BC HYDRO

T&D SYSTEM OPERATIONS

ATTACHMENT 1 OF SYSTEM OPERATING ORDER 7T-34

<u>SI 500 kV OPERATION (2L277 CONNECTED TO NLY)</u> Supersedes Attachment 1 of SOO 7T-34 issued 12 January 2023

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1.0 GENERAL SYSTEM INFORMATION AND REQUIREMENTS

1.1 Line Ratings

1.1.1 Continuous Ratings

Refer to System Operating Order 5T-10 for the source of the following data.

Variable Name Used in		Conductor Continuous Rating (Amp)		Corresponding Continuous MW Rating (MW = 1.732 * Rating in KA * 525 kV * 0.99	
500 KV	Generation Shedding Tables	Summer	Winter	Summer	Winter
Circuit		(Based on 30° C	(Based on 10° C	(Based on 30° C	(Based on 10º C
		ambient)	ambient)	ambient)	ambient)
5 40	5I 40 Norm Rating	2772	3000 (CT limit)	2495	2701 (CT limit)
5L41	5L41 Norm Rating	1900 (CHP limit)	1900 (CHP limit)	1710 (CHP limit)	1710 (CHP limit)
5L41 BypassCHP	5L41 BypassCHP Norm rating	2743	3000 (CT or CHP	2469	2701 (CT or CHP
			5BP1 limit)		5BP1 limit)
5L42	5L42 Norm Rating	2180 (CRK limit)	2180 (CRK limit)	1962 (CRK limit)	1962 (CRK limit)
5L42 BypassCRK	5L42 BypassCRK Norm Rating	2328	3000 (CT limit)	2096	2701 (CT limit)
5L44	5L44 Norm Rating	<mark>2628</mark>	3000 (CT limit)	<mark>2366</mark>	2701 (CT limit)
5L45	5L45 Norm Rating	<mark>2305</mark>	3000 (CT limit)	<mark>2075</mark>	2701 (CT limit)
5L71	5L71_Norm_Rating	2332	3000 (SYA1	1999 (@ 500 kV)	2572 (@500 kV)
			limit)		(SYA1 limit)
5L71_BypassSYA1	5L71_BypassSYA1_Norm_Rating	2332	3000 (CT or	1999 (@ 500 kV)	2572 (@500 kV)
			SYA1 5BP1 limit)		(CT or SYA1
					5BP1 limit)
5L72	5L72_Norm_Rating	2332	3000 (SYA2	1999 (@ 500 kV)	2572 (@500 kV)
			limit)		(SYA2 limit)
5L/2_BypassSYA2	5L/1_BypassSYA2_Norm_Rating	2332	3000 (C1 or	1999 (@ 500 kV)	2572 (@500 kV)
			SYA25BP21mit)		(CI or SYA2
EL 7E	El 75 Norma Dating	2000 (CT limit)	2000 (CT limit)	0704	5BP2 IIMIL)
5L/5	5L75_Norm_Rating		3000 (CT IIMIt)	2701 2205	2701 (CT limit)
5L/0	5L/6_Norm_Rating	2000	3000 (DS limit)	2395	2701 (DS limit)
5L77	5L77_Norm_Rating	2428	3000 (CT limit)	2180 2704 (CT limit)	2701 (CT limit)
5L/9	5L/9_Norm_Rating	3000 (CT IIMIt)		2701 (CT IIMIt)	2701 (C1 limit)
5181	5L81_Norm_Rating	2120 (AMCT limit)	2120 (AIVIC1 limit)	1908 (AIVICT IIMIT)	1908 (AMC1 limit)
EL 01 Durana AMC1	EL 91 Durace AMC1 Norma Deting	2205		2075	2701 (CT or
		2305	3000 (CT 01 AMC1 58 P1	2075	$\Delta MC15BD1 limit)$
			limit)		AMCTOBETIMI
51.82	51.82 Norm Rating	2120 (AMC2 limit)	2120 (AMC2	1908 (AMC2 limit)	1908 (AMC2 limit)
0202			limit)		
51.82 BypassAMC2	51.82 BypassAMC2 Norm Rating	2452	3000 (CT or	2207	2701 (CT or
			AMC2 5BP2		AMC2 5BP2 limit)
			limit)		
5L83	5L83 Norm Rating	3000 (RYC limit)	3000 (RYC limit)	2701 (RYC limit)	2701 (RYC limit)
5L83 BypassRYC	5L83 BypassRYC Norm Rating	3000 (RYC 5BP1	3000 (RYC 5BP1	2701 (RYC 5BP1	2701 (RYC 5BP1
		limit)	limit)	limit)	limit)
5L87	5L87 Norm Rating	2400 (GUI limit)	2400 (GUI limit)	2160 (GUI limit)	2160 (GUI limit)
5L87 BypassGUI	5L87 BypassGUI Norm rating	3000 (CT limit)	3000 (CT limit)	2701 (CT limit)	2701 (CT limit)

230 kV Circuit	Variable Name Used in Generation Shedding Tables	Conductor Continuous Rating (Amp)		Corresponding Continuous MW Rating (MW = 1.732 * Rating in KA * 235 kV * 0.95 pf)	
		Summer (Based on 30º C ambient)	Winter (Based on 10º C ambient)	Summer (Based on 30º C ambient)	Winter (Based on 10º C ambient)
2L22	2L22_Norm_Rating	989	1200 (CT & DS limit)	382	464 (CT & DS limit)
2L20	2L20 Norm Rating	1052	1217	407	471
2L27	2L27 Norm Rating	989	1200 (DS limit)	382	464 (DS limit)
2L31	2L31 Norm Rating	650	830	251	321
2L45	2L45 Norm Rating	660	812	255	314
2L50	2L50 Norm Rating	<mark>630</mark>	<mark>730</mark>	<mark>244</mark>	<mark>282</mark>
2L51COK	2L51COK Norm Rating	1075	1247	416	482
2L51HPN	2L51HPN Norm Rating	1089	1259 (Note 1)	421	487 (Note 1)
2L56	2L56 Norm Rating	<mark>660</mark>	<mark>806</mark>	<mark>255</mark>	<mark>312</mark>
2L64	2L64 Norm Rating	<mark>660</mark>	800	<mark>255</mark>	309

Note 1: 2L51HPN_Norm_Rating will be limited at 1200 A and 464 MW (HPN bus breaker 2CB8 DS limit) if HPN 2CB7 is OOS (This is for information only and is not implemented in TSAPM).

1.1.2 Overload-Ratings

500 kV Circuit	Variable Name Used in Generation Shedding Tables	Conductor Over-Rating (Amp)		Corresponding MW Over- Rating (MW = 1.732 * Rating in KA * 500	
		Summor	\\/intor	kV * 0.99 pf)	Mintor
		Summer (Deceder		Summer /Deceder	(Deced on
		(Based on	(Based on	(Based on	(Based on
		30° C	10°C	30° C	10°C
EL 40			amplent)		amplent)
5L40	5L40_Over_Rating	3000 (CT	3000 (CT	<mark>2572</mark>	2572 (CT
				0 4 0 0	
5L41	5L41_Over_Rating	2565 (CHP	2565 (CHP	<mark>2199</mark>	2199 (CHP
			limit)	0570	limit)
5L41_BypassCHP	5L41_BypassCHP_Over_Rating	3000 (C1 or	3000 (C1 or	<mark>2572</mark>	2572 (CT or
		CHP 5BP1	CHP 5BP1		CHP 5BP1
51.40		limit)		0440	
5L42	5L42_Over_Rating	2856	2943 (CRK	2449	2523 (CRK
		0050		0440	limit)
5L42_BypassCRK	5L42_BypassCRK_Over_Rating	2856	3000 (C1	2449	2572 (CT
			limit)	0	limit)
5L44	5L44_Over_Rating	3000 (CT	3000 (CT	<mark>2572</mark>	2572 (CT
		limit)	limit)		limit)
5L45	5L45_Over_rating	<mark>3000 (CT</mark>	3000 (CT	<mark>2572</mark>	2572 (CT
		limit)	limit)		limit)
5L71	5L71_Over_Rating	2920	3000 (CT	2503	2572 (CT
			limit)		limit)
5L71_BypassSYA1	5L71_BypassSYA1_Over_Rating	2920	3000 (CT or	2503	2572 (CT or
			SYA15BP1		SYA15BP1
			Limit)		Limit)
5L72	5L72_Over_Rating	2920	3000 (CT	2503	2572 (CT
			limit)		limit)
5L72_BypassSYA2	5L72_BypassSYA2_Over_Rating	2920	3000 (CT or	2503	2572 (CT or
			SYA2 5BP2		SYA2 5BP2
			Limit)		Limit)
5L75	5L75_Over_Rating	3000 (CT	3000 (CT	2572 (CT	2572 (CT
		limit)	limit)	limit)	limit)
5L76	5L76_Over_Rating	3000 (DS	3000 (DS	2572 (DS	2572 (DS
		limit)	limit)	limit)	limit)
5L77	5L77_Over_Rating	3000 (CT	3000 (CT	2572 (CT	2572 (CT
		limit)	limit)	limit)	limit)
5L79	5L79_Over_Rating	3000 (CT	3000 (CT	2572 (CT	2572 (CT
		limit)	limit)	limit)	limit)
5L81	5L81_Over_Rating	2850	2862 (AMC1	2443	2454 (AMC1
			limit)		limit)
5L81_BypassAMC1	5L81_BypassAMC1_Over_Rating	<mark>2850</mark>	3000 (CT or	<mark>2443</mark>	2572 (CT or
			AMC 5BP1		AMC1 5BP1
			limit)		limit)
5L82	5L82_Over_Rating	2862 (AMC2	2862 (AMC2	2454 (AMC2	2454 (AMC2
		limit)	limit)	limit)	limit)
5L82_BypassAMC2	5L82_BypassAMC2_Over_Rating	3000 (79°C	3000 (CT or	2572 (79°C	2572 (CT or
		or CT or	AMC2 5BP2	or CT or	AMC2 5BP2
		AMC2 5BP2	limit)	AMC2 5BP2	limit)
		limit)		limit)	
5L83	5L83_Over_Rating	3000 (CT or	3000 (CT or	2572 (CT or	2572 (CT or
		CB limit)	CB limit)	CB limit)	CB limit)
5L83_BypassRYC	5L83_BypassRYC_Over_Rating	3000 (RYC	3000 (RYC	2572 (RYC	2572 (RYC
		5BP1 limit)	5BP1 limit)	5BP1 limit)	5BP1 limit)
5L87	5L87_Over_Rating	3000 (CT	3000 (CT	2572 (CT	2572 (CT
		limit)	limit)	limit)	limit)
5L87_BypassGUI	5L87_Bypass_Over_Rating	3000 (CT	3000 (CT	2572 (CT	2572 (CT
		limit)	limit)	limit)	limit)
	.,	Conductor Ove	r-Rating (Amp)	Corresponding	g MW Over-

Refer to System Operating Order 5T-10 for the source for the following data.

	Variable Name Used in	Conductor Over-Rating (Amp)		Corresponding MW Over- Rating	
230 kV	Generation Shedding Tables	Summer	Winter	Summer	Winter
Circuit		(Based on 30°	(Based on	(Based on	(Based on 10°
		C ambient)	10º C	30° C	C ambient)
			ambient)	ambient)	
2L20	2L20 Over Rating	1374	1557	520	589
2L22	2L22_Over_Rating	989	1200 (CT &	382	464 (CT & DS
			DS limit)		limit)
2L27	2L27_Over_Rating	989	1200 (DS	382	464 (DS limit)
			limit)		
2L31	2L31 Over Rating	900	1070	341	405
2L45	2L45 Over Rating	891	1018	338	385
2L50	2L50 Over Rating	<mark>924</mark>	<mark>985</mark>	<mark>350</mark>	<mark>373</mark>
2L51COK	2L51COK Over Rating	1500 (CT	1500 (CT	568 (CT	568 (CT Limit)
		Limit)	Limit)	Limit)	
2L51HPN	2L51HPN_Over_Rating	1500 (CT	1500 (CT	568 (CT	568 (CT Limit)
		Limit) Note 3	Limit) Note 3	Limit) Note 3	Note 3
2L56	2L56_Over_Rating	<mark>1067</mark>	<mark>1146</mark>	<mark>404</mark>	<mark>434</mark>
2L64	2L64_Over_Rating	<mark>1145</mark>	<mark>1250</mark>	<mark>433</mark>	<mark>473</mark>
2L294	2L294_Over_Rating	<mark>1108</mark>	1200 (CT	<mark>419</mark>	454
			limit)		
2L129	2L129 0.5hr Rating	Refer to Attach	ment 3 of SOO 7	7 <mark>7-41.</mark>	

Note 1: 2L22 or 2L27 continuous rating is used for its over-rating. 2L22 or 2L27 over-current protection will send an alarm when the current exceeds its continuous rating.

Note 2: 2L20, 2L31, 2L50, 2L51, 2L56, 2L64, 2L294 MW over-ratings are calculated by: 1.732 * Rating in KA * 230 kV * 0.95 pf Note 3: 2L51HPN_Over_Rating will be limited at 1200 A and 454 MW (HPN bus breaker 2CB8 DS limit) if HPN 2CB7 is OOS (This is for information only and is not implemented in TSAPM).

1.2 <u>General Pre-outage Restrictions</u>

- MCA
 - MCA G1 and G2 shall not exceed 492.0 MW each, MCA G3 and G4 shall not exceed 493.5 MW each, and MCA G5 and G6 shall not exceed 520.3 MW each. This restriction is applicable to all the tables in Attachment 1 except for Table 1.9 (5L71 AND 5L72 O.O.S.), Table 2.9 (5L83 AND 5L71 AND 5L72 O.O.S.), or Table 2.18 (5L83 AND 5L87 AND (5L71 or 5L72) O.O.S.).
 - Maximum transfer on cut plane (5L71 + 5L72) MCA is 2888 MW. The nomogram for (5L71 + 5L72) MCA transfer vs AB to BC Transfer is given below. This nomogram is applicable to all the tables in Attachment 1 except for Tables 1.9 (5L71 AND 5L72 O.O.S.), Tables 2.7 (5L83 AND 5L71 AND SYA 5CX2 O.O.S.), 2.8 (5L83 AND 5L72 AND SYA 5CX1 O.O.S.), 2.9 (5L83 AND 5L71 AND 5L72 O.O.S.), or 2.18 (5L83 AND 5L87 AND (5L71 or 5L72) O.O.S.), which have greater constraints noted.



- The following combinations of MCA 500 kV CBs shall not normally be scheduled O.O.S., to avoid splitting MCA generation and radially connecting to 5L71 or 5L72. These configurations result in undesirable generation shedding or violating minimum unit online requirement s for parallel line contingency or and some system contingencies:
 - 5CB6 and 5CB9 O.O.S., or
 - 5CB6 and 5CB10 O.O.S., or
 - 5CB7 and 5CB10 O.O.S., or
 - 5CB9 and 5CB11 O.O.S.

If any of the above requirements is violated, a TSA-PM alarm of "MUST NOT OPERATE IN THIS CONDITION" will occur. There are exceptional cases that Operators can override in real time upon careful interrogation of the one-line (such as the cases for MCA 500KV line or lead shaft outages that extend to these breakers and included bus sections).

- REV
 - Each of REV G1, G2, G3 and G4 shall not exceed 500 MW. REV G5 shall not exceed 518 MW. The REV requirements are applicable to all the tables in Attachment 1. Maximum transfer on cut plane (5L75 + 5L77) REV is 2562 MW. However, the transfer can exceed 2000 MW only if all of the following conditions exist:
 - One of ACK 5CX1 and 5CX2 is in service, or available only if ACK500 > 522 kV with none of ACK 5CX1 and 5CX2 in service, and
 - The other ACK 500 kV capacitor bank is available if BCH load (including losses) >= 8500 MW.

The nomogram for (5L75 + 5L77) REV transfer vs AB to BC Transfer is given below. This nomogram is applicable to all the tables in Attachment 1.



- ACK 5CX1, ACK 5CX2, and ACK Auto-Var Scheme (applicable to all the tables in Attachment 1)
 At least one of ACK 5CX1 and 5CX2 must be available. ACK Auto-Var scheme must be in service if gen-shedding is armed at REV for double contingencies 5L81 & 5L82, 5L81 & 5L83, 5L82 & 5L83, or 5L76 & 5L79, or if 5L91 SEL + 5L96 SEL >= 1800 MW.
- SEL Auto-Var Scheme (applicable to all the tables in Attachment 1) SEL Auto-Var scheme must be in service if SEL 5RX3 is available.
- Definitions of FBC's VAS-VNT path and VAS-WTS Path (applicable to all the tables in Attachment 1)
 Please refer to FortisBC's system one-line diagram 4-000-8011 for the following definitions of the VAS-VNT path and the VAS-WTS path:

The VAS-VNT path is defined as the connection of VAS230-RGA230-DG BELL230-LEE230-VNT230. The path consists of four sections connected in series:

- Section 1 is the connection of VAS230-RGA230 which consists of 75L and 76L in parallel. There are parallel lower voltage connections which link this section, therefore, this section of the path shall be treated as closed regardless of its status. Only when 75L AND 76L AND the lower voltage parallel connections are open, this section of the path shall be treated as open.
- Section 2 is the connection of RGA230-DG BELL230. There is no parallel lower voltage connection to link this section.
- Section 3 is the connection of DG BELL230-LEE230. There are parallel lower voltage connections to link this section. When this section is open, the corresponding parallel connections which link this section must be open.
- Section 4 is the connection of LEE230-VNT230. There is no parallel low voltage connection to link this section.

The VAS-WTS path is defined as the connection of VAS230-BEN230-BEN63-BEN161-KET161-GFT161-ASM63-WTS63. The path consists of three sections connected in series:

- Section 1 is the connection of VAS230-BEN230-BEN63 which consists of 40L in series with BEN T1. There are parallel lower voltage connections which link this section, therefore, this section of the path shall be treated as closed regardless of its status. Only when 40L/BEN T1 AND the lower voltage parallel connections are open, this section of the path shall be treated as open.
- Section 2 is the connection of BEN63-BEN161-KET161-GFT161. There is no parallel low voltage connection to link this section.
- Section 3 is the connection of GFT161-ASM161-ASM63-WTS63. There are parallel low voltage connections to link this section. When this section is open, the corresponding parallel connections which link this section must be open.

2.0 PRE-OUTAGE RESTRICTIONS FOR CONTINGENCIES:

Each of the tables in Attachment 1 specifies which pre-outage restrictions in this section are applicable. Note 1: <u>Removed</u>

Note 2: <u>5L91 or 5L96 or 5L98 or (5L96 AND 5L98) Contingency</u>

Limit: 2L112 NLY + BDY gen MW < 1200 MW

Note 3: <u>5L91 and 5L96 Contingency</u>

 Limit: 5L91 SEL + 5L96 SEL + Y + Z < 2500 MW • If SEL 5RX3 is available, then limit: (FBC injection into SEL area) + W < WAN shedable generation amount + ALH MW + BRX MW + WAX MW + 1000 – 1 SEV @ MIN.MW-Z Otherwise, limit: (FBC injection into SEL area) + W < WAN shedable generation amount + ALH MW + BRX MW + WAX MW + 1000 - 1 SEV @ MIN.MW - 1 KCL @MIN.MW - Z Where FBC injection into SEL area = 2L288 BTS + 2L289 BTS + FBC AAL Tie MW + 2L277 WAN - 60L225 KCL - 60L227 KCL -2L286 SEL MW FBC AAL Tie MW = (2L294 AAL-NLY) AAL + (2L294 AAL-CBK) AAL MW Y = 2L112 NLY if 2L112 NLY > 0, or Y = 0 if 2L112 NLY <= 0 Z = 48L KET if VAS-WTS loop is closed, or Z = 0 if VAS-WTS loop is open. W = AB to BC MW if AB to BC > 0 MW, or W = 0 if AB to BC <= 0 MW Alarm if 5L91 SEL + 5L96 SEL + 2L112 NLY + Z < -700 MW AND MATL120S PST230 >= 0 MW, or

If 5L91 SEL + 5L96 SEL + 2L112 NLY + Z + MATL120S PST230 < -700 MW AND MATL120S PST230 < 0 MW

If the alarm comes, the BC Hydro Control Centre staff must put more local generation on-line to prevent post-contingency frequency drop down below 59.0 Hz for loss of 5L91 and 5L96.

