Referenc
ODCM: Information Rel	ated to 40 CFR 190	Revision:	Page Number:
		1	<u>5 of 6</u>
8.0 <u>PROCEDURE</u>			,
8.1 Information Rel	lated To 40 CFR 190		
<u></u>			
releases exce	3.11.4.1 requires that when the calculated eed twice the limits of ODCM CONTROL 5.11.2.3.a, or 3.11.2.3.b, the following shall	3.11.1.2.a, 3.1	1.1.2.b, 3.11.2.2.a,
(incluc comm radioa ≤ 25 n	ations shall be made including direct radiati ling outside storage tanks, etc.) to determin itment to any MEMBER OF THE PUBLIC ctivity and to radiation from uranium fuel c nrem to the total body or any organ, except nrem for a calendar year.	he whether the C from all facil ycle sources e	dose or dose ity releases of xceeds the limits of
	If any of these limits are exceeded, prepare within 30 days a Special Report pursuant to following shall be included in the Special R	0 10 CFR 20.4	
8.1.1.1.1.1	Define the corrective action to be tak to prevent recurrence of exceeding th CONTROL 3.11.4.1.		-
8.1.1.1.1.2	Include the schedule for achieving co ODCM CONTROL 3.11.4.1.	nformance wit	thin the limits of
8.1.1.1.1.3	Include an analysis that estimates the MEMBER OF THE PUBLIC from u including all effluent pathways and di year that includes the release(s) cover	ranium fuel cy rect radiation,	cle sources, for the calendar
8.1.1.1.1.4	Describe levels of radiation and conce involved, and the cause of exposure l		
8.1.1.1.1.5	If the estimated dose(s) exceeds the la CONTROL 3.11.4.1, and if the releas of 40 CFR Part 190 has not already b for a variance in accordance with the Submittal of the report is considered granted until staff action on the reque	se condition re een corrected, provisions of a timely reque	esulting in violation , include a request 40 CFR Part 190. st, and a variance is

Beaver Valley Power Station	ation Procedure Number: 1/2-ODC-2.04	
Title:	Unit: 1/2	Level Of Use: General Skill Reference
ODCM: Information Related to 40 CFR 190	Revision: 1	Page Number: 6 of 6

8.2 Inside The Site Boundary Radiation Doses

- 8.2.1 In regards to assessment of radiation doses (from Radioactive Effluents) to MEMBERS OF THE PUBLIC due to their activities inside the site boundary, the following is provided:
 - 8.2.1.1 A separate assessment of radiation doses from radioactive effluents to MEMBERS OF THE PUBLIC due to their activities inside the site boundary is generally not necessary because the exposure time for individuals not occupationally associated with the plant site is minimal in comparison to the exposure time considered for the dose calculation at or beyond the site boundary.
 - 8.2.1.2 For reporting purposes, separate guidance for calculating radiation doses to a MEMBER OF THE PUBLIC inside the site boundary is not needed because the dose assessments for an offsite MEMBER OF THE PUBLIC is also assumed to be for a MEMBER OF THE PUBLIC conducting activities onsite.
 - 8.2.1.2.1 This is verified by showing that the ground release χ/Q dispersion parameter used for dose calculation at the site boundary (0.352 miles NW) is greater than the χ/Q dispersion parameter at the location where a MEMBER OF THE PUBLIC would most likely have the maximum exposure time (0-0.5 miles N and 0-0.5 miles NNW). A comparison of these χ/Q dispersion parameters is as follows:

χ/Q Used for Dose Calculation	χ/Q Where an Assumed MEMBER OF THE PUBLIC		χ/Q References from
	Would Most Likely Have the Maximum Exposure Time		1/2-ODC-2.02
Site Boundary	Inside the Site	Inside the Site	See Attachment F
0.352 miles NW	Boundary	Boundary	
	0-0.5 miles N	0-0.5 miles NNW	
9.24E-5 sec/m ³	2.33E-5 sec/m^3	5.47E-5 sec/m ³	Table 2.2-4
1.03E-4 sec/m ³	2.76E-5 sec/m ³	6.01E-5 sec/m ³	Table 2.2-5
7.35E-5 sec/m ³	2.44E-5 sec/m ³	5.57E-5 sec/m ³	Table 2.2-7
9.24E-5 sec/m ³	2.33E-5 sec/m^3	5.47E-5 sec/m ³	Table 2.2-8
9.24E-5 sec/m ³	2.33E-5 sec/m^3	5.47E-5 sec/m ³	Table 2.2-9
$7.35\text{E}-5 \text{ sec/m}^3$	2.44E-5 sec/m^3	$5.57\text{E}-5 \text{ sec/m}^3$	Table 2.2-10

Beaver Valley Power Station

Unit 1/2

1/2-ODC-3.01

ODCM: Dispersion Calculation Procedure and Source Term Inputs

<u>Document Owner</u> Manager, Nuclear Environmental & Chemistry

Revision Number	1
Level Of Use	General Skill Reference
Safety Related Procedure	Yes
Effective Date	12/29/06

Beaver Valley Power Station	Procedure Nun 1	mber: 1/2-ODC-3.01
Title:	Unit:	Level Of Use:
	1/2	General Skill Reference
ODCM: Dispersion Calculation Procedure and Source Term Inputs	Revision: 1	Page Number: 2 of 12
	<u>I</u>	
TABLE OF CONTENTS		
1.0 PURPOSE		3
2.0 SCOPE		
3.0 REFEFERENCES AND COMMITMENTS		3
3.1 References		
3.2 Commitments		4
4.0 RECORDS AND FORMS		4
4.1 Records		4
4.2 Forms		4
5.0 PRECAUTIONS AND LIMITATIONS		
6.0 ACCEPTANCE CRITERIA		
7.0 PREREQUISITES		
8.0 PROCEDURE		
8.1 Summary of Dispersion and Deposition Methodology		
8.2 Summary of Source Term Inputs		
8.2.1 Liquid Source Term Inputs		
8.2.2 Gaseous Source Term Inputs	•••••	7
ATTACHMENT A BV-1 AND 2 RELEASE CONDITIONS		
ATTACHMENT B LIQUID SOURCE TERM INPUTS		
ATTACHMENT C GASEOUS SOURCE TERM INPUTS		

•

	Beaver Valley Power Station	Procedure N	1/2-ODC-3.01
Title:		Unit:	Level Of Use:
ODCM: D	ispersion Calculation Procedure and Source Term Inputs	1/2 Revision: 1	General Skill Reference Page Number: 3 of 12
1.0 <u>PU</u>	RPOSE		
	is procedure contains the basic methodology that was used 1 deposition (D/Q) .	for calculat	ing dispersion (χ/Q)
1.1.1	Prior to issuance of this procedure, these items were locat ODCM.	ed in Appe	ndix A of the old
Lic	is procedure also contains the input parameters to the variou censee and its subcontractors for determination of the liquid xes.	-	-
1.2.1	Prior to issuance of this procedure, these items were locat ODCM.	ed in Appe	ndix B of the old
2.0 <u>SC</u>	COPE		
	is procedure is applicable to all station personnel (including alified to perform activities as described and referenced in t		
3.0 <u>RF</u>	EFEFERENCES AND COMMITMENTS		
3.1 <u>Re</u>	ferences		
3.1.1	NUS-2173, Development Of Terrain Adjustment Factors For Power Station, For the Straight-Line Atmospheric Dispers June 1978		
3.1.2	NUREG/CR-2919, XOQDOQ: Computer Program For T Of Routine Effluent Releases At Nuclear Power Stations,		•
3.1.3	Regulatory Guide 1.23, Meteorological Measurement Pro	gram for N	uclear Power Plants
3.1.4	Regulatory Guide 1.111, Methods for Estimating Atmosp of Gaseous Effluents In Routine Releases From Light-Wa Revision 1, July 1977		
3.1.5	NRC Gale Code,		
3.1.6	SWEC LIQ1BB Code,		
3.1.7	SWEC GAS1BB Code,		
3.1.8	NUREG-1301, Offsite Dose Calculation Manual Guidance Effluent Controls for Pressurized Water Reactors (Generic No. 1)		<u> </u>
3.1.9	1/2-ADM-1640, Control of the Offsite Dose Calculation I	Manual	

Beaver Valley Power Station		Procedure Number: 1/2-ODC-3.01		
Title:	le:		Level Of Use: General Skill Reference	
ODCM: I	Dispersion Calculation Procedure and Source Term Inputs	1/2 Revision: 1	Page Number: 4 of 12	
3.1.10	1/2-ADM-0100, Procedure Writer's Guide			
. 3.1.11	1/2-ADM-0101, Review and Approval of Documents		-	
3.1.12	CR 05-01169, Chemistry Action Plan for Transition of RE CA-19, Revise procedure 1/2-ODC-3.01 to change docum Radiation Protection to Manager, Nuclear Environmental	ent owner	from Manager,	
3.2 <u>C</u>	ommitments			
3.2.1	None			
4.0 <u>R</u>	ECORDS AND FORMS			
4.1 <u>R</u>	ecords			
4.1.1	Any calculation supporting generation of dispersion, depo shall be documented, as appropriate, by a retrievable docu package) with an appropriate RTL number.			
4.2 <u>F</u>	orms			
4.2.1	None			
5.0 <u>P</u>	RECAUTIONS AND LIMITATIONS			
	his procedure contains the information that was previously coppendix B of the previous BV-1 and 2 Offsite Dose Calculat			
5.1.1	In regards to this, the Tables that were transferred from Ap the appropriate ATTACHMENTS of this procedure will s an "A" or "B".			
6.0 <u>A</u>	CCEPTANCE CRITERIA			
m Pa	ny change to this procedure shall contain sufficient justification aintain the level of radioactive effluent control required by 10 art 190, 10 CFR 50.36a and Appendix I to 10 CFR 50, and no ccuracy or reliability of effluent dose or setpoint calculation.	0 CFR 20.1	302, 40 CFR	
6.1.1	All changes to this procedure shall be prepared in accorda and 1/2-ADM-1640. ^(3.1.9)	nce with 1/	2-ADM-0100 ^(3.1.10)	
6.1.2	All changes to this procedure shall be reviewed and appro- 1/2 ADM-0101 ^(3.1.11) and 1/2-ADM-1640. ^(3.1.9)	ved in acco	ordance with	
7.0 <u>P</u>	REREQUISITES			
7.1 T	he user of this procedure shall be familiar with ODCM struct	ure and cor	ntent.	

.

~ 1

\mathbf{B}_{i}	eaver Valley Power Station	Procedure N	1/2-ODC-3.01
l'itle:		Unit: 1/2	Level Of Use: General Skill Reference
ODCM: Disper	sion Calculation Procedure and Source Term Inputs	Revision:	Page Number:
			5 of 12
8.0 <u>PROCI</u>	EDURE		
8.1 <u>Summa</u>	ry of Dispersion and Deposition Methodology		
dep acti	nual average and grazing season average values of relations (D/Q) were calculated for continuous and intervivity from the site according to the straight-line airflow -1.111 . ^(3.1.4)	rmittent gas	eous releases of
8.1.1.1	Undecayed and undepleted sector average χ/Q and each of sixteen 22.5-degree sectors at the site bound receptors.		
8.1.1.2	For an elevated release, (i.e.; occurring at a height t of a nearby structure) credit was taken for the effect comprised of the physical release height plus mome terrain height at a given receptor.	tive release	height which is
8.1.1.3	A building wake correction factor was used to adjust releases.	st calculatic	ons for ground-level
8.1.1.4	Airflow reversals were also accounted for by apply recirculation factors for both ground and elevated re		
8.1.1.5	The methodology employed in the calculation of in values is that described in NUREG/CR-2919. ^(3.1.2)	termittent r	elease χ/Q and D/Q
	e site continuous gaseous release points that have been lowing:	evaluated i	nclude the
8.1.2.1	PV-1/2: The Unit 1/2 Gaseous Waste/Process Vent draft cooling tower	t attached to	the Unit 1 natural
8.1.2.2	CV-1 and CV-2: The Unit 1 Rx Containment/SLC Filtered Pathway	RS Vented	the Unit 2 SLCRS
8.1.2.3	VV-1 and VV-2: The Unit 1 Ventilation Vent and Pathway	the Unit 2 S	SLCRS Unfiltered
8.1.2.4	TV-2: The Unit 2 Turbine Building Vent		
8.1.2.5	CB-2: The Unit 2 Condensate Polishing Building V	Vent	
8.1.2.6	DV-2: The Unit 2 Decontamination Building Vent		
8.1.2.7	WV-2: The Unit 2 Gaseous Waste Storage Tank V	ault Vent	
8.1.3 The	e intermittent releases are from PV-1/2, VV-1, VV-2, 0		

4 1

11-1-1-1

	Beaver Valley Power Station	Procedure N	umber: 1/2-ODC-3.01
Fitle:	_	Unit: 1/2	Level Of Use: General Skill Reference
ODCM: Dis	persion Calculation Procedure and Source Term Inputs	Revision:	Page Number: 6 of 12
8.1.4	Only PV-1/2 was considered to be an elevated release wit treated as ground level releases. A summary of the releas locations is given in ATTACHMENT A.		
8.1.5	8.1.5 Onsite meteorological data for the period January 1, 1976 were used as input for the annual-average calculations.		ecember 31, 1980
8.1.5.	1 The grazing season was represented by a six-month October 31 for each year of the 5-year meteorologic season corresponds reasonably well with the growin	cal data bas	
8.1.5.	2 The data were collected according to guidance in N in Section 2.3 of the BVPS-2 FSAR.	RC RG-1.2	23 ^(3.1.3) as described
8.1.5.	The parameters used in the χ/Q and D/Q calculation direction, and ΔT as an indicator of atmospheric states (35 ft) and ΔT (150-35 ft) were used for all release provide the use of 500 ft winds and ΔT (500 of the release height (510 ft).	bility. The points exce	lower level winds pt the Process Vent
8.1.6	The annual average and grazing season χ/Q and D/Q valuintermittent radioactive releases were calculated at the site nearest vegetable garden, nearest milk cow, nearest milk ξ	e boundary,	, nearest resident,
8.1.6.	1 In the case of the Process Vent releases, several of evaluated in each downwind sector to determine the values.	-	
8.1.6.	2 The distances of the limiting maximum individual r release points are given in ATTACHMENT E (Tab		
8.1.6.	The continuous release annual average χ/Q values a Containment Vents, Ventilation Vents, Process Ven Decontamination Building Vent, Waste Gas Storage Polishing Building Vent are given in ATTACHME 2.2-10) of 1/2-ODC-2.02. Continuous release annu release points are also given at ten incremental dow	nt, Turbine e Vault Ver NT F (Tabl al average ;	Building Vents, nt, and Condensate es 2.2-4 through χ/Q's for these same
8.1.6.	4 Continuous release D/Q values for these same relea ATTACHMENT K (Tables 2.3-21 through 2.3-27) 0-5 mile incremental distances, and in ATTACHME 2.3-34) of 1/2-ODC-2.02 for the special locations.	of 1/2-OD	C-2.02 for the same
8.1.6.	5 Due to their location adjacent to the Containment B Building and Gaseous Waste Storage Tank Vault χ / the Containment Vent χ /Q's and D/Q's.	-	

1

ŝ.

Be	aver Valley Power Station	Procedure Ni	umber: 1/2-ODC-3.01
Title:		Unit: 1/2	Level Of Use: General Skill Reference
ODCM: Dispersi	on Calculation Procedure and Source Term Inputs	Revision:	Page Number: 7 of 12
8.1.6.6	Likewise, the Turbine Building Vent χ/Q 's and D/Q Polishing Building as well due to its location adjace		
χ/Q	ACHMENT M (Tables 2.3-35 through 2.3-38) of 1/2 values for batch releases originating from the Contain Process Vent releases respectively.		
8.1.7.1	The values in these tables are based on 32 hours per Ventilation Vent purges and 74 hours per year of Pro-	5	
8.2 <u>Summary</u>	y of Source Term Inputs		
8.2.1 <u>Liqu</u>	id Source Term Inputs		
8.2.1.1	Inputs to the NRC Gale Code used for generation of Mixes are shown in ATTACHMENT B (Table B:1a		uid Source Term
8.2.1.2	Inputs to the SWEC LIQ1BB Code used for generat Term Mixes are shown in ATTACHMENT B (Table		2 Liquid Source
8.2.2 <u>Gase</u>	eous Source Term Inputs		
8.2.2.1	Inputs to the SWEC GAS1BB Code for generation of Mixes are shown in ATTACHMENT C (Table B:2a		seous Source Term
8.2.2.2	Inputs to the SWEC GAS1BB Code for generation of Mixes are shown in ATTACHMENT C (Table B:2b		seous Source Term

ï

j

j.

ŝ

Beav	er Valley Pov	ver Station		Procedure Num	nber: /2-ODC-3.01	
Title:				Unit: 1/2	Level Of Use: General Skill Referenc	
ODCM: Dispersion	Calculation Procedu	re and Source Term I	nputs	Revision:]	Page Number: 8 of 12	
	BV-1 AN	ATTACHMENT A Page 1 of 1 D 2 RELEASE CON TABLE A:1	DITION	S .		
	VV-1 · VENTILATION VENT (PAB EXHAUST)	CV-1 RX CONTAINMENT/ SLCRS VENT	PV-1/2 GASEOUS WASTE/PROCESS VENT		TV-2 TURBINE BUILDING VENT	
	VV-2 SLCRS UNFILTERED PATHWAY	CV-2 RX CONTAINMENT/ SLCRS FILTERED PATHWAY				
TYPE OF RELEASE	GROUND LEVEL	GROUND LEVEL	ELEVATED		GROUND LEVEL	
	Long Term And Short Term	Long Term And Short Term		, Term And ort Term	Long Term And Short Term	
Release Point Height (m)	26	47	155		33	
Adjacent Building Height (m)	. 19	44	155		33	
Relative Loca tion To Adjacent Structures	E. Side Of Primary Auxiliary Bldg	Top Center Of Containment Dome	Atop Co	ooling Tower	Turbine Building	
Exit Velocity(m/sec)	NA	NA		9.4	NA	
Internal Stack Diameter (m)	NA	NA		0.25	NA	
Building Cross- Sectional Area (m ²)	1600	1600		NA	NA	
Purge Frequency* (hours/year)	32	32		74	NA	
Purge Duration (hrs/release)	8	8		NA	NA	

*Applied to Short Term calculations only

.7

Beaver Valley Power Station	Procedure Nu	mber: 1/2-ODC-3.01		
Title:	Unit:	Level Of Use:		
	1/2	General Skill Referen		
ODCM: Dispersion Calculation Procedure and Source Term Inpu	ts Revision:	Page Number:		
· · · · · · · · · · · · · · · · · · ·		9 of 12		
ATTACHMENT B				
Page 1 of 2				
LIQUID SOURCE TERM INPO	JTS			
TABLE B:1a				
INPUTS TO GALE CODE FOR GENERATION OF BV-1 LIQU	TID SOURCE T	FRMMIXES		
INTO IS TO GALE CODE FOR GENERATION OF DV-T LIQU	JED SOURCE I			
BV-1 PWR INPUTS	VALU	JE		
Thermal Power Level (megawatts)	. 276	6.000		
Plant Capacity Factor	270	.800		
Mass Of Primary Coolant (thousand lbs)	34	5.000		
Percent Fuel With Cladding Defects	51	.120		
Primary System Letdown Rate (gpm)	6	0.000		
Letdown Cation Demineralizer Flow		6.000		
Number Of Steam Generators		3.000		
Total Steam Flow (million lbs/hr)	1	1.620		
Mass Of Steam In Each Steam Generator (thousand lbs)		6.772		
Mass Of Liquid In Each Steam Generator (thousand lbs)	9	7.000		
Total Mass Of Secondary Coolant (thousand lbs)	120	6.000		
Mass Of Water In Steam Generator (thousand lbs)		1.000		
Blowdown Rate (thousand lbs/hr)		3.900		
Primary To Secondary Leak Rate (lbs/day)		0,000		
Fission Product Carry-Over Fraction	10	.001		
Halogen Carry-Over Fraction		.010		
Condensate Demineralizer Flow Fraction		0.000		
Radwaste Dilution Flow (thousand gpm)	2	2.500		
BV-1 LIQUID WASTE INPUTS	DELAV DECO			

				COLLECTION	DELAY	DECO	NTAM	INATION
	FLOW RATE	FRACTION	FRACTION	TIME	TIME		FACTO	DRS
STREAM	(gal/day)	OF PCA	DISCHARGE	(days)	(days)	I	Cs	OTHERS
Shim Bleed Rate	1.32E4	1.000	0.000	11.260	7.220	1E7	1E7	1E7
Equipment Drains	6.00E2	1.000	0.000	11.260	7.220	1E7	1E7	1E7
Clean Waste Input	7.50E1	1.000	1.000	0.071	0.648	1E5	2E4	1E5
Dirty Waste Input	1.35E3	0.035	1.000	0.071	0.648	1E5	2E4	1E5
Blowdown	9.75E4		1.000	0.071	0.648	1E5	2E4	1E5
Untreated Blowdown	0.0			****				

	F	Beaver V	/allev F	Power Sta	tion	Ţ	Procedure	e Number:	DDC-3.01
Title:							Unit:		el Of Use:
i nie.							1/2		neral Skill Referen
ODCM:	Dispe	ersion Calcu	lation Proc	edure and So	urce Term I	nputs	Revision: 1	Page	e Number: 10 of 12
				ATTAC	HMENT B				
					e 2 of 2				
			LIC	QUID SOURC	CE TERM I	NPUTS			
				тлр	LE B:1b				
INPI	T 2TI	O SWEC LIG	ALBR COD			BV-2 L10	UID SC	URCE	FERM MIXES
11.1.	5151	O D WEC EN		2 PWR INPUT		DI 2 DIQ		, once	VALUE
-									
		al Power Lev		tts)					2766.000
		Capacity Fact							.800
		Of Primary C nt Fuel With (385.000 .120
		ry System Le							57.000
	1 1 11114	ry bystom De	luo vii ruuo ((5pm)					57.000
		wn Cation De		Flow					5.700
		er Of Steam							3.000
		Steam Flow (1.11				11.600
				Generator (thou Generator (thou					8.700 100.000
	101455	Of Liquid III			isanu 105)				100.000
	Total	Mass Of Seco	ondary Coola	int (thousand lb	s)				2000.000
				ator (thousand l					298.000
		lown Rate (th							22.300
		ry To Second							100.000
	Fissio	n Product Ca	rry-Over Fra	ction					.001
	Halog	en Carry-Ove	r Fraction						.010
		ensate Demine		Fraction					.700
	Radw	aste Dilution	Flow (thous:	and gpm)					7.800
			В	V-2 LIQUID W	ASTE INPUT	S			
					COLLECTIO		DEC		MINATION
	-	FLOW RATE			TIME	TIME		FACTO	
STREAM	1	(gal/day)	OF PCA	DISCHARGE	(hrs)	(hrs)	I	CsRb	OTHERS
Containm	ent	40	1.000	1.0	35.5	6.2	1E3	1E4	1E4
Sump									
Auxiliary		200	0.100	1.0	35.5	6.2	1E3	1E4	1E4
Building	Sump								
Miscellan Sources	ieous	700	0.010	1.0	35.5	6.2	1E3	1E4	1E4
Rx Plant Samples		35	1.000	1.0	35.5	6.2	1E3	1E4	· 1E4
Lab Drair	ıs	400	0.002	1.0	35.5	6.2	1E3	1E4	1E4
Cond. De Rinse Wa		2685	1.1E-4	1.0	35.5	6.2	1E3	1E4	1E4
CVCS		60		1.0	1300	173	1E4	4E3	1E5
Turbine		7200		1.0					
Bldg.Drai	ns	,200		1,0					

-

:

Beaver Valley Power Station	Procedure N	umber: 1/2-ODC-3.01
`itle:	Unit: 1/2	Level Of Use: General Skill Referen
DDCM: Dispersion Calculation Procedure and Source Term Inputs		Page Number:
ATTACHMENT C	11	<u>11 of 12</u>
Page 1 of 2		
GASEOUS SOURCE TERM INPL	UTS	
	010	
TABLE B:2a INPUTS TO SWEC GAS1BB CODE FOR GENERATION OF BV-1 G	ASEOUS SOUR	CE TERM MIXES
BV-1 PWR INPUTS		VALUE
Thermal Power Level (megawatts)		2766.000
Plant Capacity Factor		.800
Mass Of Primary Coolant (thousand lbs)		385.000
Percent Fuel With Cladding Defects		.120
Primary System Letdown Rate (gpm)		57.000
Letdown Cation Demineralizer Flow		5.700
Number Of Steam Generators		3.000
Total Steam Flow (million lbs/hr)		11.600
Mass Of Steam In Each Steam Generator (thousand lbs)		8.700
Mass Of Liquid In Each Steam Generator (thousand lbs)		100.000 2000.000
Total Mass Of Secondary Coolant (thousand lbs) Mass Of Water In Steam Generator (thousand lbs)		298.000
Blowdown Rate (thousand lbs/hr)		52.000
Primary To Secondary Leak Rate (lbs/day)		100.000
Fission Product Carry-Over Fraction		.001
Halogen Carry-Over Fraction		.010
Condensate Demineralizer Flow Fraction		0.000
Radwaste Dilution Flow (thousand gpm)		15.000
BV-1 GASEOUS WASTE INPUTS		VALUE
There Is Not Continuous Stripping Of Full Letdown Flow		
Hold Up Time For Xenon (days)		39.000
Hold Up Time For Krypton (days)		2.000
Primary Coolant Leak To Auxiliary Building (lb/day)		160.000
Auxiliary Building Leak Iodine Partition Factor		7.5E-3
Gas Waste System Particulate Release Fraction		0.000
Auxiliary Building Charcoiodine Release Fraction		1.000
Auxiliary Building Particulate Release Fraction Containment Volume (million cu-ft)		1.000
Frequency Of Primary Coolant Degassing (times/yr)		1.800 2.000
Primary To Secondary Leak Rate (lb/day)		100.000
There Is A Kidney Filter		100.000
Containment Atmosphere Cleanup Rate (thousand cfm)		2.000
Purge Time Of Containment (hours)		8.000
There Is Not A Condensate Demineralizer		
Iodine Partition Factor (gas/liq) In Steam Generator		0.010
Frequency Of Containment Building High Vol Purge (times/yr)*		4.000
Containment Volume Purge Iodine Release Fraction		1.000
Containment Volume Purge Particulate Release Fraction		1.000
Steam Leak To Turbine Building (lbs/hr)		1700.000
Fraction Iodine Released From Blowdown Tank Vent		0.000
Fraction Iodine Released From Main Condensate Air Ejector There Is Not A Cryogenic Off Gas System		0.440
*2 cold and 2 hot purges		

Beaver Valley Power Station		Procedure Nu	
			1/2-ODC-3.01
Title:		Unit:	Level Of Use: General Skill Referen
		1/2 Revision:	Page Number:
ODCM: Dispersion Calculation Procedure and Source 7	erm Inputs]	12 of 12
ATTACHME	NT C		
Page 2 of	2		
GASEOUS SOURCE T			
TABLE B:			
INPUTS TO SWEC GAS1BB CODE FOR GENERATIO	N OF BV-2 GASE	OUS SOUR	CE TERM MIXES
BV-2 PWR INPUTS			VALUE
	- <u></u>		2766.000
Thermal Power Level (megawatts)			2766.000
Plant Capacity Factor Mass Of Brimony Coolant (thousand lbs)			385.000
Mass Of Primary Coolant (thousand lbs) Percent Fuel With Cladding Defects			.120
			57.000
Primary System Letdown Rate (gpm)			5.700
Letdown Cation Demineralizer Flow			
Number Of Steam Generators			3.000
Total Steam Flow (million lbs/hr)			11.600
Mass Of Steam In Each Steam Generator (thousand lbs)			8.700
Mass Of Liquid In Each Steam Generator (thousand lbs)			100.000
Total Mass Of Secondary Coolant (thousand lbs)			2000.000
Mass Of Water In Steam Generator (thousand lbs)			298.000
Blowdown Rate (thousand lbs/hr)			22.300
Primary To Secondary Leak Rate (lbs/day)			100.000
Fission Product Carry-Over Fraction			.001
Halogen Carry-Over Fraction			.010
Condensate Demineralizer Flow Fraction			.700
Radwaste Dilution Flow (thousand gpm)	· ·		7.800
BV-2 GASEOUS WASTE INPU	/15	<u></u>	VALUE
There Is Not Continuous Stripping Of Full Letdown Flow			
Hold Up Time For Xenon (days)			45.800
Hold Up Time For Krypton (days)			2.570
Primary Coolant Leak To Auxiliary Building (lb/day)			160.000
Auxiliary Building Leak Iodine Partition Factor			7.5E-3
Gas Waste System Particulate Release Fraction			0.000
Auxiliary Building Charcoiodine Release Fraction			0.100
Auxiliary Building Particulate Release Fraction			0.010
Containment Volume (million cu-ft)			1.800
Frequency Of Primary Coolant Degassing (times/yr)			2.000
Primary To Secondary Leak Rate (lb/day)			100.000
There Is A Kidney Filter			** ***
Containment Atmosphere Cleanup Rate (thousand cfm)			20.000
Purge Time Of Containment (hours)			8.000
There Is Not A Condensate Demine	ralizer		0.010
Iodine Partition Factor (gas/liq) In Steam Generator	1 \ 4		0.010
Frequency Of Containment Building High Vol Purge (times	;/yr)*		4.000
Containment Volume Purge Iodine Release Fraction			1.000
Containment Volume Purge Particulate Release Fraction			1.000
Steam Leak To Turbine Building (lbs/hr)			1700.000
Fraction Iodine Released From Blowdown Tank Vent			0.000
Fraction Iodine Released From Main Condensate Air Ejecto			0.270
There Is Not A Cryogenic Off Gas	System		
*2 cold and 2 hot purges			

•

Beaver Valley Power Station

5

Unit 1/2

1/2-ODC-3.02

ODCM: Bases For ODCM Controls

Document Owner Manager, Nuclear Environmental and Chemistry

Revision Number	2
Level Of Use	General Skill Reference
Safety Related Procedure	Yes
Effective Date	12/29/06

i.

Beaver Valley Power Station	Procedure Nu	mber: 1/2-ODC-3.02
Title:	Unit:	Level Of Use:
ODCM: Bases For ODCM Controls	1/2	General Skill Reference
	Revision:	Page Number:
· · · · · · · · · · · · · · · · · · ·	2	2 of 14
TABLE OF CONTENTS		
1.0 PURPOSE		3
2.0 SCOPE		
3.0 REFERENCES AND COMMITMENTS		
3.1 References		
3.2 Commitments		
4.0 RECORDS AND FORMS		
4.1 Records		
4.2 Forms		
5.0 PRECAUTIONS AND LIMITATIONS		5
6.0 ACCEPTANCE CRITERIA		5
7.0 PREREQUISITES		5
8.0 PROCEDURE		5
ATTACHMENT A BASES FOR ODCM CONTROLS: INSTRUM	IENTATIO	N7
ATTACHMENT B BASES FOR ODCM CONTROLS: LIQUID E	FFLUENT	S8
ATTACHMENT C BASES FOR ODCM CONTROLS: GASEOUS	S EFFLUEI	NTS10
ATTACHMENT D BASES FOR ODCM CONTROLS: TOTAL D	OSE	
ATTACHMENT E BASES FOR ODCM CONTROLS: RADIOLO	OGICAL EN	NVIRONMENTAL
MONITORING PROGRAM (REMP)		

Beaver Valley Power Station	Procedure Number: 1/2-ODC-3.02		
Title: ODCM: Bases For ODCM Controls	Unit: 1/2	Level Of Use: General Skill Reference	
	Revision: 2	Page Number: 3 of 14	

1.0 <u>PURPOSE</u>

- 1.1 This procedure contains the Bases for the ODCM Controls that were transferred from the Bases Section of the Technical Specification per Unit 1/2 Amendments 1A-188/2A-70, and in accordance with Generic Letter 89-01 and NUREG-1301 (Generic Letter 89-01, Supplement No. 1) **[ITS]** and T.S. 5.5.2.^(3.1.5, 3.2.10)
 - 1.1.1 Prior to issuance of this procedure, these items were located in Appendix D of the old ODCM.
- 1.2 This procedure also contains the Bases for the ODCM Controls (for Radiation Monitoring Instrumentation) that were duplicated from the Bases Section of the Technical Specification per Unit 1/2 Amendments 1A-246/2A-124, and in accordance with NUREG-1431.^(3.1.6, 3.2.11)
- 1.3 This procedure also contains the Bases for the ODCM Controls (for Liquid Holdup Tank Activity Limits and for Gas Decay/Storage Tank Activity Limits) that were transferred from the Bases Section of the Technical Specification per Unit 1/2 Amendments 1A-250/2A-130, and in accordance with NUREG-1431.^(3.1.7, 3.2.11)

2.0 <u>SCOPE</u>

2.1 This procedure is applicable to all station personnel that are qualified to perform activities as described and referenced in this procedure.