Note 4: Removed

3.0 GENERAL POST-CONTINGENCY REQUIREMENTS

Note 1: Minimum Unit On-Line Post-shedding at MCA, REV, SEV, KCL, WAN, ALH, BRX, WAX and the equivalent SEV units

If gen shedding is armed at MCA, REV, SEV or KCL, for any contingencies in Attachment 1, then:

- Keep a minimum of 2 MCA, 2 REV, 1 SEV and 1 KCL units on-line post-shedding, unless specifically specified in the genshedding tables.
- The gen-shedding at KCL shall not cause the 230 kV main buses 2MB4 & 2MB2 to be disconnected from 2MB3 & 2MB1 after shedding. At least one post-shedding online units shall be configured to keep the above main buses electrically connected. The detailed requirements are specified in Section 2 of SOO 7T-34 Att2.
 - If KCL 2CB5 is O.O.S., DO NOT select KCL G3 for shedding to avoid loss of 2L295 simultaneously;
 - If KCL 2CB13 is O.O.S., DO NOT select KCL G1 for shedding to avoid loss of 2L288 simultaneously;
 - If KCL 2CB16 is O.O.S., DO NOT select KCL G1 for shedding to avoid loss of 2L299 simultaneously.

If the whole KCL plant is shutdown (4 generators off line) in pre-contingency condition, then keep a minimum of 2 MCA, 2 REV, 1 SEV and 2/3 equivalent SEV units on-line post-shedding, unless specifically specified in the gen-shedding tables.

WAN G4 shall not participate in any generation shedding requirement, this is a generic rule in TSA-PM implementation. If WAN generation shedding is armed for any contingencies, then keep a minimum of 1 WAN unit on-line post-shedding, this is a generic rule also.

If gen shedding is armed at ALH, BRX or WAX for any contingencies, these generation plants may be shed down to 0 MW. The relationships between 1 unit at KCL, ALH, WAX and BRX AND 1 SEV equivalent in all tables in Attachment 1 are given below:

> 1 KCL unit = 2/3 equiv. SEV unit 1 ALH unit = 1/3 equiv. SEV unit 1 WAX unit = 1 equiv. SEV unit 1 BRX unit = 1/3 equiv. SEV unit

- Note 2: Contingencies 5L44, 5L81 AND 5L82, 5L81 AND 5L83, 5L82 AND 5L83 If generation shedding is armed at GMS/PCN, the minimum units on line requirements for GMS/PCN specified in Sections 5.5.1 and 5.5.2 in SOO 7T-13 shall be applied.
- Note 3: 5L75 Contingency, or 5L75 Contingency with ACK 5CB5 O.O.S. (loss of both 5L75 & 5L76), or 5L76 Contingency with ACK 5CB8 O.O.S. (loss of both 5L75 & 5L76)

If TSA-PM alarms "VIOLATION_5L77_NORM_RATING" post contingency, the BC Hydro Control Centre staff shall reduce REV generation further to bring the flow on 5L77 REV below the rating within 30 minutes.

Note 4: 5L77 Contingency

If TSA-PM alarms "VIOLATION_5L75_NORM_RATING" post contingency, the BC Hydro Control Centre staff shall reduce REV generation further to bring the flow on 5L75 REV below the rating within 30 minutes.

Note 5: 5L79 Contingency (Applicable to all the tables in Attachment 1 except for 5L91 O.O.S. Table 1.19)

If TSA-PM alarms "VIOLATION_5L76_NORM_RATING" post-contingency, the BC Hydro Control Centre staff shall take the following actions to bring the flow on 5L76 ACK below the rating within 30 minutes:

- Reduce REV or SIE generation, or
- Reduce flow on 2L112 from BDY to NLY, or
- Reduce import from Alberta
- Note 6: Contingencies 5L81, 5L82, 5L83, 5L87, 5L81 & 5L82, 5L81 & 5L83, 5L82 & 5L83 (Applicable to all the tables in Attachment 1) If TSA-PM alarms "VIOLATION_5L81_NORM_RATING" or "VIOLATION_5L82_NORM_RATING" or "VIOLATION_5L83_NORM_RATING" or "VIOLATION_5L87_NORM_RATING" or "VIOLATION_5L81BYPASS_AMC1_NORM_RATING" or "VIOLATION_5L82BYPASS_AMC2_NORM_RATING" or "VIOLATION_5L83BYPASS_RYC_NORM_RATING" or "VIOLATION_5L87BYPASS_GUI_NORM_RATING" post-contingency, the BC Hydro Control Centre staff shall take the following actions to bring the flow on 5L81 NIC or 5L82 NIC or 5L83 NIC or 5L87 NIC below their rating within 30 minutes:
 - > Reduce MCA or REV or SIE generation, or
 - Reduce flow on 2L112 from BDY to NLY, or
 - Reduce import from Alberta

If TSA-PM alarms "VIOLATION_5L41_NORM_RATING" or "VIOLATION_5L42_NORM_RATING" or "VIOLATION_5L41BYPASS_CHP_NORM_RATING" or "VIOLATION_5L42BYPASS_CRK_NORM_RATING" post-contingency, the BC Hydro Control Centre staff shall reduce Peace generation to bring the flow on 5L41 KLY or 5L42 KLY below their rating within 30 minutes.

Note 7: Contingencies 5L91, 5L96, 5L98, 5L96 & 5L98

(Applicable to all the tables in Attachment 1 except as indicated in the 5L91 O.O.S. Table 1.19 (Contingencies 5L96, 5L98, 5L96 & 5L98), and 5L91 contingency in the 5L96 O.O.S. Table 1.20, 5L98 O.O.S. Table 1.21, 5L96 & 5L98 O.O.S. Table 1.22 and 5L94 & 5L96 O.O.S. Table 1.25)

If generation shedding is armed, keep a minimum of 2 SEV, 1 KCL (with high side 2CBs in service) and 1/3 equivalent SEV units online post-shedding, or keep a minimum of 2 SEV and 1 equivalent SEV units on-line post-shedding if KCL plant is shutdown.

Note 8: 5L96 and 5L98 Contingency

(Applicable to all the tables in Attachment 1 except for the 5L96 O.O.S. Table 1.20, 5L98 O.O.S. Table 1.21, 5L96 & 5L98 O.O.S. Table 1.22 and 5L94 & 5L96 O.O.S. Table 1.25)

This double contingency may happen only if:

- VAS 5CB12 O.O.S., 5L96 contingency with VAS 5CB14 breaker failure, or
- VAS 5CB22 O.O.S., 5L96 contingency with VAS 5CB13 breaker failure, or
- VAS 5CB13 0.0.S., 5L98 contingency with VAS 5CB22 breaker failure, or
- VAS 5CB14 O.O.S., 5L98 contingency with VAS 5CB12 breaker failure.

Note 9: Contingency 5L81

(Applicable to all the tables in Attachment 1 except for Tables:

- 1.12 (5L76 O.O.S.),
- 1.14 (5L81 O.O.S.),
- 2.12 (5L83 AND 5L76 O.O.S.), and
- 2.14 (5L83 AND 5L81 O.O.S.))

If generation shedding is required, the armed REV units for shedding for 5L76 contingency shall be selected first for arming for 5L81 contingency.

Note: This is to avoid excessive generation shedding for loss of both 5L76 and 5L81 which would happen in the following situations due to 5L76 and 5L81 sharing the common circuit breaker of NIC 5CB14:

- A SLG fault with NIC 5CB14 breaker failure (NERC/WECC Category C2 or C8 event), or
- 5L76 contingency with NIC 5CB24 O.O.S. (N-1-1 event), or
- 5L81 contingency with NIC 5CB4 O.O.S. (N-1-1 event).

Note 10: Contingency 5L82

(Applicable to all the tables in Attachment 1 except for Tables:

- 1.2 (5L71 O.O.S.),
- 1.3 (5L72 O.O.S.),
- 1.7 (5L71 and SYA 5CX2 O.O.S.),
- 1.8 (5L72 and SYA 5CX1 O.O.S.),
- 1.9 (5L71 and 5L72 O.O.S.),
- 1.15 (5L82 O.O.S),
- 2.2 (5L83 and 5L71 O.O.S),
- 2.3 (5L83 and 5L72 O.O.S.),
- 2.7 (5L83 and 5L71 and SYA 5CX2 O.O.S.),
- 2.8 (5L83 and 5L72 and SYA 5CX1 O.O.S.), and
- 2.9 (5L83 and 5L71 and 5L72 O.O.S.))

If generation shedding is required, the armed MCA units for shedding for 5L71 (3P) contingency shall be selected first for arming for 5L82 contingency.

Note: This is to avoid excessive generation shedding for loss of both 5L71 and 5L82 which would happen in the following situations due to 5L71 and 5L82 sharing the common circuit breaker of NIC 5CB18:

- A SLG fault with NIC 5CB18 breaker failure (NERC/WECC Category C2 or C8 event), or
- 5L71 (3P) contingency with NIC 5CB28 O.O.S. (N-1-1 event), or
- 5L82 contingency with NIC 5CB8 O.O.S. (N-1-1 event).

Note 11: Contingency 5L81 & 5L82

(Applicable to all the tables in Attachment 1 except for Tables:

- 1.2 (5L71 O.O.S.), 1.3 (5L72 O.O.S.),
- 1.7 (5L71 and SYA 5CX2 0.0.S.),
- 1.8 (5L72 and SYA 5CX1 0.0.S.),
- 1.9 (5L71 and 5L72 O.O.S.),
- 1.12 (5L76 O.O.S.),
- 1.12 (5L81 0.0.S.).
- 1.15 (5L82 O.O.S.),
- 2.2 (5L83 AND 5L71 O.O.S.),
- 2.3 (5L83 AND 5L72 O.O.S.),
- 2.7 (5L83 AND 5L71 AND SYA 5CX2 O.O.S.),
- 2.8 (5L83 AND 5L72 AND SYA 5CX1 O.O.S.),
- 2.9 (5L83 AND 5L71 AND 5L72 O.O.S.),
- 2.12 (5L83 AND 5L76 O.O.S.),
- 2.14 (5L83 AND 5L81 O.O.S.), and
- 2.15 (5L83 AND 5L82 O.O.S.))

If generation shedding is required AND

- If NIC 5CB4 is O.O.S., then the armed REV units for shedding for 5L76 contingency shall be selected first for arming for contingency 5L81 & 5L82, or
- If NIC 5CB8 is O.O.S., then the armed MCA units for shedding for 5L71 (3P) contingency shall be selected first for arming for contingency 5L81 & 5L82.
- Note 12: Contingency 5L81 & 5L83 (Applicable to all the tables in Attachment 1 except for 1.12 (5L76 O.O.S.) and 1.14 (5L81 O.O.S.))

If generation shedding is required AND

• If NIC 5CB4 is O.O.S., then the armed REV units for shedding for 5L76 contingency shall be selected first for arming for contingency 5L81 & 5L83.

Note 13: Contingency 5L82 & 5L83

(Applicable to all the tables in Attachment 1 except for Tables 1.2 (5L71 O.O.S.), 1.3 (5L72 O.O.S.), 1.7 (5L71 and SYA 5CX2 O.O.S.), 1.8 (5L72 and SYA 5CX1 O.O.S.), 1.9 (5L71 and 5L72 O.O.S.) and 1.15 (5L82 O.O.S.))

If generation shedding is required AND

If NIC 5CB8 is O.O.S., then the armed MCA units for shedding for 5L71 (3P) contingency shall be selected first for arming for contingency 5L82 & 5L83.

Note 14: Minimum Units On-Line Post-shed at MCA, REV, SEV, KCL, WAN, ALH, BRX, WAX and the equivalent SEV units for double contingencies 5L81 & 5L82, 5L81 & 5L83, or 5L82 & 5L83

(Applicable to all the tables in Attachment 1 except for Tables:

- 1.9 (5L71 AND 5L72 O.O.S.),
- 1.19 (5L91 O.O.S.),
- 1.20 (5L96 O.O.S.),
- 1.21 (5L98 O.O.S.),
- 1.22 (5L96 AND 5L98 O.O.S.), and
- 1.25 (5L94 AND 5L96 O.O.S.), or
- except for 5L81 & 5L82 double contingencies for specific requirements in each table from Table 2.2 (5L83 AND 5L71 O.O.S.) to 2.37 (5L83 AND 2L293 O.O.S.))

If generation shedding is armed,

- keep a minimum of 2 MCA, 2 REV, 2 SEV and 1 KCL (with high side 2CBs in service) units on-line post-shed if SEL 5RX3 is available, or
- keep a minimum of 2 MCA, 2 REV, 2 SEV, 1 KLC (with high side 2CBs in service) and 1 equivalent SEV units on-line postshed if SEL 5RX3 is unavailable, or
- keep a minimum of 2 MCA, 2 REV, 2 SEV and 2/3 equivalent SEV units on-line post-shed if SEL 5RX3 is available and the whole KCL plant is shutdown in pre-contingency condition, or
- keep a minimum of 2 MCA, 2 REV, 2 SEV and 1 & 2/3 equivalent SEV units on-line post-shed if SEL 5RX3 is unavailable and the whole KCL plant is shutdown in pre-contingency condition.

The gen-shedding requirements at KCL for preventing KCL 230 kV main buses electrically disconnected post-shedding, and the requirement at WAN, ALH, BRX and WAX as specified in Note 1 in this section are applicable to this Note 14.

If TSA-PM alarms "C5L81_82 - MAX ARMED SHED VIOLATION", "C5L81_83 - MAX ARMED SHED VIOLATION", or "C5L82_83 - MAX ARMED SHED VIOLATION", the BC Hydro Control Centre staff should take the following actions:

- > If BC is exporting to US, then reduce BC to US export.
- If BC is importing from US, then
 - reduce (SI and FBC) generation and increase Peace generation, or/and
 - reduce (SI and FBC) generation and increase import from US

4.0 SETTINGS OF 2L112 OL RAS, 2L293 OL RAS AND NLY PST OVERLOAD PROTECTION TO RUNBACK NLY PST

The following settings are applicable to Relevant generation shedding tables in Attachment 1:

RAS Name	Variable Name Used in Generation Shedding Tables	RAS Setting (from Apr. 1 st to Oct. 31 st)	RAS Setting (from Nov. 1 st to Mar. 31 st)
2L112 OL RAS	2L112OLRAS_PickupMW	410 MW (1050A * 1.732 * 230kV * 0.98pf)	468 MW (1200A * 1.732 * 230kV * 0.98pf)
	2L112OLRAS_ResetMW	351 MW (900A * 1.732 * 230kV * 0.98pf)	371 MW (950A * 1.732 * 230kV * 0.98pf)
2L293 OL RAS	2L293OLRAS_PickupMW	410 MW (1050A * 1.732 * 230kV * 0.98pf)	468 MW (1200A * 1.732 * 230kV * 0.98pf)
	2L293OLRAS_ResetMW	351 MW (900A * 1.732 * 230kV * 0.98pf)	429 MW (1100A * 1.732 * 230kV * 0.98pf)
NLY PST Overload	NLYPST_OL_PickupMW	392 MW (1004A * 1.732 * 230kV * 0.98pf)	<mark>392 MW (1004A * 1.732 * 230kV *</mark> <mark>0.98pf)</mark>
Protection	NLYPST_OL_ResetMW	200 MW	200 MW

5.0 LIST OF TABLES IN ATTACHMENT 1

Tables A through F may apply general requirements for gen shedding and DTT for specific loop configurations as common requirements across many configurations. The listings in Table 1 & 2 identify when combinations of Tables A-F are applicable in addition to the refined information in the current table. For example the common tables A through F apply to the topology in Table 1.1, with additional requirements and information also listed in Table 1.1.

The Table 1 series (Tables 1.1 through 1.46) are for topologies with assets out of service from system normal.

The Table 2 series (Tables 2.2 through 2.45) are for the cases of <u>5L83 O.O.S</u> with other assets also out of service.

Taken together, the two sets of tables can be considered as analogs. For example, Table 1.10 and 2.10 are for 5L75 O.O.S; with the second case also having 5L83 O.O.S.

Table No.	Table Name	VAS-WTS AND VAS-VNT Closed	VAS-WTS Open	VAS-VNT Open	VAS-WTS AND VAS-VNT Open
Α	Reference table	Y			
В	Reference table		Y		
С	Reference table			Y	
D	Reference table				Y
	Reference table for 5L71/5L72 (1P, 3P,				
Е	1P&1P, 1P&3P) Contingencies	No impact	No impact	No impact	No impact
_	Reference table for 5L75/5L77 (1P, 3P,				
F	1P&3P) Contingencies	No impact	No impact	No impact	No impact
4.4	All SI, NIC/KLY - LM 500 kV Circuits and	v	v	v	v
1.1		T V		T V	T V
1.2	5172005	v v		T V	T V
1.5	SVA 50X1005	v		l V	v
1.4	SYA 5CX2 0 0 S	V V	V V	V V	Y
1.6	SYA 5CX1 AND SYA 5CX2 0 0 S	v	v	v V	Y
1.0	5171 AND SYA 5CX2 0 0 S	Y	Y	Y	Y
1.8	5172 AND SYA 5CX1 0 0 S	Y	Y	Y	Y
1.9	51 71 and 51 72 0 0 S	Y	Y	Y	Y
1.10	5L75 0.0.S	Y	Ŷ	Y	Ŷ
1.11	5L77 O.O.S.	Y	Y	Y	Y
1.12	5L76 O.O.S.	Y	Y	Y	Y
1.13	5L79 O.O.S.	Y	Υ	Y	Y
1.14	5L81 O.O.S.	Y	Y	Y	Y
1.15	5L82 O.O.S.	Y	Y	Y	Y
1.16	5L83 O.O.S.	Y	Υ	Y	Υ
1.17	5L87 O.O.S.	Y	Υ	Y	Υ
1.18	(Intentionally blank)				
1.19	5L91 O.O.S.	Y	Υ	Y	Y
1.20	5L96 O.O.S.	Y	Υ	Y	Y
1.21	5L98 O.O.S	Y	Υ	Y	Y
1.22	5L96 AND 5L98 O.O.S.	Y	Υ	Y	Y
1.23	5L92 O.O.S.	Y	Y	Y	Y
1.24	5L94 O.O.S.	Y	Y	Y	Y
1.25	5L94 AND 5L96 O.O.S.	Y	Y	Y	Y
1.26	2L112 O.O.S.	Y	Y	Y	Y
1.27	2L293 O.O.S.	Y	Y	Y	Y
1.28	2L294 O.O.S.	Y	Y	Y	Y
1.29	2L277 0.0.S.	Y	Y	Y	Y
1.30	5L40075L410.0.5.	Г У	Y V	Y	Υ V
1.31	5L42 0.0.5.	Y V	Y V	Y	Y V
1.32	5L44 U.U.S.	Y V	Y V	Y V	Y V
1.33				T V	
1.34	AMC 5CX1 0. 0. S	T V		T V	I V
1.55			1 1	1 1	

Table 1 Series Listing:

1.35

1.36

AMC 5CX2 0.0.S.