3.0 <u>REFERENCES AND COMMITMENTS</u>

3.1 <u>References</u>

- 3.1.1 1/2-ODC-2.01, ODCM: Liquid Effluents
- 3.1.2 1/2-ODC-2.02, ODCM: Gaseous Effluents
- 3.1.3 1/2-ODC-3.03, ODCM: Controls for RETS and REMP Programs
- 3.1.4 1/2-ADM-1640, Control of the Offsite Dose Calculation Manual
- 3.1.5 Unit 1/2 Technical Specification 6.8.6, including Amendments 1A-188/2A-70 (LAR 1A-175/2A-37), Implemented August 7, 1995
- 3.1.6 Unit 1/2 Technical Specification 3.3.3.1, including Amendments 1A-246/2A-124 (LAR 1A-287/2A-159), Implemented April 11, 2002
- 3.1.7 Unit 1/2 Technical Specifications 3.11.1.4, 3.11.2.5 and 6.8.6, including Amendments 1A-250/2A-130 (LAR 1A-291/2A-163), Implemented August 7, 2002
- 3.1.8 1/2-ADM-0100, Procedure Writer's Guide
- 3.1.9 1/2-ADM-0101, Review and Approval of Documents

•	Beaver Valley Power Station	Procedure Ni	umber: 1/2-ODC-3.02
Title: ODCM: Ba	ases For ODCM Controls	Unit: <u>1/2</u> Revision: 2	Level Of Use: General Skill Reference Page Number: 4 of 14
3.1.10	CR 05-01169, Chemistry Action Plan for Transition of RE CA-20, Revise procedure 1/2-ODC-3.02 to change docume Radiation Protection to Manager, Nuclear Environmental a Incorporated Improved Technical Specifications (ITS).	ent owner	from Manager,
3.1.11	[ITS] T.S. 5.5.2		
3.2 <u>Co</u>	mmitments		
3.2.1	10 CFR Part 20		
3.2.2	10 CFR Part 50		
3.2.3	40 CFR Part 141		
3.2.4	40 CFR Part 190		,
3.2.5	Regulatory Guide 1.109, Calculation Of Annual Doses To 2 Of Reactor Effluents For The Purpose Of Evaluating Comp Appendix I, Revision 1, October, 1977		
3.2.6	Regulatory Guide 1.111, Methods For Estimating Atmosph Dispersion of Gaseous Effluents In Routine Releases From Reactors, Revision 1, July, 1977		-
3.2.7	Regulatory Guide 1.113, Estimating Aquatic Dispersion Of And Routine Reactor Releases For The Purpose Of Implem 1977		
3.2.8	NUREG-0133, Preparation of Radiological Effluent Techni Nuclear Power Plants, October 1978	ical Specif	fications for
3.2.9	NUREG-0737, Clarification of TMI Action Plan Requirem	ents, Octo	ber, 1980
3.2.10	NUREG-1301, Offsite Dose Calculation Manual Guidance Effluent Controls For Pressurized Water Reactors (Generic No. 1)		
3.2.11	NUREG-1431, Standard Technical Specifications - Westing	ghouse Pla	ants Specifications
4.0 <u>RE</u>	CORDS AND FORMS		
4.1 <u>Rec</u>	cords		~
4.1.1	Any calculation supporting ODCM changes shall be docum retrievable document (eg; letter or calculation package) wit number.		

Beaver Valley Power Station	Beaver Valley Power Station Procedure Number: 1/2-ODC-3.02		
Title: ODCM: Bases For ODCM Controls	Unit: 1/2	Level Of Use: General Skill Reference	
	Revision: 2	Page Number: 5 of 14	

4.2 <u>Forms</u>

4.2.1 None

5.0 PRECAUTIONS AND LIMITATIONS

- 5.1 The numbering of each specific ODCM Bases contained in this procedure does not appear to be sequential. This is intentional, as all ODCM Bases numbers remained the same when they were transferred from the Technical Specifications. This was done in an effort to minimize the amount of plant procedure changes and to eliminate any confusion associated with numbering changes.
- 5.2 This procedure includes Improved Technical Specifications (**[ITS]**) information that is NOT applicable to current Technical Specifications (**[CTS]**) and **[CTS]** information that is NOT applicable in **[ITS]**. The **[CTS]** information shall be used prior to the **[ITS]** effective date. The **[ITS]** information shall be used on or after the **[ITS]** effective date.

6.0 ACCEPTANCE CRITERIA

- 6.1 Any change to this procedure shall contain sufficient justification that the change will maintain the level of radioactive effluent control required by 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 50.36a, and Appenidx I to 10 CFR 50, and not adversely impact the accuracy or reliability of effluent dose or setpoint calculation.^(3.2.10)
 - 6.1.1 All changes to this procedure shall be prepared in accordance with 1/2-ADM-0100^(3.1.8) and 1/2-ADM-1640.^(3.1.4)
 - 6.1.2 All changes to this procedure shall be reviewed and approved in accordance with 1/2-ADM-0101^(3.1.9) and 1/2-ADM-1640.^(3.1.4)

7.0 **PREREQUISITES**

7.1 The user of this procedure shall be familiar with ODCM structure and content.

8.0 **PROCEDURE**

- 8.1 See ATTACHMENT A for a complete description of Bases for ODCM Controls associated with Instrumentation.
- 8.2 See ATTACHMENT B for a complete description of Bases for ODCM Controls associated with Liquid Effluents.
- 8.3 See ATTACHMENT C for a complete description of Bases for ODCM Controls associated with Gaseous Effluents.
- 8.4 See ATTACHMENT D for a complete description of Bases for ODCM Controls associated with Total Dose.

1. 1.1.1.

î J

f

.

1

:1

Beaver Valley Power Station	Procedure Nu	
-		1/2-ODC-3.02
Title: ODCM: Bases For ODCM Controls	Unit: <u>1/2</u>	Level Of Use: General Skill Reference
	Revision: 2	Page Number: 6 of 14
8.5 See ATTACHMENT E for a complete description of Bases f with the Radiological Environmental Monitoring Program (F	for ODCM C REMP).	
-END-		
·		
、		

.

r		Procedure Nu	mber:
	Beaver Valley Power Station		1/2-ODC-3.02
Title: ODCM: Base	es For ODCM Controls	Unit: <u>1/2</u> Revision: 2	Level Of Use: General Skill Reference Page Number: 7 of 14
	ATTACHMENT A	_	
	Page 1 of 1		
	BASES FOR ODCM CONTROLS: INSTRUME	INTATION	Į
3/4.3.3.1	RADIATION MONITORING INSTRUMENTATION		
	The OPERABILITY of the radiation monitoring channel levels are continually measured in the areas served by t alarm or automatic action is initiated when the radiation and 3) sufficient information is available on selected pla assess these variables following an accident. This capa recommendations of NUREG-0737. ^(3.2.9)	he individu 1 level trip ant parame	al channels; 2) the setpoint is exceeded; ters to monitor and
3/4.3.3.9	RADIOACTIVE LIQUID EFFLUENT MONITORING	<u> INSTRU</u>	MENTATION
	The radioactive liquid effluent instrumentation is provid applicable, the releases of radioactive materials in liquid potential releases of liquid effluents. The alarm/trip set shall be calculated in accordance with Section 1 of this alarm/trip will occur prior to exceeding the limits of 10 OPERABILITY and use of this instrumentation is cons General Design Criteria 60, 63, and 64 of Appendix A to	d effluents points for t manual to CFR Part 2 istent with	during actual or hese instruments ensure that the 20. The the requirements of
3/4.3.3.10	RADIOACTIVE GASEOUS EFFLUENT MONITORI	NG INSTE	RUMENTATION
	The radioactive gaseous effluent instrumentation is pro- applicable, the releases of radioactive materials in gased potential releases of gaseous effluents. The alarm/trip s shall be calculated in accordance with Section 2 of this alarm/trip will occur prior to exceeding the limits of 10 instrumentation also includes provisions for monitoring concentrations of potentially explosive gas mixtures in The OPERABILITY and use of this instrumentation is of General Design Criteria 60, 63, and 64 of Appendix	bus effluent setpoints for manual to CFR Part 2 (and contri- the waste g consistent	ts during actual or r these instruments ensure that the 20. This rolling) the gas holdup system. with the requirements
ļ			
1			

Sec. 1

;

21

11111

1.4

4

2 時間

h

	Beaver Valley Power Station	Hocedure N	Procedure Number: 1/2-ODC-3.02		
Title:		Unit:	Level Of Use:		
DDCM: Bases For ODCM Controls		1/2	General Skill Reference		
		Revision:	Page Number:		
		2	<u>8 of 14</u>		
-	ATTACHMENT B Page 1 of 2 BASES FOR ODCM CONTROLS: LIQUI	D EFFLUENTS	5		
3/4.11.1.1	LIQUID EFFLUENT CONCENTRATION				
	This CONTROL is provided to ensure that the correleased in Liquid waste effluents from the site to times the EC's specified in 10 CFR Part 20, Apper Column 2. This limitation provides additional assematerials in bodies of water outside the site will respective of Appendix I, 10 CFR Part 20.1302 to the population dissolved or entrained noble gases is based upon the controlling radioisotope and its MPC in air (submic concentration in water using the methods describe Radiological Protection (ICRP) Publication 2. ^(3.2.1)	unrestricted are ndix B (20.1001 surance that the esult in exposure CFR Part 50, to a on. The concent he assumption the ersion) was con- ed in Internationa	as will be less than 10 -20-2402), Table 2, levels of radioactive e within (1) the an individual and (2) ration limit for hat Xe-135 is the verted to an equivalen		
3/4.11.1.2	LIQUID EFFLUENT DOSE				
	This CONTROL is provided to implement the req IV.A of Appendix I, 10 CFR Part 50. The Limitin implements the guides set forth in Section II.A of provide the required operating flexibility and at the forth in Section IV.A of Appendix I to assure that liquid effluents will be kept "as low as is reasonab- sites with drinking water supplies which can be po- there is reasonable assurance that the operation of radionuclide concentrations in the finished drinkin requirements of 40 CFR 141. The dose calculatio implement the requirements in Section III.A of Ap- guides of Appendix I is to be shown by calculation data such that the actual exposure of an individual unlikely to be substantially underestimated. The e- ODC-2.01 for calculating the doses due to the actu- materials in liquid effluents are consistent with the Guide 1.109, and Regulatory Guide 1.113. NURE calculations consistent with Regulatory Guides 1. 3.2.8)	ng Condition for Appendix I. The same time imp the releases of r oly achievable." otentially affected the facility will ng water that are ns in the proced opendix I that co nal procedures be through approp- equations specific ual release rates e methodology p EG-0133 provide	Operation le ACTION statement plement the guides set radioactive material in Also, for fresh water ed by plant operations, not result in in excess of the ure 1/2-ODC-2.01 onformance with the based on models and oriate pathways is ed in procedure1/2- of radioactive provided in Regulatory es methods for dose		
·	This CONTROL applies to the release of liquid eff Station, Unit No. 1 or Unit No. 2. These units have the liquid effluents from the shared system are pro- that system.	ve shared radwas	ste treatment systems,		

Level Of Use: General Skill Reference
Page Number:
9 of 14
•

ATTACHMENT B Page 2 of 2

BASES FOR ODCM CONTROLS: LIQUID EFFLUENTS

3/4.11.1.3 LIQUID WASTE TREATMENT SYSTEM

The CONTROL that the appropriate portions of this system be used when specified provides assurance that the releases of radioactive materials in liquid effluents will be kept "as low as is reasonably achievable." This specification implements the requirements of 10 CFR Part 50.36a, General Design Criterion 60 of Appendix A to 10 CFR Part 50 and design objective given in Section II.D of Appendix I to 10 CFR Part 50. The specified limits governing the use of appropriate portions of the liquid radwaste treatment system were specified as a suitable fraction of the dose design objectives set forth in Section II.A of Appendix I, 10 CFR Part 50, for liquid effluents. This specification applies to Beaver Valley Power Station, Unit No. 1 or Unit No. 2.^(3.2.2)

3/4.11.1.4 LIQUID HOLDUP TANKS

Restricting the quantity of radioactive material contained in the specified tanks provides assurance that in the event of an uncontrolled release of the tanks' contents, the resulting concentrations would be less than the limits of 10 CFR Part 20, Appendix B, Table 2, Column 2, at the nearest potable water supply and the nearest surface water supply in an unrestricted area.

ŕ

4

đ

ł

1

đ

ą

	Beaver Valley Power Station	Procedure Number: 1/2-ODC-3.02		
Title: ODCM: Bas	CM: Bases For ODCM Controls 1/2 General		Level Of Use: General Skill Referenc Page Number:	
		2	10 of 14	
	ATTACHMENT C Page 1 of 3			
	BASES FOR ODCM CONTROLS: GASEOU	JS EFFLUEN	rs ·	
3/4.11.2.1	GASEOUS EFFLUENT DOSE RATE			
	This CONTROL is provided to ensure that the dose from gaseous effluents from all units on the site wil 10 CFR Part 20 for unrestricted areas. The annual of with the concentrations of 10 CFR Part 20, Append limits provide reasonable assurance that radioactive effluents will not result in the exposure of an indivi- within or outside the site boundary, to annual avera limits specified in Appendix B, Table II of 10 CFR For individuals who may at times be within the site individual will be sufficiently low to compensate for diffusion factor above that for the site boundary. The restrict, at all times, the corresponding gamma and an individual at or beyond the site boundary to \leq 50 \leq 3,000 mrem/year to the skin. These release rate he corresponding thyroid dose rate above background to \leq 1,500 mrem/year. ^(3.2.1)	Il be within the dose limits are lix B, Table II, e material disch dual in an unre ge concentration Part 20 (10 CI boundary, the or any increase he specified re beta dose rates 00 mrem/year t imits also restr	annual dose limits of the doses associated Column 1. These narged in gaseous estricted area, either ons exceeding the FR Part 20.106(b)). occupancy of the in the atmospheric lease rate limits above background to o the total body or to ict, at all times, the	
3/4.11.2.2	DOSE, NOBLE GASES			
· .	This CONTROL is provided to implement the requ IV.A of Appendix I, 10 CFR Part 50. The CONTR in Section II.B of Appendix I. The ACTION statem flexibility and at the same time implement the guide Appendix I to assure that the release of radioactive kept "as low as is reasonably achievable." The Surv the requirements in Section III.A of Appendix I that Appendix I be shown by calculational procedures b the actual exposure of an individual through the app substantially underestimated. The dose calculations 2.02 for calculating the doses due to the actual releas in gaseous effluents are consistent with the methods 1.109, and Regulatory Guide 1.111. The equations provided for determining the air doses at the exclus upon the historical average atmospheric conditions. for dose calculations consistent with Regulatory Gu specifications applies to the release of gaseous efflue Station, Unit No. 1 or Unit No. 2. ^(3.12, 3.2.2, 3.2.5, 3.2.6, 3)	OL implement nents provide t es set forth in S material in gas veillance Requ t conformance ased on model propriate pathw s established in ase rates of rad ology provided in procedure 1 ion area bound NUREG-013 iides 1.109 and	s the guides set forth he required operating Section IV.A of eous effluents will be irements implement with the guides of s and data such that vays is unlikely to be procedure 1/2-ODC- ioactive noble gases in Regulatory Guide /2-ODC-2.02 are ary, and are based 3 provides methods 1.111. This	
3/4.11.2.3	DOSE, RADIOIODINES, RADIOACTIVE MAT AND RADIONUCLIDES OTHER THAN NOBL		RTICULATE FORM	

4

Beaver Valley Power Station	Procedure Nu	umber: 1/2-ODC-3.02
itle: DDCM: Bases For ODCM Controls	Unit: 1/2 Revision:	Level Of Use: General Skill Referenc Page Number:
	2	<u>11 of 14</u>
ATTACHMENT C		
Page 2 of 3 BASES FOR ODCM CONTROLS: GASEOUS	EFFLUENI	TS .
This CONTROL is provided to implement the requiand IV.A of Appendix I, 10 CFR Part 50. The CON Section II.C of Appendix I. ^(3.2.2)		
The ACTION statements provide the required operatime implement the guides set forth in Section IV. A releases of radioactive materials in gaseous effluent reasonably achievable." The calculational methods requirements implement the requirements in Sectior conformance with the guides of Appendix I be show based on models and data such that the actual expose appropriate pathways is unlikely to be substantially methods in procedure 1/2-ODC-2.02 are for calcula release rates of the subject materials are consistent v Regulatory Guide 1.109, and Regulatory Guide 1.111 for determining the actual doses based upon the hist conditions. The release rate specifications for radio particulate form, and radionuclides other than noble existing radionuclide pathways to man, in the unrest are examined in the development of these calculation airborne radionuclides, 2) deposition of radionuclide subsequent consumption by man, 3) deposition onta and meat producing animals graze with consumption and 4) deposition on the ground with subsequent examples to radioactive material in particulate form ar gases released from Beaver Valley Power Station, U 32.6, 3.2.7)	of Appendix s will be kep specified in a III.A of Ap on by calculat ure of an incounderestima- ting the dose with the meth 1. These eq- orical averag- iodines, radi gases are de- tricted area. Ins are: 1) in- les onto vege- o grassy area n of the milk sposure of m ind radionucli	x I to assure that the t "as low as is the surveillance pendix I that ational procedures lividual through ted. The calculational es due to the actual hodology provided in puations also provide ge atmospheric oactive material in ependent on the The pathways which adividual inhalation of tetation with as where milk animals and meat by man, an. This CONTROL ides other than noble

[Deserver Valler Derver Station	Procedure N	umber:	
	Beaver Valley Power Station	Unit:	1/2-ODC-3.02	
Title: ODCM: Bas	ODCM: Bases For ODCM Controls		Level Of Use: General Skill Reference	
		Revision: 2	Page Number: 12 of 14	
	ATTACHMENT C	2		
	Page 3 of 3			
	BASES FOR ODCM CONTROLS: GASEOUS	EFFLUEN	l'S	
3/4.11.2.4	GASEOUS RADWASTE TREATMENT SYSTEM			
	The CONTROL that the appropriate portions of these provides reasonable assurance that the releases of radii effluents will be kept "as low as is reasonably achieval implements the requirements of 10 CFR Part 50.36a, C Appendix A to 10 CFR Part 50, and design objective S CFR Part 50. The specified limits governing the use of systems were specified as a suitable fraction of the dos Sections II.B and II.C of Appendix I, 10 CFR Part 50, specification applies to gaseous radwaste from Beaver or Unit No. 2. ^(3.1.2, 3.2.2)	bactive mat ble." This s General Des Section II.D f appropria se design ob for gaseous	erials in gaseous specification sign Criterion 60 of of Appendix I to 10 te portions of the ojectives set forth in s effluents. This	
3/4.11.2.5	11.2.5 <u>BV-1 GASEOUS WASTE STORAGE TANKS</u>			
	Restricting the quantity of radioactivity contained in erassurance that in the event of an uncontrolled release of total body exposure to an individual located at the near two hours immediately following the onset of the release specified limit restricting the quantity of radioactivity was specified to ensure that the total body exposure re release remained a suitable fraction of the reference var $(a)(1)$.	of the tanks' rest exclusionse will not contained in sulting from	contents, the resulting on area boundary for exceed 0.5 rem. The n each gas storage tank n the postulated	
3/4.11.2.5	BV-2 GASEOUS WASTE STORAGE TANKS			
	Restricting the quantity of radioactivity contained in a waste storage tanks provides assurance that in the ever the tanks' contents, the resulting total body exposure to nearest exclusion area boundary for two hours immedia release will not exceed 0.5 rem. The specified limit re radioactivity contained in any connected group of gase specified to ensure that the total body exposure resulting remained a suitable fraction of the reference value set. The curie content limit is applied individually to each collectively to the number of unisolated gaseous waste	at of an unce o an individent ately follow stricting the sous waste so ous waste so ous from the forth in 100 gaseous wa	ontrolled release of ual located at the ving the onset of the e quantity of storage tanks was postulated release CFR 100.11(a)(1). ste storage tank and	

Ę

Beaver Valley Power Station		Procedure Number: 1/2-ODC-3.02	
Title: ODCM: Bases For ODCM Controls	Unit: 1/2	Level Of Use: General Skill Reference	
	Revision:	Page Number:	
	2	13 of 14	

ATTACHMENT D Page 1 of 1 BASES FOR ODCM CONTROLS: TOTAL DOSE

3/4.11.4 <u>TOTAL DOSE</u>

This CONTROL is provided to meet the dose limitations of 40 CFR Part 190 that have been incorporated into 10 CFR Part 20 by 46 FR 18525. The CONTROL requires the preparation and submittal of a Special Report whenever the calculated doses due to releases of radioactivity and to radiation from uranium fuel cycle sources exceed 25 mrems to the whole body or any organ, except the thyroid, which shall be limited to less than or equal to 75 mrems. For sites containing up to 4 reactors, it is highly unlikley that the resultant dose to a MEMBER OF THE PUBLIC will exceed the dose limits of 40 CFR Part 190 if the individual reactors remain within twice the dose design objectives of Appendix I, and if direct radiation doses from the units (including outside storages tanks, etc.) are kept small. The Special Report will describe a course of action that should result in the limitation of the annual dose to a MEMBER OF THE PUBLIC to within the 40 CFR Part 190 limits. For the purposes of the Special Report, it may be assumed that the dose commitment to the MEMBER OF THE PUBLIC from other uranium fuel cycle sources is negligible, with the exception that dose contributions from other nuclear fuel cycle facilities at the same site or within a radius of 5 miles must be considered. If the dose to any MEMBER OF THE PUBLIC is estimated to exceed the requirements of 40 CFR Part 190, the Special Report with a request for a variance (provided the release conditions resulting in violation of 40 CFR Part 190 have not already been corrected), in accordance with the provisions of 40 CFR 190.11 and 10 CFR 20.405c, is considered to be a timely request and fulfills the requirements of 40 CFR Part 190 until NRC staff action is completed. The variance only relates to the limits of 40 CFR Part 190, and does not apply in any way to the other requirements for dose limitation of 10 CFR Part 20, as addressed in ODCM CONTROL 3.11.1.1 and 3.11.2.1. An individual is not considered a MEMBER OF THE PUBLIC during any period in which he/she is engaged in carrying out any operation that is part of the nuclear fuel cycle.^(3.1.3, 3.2.1, 3.2.2, 3.2.4)

Ì

- 25 - -

1

	Beaver Valley Power Station	Procedure Ni	umber: 1/2-ODC-3.02
Title: ODCM: Bas	es For ODCM Controls	Unit: <u>1/2</u> Revision:	Level Of Use: General Skill Reference Page Number:
BASES	ATTACHMENT E Page 1 of 1 FOR ODCM CONTROLS: RADIOLOGICAL ENVIRO PROGRAM (REMP)	2 NMENTA	14 of 14
3/4.12.1	MONITORING PROGRAM		
	The radiological monitoring program required by this C measurements of radiation and of radioactive materials for those radionuclides which lead to the highest potent MEMBER(S) OF THE PUBLIC resulting from the stat program thereby supplements the radiological effluent that the measurable concentrations of radioactive mater not higher than expected on the basis of the effluent me environmental exposure pathways. The initially specifie effective for at least the first 3 years of commercial ope program changes may be initiated based on operational	in those ex- tial radiatio tion operati monitoring rials and leve easurements ied monitor eration. Fol	posure pathways and on exposures of on. This monitoring program by verifying vels of radiation are s and modeling of the ring program will be llowing this period,
	The detection capabilities required by ODCM Control 2 the-art for routine environmental measurements in indu for drinking water meet the requirements of 40 CFR 14	strial labor	
3/4.12.2	LAND USE CENSUS		
	ODCM CONTROL 3.12.2 is provided to ensure that chareas are identified and that modifications to the monitor required by the results of this census. The best survey is door survey, aerial survey, or by consulting with local a used. This census satisfies the requirements of Section Part 50. Restricting the census to gardens of greater that assurance that significant exposure pathways via leafy monitored since a garden of this size is the minimum re (26 kg/year) of leafy vegetables assumed in Regulatory by a child. To determine this minimum garden size, the used: 1) that 20% of the garden was used for growing a similar to lettuce and cabbage), and 2) a vegetation yields	oring progr information agriculture IV.B.3 of . an 500 squa vegetables equired to p Guide 1.10 e following proad leaf y	ams are made if a from the door-to- authorities shall be Appendix I to 10 CFR are feet provides will be identified and produce the quantity 09 for consumption assumptions were vegetation (i.e.,
3/4.12.3	INTERLABORATORY COMPARISON PROGRAM		
	The ODCM CONTROL 3.12.3 for participation in an I Program is provided to ensure that independent checks the measurements of radioactive material in environme performed as part of a quality assurance program for en to demonstrate that the results are reasonably valid. ^(3.1.3)	on the prec ntal sample wironmenta	tision and accuracy of matrices are

Beaver Valley Power Station

Unit 1/2

1/2-ODC-3.03

ODCM: Controls for RETS and REMP Programs

Document Owner Manager, Nuclear Environmental and Chemistry

Revision Number	9
Level Of Use	General Skill Reference
Safety Related Procedure	Yes
Effective Date	08/09/10

F	Beave	er Valley Power	Station	Procedure Nun	
Title:				l Unit:	/2-ODC-3.03 Level Of Use:
Due.				1/2	General Skill Reference
ODCM: Contr	ols for	RETS and REMP Progra	ams	Revision:	Page Number:
				9	2 of 82
		TADI	E OF CONTENTS		
		IADL	E OF CONTENTS		
			S		
			· · · · · · · · · · · · · · · · · · ·		
ATTACHME	NT A	ODCM CONTROLS:	OPERATIONAL MODE	S AND FR	EQUENCY
ATTACHME			DEFINITIONS		
ATTACHME	NT C		APPLICABILITY AND		
ATTACHME			RADIATION MONITOR		
ATTACHME	NIE		RETS INSTRUMENTAT		`
ATTACHME			RETS INSTRUMENT FO		
ATTACHME			LIQUID EFFLUENT CO		
ATTACHME			LIQUID EFFLUENT DO		
ATTACHME			LIQUID RADWASTE TI		
ATTACHME			LIQUID HOLDUP TANI		
ATTACHME	NT K		GASEOUS EFFLUENT		
ATTACHME	NT L		DOSE- NOBLE GASES.		
ATTACHMEI	NT M	ODCM CONTROLS:	DOSE - RADIOIODINES	S AND PA	RTICULATES64
ATTACHME			GASEOUS RADWASTE		
ATTACHMEI			GAS STORAGE TANKS		
ATTACHME			TOTAL DOSE		
ATTACHME	~		REMP-PROGRAM REQ		
ATTACHME			REMP - LAND USE CEN		
ATTACHME	NIS		REMP - INTERLABORA		
ATTACHME	NT T		ANNUAL REMP REPOR		
ATTACHME			ANNUAL RETS REPOR		
				L U	

ないがく かんたいがく かいしん ひんしゅう しゅうしゅ

	Beaver Valley Power Station	Procedure N	umber: 1/2-ODC-3.03	
Title:				
ODCN	1: Controls for RETS and REMP Programs	1/2 Revision: 9	Page Number: 3 of 82	
1.0	PURPOSE			
1.1	This procedure includes selected Definitions and Tables Technical Specifications and selected Applicability and as delineated in T.S. 3.0.			
1.	Prior to issuance of this procedure, these items wer ODCM, and were added to this procedure for refer currently described in the Technical Specifications	ence purposes, eve		
1.2	This procedure contains the controls for the Radiologica (RETS) that were transferred from the Technical Specif Amendments 1A-188/2A-70, and in accordance with G NUREG-1301. ^(3.2.10)	fications per Unit	1/2	
1.2	2.1 Prior to issuance of this procedure, these items wer ODCM.	e located in Appen	ndix C of the old	
1.3	This procedure contains the reporting requirements for Report and the Annual Radiological Environmental Op from the Technical Specifications per Unit 1/2 Amendm accordance with Generic Letter 89-01 and NUREG-130	erating Report tha nents 1A-188/2A-	t were transferred	
1.3	Prior to issuance of this procedure, these items wer ODCM.	e located in Appen	ndix E of the old	
1.4	This procedure contains the controls for Radiation Mon transferred from the Technical Specification per Unit 1/ accordance with NUREG-1431. ^(3.2.11)			
1.5	This procedure contains the controls for Liquid Holdup Decay/Storage Tank Activity Limits that were transferr per Unit 1/2 Amendment 250/130, and in accordance w	ed from the Techr	ical Specification	
1.6	This procedure provides the Radiological Effluent Contrequired for T.S. 5.5.1, T.S. 5.5.2, T.S. 5.5.8, T.S. 5.6.1		g Requirements	
2.0	<u>SCOPE</u>			
2.1	This procedure is applicable to all station personnel that described and referenced in this procedure.	t are qualified to p	erform activities as	

.

4

Beaver Valley Power Station		Procedure Number: 1/2-ODC-3.03		
Title:		Unit:	Level Of Use:	
ODCM: C	ontrols for RETS and REMP Programs	1/2 Revision: 9	General Skill Reference Page Number:	
			4 of 82	
3.0 <u>REFERENCES AND COMMITMENTS</u>				
3.1 <u>References</u>				
3.1.1	1/2-ODC-2.01, ODCM: Liquid Effluents			
3.1.2	1/2-ODC-2.02, ODCM: Gaseous Effluents			
3.1.3	1/2-ODC-3.02, ODCM: Bases for ODCM Controls			
3.1.4	Unit 1/2 Technical Specification 6.8.6, including Amendments 188/70 (LAR 1A-175/2A-137) Implemented August 7, 1995.			
3.1.5	Unit 1/2 Technical Specification 3.3.3.1, including Amendments 246/124 (LAR 1A-287/2A-159) Implemented April 11, 2002			
3.1.6	Unit 1/2 Technical Specification 3.11.1.4, 3.11.2.5, 6.8.6 and 6.9.3, including Amendments 250/130 (LAR 1A-291/2A-163) Implemented August 7, 2002			
3.1.7	1/2-ADM-1640, Control of the Offsite Dose Calculation Manual			
3.1.8	1/2-ADM-0100, Procedure Writer's Guide			
3.1.9	NOP-SS-3001, Procedure Review and Approval			
3.1.10	CR 981489, ODCM Table 4.11-2 Row A (Waste Gas Storage Tank Discharge). CA-01, Revise Appendix C of the ODCM (Table 4.11-2) to add clarification as to where and when tritium samples are to be obtained for GWST discharges.			
3.1.11	CR 981490, ODCM Table 4.11-2 Note e, and Related Chemistry Department Procedures. CA-01, Revise Appendix C of the ODCM (Table 4.11-2, note e) to specify the proper tritium sample point.			
3.1.12	CR 993021, Apparent failure to test RM-1DA-100 trip function as required by ODCM. No ODCM changes are required for this CR.			
3.1.13	CR 001682, ODCM Action 28 Guidance. CA-02, Revise Appendix C of the ODCM (Table 3.3-13, Action 28) to differentiate actions associated with Inoperable Process Flow Rate Monitors vs. Sample Flow Rate Monitors.			
. 3.1.14	R 02-05711, TS and ODCM changes not reflected in 10M.54.3.L5 Surveillance Log. A-01, Revise 1/2-ODC-3.03 to add a requirement for applicable station groups otification of pending ODCM changes.			
3.1.15	CR 03-06123, Enhance Table 3.3-6 of 1/2-ODC-3.03 to Add More Preplanned Method of Monitoring. CA-01, Revise Table 3.3-6 and Table 4.3-3 to allow use of Eberline SPING Channel 5 as an additional 2 nd PMM when the Unit 1 Mid or High Range Noble Gas Effluent Monitors are Inoperable.			

J.

and the second of

įI.

ing big:

Beaver Valley Power Station		Procedure Number: 1/2-ODC-3.03	
Title:	Unit: 1/2	Level Of Use: General Skill Reference	
ODCM: Controls for RETS and REMP Programs	Revision: 9	Page Number: 5 of 82	

- 3.1.16 CR 03-06281, Gaseous Tritium Sampling Required by ODCM (1/2-ODC-3.03) Unclear for Chemistry. CA-01, Revise procedure Attachment K Table 4.11-2 for RP & Chemistry sampling of Gaseous Effluent Pathways to show which effluent pathways need sampled for compliance to ODCM Control 3.11.2.1 requirements.
- 3.1.17 CR 03-07487, Results of NQA Assessment of the Radiological Effluents Program.
 CA-01, Revise Calculation Package No. ERS-ATL-95-007 to clarify the term "Surface Water Supply" per guidance presented in NUREG-0800 SRP 15.7.3. CA-05, Revise 1/2-ODC3.03 Control 3.11.1.4 to update the activity limits for the outside storage tanks.
- 3.1.18 CR 03-07668, Benchmark Effluent & Environmental Programs VS Papers Presented at 13th REMP/RETS Workshop. CA-01, Evaluate procedure Attachment K Table 4.11-2 to reduce the amount of Effluent Samples obtained during a power transient.
- 3.1.19 CR 03-09288, LAR 1A-321 & 2A-193, Increased Flexibility in Mode Restraints. CA-19, Review LAR 1A-321/2A-193 to identify the affected Rad Effluent procedures, programs, manuals, and applicable plant modification documents that will need to be revised to support implementing the LAR.
- 3.1.20 CR 03-09959, RFA-Rad Protection Provide Clarification to ODCM 1/Day Air Tritium Sample. CA-01, Revise ODCM procedure 1/2-ODC-3.03 Attachment K (Table 4.11-2 note c & note e) to allow sampling of the appropriate building atmosphere.
- 3.1.21 CR 03-11726, Typographical Error Found in ODCM 3.11.2.5. CA-01, Revise ODCM procedure 1/2-ODC-3.03, Attachment O, Control 3.11.2.5 to correct a typographical error. Specifically, the final word in Action (a) needs changed from "nad" to "and".
- 3.1.22 CR 04-01643, Procedure Correction Typographical Error in the ODCM. CA-01, Revise ODCM procedure 1/2-ODC-3.03, Attachment F, (Table 3.3-13 and 4.3-13) to correct a typographical error. Specifically, the Asset Number for the Vacuum Gauge used for measurement of sample flow (from the Alternate Sampling Device) needs changed from [PI-1GW-13] to [PI-1GW-135].
- 3.1.23 CR 04-02275, Discrepancies in Table 3.3-13 of the ODCM. CA-01, Revise ODCM procedure 1/2-ODC-3.03, Attachment F, (Table 3.3-13 and 4.3-13) to add clarification that the "Sampler Flow Rate Monitors are the devices used for "Particulate and Iodine Sampling".
- 3.1.24 Unit 1 Technical Specification Amendment No. 275 (LAR 1A-302) to License No. DPR-66. This amendment to the Unit 1 license was approved by the NRC on July 19, 2006.
- 3.1.25 Vendor Calculation Package No. 8700-UR(B)-223, Impact of Atmospheric Containment Conversion, Power Uprate, and Alternative Source Terms on the Alarm Setpoints for the Radiation Monitors at Unit 1.
- 3.1.26 Engineering Change Package No. ECP-04-0440, Extended Power Uprate.

	Beaver Valley Power Station	Procedure N	1/2-ODC-3.03
e:		Unit: 1/2	Level Of Use: General Skill Reference
)CM: (Controls for RETS and REMP Programs	Revision:	Page Number: 6 of 82
3.1.27	 CR 06-04908, Radiation Monitor Alarm Setpoint Discr procedure 1/2-ODC-3.03 to update the alarm setpoints [RM-1GW-109] for incorporation of the Extended Pow Amendment No. 275. 	of [RM-1VS-	·110] and
3.1.28	Calculation Package No. ERS-MPD-93-007, BVPS-1 (Emergency Action Levels.	Gaseous Radic	oactivity Monitor
3.1.29	SAP Order 200197646-0110: Revise ODCM procedure 1/2-HPP-3.06.001, 1/2-ENV-05.01, Form 1/2-HPP-3.0 Form 1/2-ENV-05.01.F05 to incorporate revised outsid limits via Calculation Package No. ERS-ATL-95-007,	6.001.F05 and le liquid storag	d
3.1.30	CR 06-04944: ODCM 3.03 Attachment E conflict betw Statement. CA-01; revise ODCM procedure 1/2-ODC- Applicability for tank level indicating devices is during	-3.03, Attachn	ment E to clarify
3.1.31	CR 05-03306: Incorporated Improved Technical Specific of programmatic controls for BV-2 Noble Gas Effluent RQ101A], [2MSS-RQ101B] and [2MSS-RQ101C] from ODCM procedure 1/2-ODC-3.03 (Attachment D Table permitted via Unit 1/2 Technical Specification Amendr	t Steam Monit m the Technic is 3.3-6 and 4.2	tors [2MSS- cal Specifications to 3-3). This was
3.1.32	Unit 1 and 2 Technical Specifications: ITS 5.5.1, Offsit	te Dose Calcu	lation Manual
3.1.33	Unit 1 and 2 Technical Specifications: ITS 5.5.2, Radic	pactive Efflue	nt Controls Program
3.1.34	Unit 1 and 2 Technical Specifications: ITS, 5.5.8, Expl Radioactivity Monitoring Program	osive Gas and	Storage Tank
3.1.35	Unit 1 and 2 Technical Specification: ITS 5.6.1, Annua Operating Report	l Radiologica	l Environmental
3.1.36	Unit 1 and 2 Technical Specifications: ITS 5.6.2, Radic	pactive Effluer	nt Release Report
3.1.37	SAP Order 200240681: Revise ODCM procedure 1/2-0 Table 3.3-12) to add an alternate Action when the prime Device [FT-1CW-101-1] is not OPERABLE. The alter measurements (as described in 1MSP-31.06-I) to deterr during liquid effluent releases.	ary Flow Rate	e Measurement 25A) uses local
3.1.38	CR 07-12924 and SAP Order 200247228-0410: Revise (Attachment F Tables 3.3-13 and 4.3-13) to clarify the J Sampler Flow Rate Monitors for the BV-2 gaseous effly Specifically, the procedure was changed to refer to Fun [2HVS-FIT101-1] instead of [2HVS-FIT101], [2RMQ- [2RMQ-FIT301], [2HVL-FIT112-1] instead of [2HVL- instead of [2RMQ-FIT303].	Functional Lo uent release pa actional Locati -FIT301-1] ins	ocation of the athways. ion stead of

•

-

Beaver Valley Power Station		Procedure Number: 1/2-ODC-3.03	
Title:	Unit: 1/2	Level Of Use: General Skill Reference	
ODCM: Controls for RETS and REMP Programs	Revision: 9	Page Number: 7 of 82	

- 3.1.39 SAP Order 200247228-0450: Revise 1/2-ODC-3.03 Attachment E Table 3.3-12 and Attachment F, Tables 3.3-13 & 4.3-13 to provide added clarifications, as follows; (1) add the word "or" where it is missing from Attachment F, Table 3.3-13 & 4.3-13, (2) remove grab samples from the list of alternates in Table 3.3-13 and 4.3-13, because a grab sample is an "action", not an "alternate", (3) add notations in Table 3.3-12 and 3.3-13 to indicate that Condition Report generation and reporting in the Radioactive Effluent Release Report (per Control 3.3.3.9 Action b and 3.3.3.10 Action b) do not apply when using an alternate to satisfy inoperability of the primary instrument beyond 30 days, and (4) remove surveillances for Preplanned Method of Monitoring (PMM) from Table 4.3-3, because surveillances only apply to instruments, not methods.
- 3.1.40 SAP Order 200240681-0020 and 0040: Revise 1/2-ODC-3.03 Attachment E, Table 3.3-12, Table 4.3-12 and Action 25A to clarify the 1st and 2nd alternates to the flow rate measurement devices used for the cooling tower blowdown line.
- 3.1.41 SAP Order 200197646-0300 and CR07-31083: Revise ODCM procedure 1/2-ODC-3.03 to add a definition for Channel Functional Test and revise the definition for Channel Operational Test to indicate that these definitions have the same requirements and, therefore, are considered equal.
- 3.2 <u>Commitments</u>
 - 3.2.1 10 CFR Part 20, Standards for Protection Against Radiation
 - 3.2.2 10 CFR Part 50, Domestic Licensing of Production and Utilization Facilities
 - 3.2.3 40 CFR Part 141
 - 3.2.4 40 CFR Part 190, Environmental Radiation Protection Standards For Nuclear Power Operations.
 - 3.2.5 Regulatory Guide 1.109, Calculation Of Annual Doses To Man From Routine Releases Of Reactor Effluents For The Purpose Of Evaluating Compliance With 10 CFR Part 50, Appendix I, Revision 1, October 1977
 - 3.2.6 Regulatory Guide 1.111, Methods For Estimating Atmospheric Transport And Dispersion Of Gaseous Effluents In Routine Releases From Light-Water-Cooled Reactors, Revision 1, July 1977
 - 3.2.7 Regulatory Guide 1.113, Estimating Aquatic Dispersion Of Effluents From Accidental And Routine Reactor Releases For The Purpose Of Implementing Appendix I, April 1977
 - 3.2.8 NUREG-0133, Preparation of Radiological Effluent Technical Specifications for Nuclear Power Plants, October 1978
 - 3.2.9 NUREG-0737, Clarification of TMI Action Plan Requirements, October 1980

Beaver Valley Power Station	Procedure Number: 1/2-ODC-3.03	
Title:	Unit: 1/2	Level Of Use: General Skill Reference
ODCM: Controls for RETS and REMP Programs	Revision: 9	Page Number: 8 of 82

- 3.2.10 NUREG-1301, Offsite Dose Calculation Manual Guidance; Standard Radiological Effluent Controls For Pressurized Water Reactors (Generic Letter 89-01, Supplement No. 1)
- 3.2.11 NUREG-1431, Standard Technical Specifications Westinghouse Plants Specifications
- 3.2.12 NUREG-0800, Standard Review Plan, Postulated Radioactive Releases Due to Liquid-Containing Tank Failures, July 1981
- 3.2.13 Licensee Response to NRC Unresolved Item 50-334/83-30-05. The Radiation Monitor Particle Distribution Evaluation showed that the Licensee must continue to use correction factors to determine particulate activity in samples obtained from the effluent release pathways.

4.0 <u>RECORDS AND FORMS</u>

4.1 <u>Records</u>

- 4.1.1 Any calculation supporting ODCM changes shall be documented, as appropriate, by a retrievable document (e.g.; letter or calculation package) with an appropriate RTL number.
- 4.2 Forms

4.2.1 None

5.0 PRECAUTIONS AND LIMITATIONS

- 5.1 The numbering of each specific ODCM Control, ODCM Surveillance Requirement and ODCM Table contained in this procedure does not appear to be sequential. This is intentional, as all ODCM Control, ODCM Surveillance Requirement and ODCM Table numbers remained the same when they were transferred from the Technical Specifications. This was done in an effort to minimize the amount of plant procedure changes and to eliminate any confusion associated with numbering changes.
- 5.2 The numbering of each specific ODCM Report contained in this procedure does not appear to be sequential. This is intentional, as all ODCM Report numbers remained the same when they were transferred from the Technical Specifications. This was done in an effort to minimize the amount of plant procedure changes and to eliminate any confusion associated with numbering changes.

6.0 ACCEPTANCE CRITERIA

6.1 Any change to this procedure shall contain sufficient justification that the change will maintain the level of radioactive effluent control required by 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 50.36a, and Appendix I to 10 CFR 50, and not adversely impact the accuracy or reliability of effluent dose or setpoint calculation.^(3.2.10)

Beaver Valley Power Station	Procedure Number: 1/2-ODC-3.03	
Title:	Unit: 1/2	Level Of Use General Skill Reference
ODCM: Controls for RETS and REMP Programs	Revision: 9	Page Number: 9 of 82

6.1.1 All changes to this procedure shall be prepared in accordance with 1/2-ADM-0100^(3.1.8) and 1/2-ADM-1640.^(3.1.7)

6.1.2 Pending changes to this procedure shall be provided to applicable station groups. For example, <u>IF</u> Control 3.11.1.1 is being changed, <u>THEN</u> the proposed changes shall be provided to the applicable station groups (i.e.; owner of the procedures), identified in the MATRIX of ODCM procedure 1/2-ODC-1.01. This will allow the station groups to revise any affected procedures concurrent with the ODCM change.^(3.1.14)

6.1.3 All changes to this procedure shall be reviewed and approved in accordance with NOP-SS-3001 ^(3.1.9) and 1/2-ADM-1640.^(3.1.7)

7.0 <u>PREREQUISITES</u>

7.1 The user of this procedure shall be familiar with ODCM structure and content.

8.0 <u>PROCEDURE</u>

- 8.1 See ATTACHMENT A for a Table of Operational Modes and a Table of Frequency Notation.
- 8.2 See ATTACHMENT B for a list of defined terms used throughout the ODCM.
- 8.3 See ATTACHMENT C thru ATTACHMENT S for a complete description of all ODCM Controls.
- 8.4 See ATTACHMENT T for a description of the Annual Report required by the REMP Controls.
- 8.5 See ATTACHMENT U for a description of the Annual Report required by the RETS Controls.

- END -

Be	eaver Valley F	Power Station	Pr	ocedure Nui 1	mber: /2-ODC-3.03
Title:	s for RETS and REN			nit: <u>1/2</u> evision:	Level Of Use: General Skill Refere Page Number:
		ATTACHMENT Page 1 of 2	Â.	9	10 of 82
ODCM	CONTROLS: OPE	RATIONAL MODES	S AND FREQU	ENCYI	NOTATION
		<u>TABLE 1.1</u>			
		MODES			
		REACTIVITY CONDITION	% RATED THERMAL	T	AVERAGE REACTOR COOLANT EMPERATURE
MODE	TITLE	(k _{eff})	POWER ^(a)		(°F)
1	Power Operation	≥ 0.99	> 5		NA
2	Startup	≥ 0.99	≤ 5		NA
3	Hot Standby	< 0.99	NA		≥ 350
4	Hot Shutdown ^(b)	< 0.99	NA	3	$50 > T_{avg} > 200$
5	Cold Shutdown ^(b)	< 0.99	NA		≤ 200
6	Refueling ^(c)	NA	NA		NA

ļ

mining the states and the

IÍ

(a) Excluding decay heat.
(b) All reactor vessel head closure bolts fully tensioned.
(c) One or more reactor vessel head closure bolts less than fully tensioned.

Beaver Valley	Power Station	Procedure Nur 1	nber: ./2-ODC-3.03
Title:		Unit:	Level Of Use:
ODCM: Controls for RETS and RE	MP Programs	<u>1/2</u> Revision: 9	General Skill Reference Page Number: 11 of 82
	ATTACHMENT A	<u> </u>	11.01.82
	Page 2 of 2 ERATIONAL MODES AND FREG	MENCVN	
ODEM CONTROLS. OF	TABLE 1.2		
	FREQUENCY NOTATION		
NOTATION	FREQUENCY		
S	At least once per 12 hours		
D	At least once per 24 hours		
W	At least once per 7 days		
М	At least once per 31 days		
Q	At least once per 92 days		
SA	At least once per 184 days		
R	At least once per 18 months		
S/U	Prior to each reactor startup		
Р	Completed prior to each release		· · · · · · · · · · · · · · · · · · ·
N.A.	Not applicable		

			-
Beaver Valley Power Station	Procedure N	umber: 1/2-ODC-3.03	
Title:	Unit: 1/2	Level Of Use: General Skill Reference	
ODCM: Controls for RETS and REMP Programs	Revision:	Page Number: 12 of 82	1
ATTACHMENT B Page 1 of 3 ODCM CONTROLS: DEFINITION	IS	<u>.</u>	
The defined terms of this section appear in capitalized type and are ap CONTROLS.	pplicable th	roughout these	
<u>ACTION</u> shall be those additional requirements specified as corollary CONTROL and shall be part of the CONTROLS.	y statements	to each principal	
<u>CHANNEL CALIBRATION</u> shall be the adjustment, as necessary, or responds with the necessary range and accuracy to known values of the monitors. The CHANNEL CALIBRATION shall encompass the ent and alarm and/or trip functions, and shall include the CHANNEL OP CHANNEL CALIBRATION may be performed by any series of sequence channel steps such that the entire channel is calibrated.	he paramete ire channel ERATIONA	r which the channel including the sensor AL TEST. The	
<u>CHANNEL CHECK</u> shall be the qualitative assessment of channel be observation. This determination shall include, where possible, compa and/or status with other indications and/or status derived from indepe measuring the same parameter.	arison of the	channel indication	
<u>CHANNEL FUNCTIONAL TEST</u> shall be the injection of a simulate to the primary sensor as practicable to verify OPERABILITY includi SINCE these requirements are the same as those shown for <u>CHANNE</u> THEN these definitions are considered equivalent.	ng alarm an	d/or trip functions.	0-9 IN
<u>CHANNEL OPERATIONAL TEST</u> shall be the injection of a simula to the primary sensor as practicable to verify OPERABILITY includi SINCE these requirements are the same as those shown for <u>CHANNE</u> these definitions are considered equivalent.	ng alarm an	d/or trip functions.	\$. <u>9. 10</u>
<u>FREQUENCY NOTATION</u> specified for the performance of Surveil correspond to the intervals defined in Table 1.2.	lance Requi	rements shall	¢
GASEOUS RADWASTE TREATMENT SYSTEM is any system de radioactive gaseous effluents by collecting primary coolant system of and providing for delay or holdup for the purpose of reducing the tota the environment.	fgases from	the primary system	
MEMBER(S) OF THE PUBLIC (10 CFR 20 and/or 10 CFR 50) mea individual is receiving an occupational dose. This definition is used CONTROL 3.11.1.1, 3.11.1.4, 3.11.2.1 and 3.11.2.5 that are based definition is also used to show compliance to ODCM Controls 3.1 and 3.11.2.4 that are based on 10 CFR Part 50.	to show co on 10 CFR	mpliance to ODCM Part 20. This	

Beaver Valley Power Station	Procedure Number: 1/2-ODC-3.03			
Title:	Unit: 1/2	Level Of Use: General Skill Reference		
ODCM: Controls for RETS and REMP Programs	Revision: 9	Page Number: 13 of 82		
ATTACHMENT B				

Page 2 of 3 ODCM CONTROLS: DEFINITIONS

<u>MEMBER(S) OF THE PUBLIC (40 CFR 190)</u> means any individual that can receive a radiation dose in the general **environment**, whether he may or may not also be exposed to radiation in an occupation associated with a nuclear fuel cycle. However, an individual is not considered a MEMBER OF THE PUBLIC during any period in which he is engaged in carrying out any operation which is part of the nuclear fuel cycle. This definition is used to show compliance to an ODCM CONTROL 3.11.4.1 that is based on 40 CFR Part 190.

<u>OFFSITE DOSE CALCULATION MANUAL</u> (ODCM) shall contain the methodology and parameters used in the calculation of offsite doses resulting from radioactive gaseous and liquid effluents, in the calculation of gaseous and liquid effluent monitoring Alarm/Trip Setpoints, and in the conduct of the Environmental Radiological Monitoring Program. The ODCM shall also contain (1) the Radioactive Effluent Controls and Radiological Environmental Monitoring Programs required by T.S. 5.5.2 and (2) descriptions of the information that should be included in the Radiological Environmental Operating and Annual Radioactive Effluent Release Reports that are also required by T.S. 5.6.1 and T.S. 5.6.2.

<u>OPERABLE/OPERABILITY</u> A system, subsystem, train, component, or device shall be <u>OPERABLE</u> or have <u>OPERABILITY</u> when it is capable of performing its specified function(s). Implicit in this definition shall be the assumption that all necessary attendant instrumentation, controls, normal and emergency electric power sources, cooling or seal water, lubrication or other auxiliary equipment that are required for the system, subsystem, train, component, or device to perform its function(s) are also capable of performing their related safety function(s).

<u>MODE</u> shall correspond to any one inclusive combination of core reactivity condition, power level, and average reactor coolant temperature specified in ATTACHMENT A Table 1.1.

<u>PURGE</u> or <u>PURGING</u> is the controlled process of discharging air or gas from a confinement to maintain temperature, pressure, humidity, concentration, or other operating conditions, in such a manner that replacement air or gas is required to purify the confinement.

<u>RATED THERMAL POWER</u> shall be a total reactor core heat transfer rate to the reactor coolant of 2900 MWt.

REPORTABLE EVENT shall be any of those conditions specified in Section 50.73 to 10 CFR Part 50.

<u>SHUTDOWN</u> means reactor power change to 0% power.

<u>SITE BOUNDARY</u> shall be that line beyond which the land is neither owned, nor leased, nor otherwise controlled by the licensee. The Figure for Liquid Effluent Site Boundary is contained in 1/2-ODC-2.01. The Figure for Gaseous Effluent Site Boundary is contained in 1/2-ODC-2.02.

STARTUP means reactor power change from 0% power.

<u>SOURCE CHECK</u> shall be the qualitative assessment of channel response when the channel sensor is exposed to a radioactive source.

Beaver Valley Power Station		Procedure Number: 1/2-ODC-3.03		
Title:	Unit: 1/2	Level Of Use: General Skill Reference		
ODCM: Controls for RETS and REMP Programs	Revision: 9	Page Number: 14 of 82		
ATTACHMENT B				

Page 3 of 3 ODCM CONTROLS: DEFINITIONS

THERMAL POWER shall be the total reactor core heat transfer rate to the reactor coolant.

<u>UNRESTRICTED AREA</u> means any area access to which is neither limited nor controlled by the licensee.

<u>VENTILATION EXHAUST TREATMENT SYSTEM</u> is any system designed and installed to reduce gaseous radioiodine or radioactive material in particulate form in effluents by passing ventilation or vent exhaust gases through charcoal absorbers and/or HEPA filters for the purpose of removing iodines or particulates from the gaseous exhaust stream prior to the release to the environment (such a system is not considered to have any effect on noble gas effluents). Engineered Safety Feature (ESF) atmospheric cleanup systems are not considered to be VENTILATION EXHAUST TREATMENT SYSTEM components.

<u>VENTING</u> is the controlled process of discharging air or gas from a confinement to maintain temperature, pressure, humidity, concentration or other operating conditions, in such a manner that replacement air or gas is not provided or required during VENTING. Vent, used in system names, does not imply a VENTING process.

	Beaver Valley Power Station	Procedure Nu	umber: 1/2-ODC-3.03
Title:		Unit:	Level Of Use: General Skill Reference
ODCM	: Controls for RETS and REMP Programs	1/2 Revision:	Page Number:
	ATTACHMENT C	9	15 of 82
	Page 1 of 4		
	ODCM CONTROLS: APPLICABILITY AND SURVEILLAN	VCE REQ	UIREMENTS
CONT	ROLS: APPLICABILITY		
	KULS: AFFLICADILITT		
3.0.1	ODCM CONTROLS shall be met during the MODES or other Applicability; except as provided in ODCM CONTROL 3.0.2	conditions	specified in the
3.0.2	Upon discovery of a failure to meet the ODCM CONTROL, the requirements shall be met, except as provided in ODCM CONT CONTROL is met or no longer applicable prior to expiration of completion of the ODCM ACTION requirements is not require	ROL 3.0.: f the specif	5. If the ODCM fied time intervals,
3.0.3	When an ODCM CONTROL is not met and the associated OD associated ACTION is not provided, or if directed by the associated placed in a MODE or other specified condition in which the OI applicable. Action shall be initiated within 1 hour to place the	iated ACT	IONS, the unit shall be TROL is not
	 MODE 3 within 7 hours, MODE 4 within 13 hours, and MODE 5 within 37 hours. 		
	Where corrective measures are completed that permit operation CONTROL or ACTIONS, completion of the actions required b required.		
	Exceptions to these requirements are stated in the individual OI	OCM CON	TROLS.
3.0.4	When an ODCM CONTROL is not met, entry into an MODE of Applicability shall only be made:	r specified	d condition in the
	a. When the associated ODCM ACTIONS to be entered perm MODE or other specified condition in the Applicability for		-
	b. After performance of a risk assessment addressing inoperate consideration of the results, determination of the acceptabil specified condition in the Applicability, and establishment of appropriate; exceptions to this ODCM CONTROL are state CONTROLS, or	ity of enter of risk mar	ring the MODE or other nagement actions, if
	c. When an allowance is stated in the individual value, parame	eter, or oth	er ODCM CONTROL.
	This ODCM CONTROL shall not prevent changes in MODES the Applicability that are required to comply with ODCM ACT shutdown of the unit.		

	Beaver Valley Power Station	Procedure 1	Number: 1/2-ODC-3.03	
Title:		Unit: 1/2	Level Of Use: General Skill Referen	
ODCM	1: Controls for RETS and REMP Programs	Revision: 9	Page Number: 16 of 82	
<u></u>	ATTACHMENT C Page 2 of 4 ODCM CONTROLS: APPLICABILITY AND SURV	EILLANCE REC		
3.0.5	Equipment removed from service or declared inoperable be returned to service under administrative control sole demonstrate its OPERABILITY or the OPERABILITY to ODCM CONTROL 3.0.1 for the system returned to perform the testing required to demonstrate OPERABIL	ly to perform test of other equipm service under adm	ing required to ent. This is an excepti	
	· · · · ·			

al surger and

		·····	
	Beaver Valley Power Station	Procedure Nu	umber: 1/2-ODC-3.03
Title:		Unit: 1/2	Level Of Use: General Skill Reference
ODCM	: Controls for RETS and REMP Programs	Revision: 9	Page Number: 17 of 82
	ATTACHMENT C		
	Page 3 of 4 ODCM CONTROLS: APPLICABILITY AND SURVEILLAN	NCE REOI	UREMENTS
CONT			
	ROLS: SURVEILLANCE REQUIREMENTS		
4.0.1	Surveillance Requirements shall be met during the MODES or individual ODCM CONTROLS unless otherwise stated in the O Failure to meet an ODCM Surveillance, whether such failure is performance of the Surveillance or between performance of the meet the ODCM CONTROL. Failure to perform a Surveillance shall be failure to meet the ODCM CONTROL except as provid Requirement 4.0.3. Surveillances do not have to be performed variables outside specified limits.	DDCM Sur experienc Surveillar e within th ded in OD	rveillance Requirement. ed during the nce, shall be failure to e specified Frequency, CM Surveillance
4.0.2	The specified Frequency for each ODCM Surveillance Requires performed within ± 1.25 times the interval specified in the Frequerevious performance or as measured from the time a specified met.	lency, as n	neasured from the
	For Frequencies specified as "once," the above interval extension	on does no	t apply.
	If a Completion Time requires periodic performance or "once p extension applies to each performance after the initial performa		, the above Frequency
	Exceptions to this Specification are stated in the individual Specification	cifications	
4.0.3	If it is discovered that an ODCM Surveillance was not performed then compliance with the requirement to declare the ODCM CO delayed, from the time of discovery, up to 24 hours or up to the interval, whichever is greater. This delay period is permitted to ODCM Surveillance. A risk evaluation shall be performed for greater than 24 hours and the risk impact shall be managed.	ONTROL r limit of th allow per	not met may be ne specified surveillance formance of the
	If the ODCM Surveillance is not performed within the delay pe must immediately be declared not met, and the applicable ODC		
	When the ODCM Surveillance is performed within the delay period is not met, the ODCM CONTROL must immediately be declared ODCM ACTION(s) must be entered.		
·			

	Beaver Valley Power Station	Į	Procedure Nu	umber: 1/2-ODC-3.03
Fitle:			Unit:	Level Of Use:
		-	<u>1/2</u> Revision:	General Skill Reference Page Number:
DDCN	M: Controls for RETS and REMP Programs		<u>9</u>	18 of 82
	ATTACHMENT	С		
	Page 4 of 4			
	ODCM CONTROLS: APPLICABILITY AND SU	RVEILLAN	JE REQI	UIREMENIS
4.0.4	Entry into a MODE or other specified condition in t shall only be made when the ODCM Surveillances		-	
	surveillance interval, except as provided by ODCM			
	ODCM CONTROL is not met due to Surveillances			
	other specified condition in the Applicability shall of			
	CONTROL 3.0.4. This provision shall not prevent	-		-
	conditions in the Applicability, that are required to o	comply with (ODCM A	ACTION requirement
	or that are part of a shutdown of the unit.			
				,
1				,
1				,
1				,
/				,
1				,
1				,
/				,
/				,
1				,
/				,

Beaver Valley Power Station	Procedure Nu	1/2-ODC-3.03
Title:	Unit: 1/2	Level Of Use: General Skill Reference
ODCM: Controls for RETS and REMP Programs	Revision: 9	Page Number: 19 of 82
ATTACHMENT D Page 1 of 8 ODCM CONTROLS: RADIATION MONITORING INS	***	
CONTROLS: RADIATION MONITORING (HIGH RANGE INSTR	RUMENTA	TION)
3.3.3.1 The radiation monitoring instrumentation channels sho OPERABLE with their alarm/trip setpoints within the		
APPLICABILITY: As shown in Table 3.3-6.		
ACTION:		
a. With a radiation monitoring channel alarm/trip setpoint ODCM Control 3.3.3.1, Table 3.3-6, adjust the setpoint or declare the channel inoperable.	-	
b. With one or more radiation monitoring channels inoper ODCM Control 3.3.3.1, Table 3.3-6.	able, take t	he ACTION shown in
c. The provisions of ODCM Control 3.0.3 are not applica	ble.	
SURVEILLANCE REQUIREMENTS		
4.3.3.1 Each radiation monitoring instrumentation channel sha by the performance of the CHANNEL CHECK, CHAN CHANNEL OPERATIONAL TEST operations during shown in ODCM Control 3.3.3.1, Table 4.3-3.	INEL CAL	IBRATION and
·		

Beaver Valley Power Station				Procedure Number: 1/2-ODC-3.03		
itle:				Unit:	Level Of Use:	
			Ļ	1/2	General Skill	Reference
DDCM: Controls for RETS and	REMP Pro	grams		Revision: 9	Page Number: 20 of	87 [.]
	A	TTACHMENT	`D		20.01	02
		Page 2 of 8	~	·		
ODCM CONTROL	LS: RADIA		ORING INST	RUMENT	TATION	
		<u>TABLE 3.3-</u>			-	
		MONITORING				
Pri = Primary In	struments,	PMM = Prep	lanned Metho	d of Moni	toring ^(a)	
INSTRUMENT	MINIMUM CHANNELS OPERABLE	APPLICABLE <u>MODES</u>	SETPOINT ⁽¹⁾	MEA	OMINAL SUREMENT <u>RANGE</u>	ACTIO
1. Noble Gas Effluent Monitors - SF	'INGS ⁽⁴⁾					
a. Reactor Building/SLCRS (CV-		Elevated Release	2)			
Mid Range Noble Gas	(1)	1, 2, 3, & 4				35
Pri: (RM-1VS-110 Ch 7)	`		≤ 1660 cpm	1E-3 to	$1E+3 \text{ uCi/cc}^{(2)}$	
1st PMM: (RM-1VS-112 SA-10 2nd PMM: (RM-1VS-107B, or 1						
3rd PMM: Grab Sampling every	,					
High Range Noble Gas	(1)	1, 2, 3, & 4				35
Pri: (RM-1VS-110 Ch 9)			NA	1E-1 to	$1E+5 \text{ uCi/cc}^{(2)}$	35
1st PMM: (RM-1VS-112 SA-9 2nd PMM: (RM-1VS-107B, or 1	10 (24 5)					
3rd PMM: Grab Sampling every						
b. Auxiliary Building Ventilation	System (VV-1	: Also called Ven	tilation Vent)			•
Mid Range Noble Gas	(1)	1, 2, 3, & 4				35
Pri: (RM-1VS-109 Ch 7)		• • •	≤ 1390 cpm	1E-3 to	1E+3 uCi/cc ⁽²⁾	
1st PMM: (RM-1VS-111 SA-10 2nd PMM: (RM-1VS-101B, or 10						
3rd PMM: Grab Sampling every						
High Range Noble Gas	(1)	1, 2, 3, & 4				35
Pri: (RM-1VS-109 Ch 9)		, _, _, _, _, .	NA	1E-1 to	1E+5 uCi/cc ⁽²⁾	
1st PMM: (RM-1VS-111 SA-9)						
2nd PMM: (RM-1VS-101B, or 16 3rd PMM: Grab Sampling every	· ·					
,		`				
c. Gaseous Waste/Process Vent Sy <u>Mid Range Noble Gas</u>	•	•				35
Pri: (RM-1GW-109 Ch 7)	(1)	1, 2, 3, & 4	NA	1E-3 to	1E+3 uCi/cc ⁽³⁾	دد
1st PMM: (RM-1GW-110 SA-10			~ ** *			
2nd PMM: (RM-1GW-108B, or 1	,					
3rd PMM: Grab Sampling every						
High Range Noble Gas	(1)	1, 2, 3, & 4		155 4		35
Pri: (RM-1GW-109 Ch 9) 1st PMM: (RM-1GW-110 SA-9)			≤ 1.76E+5 cpm	1 IE-1 to	IE+5 uCi/cc ⁽³⁾	
2nd PMM: (RM-1GW-108B, or 1						
3rd PMM: Grab Sampling every						

the ODCM Surveillance Requirements do not apply to the PMM. Therefore, the reporting requirement of Action 35b would still apply when inoperability of the primary instrument exceeds 30 days.