1.37	CHP 5CX1 0.0.S.	Υ	Υ	Y	Y
1.38	CRX 5CX1 0.0.S.	Υ	Υ	Υ	Υ
1.39	RYC 5CX1 0.0.S.	Υ	Y	Y	Y
1.40	VAS T1 or T2 O.O.S.	Υ	Y	Y	Υ
1.41	VAS T1 & T2 O.O.S.	Υ	Y	Y	Y
1.42	FBC's 75L or 76L O.O.S.	Υ	Y	Y	Y
1.43	2L20 or 2L44 O.O.S.	Υ	Y	Y	Υ
1.44	2L22 or 2L27 O.O.S.	Υ	Υ	Y	Υ
1.45	2L64 O.O.S	Υ	Υ	Y	Υ

Υ

Υ Υ

Y

Y

"Y" - The condition is operable and covered by the table. Notes:

Table 2 Series Listing:

					VAS-WTS
Table		VAS-WTS AND	VAS-WTS	VAS-VNT	AND VAS-
No.	Table Name	VAS-VNT Closed	Open	Open	VNT Open
2.1	(intentionally blank)				
2.2	5L83 AND 5L71 O.O.S.	Y	Y	Y	Y
2.3	5L83 AND 5L72 O.O.S.	Y	Y	Y	Y
2.4	5L83 AND SYA 5CX1 O.O.S	Y	Y	Y	Υ
2.5	5L83 AND SYA 5CX2 O.O.S	Υ	Υ	Υ	Υ
	5L83 AND SYA 5CX1 AND SYA 5CX2				
2.6	0.0.S	Y	Y	Y	Y
2.7	5L83 AND 5L71 AND SYA 5CX2 O.O.S.	Y	Y	Y	Y
2.8	5L83 AND 5L72 AND SYA 5CX1 O.O.S	Y	Y	Y	Y
2.9	5L83 AND 5L71 AND 5L72 O.O.S.	Y	Y	Y	Y
2.10	5L83 AND 5L75 O.O.S	Y	Y	Y	Υ
2.11	5L83 AND 5L77 O.O.S.	Y	Y	Y	Y
2.12	5L83 AND 5L76 O.O.S.	Y	Y	Y	Υ
2.13	5L83 AND 5L79 O.O.S.	Y	Y	Y	Υ
2.14	5L83 AND 5L81 O.O.S.	Y	Y	Y	Υ
2.15	5L83 AND 5L82 O.O.S.	Υ	Y	Y	Υ
2.16	(Intentionally blank)				
2.17	5L83 AND 5L87 O.O.S.	Y	Y	Υ	Υ
2.18	5L83 AND 5L87 AND (5L71 or 5L72) O.O.S.	Y	Y	Y	Υ
2.19	5L83 AND 5L91 O.O.S.	Y	Y	Y	Υ
2.20	5L83 AND 5L96 O.O.S.	Y	Y	Y	Υ
2.21	5L83 AND 5L98 O.O.S	Y	Y	Y	Υ
2.22	5L83 AND 5L96 AND 5L98 O.O.S.	Υ	Y	Υ	Υ
2.23	5L83 AND 5L92 O.O.S.	Y	Y	Y	Υ
2.24	5L83 AND 5L94 O.O.S.	Y	Y	Y	Υ
2.25	5L83 AND 5L94 AND 5L96 O.O.S.	Y	Y	Y	Y
2.26	5L83 AND 2L112 O.O.S.	Y	Y	Y	Υ
2.27	5L83 AND 2L293 O.O.S.	Y	Y	Y	Υ
2.28	5L83 AND 2L294 O.O.S.	Y	Y	Y	Υ
2.29	5L83 AND 2L277 O.O.S.	Y	Y	Y	Υ
2.30	5L83 AND (5L40 or 5L41) O.O.S.	Y	Y	Y	Υ
2.31	5L83 AND 5L42 O.O.S.	Y	Y	Y	Υ
2.32	5L83 AND 5L44 O.O.S.	Y	Y	Y	Y
2.33	5L83 AND 5L45 O.O.S.	Y	Y	Y	Y
2.34	5L83 AND GUI 5CX1 O.O.S.	Y	Y	Y	Y
2.35	5L83 AND AMC 5CX1 O.O.S.	Y	Y	Y	Y
2.36	5L83 AND AMC 5CX2 O.O.S.	Y	Y	Y	Y
2.37	5L83 AND CHP 5CX1 O.O.S.	Y	Y	Y	Y
2.38	5L83 AND CRK 5CX1 0.0.S.	Y	Y	Y	Y
2.39	(Intentionally blank)				
2.40	5L83 AND (VAS T1 or T2) O.O.S.	Y	Y	Y	Y
2.41	5L83 AND VAS T1 AND T2 O.O.S.	Y	Y	Y	Y
2.42	5L83 AND (FBC's 75L or 76L) O.O.S.	Y	Y	Y	Y
2.43	5L83 AND (2L20 or 2L44) O.O.S.	Y	Y	Y	Y
2.44	5L83 AND (2L22 or 2L27) O.O.S.	Y	Y	Y	Y

Notes: "Y" - The condition is operable and covered by the table.

Table A - Reference Table Both FBC's VAS-WTS and VAS-VNT Loops Closed AND All SI, NIC/KLY - LM 500 kV Circuits and Series Capacitor Banks In-Service

CONTINGENCY	SHEDDING REQUIREMENTS
5L76 and 5L79	Same as Table D
5L76	ACK 5CB8 in service: Shed at REV: 1.2 * ((5L75 + 5L77) REV + (5L91 + 5L96) SEL – 4200) MW if REV Gen <= 2000 MW
	ACK 5CB8 O.O.S.: (5L76 contingency will trip open 5L75)
	 Sned at REV: 1.10* ((5L75 + 5L77) REV + (5L91 + 5L96) SEL – 3800) MW if REV Gen <= 2000 MW, or 1.24* ((5L75 + 5L77) REV + (5L91 + 5L96) SEL – 4320) MW if REV Gen > 2000 MW AND, If REV 5CB9 is Q Q S, REV G1 and G2 must be selected for shedding
5L79	Same gen shedding as 5L76 contingency with ACK 5CB8 in service.
5L91 and 5L96	 Arm DTT 2L112 RAS Arm DTT 48L RAS Shed at KCL/ALH/SEV/WAN/BRX/WAX: 5L91 SEL + 5L96 SEL + 2L112 NLY + 48L KET + Y + Z - 850 MW Y = 0 if AB to BC >= 0 MW, or Y = (BC to AB transfer) if BC to AB > 0 MW Z = 0 if MATL120S_PST230 <= 0 MW, or Z = MATL120S_PST230 if MATL120S_PST230 > 0 MW If generation shedding is armed, keep a minimum of 1 SEV unit on-line post-shedding if SEL 5RX3 is available, or Keep a minimum of 1 SEV and 1 KCL units on-line post-shedding if SEL 5RX3 is unavailable. Keep a minimum of 1 SEV and 2/3 equiv. SEV units on-line post-shedding if SEL 5RX3 is unavailable and the whole KCL plant is shutdown in pre-contingency condition. Note: If gen-shedding is armed at KCL, the gen-shedding at KCL shall not cause the 230 kV main buses 2MB4 & 2MB2 to be
51.01	disconnected from 2MB3 & 2MB1 after shedding.
5191	 1.28 * (5L91 SEL+5L96 SEL - 1800), or 3.72 * (2L112 NLY + 0.17 * 5L91 SEL - 400), or 3.52 * (2L293 SEL + 0.17 * 5L91 SEL - 400), and do not shed WAN for this requirement.
5L96	Arm DTT 48L if 5L96 SEL > 800 MW
	 Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: 1.25 * (5L91 SEL + 5L96 SEL + Z - Y), or 2.37 * (2L112 NLY + 0.24 * (5L96 SEL + Z) - 400), or 2.37 * (2L112 NLY + BDY Gen + 0.24 * (5L96 SEL + Z) - 1120), or 3.05 * (2L293 SEL + 0.17 * (5L96 SEL + Z) - 400), and do not shed WAN for this requirement.
	Y = 2050 if at least one of ACK 5CX1 & 5CX2 is in service, or $Y = 1820 if none of ACK 5CX1 & 5CX2 is in service$ $Z = 48L KET if DTT 48L is armed, or$ $Z = 0 if DTT 48L is not armed$
5L98	Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: ▶ 1.22* (5L91 SEL + 5L98 VAS - Y), or ▶ 2.86* (2L112 NLY + 0.18* 5L98 VAS - 400), or ▶ 3.92* (2L293 SEL + 0.15* 5L98 VAS - 400), and do not shed WAN for this requirement. Y = 1850 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1760 if none of ACK 5CX1 & 5CX2 is in service
5L96 AND 5L98	 Arm DTT 48L if 5L96 SEL > 800 MW Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: 1.25 * (5L91 SEL + 5L96 SEL + Z − Y), or 2.50 * (2L112 NLY + 0.24 * (5L96 SEL + Z) − 400), or 2.50 * (2L112 NLY + BDY Gen + 0.24 * (5L96 SEL + Z) − 1150), or 2.93 * (2L293 SEL + 0.18 * (5L96 SEL + Z) − 400), and do not shed WAN for this requirement.
	Y = 2030 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1850 if none of ACK 5CX1 & 5CX2 is in service Z = 48L KET if DTT 48L is armed, or Z = 0 if DTT 48L is not armed
51.00	(Note: Arming requirements for DTT 5L94, DTT 1L274 and DTT 1L275 are included in SOO 7T-17.)
5L92	 Arm DTT 2L112 RAS if > (0 < AB to BC <= 100 MW) AND (2L293 NLY + 0.70 * 5L92 CBK > 400 MW), or > (AB to BC > 100 MW) AND (2L293 NLY + 5L92 CBK - 0.68 * (AB to BC) > 400 MW), or > (0 <= BC to AB <= 100 MW) AND (2L293 SEL + 0.87 * 5L92 SEL - 0.2 * (BC to AB) > 400 MW), or > (BC to AB > 100 MW) AND (2L293 SEL + 5L92 SEL - 0.7 * (BC to AB) - 0.3 * (armed KCL/SEV/ALH/WAN/BRX/REV/WAX shedding amount for 5L94 contingency) > 400 MW)
51 94	(Note: Arming requirements for DTT 1L274 and DTT 1L275 are included in SOO 7T-17.)
	 If (BC to US + BC to AB) > 2400 MW, then shed at KCL/SEV/ALH/WAN/BRX/REV/WAX: (BC to AB) MW If 700 MW < (BC to US + BC to AB) <= 2400 MW, then shed at KCL/SEV/ALH/WAN/BRX/REV/WAX: (BC to AB) - 400 MW If generation shedding is armed, keep a minimum of 2 REV, 2 SEV, 1 KCL and 1/3 equivalent SEV units on-line post-shedding, or keep a minimum of 2 REV, 2 SEV and 1 equivalent SEV units on-line post-shedding if the whole KCL is shutdown in pre-contingency condition.
	 Arm DTT 2L112 RAS if 2L112 BDY + 0.3 * (AB to BC) > 400 MW, or 2L293 NLY + 0.17 * (AB to BC) > 400 MW, or 2L112 NLY + 0.3 * (BC to AB) - 0.3 * (armed KCL/SEV/ALH/WAN/BRX/REV/WAX shedding amount for 5L94 contingency) > 400 MW, or 2L293 SEL + 0.17 * (BC to AB) - 0.17 * (armed KCL/SEV/ALH/WAN/BRX/REV/WAX shedding amount for 5L94 contingency) > 400 MW
5L91 (1P) or 5L96 (1P) or 5L98 (1P)	No shedding required.
Bypass AMC 5CX1	No shedding required.
Bypass AMC 5CX2 Bypass GUI 5CX1	No shedding required.
Bypass RYC 5CX1	No shedding required.

<u>Table B – Reference Table</u> FBC's VAS-WTS Loop Open AND All SI, NIC/KLY – LM 500 kV Circuits and Series Capacitor Banks in Service

CONTINGENCY	SHEDDING REQUIREMENTS
5L76 and 5L79	Same as Table D
5L76	Same as Table A
5L79	Same as Table A
5L91 and 5L96	 Arm DTT 2L112 RAS Shed at KCL/ALH/SEV/WAN/BRX/WAX: 5L91 SEL + 5L96 SEL + 2L112 NLY + Y + Z - 850 MW Y = 0 if AB to BC >= 0 MW, or Y = (BC to AB transfer) if BC to AB > 0 MW Z = 0 if MATL120S_PST230 <= 0 MW, or Z = MATL120S_PST230 if MATL120S_PST230 > 0 MW If generation shedding is armed, keep a minimum of 1 SEV unit on-line post-shedding if SEL 5RX3 is available, or Keep a minimum of 1 SEV and 1 KCL units on-line post-shedding if SEL 5RX3 is unavailable, or Keep a minimum of 1 SEV and 2/3 equiv. SEV units on-line post-shedding if SEL 5RX3 is unavailable and the whole KCL plant is shutdown in pre-contingency condition. Note: If gen-shedding is armed at KCL, the gen-shedding at KCL shall not cause the 230 kV main buses 2MB4 & 2MB2 to be
51.0.4	disconnected from 2MB3 & 2MB1 after shedding.
5L91	Same as Table A
5L90	Sned at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: > 1.25 * (5L91 SEL + 5L96 SEL - Y), or > 2.37 * (2L112 NLY + 0.24 * 5L96 SEL - 400), or > 2.37 * (2L112 NLY + BDY Gen + 0.24 * 5L96 SEL - 1120), or > 3.05 * (2L293 SEL + 0.17 * 5L96 SEL - 400), and do not shed WAN for this requirement. Y = 2050 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1820 if none of ACK 5CX1 & 5CX2 in service.
5L98	Same as Table A
5L96 & 5L98	Same as Table C
5L92	Same as Table A
5L94	Same as Table A
5L91 (1P) or 5L96 (1P) or 5L98 (1P)	No shedding required.
Bypass AMC 5CX1	No shedding required.
Bypass AMC 5CX2	No shedding required.
Bypass GUI 5CX1	No shedding required.
Bypass RYC 5CX1	No shedding required.

Table C – Reference Table FBC's VAS-VNT Loop Open AND All SI, NIC/KLY – LM 500 kV Circuits and Series Capacitor Banks in Service

CONTINGENCY	SHEDDING REQUIREMENTS		
5L76 and 5L79			
	BC To AB		
	(MW)	Shad at REV first than	
	Shed at REV first, then KCL/ALH/SEV/WAN/BRX/WAX: • 1.15 * [(5L76 + 5L79) ACK + 5L98 VAS - 1600]	KCL/ALH/SEV/WAN/BRX/WAX: (5L76 + 5L79) ACK + Z + 1L214 VI	NT + 48L KET
		(0,0)	2L112 NLY (MW)
	GS = 1.25 * [(5L76 + 5L79) ACK + 5L98 VAS -1600]	GS = (5L76 + 5L79) ACK + 1L214 VNT + Z	Z + 48L KET
	 If GS >1500 and AB to BC > 500 MW, then Arm DTT 5L94, and Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and Shed at REV first, then KCL/ALH/SEV/WAN/BRX/WAX: 1.17 * [(5L76 + 5L79) ACK + 5L98 VAS - Y] – AB to BC Otherwise, Shed at REV first, then KCL/ALH/SEV/WAN/BRX/WAX: GS 	 If GS >1500 and AB to BC > 500 MW, then Arm DTT 5L94, and Arm DTT 1L274 and DTT 1L275 except specified in Section 9.3 of SOO 7T-17, a Shed at REV first, then KCL/ALH/SEV. Otherwise, Shed at REV first, then KCL/ALH/SEV. 	ot for the RAS blocking conditions and /WAN/BRX/WAX: GS – AB to BC /WAN/BRX/WAX: GS
	Note: Y = 1300 if BCH load > 7500 MW, or Y = 1400 if BCH load <= 7500 MW Z = 1L209 SAM if 1L209 is not radial, or Z = 0 if 1L209 i	s radial	
	 IF (5L76+5L79) ACK > 750 MW, then Arm DTT 1L209 except for 1L209 radial connection. Arm DTT 1L214, and Arm DTT FBC's 48L, and Apply the above generation shedding rules The total armed generation amount must be limited to 2 (The total armed generation + AB to BC) must be limited 	and 500 MW If DTT 5L94 is not armed, o d to 2500 MW If DTT 5L94 is armed	or 1
	 If generation shedding is armed, then Arm DTT ACK 5CX1 if ACK 5CX1 is in service, and Arm DTT ACK 5CX2 if ACK 5CX2 is in service, and Keep a minimum of 1 REV, 1 SEV, 1 KCL and 1/3 e REV, 1 SEV, and 1 equiv. SEV units on-line post-sh 	equiv. SEV units on-line post-sheddi nedding if KCL plant is shutdown in p	ng, or keep a minimum of 1 pre-contingency condition.
5L76	Same as Table A		
5L79	Same as Table A		
5L91 and 5L96	Same as Table D		
5L96	Same as Table A		
5L98	Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the g ▶ 1.17 * (5L91 SEL + 5L98 VAS - Y), or ▶ 2.72 * (2L112 NLY + 0.22 * 5L98 VAS - 400) ▶ 3.81 * (2L293 SEL + 0.18 * 5L98 VAS - 400) Y = 1940 if at least one of ACK 5CX1 & 5CX2 in ser	reatest of: , or , and do not shed WAN for this requ vice, or Y = 1820 if none of ACK 5C	uirement. X1 & 5CX2 in service
5L96 & 5L98	Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the g • 1.25 * (5L91 SEL + 5L96 SEL – Y), or • 2.50 * (2L112 NLY + 0.27 * 5L96 SEL – 400), o • 2.50 * (2L112 NLY + BDY Gen + 0.27 * 5L96 SE • 2.93 * (2L293 SEL + 0.20 * 5L96 SEL – 400), ar Y = 1970 if at least one of ACK 5CX1 & 5CX2 is in Y = 1800 if none of ACK 5CX1 and 5CX2 is in ser	reatest of: r EL – 1155), or nd do not shed WAN for this require n service vice	ment.
5L92	Same as Table A		
5L94	Same as Table A		
5L91 (1P) or 5L96 (1P) or 5L98 (1P)	No shedding required.		
Bypass AMC 5CX2	No shedding required		
Bypass GUI 5CX1	No shedding required.		
Bypass RYC 5CX1	No shedding required.		