Beaver Valley	Powe	r Station		Procedure Nu	umber: 1/2-ODC-3.03	
Title:				Unit:	Level Of Use:	- <u></u>
ODCM. Controls for DETR - UP	DEM 10	~ * ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	, 	<u>1/2</u> Revision:	General Skill Page Number:	Keterence
ODCM: Controls for RETS and R				9	21 of	82
	А	TTACHMENT	D			
ODCM CONTROLS		Page 3 of 8	DING ING	DIMEN	TATION	
ODEM CONTROLS	. KADIA	TION MONTIC		KUMEN	TATION	
	TAL	BLE 3.3-6 (Con	tinued)			
BV-1 RAD	IATION N	MONITORING	INSTRUME	NTATIO	N	
Pri = Primary Inst	ruments,	PMM = Prepl	anned Metho	d of Mon	itoring ^(a)	
-	MINIMUM	Ĩ			NOMINAL	
С	HANNELS	APPLICABLE	/	ME	ASUREMENT	
<u>INSTRUMENT</u> C	PERABLE	MODES	SETPOINT ^{(I}	_	RANGE	ACTION
2. Noble Gas Effluent Steam Monito		a e , m x ex			•	
a. Atmospheric Steam Dump Valve Pri: (RM-1MS-100A)	e and Code (1)	Safety Relief Valv 1, 2, 3, & 4	ve Discharge ≤ 50 cpm	112 1	to 1E+3 uCi/cc	35
PMM: (Form 1/2-HPP-4.02.009.F0		1, 2, 3, & 4	≤ 50 cpm	16-1		66
Pri: (RM-1MS-100B)	(1)	1, 2, 3, & 4	≤ 50 cpm	1E-1	to 1E+3 uCi/cc	35
PMM: (Form 1/2-HPP-4.02.009.F0			_ · · · · · · · ·	12 1		
	(1)	1, 2, 3, & 4	< 50			35
Pri: (RM-1MS-100C)		1, 2, 5, & 4	≤ 50 cpm	1E-1	to 1E+3 uCi/cc	55
PMM: (Form 1/2-HPP-4.02.009.F0	1)					
b. Auxiliary Feedwater Pump Turb	ine Exhaust	;				
Pri: (RM-1MS-101)	(1)	1, 2, 3, & 4	≤ 170 cpm	1E-1	to 1E+3 uCi/cc	35
PMM: (Form 1/2-HPP-4.02.009.F0	1)		-			
^(a) Instruments or actions shown as PM						
<u>SINCE</u> the PMM instruments show Surveillance Requirements do not a						
apply when inoperability of the prir				Jun ement o	I ACION 350 WO	nu sun
	-					

01-6-8

Beaver Valley	/ Powe	er Station		Procedure Nun]	nber: /2-ODC-3.03	
Title:	_	· ·		Unit: 1/2	Level Of Use: General Skill	Reference
ODCM: Controls for RETS and F	REMP Pro	ograms	1	Revision: 9	Page Number: 22 of	82
ODCM CONTROLS		TTACHMENT Page 4 of 8 TION MONIT				<u></u>
	TA	BLE 3.3-6 (Co	ntinued)			
BV-2 RAD	IATION	MONITORING	G INSTRUME	NTATION	<u>1</u>	
Pri = Primary Inst	ruments,	PMM = Prep	planned Method	d of Moni	toring ^(a)	
CH	INIMUM IANNELS PERABLE	APPLICABLE <u>MODES</u>	SETPOINT ⁽¹⁾	MEA	IOMINAL ASUREMENT <u>RANGE</u>	<u>ACTIO</u>
1. Noble Gas Effluent Monitors						
a. SLCRS Filtered Pathway (CV-2;	Also called	Elevated Release	e)	•		
Midrange Noble Gas (Xe-133) Pri: (2HVS-RQ109C) 1st PMM: (2HVS-RQ109D) 2nd PMM: (2HVS-RQ109B) 3rd PMM: Grab Sampling every 12	(1) 2 hours	1, 2, 3, & 4	NA	1E-4 t	o 1E+2 µCi/cc	35
High Range Noble Gas (Xe-133) Pri: (2HVS-RQ109D) 1st PMM: (2HVS-RQ109C) 2nd PMM: (2HVS-RQ109B) 3rd PMM: Grab Sampling every 12	(1) 2 hours	1, 2, 3, & 4	NA	1E-1 t	o 1E+5 μCi/cc	35
2. Noble Gas Effluent Steam Monitors	5					
a. Main Steam Discharge (Kr-88) Pri: (2MSS-RQ101A) PMM: Form 1/2-HPP-4.02.009.F01	1/SG	1, 2, 3, & 4	≤3.9E-2 μCi/α	cc 1E-2 to	o 1E+3 µCi/cc	35
Pri: (2MSS-RQ101B) PMM: Form 1/2-HPP-4.02.009.F01	1/SG	1, 2, 3, & 4	≤3.9E-2 μCi/α	c 1E-2 to	ο 1E+3 μCi/cc	35
Pri: (2MSS-RQ101C) PMM: Form 1/2-HPP-4.02.009.F01	1/SG	1, 2, 3, & 4	\leq 3.9E-2 µCi/o	c 1E-2 to	ο 1E+3 μCi/cc	35

and the second se

Ą

(a) Instruments or actions shown as PMM are the preplanned methods to be used when the primary instrument is inoperable. <u>SINCE</u> the PMM instruments shown are not considered comparable alternate monitoring channels, <u>THEN</u> the ODCM Surveillance Requirements do not apply to the PMM. Therefore, the reporting requirement of Action 35b would still apply when inoperability of the primary instrument exceeds 30 days.

]	Beav	er Valley Power Station	Procedure N	umber: 1/2-ODC-3.03		
Title:		······································	Unit:	Level Of Use:		
ODCM: Cont	rols for	RETS and REMP Programs	<u>1/2</u> Revision: 9	General Skill Reference Page Number: 23 of 82		
		ATTACHMENT D				
C	DCM	Page 5 of 8 CONTROLS: RADIATION MONITORING INS	STRUMEN	ITATION		
		TABLE 3.3-6 (Continued)				
		TABLE NOTATIONS				
(1) Above	e backg	ground				
⁽²⁾ Nomi	nal rang	ge for Ch 7 and Ch 9. The Alarm is set on Ch 7.				
⁽³⁾ Nomi	nal rang	ge for Ch 7 and Ch 9. The Alarm is set on Ch 9.				
⁽⁴⁾ Other	SPINC	G-4 channels are not applicable to this ODCM Con	ntrol.			
		ACTION STATEMENTS				
ACTION 35	35 With the number of OPERABLE channels less than required by the Minimum Channels OPERABLE requirement, either restore the inoperable Channel(s) to OPERABLE status within 72 hours, or:					
	a)	Initiate the preplanned alternate method of mor parameter(s), and	itoring the	appropriate		
	b)	Return the channel to OPERABLE status within report and explain in the next Radioactive Efflu inoperability was not corrected in a timely man	ent Release	-		
				,		

	Beaver Valley Pc	wer Stat	ion	Procedure Num 1	nber: /2-ODC-3.03
fitle:				Unit:	Level Of Use:
				1/2	General Skill Reference
DDCM: Co	ontrols for RETS and REMI	Programs		Revision:	Page Number:
				9	24 of 82
		ATTACH	IMENT D		
		Page	6 of 8		
	ODCM CONTROLS: RA	DIATION M	IONITORING IN	ISTRUMENT	ATION
			-3 (Continued)		
<u>BV-1</u>	RADIATION MONITORIN	<u>G INSTRUM</u>	ENTATION SURV	/EILLANCE R	EQUIREMENTS
	Pri = Primary Instrume	nts, PMN	A = Preplanned Me	thod of Monite	oring ^(a)
				CHANNEL	MODES IN WHICH
		CHANNE	CHANNEL	OPERATIONA	
	INSTRUMENT	L <u>CHECK</u>	CALIBRATION	<u>TEST</u>	REQUIRED
1. Noble G	as Effluent Monitors - SPINGS	1			
a. React	or Building/SLCRS (CV-1; Also	o called Elevat	ed Release)		
	nge Noble Gas	S	R	М	1, 2, 3, & 4
·	RM-1VS-110 Ch 7)				
	IM: (RM-1VS-112 SA-10)	(\mathbf{h}, \mathbf{f})			
	MM: (RM-1VS-107B, or VS-110 MM: Grab Sampling every 12 ho				
	Range Noble Gas	S	R	М	1, 2, 3, & 4
	RM-1VS-110 Ch 9)		K	141	$1, 2, 5, \infty$ 4
•	IM: (RM-1VS-112 SA-9)				
2nd Pl	MM: (RM-1VS-107B, or VS-110				
3rd PN	4M: Grab Sampling every 12 ho	urs			
b. Auxili	ary Building Ventilation Syster	n (VV-1; Also	called Ventilation V	'ent)	
	ange Noble Gas	S	R	М	1, 2, 3, & 4
	RM-1VS-109 Ch 7)				
	IM: (RM-1VS-111 SA-10) MM: (RM-1VS-101B, or VS-109	(h 5)			
	1M: Grab Sampling every 12 ho	,			
	Range Noble Gas	S	R	М	1 7 7 8-1
	Cange Noble Gas CM-1VS-109 Ch 9)	3	Л	IVI	1, 2, 3, & 4
	IM: (RM-1VS-111 SA-9)				
2nd PN	MM: (RM-1VS-101B, or VS-109				
3rd PN	1M: Grab Sampling every 12 ho	urs			
c. Gaseo	us Waste Process Vent System	(PV-1,2)			
	ange Noble Gas	S	. R	М	1, 2, 3, & 4
	RM-1GW-109 Ch 7) IM: (RM-1GW-110 SA-10)				
	MM: (RM-1GW-110 SA-10) MM: (RM-1GW-108B, or GW-10)9 Ch 5)			
	1M: Grab Sampling every 12 ho	,			
	Range Noble Gas	S	R	М	1, 2, 3, & 4
	M-1GW-109 Ch 9)		K	TA1	$1, 2, 3, \infty$ 4
	IM: (RM-1GW-110 SA-9)				
2nd PN	AM: (RM-1GW-108B, or GW-10				
3rd PN	1M: Grab Sampling every 12 ho	urs			

I

4

To the first methods of the second sec

" .,

(a) Instruments or actions shown as PMM are the preplanned methods to be used when the primary instrument is inoperable. <u>SINCE</u> the PMM instruments shown are not considered comparable alternate monitoring channels, <u>THEN</u> the ODCM Surveillance Requirements do not apply to the PMM. Therefore, the reporting requirement of Action 35b would still apply when inoperability of the primary instrument exceeds 30 days.

Beaver Valley Po	wer Stat	ion	Procedure Numb	er: 2-ODC-3.03
Title:				Level Of Use:
			1/2	General Skill Reference
DDCM: Controls for RETS and REMP	Programs		Revision: 9	Page Number: 25 of 82
	ATTACH	MENT D		
	Page			
ODCM CONTROLS: RA	DIATION M	IONITORING II	NSTRUMENTA	ATION
	TABLE 4.3	-3 (Continued)		
BV-1 RADIATION MONITORING	INSTRUM	ENTATION SUP	RVEILLANCE	REQUIREMENTS
Pri = Primary Instrumer	nts, PMM	= Preplanned Me	ethod of Monito	oring ^(a)
2	,	x	CHANNEL	MODES IN WHICH
	CHANNE	CHANNEL	OPERATIONAL	. SURVEILLANCE
INSTRUMENT	L <u>CHECK</u>	CALIBRATION	TEST	REQUIRED
2. Noble Gas Effluent Steam Monitors	<u> </u>			
a. Atmospheric Steam Dump Valve and Pri: (RM-1MS-100A)	Code Safety I S	Relief Valve Discha	rge M	1, 2, 3, & 4
PMM: (Form 1/2-HPP-4.02.009.F01)	6	K	141	J, 2, J, 0 4
, , , , , , , , , , , , , , , , , , ,				
Pri: (RM-1MS-100B)	S	R	Μ	1, 2, 3, & 4
PMM: (Form 1/2-HPP-4.02.009.F01)				
Pri: (RM-1MS-100C)	S	R	М	1, 2, 3, & 4
PMM: (Form 1/2-HPP-4.02.009.F01)				
b. Auxiliary Feedwater Pump Turbine		_		
Pri: (RM-1MS-101) PMM: (Form 1/2-HPP-4.02.009.F01)	S	R	М	1, 2, 3, & 4
1 WIWI. (101111 1/2-1111 1-4.02.009.101)				
(a) Instruments or actions shown as PMM	A are the prepla	anned methods to be	used when the prin	mary instrument is
inoperable. <u>SINCE</u> the PMM instrum				
<u>THEN</u> the ODCM Surveillance Requ Action 35b would still apply when in				
read so would shin upply when hi	operaenney er t	no primary motioner		•

01-6-8

Beaver Valley Power Station			Procedure Nu	umber: 1/2-ODC-3.03
Title:			Unit: 1/2	Level Of Use: General Skill Reference
ODCM: Controls for RETS and REMP Pro	ograms		Revision: 9	Page Number: 26 of 82
A	ATTACH			20 01 02
ODCM CONTROLS: RADIA	Page 8		STRUMEN	TATION
	TABLE 4	.3-3 (Continued)	2	
BV-2 RADIATION MONITORING IN	STRUME	NTATION SUR	VEILLANC	<u>E REQUIREMENTS</u>
Pri = Primary Instruments,	PMM =	Preplanned Met	hod of Mon	itoring ^(a)
INSTRUMENT 1. Noble Gas Effluent Monitors	EL CHECK	CALIBRATION	CHANNEL OPERATION TEST	
a. SLCRS Unfiltered Pathway (CV-2; Also o		•		
Mid Range Noble GasPri: (2HVS-RQ109C)1st PMM: (2HVS-RQ109D)2nd PMM: (2HVS-RQ109B)3rd PMM: Grab Sampling every 12 hours	S	R	М	1, 2, 3, & 4
High Range Noble Gas Pri: (2HVS-RQ109D) 1st PMM: (2HVS-RQ109C) 2nd PMM: (2HVS-RQ109B) 3rd PMM: Grab Sampling every 12 hours	S	R	M	1, 2, 3, & 4
2. Noble Gas Effluent Steam Monitors				
a. Main Steam Discharge (Kr-88) Pri: (2MSS-RQ101A) PMM: (Form 1/2-HPP-4.02.009.F01)	S	R	М	1, 2, 3, & 4
Pri: (2MSS-RQ101B) PMM: (Form 1/2-HPP-4.02.009.F01)	S	R	М	1, 2, 3, & 4
Pri: (2MSS-RQ101C) PMM: (Form 1/2-HPP-4.02.009.F01)	S	R	М	1, 2, 3, & 4
^(a) Instruments or actions shown as PMM are the inoperable. <u>SINCE</u> the PMM instruments should be a surveillance Requirements do no would still apply when inoperability of the p	nown are not ot apply to th	considered comparate PMM. Therefore,	the reporting	nonitoring channels, THEN

Beaver Valley Power Station Procedure Number: 1/2-ODC-				1
Title:		Unit:	1/2-ODC-3.03 Level Of Use:	
ODCN	1: Controls for RETS and REMP Programs	1/2 Revision:	General Skill Reference Page Number:	
	~	9	27 of 82	
	ATTACHMENT E Page 1 of 10 ODCM CONTROLS: RETS INSTRUMENTATION FOR L	IQUID EI	FFLUENTS	
CONT	TROLS: RADIOACTIVE LIQUID EFFLUENT MONITORING	INSTRU	MENTATION	
3.3.3.	9 In accordance with T.S. 5.5.2.a, the radioactive liquid eff instrumentation channels shown in ODCM Control 3.3.3 OPERABLE with their alarm/trip setpoints set to ensure CONTROL 3.11.1.1 are not exceeded. The alarm/trip setpoints channels shall be determined in accordance	3.9, Table that the li etpoints of	3.3-12 shall be imits of ODCM f the radiation	
Appli	cability - During Releases Through the Flow Path:			
	a. For all Gross Activity (e.g.; Beta or Gamma) Radioad	ctivity Mo	nitors	
	b. For all Flow Rate Measurement Devices			
<u>Appli</u>	cability - During Liquid Additions to the Tank:			
	a. For all Tank Level Indicating Devices			
Action	<u>n:</u>			
a.	With a radioactive liquid effluent monitoring instrumentation cl conservative than required by the above specification, immedia radioactive liquid effluents monitored by the affected channel o	tely suspe	nd the release of	
b.	With one or more radioactive liquid effluent monitoring instrum take the ACTION shown in ODCM Control 3.3.3.9, Table 3.3- alarm setpoint. Exert a best effort to return the channel to opera unsuccessful, generate a Condition Report and explain in the ne Report why the inoperability was not corrected in a timely man	12 or cons able status ext Radioa	ervatively reduce the within 30 days, and if	8-9-10
c.	The provisions of ODCM CONTROL 3.0.3 are not applicable.			
SURV	/EILLANCE REQUIREMENTS			
4.3.3.	9 Each radioactive liquid effluent monitoring instrumentate demonstrated operable by performance of the CHANNE CHANNEL CALIBRATION, and CHANNEL OPERA frequencies shown in ODCM Control 3.3.3.9, Table 4.3	EL CHECH TIONAL '	K, SOURCE CHECK,	
			•	

Unit: 1/2 Revision: 9 E	1/2-ODC-3.03 Level Of Use: General Skill Reference Page Number: 28 of 82
9	-
	20 01 02
ION FOR LIQUID E	
NITORING INSTRU	MENTATION
Iternate Instruments (2	1)
MINIMUM CHANNE <u>OPERABLE</u>	LS <u>ACTION</u>
on Of Release	
(1)	23
(1)	23
(1)	24
Release	
(1)	24
(1)	25
(1)	25
(1)	25A
uilding)	
(1)	26
. (1)	26
(1)	26
(1)	26
	NITORING INSTRU Alternate Instruments ^(a) MINIMUM CHANNE OPERABLE (1) (1) (1) (1) Release (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)

And the second of the second sec

managerers statistics increased

Beaver Valley Power Station	Procedure Num	nber: /2-ODC-3.03	
Title:	Unit: 1/2	Level Of Use: General Skill Reference	
ODCM: Controls for RETS and REMP Programs	Revision:	Page Number:	
ATTACHMENT E	99	29 of 82	
Page 3 of 10 ODCM CONTROLS: RETS INSTRUMENTATION FOR LI		ELLENTS	
ODEM CONTROLS. RETS INSTROMENTATION FOR L	IQUID EF.	rloen15	
TABLE 3.3-12 (continued)			
BV-2 RADIOACTIVE LIQUID EFFLUENT MONITORING	INSTRUM	IENTATION	0
Pri = Primary Instruments Alt = Alternate Instr	ruments ^(a)		6-5
	IIMUM		8
	ANNELS ERABLE	ACTION	
1. Gross Radioactivity Monitor Providing Alarm, <u>And</u> Automatic	Terminati	ion Of Release	
a. Liquid Waste Process Effluent Monitor Pri: [2SGC-RQ100]	(1)	23	
2. Gross Radioactivity Monitors Providing Alarm, <u>But Not</u> Provid	ing Termi	ination Of Release	
a. None Required			
3. Flow Rate Measurement Devices			
a. Liquid Radwaste Effluent Pri: [2SGC-FS100]	(1)	25	
b. Cooling Tower Blowdown Line	(1)	25A	
Pri: [FT-1CW-101-1], or 1st Alt: [FT-1CW-101] and [2CWS-FT101], or 2nd Alt: Perform 1MSP-31.06-I			01-6-
4. Tank Level Indicating Devices (for tanks outside plant buildings	5)		' <i>\$</i> 2
a. None Required			
^(a) Condition Report generation and reporting in the Radioactive Effluent Release Rep not apply when using an alternate to satisfy inoperability of the primary instrument	ort (per Con beyond 30 c	trol 3.3.3.9 Action b) do lays.	8-9-10

	Beav	er Valley Power Station	Procedure N	umber: 1/2-ODC-3.03
Title:	·····	· · · · · · · · · · · · · · · · · · ·	Unit: 1/2	Level Of Use: General Skill Reference
ODCM: Cor	ntrols for	RETS and REMP Programs	Revision: 9	Page Number: 30 of 82
OI	DCM CO	ATTACHMENT E Page 4 of 10 ONTROLS: RETS INSTRUMENTATION FOR L	<u></u>	
		TABLE 3.3-12 (continued)		
		ACTION STATEMENTS		
Action 23	OPE	the number of channels OPERABLE less than req RABLE requirement, effluent releases may be initi to release:	-	
	1.	At least two independent samples are analyzed in SURVEILLANCE REQUIREMENT 4.11.1.1.1 qualified members of the Facility Staff independ calculations ⁽¹⁾ and discharge valving, or	, and at lea	ist two technically
	2.	Initiate monitoring with the comparable alternate Surveillance requirements applicable to the inop comparable alternate monitoring channel when u CONTROL requirement.	erable cha	nnel shall apply to the
	Other	wise, suspend release of radioactive effluents via t	his pathwa	ay.
Action 24		the number of channels OPERABLE less than req RABLE requirement, effluent releases via this path	-	
	1.	That at least once per 12 hours grab samples are (beta or gamma) at a Lower Limit of Detection (
	2.	Initiate monitoring with the comparable alternate Surveillance requirements applicable to the inop comparable alternate monitoring channel when u CONTROL requirement.	erable cha	nnel shall apply to the
rate calcu "reviewe	ulations, r" satisf	ter software used for discharge permit generation a then the independent signatures on the discharge p y the requirement for "two technically qualified r erify the release rate calculations"	permit for	"preparer" and

1997 - 19

n P

i

	Beav	er Valley Power Station	Procedure Nu	umber: 1/2-ODC-3.03
Title:			Unit:	Level Of Use:
ODCM: Con	trols for	r RETS and REMP Programs	1/2 Revision:	General Skill Reference Page Number:
OD	OCM CO	ATTACHMENT E Page 5 of 10 ONTROLS: RETS INSTRUMENTATION FOR L	L9	<u>31 of 82</u> FFLUENTS
		Table 3.3-12 (continued)		
		ACTION STATEMENTS		
Action 25		the number of channels OPERABLE less than req RABLE requirement, effluent releases via this path	•	
	1.	The flow rate is estimated at least once per 4 hou curves may be used to estimate flow), or	urs during	actual releases. (Pump
	2.	Initiate monitoring with the comparable alternate Surveillance requirements applicable to the inop comparable alternate monitoring channel when a CONTROL requirement.	erable cha	nnel shall apply to the
Action 25A	OPE meth	the number of channels OPERABLE less than req RABLE requirement, effluent releases via this path od required for the 1st Alternate, or by using the in nate, as follows:	way may	continue by using the
	w re a	st Alternate: Initiate monitoring with the comparaby which includes both [FT-1CW-101] and [2CWS-FT equirements applicable to the inoperable channel sh Iternate monitoring channel when used to satisfy the equirement, or	`101]. OD nall apply [•]	CM Surveillance to the comparable
		nd Alternate: The dilution flow rate is calculated at ctual releases using the methods described in proce		
Action 26		the number of channels OPERABLE less than req RABLE requirement, liquid additions to this tank n	-	
	1.	The tank liquid level is estimated during all liqu	id additior	ns to the tank, or
	2.	Initiate monitoring with the comparable alternate Surveillance requirements applicable to the inop comparable alternate monitoring channel when a CONTROL requirement.	erable cha	nnel shall apply to the
flow rate. value 22,8 operation	As a gi 300 gpm of a BV	P requires local water height measurements to calculate to uide, the combined flow rate result of this procedure sho (i.e., BV-1 flow rate = 15,000 gpm, + BV-2 flow rate = 7-1 Turbine Plant RW Pump, a BV-1 Rx Plant RW Pum the cooling tower plume.	ould be sim = 7,800 gpr	ilar to the ODCM design n) which assumes

•

.

8-9-10

01-6-8

Beaver Valley Powe				n = 0
			I Unit:	/2-ODC-3.03 Level Of Use:
			1/2	General Skill Reference Page Number:
	-		<u>9</u>	32 of 82
Ą		ГЕ		
ODCM CONTROLS: RETS IN	•	TION FOR I	IOUID EF	FLUENTS
				DODIVIO
	<u>TABLE 4.3-</u>	12		
			-	
INSTRUMENTATION	N SURVEILLA	NCE REQU	IREMENT	<u>S</u>
Pri = Primary Instr	uments, Alt	= Alternate Ir	struments	
INSTRUMENT	CHANNEL <u>CHECK</u>	SOURCE <u>CHECK</u>	CHANN <u>CALIBRA</u>	
Beta or Gamma Radioactivity Monitors	s Providing Alarn			
iquid Radwaste Effluent Line ri: (RM-1LW-104)	D	P ⁽⁵⁾	R ⁽³⁾	Q ⁽¹⁾
iquid Waste Contaminated rain Line ri: (RM-1LW-116)	D	P ⁽⁵⁾	R ⁽³⁾	Q ⁽¹⁾
uxiliary Feed Pump Bay rain Monitor ri: (RM-1DA-100)	D	D	R ⁽³⁾	Q ⁽¹⁾
	s Providing Alar	m But Not Prov	viding Auton	natic Termination Of
omponent Cooling - Recirculation Spray eat Exchangers River Water Monitor ri: (RM-1RW-100)	D	M ⁽⁵⁾	R ⁽³⁾	Q ⁽²⁾
Rate Monitors				
iquid Radwaste Effluent Lines ri: (FR-1LW-104) for (RM-1LW-104)	D ⁽⁴⁾	NA 	R	Q
iquid Waste Contaminated Drain Line ri: (FR-1LW-103) for (RM-1LW-116)	D ⁽⁴⁾	NA	R	Q
ooling Tower Blowdown Line ri: [FT-1CW-101-1), or st Alt: [FT-1CW-101] and [2CWS-FT101]	D ⁽⁴⁾	NA	R	Q
lowdown Line is a procedure, (i.e., 1MSP-	31.06-I),			
	A ODCM CONTROLS: RETS IN <u>BV-1 RADIOACTIV</u> <u>INSTRUMENTATIO</u> Pri = Primary Instr <u>INSTRUMENT</u> Beta or Gamma Radioactivity Monitors iquid Radwaste Effluent Line i: (RM-1LW-104) iquid Waste Contaminated rain Line i: (RM-1LW-116) uxiliary Feed Pump Bay rain Monitor i: (RM-1DA-100) Beta Or Gamma Radioactivity Monitor se omponent Cooling - Recirculation Spray eat Exchangers River Water Monitor i: (RM-1RW-100) Rate Monitors iquid Radwaste Effluent Lines i: (FR-1LW-104) for (RM-1LW-104) iquid Waste Contaminated Drain Line i: (FR-1LW-103) for (RM-1LW-116) cooling Tower Blowdown Line i: [FT-1CW-101-1], or at Alt: [FT-1CW-101] and [2CWS-FT101] OTE: <u>SINCE</u> the 2nd Alternate to the Cool lowdown Line is a procedure, (i.e., 1MSP- HEN Surveillance Requirements do not ap	Page 6 of 10ODCM CONTROLS: RETS INSTRUMENTATABLE 4.3-BV-1 RADIOACTIVE LIQUID EFFINSTRUMENTATION SURVEILLAPri = Primary Instruments, AltCHANNELINSTRUMENTCHANNELINSTRUMENTCHANNELINSTRUMENTCHANNELINSTRUMENTCHANNELINSTRUMENTCHANNELINSTRUMENTCHANNELINSTRUMENTCHANNELINSTRUMENTCHANNELINSTRUMENTATION SURVEILLAPri = Primary Instruments, AltINSTRUMENTCHANNELINSTRUMENTINSTRUMENTINSTRUMENTATION SURVEILLAPri = Primary Instruments, AltINSTRUMENTINSTRUMENTINSTRUMENTINSTRUMENTINSTRUMENTINSTRUMENTINSTRUMENTINSTRUMENTINSTRUMENTINSTRUMENTINSTRUMENTINSTRUMENTINSTRUMENTINSTRUMENTINSTRUMENTINSTRUMENTINSTRUMENTINSTRU	ATTACHMENT E Page 6 of 10 ODCM CONTROLS: RETS INSTRUMENTATION FOR L <u>TABLE 4.3-12</u> <u>BV-1 RADIOACTIVE LIQUID EFFLUENT MO</u> <u>INSTRUMENTATION SURVEILLANCE REQU</u> Pri = Primary Instruments, Alt = Alternate Ir <u>CHANNEL</u> SOURCE <u>CHECK</u> <u>CHECK</u> <u>Beta or Gamma Radioactivity Monitors Providing Alarm And Automat</u> iquid Radwaste Effluent Line D P ⁽³⁾ i: (RM-1LW-104) iquid Waste Contaminated D P ⁽³⁾ i: (RM-1LW-106) uxiliary Feed Pump Bay D D <u>Beta Or Gamma Radioactivity Monitors Providing Alarm But Not Prov</u> se omponent Cooling - Recirculation Spray D M ⁽⁵⁾ eat Exchangers River Water Monitor i: (RM-1RW-100) Rate Monitors iquid Radwaste Effluent Lines D ⁽⁴⁾ NA i: (FR-1LW-104) for (RM-1LW-104) iquid Waste Contaminated Drain Line D ⁽⁴⁾ NA i: (FR-1LW-103) for (RM-1LW-116) cooling Tower Blowdown Line D ⁽⁴⁾ NA i: (FT-1CW-101-1), or tt Alt: [FT-1CW-101] and [2CWS-FT101] OTE: <u>SINCE</u> the 2nd Alternate to the Cooling Tower lowdown Line is a procedure, (i.e., IMSP-31.06-f), HEN Surveillance Requirements do not apply to the 2nd	ATTACHMENT E Page 6 of 10 ODCM CONTROLS: RETS INSTRUMENTATION FOR LIQUID EF TABLE 4.3-12 BV-1 RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENT Pri = Primary Instruments, Alt = Alternate Instruments CHANNEL SOURCE CHANN INSTRUMENT CHECK CHECK CALIBRA Beta or Gamma Radioactivity Monitors Providing Alarm And Automatic Terminat quid Radwaste Effluent Line D P ⁽⁵⁾ R ⁽³⁾ i: (RM-1LW-104) iquid Waste Contaminated D P ⁽⁵⁾ R ⁽³⁾ ri: (RM-1LW-116) uxiliary Feed Pump Bay D D R ⁽³⁾ rain Monitor i: (RM-1DA-100) Beta Or Gamma Radioactivity Monitors Providing Alarm But Not Providing Autom se omponent Cooling - Recirculation Spray D M ⁽⁵⁾ R ⁽³⁾ eat Exchangers River Water Monitor i: (RM-1RW-100) Rate Monitors i: (FR-1LW-104) for (RM-1LW-104) iquid Waste Contaminated Drain Line D ⁽⁴⁾ NA R i: (FR-1LW-103) for (RM-1LW-116) coling Tower Blowdown Line D ⁽⁴⁾ NA R i: (FT-1CW-101-1), or t Alt: [FT-1CW-101] and [2CWS-FT101] OTE: <u>SINCE</u> the 2nd Alternate to the Cooling Tower lowdown Line is a procedure, (i.e., IMSP-31.06-1), HEN Surveillance Requirements do not apply to the 2nd

Beaver Valley Pou	Procedure Number:			
Title:			1	
ODCM: Controls for RETS and REMP	Programs			6
	ATTACHMEN	ΤĒ		· · ·
ODCM CONTROLS RETS	0		JOUID EFF	LUENTS
				Debitto
T.	ABLE 4.3-12 (co	ntinued)		
BV-1 RADIOACT	<u>IVE LIQUID EFI</u>	FLUENT MO	NITORING	· · · ·
INSTRUMENTATI	ON SURVEILLA	ANCE REQU	IREMENTS	
Pri = Primary Ins	truments, Alt =	= Alternate In	struments	
				CHANNEL
	CHANNEL	SOURCE	CHANNEI	L OPERATIONAL
INSTRUMENT	<u>CHECK</u>	<u>CHECK</u>	CALIBRATI	<u>ON <u>TEST</u></u>
4. Tank Level Indicating Devices (for tanks	outside plant build	ings)		
		-	R	0
Pri: (LI-1PG-115A) for (1BR-TK-6A)	2			×
b Primary Water Storage Tank	D*	NA	R	0
	D	1421	i c	×
	ت *	NIA	р	0
	D*	INA	ĸ	Q
Beaver Valley Power Station 1/2-ODC-3.03 Title: Unit: Level of Use: ODCM: Controls for RETS and REMP Programs 1/2 General Skill Reference Revision: Page Number: 9 33 of 82 ATTACHMENT E Page 7 of 10 9 33 of 82 ODCM CONTROLS: RETS INSTRUMENTATION FOR LIQUID EFFLUENTS TABLE 4.3-12 (continued) 1/2 BV-1 RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS Pri = Primary Instruments, Alt = Alternate Instruments CHANNEL Pri = Primary Instruments, Alt = Alternate Instruments CHANNEL OPERATIONAL INSTRUMENT CHECK CHECK CALIBRATION 4. Tank Level Indicating Devices (for tanks outside plant buildings) a. Primary Water Storage Tank D* NA R Q				
	D*	NA	R	Q
$\mathbf{FII.} (\mathbf{LI} - \mathbf{IL} \mathbf{W} - \mathbf{III}) \text{ for } (\mathbf{IL} \mathbf{W} - \mathbf{IK} - 7\mathbf{B})$				

*During liquid additions to the tank.

Beaver Valley Power Station 1/2-ODC-3.03 Filte: Unit: Level Of Use: ODCM: Controls for RETS and REMP Programs Page Number: 9 ATTACHMENT E Page Number: 9 34 of 82 ATTACHMENT E Page 8 of 10 ODCM CONTROLS: RETS INSTRUMENTATION FOR LIQUID EFFLUENTS TABLE 4.3-12 (continued) BV-2 RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS Pri = Primary Instruments, Alt = Alternate Instruments Pri = Primary Instruments, Alt = Alternate Instruments CHANNEL OPERATIONAL INSTRUMENT CHANNEL SOURCE CHANNEL INSTRUMENT CHECK CHECK CHANNEL I.Gross Radioactivity Monitor Providing Alarm And Automatic Termination Of Release a. Liquid Radwaste Effluent D P ⁽⁵⁾ R ⁽⁷⁾⁽³⁾ Q ⁽⁶⁾ Pri: (2SGC-RQ100) D ⁽⁴⁾ NA R Q
1/2 General Skill Reference Revision: Page Number: 9 34 of 82 ATTACHMENT E Page 8 of 10 ODCM CONTROLS: RETS INSTRUMENTATION FOR LIQUID EFFLUENTS TABLE 4.3-12 (continued) BV-2 RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS Pri = Primary Instruments, Alt = Alternate Instruments CHANNEL OURCE INSTRUMENT CHANNEL SOURCE CHANNEL OURCE CHANNEL OURCE CHANNEL OURCE CHANNEL OURCE CHANNEL OPERATIONAL CHANNEL OURCE CHANNEL OPERATIONAL INSTRUMENT CHANNEL OPERATION INSTRUMENT OPIGO
ODCM: Controls for RETS and REMP Programs Revision: Page Number: 9 34 of 82 ATTACHMENT E Page 8 of 10 ODCM CONTROLS: RETS INSTRUMENTATION FOR LIQUID EFFLUENTS TABLE 4.3-12 (continued) BV-2 RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS Pri = Primary Instruments, Alt = Alternate Instruments CHANNEL OPERATIONAL INSTRUMENT D INSTRUMENT OPERATIONA
ATTACHMENT E Page 8 of 10 ODCM CONTROLS: RETS INSTRUMENTATION FOR LIQUID EFFLUENTS <u>TABLE 4.3-12 (continued)</u> <u>BV-2 RADIOACTIVE LIQUID EFFLUENT MONITORING</u> <u>INSTRUMENTATION SURVEILLANCE REQUIREMENTS</u> Pri = Primary Instruments, Alt = Alternate Instruments Pri = Primary Instruments, Alt = Alternate Instruments <u>CHANNEL</u> <u>SOURCE</u> <u>CHANNEL</u> <u>OPERATIONAL</u> <u>INSTRUMENT</u> <u>CHECK</u> <u>CHECK</u> <u>CALIBRATION</u> <u>TEST</u> 1. Gross Radioactivity Monitor Providing Alarm And Automatic Termination Of Release a. Liquid Waste Process Effluent D P ⁽⁵⁾ R ⁽⁷⁾⁽³⁾ Q ⁽⁶⁾ Pri: (2SGC-RQ100) 2. Flow Rate Measurement Devices a. Liquid Radwaste Effluent D ⁽⁴⁾ NA R Q
ODCM CONTROLS: RETS INSTRUMENTATION FOR LIQUID EFFLUENTS TABLE 4.3-12 (continued) BV-2 RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS Pri = Primary Instruments, Alt = Alternate Instruments Pri = Primary Instruments, Alt = Alternate Instruments CHANNEL SOURCE CHANNEL OPERATIONAL INSTRUMENT CHECK CHECK CALIBRATION TEST 1. Gross Radioactivity Monitor Providing Alarm And Automatic Termination Of Release a. Liquid Waste Process Effluent D P ⁽⁵⁾ R ⁽⁷⁾⁽³⁾ Q ⁽⁶⁾ Pri: (2SGC-RQ100) 2. Flow Rate Measurement Devices a. Liquid Radwaste Effluent D ⁽⁴⁾ NA R Q
TABLE 4.3-12 (continued)
BV-2 RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS Pri = Primary Instruments, Alt = Alternate Instruments CHANNEL INSTRUMENT CHANNEL SOURCE CHANNEL OPERATIONAL CHECK CHECK CALIBRATION TEST I.Gross Radioactivity Monitor Providing Alarm And Automatic Termination Of Release a. Liquid Waste Process Effluent D P(⁵) R ⁽⁷⁾⁽³⁾ Q ⁽⁶⁾ Pri: (2SGC-RQ100) D P(⁴⁾ NA A Liquid Radwaste Effluent D ⁽⁴⁾ NA
INSTRUMENTATION SURVEILLANCE REQUIREMENTS Pri = Primary Instruments, Alt = Alternate Instruments CHANNEL SOURCE CHANNEL OPERATIONAL INSTRUMENT CHANNEL SOURCE CHANNEL OPERATIONAL I.Gross Radioactivity Monitor Providing Alarm And Automatic Termination Of Release Q(6) a. Liquid Waste Process Effluent D P ⁽⁵⁾ R ⁽⁷⁾⁽³⁾ Q ⁽⁶⁾ 2. Flow Rate Measurement Devices D NA R Q
Pri = Primary Instruments, Alt = Alternate Instruments CHANNEL SOURCE CHANNEL OPERATIONAL INSTRUMENT CHECK CHECK CALIBRATION TEST 1. Gross Radioactivity Monitor Providing Alarm And Automatic Termination Of Release a. Liquid Waste Process Effluent D P ⁽⁵⁾ R ⁽⁷⁾⁽³⁾ Q ⁽⁶⁾ Pri: (2SGC-RQ100) P ⁽⁴⁾ NA R Q
CHANNEL INSTRUMENTSOURCE CHECKCHANNEL CHECKCHANNEL OPERATIONAL TEST1. Gross Radioactivity Monitor Providing Alarm And Automatic Termination Of Release a. Liquid Waste Process Effluent Pri: (2SGC-RQ100)DP(5)R(7)(3)Q(6)2. Flow Rate Measurement Devices a. Liquid Radwaste EffluentDP(4)NARQ
INSTRUMENTCHANNEL CHECKSOURCE CHECKCHANNEL CALIBRATIONOPERATIONAL TEST1. Gross Radioactivity Monitor Providing Alarm And Automatic Termination Of Release a. Liquid Waste Process Effluent Pri: (2SGC-RQ100)DP(5)R(7)(3)Q(6)2. Flow Rate Measurement Devices a. Liquid Radwaste EffluentDD(4)NARQ
 a. Liquid Waste Process Effluent D P⁽⁵⁾ R⁽⁷⁾⁽³⁾ Q⁽⁶⁾ Pri: (2SGC-RQ100) 2. Flow Rate Measurement Devices a. Liquid Radwaste Effluent D⁽⁴⁾ NA R Q
Pri: (2SGC-RQ100) 2. Flow Rate Measurement Devices a. Liquid Radwaste Effluent D ⁽⁴⁾ NA R Q
a. Liquid Radwaste Effluent D ⁽⁴⁾ NA R Q
a. Liquid Radwaste Effluent D ⁽⁴⁾ NA R Q
•
b. Cooling Tower Blowdown Line D ⁽⁴⁾ NA R Q -Pri: [FT-1CW-101-1], or 1st Alt: [FT-1CW-101] and [2CWS-FT101]
 <u>NOTE:</u> SINCE the 2nd Alternate to the Cooling Tower Blowdown Line is a procedure, (i.e., 1MSP-31.06-I), THEN Surveillance Requirements do not apply to the 2nd Alternate. 3. Tank Level Indicating Devices (for tanks outside plant buildings)
a. None Required

	H	Beaver Valley Power Station	Procedure Nu	nber: /2-ODC-3.03
Title:			Unit: 1/2	Level Of Use: General Skill Reference
ODCM	(: Cont	rols for RETS and REMP Programs	Revision: 9	Page Number: 35 of 82
	OD	ATTACHMENT E Page 9 of 10 CM CONTROLS: RETS INSTRUMENTATION FOR L		
		TABLE 4.3-12 (continued)		
		TABLE NOTATION		
(1)		HANNEL OPERATIONAL TEST shall also demonstrate ay and Control Room Alarm Annunciation occurs if any c		
	1.	Instrument indicates measured levels above the alarm/tri	ip setpoint.	
	2.	Downscale failure.		
	3.	Instrument controls not set in operate mode.		
(2)		HANNEL OPERATIONAL TEST shall also demonstrate neiation occurs if any of the following conditions exist:	e that Cont	rol Room Alarm
	1.	Instrument indicates measured levels above the alarm/tri	ip setpoint.	
	2.	Downscale failure.		
	3.	Instrument controls are not set in operate mode.		
(3)	perfor (Stand measu system CALI interv	nitial CHANNEL CALIBRATION for radioactivity measured using one or more of the reference standards certified lards/NIST) or using standards that have been obtained from the arement assurance activities with NBS/NIST. These stands in over its intended range of energy and rate capabilities. I BRATION, sources that have been related to the initial ca- als of at least once per 18 months. This can normally be a es. (Existing plants may substitute previously established tement).	d by the Na om supplie lards shoul For subseq libration sl accomplish	ational Bureau of rs that participate in d permit calibrating the uent CHANNEL hould be used, at ed during refueling
(4)	CHAI	NNEL CHECK shall consist of verifying indication of flow NNEL CHECK shall be made at least once daily on any da ch releases are made.		
(5)		URCE CHECK may be performed utilizing the installed n a portable source to obtain an upscale increase in the existing the provided the performance of the performance		-

.

[.]

		Deerver Valley Derver Station	Procedure Nu	mber:
		Beaver Valley Power Station	·]	1/2-ODC-3.03
Title:			Unit: 1/2	Level Of Use: General Skill Reference
ODC	M: Cor	ntrols for RETS and REMP Programs	Revision: 9	Page Number: 36 of 82
	OI	ATTACHMENT E Page 10 of 10 DCM CONTROLS: RETS INSTRUMENTATION FOR	<u></u>	
		TABLE 4.3-12 (continued)	,	
		TABLE NOTATION		
(6)	and	CHANNEL CALIBRATION shall also demonstrate that a Control Room Alarm Annunciation occurs if the instrume larm/trip setpoint.		
(7)		CHANNEL CALIBRATION shall also demonstrate that or sif either of the following conditions exist:	Control Roo	m Alarm Annunciatio
	1.	Downscale failure.		
	2.	Instrument controls are not set in operate mode.		
		·		

ļ,

ľ,

ter i terberetter bis solar i i 1 i 1 i 1

the second of the second s

7 4

***	Beaver Valley Power Station	Procedure Nur	
Title:		Unit:	/2-ODC-3.03 Level Of Use:
		1/2	General Skill Reference
ODCM: Co	ntrols for RETS and REMP Programs	Revision: 9	Page Number: 37 of 82
· · · · · · · · · · · · · · · · · · ·	ATTACHMENT F Page 1 of 13 ODCM CONTROLS: RETS INSTRUMENT FOR GASI	EOUS REL	
CONTROL	S: RADIOACTIVE GASEOUS EFFLUENT MONITORIN	NG INSTR	UMENTATION
3.3.3.10	In accordance with T.S. 5.5.2.a, the radioactive gaseous e instrumentation channels shown in ODCM Control 3.3.3. with their alarm/trip setpoints set to ensure that the limits are not exceeded. The alarm/trip setpoints of the radiation determined in accordance with 1/2-ODC-2.02.	10, Table 3 of ODCM	.3-13 shall be operable CONTROL 3.11.2.1
<u>Applicabili</u>	ty: During releases through the flow path.		
Action:			
setpoi 3.11.2	a radioactive gaseous process or effluent monitoring instrur nt less conservative than a value which will ensure that the 2.1 are met, immediately suspend the release of radioactive fected channel or correct the alarm/trip setpoint.	limits of O	DCM CONTROL
take t alarm unsuc	one or more radioactive gaseous effluent monitoring instru- ne ACTION shown in ODCM Control 3.3.3.10, Table 3.3-1 setpoint. Exert a best effort to return the channel to operab cessful, generate a Condition Report and explain in the nex t why the inoperability was not corrected in a timely manne	3 or conser ole status wi t Radioacti	vatively reduce the ithin 30 days, and if
c. The	provisions of ODCM CONTROL 3.0.3 are not applicable.		
SURVEILI	ANCE REQUIREMENTS		
4.3.3.10	Each radioactive gaseous effluent monitoring instrumenta demonstrated operable by performance of the CHANNEL CHANNEL CALIBRATION, and CHANNEL OPERAT frequencies shown in ODCM Control 3.3.3.10, Table 4.3-	L CHECK, S IONAL TE	SOURCE CHECK,
	· · · · · · · · · · · · · · · · · · ·		

Beaver Valley Power Sta				
itle:		Unit: 1/2	Level Of Use: General Skill	Reference
DDCM: Controls for RETS and REMP Programs		Revision:	Page Number:	
ATTAC	CHMENT F	9	<u>38.of</u>	82
•	e 2 of 13			
ODCM CONTROLS: RETS INST	RUMENT FOR GA	SEOUS REI	LEASES	
TA	BLE 3.3-13			
BV-1 RADIOACTIVE GASEOUS EFFI	LUENT MONITORIN	<u>G INSTRUMEN</u>	<u>ITATION</u>	
Pri = Primary Instruments	Alt = Alternate	Instruments ^(a)		
	MINIMUM			
INSTRUMENT	CHANNELS OPERABLE	APPLICAB	LITY AC	CTION
1. Gaseous Waste/Process Vent System (PV-1/2)				
a. Noble Gas Activity Monitor Pri: [RM-1GW-108B], or	(1)	*	27,29,3	0A,30B
Alt For Continuous Release: [RM-1GW-109 Ch	5] may only be used as	the comparable	alternate monito	oring
channel for continuous releases via this pathway. Alt For Batch Releases: [NONE, see Action 27];]				
the comparable alternate monitoring channel for bate	ch releases of the BV-1	GWDTs or the	BV-2 GWSTs.	
Specifically, <u>SINCE</u> this channel does not perform the THEN ACTION 27 shall be followed for batch relea				
b. Particulate and Iodine Sampler	(1)	*	32	-
Pri: Filter Paper & Charcoal Cartridge for [RM-1GW				
1st Alt: Filter Paper & Charcoal Cartridge for [RM-] 2nd Alt: Continuous collection via RASP Pump	IGW-110], or			
c. System Effluent Flow Rate Measuring Device	(1)	*	28A	
Pri: [FR-1GW-108], or Alt: [RM-1GW-109 Ch 10]				
d. Sampler Flow Rate Measuring Device Used for	. (1)	*	28B	
Particulate and Iodine Sample Collection (see 1.b Pri: [RM-1GW-109 Ch 15], or)			
1st Alt: Rotometer [FM-1GW-101] and Vacuum Ga	uge [PI-1GW-135], or			
2nd Alt: RASP Pump Flow Instrument 2. Auxiliary Building Ventilation System (VV-1; Also c	alled Ventilation Ven	ťÌ		
a. Noble Gas Activity Monitor	(1)	*	29,30A	
Pri: [RM-1VS-101B], or Alt: [RM-1VS-109 Ch 5]				
b. Particulate and Iodine Sampler	(1)	*	32	
Pri: Filter Paper & Charcoal Cartridge for [RM-1VS 1st Alt: Filter Paper & Charcoal Cartridge for [RM-1				
2nd Alt: Continuous collection via RASP Pump				
c. System Effluent Flow Rate Measuring Device Pri: [FR-1VS-101], or	(1)	*	28A	
Alt: [RM-1VS-109 Ch 10]				
d. Sampler Flow Rate Measuring Device Used for	(1)	*	28B	
Particulate and Iodine Sample Collection (see 2.b Pri: [RM-1VS-109 Ch 15], or	J			
1st Alt: Rotometer [FM-1VS-102] and Vacuum Gau 2nd Alt: RASP Pump Flow Instrument	ge [PI-1VS-659], or			
- · ·	ases via this pathway.			
^(a) Condition Report generation and reporting in the Radioa			tral 2 2 2 10 A at	• 1 \ 1.

.

a the state of the

100

1

01-6-8

	Beaver Valley Power Sta	tion	Procedure Nur	nber: /2-ODC-3.03
Title:			Unit:	Level Of Use:
ODC	M: Controls for RETS and REMP Programs		1/2 Revision:	General Skill Reference Page Number:
		HMENT F	9	<u>39 of 82</u>
		3 of 13		
	ODCM CONTROLS: RETS INSTR	UMENT FOR GA	ASEOUS REL	EASES
	TABLE 3.3	-13 (continued)		
	BV-1 RADIOACTIVE GASEOUS EFFLU	JENT MONITOR	RING INSTRU	IMENTATION
	Pri = Primary Instruments	Alt = Alternate	Instruments (a)
		MINIMUM	,	
		CHANNELS		
3. Re	<u>INSTRUMENT</u> actor Building/SLCRS (CV-1; Also called Elevated)	<u>OPERABLE</u> Release)	APPLICABI	
a.	Noble Gas Activity Monitor Pri: [RM-1VS-107B], or Alt: [RM-1VS-110 Ch 5]	(1)	*	29,30A
b.	Particulate and Iodine Sampler	(1)	*	32
	Pri: Filter Paper & Charcoal Cartridge for [RM-1VS- 1st Alt: Filter Paper & Charcoal Cartridge for [RM-1 2nd Alt: Continuous collection via RASP Pump			
c.	System Effluent Flow Rate Measuring Device Pri: [FR-1VS-112], or Alt: [RM-1VS-110 Ch 10]	(1)	*	28A
d.	Sampler Flow Rate Measuring Device Used for Particulate and Iodine Sample Collection (see 3.b) Pri: [RM-1VS-110 Ch 15], or 1st Alt: Rotometer [FM-1VS-103] and Vacuum Gaug 2nd Alt: RASP Pump Flow Instrument		*	28B
		ses via this pathway	<i>.</i>	
(2) -				
	ondition Report generation and reporting in the Radioac of apply when using an alternate to satisfy inoperability			

}

.

•

	Beaver Valley Power Station Procedure Number: 1/2-ODC-3.03			
Title:				/2-ODC-3.03
1100.			1/2	General Skill Reference
ODC	M: Controls for RETS and REMP Programs		Revision:	Page Number:
	ATTACH	MENIT E	9	40 of 82
	Page 4			
	ODCM CONTROLS: RETS INSTRU		SEOUS REL	EASES
	<u>TABLE 3.3-</u>	13 (continued)		
	BV-2 RADIOACTIVE GASEOUS EFFLUI	ENT MONITORII	NG INSTRUM	ENTATION
	Pri = Primary Instruments	Alt = Alternate	Instruments ^(a)	
		MINIMUM		
		CHANNELS		
1 SL	<u>INSTRUMENT</u> CRS Unfiltered Pathway (VV-2; Also called Ventilatio	OPERABLE On Vent)	APPLICABI	LITY <u>ACTION</u>
a.	Noble Gas Activity Monitor Pri: [2HVS-RQ101B]	(1)	*	29, 30B
b.	Particulate and Iodine Sampler	(1)	*	32
	Pri: Filter Paper & Charcoal Cartridge for [2HVS-RQ10 Alt: Continuous collection via RASP Pump			
c.	Process Flow Rate Monitor Pri: Monitor Item 29 for [2HVS-VP101]	(1)	*	28A
d.	Sampler Flow Rate Monitor Used for Particulate and Iodine Sample Collection (see 1.b) Pri: [2HVS-FIT101-1], or Alt: RASP Pump Flow Instrument	(1)	*	28B
2. SL	CRS Filtered Pathway (CV-2; Also called Elevated Re	elease)		
a.	Noble Gas Activity Monitor Pri: [2HVS-RQ109B]	(1)	*	29, 30B
b.	Particulate and Iodine Sampler Pri: Filter Paper & Charcoal Cartridge for [2HVS-RQ10	(1) 9] High Flow Path,	* or	32
	Alt: Continuous collection via RASP Pump			a a .
c.	Process Flow Rate Monitor Pri: Monitor Item 29 for [2HVS-FR22], or 1st Alt: [2HVS-FI22A and FI22C], or 2nd Alt: [2HVS-FI22B and FI22D]	(1)	*	28A
d.	Sampler Flow Rate Monitor Used for Particulate and Iodine Sample Collection (see 2.b) Pri: Monitor Item 28 & 72 for [2HVS-DAU109B), or Alt: RASP Pump Flow Instrument	(1)	*	28B
3. De	contamination Building Vent (DV-2)			
a.	Noble Gas Activity Monitor Pri: [2RMQ-RQ301B]	(1)	*	29
b.	Particulate and Iodine Sampler Pri: Filter Paper & Charcoal Cartridge for [2RMQ-RQ3 Alt: Continuous collection via RASP Pump	(1) 01], or	*	32
c.	Process Flow Rate Monitor	None	None	None
d.	Sampler Flow Rate Monitor Used for Particulate and Iodine Sample Collection (see 3.b) Pri: [2RMQ-FIT301-1], or Alt: RASP Pump Flow Instrument	(1)	. *	28B
		s via this pathway.		
^(a) Co	ondition Report generation and reporting in the Radioactiv			trol 3.3.3.10 Action b) do