Table D – Reference Table FBC's VAS-VNT Loop Open AND VAS-WTS Loop Open AND All SI, NIC/KLY – LM 500 kV Circuits and Series Capacitor Banks In Service

CONTINGENCY	SHEDDING REQUIREMENTS		
5L76 and 5L79	BC To AB		
	(NTV) Shed at REV first, then KCL/ALH/SEV/WAN/BRX/WAX: • 1.15 * [(5L76 + 5L79) ACK + 5L98 VAS - 1600]	Shed at REV first, then KCL/ALH/SEV/WAN/BRX/WAX: (5L76 + 5L79) ACK + Z + 1L214 VNT	
		(0,0) 2L112 NLY (MW)	
	 GS = 1.25 * [(5L76 + 5L79) ACK + 5L98 VAS - 1600] If GS >1500 and AB to BC > 500 MW, then Arm DTT 5L94, and Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and Shed at REV first, then KCL/ALH/SEV/WAN/BRX/WAX: 1.17 * [(5L76 + 5L79) ACK + 5L98 VAS - Y] - AB to BC 	 GS = (5L76 + 5L79) ACK + 1L214 VNT + Z If GS >1500 and AB to BC > 500 MW, then Arm DTT 5L94, and Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and Shed at REV first, then KCL/ALH/SEV/WAN/BRX/WAX: GS – AB to BC 	
	 Shed at REV first, then KCL/ALH/SEV/WAN/BRX/WAX: GS 	 Otherwise, Shed at REV first, then KCL/ALH/SEV/WAN/BRX/WAX: GS 	
	Note: Y = 1300 if BCH load > 7500 MW, or Y = 1400 if BCH load <= 7500 MW Z = 1L209 SAM if 1L209 is not radial, or Z = 0 if 1L209 is radial IF (5L76+5L79) ACK > 750 MW, then • Arm DTT 1L209 except for 1L209 radial connection, a • Arm DTT 1L214, and • Apply the above generation shedding rules The total armed generation amount must be limited to 2500 M (The total armed generation + AB to BC) must be limited to 25 If generation shedding is armed, then • Arm DTT ACK 5CX1 if ACK 5CX1 is in service, and • Arm DTT ACK 5CX2 if ACK 5CX2 is in service, and	nd W If DTT 5L94 is not armed, or 500 MW If DTT 5L94 is armed	
	 Keep a minimum of 1 REV, 1 SEV, 1 KCL and 1/3 equ REV, 1 SEV and 1 equiv. SEV units on-line post-shed 	iv. SEV units on-line post-shedding, or keep a minimum of 1 ding if KCL plant is shutdown in pre-contingency condition.	
5L76	Same as Table A		
5L79	Same as Table A		
5L91 and 5L96	Same as Table B		
5L91	 Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest 1.16* (5L91 SEL+5L96 SEL – 1750), or 3.30* (2L112 NLY + 0.21* 5L91 SEL – 400), or 3.50* (2L293 SEL + 0.18* 5L91 SEL – 400), and do r 	t of: not shed WAN for this requirement.	
5L96	Same as Table B		
5L98	Same as Table C		
51 92	Same as Table C		
5L94	Same as Table A		
5L91 (1P) or 5L96 (1P) or 5L98 (1P)	No shedding required.		
Bypass AMC 5CX1	No shedding required.		
Bypass GUI 5CX1	No shedding required		
Bypass RYC 5CX1	No shedding required		

Table E – Reference Table for 5L71/5L72 (1P, 3P, 1P&1P, 1P&3P) Contingencies All SI, NIC/KLY – LM 500 kV Circuits and Series Capacitor Banks In Service

CONTINGENCY	SHEDDING REQUIREMENTS
5L71 (3P)	 If MCA 5CB6 and 5CB7 and 5CB9 are in service, shed at MCA: GS = (5L71+5L72) MCA MW – 5L72_Over_Rating If MCA 5CB6 is O.O.S., arm MCA G5 and G6 for shedding. If MCA 5CB9 is O.O.S., arm MCA G1 and G2 for shedding. If MCA 5CB7 is O.O.S., arm MCA G3 and G4 and G5 and G6 for shedding, and keep a minimum of one of MCA (G1, G2) units on-line post-shedding.
5L72 (3P)	 If MCA 5CB6 and 5CB10 and 5CB11 are in service, shed at MCA: GS = (5L71+5L72) MCA MW – 5L71_Over_Rating If MCA 5CB6 is O.O.S., arm MCA G3 and G4 for shedding. If MCA 5CB10 is O.O.S., arm MCA G1 and G2 for shedding. If MCA 5CB11 is O.O.S., arm MCA G3 and G4 and G5 and G6 for shedding, and keep a minimum of one of MCA (G1, G2) units on-line post-shedding.
5L71 (1P)	No generation shedding
5L72 (1P)	No generation shedding
Bypass SYA 5CX1	No generation shedding
Bypass SYA 5CX2	No generation shedding
5L71 (3P) and 5L72 (1P)	 If MCA 5CB6 and 5CB7 and 5CB9 are in service, the armed MCA units for 5L71 (3P) contingency must be selected for arming first for this contingency. If gen shedding is armed, keep a minimum of 2 MCA units online post-shedding. OR If MCA 5CB6 is 0.0.S., MCA G5 and G6 must be armed for shedding. If not enough, then select the remaining MCA units for shedding. Regardless of calculated gen shedding required or not, keep a minimum of one of MCA (G1, G2, G3, G4) units online post-shedding. OR If MCA 5CB9 is 0.0.S., MCA G1 and G2 must be armed for shedding. If not enough, then select the remaining MCA units for shedding. Regardless of calculated gen shedding required or not, keep a minimum of one of MCA (G1, G2, G3, G4) units online post-shedding. OR If MCA 5CB9 is 0.0.S., MCA G1 and G2 must be armed for shedding. If not enough, then select the remaining MCA units for shedding. Regardless of calculated gen shedding required or not, keep a minimum of one of MCA (G3, G4, G5, G6) unit on-line post-shedding. If MCA 5CB7 is 0.0.S., MCA G3 and G4 and G5 and G6 must be armed for shedding. If not enough, then select the remaining MCA units for shedding. Regardless of calculated gen shedding required or not, keep a minimum of one of MCA (G3, G4, G5, G6) unit on-line post-shedding.
5L71 (1P) and 5L72 (3P)	 Shed at MCA: 1.18 * [(5L71 +5L72) MCA - 1300] MW. If MCA 5CB6 and 5CB10 and 5CB11 are in service, the armed MCA units for 5L72 (3P) contingency must be selected for arming first for this contingency. If gen shedding is armed, keep a minimum of 2 MCA units online post-shedding. OR If MCA 5CB6 is O.O.S., MCA G3 and G4 must be armed for shedding. Regardless of calculated gen shedding required or not, keep a minimum of one of MCA (G1, G2, G5, G6) units online post-shedding. OR If MCA 5CB10 is O.O.S., MCA G1 and G2 must be armed for shedding. Regardless of calculated gen shedding required or not, keep a minimum of one of MCA (G3, G4, G5, G6) units online post-shedding. OR If MCA 5CB10 is O.O.S., MCA G3 and G4 must be armed for shedding. Regardless of calculated gen shedding required or not, keep a minimum of one of MCA (G3, G4, G5, G6) units on-line post-shedding. If MCA 5CB11 is O.O.S., MCA G3, G4, G5 and G6 must be armed for shedding. Regardless of calculated gen shedding required or not, keep a minimum of one of MCA (G3, G4, G5, G6) units on-line post-shedding. If MCA 5CB11 is O.O.S., MCA G3, G4, G5 and G6 must be armed for shedding. Regardless of calculated gen shedding required or not, keep a minimum of one of MCA (G1, G2) units on-line post-shedding.
5L71 (1P) and 5L72 (1P)	Shed at MCA: (5L71 +5L72) MCA - 2600 MW
5L71 (3P) and 5L72 (3P)	Arm all on-line MCA units (including SC units) for shedding.
	Arm DTT 60L223.

Table F – Reference Table for 5L75/5L77 (1P, 3P, 1P&3P) Contingencies All SI, NIC/KLY – LM 500 kV Circuits and Series Capacitor Banks In Service

CONTINGENCY	SHEDDING REQUIREMENTS
5L75 (3P)	 ACK 5CB5 in service: If REV 5CB9 is O.O.S., REV G1 and G2 must be selected for shedding.
	 <u>ACK 5CB5 O.O.S.</u>: (5L75 contingency will trip open 5L76) Same gen shedding as 5L76 contingency with ACK 5CB8 O.O.S. in Table A
	 AND If REV 5CB9 is O.O.S., REV G1 and G2 must be selected for shedding.
5L77 (3P)	If REV 5CB12 is O.O.S., REV G3, G4 and G5 must be selected for shedding.
5L75 (1P)	No generation shedding.
5L77 (1P)	No generation shedding.
5L75 (1P) and 5L77 (3P)	 If REV Gen <= 2000 MW, then shed at REV: 2.0 * (REV Gen – 1500) MW, or
	 If REV Gen > 2000 MW, shed REV down to 1000 MW
	AND
	If REV 5CB12 is 0.0.S., REV G3, G4 and G5 must be selected for shedding.
5L75 (3P) and 5L77 (1P)	ACK 5CB5 in service:
	• If REV Gen <= 2000 MW, then shed at REV: 2.0° (REV Gen – 1500) MW, or
	 If REV Gen > 2000 MW, shed REV down to 1000 MW
	 If REV 5CB9 is 0.0.S., REV G1 and G2 must be selected for shedding.
	ACK 5CB5 O.O.S.: (5L75 (3P) & 5L77 (1P) contingency will trip open 5L76)
	 If REV Gen <= 2000 MW, then shed at REV: REV Gen – 1000 MW, or If DEV Gen > 2000 MW, then shed at DEV(1.1.22 * (DEV Gen – 1000) MW.
	 If REV Gen > 2000 MWV, then shed at REV: 1.33 (REV Gen = 1000) MWV
	AIND If REV 5CB0 is 0.0.5. REV G1 and G2 must be selected for shedding
	If generation shedding is armed, keep a minimum of 1 REV unit on-line post-shedding
51 75 (3P) and 51 77 (3P)	Arm all on-line REV units (including SC units) for shedding
	• Arm DTT 21 253

Table 1.1 - All SI, NIC/KLY - LM 500 kV Circuits and Series Capacitor Banks In-Service (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

Notes 2 and 3 in Section 2

Generation Shedding Requirements All SI, NIC/KLY - LM 500 kV Circuits and Series Capacitor Banks In-Service (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

CONTINGENCY	SHEDDING REQUIREMENTS
5L81	Shed at MCA/REV: GS + 2.72 * M
	Where GS and M are calculated as follows: GS = Max (0, 2.44 * (5L44 MDN + 0.61 * 5L81 NIC - 5L44_Over_Rating)) Y = 2L112 NLY + 0.04 * 5L81 NIC - 0.15 * GS Z = -2L293 NLY + 0.04 * 5L81 NIC - 0.14 * GS If Y > NLYPST_OL_PickupMW, M1 = 0.51 * (Y - NLYPST_OL_ResetMW), Else M1 = 0 If Z > 2L293OLRAS_PickupMW, M2 = 0.61 * (Z - 2L293OLRAS_Reset MW), Else M2 = 0 M = Max (M1, M2)
5L82	No shedding required.
5L83	No shedding required.
5L87	No shedding required.
5L44	$GS1 = 14.0 * (2L20CSQ + 0.19 * 5L44 MDN - 2L20_OVer_Rating)$ $GS2 = 35.3 * (2L51COK + 0.081 * 5L44MDN - 2L51COK_Over_Rating)$ $M = MAX (GS1, GS2, 0)$ $Y = 2L112 NLY + 0.04 * 5L44 MDN - 0.1 * M$ $Z = 2L293 SEL + 0.035 * 5L44 MDN - 0.1 * M$
	If Y > NLYPST_OL_PickupMW, R1 = 0.08 * (Y - NLYPST_OL_ResetMW) R3 = 0.03 * (Y - NLYPST_OL_ResetMW) Else R1 = 0 R3 = 0
	If Z > 2L293OLRAS_PickupMW, R2 = 0.10 * (Z - 2L293OLRAS_ResetMW) R4 = 0.04 * (Z - 2L293OLRAS_ResetMW) Else R2 = 0 R4 = 0
	Ra = MAX (R1, R2) Rb = MAX (R3, R4)
	 Shed at MCA/REV first, and then GMS/PCN the greater of (Note): D1*(GS1+14.0*Ra) D2*(GS2+35.3*Rb)
	Where: D1 = 1.0 if shedding at MCA/REV, or D1 = 1.08 if shedding at GMS/PCN D2 = 1.0 if shedding at MCA/REV, or D2 = 1.3 if shedding at GMS/PCN
	 Total armed generation shedding must be limited to 2500 MW. If exceeding the limit, Reduce the flow on 2L129 from ARN to VIT. Reduce SI generation and increase Peace generation
	Note: an example of determining the amount of gen-shedding is as follows. Let's say (GS1 + 14.0 * Ra) = 500 MW, (GS2 + 35.3 * Rb) = 450 MW. At MCA/REV, there's only 400 MW can be shed. So TSAPM arms 400 MW at MCA/REV first. Then for amount 1 GS at GMS/PCN, TSAPM calculates 1.08 * (500 – 400) = 108 MW. For amount 2 GS at GMS/PCN, TSAPM calculates 1.3 * (450 - 400) = 65 MW. Then TSAPM adds up the total amount required at different locations for the two GS amounts, and makes a final calculation. So in this example, the final GS amount = max(400 + 108, 400 + 65) = 508 MW.

5L81 and 5L82	G1 = 3.33 * [5L44 MDN + 0.13 * (5L81+5L82) NIC - 5L44_Over_Rating] G2 = 3.6 * [5L83 NIC + 0.47 * (5L81+5L82) NIC - 5L83_Over_Rating] G3 = 3.26 * [5L87 NIC + 0.42 * (5L81+5L82) NIC - 5L87_Over_Rating] G4 = 6.37 * [2L112 NLY + 0.07 * (5L81+5L82) NIC - NLYPST_OL_PickupMW] G5 = 6.59 * [2L293 SEL + 0.06 * (5L81+5L82) NIC - 2L293OLRAS_PickupMW]
	GS = Max (0, G1, G2, G3, G4, G5)
	 If AB to BC >= 500 MW AND GS >= 1500 MW, then Arm DTT 5L94, and Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and Shed at MCA/REV first : 0.93 * (GS – AB to BC) Then at SEV/KCL/ALH/WAN/BRX/WAX/GMS/PCN: 1.35 * [0.93*(GS – AB to BC)-the armed gen-shedding amount at MCA/REV]. Do not select GMS/PCN for shedding if G3 > 0. Total armed generation shedding must be limited to (2500 – AB to BC) MW
	 If AB to BC < 500 MW or [AB to BC >= 500 MW AND GS < 1500], then Shed at MCA/REV first : GS Then at SEV/KCL/ALH/WAN/BRX/WAX/GMS/PCN: 1.35 * (GS – the armed gen-shedding amount at MCA/REV). Do not select GMS/PCN for shedding if G3 > 0. Total armed generation shedding must be limited to 2500 MW
	If generation shedding is armed, the minimum units on line requirements post-shedding at MCA, REV, SEV, KCL, WAN, ALH, BRX, WAX and the equivalent SEV units specified in Note 14 in Section 3 shall be applied.
5L81 and 5L83	G1 = 3.35 * [5L44 MDN + 0.11 * (5L81+5L83) NIC - 5L44_Over_rating] G2 = 3.9 * [5L82 NIC + 0.44 * (5L81+5L83) NIC - 5L82_Over_rating] G3 = 3.22 * [5L87 NIC + 0.43 * (5L81+5L83) NIC - 5L87_Over_rating] G4 = 6.52 * [2L112 NLY + 0.07 * (5L81+5L83) NIC - NLYPST_OL_PickupMW] G5 = 6.61 * [2L293 SEL + 0.06 * (5L81+5L83) NIC - 2L293_OLRAS_PickupMW]
	GS = Max (0, G1, G2, G3, G4, G5)
	 If AB to BC >= 500 MW AND GS >= 1500 MW, then Arm DTT 5L94, and Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T- 17, and Shed at MCA/REV first: 0.93 * (GS – AB to BC) Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.32 * [0.93 * (GS – AB to BC) – the armed gen- shedding amount at MCA/REV]. If G3 > 0, do not select GMS and PCN for shedding. Total armed generation shedding must be limited to (2500 - AB to BC) MW
	 If AB to BC < 500 MW or [AB to BC >=500 MW AND GS < 1500], then Shed at MCA/REV first: GS Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.32 * (GS – the armed gen-shedding amount at MCA/REV). If G3 > 0, do not select GMS and PCN for shedding. Total armed generation shedding must be limited to 2500 MW.
	If generation shedding is armed, the minimum units on line requirements post-shedding at MCA, REV, SEV, KCL, WAN, ALH, BRX, WAX and the equivalent SEV units specified in Note 14 in Section 3 shall be applied.
5L82 and 5L83	G1 = 7.1 * [5L42 KLY + 0.27 * (5L82 + 5L83) NIC - 5L42_Over_Rating] G2 = 4.0 * [5L81 NIC + 0.44 * (5L82 + 5L83) NIC - 5L81_Over_Rating] G3 = 3.1 * [5L87 NIC + 0.47 * (5L82 + 5L83) NIC - 5L87_Over_Rating] G4 = 6.9 * [2L112 NLY + 0.06 * (5L82 + 5L83) NIC - NLYPST_OL_PickupMW] G5 = 7.5 * [2L293 SEL + 0.05 * (5L82 + 5L83) NIC - 2L293OLRAS_PickupMW]
	GS = Max (0, G1, G2, G3, G4, G5)
	 If AB to BC >= 500 MW AND GS >= 1500 MW, then Arm DTT 5L94, and Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T- 17, and Shed at MCA/REV first: 0.93 * (GS – AB to BC) Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.32 * [0.93 * (GS – AB to BC) – the armed gen- shedding amount at MCA/REV]. If G3 > 0, do not select GMS and PCN for shedding. Total armed generation shedding must be limited to (2500 - AB to BC) MW

If AB to BC < 500 MW or [AB to BC >=500 MW AND GS < 1500] , then
 Shed at MCA/REV first: GS
 Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.32 * (GS – the armed gen-shedding amount at
MCA/REV). If G3 > 0, do not select GMS and PCN for shedding
 Total armed generation shedding must be limited to 2500 MW.
If generation shedding is armed, the minimum units on line requirements post-shedding at MCA, REV, SEV, KCL, WAN, ALH, BRX, WAX and the equivalent SEV units specified in Note 14 in Section 3 shall be applied.

Table 1.2 – 5L71 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

- Limit: 5L72 MCA <= 5L72_Norm_Rating MW
- Notes: 2 and 3 in Section 2
- 5L87 contingency: Limit (5L81 + 5L82 + 5L83 + 5L87) NIC < 4800 MW when BCH load >= 8500 MW.

If TSAPM alarms "Voltage instability for a loss of 5L87", the BC Hydro Control Centre staff shall increase NI generation.

Generation Shedding Requirements

5L71 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

CONTINGENCY	SHEDDING REQUIREMENTS
5L72 (3P) (TSA-PM must treat it as	Same as 5L71 (3P) and 5L72 (3P) contingency in Table E
"5L71 (3P) AND 5L72 (3P)"	
contingency to obtain	
required RAS functions)	Shad at MCA: (51.71 + 51.72) MCA = 1700 MM
Bypass SYA 5CX2	Shed MCA down to 1500 MW
5L81	Same as system normal Table 1.1
5L82	Same as system normal Table 1.1
5L83	Same as system normal Table 1.1
5L81 and 5L82	Same gen shedding amount calculation as system normal Table 1.1.
	• If generation shedding is required AND if NIC 5CB4 is O.O.S., then the armed REV units for shedding for 5L76
	contingency shall be selected for shedding first for this contingency.
5L81 and 5L83	Same as system normal Table 1.1.
5L82 and 5L83	Same as system normal Table 1.1.
5L87	No shedding required.
5L44	Same as system normal Table 1.1

Table 1.3 – 5L72 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

- Limit: 5L71 MCA <= 5L71_Norm_Rating MW
- Notes: 2 and 3 in Section 2.
- 5L87 contingency: Limit (5L81 + 5L82 + 5L83 + 5L87) NIC < 4800 MW when BCH load >= 8500 MW.

If TSAPM alarms "Voltage instability for a loss of 5L87", the BC Hydro Control Centre staff shall increase NI generation.

Generation Shedding Requirements 5L72 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

CONTINGENCY	SHEDDING REQUIREMENTS
5L71 (3P) (TSA-PM must treat it as	Same as 5L71 (3P) and 5L72 (3P) contingency in Table E
contingency to obtain required RAS functions)	
5L71 (1P)	Same as 5L72 (1P) contingency in 5L71 O.O.S. Table 1.2
Bypass SYA 5CX1	Same as Bypass SYA 5CX2 in 5L71 O.O.S. Table 1.2
5L81	Same as system normal Table 1.1
5L82	Same as system normal Table 1.1
5L83	Same as system normal Table 1.1
5L81 and 5L82	 Same gen shedding amount calculation as system normal Table 1.1. If NIC 5CB8 is O.O.S., arm all on-line MCA units (including SC units) for shedding. If shedding at MCA is not enough, then calculate other plants for shedding.
	 If generation shedding is required AND if NIC 5CB4 is O.O.S., then the armed REV units for shedding for 5L76 contingency shall be selected first for arming for this contingency.
5L81 and 5L83	Same as system normal Table 1.1.
5L82 and 5L83	Same gen shedding amount calculation as system normal Table 1.1.
	• If NIC 5CB8 is O.O.S., arm all on-line MCA units (including SC units) for shedding. If shedding at MCA is not enough, then select other plants for shedding.
5L87	Same as 5L71 O.O.S. Table 1.2
5L44	Same as system normal Table 1.1

Table 1.4 – SYA 5CX1 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:Notes: 2 and 3 in Section 2.

Generation Shedding Requirements SYA 5CX1 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

CONTINGENCY	SHEDDING REQUIREMENTS
5L71 (3P)	Same as Table E
5L72 (3P)	 If MCA on-line units = 6, shed at MCA: GS = 1.10* ((5L71 +5L72) MCA – 1960) MW, or If MCA on-line units = 5, shed at MCA: GS = 1.10* ((5L71 +5L72) MCA – 1870) MW, or If MCA on-line units = 4, shed at MCA: GS = 1.00* ((5L71 +5L72) MCA – 1850) MW If MCA 5CB6 and 5CB10 and 5CB11 are in service and if gen shedding is armed, keep a minimum of 2 MCA units on-line post shedding. OR If MCA 5CB6 is O.O.S., MCA G3 and G4 must be armed for shedding. Regardless of calculated gen shedding required or not, keep a minimum of two of MCA (G1, G2, G5, G6) units on-line post-shedding. OR If MCA 5CB10 is O.O.S., MCA G1 and G2 must be armed for shedding. Regardless of calculated gen shedding required or not, keep a minimum of two of MCA (G3, G4, G5, G6) units on-line post-shedding. OR If MCA 5CB11 is O.O.S., MCA G3 and G4 and G5 and G6 must be armed for shedding. Regardless of calculated gen shedding required or not, keep a minimum of two of MCA (G3, G4, G5, G6) units on-line post-shedding. OR If MCA 5CB11 is O.O.S., MCA G3 and G4 and G5 and G6 must be armed for shedding. Regardless of calculated gen shedding required or not, keep a minimum of one of MCA (G1, G2) units on-line post-shedding. OR
5L71 (1P)	No generation shedding
5L72 (1P)	No generation shedding
Bypass SYA 5CX2	No generation shedding
5L71 (3P) and 5L72 (1P)	 Shed at MCA: (5L71 + 5L72) MCA – 1300 MW If MCA 5CB6 and 5CB7 and 5CB9 are in service, the armed MCA units for 5L71 (3P) contingency must be selected for shedding first. If gen shedding is armed, keep a minimum of 2 MCA unit on-line post-shedding. OR If MCA 5CB6 is O.O.S., MCA G5 and G6 must be armed for shedding. If not enough, then select the remaining MCA units for shedding. Regardless of calculated gen shedding required or not, keep a minimum of one of MCA (G1, G2, G3, G4) units on-line post-shedding. OR If MCA 5CB9 is O.O.S., MCA G1 and G2 must be armed for shedding. If not enough, then select the remaining MCA units for shedding. Regardless of calculated gen shedding required or not, keep a minimum of one of MCA (G3, G4, G5, G6) units on-line post-shedding. If MCA 5CB7 is O.O.S., MCA G3 and G4 and G5 and G6 must be armed for shedding. If not enough, then select the remaining MCA units for shedding. If MCA 5CB7 is O.O.S., MCA G3 and G4 and G5 and G6 must be armed for shedding. If not enough, then select the remaining MCA (G1, G2) units on-line post-shedding.
5L71 (1P) and 5L72 (3P)	 Sned at MCA: 1.00 * [(5L71 + 5L72) MCA – 750] MW if MCA on-line units = 2, or 1.23 * [(5L71 + 5L72) MCA – 900] MW if MCA on-line units >= 3 If MCA 5CB6 and 5CB10 and 5CB11 are in service, the armed MCA units for 5L72 (3P) contingency must be selected for shedding first. If gen shedding is armed, keep a minimum of 1 MCA unit on-line post-shedding. OR If MCA 5CB6 is 0.0.S., the armed MCA units for 5L72 (3P) contingency must be armed for shedding. If not enough, then select the remaining MCA units for shedding. Regardless of calculated gen shedding required or not, keep a minimum of one of MCA (G1, G2, G5, G6) units on-line post-shedding. OR If MCA 5CB10 is 0.0.S., the armed MCA units for 5L72 (3) contingency must be armed for shedding. If not enough, then select the remaining MCA units for shedding. Regardless of calculated gen shedding required or not, keep a minimum of one of MCA (G3, G4, G5, G6) units on-line post-shedding. OR If MCA 5CB10 is 0.0.S., the armed MCA units for 5L72 (3) contingency must be armed for shedding. If not enough, then select the remaining MCA units for shedding. Regardless of calculated gen shedding required or not, keep a minimum of one of MCA (G3, G4, G5, G6) units on-line post-shedding. If MCA 5CB11 is 0.0.S., the armed MCA units for 5L72 (3P) contingency must be armed for shedding. If not enough, then select the remaining MCA units for shedding. Regardless of calculated gen shedding required or not, keep a minimum of one of MCA (G3, G4, G5, G6) units on-line post-shedding. If MCA 5CB11 is 0.0.S., the armed MCA units for 5L72 (3P) contingency must be armed for shedding. If not enough, then select the remaining MCA units for shedding. Regardless of calculated gen shedding required or not, keep a minimum of one of MCA (G1, G2) units on-line post-shedding.
5I 71 (1P) and 5I 72 (1P)	Shed at MCA: (5I 71 +5I 72) MCA - 2300 MW
5L71 (3P) and 5L72 (3P)	Same as Table E
5L81	Same as system normal Table 1.1
5L82	Same as system normal Table 1.1
5 83	Same as system normal Table 1 1
51 81 and 51 82	Same as system normal Table 1.1
51 81 and 51 83	Same as system normal Table 1.1
51 82 and 51 83	Same as system normal Table 1.1
51.87	Same as system normal Table 1.1
5L44	Same as system normal Table 1.1

Table 1.5 – SYA 5CX2 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

• Notes: 2 and 3 in Section 2.

Generation Shedding Requirements SYA 5CX2 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

CONTINGENCY	SHEDDING REQUIREMENTS
5L71 (3P)	If MCA on-line units = 6, shed at MCA: GS = 1.10 * ((5L71 +5L72) MCA – 1960) MW, or If MCA on-line units = 5, shed at MCA: GS = 1.10 * ((5L71 +5L72) MCA – 1870) MW, or If MCA on-line units = 4, shed at MCA: GS = 1.00 * ((5L71 +5L72) MCA – 1850) MW
	 If MCA 5CB6 and 5CB7 and 5CB9 are in service, and if gen shedding is armed, keep a minimum of 2 MCA units on-line post shedding. OR If MCA 5CB6 is O.O.S., MCA G5 and G6 must be armed for shedding. Regardless of calculated gen shedding required or not, keep a minimum of two of MCA (G1, G2, G3, G4) units on-line post shedding. OR If MCA 5CB9 is O.O.S., MCA G1 and G2 must be armed for shedding. Regardless of calculated gen shedding required or not, keep a minimum of two of MCA (G3, G4, G5, G6) units on-line post shedding. OR If MCA 5CB9 is O.O.S., MCA G3 and G4 and G5 and G6 must be armed for shedding. Regardless of calculated gen shedding required or not, keep a minimum of two of MCA (G3, G4, G5, G6) units on-line post shedding. OR If MCA 5CB7 is O.O.S., MCA G3 and G4 and G5 and G6 must be armed for shedding. Regardless of calculated gen shedding required or not, keep a minimum of one of MCA (G1, G2) unit on-line post shedding.
5L72 (3P)	Same as Table E
5L71 (1P)	No generation shedding
5I 72 (1P)	No generation shedding
Bypass SYA 5CX1	No generation shedding
5L71 (3P) and 5L72 (1P)	Shed at MCA: 1.00 * [(5L71 + 5L72) MCA - 750] MW if MCA on-line units = 2, or 1.23 * [(5L71 + 5L72) MCA - 900] MW if MCA on-line units >= 3
	 If MCA 5CB6 and 5CB7 and 5CB9 are in service, the armed MCA units for 5L71 (3P) contingency must be selected for shedding first. If gen shedding is armed, keep a minimum of 1 MCA unit on-line post-shedding. OR If MCA 5CB6 is 0.0.S., the armed MCA units for 5L71 (3P) contingency must be armed for shedding. If not enough, then select the remaining MCA units for shedding. Regardless of gen shedding required or not, keep a minimum of one of MCA (G1, G2, G3, G4) units on-line post-shedding. OR If MCA 5CB9 is 0.0.S., the armed MCA units for 5L71 (3P) contingency must be armed for shedding. If not enough, then select the remaining MCA units for shedding. Regardless of gen shedding required or not, keep a minimum of one of MCA (G3, G4, G5, G6) units on-line post-shedding. If MCA 5CB7 is 0.0.S., the armed MCA units for 5L71 (3P) contingency must be armed for shedding. If not enough, then select the remaining MCA units for shedding. Regardless of gen shedding required or not, keep a minimum of one of MCA (G3, G4, G5, G6) units on-line post-shedding. If MCA 5CB7 is 0.0.S., the armed MCA units for 5L71 (3P) contingency must be armed for shedding. If not enough, then select the remaining MCA units for 5L71 (3P) contingency must be armed for shedding. If not enough, then select the remaining MCA units for shedding. Regardless of gen shedding required or not, keep a minimum of one of MCA (G3, G4, G5, G6) units on-line post-shedding. If MCA 5CB7 is 0.0.S., the armed MCA units for 5L71 (3P) contingency must be armed for shedding. If not enough, then select the remaining MCA units for shedding. Regardless of calculated gen shedding required or not, keep a minimum of one of MCA (G1, G2) unit on-line post shedding.
5L71 (1P) and 5L72 (3P)	 Shed at MCA: (5L71 + 5L72) MCA – 1300 MW If MCA 5CB6 and 5CB10 and 5CB11 are in service, the armed MCA units for 5L72 (3P) contingency must be selected for shedding first. If gen shedding is armed, keep a minimum of 2 MCA units on-line post-shedding. OR If MCA 5CB6 is O.O.S., MCA G3 and G4 must be armed for shedding. If not enough, then select the remaining MCA units on-line post-shedding. Regardless of gen shedding required or not, keep a minimum of one of MCA (G1, G2, G5, G6) units on-line post-shedding. OR If MCA 5CB10 is O.O.S., MCA G1 and G2 must be armed for shedding. If not enough, then select the remaining MCA units for shedding. Regardless of gen shedding required or not, keep a minimum of one of MCA (G3, G4, G5, G6) units on-line post-shedding. If MCA 5CB10 is O.O.S., MCA G3, G4, G5 and G6 must be armed for shedding. If not enough, then select the remaining MCA units on-line post-shedding. If MCA 5CB11 is O.O.S., MCA G3, G4, G5 and G6 must be armed for shedding. If not enough, then select the remaining MCA units on-line post-shedding. If MCA 5CB11 is O.O.S., MCA G3, G4, G5 and G6 must be armed for shedding. If not enough, then select the remaining MCA units on-line post-shedding. Regardless of gen shedding required or not, keep a minimum of one of MCA (G1, G2) units on-line post-shedding.
5L71 (1P) and 5L72 (1P)	Same as SYA 5CX1 0.0.S. Table 1.4
5L71 (3P) and 5L72 (3P)	Same as Table E
51.81	Same as system normal Table 1 1
51.82	Same as system normal Table 1.1
51.83	Same as system normal Table 1.1
	Came as system normal Table 1.1
	Same as system normal lable 1.1
5L81 and 5L83	Same as system normal lable 1.1
5L82 and 5L83	Same as system normal Table 1.1
5L87	Same as system normal Table 1.1

5L44	4
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Table 1.6 - SYA 5CX1 AND SYA 5CX2 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

• Notes: 2 and 3 in Section 2.

Generation Shedding Requirements SYA 5CX1 AND SYA 5CX2 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

CONTINGENCY	SHEDDING REQUIREMENTS
5L71 (3P)	Same as SYA 5CX2 O.O.S Table 1.5
5L72 (3P)	Same as SYA 5CX1 O.O.S Table 1.4
5L71 (1P)	No generation shedding
5L72 (1P)	No generation shedding
5L71 (3P) and 5L72 (1P)	Shed at MCA: 1.00 * [(5L71 + 5L72) MCA - 800] MW if MCA on-line units = 2, or 1.23 * [(5L71 + 5L72) MCA - 910] MW if MCA on-line units >= 3
	 If MCA 5CB6 and 5CB7 and 5CB9 are in service, the armed MCA units for 5L71 (3P) contingency must be selected for shedding first. If gen shedding is armed, keep a minimum of 1 MCA unit on-line post-shedding. OR If MCA 5CB6 is 0.0.S., the armed MCA units for 5L71 (3P) contingency must be armed for shedding. If not enough, then select the remaining MCA units for shedding. Regardless of gen shedding required or not, keep a minimum of one of MCA (G1, G2, G3, G4) units on-line post-shedding. OR If MCA 5CB9 is 0.0.S., the armed MCA units for 5L71 (3P) contingency must be armed for shedding. If not enough, then select the remaining MCA units for 5L71 (3P) contingency must be armed for shedding. If not enough, then select the remaining MCA units for shedding. Regardless of gen shedding required or not, keep a minimum of one of MCA (G3, G4, G5, G6) units on-line post-shedding. If MCA 5CB7 is 0.0.S., the armed MCA units for 5L71 (3P) contingency must be armed for shedding. If not enough, then select the remaining MCA units for 5L71 (3P) contingency must be armed for shedding. If not enough, then select the remaining MCA units for 5L71 (3P) contingency must be armed for shedding. If not enough, then select the remaining MCA units for 5L71 (3P) contingency must be armed for shedding. If not enough, then select the remaining MCA units for 5L71 (3P) contingency must be armed for shedding. If not enough, then select the remaining MCA units for 5L71 (3P) contingency must be armed for shedding. If not enough, then select the remaining MCA units for shedding. Regardless of calculated gen shedding required or not, keep a minimum of one of MCA (G1, G2) unit on-line post shedding.
5L71 (1P) and 5L72 (3P)	 Shed at MCA: 1.00* [(5L71 + 5L72) MCA - 800] MW if MCA on-line units = 2, or 1.23* [(5L71 + 5L72) MCA - 910] MW if MCA on-line units >= 3 If MCA 5CB6 and 5CB10 and 5CB11 are in service, the armed MCA units for 5L72 (3P) contingency must be selected for shedding first. If gen shedding is armed, keep a minimum of 1 MCA unit on-line post-shedding. OR If MCA 5CB6 is 0.0.S., the armed MCA units for 5L72 (3P) contingency must be armed for shedding. If not enough, then select the remaining MCA units for shedding. Regardless of calculated gen shedding required or not, keep a minimum of one of MCA (G1, G2, G5, G6) units on-line post-shedding. OR If MCA 5CB10 is 0.0.S., the armed MCA units for 5L72 (3P) contingency must be armed for shedding. If not enough, then select the remaining MCA units for shedding. Regardless of calculated gen shedding required or not, keep a minimum of one of MCA (G3, G4, G5, G6) units on-line post-shedding. OR If MCA 5CB10 is 0.0.S., the armed MCA units for shedding. Regardless of calculated gen shedding required or not, keep a minimum of one of MCA (G3, G4, G5, G6) units on-line post-shedding. If MCA 5CB11 is 0.0.S., the armed MCA units for 5L72 (3P) contingency must be armed for shedding. If not enough, then select the remaining MCA units for 5L72 (3P) contingency must be armed for shedding. If not enough, then select the remaining MCA units for 5L72 (3P) contingency must be armed for shedding. If not enough, then select the remaining MCA units for shedding. Regardless of calculated gen shedding. If not enough, then select the remaining MCA units for shedding. Regardless of calculated gen shedding required or not, keep a minimum of one of MCA (G1, G2) units on-line post-shedding.
5L71 (1P) and 5L72 (1P)	Shed at MCA: (5L71 +5L72) MCA – 1800 MW
5L71 (3P) and 5L72 (3P)	Same as Table E
5L81	Same as system normal Table 1.1
5L82	Same as system normal Table 1.1
5L83	Same as system normal Table 1.1
5L81 and 5L82	Same as system normal Table 1.1
5L81 and 5L83	Same as system normal Table 1.1
5L82 and 5L83	Same as system normal Table 1.1
5L87	Same as system normal Table 1.1
5L44	Same as system normal Table 1.1

Table 1.7 – 5L71 AND SYA 5CX2 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

- Notes: 2 and 3 in Section 2.
- MCA MW output limit: •
- The lesser of:
 - o 1950 MW (voltage stability limit), or
- 5L72_Norm_Rating
 5L87 Contingency: Limit 2.6 * (5L71 + 5L72) MCA + [(5L76 + 5L79) ACK + 5L98 VAS] < 6750 MW when BCH load >= 8500 MW. If TSAPM alarms "Voltage instability for a loss of 5L87", the BC Hydro Control Centre staff shall increase NI generation.

Generation Shedding Requirements

5L71 AND SYA 5CX2 0.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

CONTINGENCY	SHEDDING REQUIREMENTS
5L72 (3P) (TSA-PM must treat it as "5L71 (3P) AND 5L72 (3P)" contingency to obtain required RAS functions)	Same as 5L71 (3P) and 5L72 (3P) contingency in Table E
5L72 (1P)	Shed MCA down to 1041 MW
5L81	Same as system normal Table 1.1
5L82	Same as system normal Table 1.1
5L83	Same as system normal Table 1.1
5L81 and 5L82	Same as 5L71 O.O.S. Table 1.2
5L81 and 5L83	Same as 5L71 O.O.S. Table 1.2
5L82 and 5L83	Same as system normal Table 1.1
5L87	No shedding required.
5L44	Same as system normal Table 1.1

Table 1.8 – 5L72 AND SYA 5CX1 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

- Notes: 2 and 3 in Section 2.
- MCA MW output limit: •
- The lesser of:
 - \circ 1950 MW (voltage stability limit), or
- 5L71_Norm_Rating
 5L87 Contingency: Limit 2.6 * (5L71 + 5L72) MCA + [(5L76 + 5L79) ACK + 5L98 VAS] < 6750 MW when BCH load >= 8500 MW. If TSAPM alarms "Voltage instability for a loss of 5L87", the BC Hydro Control Centre staff shall increase NI generation.

Generation Shedding Requirements

5L72 AND SYA 5CX1 0.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

CONTINGENCY	SHEDDING REQUIREMENTS
5L71 (3P) (TSA-PM must treat it as "5L71 (3P) AND 5L72 (3P)" contingency to obtain required RAS functions)	Same as 5L71 (3P) and 5L72 (3P) contingency in Table E.
5L71 (1P)	Same as 5L72 (1P) contingency in Table 1.7 – 5L71 AND SYA 5CX2 0.0.S.
5L81	Same as system normal Table 1.1
5L82	Same as system normal Table 1.1.
5L83	Same as system normal Table 1.1
5L81 and 5L82	Same as 5L72 O.O.S. Table 1.3
5L81 and 5L83	Same as system normal Table 1.1
5L82 and 5L83	Same as 5L72 O.O.S. Table 1.3
5L87	Same as 5L71 AND SYA 5CX2 O.O.S. Table 1.7
5L44	Same as system normal Table 1.1

Table 1.9 – 5L71 and 5L72 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

- Notes 2 and 3 in Section 2.
- This table is applicable to BCH load <= 8500 MW. Both 5L71 and 5L72 O.O.S. should be avoided when BCH load > 8500 MW. If ٠ the outage cannot be avoided, special studies are required.
 For restrictions of NIC 500 kV reactors, refer to Section 8.3.8 in SOO 7T-18.

Generation Shedding Requirements: 5L71 and 5L72 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops) Note: Table F is applicable to this Table.