10.000

Beaver Valley Power Station Intermediation Intermediation Intermediation Intermediation Intermediation DDCM: Controls for RETS and REMP Programs Deck Intermediation Intermediation Intermediation ATTACHMENT F Page 5 of 13 ODCM CONTROLS: RETS INSTRUMENT FOR GASEOUS RELEASES TABLE 3.3-13 (continued) BV-2 RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION Pri = Primary Instruments Alt = Alternate Instruments ^(a) MINMUM CHARGE ACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION Pri = Primary Instruments Alt = Alternate Instruments ^(a) MINMUM CHARGE ACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION Pri = Primary Instruments Alt = Alternate Instruments ^(a) MINMUM CHARGE ACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION Pri = Primary Instruments Alt = Alternate Instruments ^(a) MINMUM CHARGE ACTIVE ACTION Condensate Polishing Building Vent (CB-2) ACTIVERTION a. Noble Gas Activity Monitor None None None None None <t< th=""><th>Unit: <u>1/2</u> Revision: 9</th><th>Level Of Use: General Skill Reference Page Number:</th><th></th></t<>	Unit: <u>1/2</u> Revision: 9	Level Of Use: General Skill Reference Page Number:	
DDCM: Controls for RETS and REMP Programs Page Sof 13 ATTACHMENT F Page 5 of 13 ODCM CONTROLS: RETS INSTRUMENT FOR GASEOUS RELEASES TABLE 3.3-13 (continued) BV-2 RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION Pri = Primary Instruments Alt = Alternate Instruments (a) MINMUM MINMUM CHANNELS INSTRUMENT OPRENDUCTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION Pri = Primary Instruments Alt = Alternate Instruments (a) INSTRUMENT OPRENDUCTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION Pri = Primary Instruments Alt = Alternate Instruments INSTRUMENT OPRENDUCTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION Pri = Primary Instruments Alternate Instruments INSTRUMENT OPRENDUCTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION OPRENDUCTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION INSTRUMENT OPRENDUCTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION	Revision: 9	Page Number:	-1
ATTACHMENT F Page 5 of 13 ODCM CONTROLS: RETS INSTRUMENT FOR GASEOUS RELEASES TABLE 3.3-13 (continued) BV-2 RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION Pri = Primary Instruments Alt = Alternate Instruments ⁽⁰⁾ MINIMUM CHANNELS NSTRUMENT OPERALE APPLICABILITY ACTION Noble Gas Activity Monitor Pri: [2HVL-RQ112], or Alt: Continuous collection via RASP Pump C. Process Flow Rate Monitor Mone Substance (1) * 29 Pri: [2HVL-RQ112], or Alt: Continuous collection via RASP Pump 5. Maste Gas Storage Vault Vent (WV-2) a. Noble Gas Activity Monitor F: [2HVL-RQ112], or Alt: Continuous collection via RASP Pump C. Process Flow Rate Monitor MINIMUM SUBSTRUMENT During Releases via this pathway. (* Condition Report generation and reporting in the Radioactive Effluent Release Report (per Control 3.3.3.10 Action b) do	.	41 of 82	
Page 5 of 13 DOCM CONTROLS: RETS INSTRUMENT FOR GASEOUS RELEASES LABLE 3.3-13 (continued) MALE 3.3-13 (continued) DV-2 RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION Pri: 24 Content of Control Contend Contend Control Control Control Control Contend Co	GASEOUS REI		-
TABLE 3.3-13 (continued) DISTRUMENT CASEOUS EFFLUENT MONITORING INSTRUMENTATION Pri = Primary Instruments MINIMUM CHANNELS MINIMUM CHANNELS MINIMUM CHANNELS MINIMUM Pri: [2INU-RQ112B] Note Cas Activity Monitor Pri: [2INU-FIT112-1], or Alt: CASP Pump Flow Instrument None None None Starticulate and Iodine Sampler (VV-2) 3 Noble Cas Activity Monitor Pri: [2RMQ-RQ303B] 2 None None None None None None None <td>GASEOUS REL</td> <td></td> <td></td>	GASEOUS REL		
BV-2 RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION Pri = Primary Instruments Alt = Alternate Instruments (**) MINIMUM CHANNELS MINIMUM Condensate Polishing Building Vent (CB-2) a. Noble Gas Activity Monitor (1) * 29 Pri: [2HVL-RQ112B] None None None None Art: Continuous collection via RASP Pump C Process Flow Rate Monitor None None None None None None Noble Gas Activity Monitor (1) * 29 Pri: [2RMQ-RQ303B] Pri: [2RMQ-RQ303B] Pri: [2RMQ-RQ303B] Pri: [2RMQ-RQ303B] Surance all odine Sample for [2RMQ-RQ303], or Alt: Continuous collection via RASP Pump Surancol Colsci for (see 5.b) Pri: [2RMQ-FIT		LEASES	
Pri = Primary Instruments Alt = Alternate Instruments MINIMUM CHANNELS MINIMUM CHANNELS 1. Condensate Polishing Building Vent (CB-2) Image: CHANNELS a. Noble Gas Activity Monitor (1) * 29 pri: [2HVL-RQ112B] (1) * 29 b. Particulate and Iodine Sampler (1) * 32 pri: Filter Paper & Charcoal Catridge for [2HVL-RQ112], or Att: Continuous collection via RASP Pump None None c. Process Flow Rate Monitor None None None didine Sampler Collection (see 4.b) fri: [2RMQ-RQ303B] 1) * 29 b. Particulate and Iodine Sampler (1) * 28 32 and Iodine Sample Collection (see 4.b) fri: [2RMQ-RQ303B] 1) * 29 b. Piri: [2RMQ-RQ303B] (1) * 29 29 pri: Filter Paper & Charcoal Catridge for [2RMQ-RQ303], or Att: Continuous collection via RASP Pump 32 32 pri: Filter Paper & Charcoal Catridge for [2RMQ-RQ303], or Att: Continuous collection via RASP Pump None None c. Process Flow Rate Monitor None None None dio Iodine Sample Coll	D		
MINIMUM CHANNELS OPERABLE APPLICABILITY ACTION 4. Condensate Polishing Building Vent (CB-2) a. Noble Gas Activity Monitor (1) * 29 Pri: [2HVL-RQ112B] b. Particulate and Iodine Sampler (1) * 32 Pri: Filter Paper & Charcoal Cattridge for [2HVL-RQ112], or Att: Continuous collection via RASP Pump c. Process Flow Rate Monitor Used for Particulate (1) * 28B and Iodine Sampler Collection (see 4.b) Pri: [2HVL-FIT112-1], or Att: RASP Pump Flow Instrument 5. Waste Gas Storage Vault Vent (WV-2) a. Noble Gas Activity Monitor (1) * 29 Pri: [2RMQ-RQ303B] b. Particulate and Iodine Sampler (1) * 32 Pri: Filter Paper & Charcoal Cartridge for [2RMQ-RQ303], or Att: Continuous collection via RASP Pump c. Process Flow Rate Monitor Used for Particulate (1) * 32 Pri: Filter Paper & Charcoal Cartridge for [2RMQ-RQ303], or Att: Continuous collection via RASP Pump c. Process Flow Rate Monitor Used for Particulate (1) * 28B and Iodine Sample Collection (see 5.b) Pri: [2RMQ-FI]303-1], or Alt: RASP Pump Flow Instrument * During Releases via this pathway.	ORING INSTRU	JMENTATION	
CHANNELS OPERABLE APPLICABILITY ACTION ACTION A. Condensate Polishing Building Vent (CB-2) a. Noble Gas Activity Monitor (1) Pri: [2HVL-RQ112B] b. Particulate and Iodine Sampler (1) Pri: Filter Paper & Charcoal Cartridge for [2HVL-RQ112], or Att: Continuous collection via RASP Pump c. Process Flow Rate Monitor Used for Particulate (1) Sampler Flow Rate Monitor Used for Particulate (1) Sampler Flow Rate Monitor Used for Particulate (1) ACTION Att: RASP Pump Flow Instrument S. Waste Gas Storage Vault Vent (WV-2) a. Noble Gas Activity Monitor Pri: [2HVL-RQ112], or Att: RASP Pump Flow Instrument C. Process Flow Rate Monitor (1) Pri: [2HVL-RQ303B] Pri: Filter Paper & Charcoal Cartridge for [2RMQ-RQ303], or Att: Continuous collection via RASP Pump C. Process Flow Rate Monitor Used for Particulate (1) Pri: Filter Paper & Charcoal Cartridge for [2RMQ-RQ303], or Att: Continuous collection vise AsP Pump C. Process Flow Rate Monitor Used for Particulate (1) Pri: [2HVL-RQ11303-1], or Att: RASP Pump Flow Instrument * During Releases via this pathway. (*) Condition Report generation and reporting in the Radioactive Effluent Release Report (per Control 3.3.3.10 Action b) do	ate Instruments ^{(a}	a)	3
INTRUMENT OPERABLE APPLICABILITY ACTION 4. Condensate Polishing Building Vent (CB-2) . Noble Gas Activity Monitor (1) * 29 a. Noble Gas Activity Monitor (1) * 29 . . 29 b. Particulate and Jodine Sampler (1) * 32 . </td <td>ſ</td> <td></td> <td></td>	ſ		
 4. Condensate Polishing Building Vent (CB-2) a. Noble Gas Activity Monitor Pri: [2HVL-RQ112B] b. Particulate and Iodine Sampler (1) * 29 Pri: [2HVL-RQ112B] b. Particulate and Iodine Sampler (1) * 32 Pri: [2HVL-RQ112B], or Alt: Continuous collection via RASP Pump c. Process Flow Rate Monitor Used for Particulate (1) * 28B and Iodine Sampler Collection (see 4.b) Pri: [2HVL-FIT112-1], or Alt: RASP Pump Flow Instrument 5. Waste Gas Storage Vault Vent (WV-2) a. Noble Gas Activity Monitor Pri: [2RMQ-RQ303B] b. Particulate and Iodine Sampler (1) * 29 Pri: [2RMQ-RQ303B] b. Particulate and Iodine Sampler (1) * 29 Pri: [2RMQ-RQ303B] b. Particulate and Iodine Sampler (1) * 28B and Iodine Sampler (1) * 32 Pri: [2RMQ-RI303B] c. Process Flow Rate Monitor Value for Particulate * * 28B and Iodine Sampler * 28B and Iodine Sampler * 28B and Iodine Sampler Collection (see 5.b) Pri: [2RMQ-FIT303-1], or Alt: RASP Pump Flow Instrument [*] During Releases via this pathway. 			
Pri: [2HVL-RQ112B] b. Particulate and Iodine Sampler (1) * 32 Pri: Filter Paper & Charcoal Cartridge for [2HVL-RQ112], or Alt: Continuous collection via RASP Pump c. Process Flow Rate Monitor Used for Particulate (1) * 28B and Iodine Sample Collection (see 4.b) Pri: [2HVL-FIT112-1], or Alt: RASP Pump Flow Instrument 5. Waste Gas Storage Vault Vent (WV-2) a. Noble Gas Activity Monitor (1) * 29 Pri: [2RMQ-RQ303B] b. Particulate and Iodine Sampler (1) * 32 Pri: Filter Paper & Charcoal Cartridge for [2RMQ-RQ303], or Alt: Continuous collection via RASP Pump c. Process Flow Rate Monitor Used for Particulate (1) * 29 Pri: [2RMQ-RQ303B] b. Particulate and Iodine Sampler (1) * 32 Pri: Filter Paper & Charcoal Cartridge for [2RMQ-RQ303], or Alt: Continuous collection via RASP Pump c. Process Flow Rate Monitor (1) * 28B and Iodine Sample Collection (see 5.b) Pri: [2RMQ-FID3-1], or Alt: RASP Pump Flow Instrument * During Releases via this pathway. (a) Condition Report generation and reporting in the Radioactive Effluent Release Report (per Control 3.3.3.10 Action b) do	<u>AFFLICABI</u>	<u>ACHON</u>	
Pri: Filter Paper & Charcoal Cartridge for [2HVL-RQ112], or Alt: Continuous collection via RASP Pump c. Process Flow Rate Monitor Used for Particulate (1) * 28B and Iodine Sample Collection (see 4.b) Pri: [2HVL-FIT112-1], or Alt: RASP Pump Flow Instrument 5. Waste Gas Storage Vault Vent (WV-2) a. Noble Gas Activity Monitor (1) * 29 Pri: [2RMQ-RQ303B] b. Particulate and Iodine Sampler (1) * 32 Pri: Filter Paper & Charcoal Cartridge for [2RMQ-RQ303], or Alt: Continuous collection via RASP Pump c. Process Flow Rate Monitor Used for Particulate (1) * 28B and Iodine Sample Collection (see 5.b) Pri: [2RMQ-FIT303-1], or Alt: RASP Pump Flow Instrument * During Releases via this pathway.	*	29	
Pri: [2HVL-FIT112-1], or Alt: RASP Pump Flow Instrument 5. Waste Gas Storage Vault Vent (WV-2) a. Noble Gas Activity Monitor (1) * 29 Pri: [2RMQ-RQ303B] b. Particulate and Iodine Sampler (1) * 32 Pri: Filter Paper & Charcoal Cartridge for [2RMQ-RQ303], or Alt: Continuous collection via RASP Pump c. Process Flow Rate Monitor Used for Particulate (1) * 28B and Iodine Sampler Collection (see 5.b) Pri: [2RMQ-FIT303-1], or Alt: RASP Pump Flow Instrument * During Releases via this pathway.	*	32	l l
Pri: [2HVL-FIT112-1], or Alt: RASP Pump Flow Instrument 5. Waste Gas Storage Vault Vent (WV-2) a. Noble Gas Activity Monitor (1) * 29 Pri: [2RMQ-RQ303B] b. Particulate and Iodine Sampler (1) * 32 Pri: Filter Paper & Charcoal Cartridge for [2RMQ-RQ303], or Alt: Continuous collection via RASP Pump c. Process Flow Rate Monitor Used for Particulate (1) * 28B and Iodine Sampler Collection (see 5.b) Pri: [2RMQ-FIT303-1], or Alt: RASP Pump Flow Instrument * During Releases via this pathway.	None	None	
a. Noble Gas Activity Monitor (1) * 29 Pri: [2RMQ-RQ303B] (1) * 32 b. Particulate and Iodine Sampler (1) * 32 Pri: Filter Paper & Charcoal Cartridge for [2RMQ-RQ303], or Alt: Continuous collection via RASP Pump None None c. Process Flow Rate Monitor None None None d. Sampler Flow Rate Monitor Used for Particulate and Iodine Sample Collection (see 5.b) Pri: [2RMQ-FIT303-1], or Alt: RASP Pump Flow Instrument * 28B * During Releases via this pathway. * * *	*	28B	
Pri: [2RMQ-RQ303B] b. Particulate and Iodine Sampler (1) * 32 Pri: Filter Paper & Charcoal Cartridge for [2RMQ-RQ303], or Alt: Continuous collection via RASP Pump c. Process Flow Rate Monitor Mone None d. Sampler Flow Rate Monitor Used for Particulate (1) * 28B and Iodine Sample Collection (see 5.b) Pri: [2RMQ-FIT303-1], or Alt: RASP Pump Flow Instrument * During Releases via this pathway. (*) Condition Report generation and reporting in the Radioactive Effluent Release Report (per Control 3.3.3.10 Action b) do			'
Pri: Filter Paper & Charcoal Cartridge for [2RMQ-RQ303], or Alt: Continuous collection via RASP Pump c. Process Flow Rate Monitor Used for Particulate (1) * 28B and Iodine Sample Collection (see 5.b) Pri: [2RMQ-FIT303-1], or Alt: RASP Pump Flow Instrument * During Releases via this pathway. (a) Condition Report generation and reporting in the Radioactive Effluent Release Report (per Control 3.3.3.10 Action b) do	*	29	
Alt: Continuous collection via RASP Pump c. Process Flow Rate Monitor None None None d. Sampler Flow Rate Monitor Used for Particulate (1) * 28B and Iodine Sample Collection (see 5.b) Pri: [2RMQ-FIT303-1], or 28B Alt: RASP Pump Flow Instrument * During Releases via this pathway.	*	32	
 d. Sampler Flow Rate Monitor Used for Particulate (1) * 28B and Iodine Sample Collection (see 5.b) Pri: [2RMQ-FIT303-1], or Alt: RASP Pump Flow Instrument * During Releases via this pathway. (a) Condition Report generation and reporting in the Radioactive Effluent Release Report (per Control 3.3.3.10 Action b) do 			
 and Iodine Sample Collection (see 5.b) Pri: [2RMQ-FIT303-1], or Alt: RASP Pump Flow Instrument * During Releases via this pathway. ^(a) Condition Report generation and reporting in the Radioactive Effluent Release Report (per Control 3.3.3.10 Action b) do 	None	None	1.
^(a) Condition Report generation and reporting in the Radioactive Effluent Release Report (per Control 3.3.3.10 Action b) do	*	28B	
	way.		
		ORING INSTRU ate Instruments (* APPLICAB * * * None * * * None *	ORING INSTRUMENTATION ate Instruments ^(a) APPLICABILITY ACTION * 29 * 32 None None * 28B * 29 * 32 None * 28B * 32 None None * 32 None None * 32

	Beaver Valley Power Station	Procedure N	umber: 1/2-ODC-3.03
Title:	······	Unit: 1/2	Level Of Use: General Skill Referen
ODCM: Con	trols for RETS and REMP Programs	Revision: 9	Page Number:
	ATTACHMENT F		42 of 82
	Page 6 of 13 ODCM CONTROLS: RETS INSTRUMENT FOI	R GASEOUS RE	LEASES
	TABLE 3.3-13 (continue	<u>ed)</u>	
	ACTION STATEMENT	<u>rs</u>	
Action 27	APPLICABLE FOR BATCH RELEASES OF B		WASTE DECAY
	TANKS OR BV-2 GASEOUS WASTE STORA	GETANKS	
	With the number of channels OPERABLE less t OPERABLE requirement, the contents of the Ur (GWDT's) or the Unit 2 Gaseous Waste Storage environment provided that prior to initiating (or	nit 1 Gaseous Was Tanks (GWST's)	ste Decay Tanks may be released to th
	1. At least two independent samples of the t two technically qualified members of the release rate calculations and discharge va	Facility Staff ind	
· .	2. Initiate continuous monitoring with the c ODCM Surveillance requirements applic apply to the comparable alternate monito ODCM Control requirement.	able to the inoper	able channel shall
	Otherwise, suspend releases of radioactive efflue	ents via this pathw	/ay.
Action 28A	APPLICABLE FOR BV-1 SYSTEM EFFLUEN DEVICES OR BV-2 PROCESS FLOWRATE M		MEASURING
	With the number of channels OPERABLE less the OPERABLE requirement, effluent releases via the operation of t		
	1. The system/process flow rate is estimated be at the ODCM design value ⁽¹⁾), or	d at least once per	4 hours (or assumed
	2. Initiate continuous monitoring with the control of the control of the control of the control of the control requirements apply to the comparable alternate monito of the control requirement.	able to the inoper	able channel shall
	u of estimating the system/process flow rate at leas rate can be assumed to be at the following ODCM	design values:	
	1,450 cfm = BV-1 Gaseous Waste/Process Vent 62,000 cfm = BV-1 Auxiliary Building Ventilati 49,300 cfm = BV-1 Reactor Building/SLCRS (C 23,700 cfm = BV-2 SLCRS Unfiltered Pathway	on System (VV-1 V-1)	

ł

1

4

and the second second

.

]	Beave	er Valley Power Station	Procedure Number: 1/2-ODC-3.03		
Title:			Unit:	Level Of Use: General Skill Reference	
ODCM: Cont	rols for	RETS and REMP Programs	1/2 Revision:	Page Number:	
		ATTACHMENT F	9	43 of 82	
	ODCM	Page 7 of 13 CONTROLS: RETS INSTRUMENT FOR GASE	OUS PEI	EASES	
	ODCM		2003 REL	EASES	
		TABLE 3.3-13 (continued)			
		ACTION STATEMENTS			
Action 28B		ICABLE FOR BV-1 SAMPLER FLOW RATE M MPLER FLOWRATE MONITORS	IEASURIN	G DEVICES OR BV-	
		-	e Minimum Channels ontinue provided:		
	1.	The sampler flow rate is estimated at least once]	per 4 hours	, or	
	2.	Initiate continuous monitoring with the compara ODCM Surveillance requirements applicable to apply to the comparable alternate monitoring cha ODCM Control requirement.	the inopera	ble channel shall	
Action 29	<u>APPL</u>	ICABLE FOR CONTINUOUS RELEASES			
		the number of channels OPERABLE less than requ ABLE requirement, effluent releases via this path			
	1.	Grab samples (or local monitor readings) ⁽¹⁾ are ta grab samples are taken, these samples are to be a 24 hours, or		-	
	2. Initiate continuous monitoring with the comparable alternate monitoring ch ODCM Surveillance requirements applicable to the inoperable channel shal apply to the comparable alternate monitoring channel when used to satisfy ODCM CONTROL requirement.				
the in case,	tended 1 the loca	ere are situations where the local monitor (e.g.; the monitoring function, but the communications are lo l monitor can be read at least once per 12 hours in 12 hours.	ost to the C	Control Room. In this	

]	Beaver Valley Power Station	Procedure Number: 1/2-ODC-3.03					
Title:		Unit:	Level Of Use:				
ODCM: Cont	rols for RETS and REMP Programs	1/2 Revision:	General Skill Reference Page Number:				
	ATTACHMENT F	9	44 of 82				
	Page 8 of 13						
	ODCM CONTROLS: RETS INSTRUMENT FOR GA	SEOUS RE	LEASES				
	TABLE 3.3-13 (continued)						
	ACTION STATEMENTS						
Action 30A	APPLICABLE FOR THE INITIAL BATCH PURGE CONTAINMENT	OF THE B	V-1 REACTOR				
	With the number of channels <u>OPERABLE</u> less than re OPERABLE requirement, immediately suspend PUR this pathway if both RM-1VS-104A and B are not OP system in service. The following should also be noted	GING of Re ERABLE w	actor Containment via				
	1. As stated, this Action is applicable for INOPE performing the initial batch purge of the reactor immediately after reactor containment atmospheric	or containme	ent atmosphere (i.e.;				
	2. Since all other releases of reactor containment atmosphere (i.e.; after the initial batch purge) are considered continuous releases, then this Action is not applicable. Therefore, Action 29 is applicable for INOPERABLE monitors when performing a continuous release of the reactor containment atmosphere.						
Action 30B	APPLICABLE FOR THE INITIAL BATCH PURGE CONTAINMENT	OF THE B	V-2 REACTOR				
	With the number of channels OPERABLE less than re OPERABLE requirement, immediately suspend PUR this pathway if both 2HVR-RQ104A and 104B are no purge/exhaust system in service. The following should	GING of Re t OPERAB	actor Containment via LE with the				
	1. As stated, this Action is applicable for INOPERABLE monitors only when performing the initial batch purge of the reactor containment atmosphere (i.e.; immediately after reactor containment atmosphere equalization).						
	2. Since all other releases of reactor containment atmosphere (i.e.; after the initia batch purge) are considered continuous releases, then this Action is not applicable. Therefore, Action 29 is applicable for INOPERABLE monitors w performing a continuous release of the reactor containment atmosphere.						
Action 32	APPLICABLE FOR CONTINUOUS RELEASES						
	With the number of channels OPERABLE less than re OPERABLE requirement, effluent releases via this pa samples are continuously collected with auxiliary sam ODCM Control 3.11.2.1, Table 4.11-2, or sampled an	thway may pling equip	continue provided ment as required in				

Beaver Valley Power Station				Procedure Num	/2-ODC-3.03
le:				Unit: 1/2	Level Of Use: General Skill Referen
DCM:	Controls for RETS and REMP Program	ns		Revision:	Page Number:
	ATT	ACHMENT	F	9	45 of 82
		ige 9 of 13	L		
	ODCM CONTROLS: RETS INS	TRUMENT	FOR GASE	EOUS RELI	EASES
	Tz	ABLE 4.3-13			
	<u>BV-1 RADIOACTIVE G</u>	ASEOUS EFFI	<u>.UENT MON</u>	ITORING	
	INSTRUMENTATION S				
	Pri = Primary Instrum	ents $AIt = A$	iternate Instru	ments	CHANNEL
		CHANNE	SOURCE	CHANNI	
~	INSTRUMENT	L <u>CHECK</u>	<u>CHECK</u>	<u>CALIBRAT</u>	<u>TION TEST</u>
	s Waste/Process Vent System (PV-1/2) ble Gas Activity Monitor	Р	P ⁽⁴⁾	R ⁽³⁾	Q ⁽¹⁾
Pri	[RM-1GW-108B], or		-		
cha	For Continuous Release: [RM-1GW-109 Ch 5] nnel for continuous releases via this pathway.				
Alt cor	For Batch Releases: [NONE, See Action 27]; Fo nparable alternate monitoring channel for batch rele	r information, [R ases of the BV-1	M-1GW-109 C GWDTs or the	h 5] SHALL N BV-2 GWSTs.	OT be used as the Specifically, SINCE this
cha	nnel does not perform the same automatic isolation ch releases of the BV-1 GWDTs or the BV-2 GWST	function as the p	rimary channel		
	rticulate and Iodine Sampler	W W	NA	NA	NA
	Filter Paper & Charcoal Cartridge for [RM-1GW-1 Alt: Filter Paper & Charcoal Cartridge for [RM-1G				
	Alt: Continuous collection via RASP Pump	wartoj, or			
	stem Effluent Flow Rate Measuring Device [FR-1GW-108], or	Ρ.	NA	R	Q
	[RM-1GW-109], 61 : [RM-1GW-109 Ch 10]				
	npler Flow Rate Measuring Device Used for rticulate and Iodine Sample Collection (see 1.b)	D*	NA	R	Q
Pri	[RM-1GW-109 Ch 15], or Alt: (Rotometer: FM-1GW-101 and Vacuum Gauge	N DI 1CW 135)	o r		
	Alt: RASP Pump Flow Instrument	. ri-ių w-i <i>55)</i> ,	01		
	ry Building Ventilation System (VV-1; Also called ble Gas Activity Monitor	l Ventilation Ve D	nt) M ⁽⁴⁾ ,	R ⁽³⁾	Q ⁽²⁾
Pri	[RM-1VS-101B], or	D	$P^{(4)}***$	K	Q
	: [RM-1VS-109 Ch 5] rticulate and Iodine Sampler	W	NA	NA	NA
Pri	Filter Paper & Charcoal Cartridge for [RM-1VS-10)9], or	1 12 6	1.17.	
	Alt: Filter Paper & Charcoal Cartridge for [RM-1V: Alt: Continuous collection via RASP Pump	5-111j, or			
•	stem Effluent Flow Rate Measurement Device : [FR-1VS-101], or	D	NA	_ R	Q
Alt	: [RM-1VS-109 Ch 10]				
	mpler Flow Rate Measuring Device Used for rticulate and Iodine Sample Collection (see 2.b)	D	NA	R	Q
Pri	: [RM-1VS-109 Ch 15], or	[D] 11/9 4501 -	-		
	Alt: Rotometer [FM-1VS-102] and Vacuum Gauge I Alt: RASP Pump Flow Instrument	ן עכט-גאי-יין, 0	I		
	***	teleases via this j			
	During purging of I	Reactor Containn	ient via this pat	hway.	

8-9-10 8-9-10

Desver Valley Desver Stat	10p	Γ	Procedure Num		٦
Beaver Valley Power Stat	1011		1/2-ODC-3.03		
Title:			Unit:	Level Of Use: General Skill Reference	
		ŀ	1/2 Revision:	Page Number:	-
ODCM: Controls for RETS and REMP Programs			9	46 of 82	
ATTACH	IMENT F				
Page 10	0 of 13				
ODCM CONTROLS: RETS INSTRU		R GASE	OUS RELI	EASES	
					Ì
TABL	<u>E 4.3-13</u>				
BV-1 RADIOACTIVE GASEC	US EFFLU	ENT MO	NITORIN	1G	
INSTRUMENTATION SURV					
Pri = Primary Instruments	$\Lambda lt = \Lambda lte$	mate Inci	ruments		
1 II – I Innaty Instruments	AII – AIIC	mate ms	luments		
	CHANNE	SOURCE	CHANN	CHANNEL JEL OPERATIONAL	
<u>INSTRUMENT</u>	L CHECK		CALIBRA		
3. Reactor Building/SLCRS (CV-1; Also called Elevated R a. Noble Gas Activity Monitor	D	M ⁽⁴⁾ ,	R ⁽³⁾	O ⁽²⁾	
Pri: [RM-1VS-107B], or	D	$P^{(4)}***$	K	Q	
Alt: [RM-1VS-110 Ch 5]					
b. Particulate and Iodine Sampler	W	NA	NA	NA	
Pri: Filter Paper & Charcoal Cartridge for [RM-1VS-11					
1st Alt: Filter Paper & Charcoal Cartridge for [RM-1V	'S-112], or		•		
2nd Alt: Continuous collection via RASP Pump					
c. System Effluent Flow Rate	D	NA	R	Q	
Measuring Device Pri: [FR-1VS-112], or					
Alt: [RM-1VS-110 Ch 10]					
d. Sampler Flow Rate Measuring Device Used for	D	NA	R	Q	
Particulate and Iodine Sample Collection (see 3.b)	-			× ×	
Pri: [RM-1VS-110 Ch 15], or					
1st Alt: Rotometer [FM-1VS-103] and Vacuum Gauge	[PI-1VS-660]	, or			
2nd Alt: RASP Pump Flow Instrument					
* During releases	s via this patl	nway.			

	Beaver Valley Power Stat	tion		Procedure Numb	er: 2-ODC-3.03
itle:		······		Unit:	Level Of Use:
			ļ		General Skill Reference
DCM:	Controls for RETS and REMP Programs			Revision: 9	Page Number: 47 of 82
	ATTACH	IMENT F		· ·	
		1 of 13			
	ODCM CONTROLS: RETS INSTRU		OR GASE	OUS RELE	ASES
	<u>TABLE 4.3-</u>				
	<u>BV-2 RADIOACTIVE GASE(</u> INSTRUMENTATION SURV				
	Pri = Primary Instruments	Alt = A	lternate In	struments	
					CHANNEL
		CHECK	SOURCE	CHANNEL	
1.01.000	INSTRUMENT	<u>CHECK</u>	<u>CHECK</u>	CALIBRATIC	<u>DN TEST</u>
	S Unfiltered Pathway (VV-2; Also called Ventilat ble Gas Activity Monitor	ion Vent) D	M ⁽⁴⁾ ,	R ⁽³⁾⁽⁶⁾	Q(5)
	:[2HVS-RQ101B]	J.	$P^{(4)}***$	K	2(3)
b. Pa	rticulate and Iodine Sampler	W	NA	NA	NA
	: Filter Paper & Charcoal Cartridge for [2HVS-RQ1 :: Continuous collection via RASP Pump	01], or			
	ocess Flow Rate Monitor : (Monitor Item 29 for [2HVS-VP101]	D	NA	R	Q
	mpler Flow Rate Monitor Used for Particulate	D	NA	R	Q
Pri	d Iodine Sample Collection (see 1.b) : [2HVS-FIT101-1], or :: RASP Pump Flow Instrument				
	S Filtered Pathway (CV-2; Also called Elevated R	telease)			
a. No	ble Gas Activity Monitor : [2HVS-RQ109B]	D	M ⁽⁴⁾ , P ⁽⁴⁾ ***	R ⁽³⁾⁽⁶⁾	Q ⁽⁵⁾
	rticulate and Iodine Sampler	W	NA	NA	NA
	: Filter Paper & Charcoal Cartridge for [2HVS-RQ1 t: Continuous collection via RASP Pump	109] High Flo	w Path, or		
	ocess Flow Rate Monitor	D	NA	R	Q
lst	: Monitor Item 29 for [2HVS-FR22], or Alt: [2HVS-FI22A and FI22C], or				
	d Alt: [2HVS-FI22B and FI22D]	n	.	р	0
	mpler Flow Rate Monitor Used for Particulate d Iodine Sample Collection (see 2.b)	D	NA	R	Q
Pri	: Monitor Items 28 and 72 for [2HVS-DAU109B], (:: RASP Pump Flow Instrument	or .			
	ramination Building Vent (DV-2)				15
	ble Gas Activity Monitor : [2RMQ-RQ301B]	D	M ⁽⁴⁾	R ⁽³⁾⁽⁶⁾	Q ⁽⁵⁾
	rticulate and Iodine Sampler	W	NA	, NA	NA
	: Filter Paper & Charcoal Cartridge for [2RMQ-RQ t: Continuous collection via RASP Pump	301], or			
	ocess Flow Rate Monitor	NA	NA	NA	NA
an Pri	mpler Flow Rate Monitor Used for Particulate d Iodine Sample Collection (see 3.b) : [2RMQ-FIT301-1], or :: RASP Pump Flow Instrument **** During purging of Reactor	D	NA	R	Q

			·····					
	Beaver Valley Power Station				Procedure Number: 1/2-ODC-3.03			
Title:			U	nit: Level	Of Use:			
നവ	M: Controls for RETS and REMP Programs	R		eral Skill Reference Number:				
			9	48 of 82				
		IMENT F 2 of 13						
	ODCM CONTROLS: RETS INSTRU		R GASEO	US RELEASI	ES			
		12 (a d)					
	TABLE 4.3		-					
	<u>BV-2 RADIOACTIVE GASEC</u> INSTRUMENTATION SURV							
	Pri = Primary Instruments	Alt = Alt	ernate Insti	ruments				
		CHANNEL	SOURCE	CHANNEL	CHANNEL OPERATIONAL			
	INSTRUMENT	CHANNEL CHECK	<u>CHECK</u>	CALIBRATIO				
4. Co	ndensate Polishing Building Vent (CB-2)							
a.	Noble Gas Activity Monitor Pri: [2HVL-RQ112B]	D	M ⁽⁴⁾	R ⁽³⁾⁽⁶⁾	Q ⁽⁵⁾			
b.	Particulate and Iodine Sampler Pri: Filter Paper & Charcoal Cartridge for [2HVL-RQ] Alt: Continuous collection via RASP Pump	W 112], or	NA	NA	NA			
c.	Process Flow Rate Monitor	NA	NA	NA	NA			
d.	Sampler Flow Rate Monitor Used for Particulate and Iodine Sample Collection (see 4.b) Pri: [2HVL-FIT112-1], or Alt: RASP Pump Flow Instrument	D	NA	R	Q			
5. Wa	iste Gas Storage Vault Vent (WV-2)							
a.	Noble Gas Activity Monitor Pri: [2RMQ-RQ303B]	D	M ⁽⁴⁾	R ⁽³⁾⁽⁶⁾	Q ⁽⁵⁾			
b.	Particulate and Iodine Samples Pri: Filter Paper & Charcoal Cartridge for [2RMQ-RQ Alt: Continuous collection via RASP Pump	W 303], or	ŃA	NA	NA			
c.	Process Flow Rate Monitor	NA	NA	NA	NA			
d.	Sampler Flow Rate Monitor Used for Particulate and Iodine Sample Collection (see 5.b)	D	NA	R	Q			

.

1

i

8-9-10

8-9-10 8-9-10

	Beaver Valley Power Station	Procedure Number: 1/2-ODC-3.03					
Title:	······································	Unit:	Level Of Use: General Skill Reference				
ODCM	: Controls for RETS and REMP Programs	1/2 Revision: 9	Page Number:				
ATTACHMENT F Page 13 of 13 ODCM CONTROLS: RETS INSTRUMENT FOR GASEOUS RELEASES							
	TABLE 4.3-13 (continued)						
	TABLE NOTATION						
(1)	⁽¹⁾ The CHANNEL OPERATIONAL TEST shall also demonstrate that automatic isolation of this pathway and Control Room Alarm Annunciation occurs if any of the following conditions exist:						
	 a. Instrument indicates measured levels above the alarm/tr b. Downscale failure. c. Instrument controls not set in operate mode. 	rip setpoint					
(2)	The CHANNEL OPERATIONAL TEST shall also demonstrat Annunciation occurs if any of the following conditions exist:	e that Cont	rol Room Alarm				
	 a. Instrument indicates measured levels above the alarm/tr b. Downscale failure. c. Instrument controls not set in operate mode. 	rip setpoint					
(3)	The initial CHANNEL CALIBRATION for radioactivity measurement instrumentation shall be performed using one or more of the reference standards certified be National Bureau of Standards or using standards that have been obtained from suppliers that participate in measurement assurance activities with NBS. These standards should permit calibrating the system over its intended range of energy and rate capabilities. For subsequent CHANNEL CALIBRATION, sources that have been related to the initial calibration should be used, at intervals of at least once per 18 months. This can normally be accomplished during refueling outages.						
(4)	A SOURCE CHECK may be performed utilizing the installed with a portable source to obtain an upscale increase in the exist response.						
(5)	The CHANNEL OPERATIONAL TEST shall also demonstrat Annunciation occurs if the instrument indicates measured level						
(6)	The CHANNEL CALIBRATION shall also demonstrate that C occurs if either of the following conditions exist:	Control Roc	om Alarm Annunciation				
	 Downscale failure. Instrument controls are not set in operate mode. 						
-							

		Procedure N	umber:	
	Beaver Valley Power Station		1/2-ODC-3.03	
Title:		Unit: 1/2	Level Of Use: General Skill Reference	
ODCM: Cont	trols for RETS and REMP Programs	Revision:	Page Number: 50 of 82	
<u></u>	ATTACHMENT G Page 1 of 5 ODCM CONTROLS: LIQUID EFFLUENT CONC			
CONTROLS	: LIQUID EFFLUENT CONCENTRATION			
3.11.1.1	In accordance with T.S. 5.5.2.b and T.S. 5.5.2.c, the correleased at any time from the site (see 1/2-ODC-2.01, F times the EC's specified in 10 CFR Part 20, Appendix E Column 2 for radionuclides other than dissolved or entr referred to as the ODCM Effluent Concentration Limit entrained noble gases, the concentration shall be limited	igure 5-1) 3 (20.1001 ained nobl (OEC). Fo	shall be limited to 10 -20.2402), Table 2, e gases. This is or dissolved or	
Applicability	: At all times.			
Action:				
	the concentration of radioactive material released from th ding the above limits; immediately restore the concentration			
	it a Special Report to the Commission within 30 days in a 03(a)(2)(v) and 10 CFR 50.4(b)(1).	accordance	with 10 CFR	
c. The p	rovisions of ODCM CONTROL 3.0.3 are not applicable.			
SURVEILLA	ANCE REQUIREMENTS			
4.11.1.1.1	Radioactive liquid wastes shall be sampled and analyze analysis program of ODCM Control 3.11.1.1, Table 4.1		g to the sampling and	
4.11.1.1.2	The results of radioactive analysis shall be used in accordance with 1/2-ODC-2.01 to assure that the concentration at the point of release are maintained within the limits of ODCM CONTROL 3.11.1.1.			
4.11.1.1.3	When BV-1 primary to secondary leakage exceeds 0.1 g Turbine Building Sump shall be obtained every 8 hours Building Sump concentration does not exceed 1 OEC. is reached, the Turbine Building Sump shall be routed to	every 8 hours to ensure that the Turbine ceed 1 OEC. Once it is determined that an OEC		
	• •			

	Beaver Valley Power Station	Procedure Number: 1/2-ODC-3.03			
Title:		Unit:	Level Of Use:		
		<u>1/2</u>	General Skill Reference		
ODCM: Cor	ntrols for RETS and REMP Programs	Revision: 9	Page Number: 51 of 82		
	ATTACHMENT G				
	Page 2 of 5				
	ODCM CONTROLS: LIQUID EFFLUENT CO	NCENTRATI	ION		
SURVEILL	ANCE REQUIREMENTS (continued)	·····			
4.11.1.1.4	When BV-2 primary to secondary leakage exceeds 0 Turbine Building Sump shall be obtained every 8 ho Building Sump concentration does not exceed 1 OE0 is reached, the Turbine Building Sump shall be route hold tank (2SGC-TK21A or 2SGC-TK21B).	ours to ensure C. Once it is	that the Turbine determined that an OEC		
4.11.1.1.5	Prior to the BV-2 Recirculation Drain Pump(s) (2DA catch basin 16, a grab sample will be taken. The sam activity at a sensitivity of at least 1E-7 uCi/ml. Wate estimated from the number of pump operations unless instrumentation is provided.	nples will be a er volume dis	analyzed for gross charged shall be		
as specified	liquid discharges are normally via batch modes. BV-1 and BV-2 in ODCM SURVEILLANCE REQUIREMENT 4.11.1.1.3 and 4.1 arge shall be monitored as specified in ODCM SURVEILLANCE	1.1.1.4. The B	V-2 Recirculation drain		
-					