CONTINGENCY	SHEDDING REQUIREMENTS
5L76	Same as Table A
5L79	Same as Table A
5L81	Same as system normal Table 1.1, except for no Minimum Unit On-Line Post-shedding requirement at MCA.
5L82	Same as system normal Table 1.1, except for no Minimum Unit On-Line Post-shedding requirement at MCA.
5L83	Same as system normal Table 1.1, except for no Minimum Unit On-Line Post-shedding requirement at MCA.
Bypass AMC 5CX1	No shedding required
Bypass AMC 5CX2	No shedding required
Bypass RYC 5CX1	No shedding required
5L81 and 5L82	Same as system normal Table 1.1, except that the following Minimum Unit On-Line Post-shedding requirements shall be applied.
	 If generation shedding is armed, keep a minimum of 2 REV, 2 SEV and 1 KCL (with high side 2CBs in service) units on-line post-shed if SEL 5RX3 is available, or keep a minimum of 2 REV, 2 SEV, 1 KLC (with high side 2CBs in service) and 1 equivalent SEV units on-line post-shed if SEL 5RX3 is unavailable, or keep a minimum of 2 REV, 2 SEV and 2/3 equivalent SEV units on-line post-shed if SEL 5RX3 is available and the whole KCL plant is shutdown in pre-contingency condition, or keep a minimum of 2 REV, 2 SEV and 1 & 2/3 equivalent SEV units on-line post-shed if SEL 5RX3 is unavailable and the whole KCL plant is shutdown in pre-contingency condition.
	and the requirement at WAN, ALH, BRX and WAX as specified in Note 1 in Section 3 are applicable to here. If TSA-PM alarms "C5L81_82 - MAX ARMED SHED VIOLATION", "C5L81_83 - MAX ARMED SHED VIOLATION", or
	 "C5L82_83 - MAX ARMED SHED VIOLATION", the BC Hydro Control Centre staff should take the following actions: If BC is exporting to US, then reduce BC to US export. If BC is importing from US, then
	 reduce (SI and FBC) generation and increase Peace generation, or/and reduce (SI and FBC) generation and increase import from US
5L81 and 5L83	Same as system normal Table 1.1 except that the Minimum Unit On-Line Post-shedding requirements for 5L81 and 5L82 contingency in this table shall be applied.
5L82 and 5L83	Same as system normal Table 1.1 except that the Minimum Unit On-Line Post-shedding requirements for 5L81 and 5L82 contingency in this table shall be applied.

CONTINGENCY	SHEDDING REQUIREMENTS	
5L76 and 5L79		
	BC To AB (MW) Shed at REV first, then KCL/ALH/SEV/WAN/BRX/WAX: • 1.15 * [(5L76 + 5L79) ACK + 5L98 VAS - 1500]	Shed at REV first, then KCL/ALH/SEV/WAN/BRX/WAX: (5L76 + 5L79) ACK + Z + 1L214 VNT + W
		(0,0) 2L112 NLY (MW)
	 GS = 1.25 * [(5L76 + 5L79) ACK + 5L98 VAS - 1600] If GS >1500 and AB to BC > 500 MW, then Arm DTT 5L94, and Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and Shed at REV first, then KCL/ALH/SEV/WAN/BRX/WAX: 1.17 * [(5L76 + 5L79) ACK + 5L98 VAS - Y] - AB to BC Otherwise, Shed at REV first, then KCL/ALH/SEV/WAN/BRX/WAX: GS 	 GS = (5L76 + 5L79) ACK + 1L214 VNT + Z + W If GS >1500 and AB to BC > 500 MW, then Arm DTT 5L94, and Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and Shed at REV first, then KCL/ALH/SEV/WAN/BRX/WAX: GS – AB to BC Otherwise, Shed at REV first, then KCL/ALH/SEV/WAN/BRX/WAX: GS
	Note: Y = 1300 if BCH load > 7500 MW, or Y = 1400 if BCH load <= 7500 MW Z = 1L209 SAM if 1L209 is not radial, or Z = 0 if 1L209 is W = 48L KET if DTT 48L RAS is armed, otherwise, W = IF (5L76+5L79) ACK > 750 MW, then • Arm DTT 1L209 except for 1L209 radial connection • Arm DTT 1L214, and • Arm DTT FBC's 48L if VAS-VNT loop is open and • Apply the above generation shedding rules The total armed generation amount must be limited to 25 (The total armed generation + AB to BC) must be limited If generation shedding is armed, then • Arm DTT ACK 5CX1 if ACK 5CX1 is in service, an • Arm DTT ACK 5CX2 if ACK 5CX2 is in service, an	s radial 0. on, and VAS-WTS loop is closed, and 500 MW If DTT 5L94 is not armed, or d to 2500 MW If DTT 5L94 is armed
	 Keep a minimum of 1 REV, 1 SEV, 1 KCL and 1/3 REV, 1 SEV and 1 equiv. SEV units on-line post-s condition. 	equiv. SEV units on-line post-shedding or keep a minimum of 1 shedding if the whole KCL plant is shutdown in pre-contingency
5L87	No generation shedding	
5L91 and 5L96 5L44	Tables A, B, C and D are applicable to this contingency Same as system normal Table 1.1 except for no sheddin requirement at MCA.	ng at MCA and no Minimum Unit On-Line Post-shedding
5L91	Tables A, B, C and D are applicable to this contingency	
5L96	Tables A, B, C and D are applicable to this contingency	
5L98	Both VAS-WTS and VAS-VNT loops closed, or VAS-WT Same as Tables A Both VAS-WTS and VAS-VNT loops open, or VAS-VNT Same as Tables C	Ioop open and VAS-VNT loop closed
5L96 & 5L98	Both VAS-WTS and VAS-VNT loops closed Same as Tables A VAS-WTS loop open, or VAS-VNT loop open, or both V/ Same as Tables C	AS-WTS and VAS-VNT loops open
5L92	Same as Table A	
5L94	Same as Table A	
Bypass GUI	No generation shedding	

5L91 (1P) or 5L96 (1P) orNo generation shedding5L98 (1P)

Table 1.10 – 5L75 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

- Pre-Outage Restrictions:
 Limit: 5L77 REV <= 5L77_Norm_Rating MW
 Notes 2 and 3 in Section 2.

Generation Shedding Requirements Note: Tables A, B, C, D and E are applicable to this Table, except for single contingencies 5L76, 5L79 as indicated in this table.

CONTINGENCY	SHEDDING REQUIREMENTS
5L77 (3P) (TSA-PM must treat it as "5L75 (3P) and 5L77 (3P)" contingency to obtain required RAS functions)	Same as 5L75 (3P) and 5L77 (3P) contingency in Table F.
5L77 (1P)	Shed at REV: REV Gen - 2000 MW
5L76	Shed at REV: 1.03 * (5L77 REV + (5L91 + 5L96) SEL – 4000) MW if REV Gen <= 2000 MW
5L79	Same gen shedding as 5L76 contingency.
5L81	Same as system normal Table 1.1
5L82	Same as system normal Table 1.1
5L83	Same as system normal Table 1.1
5L81 and 5L82	Same as system normal Table 1.1
5L81 and 5L83	Same as system normal Table 1.1
5L82 and 5L83	Same as system normal Table 1.1
5L87	Same as system normal Table 1.1
5L44	Same as system normal Table 1.1

Table 1.11 – 5L77 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

- Pre-Outage Restrictions
 Limit: 5L75 REV <= 5L75_Norm_Rating MW
 Notes: 2 and 3 in Section 2.

Generation Shedding Requirements Note: Tables A, B, C, D and E are applicable to this Table, except for single contingencies 5L76, 5L79 as indicated in this table

CONTINGENCY	SHEDDING REQUIREMENTS
5L75 (3P) (TSA-PM must treat it as "5L75 (3P) and 5L77 (3P)" contingency to obtain required RAS functions)	Same as 5L75 (3P) and 5L77 (3P) contingency in Table F.
5L75 (1P)	Shed at REV: REV Gen - 2000 MW
5L76	ACK 5CB8 in service: Shed at REV: 1.03 * (5L75 REV + (5L91 + 5L96) SEL – 4000) MW if REV Gen <= 2000 MW ACK 5CB8 O.O.S.: (5L76 contingency will trip open 5L75) Shed REV down to 0 MW.
5L79	Same gen shedding as 5L76 contingency with ACK 5CB8 in service.
5L81	Same as system normal Table 1.1
5L82	Same as system normal Table 1.1
5L83	Same as system normal Table 1.1
5L81 and 5L82	Same as system normal Table 1.1
5L81 and 5L83	Same as system normal Table 1.1
5L82 and 5L83	Same as system normal Table 1.1
5L87	Same as system normal Table 1.1
5L44	Same as system normal Table 1.1

Table 1.12 – 5L76 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions: Notes 2 and 3 in Section 2.

Generation Shedding Requirements 5L76 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops) Note: Table E is applicable to this Table.

CONTINGENCY	SHEDDING REQUIREMENTS
5L75 (3P)	If REV 5CB9 is O.O.S., REV G1 and G2 must be selected for shedding.
5L77 (3P)	Same as Table F
5L75 (1P)	Same as Table F
5L77 (1P)	Same as Table F
5L75 (1P) and 5L77 (3P)	Same as Table F
5L75 (3P) and 5L77 (1P)	Same as ACK 5CB5 in service in Table F
5L75 (3P) and 5L77 (3P)	Same as Table F
5L81	Same as system normal Table 1.1
5L82	Same as system normal Table 1.1
5L83	Same as system normal Table 1.1
Bypass AMC 5CX1	No shedding required
Bypass AMC 5CX2	No shedding required
Bypass RYC 5CX1	No shedding required
5L81 and 5L82	Same as system normal Table 1.1
5L81 and 5L83	Same as system normal Table 1.1
5L82 and 5L83	Same as system normal Table 1.1
5L79	Tables A, B, C and D for contingency 5L76 AND 5L79 are applicable to this contingency
5L87	Same as system normal Table 1.1.
5L91 and 5L96	Tables A, B, C and D are applicable to this contingency
5L44	Same as system normal Table 1.1
5L91	Tables A, B, C and D are applicable to this contingency
5L96	Arm DTT 48L if 5L96 SEL > 800 MW AND if VAS-WTS loop is closed
	Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of:
	2.20 * (5L79 ACK + 0.60 * (5L96 SEL + Z) – 5L79_Over_Rating)
	▶ 1.25 * (5L79 ACK + 5L96 SEL + Z – Y), or
	$\geq 2.45 * (2L112 \text{ NLY} + 0.25 * (5L96 \text{ SEL} + Z) - 400), \text{ or}$
	2.45 * (2L112 NLY + BDY Gen + 0.25 * (5L96 SEL + 2) - 1170), or
	\Rightarrow 3.10 " (2L293 SEL + 0.19 " (5L96 SEL + 2) – 400), and do not shed WAN for this requirement
	Y = Min (3050, 1800 + 0.60 * REV MW) if at least one of ACK 5CX1 & 5CX2 is in service, of V = Min (3700, 4500 + 0.60 * REV MW) if none of ACK 5CX1 & 5CX2 is in service.
	$Y = M(n)(2790, 1500 \pm 0.60)$ REV M(W) If none of ACK 5CX 1 & 5CX2 is in service
	Z = 48L KET II DTI 48L IS armed, or
51.08	If VAS_VNT loop is closed then
5E90	Shed at KCL/ALH/WAN/BRX/WAX first then SEV the greatest of:
	\sim 1.94 * (51.79 ACK + 0.77 * 51.98 V/AS – 51.79 Over Rating)
	$\sim 1.73 \times (51.79 \text{ ACK} + 51.98 \text{ VAS} - \text{Y}) \text{ or}$
	$271 \times (2112) \times 101 \times 1010 \times 10100 \times 10100 \times 10100 \times 10100 \times 10100 \times 1000 \times 10000 \times 100000 \times 10000 \times 10000 \times 10000 \times 100000000$
	$\sim 2.71 \times (2L112 \text{ NLY} + BDY \text{ Gen} + 0.21 \times 5L98 \text{ VAS} - 1200), \text{ or}$
	> 3.75 * (2L293 SEL + 0.17 * 5L98 VAS – 400), and do not shed WAN for this requirement
	Y = (1700 + 0.56 * REV MW) if at least one of ACK 5CX1 & 5CX2 is in service, or
	Y = (1500 + 0.56 * REV MW) if none of ACK 5CX1 & 5CX2 is in service.
	Otherwise,
	Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of:
	1.94 * (5L79 ACK + 0.77 * 5L98 VAS – 5L79_Over_Rating)
	➤ 1.70*(5L79 ACK + 5L98 VAS – Y), or
	2.60 * (2L112 NLY + 0.25 * 5L98 VAS – 400), or
	2.60 * (2L112 NLY + BDY Gen + 0.25 * 5L98 VAS – 1200), or
	3.60 * (2L293 SEL + 0.20 * 5L98 VAS – 400), and do not shed WAN for this requirement
	Y = Min (2950, 1560 + 0.60 * REV MW) if at least one of ACK 5CX1 & 5CX2 is in service, or
	Y = Min (2750, 1360 + 0.60 * REV MW) if none of ACK 5CX1 & 5CX2 is in service
5L96 & 5L98	• Arm D1148L if 5L96 SEL > 800 MW AND if both VAS-W1S and VAS-VN1 loops are closed.
	Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of:
	2.20*(5L/9 ACK + 0.64*(5L96 SEL + Z) - 5L/9 Over Rating)
	1.25° (5L/9 AUK + 5L96 SEL +Z - Y), or $2.44 \times (21.442 \text{ NL})(+ 0.24 \times (21.02 \text{ SEL} + Z) - 400)$ or
	~ 2.44 (2L112 NL1 + 0.24 (5L90 SEL + 2) - 400), 01
	\sim 2.44 (2L112 NL1 + DD1 GeII + 0.24 (5L90 SEL + 2) - 1550), 01
	Y = Min (2970 + 0.64 * REV MW) if at least one of ACK 5CX1 & 5CX2 is in service or
	Y = Min (2770, 1370 + 0.64 * REV/MW) if none of ACK 5CX1 & 5CX2 is in service
	7 = 481 KFT if DTT 481 is armed or
	Z = 0 if DTT 48L is not armed
5L92	Same as Table A
5L94	Same as Table A
Bypass GUI	No shedding required.
5L91 (1P) or	No shedding required.
5L96 (1P) or	
5L98 (1P)	
Table 1.13 – 5L79 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

- Pre-Outage Restrictions:
 Limit: 5L76 ACK <= 5L76_Norm_Rating MW
 Notes 2 and 3 in Section 2.

Generation Shedding Requirements 5L79 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops) Note: Table E is applicable to this Table.

CONTINGENCY	SHEDDING REQUIREMENTS
5L75 (3P)	ACK 5CB5 in service: Same as Table F.
	ACK 5CB5 O.O.S.: (5L75 contingency will trip open 5L76)
5I 77 (3P)	Same as Table F
5L77 (31)	Same as Table F
5L77 (1P)	Same as Table F
5175(1P) and $5177(3P)$	Same as Table F
5L75 (3P) and 5L77 (3P)	ACK 5CB5 in service: Same as Table F
	ACK 5CB5 O.O.S.: (5L75 (3P) & 5L77 (1P) contingency will trip open 5L76) Shed REV down to 500 MW. AND
	 If REV 5CB9 is O.O.S., REV G1 and G2 must be selected for shedding. If generation shedding is armed, keep a minimum of 1 REV unit on-line post-shedding, which should be the same REV unit as for 5L76 contingency in this table.
5L75 (3P) and 5L77 (3P)	Same as Table F
5L81	Same as system normal Table 1.1
5L82	Same as system normal Table 1.1
5L83	Same as system normal Table 1.1
Bypass AMC 5CX1	No shedding required
Bypass AMC 5CX2	No shedding required
Bypass RYC 5CX1	No shedding required
5L81 and 5L82	Same as system normal Table 1.1
5L81 and 5L83	Same as system normal Table 1.1
5L82 and 5L83	Same as system normal Table 1.1
5L76	Tables A, B, C and D for contingency 5L76 AND 5L79 are applicable to this contingency.
5L87	Same as 5L76 O.O.S. Table 1.12
5L91 and 5L96	Tables A, B, C and D are applicable to this contingency
5L44	Same as system normal Table 1.1
5L91	Tables A, B, C and D are applicable to this contingency
5L96	Arm DTT 48L if 5L96 SEL > 800 MW AND if VAS-WTS loop is closed
51.98	 2.20* (5L76 ACK + 0.60* (5L96 SEL + Z) - 5L76_Over_Rating) 1.25* (5L76 ACK + 5L96 SEL + Z - Y), or 2.45* (2L112 NLY + 0.25* (5L96 SEL + Z) - 400), or 2.45* (2L112 NLY + BDY Gen + 0.25* (5L96 SEL + Z) - 1170), or 3.10* (2L293 SEL + 0.19* (5L96 SEL + Z) - 400), and do not shed WAN for this requirement Y = Min (3050, 1800 + 0.60* REV MW) if at least one of ACK 5CX1 & 5CX2 is in service, or Y = Min (2790, 1500 + 0.60* REV MW) if none of ACK 5CX1 & 5CX2 is in service. Z = 48L KET if DTT 48L is armed, or Z = 0 if DTT 48L is not armed If TSA-PM alarms "VIOLATION_5L76_NORM_RATING", the BC Hydro Control Centre staff shall take the following actions to bring the flow on 5L76 ACK below the rating within 30 minutes: Reduce REV or SIE generation, or Reduce flow on 2L112 from BDY to NLY, or Reduce import from Alberta
	 Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: 1.94 * (5L76 ACK + 0.77 * 5L98 VAS - 5L76_Over_Rating) 1.73 * (5L76 ACK + 5L98 VAS - 400), or 2.71 * (2L112 NLY + 0.21 * 5L98 VAS - 400), or 2.71 * (2L112 NLY + BDY Gen + 0.21 * 5L98 VAS - 1200), or 3.75 * (2L293 SEL + 0.17 * 5L98 VAS - 400), and do not shed WAN for this requirement Y = (1750 + 0.56 * REV MW) if at least one of ACK 5CX1 & 5CX2 is in service, or Y = (1500 + 0.56 * REV MW) if none of ACK 5CX1 & 5CX2 is in service. Otherwise, Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: 1.94 * (5L76 ACK + 0.77 * 5L98 VAS - 5L76_Over_Rating) 1.70 * (5L76 ACK + 5L98 VAS - Y), or 2.60 * (2L112 NLY + BDY Gen + 0.25 * 5L98 VAS - 1200), or 2.60 * (2L112 NLY + BDY Gen + 0.25 * 5L98 VAS - 1200), or 3.60 * (2L293 SEL + 0.20 * 5L98 VAS - 400), and do not shed WAN for this requirement Y = Min (2950, 1560 + 0.60 * REV MW) if a least one of ACK 5CX1 & 5CX2 is in service, or Y = Min (2750, 1360 + 0.60 * REV MW) if none of ACK 5CX1 & 5CX2 is in service; If TSA-PM alarms "VIOLATION_5L76_NORM_RATING", the BC Hydro Control Centre staff shall take the following actions to bring the flow on 5L76 ACK below the rating within 30 minutes: Reduce REV or SIE generation, or Reduce REV or SIE generation, or Reduce flow on 2L112 from BDY to NLY, or

CONTINGENCY	SHEDDING REQUIREMENTS
5L96 & 5L98	 Arm DTT 48L if 5L96 SEL > 800 MW AND if both VAS-WTS and VAS-VNT loops are closed. Shed at KCL/ALH/WAN/BRX first/WAX, then SEV the greatest of: 2.20 * (5L76 ACK + 0.64 * (5L96 SEL + Z) – 5L76_Over_Rating) 1.25 * (5L76 ACK + 5L96 SEL + Z – Y), or 2.44 * (2L112 NLY + 0.24 * (5L96 SEL + Z) – 400), or 2.44 * (2L112 NLY + BDY Gen + 0.24 * (5L96 SEL + Z) – 1350), or 2.56 * (2L293 SEL + 0.18 * (5L96 SEL + Z) – 400), and do not shed WAN for this requirement Y = Min (2970, 1570 + 0.64 * REV MW) if at least one of ACK 5CX1 & 5CX2 is in service, or Y = Min (2770, 1370 + 0.64 * REV MW) if none of ACK 5CX1 & 5CX2 is in service, or Y = Min (2770, 1370 + 0.64 * REV MW) if none of ACK 5CX1 & 5CX2 is in service Z = 48L KET if DTT 48L is armed, or Z = 0 if DTT 48L is not armed If TSA-PM alarms "VIOLATION_5L76_NORM_RATING", the BC Hydro Control Centre staff shall take the following actions to bring the flow on 5L76 ACK below the rating within 30 minutes: Reduce REV or SIE generation, or Reduce flow on 2L112 from BDY to NLY, or Reduce import from Alberta
5L92	Same as Table A
5L94	Same as Table A
Bypass GUI	No shedding required.
5L91 (1P) or 5L96 (1P) or 5L98 (1P)	No shedding required.

Table 1.14 – 5L81 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

- Notes 2 and 3 in Section 2
- 5L87 contingency: Limit (5L82 + 5L83 + 5L87) NIC < 4300 MW when BCH load >= 8500 MW.