	Beaver	Ŧ	Procedure Number: 1/2-ODC-3.03				
e:	·····	له		t t	Init:	Level Of Use:	· · · · · · · · · · · · · · · · · · ·
					1/2	General Ski	ill Referer
C	M: Controls for RE	TS and REMP P	rograms	F	Revision:	Page Number:	
					9	52 0	of 82
			ATTACHMEN				
			Page 3 of 5				
	ODCM	1 CONTROLS:	LIQUID EFFLU	JENT CONCER	VIRATIO)N	
			<u>TABLE 4.1</u>	<u>1-1</u>			
	RADIOACT	IVE LIQUID W	ASTE SAMPL	NG AND ANA	<u>LYSIS P</u>	<u>ROGRAM</u>	
[L	OWER]
			MINIMUM	TYPE OF		MIT OF	
	LIQUID	SAMPLING	ANALYSIS	ACTIVITY	DET	TECTION	
	RELEASE TYPE	FREQUENCY	FREQUENCY	ANALYSIS	((LLD)	
			-		(uC	Ci/ml) ^(a)	
[A. Batch Waste	Р	Р	Principal Gam	ma	5E-7	
	Release	Each Batch ^(h)	Each Batch ^(h)	Emitters ^(f)			
	Tanks ^(d)			I-131		1E-6	
		Р	М	Dissolved Ar	nd	1E-5	
		One		Entrained Gas	ses		
		Batch/M ^(h)		(Gamma Emitte	ers)		
		Р	М	H-3		1E-5	
		Each Batch ^(h)	Composite ^(b)	Gross Alpha		1E-7	
		P	Q	Sr-89, Sr-90		5E-8	
		Each Batch ^(h)	Composite ^(b)	Fe-55		1E-6	
	B. Continuous Releases ^{(e)(g)}	Grab Sample ^(g)	W Composite ^(c)	Principal Gam Emitters ^(f)		5E-7	
			^	I-131		1E-6	
		Grab Sample ^(g)	М	Dissolved An	id .	1E-5	
				Entrained Gas	es		
				(Gamma Emitte	ers)		
		Grab Sample ^(g)	М	H-3		1E-5	
			Composite ^(c)	Gross Alpha		1E-7	
		Grab Sample ^(g)	Q	Sr-89, Sr-90		5E-8	
		L L	Composite ^(c)	Fe-55		1E-6	

r		Den et dura Ni				
	Beaver Valley Power Station	Procedure Number: 1/2-ODC-3.03				
Title:		Unit: 1/2	Level Of Use: General Skill Reference			
ODCM: Co	ntrols for RETS and REMP Programs	Revision:	Page Number:			
	ATTACHMENT G	9	53 of 82			
	Page 4 of 5					
	ODCM CONTROLS: LIQUID EFFLUENT CONCI	ENTRATI	ON			
	TABLE 4.11-1 (continued)					
``````````````````````````````````````	TABLE NOTATION					
^(a) The LLD is the smallest concentration of radioactive material in a sample that will be detected with 95% probability with 5% probability of falsely concluding that a blank observation represent a "real" signal.						
For	a particular measurement system (which may include radio	chemical s	eparation):			
LLI	$D = \frac{4.66 \text{ Sb}}{(E)(V)(2.22)(Y) \exp(-\lambda \Delta T)}$					
whe	pre:					
LLI	D is the lower limit of detection as defined above (as pCi per	r unit mass	s or volume);			
	s the standard deviation of the background counting rate or or ple as appropriate (as counts per minute);	of the cou	nting rate of a blank			
E is	the counting efficiency (as counts per transformation);					
V is	the sample size (in units of mass or volume);					
2.22	e is the number of transformations per minute per picocurie;					
Y is	the fractional radiochemical yield (when applicable);					
λ is	the radioactive decay constant for the particular radionuclic	le;				
	is the elapsed time between sample collection (or end of the e of counting (for environmental samples, not plant effluent	-	ollection period) and			
actu sam	The value of $S_b$ used in the calculation of the LLD for a detection system shall be based on the actual observed variance of the background counting rate or of the counting rate of the blank samples (as appropriate) rather than on an unverified theoretically predicted variance. Typical values of E, V, Y and $\Delta T$ should be used in the calculations.					
	LLD is defined as an <u>a priori</u> (before the fact) limit represensurement system and not as <u>a posteriori</u> (after the fact) limit					

Beaver Valley	Power Station
---------------	---------------

ODCM:	Controls	for	RETS	and	REM	P	Programs

Title:

Procedure Number:						
1/2-ODC-3.03						
Unit:	Unit: Level Of Use:					
1/2	General Skill Reference					
Revision:	Page Number:					
9 54 of 82						

# ATTACHMENT G Page 5 of 5 ODCM CONTROLS: LIQUID EFFLUENT CONCENTRATION

### TABLE 4.11-1 (continued)

#### **TABLE NOTATION**

- ^(b) A composite sample is one in which the quantity of liquid sampled is proportional to the quantity of liquid waste discharged and in which the method of sampling employed results in a specimen which is representative of the liquids released.
- ^(c) To be representative of the quantities and concentrations of radioactive materials in liquid effluents, samples shall be collected continuously in proportion to the rate of flow of the effluent stream. Prior to analyses, all samples taken for the composite shall be thoroughly mixed in order for the composite sample to be representative of the effluent release.
- ^(d) A batch release exists when the discharge of liquid wastes is from a discrete volume. Prior to sampling for analyses, each batch shall be isolated, and then thoroughly mixed to assure representative sampling.
- ^(e) A continuous release exists when the discharge of liquid wastes is from a non-discrete volume; e.g., from a volume of a system having an input flow during the continuous release. Releases from the Turbine Building Drains and the AFW Pump Bay Drain System and Chemical Waste Sump are considered continuous when the primary to secondary leak rate exceeds 0.1 gpm (142 gpd).
- (f) The principal gamma emitters for which the LLD specification will apply are exclusively the following radionuclides: Mn-54, Fe-59, Co-58, Co-60, Zn-65, Mo-99, Cs-134, Cs-137, Ce-141, and Ce-144. This list does not mean that only these nuclides are to be detected and reported. Other peaks which are measurable and identifiable, together with the above nuclides, shall also be identified and reported. Nuclides which are below the LLD for the analyses should be reported as "less than" the nuclide's LLD, and should not be reported as being present at the LLD level for that nuclide. The "less than" values should not be used in the required dose calculations. When unusual circumstances result in LLD's higher than required, the reasons shall be documented in the Radioactive Effluent Release Report.
- ^(g) When radioactivity is identified in the secondary system, a RWDA-L should be prepared on a monthly basis to account for the radioactivity that will eventually be discharged to the Ohio River.
- ^(h) Whenever the BV-2 Recirculation Drain Pump(s) are discharging to catch basin 16, sampling will be performed by means of a grab sample taken every 4 hours during pump operation.

01-6-8

1	Beaver Valley Power Station	Procedure Nu				
Title:		Unit:	/2-ODC-3.03 Level Of Use:			
ODCM. Cost	rols for RETS and REMP Programs	1/2 Revision:	General Skill Reference Page Number:			
	55 of 82					
	ATTACHMENT H Page 1 of 1					
	ODCM CONTROLS: LIQUID EFFLUENT I	DOSE				
CONTROLS	LIQUID EFFLUENT DOSE					
3.11.1.2	In accordance with T.S.5.5.2.d and T.S. 5.5.2.c, the dose MEMBER(S) OF THE PUBLIC from radioactive mater from the reactor unit (see 1/2-ODC-2.01 Figure 5-1) sha	ials in liqu	id effluents released			
	a. During any calendar quarter to less than or equal and to less than or equal to 5 mrem to any organ,		em to the total body			
	b. During any calendar year to less than or equal to less than or equal to 10 mrem to any organ.	3 mrem to	the total body and to			
Applicability	At all times.					
Action:						
any of CFR 2 exceet the pr above the dr						
b. The p	ovisions of ODCM CONTROL 3.0.3 are not applicable.					
SURVEILLA	NCE REQUIREMENTS					
4.11.1.2.1 <u>Dose Calculations</u> . Cumulative dose contributions from liquid effluents shall be determined in accordance with 1/2-ODC-2.01 at least once per 31 days.						
A A .	only if drinking water supply is taken from the receiving v scharge (three miles downstream only).	water body	within three miles of			

r		· · · · · · · · · · · · · · · · · · ·					
	E	Beaver Valley Power Station	Procedure Nu	mber: 1/2-ODC-3.03			
Title:			Unit: 1/2	Level Of Use: General Skill Reference			
ODCM:	Conti	rols for RETS and REMP Programs	Revision: 9	Page Number: 56 of 82			
		ATTACHMENT I	L7	<u> </u>			
		Page 1 of 1 ODCM CONTROLS: LIQUID RADWASTE TREATM	AENT OV	STEM			
		ODCIVI CONTROLS. LIQUID RAD WASTE TREAT	VIENI SI				
CONT	CONTROLS: LIQUID RADWASTE TREATMENT SYSTEM						
3.11.1.3	3.11.1.3 In accordance with T.S.5.5.2.f, the Liquid Radwaste Treatment System shall be used to reduce the radioactive materials in each liquid waste batch prior to its discharge when the projected doses due to liquid effluent releases from the reactor unit (see 1/2-ODC-2.01 Figure 5-1) when averaged over 31 days would exceed 0.06 mrem to the total body or 0.2 mrem to any organ.						
Applica	<u>ability</u> :	At all times.					
Action:	:						
	and su	iquid waste being discharged without treatment and exceed bmit to the Commission within 30 days pursuant to 10 Cl (1) a Special Report which includes the following inform	FR 20.220				
	1.	Identification of the inoperable equipment or subsystem	s and the r	eason for inoperability.			
	2.	Action(s) taken to restore the inoperable equipment to o	perational	status, and			
	3.	Summary description of action(s) taken to prevent a recu	urrence.				
b.	The pr	ovisions of ODCM CONTROL 3.0.3 are not applicable.					
SURVI	EILLA	NCE REQUIREMENTS	•	·			
4.11.1.3	4.11.1.3.1 Doses due to liquid releases shall be projected at least once per 31 days, in accordance with 1/2-ODC-2.01.						
		· · · ·					

- 1 State and the state of the

	Beaver Valley Power Station	Procedure N	
Title:	Beaver valley I ower Station	Unit:	1/2-ODC-3.03 Level Of Use:
		1/2	General Skill Reference
ODCM: Co	ontrols for RETS and REMP Programs	Revision: 9	Page Number: 57 of 82
	ATTACHMENT J Page 1 of 1 ODCM CONTROLS: LIQUID HOLDU	P TANKS	
CONTROL	LS: LIQUID HOLDUP TANKS		
3.11.1.4	In accordance with T.S.5.5.8, the quantity of radioa following tanks shall be limited to the values listed dissolved or entrained noble gases.		
	<ul> <li>a. ≤ 18 Curies: 1BR-TK-6A (Unit 1 Primary Water Stotes)</li> <li>b. ≤ 18 Curies: 1BR-TK-6B (Unit 1 Primary Water Stotes)</li> <li>c. ≤ 7 Curies: 1LW-TK-7A (Unit 1 Steam Generator D)</li> <li>d. ≤ 7 Curies: 1LW-TK-7B (Unit 1 Steam Generator D)</li> <li>e. ≤ 6 Curies: 1QS-TK-1 (Unit 1 Refueling Water Stores)</li> <li>f. ≤ 62 Curies: 2QSS-TK21 (Unit 2 Refueling Water Stores)</li> <li>g. ≤ 10 Curies: Unit 1 and 2 miscellaneous temporary of the stores)</li> </ul>	orage Tank) Drain Tank) Drain Tank) age Tank-RWS Storage Tank-R	WST)
APPLICAL	BILITY: At all times.		
ACTION:			
complia perform (i.e.; at t to be ex	e quantity of radioactive material in the tank exceeding the line of the limits of 10 CFR Part 20, Appendix B, Table 2, Could at the nearest potable water supply, and the nearest surface the entrance to the Midland Water Treatment Facility). IF the ceeded, THEN immediately suspend all additions of radioacted the tank contents to within the limits set forth in 10 CFR	olumn 2. These e water supply e limits of 10 C tive material to	e calculations shall be in the unrestricted area FR Part 20 are determined
	a Special Report in accordance with 10 CFR 50.4 (b) (1) with ion of activities planned and/or taken to reduce the contents t		
c. The pro	visions ODCM Control 3.0.3 are not applicable.		
SURVEILI	LANCE REQUIREMENTS		
4.11.1.4.1	The quantity of radioactive material contained in each of and 2 RWST's) shall be determined to be within the abor sample of the tank's contents at least once per 7 days wh to the tank.	ve limit by anal	yzing a representative
4.11.1.4.2	<u>SINCE</u> additions of radioactive material to the Unit 1 an end of a refueling outage (i.e.; drain down of the reactor compliance to this limit shall be performed as follows:		-
	The quantity of radioactive material contained in the Un be within the above limit by analyzing a representative s days after transfer of reactor cavity water to the respectiv	ample of the ta	nk's contents within 7

	· · · · · · · · · · · · · · · · · · ·						
Beaver Valley Power Station			imber: 1/2-ODC-3.03				
Title:		Unit: 1/2	Level Of Use: General Skill Reference				
ODCM: Con	trols for RETS and REMP Programs	Revision:	Page Number:				
	ATTACHMENT K Page 1 of 5 ODCM CONTROLS: GASEOUS EFFLUENT DOSE RATE						
CONTROLS	: GASEOUS EFFLUENT DOSE RATE						
3.11.2.1	In accordance with T.S.5.5.2.c and T.S. 5.5.2.g, the dos (see 1/2-ODC-2.02 Figure 5-1) due to radioactive mate from the site shall be limited to the following values: a. The dose rate limit for noble gases shall be ≤ 500	rials releas	ed in gaseous effluents				
	<ul> <li>3000 mrem/yr to the skin*, and</li> <li>b. The dose rate limit, inhalation pathway only, for I radionuclides in particulate form (excluding C-14 eight days shall be ≤ 1500 mrem/yr to any organ.</li> </ul>						
Applicability	: At all times.						
Action:							
	e dose rate(s) exceeding the above limits, immediately de e above limits(s), and	crease the	release rate to comply				
	a Special Report to the Commission within 30 days pursu CFR 50.4(b)(1).	uant to 10 (	CFR 20.2203(a)(2)(v)				
c. The pro	ovisions of ODCM CONTROL 3.0.3 are not applicable.						
SURVEILLA	ANCE REQUIREMENTS						
4.11.2.1.1	The dose rate due to noble gaseous effluents shall be de limits in accordance with 1/2-ODC-2.02.	termined to	be within the above				
4.11.2.1.2 The dose rate, inhalation pathway only, for I-131, tritium and all radionuclides in particulate form (excluding C-14) with half-lives greater than eight days in gaseous effluents, shall be determined to be within the above limits in accordance with the methods and procedures of the ODCM by obtaining representative samples and performing analyses in accordance with the sampling and analysis program specified in ODCM Control 3.11.2.1, Table 4.11-2.							
*During containment purge the dose rate may be averaged over 960 minutes.							

Beaver Valley Power Station					nber: /2-ODC-3.03		
Title:	Title:						
ODCM: Controls for RET		<u>1/2</u> Revision: 9	General Skill Reference Page Number: 59 of 82				
	ATTACHMENT K Page 2 of 5 ODCM CONTROLS: GASEOUS EFFLUENT DOSE RATE <u>TABLE 4.11-2</u>						
RADIOACTIV	E GASEOUS W	<u>ASTE SAMPL</u>	ING AND AN	VALYSIS	PROGRAM		
GASEOUS RELEASE TYPE	SAMPLING FREQUENCY	MINIMUM ANALYSIS FREQUENCY	TYPE OF ACTIVIT ANALYS	Y	DWER LIMIT OF DETECTION (LLD) (uCi/ml) ^(a)		
A. Waste Gas Storage Tank	P Each Tank Grab Sample	P Each Tank	Principal Gamma Emitters ^(g)	)	1E-4		
	Each Tank* Grab Sample	Each Tank*	H-3*		1E-6		
B. Containment Purge	P Each Purge ^(b)	P Each	Principal Gar Emitters ^{(g}	nma ;)	1E-4		
	Grab Sample	Purge ^(b)	H-3		1E-6		
C. Ventilation Systems ^(h)	M ^{(b)(c)(e)} Grab Sample	M ^(b)	Principal Gar Emitters ^{(g}	mma ;)	1E-4		
VV-1 (UI PAB/Ventilation Vent) CV-1 (UI Rx Cont/SLCRS Vent) PV-1/2 (U1/2 GW/Process Vent) VV-2 (U2 SLCRS Unfiltered Path) CV-2 (U2 SLCRS Filtered Path) DV-2 (U2 Decon Bldg Vent) WV-2 (U2 Waste Gas Vault Vent) CB-2 (U2 Cond Pol Bldg Vent)			H-3		1E-6		

* The H-3 concentration shall be estimated prior to release and followed up with an H-3 grab sample from the Ventilation System during release.

ATTACHMENT K Page 3 of 5							
Page 3 of 5 ODCM CONTROLS: GASEOUS EFFLUENT DOSE RATE							
TABLE 4.11-2 (continued)							
RADIOACT	IVE GASEOUS	WASTE SAMI	<u>PLING AND ANAI</u>	<u>YSIS PRO</u>	<u>GRAM</u>		
		MINIMUM	TYPE		LIMIT OF		
GASEOUS	SAMPLING	ANALYSIS	OF		CTION		
RELEASE	FREQUENCY	FREQUENCY			LD)		
TYPE D. All Ventilation	Continuous ^(f)	W ^(d)	ANALYSIS	<u>(uCi/</u> 1E·	(ml) ^(a)		
Systems Listed	Continuous	Charcoal	I-131 I-133		-12		
Above (in C.)		Sample	1-133	112-	.10		
Which Produce							
Continuous	Continuous ^(f)	W ^(d)	Principal Gamma	1E-	-11		
Release		Particulate	Emitters ^(g)				
		Sample	(I-131, Others)				
	Continuous ^(f)	M	Gross Alpha	1E-	·11		
		Composite Particulate					
		Sample					
	Continuous ^(f)	Q	Sr-89, Sr-90	1E-			
-		Composite					
		Particulate					
		Sample	~				
	Continuous ^(f)	Noble Gas	Noble Gases	1E	-6		
		Monitor	Gross Beta And Gamma				
		L	Uaiiiiia				

C an a

ģ

d d

· ·	Beaver Valley Power Station	Procedure Nur 1	nber: /2-ODC-3.03					
Title:		Unit: 1/2	Level Of Use: General Skill Reference					
ODCM	1: Controls for RETS and REMP Programs	Revision:	Page Number:					
	ATTACHMENT K Page 4 of 5 ODCM CONTROLS: GASEOUS EFFLUENT DOSE RATE							
	TABLE 4.11-2 (continued)							
	TABLE NOTATION							
(a)	The Lower Limit of Detection (LLD) is defined in Table Notation (a) of for ODCM Surveillance Requirement 4.11.1.1.	ODCM Con	trol 3.11.1.1, Table 4.11-1					
(b)	(b) Samples (grab particulate, iodine & noble gas) and analysis shall also be performed following SHUTDOWN, STARTUP, or a THERMAL POWER change exceeding 15% of RATED THERMAL POWER within a 1 hour period. This requirement does not apply if (1) analysis shows that the Dose Equivalent I-131 concentration in the primary coolant has not increased more than a factor of 3; and (2) the noble gas monitor shows that effluent activity has not increased more than a factor of 3.							
	<u>Clarification</u> : All samples shall be obtained within 24 hours of reaching and analyzed within 48 hours of reaching the intended steady state power		l steady state power level,					
	<b>Applicability:</b> Unit 1 Ventilation Systems (VV-1, CV-1 and/or PV-1/2), CV-2 and/or PV-1/2), as appropriate. Specifically, sample the ventilation 3 increase on the noble gas effluent monitor. ^(3.1.16) (3.1.18)							
(c)	Tritium grab samples shall be taken at least once per 24 hours (from the the refueling canal area) when the containment refueling canal is flooded completion of vessel defueling. Sampling shall resume upon commence	. Sampling r	nay be terminated after					
	<u>Applicability - (MODE 6):</u> Unit 1 Ventilation System (VV-1 or CV-1), or CV-2), that is aligned to the Reactor Containment Building atmospherelease path, samples may be obtained from the Reactor Containment Building atmospherelease path.	e. In lieu of	sampling the ventilation					
(d)	Part 1: Samples (continuous particulate & iodine) shall be changed at le be completed within 48 hours after changing, or after removal from sampleted within 48 hours after changing.		7 days and analyses shall					
	<u>Applicability for Part 1:</u> Unit 1 and Unit 2 Ventilation Systems (VV-1, WV-2 & CB-2).	CV-1, PV-1	/2, VV-2, CV-2, DV-2,					
	Part 2: Samples (continuous particulate & iodine) shall also be changed at least once per 24 hours for at least 7 days following each SHUTDOWN, STARTUP, or THERMAL POWER change exceeding 15% of RATED THERMAL POWER within a 1 hour period and analyses shall be completed within 48 hours of changing. When samples collected for 24 hours are analyzed, the corresponding LLDs may be increased by a factor of 10. This requirement does not apply if: (1) analysis shows that the DOSE EQUIVALENT I-131 concentration in the reactor coolant has not increased more than a factor of 3; and (2) the noble gas monitor shows that effluent activity has not increased more than a factor of 3.							
	<b><u>Clarification</u></b> : All samples shall be changed within 24 hours of reaching and analyzed within 48 hours of reaching the intended steady state power		l steady state power level,					
	<u>Applicability for Part 2:</u> Unit 1 Ventilation Systems (VV-1, CV-1 and/ Systems (VV-2, CV-2 and/or PV-1/2), as appropriate. Specifically, chan iodine samples for the ventilation release path(s) that show a factor of 3 is monitor. ^(3.1.16) ( ^{3.1.18)}	ge out the co	ntinuous particulate,					

	Beaver Valley Power Station	Procedure N	umber: 1/2-ODC-3.03
Title:		Unit:	Level Of Use:
ODCM	: Controls for RETS and REMP Programs	1/2 Revision:	General Skill Reference Page Number:
		9	62 of 82
	ATTACHMENT K Page 5 of 5		
	ODCM CONTROLS: GASEOUS EFFLUENT D	OSE RAT	Έ
(e)	Tritium grab samples shall be taken at least once per 7 days (from the ap the spent fuel pool area) whenever spent fuel is in the spent fuel pool.	propriate v	entilation release path of
	<b>Applicability:</b> Unit 1 Ventilation System (CV-1), or Unit 2 Ventilation Fuel Handling Building atmosphere. In lieu of sampling the ventilation from the Fuel Handling Building atmosphere. ^(3.1.11)		
(f)	The average ratio of the sample flow rate to the sampled stream flow rate covered by each dose or dose rate calculation made in accordance with 0 3.11.2.2, and 3.11.2.3.		
	<b>Clarification:</b> The average ratio of the sample flow rate to the sampled but it must not be used in dose and dose rate calculation. Specifically, u conservative dose calculations, and would compromise licensee respons 30-05. For information, a comprehensive three-year Radiation Monitor response to the unresolved item's concern that the effluent monitors were per ANSI N13.1. The results of that study concluded that a correction fa applied to particulate sample volume calculations and subsequent dose a Specifically, the minimum CF of 2 must be utilized in-lieu of actual ratio stream flow rate. In summary, the minimum CF of 2 provides adequate particulate sample collection. ^(3.2.13)	se of this ra e to NRC U Particle Stu- e not collect actor (minin nd dose rations of sample	tio would provide non- Inresolved Item 50-334/83- Idy was performed in ting representative sample num CF of 2) must be e calculations. e flow rate to the sampled
	Applicability: Unit 1 Ventilation Systems (VV-1, CV-1 & PV-1/2), and CV-2).	l Unit 2 Ver	ntilation Systems (VV-2 &
(g)	The principal gamma emitters for which the LLD specification will appl radionuclides: Kr-87, Kr-88, Xe-133, Xe-133m, Xe-135, and Xe-138 for 59, Co-58, Co-60, Zn-65, Mo-99, Cs-134, Cs-137, Ce-141, and Ce-144 does not mean that only these nuclides are to be detected and reported. identifiable, together with the above nuclides, shall also be identified and the LLD for the analyses should not be reported as being present at the I unusual circumstances result in LLD's higher than required, the reasons Radioactive Effluent Release Report.	r gaseous e for particula Other peaks d reported. LLD level fo	missions and Mn-54, Fe- ate emissions. This list which are measurable and Nuclides which are below or that nuclide. When
(h)	Only when this release path is in use.		
-	Applicability: Unit 1 and Unit 2 Ventilation Systems (VV-1, CV-1, P CB-2).	V-1/2, VV-	2, CV-2, DV-2, WV-2 &

.

		Procedure Nun	nber:					
Ŀ	Beaver Valley Power Station	1/2-ODC-3.03						
Title:		Unit: 1/2	Level Of Use: General Skill Reference					
ODCM: Contr	ols for RETS and REMP Programs	Revision:	Page Number:					
		9	63 of 82					
	ATTACHMENT L							
	Page 1 of 1 ODCM CONTROLS: DOSE- NOBLE GA	SEC						
	ODCM CONTROLS. DOSE- NOBLE GA	.SES						
CONTROLS:	DOSE-NOBLE GASES							
3.11.2.2	3.11.2.2 In accordance with T.S. 5.5.2.e and T.S. 5.5.2.h,, the air dose from the reactor unit in unrestricted areas (see 1/2-ODC-2.02 Figure 5-1) due to noble gases released in gaseous effluents shall be limited to the following:							
	a. During any calendar quarter, to $\leq$ 5 mrad for gamme beta radiation.	na radiatior	and $\leq 10$ mrad for					
	b. During any calendar year, to $\leq 10$ mrad for gamma radiation.	a radiation a	and $\leq 20$ mrad for beta					
Applicability:	At all times.							
Action:	·							
above li 20.2203 exceedii	above limits, prepare and submit to the Commission with in 30 days, pursuant to 10 CFR 20.2203(a)(2)(v) and 10 CFR 50.4(b)(1), a Special Report which identifies the cause(s) for exceeding the limit(s) and defines the corrective actions taken to reduce the releases and the proposed corrective actions to be taken to assure the subsequent releases will be within the above							
b. The pro	visions of ODCM CONTROL 3.0.3 are not applicable.							
SURVEILLA	NCE REQUIREMENTS							
4.11.2.2.1 <u>Dose Calculations</u> . Cumulative dose contributions shall be determined in accordance with 1/2-ODC-2.02 at least once every 31 days.								

Beaver Valley Power Station	on	Procedure Nu	mber: 1/2-ODC-3.03		
Title:		Unit: 1/2	Level Of Use: General Skill Reference		
ODCM: Controls for RETS and REMP Programs		Revision: 9	Page Number: 64 of 82		
ATTACHM Page 1 ODCM CONTROLS: DOSE - RADIC	of 1				
CONTROLS: DOSE-RADIOIODINES, RADIOAC AND RADIONUCLIDES OTHER TH			TICULATE FORM,		
3.11.2.3 In accordance with T.S. 5.5.2.e and T. PUBLIC from radioiodines and radioa and radionuclides (other than noble ga gaseous effluents releases from the rea limited to the following:	ctive materials in p ses) with half-lives	oarticular s greater t	form (excluding C-14), han eight days in		
a. During any calendar quarter to	$\leq$ 7.5 mrem to any	organ, ai	nd		
b. During any calendar year to $\leq$	15 mrem to any or	gan.			
Applicability: At all times.					
Action:					
a. With the calculated dose from the release of radioiodines, radioactive materials in particulate form, (excluding C-14), and radionuclides (other than noble gases) with half-lives greater than eight days, in gaseous effluents exceeding any of the above limits, prepare and submit to the Commission within 30 days, pursuant to 10 CFR 20.2203(a)(2)(v) and 10 CFR 50.4(b)(1), a Special Report, which identifies the cause(s) for exceeding the limit and defines the corrective actions taken to reduce the releases and the proposed corrective actions to be taken to assure the subsequent releases will be within the above limits.					
b. The provisions of ODCM CONTROL 3.0.3 a	re not applicable.				
SURVEILLANCE REQUIREMENTS					
4.11.2.3.1 <u>Dose Calculations</u> . Cumulative dose of with 1/2-ODC-2.02 at least once every		be determ	ined in accordance		
			-		

Second sec

4

The state state and a second state of the st

Section Control of the section of the

i j

			Procedure Nu	umber:				
	•	Beaver Valley Power Station		1/2-ODC-3.03				
Title:			Unit: 1/2	Level Of Use: General Skill Reference				
ODCM	M: Con	trols for RETS and REMP Programs	Revision: 9	Page Number: 65 of 82				
	ATTACHMENT N Page 1 of 1 ODCM CONTROLS: GASEOUS RADWASTE TREATMENT SYSTEM							
CON	TROLS	: GASEOUS RADWASTE TREATMENT SYSTEM						
3.11.	2.4	In accordance with T.S. 5.5.2.f, Item 6, the Gaseous Rad Ventilation Exhaust Treatment System shall be used to a gaseous waste prior to their discharge when the projecte to gaseous effluent releases from the reactor unit (see 1/ averaged over 31 days, would exceed 0.2 mrad for game beta radiation. The appropriate portions of the Ventilati shall be used to reduce radioactive materials in gaseous when the projected doses due to gaseous effluent release ODC-2.02 Figure 5-1) when averaged over 31 days wou	reduce rad cd gaseous 2-ODC-2. ma radiation ion Exhaus waste pric es from the	ioactive materials in effluent air doses due 02 Figure 5-1), when on and 0.4 mrad for st Treatment System or to their discharge e reactor unit (see 1/2-				
<u>Appli</u>	icability	At all times.						
<u>Actio</u>	<u>)n</u> :							
a.	prepa	gaseous waste being discharged without treatment and in re and submit to the Commission within 30 days, pursuan FR 50.4(b)(1), a Special Report which includes the followi	t to 10 CF	R 20.2203(a)(2)(v) and				
	1.	Identification of the inoperable equipment or subsystem	s and the r	eason for inoperability,				
	2.	Action(s) taken to restore the inoperable equipment to o	perational	status, and				
	3.	Summary description of action(s) taken to prevent a rec	urrence.					
b.	The p	provisions of ODCM CONTROL 3.0.3 are not applicable.						
SUR	VEILLA	ANCE REQUIREMENTS						
4.11.2	4.11.2.4.1 Doses due to gaseous releases from the site shall be projected at least once per 31 days, in accordance with 1/2-ODC-2.02.							
		· ·						

	Beaver Valley Power Station	Procedure Nu	umber: 1/2-ODC-3.03
Title:		Unit: 1/2	Level Of Use: General Skill Reference
ODCM: Co	ntrols for RETS and REMP Programs	Revision: 9	Page Number:
	ATTACHMENT O Page 1 of 1 ODCM CONTROLS: GAS STORAGE TA		<u>66 of 82</u>
CONTROL	S: GAS STORAGE TANKS		
3.11.2.5	In accordance with T.S. 5.5.8, the quantity of radioactiv storage tanks(s) shall be limited to the noble gas values 133).	•	
	<ul> <li>a.               <u>52,000</u> Curies: Each BV-1 Waste Gas Decay Tar <u>1B</u>, or 1GW-TK-1C)      </li> </ul>	nk (1GW-1	FK-1A, or 1GW-TK-
	<ul> <li>b. ≤19,000 Curies: Any connected group of BV-2 Ga (2GWS-TK25A thru 2GWS-TK25G)</li> </ul>	aseous Was	ste Storage Tanks
APPLICAE	BILITY: At all times.		
ACTION:			
a.	With the quantity of radioactive material in any gas storage immediately suspend all additions of radioactive material reduce the tank contents to within the limit, and	-	-
b.	Submit a Special Report in accordance with 10 CFR 50.4 a schedule and a description of activities planned and/or t within the specified limits.		-
с.	The provisions of ODCM Control 3.0.3 are not applicable	Э.	
SURVEILI	ANCE REQUIREMENTS		
4.11.2.5.1	<u>For BV-1 Waste Gas Decay Tanks</u> : The quantity of rad each BV-1 Waste Gas Decay Tank shall be determined least once per 24 hours when radioactive materials are b Performance of this surveillance is required when the gr coolant is greater than 100 uCi/ml. <u>For BV-2 Gaseous Waste Storage Tanks</u> : The quantity contained in any connected group of BV-2 Gaseous Wa determined to be within the above limit at least once per materials are being added to the tanks.	to be with being adde ross concer of radioac ste Storage	in the above limit at d to the tank. ntration of the primary tive material e Tanks shall be
·			

Beaver Valley Power Station		Procedure Number: 1/2-ODC-3.03		
Title:		Unit:	Level Of Use:	
ODCM C		1/2 Revision:	General Skill Reference Page Number:	
ODCM: Con	trols for RETS and REMP Programs	9	67 of 82	
	ATTACHMENT P Page I of I ODCM CONTROLS: TOTAL DOSE			
CONTROLS	: TOTAL DOSE			
3.11.4.1	In accordance with T.S. 5.5.2.j, the annual (calendar ye any MEMBER OF THE PUBLIC due to releases of rac uranium fuel cycle sources shall be limited to $\leq 25$ mre organ, except the thyroid, which shall be limited to $\leq 75$	lioactivity ms to the v	and to radiation from	
Applicability	: At all times.			
Action:				
exceed 3.11.2. units (i CONT) Commi Special prevent conforr include from un calenda radiatio or conc resultir include of the r request	the calculated doses from the release of radioactive material ing twice the limits of ODCM CONTROL 3.11.1.2a, 3.11 Ba, or 3.11.2.3b, calculations shall be made including dire including outside storage tanks, etc.) to determine whether ROL 3.11.4.1 have been exceeded. If such is the case, pro- fission within 30 days, pursuant to 10 CFR 20.2203(a)(2)( Report that defines the corrective action to be taken to re- trecurrence of exceeding the above limits and includes the nance with the above limits. This Special Report, as defi- an analysis that estimates the radiation exposure (dose) to ranium fuel cycle sources, including all effluent pathways ary year that includes the release(s) covered by this report. On and concentrations of radioactive material involved, an is entrations. If the estimated dose(s) exceeds the above lim- g in violation of 40 CFR Part 190 has not already been co- a request for a variance in accordance with the provision eport is considered a timely request, and a variance is gra- is complete.	1.2b, 3.11 ect radiation the above epare and s v) and 10 C educe subse e schedule ned in 10 C o a MEME and direct It shall als d the cause nits, and if prected, th s of 40 CF nted until s	1.2.2a, 3.11.2.2b, in contributions from the limits of ODCM submit to the CFR 50.4(b)(1), a equent releases to for achieving CFR 20.405(c), shall BER OF THE PUBLIC radiation, for the so describe levels of e of the exposure levels the release condition as Special Report shall R Part 190. Submittal	
b. The p	provisions of ODCM CONTROL 3.0.3 are not applicable.			
SURVEILLA	ANCE REQUIREMENTS			
4.11.4.1.1	Cumulative dose contributions from liquid and gaseous accordance with ODCM SURVEILLANCE REQUIRE and 4.11.2.3.1.			
4.11.4.1.2	Cumulative dose contributions from direct radiation from storage tanks, etc.) shall be determined in accordance we requirement is applicable only under conditions set fort CONTROL 3.11.4.1.	vith 1/2-OI	DC-2.04. This	

Beaver Valley Power Station	Procedure Nur 1	mber: 1/2-ODC-3.03						
Title:	Unit: 1/2	Level Of Use: General Skill Reference						
ODCM: Controls for RETS and REMP Programs	Revision: 9	Page Number: 68 of 82						
ATTACHMENT Q	<u> </u>	00 01 02						
Page 1 of 9 ODCM CONTROLS: REMP-PROGRAM REQUI								
ODEM CONTROLS. REMI -I ROORAM REQUIREMENTS								
CONTROLS: RADIOLOGICAL ENVIRONMENTAL MONITORIN	<u>G PROGR</u>	AM						
A program shall be provided to monitor the radiation and radionuclides program shall provide (1) representative measurements of radioactivity pathways, and (2) verification of the accuracy of the effluent monitorin environmental exposure pathways. The program shall (1) be contained guidance of the Appendix I to 10 CFR Part 50, and (3) include the follo	in the high g program l in the OD	nest potential exposure and modeling of						
<ul><li>accordance with the methodology and parameters in the ODCM,</li><li>A Land Use Census to ensure that changes in the use of areas at an</li></ul>	<ul> <li>accordance with the methodology and parameters in the ODCM,</li> <li>A Land Use Census to ensure that changes in the use of areas at and beyond the site boundary are identified and that modifications to the monitoring program are made if required by the results of</li> </ul>							
<ol> <li>Participation in an Interlaboratory Comparison Program to ensure precision and accuracy of the measurements of radioactive materia matrices are performed as part of the quality assurance program for</li> </ol>	als in the en	vironmental sample						
3.12.1 The radiological environmental monitoring program shall be co Control 3.12.1, Table 3.12-1.	nducted as	specified in ODCM						
Applicability: At all times.								
Action:								
a. With the radiological environmental monitoring program not be ODCM Control 3.12.1, Table 3.12-1, prepare and submit to the Radiological Environmental Report, a description of the reasons as required and the plans for preventing a recurrence. Deviatio required sampling schedule if specimens are unobtainable due to unavailability, malfunction of automatic sampling equipment and specimens are unobtainable due to sampling equipment malfunct to complete corrective action prior to the end of the next sampling	Commissions of are permon o hazardous nd other leg ction, every ng period.	on, in the Annual enducting the program nitted from the s conditions, seasonal gitimate reasons. If effort shall be made						
<ul> <li>b. With the level of radioactivity in an environmental sampling mellocations specified in ODCM Control 3.12.1, Table 3.12.1 exceed Control 3.12.1, Table 3.12-2 when averaged over any calendar of Commission within 30 days from the end of affected calendar q to 10 CFR 20.2203(a)(2)(v) and 10 CFR 50.4(b)(1) which inclus conditions, environmental factors or other aspects which caused 3.12.1, Table 3.12-2 to be exceeded. This report is not required radioactive was not the result of plant effluents; however, in suc reported and described in the Annual Radiological Environmental When more than one of the radionuclides in ODCM Control 3.1 the sampling medium, this report shall be submitted if:</li> </ul>	eding the li quarter, pre uarter a Spe des an eval l the limits if the meas th an event, tal Report.	imits of ODCM spare and submit to the ecial Report pursuant luation of any release of ODCM Control sured level of , the condition shall be						

ŝ

đ

Į, Ì 4 I

4

ł

Ы

Beaver Valley Power Station	Procedure Nun	nber: /2-ODC-3.03
Title:	Unit:	Level Of Use:
	1/2 Revision:	General Skill Reference Page Number:
ODCM: Controls for RETS and REMP Programs	9	69 of 82
ATTACHMENT Q		
Page 2 of 9 ODCM CONTROLS: REMP-PROGRAM REQUI	REMENT	2
		,
$\frac{\text{Concentration (1)}}{\text{Limit Level (1)}} + \frac{\text{Concentration (2)}}{\text{Limit Level (2)}} + \ldots \ge 1.0$		
c. With milk or fresh leafy vegetable samples unavailable from the selected in accordance with ODCM CONTROL 3.12.2 and liste		
replacement samples. The locations from which samples were u	unavailable	may then be deleted
from those required by ODCM Control 3.12.1, Table 3.12-1 and locations from which the replacement samples were obtained ar		
monitoring program as replacement locations, if available.	e uudeu to	une environmentar
d. The provisions of ODCM CONTROL 3.0.3 are not applicable.		
SURVEILLANCE REQUIREMENTS		
4.12.1.1 The radiological environmental monitoring samples shall	ll he collect	ted pursuant to ODCM
Control 3.12.1, Table 3.12-1 from the locations given in	the ODCM	1 and shall be analyzed
pursuant to be requirements of ODCM Control 3.12.1, T	ables 3.12	-1 and 4.12-1.

Beaver	Valley Power S	Station	Procedure Num	nber: /2-0DC-3.03
tle:			Unit: 1/2	Level Of Use: General Skill Refer
DCM: Controls for R	ETS and REMP Progra	ms	1/2 Revision: 9	Page Number: 70 of 82
		ACHMENT Q		
00		Page 3 of 9		<b>x</b>
0D	CM CONTROLS: RE	MP-PROGRAM REQU		5
	<u><u>T</u></u>	<u>ABLE 3.12-1</u>		
RADI	OLOGICAL ENVIRO	NMENTAL MONITOR	<u>UNG PROG</u>	RAM
EXPOSURE PATHWAY AND/OR SAMPLE	NUMBER OF SAMPLES AND LOCATIONS	SAMPLING AND COLLECTION FREQUENCY	TYPE AND OF ANALY	FREQUENCY ^(a) SIS
1. AIRBORNE a. Radioiodine And Particulates	<ol> <li>5 locations</li> <li>1. One sample from a control location 10-20 miles distant and in the least prevalent wind direction</li> <li>2. One sample from vicinity of community having the highest calculated annual average ground level D/Q.</li> </ol>	Continuous operation of sampler with sample collection at least weekly.	Analyze for Particulate s Analyze for beta weekly Perform gan	ampler. gross ( ^{b)} , mma isotopic composite (by
2. DIRECT RADIATION	40 locations ≥ 2 TLDs or a pressurized ion chamber at each location.	Continuous measurement with collection at least quarterly.	Gamma dos	e, quarterly.

^(a)Analysis frequency same as sampling frequency unless otherwise specified.

(b) Particulate samples are not counted for ≥ 24 hours after filter change. Perform gamma isotopic analysis on each sample when gross beta is >10 times the yearly mean of control samples.

**Sample locations are given on figures and tables in 1/2-ODC-2.03.

Beaver Valley Power Station			1	Procedure Number: 1/2-ODC-3.03	
tle:		Unit: 1/2	Level Of Use: General Skill Reference		
DCM: Controls for RI	ETS and REMP Progra	ms	Revision:	Page Number: 71 of 82	
1		ACHMENT Q	<b></b> <i>?</i>	<u> </u>	
OD		Page 4 of 9 MP-PROGRAM REQU	UREMENTS	\$	
	TABLE	<u>E 3.12-1 (continued)</u>			
RADI	OLOGICAL ENVIRO	NMENTAL MONITOR	UNG PROG	RAM	
EXPOSURE PATHWAY AND/OR SAMPLE	NUMBER OF SAMPLES AND LOCATIONS**	SAMPLING AND COLLECTION FREQUENCY	TYPE AND OF ANALY	FREQUENCY ^(a) SIS	
3. WATERBORNE a. Surface	<ol> <li>2 locations.</li> <li>1. One sample upstream.</li> </ol>	Composite* sample collected over a period not to exceed 1 month.	composite sa monthly;	opic analysis of Imple by location	
	2. One sample downstream.		Tritium anal composite sa quarterly.	ysis of Imple at least	
b. Drinking	2 locations.	Composite* sample collected over a period not to exceed 2 weeks.	I-131 analys composite sa Gamma isoto composite sa location) mo	mple; opic analysis of mple (by	
			Tritium anal sample quar	ysis of composite erly.	
c. Groundwater N/A - No wells in lower elevations between plant and river					
d. Sediment From Shoreline	1 location.	Semi-annually.	Gamma isoto semi-annual	opic analysis ly.	

^(a)Analysis frequency same as sampling frequency unless otherwise specified.

*Composite samples shall be collected by collecting an aliquot at intervals not exceeding two hours. For the upstream surface water location, a weekly grab sample, composited each month based on river flow at time of sampling, is also acceptable.

**Sample locations are given on figures and tables in 1/2-ODC-2.03.

Beav	ver Valley Power S	Station	Procedure Nu	imber: 1/2-ODC-3.03
Title:	<b>2</b>		Unit: 1/2	Level Of Use: General Skill Reference
ODCM: Controls fo	or RETS and REMP Progra	ms	Revision: 9	Page Number: 72 of 82
		ACHMENT Q Page 5 of 9 MP-PROGRAM REQU	IIREMENT	`S
	TABLE	E 3.12-1 (continued)		
<u>R</u> /	ADIOLOGICAL ENVIRO	NMENTAL MONITOR	UNG PROC	GRAM
EXPOSURE PATHWAY AND/ SAMPLE	OR SAMPLES AND LOCATIONS**	SAMPLING AND COLLECTION FREQUENCY	TYPE AND FREQUENCY ^(a) OF ANALYSIS	
4. INGESTION a. Milk	<ul> <li>4 locations.^(b)</li> <li>1. Three samples selected on basis of highest potential thyroid dose using milch census data.</li> <li>2. One local large dairy.</li> </ul>	Atleast bi-weekly when animals are on pasture; at least monthly at other times.		topic and I-131 each sample.
b. Fish	2 locations.	Semi-annual. One sample of available species.	Gamma iso edible porti	topic analysis on ons.
c. Food Product (Leafy Vegetables)	ts 4 locations. 1. Three locations	Annually at time of harvest.		topic analysis and sis on edible

^(a)Analysis frequency same as sampling frequency unless otherwise specified.

within 5 miles.

2. One control location.

^(b)Other dairies may be included as control station or for historical continuity. These would not be modified on basis of milch animal census.

**Sample locations are given on figures and tables in 1/2-ODC-2.03.

Beaver	Valley	Power	Station
--------	--------	-------	---------

ODCM: Controls for RETS and REMP Programs

Title:

Procedure Number:				
1/2-ODC-3.03				
Unit: 1/2	Level Of Use: General Skill Reference			
Revision: 9	Page Number: 73 of 82			
	15 01 02			

### ATTACHMENT Q Page 6 of 9 ODCM CONTROLS: REMP-PROGRAM REQUIREMENTS

# TABLE 3.12-2

# **REPORTING LEVELS FOR RADIOACTIVITY CONCENTRATIONS**

		<u>in bi (monulai (in bio</u>					
		R	REPORTING LEVELS				
		AIRBORNE			BROAD LEAF		
	WATER	PARTICULATE OR	FISH	MILK	VEGETABLES		
ANALYSIS	(pCi/l)	GASES (pCi/m ³ )	(pCi/kg, WET)	(pCi/l	(pCi/kg, WET)		
H-3	2E+4 ^(a)						
Mn-54	1E+3		3E+4				
Fe-59	4E+2		1E+4				
Co-58	1E+3		3E+4				
Co-60	3E+2		1E+4				
Zn-65	3E+2		2E+4				
Zr/Nb-95	4E+2						
I-131	2 ^(b)	0.9		3	1E+2		
Cs-134	30	10	1E+3	60	1E+3		
Cs-137	50	20	2E+3	70	2E+3		
Ba/La-140	2E+2			3E+2			

**IN ENVIRONMENTAL SAMPLES** 

(a) For drinking water samples. This is a 40 CFR Part 141 value. If no drinking water pathway exists, a value of 3E+4 pCi/l may be used.

^(b) If no drinking water pathway exists, a value of 20 pCi/l may be used.

Bea	aver V	alley Powe	er Station		Procedure Numb	^{Der:} 2-ODC-3.03
			<u> </u>		Unit:	Level Of Use:
'M· Controls	for RETS	S and REMP Pro	ograms		1/2 Revision:	General Skill Refer
					. 9	74 of 82
		F	ATTACHMENT Page 7 of 9	¹ Q		
	ODCM	I CONTROLS:	REMP-PROGF	AM RE	JUIREMENTS	
			<u>TABLE 4.12</u>			
MAXI	<u>MUM V</u>	ALUES FOR TI	<u>HE LOWER LIN</u>	MITS OF	DETECTION	$(LLD)^{(a)(e)}$
	[	AIRBORNE	[]			Т
	WATER	PARTICULATE OR GAS			FOOD	
ANALYSIS	(pCi/l)	$(pCi/m^3)$	FISH (pCi/kg, WET)	MILK (pCi/l)	PRODUCTS (pCi/kg, WET)	SEDIMENT (pCi/kg, DRY)
Gross Beta	4	1E-2	(penkg, (121)	(perit)		
		115-2		1		
H-3	2000 ^(d)					
Mn-54	15		130	1		
Fe-59	30		260			
				í I		
Co-58,60	15		130			
Zn-65	30		260			
Zr-95	30 ^(c)					
	15 ^(c)		•	1		
Nb-95	15~					
I-131	1 ^(b)	7E-2	,	1	60	
Cs-134	15	5E-2	130	15	60	150
Cs-137	18	6E-2	150	18	80	180
Ba-140	60 ^(c)			60		
La-140	15 ^(c)			15		

# Beaver Valley Power Station

ODCM: Controls for RETS and REMP Programs

rocedure Number:				
-	1/2-ODC-3.03			
Unit:	Level Of Use:			
1/2	General Skill Reference			
Revision:	Page Number:			
9. 75 of 82				

#### ATTACHMENT Q Page 8 of 9 ODCM CONTROLS: REMP-PROGRAM REQUIREMENTS

## TABLE 4.12-1 (continued)

## TABLE NOTATION

(a) The LLD is the smallest concentration of radioactive material in a sample that will be detected with 95% probability with 5% probability of falsely concluding that a blank observation represents a "real" signal.

For a particular measurement system (which may include radiochemical separation):

LLD = 
$$\frac{4.66 \text{ Sb}}{(E)(V)(2.22)(Y) \exp(-\lambda\Delta T)}$$

where:

LLD is the lower limit of detection as defined above (as pCi per unit mass or volume);

 $S_b$  is the standard deviation of the background counting rate or of the counting rate of a blank sample as appropriate (as counts per minute);

E is the counting efficiency (as counts per transformation);

V is the sample size (in units of mass or volume);

2.22 is the number of transformations per minute per picocurie;

Y is the fractional radiochemical yield (when applicable);

 $\lambda$  is the radioactive decay constant for the particular radionuclide;

 $\Delta T$  is the elapsed time between sample collection (or end of the sample collection period) and time of counting (for environmental samples, not plant effluent samples).

The value of  $S_b$  used in the calculation of the LLD for a detection system shall be based on the actual observed variance of the background counting rate or of the counting rate of the blank samples (as appropriate) rather than on an unverified theoretically predicted variance. In calculating the LLD for a radionuclide determined by gamma-ray spectrometry, the background shall include the typical contributions of other radionuclides normally present in the samples (e.g., potassium-40 in milk samples). Typical values of E, V, Y and  $\Delta T$  should be used in the calculations.

Title:

# Beaver Valley Power Station

ODCM: Controls for RETS and REMP Programs

Title:

Procedure Number:				
1/2-ODC-3.03				
Unit:	Level Of Use:			
1/2 General Skill Reference				
Revision:	Page Number:			
9	76 of 82			

## ATTACHMENT Q Page 9 of 9 ODCM CONTROLS: REMP-PROGRAM REQUIREMENTS

#### TABLE 4.12-1 (continued)

#### **TABLE NOTATION**

The LLD is defined as an <u>a priori</u> (before the fact) limit representing the capability of a measurement system and not as <u>a posteriori</u> (after the fact) limit for a particular measurement. Analyses shall be performed in such a manner that the stated LLD's will be achieved under routine conditions. Occasionally, background fluctuations, unavoidable small sample sizes, the presence of interfering nuclides, or other uncontrollable circumstances may render these LLD's unachievable. In such cases, the contributing factors shall be identified and described in the Annual Radiological Environmental Report.

^(b) If no drinking water pathway exists, a value of 15 pCi/l may be used.

^(c) If parent and daughter are totaled, the most restrictive LLD should be applied.

^(d) If no drinking water pathway exists, a value of 3000 pCi/l may be used.

^(e) This list does not mean that only these nuclides are to be detected and reported. Other peaks which are measurable and identifiable, together with the above nuclides, shall be identified in the Annual Radiological Environmental Report.

<u>+w</u> _	Beaver Valley Power Station	Procedure Nu	mber: 1/2-ODC-3.03	
Title:		Unit:	Level Of Use:	
ODC	M: Controls for RETS and REMP Programs	1/2 Revision:	General Skill Reference Page Number:	
	ATTACHMENT R	9	77 of 82	
,	Page 1 of 1			
	ODCM CONTROLS: REMP - LAND USE C	ENSUS		
CO	NTROLS: RADIOLOGICAL ENVIRONMENTAL MONITORIN	G - LAND	USE CENSUS	
3.12	.2 A land use census shall be conducted and shall identify animal, the nearest residence, and the nearest garden of producing broad leaf vegetation in each of the 16 meteor of five miles. For elevated releases as defined in Regul 1977, the land use census shall also identify the location gardens of greater than 500 square feet producing fresh meteorological sectors within a distance of three miles.	greater tha rological s atory Guid is of all mi	n 500 square feet ectors within a distance e 1.111, (Rev. 1), July, lk animals and all	
<u>App</u>	licability: At all times.			
<u>Act</u>	<u>on</u> :			
a.	With a land use census identifying a location(s) which yields a ca commitment greater than the values currently being calculated in REQUIREMENT 4.11.2.3.1, prepare and submit to the Commiss CFR 20.2203(a)(2)(v) and 10 CFR 50.4(b)(1), a Special Report, v location(s).	ODCM SU	JRVEILLANCE 30 days, pursuant to 10	
b.	With a land use census identifying a milk animal location(s) which commitment (via the same exposure pathway) 20% greater than a are currently being obtained in accordance with ODCM CONTR the Commission within 30 days, pursuant to 10 CFR 20.2203(a)( Special Report, which identifies the new location. The new locat radiological environmental monitoring program within 30 days, is program shall include samples from the three active milk animal calculated dose or dose commitment. Any replaced location may program after October 31 of the year in which this land use censu	at a location OL 3.12.1 2)(v) and 1 ion shall b f possible. locations, l be deleted	n from which samples prepare and submit to 0 CFR 50.4(b)(1), a e added to the The milk sampling having the highest I from this monitoring	
c.	The provisions of ODCM CONTROL 3.0.3 are not applicable.			
SURVEILLANCE REQUIREMENTS				
			······	
4.12	.2.1 The land use census shall be conducted at least once per June 1 and October 1 using that information which will by a door-to-door survey*, aerial survey, or by consulting	provide the	e best results, such as	
* Co	onfirmation by telephone is equivalent to door-to-door.			

	· · · · · · · · · · · · · · · · · · ·		
	Beaver Valley Power Station	Procedure N	umber: 1/2-ODC-3.03
Title:		Unit:	Level Of Use: General Skill Reference
ODCM: Cor	ntrols for RETS and REMP Programs	1/2 Revision:	Page Number:
		9	78 of 82
	ATTACHMENT S Page 1 of 1		
ODO	CM CONTROLS: REMP - INTERLABORATORY CO	OMPARISON	N PROGRAM
CONTROL	S: RADIOLOGICAL ENVIRONMENTAL MONITOR COMPARISON PROGRAM	ING - INTE	RLABORATORY
3.12.3	Analyses shall be performed on radioactive materials Interlaboratory Comparison Program.	s supplied as	part of an
Applicabilit	<u>v</u> :		
At all times.			
Action:			
a. With a	nalyses not being performed as required above, report t	he corrective	actions taken to preve
	rence to the Commission in the Annual Radiological Er		-
b. The pr	ovisions of ODCM CONTROL 3.0.3 are not applicable		
0. The pr	ovisions of ODCM CONTROL 5.0.5 are not applicable	•	
SURVEILL	ANCE REQUIREMENTS		
4.12.3.1	The results of analyses performed as part of the abov Comparison Program shall be included in the Annua Report.		
1			

!

ł

ı

F

đ

Beaver Valley Power Station		Procedure Number: 1/2-ODC-3.03				
Title:		Unit: 1/2	Level Of Use: General Skill Reference			
ODCM: Control	s for RETS and REMP Programs	Revision:	Page Number:			
	ATTACHMENT T Page 1 of 2 ODCM CONTROLS: ANNUAL REMP REPORT					
CONTROLS: A	CONTROLS: ANNUAL REMP REPORT					
ANNUAL RAD	ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT (3)					
c tl l tr r i i	6.9.2 In accordance with T.S. 5.6.1, the Radiological Environmental Operating Report covering the operation of the unit during the previous calendar year shall be submitted before May 15 of each year. The report shall include summaries, interpretations, and analyses of trends of the results of the Radiological Environmental Monitoring Program for the reporting period. The material provided shall be consistent with the objectives outlined in the Offsite Dose Calculation Manual (ODCM) and in 10 CFR Part 50 Appendix I Sections IV.B.2, IV.B.3, and IV.C.					
Т	he annual radiological environmental reports shall incl	ude:				
•	• Summaries, interpretations, and statistical evaluation of the results of the radiological environmental surveillance activities for the report period, including a comparison with pre-operational studies, operational controls (as appropriate), and previous environmental surveillance reports, and an assessment of the observed impacts of the plant operation on the environment.					
•	The results of the land use censuses required by OD	CM CONT	ROL 3.12.2.			
•	• If harmful effects or evidence of irreversible damage are detected by the monitoring, the report shall provide an analysis of the problem and a planned course of action to alleviate the problem.					
•	• Summarized and tabulated results in the format of ODCM Control 6.9.2, Table 6.9-1 of all radiological environmental samples taken during the report period. In the event that some results are not available for inclusion with the report, the report shall be submitted noting and explaining the reasons for the missing results. The missing data shall be submitted as soon as possible in a supplementary report.					
•	• A summary description of the radiological environmental monitoring program.					
•	A map of all sampling locations keyed to a table giv one reactor.	ing distanc	es and directions from			
٩	The results of licensee participation in the Interlabor required by ODCM CONTROL 3.12.3.	atory Com	parison Program			
⁽³⁾ A single submittal may be made for a multiple unit site. The submittal should combine those sections that are common to all units at the station.						

.

•

		ONMENTAL R		<u>3 E:6.9-1</u> MONITORING PRC Dock	OGRAM SUM			0	ODCM: Controls for RETS and REMP Programs	Beaver V
	Location O	f Facility(	County, State)	Report	ting Period			DCM C	and REI	Valley I
MEDIUM OF PATHWAY SAMPLEI (UNIT OF MEASUREMENT)	TYPE AND TOTAL NUMBER OF ANALYSES PERFORMED	LOWER LIMITS OF DETECTION ^L (LLD)	ALL INDICATOR LOCATIONS MEAN(F) ^b RANGE ^b	LOCATIONS WITH ANNUAL M NAME DISTANCE AND DIRECTION	HIGHEST EAN MEAN(F) ^b RANGE ^b	CONTROL LOCATIONS MEAN(F) ^b RANGE ^b	NONROUTINE REPORTED MEASUREMENTS	ATTA( Pag ODCM CONTROLS:	MP Programs	Power Station
								ATTACHMENT T Page 2 of 2 ROLS: ANNUAL REMP REPORT		ation
								VEPORT	1/2 Revision: 9	Unit
<ul> <li>^a Nominal Lower limi</li> <li>^b Mean and range base</li> </ul>	ts of Detection (LLD) a	as defined in Table surement only. Fr	Notation ^a of Table action of detectable	4.12-1 of ODCM CONTR measurement at specified l	OL 3.11.1.1. ocations is indic	cated in parenthesis (f).			General Skill Reference Page Number: 80 of 82	1/2-ODC-3.03

Beaver Valley Power Station		Procedure Nu	mber: 1/2-ODC-3.03				
Title:			Level Of Use:				
ODCM: Controls for RETS and REMP Programs			General Skill Reference Page Number:				
	ATTACHMENT U	9	81 of 82				
	Page 1 of 2 ODCM CONTROLS: ANNUAL RETS REPORTS						
CONTROLS:	CONTROLS: RETS REPORT						
RADIOACTIVE EFFLUENT RELEASE REPORT ⁽⁴⁾							
6.9.3	In accordance with T.S. 5.6.2, the Radioactive Effluent F covering the operation of the unit during the previous ye May 1 of each year in accordance with 10 CFR 50.36a. summary of the quantities of radioactive liquid and gased released from the unit. The material provided shall be co outlined in the ODCM and Process Control Program (PC CFR 50.36a and 10 CFR Part 50, Appendix I Section IV	ar shall be The repor ous efflue onsistent v CP) and in	e submitted prior to t shall include a nts and solid waste with the objectives				
`	This report is prepared and submitted in accordance with minimum, shall contain the following:	1/2-ENV	-01.05, and at a				
	<ul> <li>A summary of the quantities of radioactive liquid and gaseous effluent and solid waste released from the unit as outlined in Regulatory Guide 1.21, Revision 1, Jun 1974, "Measuring, Evaluating, And Reporting Radioactivity In Solid Wastes And Releases Of Radioactive Materials In Liquid And Gaseous Effluents From Light- Water-Cooled Nuclear Power Plants," with data summarized on a quarterly basis following the format of Appendix B thereof.</li> </ul>						
	• An assessment of radiation doses from the radioactive liquid and gaseous effluents released from the unit during each calendar quarter as outlined in Regulatory Guid 1.21. In addition, the unrestricted area boundary maximum noble gas gamma air a beta air doses shall be evaluated. The assessment of radiation doses shall be performed in accordance with this manual.						
	• Any licensee initiated changes to the ODCM made d	uring the	12 month period.				
• Any radioactive liquid or gaseous effluent monitoring instrumentation channels nor returned to OPERABLE status within 30 days, and why the inoperability was not corrected in a timely manner. This applies to the liquid or gaseous effluent monitoring instrumentation channels required to be OPERABLE per ODCM CONTROLS 3.3.3.9 and 3.3.3.10.							
	• Any ODCM SURVEILLANCE REQUIREMENT deficiencies. This applies to monitoring, sampling and analysis and dose projection.						
	• The reasons when unusual circumstances result in LL ODCM CONTROL 3.11.1.1, Table 4.11-1 and ODC 4.11-2.	-	· · ·				
(4) A single submittal may be made for a multiple unit site. The submittal should combine those sections that are common to all units at the station; however, for units with separate radwaste systems, the submittal shall specify the releases of radioactive material from each unit.							

Be	aver Valley Power Station	Procedure Nu	umber: 1/2-ODC-3.03			
Title:			Level Of Use:			
ODCM: Controls	for RETS and REMP Programs	1/2 Revision:	General Skill Reference Page Number:			
ODCM: Controls		9	82 of 82			
ATTACHMENT U Page 2 of 2 ODCM CONTROLS: ANNUAL RETS REPORTS						
CONTROLS: ANNUAL RETS REPORT (continued)						
9	The following information for each type of solid was report period: - container volume					
	<ul> <li>total curie quantity (determined by measurement or estimate)</li> <li>principal radionuclides (determined by measurement or estimate)</li> <li>type of waste (e.g., spent resin, compacted dry waste, evaporator bottoms)</li> <li>type of container (e.g., LSA, Type A, Type B, Large Quantity)</li> </ul>					
	<ul> <li>solidification agent (e.g., cement)</li> <li>classification and other requirements specified by 1</li> </ul>	10 CFR Pa	rt 61			
•	• An annual summary of hourly meteorological data collected over the previous year. This annual summary may be either in the form of an hour-by-hour listing of wind speed, wind direction, atmospheric stability, and precipitation (if measured) on magnetic tape, or in the form of joint frequency distributions of wind speed, wind direction, and atmospheric stability.					
o	An assessment of the radiation doses due to the radio effluents released from the unit or station during the	· ·	-			
•	<ul> <li>An assessment of the radiation doses from radioactive effluents to MEMBER(S) OF THE PUBLIC due to their activities inside the site boundary see 1/2-ODC-2.01 Figure 5.1 and 1/2-ODC-2.02 Figure 5-1 during the report period. All assumptions used in making these assessments (e.g., specific activity, exposure time, and location shall be included in these reports. The assessment of radiation doses shall be performed in accordance with 1/2-ODC-2.04.</li> </ul>					
•	• An assessment of radiation doses to the likely most exposed real individual from reactor releases for the previous calendar year to show conformance with 40 CFR 190, Environmental Radiation Protection Standards For Nuclear Power Operation. Acceptable methods for calculating the dose contribution from liquid and gaseous effluents are given in Regulatory Guide 1.109, Revision 1. The SKYSHINE Code (available from Radiation Shielding Information Center, (ORNL)) is acceptabl for calculating the dose contribution due to N-16.					
•	If quantities of radioactive materials released during significantly above design objectives, the report mus	~				