If TSAPM alarms "Voltage instability for a loss of 5L87", the BC Hydro Control Centre staff shall increase NI generation.

• 2L20 contingency:

Limit: 5L44 MDN + 0.11 * 2L20 CSQ <= 5L44 Over Rating

If TSA-PM alarms "VIOLATION_5L44 MDN OVER RATING_2L20CTG", then the BC Hydro Control Centre staff shall take the following actions:

- Reduce flow on 2L129 ARN, or
- Reduce generation in SI and increase generation in Peace or North Coast Area, or
- Reduce export to US on 5L51 and 5L52.
- 2L22 contingency:

Limit: 5L44 MDN + 0.41 * 2L22 MDN <= 5L44_Over_Rating If TSA-PM alarms "VIOLATION_5L44 MDN OVER RATING_2L22CTG", then the BC Hydro Control Centre staff shall take the following actions:

- Reduce flow on 2L129 ARN, or
- Reduce generation in SI and increase generation in Peace or North Coast Area, or
- Reduce export to US on 5L51 and 5L52.
- 2L129 contingency:

Limit: 5L44 MDN + 0.58 * 2L129 VIT <= 5L44_Over_Rating

If TSA-PM alarms "VIOLATION_5L44 MDN OVER RATING_2L129CTG", then the BC Hydro Control Centre staff shall take the following actions:

- Reduce flow on 2L129 VIT, or
- Reduce generation in SI and increase generation in Peace or North Coast Area, or
- Reduce export to US on 5L51 and 5L52.

Generation Shedding Requirements

5L81 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Note: Tables E and F are applicable to this Table.

CONTINGENCY	SHEDDING REQUIREMENTS
5L76	ACK 5CB8 in service: No Generation shedding ACK 5CB8 O.O.S.: (5L76 contingency will trip open 5L75) If REV Gen <= 2000 MW, shed at REV: 1.05 * ((5L75 + 5L77) REV + (5L91 + 5L96) SEL – 4040) MW AND If REV 5CB9 is O.O.S., REV G1 and G2 must be selected for shedding.
5L79	No Generation shedding.
5L82 (TSA-PM must treat it as "5L81 AND 5L82" contingency to obtain required RAS functions)	G1 = 3.35 * [5L83 NIC + 0.5 * (5L81 + 5L82) NIC - 5L83_Over_Rating] G2 = 3.24 * [5L87 NIC + 0.41 * (5L81 + 5L82) NIC - 5L87_Over_Rating] G3 = 6.56 * [2L112 NLY + 0.06 * (5L81 + 5L82) NIC - NLYPST_OL_PickupMW] G4 = 6.97 * [2L293 SEL + 0.05 * (5L81 + 5L82) NIC - 2L293OLRAS_PickupMW] GS = Max (0, G1, G2, G3, G4)
	 If AB to BC >= 500 MW AND GS >= 1500 MW, then Arm DTT 5L94, and Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and Shed at MCA/REV first : 0.93 * (GS – AB to BC) Then at SEV/KCL/ALH/WAN/BRX/WAX/GMS/PCN: 1.31 * [0.93 * (GS – AB to BC)-the armed gen-shedding amount at MCA/REV]. Do not select GMS/PCN for shedding if G2 > 0. Total armed generation shedding must be limited to (2500 – AB to BC) MW
	 If AB to BC < 500 MW or [AB to BC >= 500 MW AND GS < 1500], then Shed at MCA/REV first : GS Then at SEV/KCL/ALH/WAN/BRX/WAX/GMS/PCN: 1.31 * (GS – the armed gen-shedding amount at MCA/REV). Do not select GMS/PCN for shedding if G2 > 0. Total armed generation shedding must be limited to 2500 MW If generation shedding is armed, the minimum units on line requirements post-shedding at MCA, REV, SEV, KCL, WAN, ALH, BRX, WAX and the equivalent SEV units specified in Note 14 in Section 3 shall be applied.
5L83	G1 = 3.52 * [5L82 NIC + 0.47 * (5L81 + 5L83) NIC - 5L82 Over Rating]

(TSA-PM must treat it as "5L81 AND 5L83" contingency to obtain required RAS functions) G2= 3.12 * [5L87 NIC + 0.42 * (5L81 + 5L83) NIC - 5L87_Over_Rating] G3 = 6.68 * [2L112 NLY + 0.06 * (5L81 + 5L83) NIC - NLYPST_OL_PickupMW] G4 = 7.18 * [2L293 SEL + 0.05 * (5L81 + 5L83) NIC - 2L293OLRAS_PickupMW]

GS = Max (0, G1, G2, G3, G4)

- If AB to BC >= 500 MW AND GS >= 1500 MW, then
- Arm DTT 5L94, and
- Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and
- Shed at MCA/REV first: 0.93 * (GS AB to BC)
- Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.37 * [0.93 * (GS AB to BC) the armed gen-shedding amount at MCA/REV]. If G2 > 0, do not select GMS and PCN for shedding.
- Total armed generation shedding must be limited to (2500 AB to BC) MW

If AB to BC < 500 MW or [AB to BC >=500 MW AND GS < 1500] , then

- Shed at MCA/REV first: GS
- Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.37 * (GS the armed gen-shedding amount at MCA/REV). If G2 > 0, do not select GMS and PCN for shedding.
- Total armed generation shedding must be limited to 2500 MW.

If generation shedding is armed, the minimum units on line requirements post-shedding at MCA, REV, SEV, KCL, WAN, ALH, BRX, WAX and the equivalent SEV units specified in Note 14 in Section 3 shall be applied.

5L82 and 5L83	G1 = 4.0 * [5L41 KLY + 0.44 * (5L82 + 5L83) NIC - 5L41 Over Rating]
	G2 = 5.3 * [5L42 KLY + 0.44 * (5L82 + 5L83) NIC - 5L42_Over_Rating]
	G3 = 1.7 * [5L87 NIC + 0.83 * (5L82 + 5L83) NIC - 5L87_Over_Rating]
	$G4 = 5.8 \times [2L112 \text{ NLY} + 0.11 \times (5L82 + 5L83) \text{ NIC} - \frac{\text{NLYPST}OL_PickupMW}{\text{NLYPST}OL_PickupMW}]$
	$G5 = 6.3 * [2L293 SEL + 0.10 * (5L82 + 5L83) NIC - 2L293OLRAS_PICkupMW]$
	GS = Max (0, G1, G2, G3, G4, G5)
	If AB to BC >= 500 MW AND GS >= 1500 MW, then
	Arm DTT 51.94 and
	Arm DTT 11 274 and DTT 11 275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and
	 Shed at MCA/REV: 0.93 * (GS – AB to BC)
	• Then at SEV/ALHWAN/BRX/WAX/KCL/GMS/PCN ⁻ 1.36 * [0.93 * (GS – AB to BC) – the armed gen-shedding amount
	at MCA/REV1 If G3 > 0, do not select GMS and PCN for shedding
	 Total armed generation shedding must be limited to (2500 - AB to BC) MW
	If AB to BC < 500 MW or [AB to BC >=500 MW AND GS < 1500], then
	Shed at MCA/REV: GS
	• Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.36 * (GS – the armed gen-shedding amount at
	MCA/REV). If $G3 > 0$, do not select GMS and PCN for shedding.
	I otal armed generation shedding must be limited to 2500 MW.
	If generation shedding is armed, the minimum units on line requirements post-shedding at MCA, REV, SEV, KCL, WAN
	ALE BRX WAX and the equivalent SEV units specified in Note 14 in Section 3 shall be applied
Bypass AMC 5CX2	No shedding required
-)	
Bypass RYC 5CX1	No shedding required
5L76 and 5L79	Tables A, B, C and D are applicable to this contingency
5L87	Shed at REV/MCA: 2.4 * (0.22 * 5L87 NIC + 5L44 MDN + 50 – 5L44 Over Rating)
5L91 and 5L96	Tables A, B, C and D are applicable to this contingency
5L44	GS1 = 3.5 * (5L41KLY + 0.38 * 5L44MDN – 5L41_Over_Rating)
	$GS2 = 10^{(2L20CSQ + 0.23^{5}L44 MDN - 2L20_Over_Rating)}$
	$GS3 = 26^{\circ} (2L51COK + 0.1^{\circ} 5L44MDN - 2L51COK_OVer_Rating)$
	M = MAX (GS1 GS2 GS3 0)
	$Y = 21 112 \text{ NL} Y + 0.08 \times 51.44 \text{ MDN} - 0.17 \text{ M}$
	Z = 2L293 SEL + 0.07 * 5L44 MDN - 0.15 * M
	If Y > NLYPST_OL_PickupMW,
	R1 = 0.36 * (Y - NLYPST_OL_ResetMW)
	R3 = 0.08 * (Y - NLYPST_OL_ResetMW)
	$[R5 = 0.03^{\circ} (Y - NLYPS1_OL_Reset WV)]$
	Eiser (1 - 0, R3 - 0, R3 - 0)
	If Z > 2L293OLRAS_PickupMW.
	R2 = 0.44 * (Z - 2L2930LRAS ResetMW)
	R4 = 0.10 * (Z - 2L293OLRAS_ResetMW)
	R6 = 0.03 * (Z - 2L293OLRAS_ResetMW)
	Else R2 = 0, R4 = 0, R6 = 0.
	Ra = MAX (R1, R2)
	RD = MAX (R3, R4)
	$\mathbf{R} = \mathbf{M} \mathbf{A} \mathbf{X} (\mathbf{R} \mathbf{S}, \mathbf{R} \mathbf{O})$
	Shed at MCA/REV first, and then GMS/PCN the greatest of:
	D1 * (GS1 + 3.5* Ra)
	D2*(GS2+10*Rb)
	D3 * (GS3 + 26* Rc)
	Where:
	D1 = 1.0 if shedding at MCA/REV, or
	$D^{2} = 1.0$ if shedding at MCA/PEV, or
	D2 = 1.0 if shedding at GMS/PCN
	$D_2 = 1.0$ if shedding at MCA/REV or
	D3 = 1.25 if shedding at GMS/PCN,
	Total armed generation shedding must be limited to 2500 MW. If exceeding the limit, the Operator can take the following
	actions:
	Reduce the flow on 2L129 from ARN to VII. Reduce St generation and increase Rease generation
51.91	Tables A. B. C and D are applicable to this contingency
51.96	Arm DTT 48L if 5L96 SEL > 800 MW AND if VAS-WTS loop is closed
	Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of:
	> 1.25 * (5L91 SEL + 5L96 SEL + $Z - Y$), or
	$\geq 2.59 * (2L112 \text{ NLY} + 0.22 * (5L96 \text{ SEL} + Z) - 400), \text{ or}$
	2.59 * (2L112 NLY + BDY Gen + 0.22* (5L96 SEL + Z) – 1180), or
	> $3.34 \times (2L293 \text{ SEL} + 0.16 \times (5L96 \text{ SEL} + Z) - 400)$, and do not shed WAN for this requirement.
	Y = 2200 if at least one of ACK 5CX1 & 5CX2 is in service, or
	7 - 1900 IL NOTE OLAUN DUN LA DUNZ IS IN SERVICE AND ALL SEL LI & 12 & 14 ARE IN SERVICE 7 - 481 KET if DTT 481 is armed or
	Z = 40 k E m D m 40 L is anneu, of Z = 0 if DTT 48L is not armed

5L98	 If VAS-VNT loop is closed, then Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: > 1.86 * (5L91 SEL + 5L98 VAS - Y), or > 2.78 * (2L112 NLY + 0.18 * 5L98 VAS - 400), or > 3.82 * (2L293 SEL + 0.15 * 5L98 VAS - 400), and do not shed WAN for this requirement. Y = 1910 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1800 if none of ACK 5CX1 & 5CX2 is in service Otherwise, Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: > 1.86 * (5L91 SEL + 5L98 VAS - Y), or > 2.60 * (5L91 SEL + 5L98 VAS - Y), or
	 2.68 (2L112 NLY + 0.21 * 5L98 VAS - 400), or 3.69 * (2L293 SEL + 0.17 * 5L98 VAS - 400), and do not shed WAN for this requirement. Y = 1950 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1770 if none of ACK 5CX1 & 5CX2 is in service
5L96 & 5L98	 Arm DTT 48L if 5L96 SEL > 800 MW AND if both VAS-WTS and VAS-VNT loops are closed. Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: > 1.25* (5L91 SEL + 5L96 SEL + Z - Y), or > 2.88* (2L112 NLY + 0.25* (5L96 SEL + Z) - 400), or > 2.88* (2L112 NLY + BDY Gen + 0.25* (5L96 SEL + Z) - 1160) or > 3.24* (2L293 SEL + 0.19* (5L96 SEL + Z) - 400), and do not shed WAN for this requirement. Y = 2170 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1830 if none of ACK 5CX1 & 5CX2 is in service Z = 48L KET if DTT 48L is armed, or Z = 0 if DTT 48L is not armed
5L92	Same as Table A
5L94	Same as Table A
Bypass GUI	No shedding required.
5L91 (1P) or 5L96 (1P) or 5L98 (1P)	No shedding required.

Table 1.15 – 5L82 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

- Notes 2 and 3 in Section 2
- 5L87 contingency:
 - Limit (5L81 + 5L83 + 5L87) NIC < 4300 MW when BCH load >= 8500 MW.

If TSAPM alarms "Voltage instability for a loss of 5L87", the BC Hydro Control Centre staff shall increase NI generation.

Generation Shedding Requirements 5L82 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops) Note: Tables E and F are applicable to this Table.

CONTINGENCY	SHEDDING REQUIREMENTS
5L76	Same as Table 1.14 – 5L81 O.O.S.
5L79 5L81 (TSA-PM must treat it as "5L81 AND 5L82" contingency to obtain required RAS functions)	No Generation shedding. G1 = 3.35 * [5L83 NIC + 0.45 * (5L81 + 5L82) NIC - 5L83_Over_Rating] G2 = 3.15 * [5L87 NIC + 0.45 * (5L81 + 5L82) NIC - 5L87_Over_Rating] G3 = 6.66 * [2L112 NLY + 0.07 * (5L81 + 5L82) NIC - NLYPST_OL_PickupMW] G4 = 7.04 * [2L293 SEL + 0.06 * (5L81 + 5L82) NIC - 2L293OLRAS_PickupMW] GS = Max (0, G1, G2, G3, G4)
	 If AB to BC >= 500 MW AND GS >= 1500 MW, then Arm DTT 5L94, and Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and
	 Shed at MCA/REV first: 0.93 * (GS – AB to BC) Then at SEV/KCL/ALH/WAN/BRX/WAX/GMS/PCN: 1.32 * [0.93*(GS – AB to BC)-the armed gen-shedding amount at MCA/REV]. Do not select GMS/PCN for shedding if G2 > 0. Total armed generation shedding must be limited to (2500 – AB to BC) MW
	 If AB to BC < 500 MW or [AB to BC >= 500 MW AND GS < 1500], then Shed at MCA/REV first : GS Then at SEV/KCL/ALH/WAN/BRX/WAX/GMS/PCN: 1.32 * (GS – the armed gen-shedding amount at MCA/REV). Do not select GMS/PCN for shedding if G2 > 0. Total armed generation shedding must be limited to 2500 MW
	If generation shedding is armed, the minimum units on line requirements post-shedding at MCA, REV, SEV, KCL, WAN, ALH, BRX, WAX and the equivalent SEV units specified in Note 14 in Section 3 shall be applied.
5L83 (TSA-PM must treat it as "5L82 AND 5L83" contingency to obtain required RAS functions)	$ \begin{array}{l} G1 = 6.9* [5L42 \ \text{KLY} + 0.27* (5L82 + 5L83) \ \text{NIC} - 5L42 \ \text{Over} \ \text{Rating}] \\ G2 = 3.4* [5L81 \ \text{NIC} + 0.44* (5L82 + 5L83) \ \text{NIC} - 5L81 \ \text{Over} \ \text{Rating}] \\ G3 = 3.0* [5L87 \ \text{NIC} + 0.47* (5L82 + 5L83) \ \text{NIC} - 5L87 \ \text{Over} \ \text{Rating}] \\ G4 = 7.3* [2L112 \ \text{NLY} + 0.05* (5L82 + 5L83) \ \text{NIC} - \frac{\text{NLYPST} \ \text{OL} \ \text{PickupMW}] \\ G5 = 7.8* [2L293 \ \text{SEL} + 0.05* (5L82 + 5L83) \ \text{NIC} - 2L293 \ \text{OLRAS} \ \text{PickupMW}] \\ \end{array} $
	 GS = Max (0, G1, G2, G3, G4, G5) If AB to BC >= 500 MW AND GS >= 1500 MW, then Arm DTT 5L94, and Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and Shed at MCA/REV: 0.93 * (GS – AB to BC) Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.37 *[0.93 * (GS – AB to BC) – the armed gen-shedding amount at MCA/REV]. If G3 > 0, do not select GMS/PCN for shedding. Total armed generation shedding must be limited to (2500 - AB to BC) MW If AB to BC < 500 MW or [AB to BC >=500 MW AND GS < 1500], then
	 Shed at MCA/REV: GS Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.37 * (GS – the armed gen-shedding amount at MCA/REV). If G3 > 0, do not select GMS/PCN for shedding. Total armed generation shedding must be limited to 2500 MW. If generation shedding is armed, the minimum units on line requirements post-shedding at MCA, REV, SEV, KCL, WAN, Alaberta DEX WAX and the arminement of 200 MW.
5L81 and 5L83	$\begin{array}{l} \text{ALT, DRA, WAA and the equivalent SEV units specified in Note 14 in Section 3 shall be applied.} \\ \text{G1} = 5.03 * [5L41 \text{ KLY} + 0.31 * (5L81 + 5L83) \text{ NIC} - 5L41_Over_Rating]} \\ \text{G2} = 4.21 * [5L42 \text{ KLY} + 0.39 * (5L81 + 5L83) \text{ NIC} - 5L42_Over_Rating]} \\ \text{G3} = 1.79 * [5L87 \text{ NIC} + 0.81 * (5L81 + 5L83) \text{ NIC} - 5L87_Over_Rating]} \\ \text{G4} = 4.99 * [2L112 \text{ NLY} + 0.13 * (5L81 + 5L83) \text{ NIC} - \text{NLYPST_OL_PickupMW}] \\ \text{G5} = 5.27 * [2L293 \text{ SEL} + 0.12 * (5L81 + 5L83) \text{ NIC} - 2L293 \text{ OLRAS_PickupMW}] \\ \text{GS} = \text{Max} (0, \text{G1}, \text{G2}, \text{G3}, \text{G4}, \text{G5}) \end{array}$
	 If AB to BC >= 500 MW AND GS >= 1500 MW, then Arm DTT 5L94, and Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and Shed at MCA/REV: 0.93 * (GS – AB to BC) Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.30 *[0.93 * (GS – AB to BC) – the armed gen-shedding amount at MCA/REV]. If G3 > 0, do not select GMS/PCN for shedding. Total armed generation shedding must be limited to (2500 - AB to BC) MW
	 If AB to BC < 500 MW or [AB to BC >=500 MW AND GS < 1500], then Shed at MCA/REV: GS Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.30 * (GS- the armed gen-shedding amount at MCA/REV). If G3 > 0, do not select GMS/PCN for shedding. Total armed generation shedding must be limited to 2500 MW.
Bypass AMC 5CX1	If generation shedding is armed, the minimum units on line requirements post-shedding at MCA, REV, SEV, KCL, WAN, ALH, BRX, WAX and the equivalent SEV units specified in Note 14 in Section 3 shall be applied. No shedding required
Bypass RYC 5CX1	No shedding required

	Tables A. D. C. and D. and an alicable to this continuous
	Tables A, D, C and D are applicable to this contingency
5L87	Shed at REV/MCA: 1.1 * [(5L81 + 5L83 + 5L87) NIC – 4400] MW
5L91 and 5L96	Tables A. B. C and D are applicable to this contingency
5 44	GS1 = 3.5 * (5).81NIC + 0.3 * 5).44MDN - 5).81 Over Bating)
0244	$GS2 = 14.5 \times (2120S) + 0.2 \times 51.44 \text{ MDN} = 21.20 \text{ Over Rating}$
	CS2 = 14.5 (21200C9(+0.12) 5144 MDN - 2120 OVE - (Aury)
	$GS3 = 39.5$ (2L51COK + 0.1 SL44MDN - 2L51COK_OVEL_Kalling)
	M = MAX (GS1, GS2, GS3, 0)
	Y = 2L112 NLY + 0.04 * 5L44 MDN - 0.13 * M
	Z = 2L293 SEL + 0.04 * 5L44 MDN – 0.11 * M
	D = 0.20 * (V = NI V D = T O = D = 24 M M)
	$P_{1} = 0.30$ (1 - NETFST OL RESERVIN)
	R5 = 0.03 * (Y - NLYPST_OL_ResetMW)
	Else R1 = 0, R3 = 0, R5 = 0.
	If Z > 2L293OLRAS PickupMW.
	$R2 = 0.45 * (Z - \overline{Z}L293OLRAS Reset MW)$
	B4 = 0.1 * (7 - 212930) BAS Beset MW)
	$P_{0} = 0.035 * (7 - 2).2030 P_{0}S_{0} = 0.001 P_{0}(1 - 2).2030 P_{0}(1 - 2).203$
	EISERZ = 0, R4 = 0, R0 = 0.
	Ra = MAX (R1, R2)
	Rb = MAX (R3, R4)
	Rc = MAX (R5, R6)
	 Shed at MCA/REV first and then GMS/PCN the greatest of:
	\sim D1*(CS1+3.5*Pa)
	\sim D1 (C21 + 1.5 TM)
	$\sim D2 (G32 + 14.3 KD)$
	▷ D3 * (GS3 + 39.5* RC)
	Where:
	D1 = 1.0 if shedding at MCA/REV, or
	D1 = 1.6 if shedding at GMS/PCN,
	D2 = 1.0 if shedding at MCA/REV. or
	$D_2 = 1.0$ if shedding at GMS/PCN
	$D_2 = 1.0$ if shedding at MCA/PEV or
	D2 = 1.0 if Shedding at MCA/NE V, 01
	D3 = 1.13 II shedding at GMS/PCN,
	I total armed generation shedding must be limited to 2500 MW. If exceeding the limit, the Operator can take the following
	actions:
	Reduce the flow on 2L129 from ARN to VIT.
	Reduce SI generation and increase Peace generation
5L91	Tables A. B. C and D are applicable to this contingency
5L96	Same as Table 1, 14 – 5L81 O.O.S.
51.98	Same as Table 1 14 – 51 81 0 0 S
51 96 & 51 98	Same as Table 1.14 $-$ 51.81 \cap \cap S
51.02	
	Same on Table A
	Same as Table A
Bypass GUI	No sneading required.
5L91 (1P) or 5L96 (1P) or	
5L98 (1P)	No shedding required.

Table 1.16 – 5L83 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

- Notes 2 and 3 in Section 2
- 5L87 contingency: •
 - Limit (5L81 + 5L82 + 5L87) NIC < 4300 MW when BCH load >= 8500 MW.

If TSAPM alarms "Voltage instability for a loss of 5L87", the BC Hydro Control Centre staff shall increase NI generation.

Generation Shedding Requirements

5L83 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops) Note: Tables A, B, C, D, E and F are applicable to this Table.

CONTINGENCY	SHEDDING REQUIREMENTS
5L81	Shed at MCA/REV: GS + 3.31 * M Where GS and M are calculated as follows: GS = Max (0, 3.31 * (5L82 NIC + 0.46 * 5L81 NIC - 5L82_Over_Rating)) Y = 2L112 NLY + 0.05 * 5L81 NIC - 0.15 * GS Z = -2L293 NLY + 0.05 * 5L81 NIC - 0.14 * GS If Y > NLYPST_OL_PickupMW, M1 = 0.38 * (Y - NLYPST_OL_ResetMW), Else M1 = 0 If Z > 2L293OLRAS_PickupMW, M2 = 0.46 * (Z - 2L293OLRAS_Reset MW), Else M2 = 0 M = Max (M1, M2)
5L82	Shed at MCA/REV: GS + 3.34 * M
	Where GS and M are calculated as follows: GS = Max (0, 3.34 * (5L81 NIC + 0.43 * 5L82 NIC - 5L81_Over_Rating)) Y = 2L112 NLY + 0.05 * 5L82 NIC - 0.14 * GS Z = -2L293 NLY + 0.04 * 5L82 NIC - 0.14 * GS If Y > NLYPST OL PickupMW, M1 = 0.38 * (Y - NLYPST OL ResetMW), Else M1 = 0 If Z> 2L293OLRAS PickupMW, M2 = 0.46 * (Z - 2L293OLRAS ResetMW), Else M2 = 0 M = Max (M1, M2)
5L87	Shed at REV/MCA: 1.1 * [(5L81 + 5L82 + 5L87) NIC – 4400] MW
5L44	Same as 5L82 O.O.S Table 1.15.
5L81 and 5L82	If generation shedding is armed, the minimum units on line requirements post-shedding at MCA, REV, SEV, KCL, WAN, ALH, BRX, WAX and the equivalent SEV units specified in Note 14 in Section 3 shall be applied. If 2L112 NLY < 200 MW OR 0.10 * (5L81 + 5L82) NIC + 2L293 SEL > 420, then GS is the greater of: 1.13 * [(5L81 + 5L82 + 5L87) NIC + (2L92 + 2L93) SVA + 2L112 NLY - 2250], or 1.15 * [(5L81 + 5L82) NIC + (5L41 + 5L42 + 2L90) KLY + 2L112 NLY - 3800] If 2L112 NLY >= 200 AND 0.10 * (5L81 + 5L82) NIC + 2L293 SEL <= 420, then GS is the greater of: 1.18 * [(5L81 + 5L82 + 5L87) NIC + (2L92 + 2L93) SVA - 2250], or 1.20 * [(5L81 + 5L82 + 5L87) NIC + (5L41 + 5L42 + 2L90) KLY - 3800]
	<pre>If AB to BC >= 500 MW AND GS >= 1500 MW, then</pre>
	 2L112 NLY < 200 AND GS > 0, or 0.10* (5L81 + 5L82) NIC + 2L293 SEL > 420

Table 1.17 - 5L87 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

• Notes 2 and 3 in Section 2

Generation Shedding Requirements 5L87 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops) Note: Table E is applicable to this Table.

SL75 (SP) ACK SCB5 0.0.5; (SL75 contingency will tip open SL76) Sume Status gen streading as SL75 contingency will tip open SL76) Sume Status gen streading as SL75 contingency will tip open SL76) Sume Status gen streading as SL75 (CP) and SL77 (CP) Same as Table F SL75 (CP) Same as Table F	CONTINGENCY	SHEDDING REQUIREMENTS
ACK SIGE OL S: (BL75 contingency will ingreen SL76) Same as Table F SL75 (P) Same as Table F SL75 (P) and SL77 (P) Same as Table F SL76 (P) and SL77 (P) Same as Table F SL76 (P) and SL77 (P) Same as Table F SL76 (P) and SL77 (P) Same as Table F SL76 (P) and SL77 (P) Same as Table F SL76 SL76 (P) and SL77 (P) Same as Table F SL76 SL76 (P) and SL77 (P) Same as Table F SL76 (P) and SL77 (P) Same as Table F SL76 (P) and SL77 (P) Same as Table F SL76 (P) and SL77 (P) Same as Table F SL76 (P) and SL77 (P) Same as Table F SL76 (P) and SL77 (P) Same as Table F	5L75 (3P)	ACK 5CB5 in service: Same as Table F
BJ7 (3P) Same as Table F BJ75 (1P) Same as Table F SJ75 (1P) and SJ77 (3P) Same as Table F SJ76 (1P) and SJ77 (3P) Same as Table F SJ76 (1P) and SJ77 (3P) Same as Table F SJ76 (1P) and SJ77 (3P) Same as Table F SJ76 (1P) and SJ77 (3P) Same as Table F SJ76 (1P) and SJ77 (3P) Same as Table F SJ76 (1P) and SJ77 (3P) Same as Table F SJ76 (1P) and SJ77 (3P) Same as Table F SJ76 (1P) and SJ77 (3P) Same as Table F SJ76 (1P) and SJ77 (3P) Same as Table F SJ76 (1P) and SJ77 (3P) Same as Table F SJ76 (1P) and SJ77 (3P) Same as Table F SJ76 (1P) and SJ77 (3P) Same as Table F SJ76 (1P) and SJ77 (3P) Same as Table F SJ76 (2P) and SJ77 (3P) Same as Table F SJ76 (2P) and SJ77 (3P) Same as Table F		ACK 5CB5 O.O.S.: (5L75 contingency will trip open 5L76)
BL75 (tr) Same as Table F SL77 (tP) Same as Table F SL75 (tP) and SL77 (tP) Same as Table F SL75 (tP) and SL77 (tP) Same as Table F SL75 (tP) and SL77 (tP) Same as Table F SL75 (tP) and SL77 (tP) Same as Table F SL75 (tP) and SL77 (tP) Same as Table F SL76 (tP) and SL77 (tP) Same as Table F SL76 (tP) and SL77 (tP) Same as Table F SL76 (tP) and SL77 (tP) Same as Table F SL76 (tP) and SL77 (tP) Same as Table F SL76 (tP) and SL77 (tP) Same as Table F SL79 Same as Table F Same as Table F SL79 Same as Table F SL79 Same age nshedding as SL75 contrigency with AcK SCB8 in service. SL81 GS1 = Max (0, 22 st (LSL2 ML N + 0.65 * SL81 MIC - 0.16 * CS1 2 = 2.213 NLY + 0.06 * SL81 MIC - 0.16 * CS1 2 = 2.223 NLY + 0.06 * SL81 MIC - 0.16 * CS1 2 = 2.223 NLY + 0.06 * SL81 MIC - 0.16 * CS2 2 = 2.223 NLY + 0.06 * SL81 MIC - 0.16 * CS2 2 = 2.223 NLY + 0.06 * SL81 MIC - 0.16 * CS2 2 = 2.223 NLY + 0.06 * SL81 MIC - 0.16 * CS2 2 = 2.223 NLY + 0.06 * SL81 MIC - 0.16 * CS2 2 = 2.223 NLY + 0.06 * SL81 MIC - 0.16 * CS2 2 = 2.223 NLY + 0.06 * SL81 MIC - 0.16 * CS2 2 = 2.223 NLY + 0.06 * SL81 MIC - 0.16 * CS2 2 = 2.223 NLY + 0.06 * SL81 MIC - 0.16 * CS2 2 = 2.223 NLY + 0.06 * SL81 MIC -	5L77 (3P)	Same as Table F
BJ7 (1P) Same as Table F SJ75 (1P) and SJ77 (2P) Same as Table F SJ75 (1P) and SJ77 (2P) Same as Table F SJ75 (1P) and SJ77 (2P) Same as Table F SJ75 (1P) and SJ77 (2P) Same as Table F SJ75 (1P) and SJ77 (2P) Same as Table F SJ75 (1P) and SJ77 (2P) Same as Table F SJ75 (1P) and SJ77 (2P) Same as Table F SJ75 (1P) and SJ77 (2P) Same as Table F SJ75 (1P) and SJ77 (2P) Same as Table F SJ75 (1P) and SJ77 (2P) Same as Table F SJ75 (1P) and SJ77 (2P) Same as Table F SJ75 (1P) and SJ77 (2P) Same as Table F SJ75 (1P) and SJ77 (2P) Same as Table F SJ75 (1P) and SJ77 (2P) Same as Table F SJ75 (1P) and SJ77 (2P) SJ51 (1P) and SJ75 (2P) a	5L75 (1P)	Same as Table F
EU-5 (EP) and 5L77 (2P) Same as Table F EU-5 (2P) and 5L77 (2P) Same as Table F SL75 (2P) and 5L77 (2P) Same as Table F SL75 (2P) and 5L77 (2P) Same as Table F SL75 (2P) and 5L77 (2P) Same as Table F SL75 (2P) and 5L77 (3P) Same as Table F SL75 (2P) and 5L77 (3P) Same as Table F SL75 (2P) and 5L77 (3P) Same as Table F SL75 (2P) and 5L77 (3P) Same as Table F SL75 (2P) and 5L77 (3P) Same as Table F SL75 (2P) and 5L77 (3P) Same as Table F SL75 (2P) and 5L77 (3P) Same as Table F SL75 (2P) and 5L77 (3P) Same as Table F SL75 (2P) and 5L77 (3P) Same as Table F SL75 (2P) and 5L77 (3P) Same as Table F SL75 (2P) and 5L77 (3P) Same as Table F SL75 (2P) and 5L77 (3P) Same as Table F SL75 (2P) and 5L77 (3P) Same as Table F SL75 (2P) and 5L77 (3P) Same as Table F SL75 (2P) (2P) (2P) (2P) (2P) (2P) (2P) (2P)	5I 77 (1P)	Same as Table F
61.25 (3P) and 51.77 (3P) Same as Table F 62.75 (3P) and 51.77 (3P) ACK SCBB ns protect: 51.76 ACK SCBB ns protect: 91.76 (3P) and 51.77 (3P) Same as Table F 91.76 (3P) and 51.77 (3P) ACK SCBB ns protect: 91.76 (3P) and 51.77 (3P) Ack SCBB ns protect: 91.76 (3P) and 51.77 (3P) Shed at REV: 1.03* (GL75 + SL77) REV + (SL91 + SL96) SEL - 4270) MW ACK SCBB ns protect: Shed at REV: 1.03* (GL75 + SL77) REV + (SL91 + SL96) SEL - 4270) MW V > Shed at REV: 1.03* (GL75 + SL77) REV + (SL91 + SL96) SEL - Y) MW V = 4100 if REV Gen = 2000 MW; or 2200 MW; or 2200 MW AND • If REV SCB9 is 0.0.5., REV G1 and G2 must be selected for shedding. SL81 GS1 = Max (0, 2.25* (GL44 MDN + 0.68* SL81 NIC - 0.16* CS1 22.2232 MIX + 0.06* SL81 NIC - 0.16* CS1 2 = 2.123.01 MI + 0.06* SL81 NIC - 0.16* CS1 2.2.2230 CLAS Protection MM; M1 = 0.33* (Y • NLYPST OL ResetMW; Else M1 = 0 If Z > 2.1230 XI X + 0.06* SL81 NIC - 0.16* CS2 2.2.230 CLAS Protection MW; R1 = 0.37* (Y • NLYPST OL ResetMW; Else R2 = 0 M = Max (M1, M2) Gen shed at MCA/REV: CS2 + 3.69* R Gen shed at MCA/REV: CS2 + 3.69* R Sted at MCA/REV: CS + 3.58* M Where GS and M are calculated as follows: GS = 2.2.230 CLRAS	5L75 (1P) and 5L77 (3P)	Same as Table F
St.75 (3P) and 5L77 (3P) Same as Table F 5L76 ACK SCDB in service: ACK SCDB in service: 5L76 ACK SCDB in service: ACK SCDB in service: 6L76 ACK SCDB in service: ACK SCDB in service: 6L76 Service: ACK SCDB in service: 9 Hold IR EV Cen < 2000 MW, or Y = 41001 REV Cen < 2000 MW, or Y = 4101 REV Cen < 2100 MM, or Cen	5L75 (3P) and 5L77 (1P)	Same as Table F
5L76 ACK 5GB8 in service: • If REV Gen <= 2000 MW, shed at REV: 1.03* ((5L75 + 5L77) REV + (5L91 + 5L96) SEL - 4270) MW	5L75 (3P) and 5L77 (3P)	Same as Table F
• If REV Gen < 2000 MW, shed at REV: 1.03 * ((5L75 + 5L77) REV + (5L91 + 5L96) SEL - 4270) MW	5L76	ACK 5CB8 in service:
ACK50280_0_S1_G176 contingency will tip open 51.76) • Shed at REV: 1.03 (GL75 + SL7) REV + (5L91 + 5L96) SEL - Y) MW Y = 38001 REV Gen <= 2000 MW, or Y = 41001 REV Gen <= 2000 MW AND • If REV SCB8 is 0_O.S., REV G1 and G2 must be selected for shedding. 5L79 Same gen shedding as 5L76 contingency with ACK SCB8 in service. 5L81 GS1 = Max (0, 2.25 * (5L4 MDN + 0.68 * SLB1 NIC - 5L4 Over Rating)) GS2 = Max (0, 3.32 * (5L82 NIC + 0.43 * SLB1 NIC - 5L4 Over Rating)) 5L81 GS1 = Max (0, 2.25 * (5L4 MDN + 0.68 * SLB1 NIC - 5L4 Over Rating)) GS2 = Max (0, 3.32 * (5L82 NIC + 0.15 * GS1 Z = -2.129 NL* + 0.06 * 5L81 NIC - 0.15 * (SS1 Z = -2.129 NL* + 0.06 * 5L81 NIC - 0.15 * (SS1 Z = -2.129 NL* + 0.06 * 5L81 NIC - 0.15 * (SS1 Z = -2.129 NL* + 0.06 * 5L81 NIC - 0.15 * (SS2 Z = -2.229 NL* + 0.06 * 5L81 NIC - 0.15 * (SS2 Z = -2.229 NL* + 0.06 * 5L81 NIC - 0.15 * (SS2 Z = -2.229 NL* + 0.06 * 5L81 NIC - 0.15 * (SS2 Z = -2.229 SUL* + 0.06 * 5L81 NIC - 0.15 * (SS2 Z = -2.229 SUL* + 0.06 * 5L81 NIC - 0.15 * (SS2 Z = -2.229 SUL* + 0.06 * 5L81 NIC - 0.15 * (SS2 Z = -2.229 SUL* + 0.06 * 5L81 NIC - 0.15 * (SS2 Z = -2.229 SUL* + 0.06 * 5L81 NIC - 0.15 * (SS2 Z = -2.229 SUL* + 0.06 * 5L81 NIC - 0.15 * (SS2 Z = -2.229 SUL* + 0.06 * 5L81 NIC - 0.15 * (SS2 Z = -2.229 SUL* + 0.06 * SL81 NIC - 0.16 * (SS Z = -2.229 SUL* + 0.06 * SL81 NIC - 0.16 * (SS Z = -2.229 SUL* + 0.06 * SL82 NIC - 0.15 * (SS Z = -2.229 SUL* + 0.06 * SL82 NIC - 0.15 * (SS Z = -2.229 SUL* + 0.06 * SL82 NIC - 0.15 * (SS Z = -2.229 SUL* + 0.06 * SL82 NIC - 0.15 * (SS Z = -2.229 SUL* + 0.06 * SL82 NIC - 0.15 * (SS Z = -2.229 SUL* + 0.06 * SL82 NIC - 0.15 * (SS Z = -2.229 SUL* + 0.06 * SL82 NIC - 0.15 * (SS Z = -2.229 SUL* + 0.06 * SL82 NIC - 0.15 * (SS Z = -2.229 SUL* + 0.06 * SL82 NIC - 0		 If REV Gen <= 2000 MW, shed at REV: 1.03 * ((5L75 + 5L77) REV + (5L91 + 5L96) SEL – 4270) MW
• Shed at REV: 1.03* ((5L75 + 5L77) REV + (5L91 + 5L96) SEL - Y) MW Y = 41001 REV Gen < 2000 MW, or		ACK 5CB8 O.O.S.: (5L76 contingency will trip open 5L75)
$ \begin{array}{c} Y = 3800 \text{ fr EV Gen} <= 2000 \text{ MW}, \text{ or } \\ Y = 4100 \text{ if REV Gen} > 2000 \text{ MW}, \text{ or } \\ X \text{ ND} \end{array} \\ \hline \\ \textbf{Summa eqns shedding as 5L76 contingency with ACK SCB8 in service.} \\ \hline \\ \textbf{Start max} (0, 225 (5L4 \text{ MD} N + 0.66 * SLB1 NIC - 5L4 A Over Rating.)) \\ \textbf{GS2 = Max} (0, 2.25 (5L4 \text{ MD} N + 0.66 * SLB1 NIC - 5L4 A Over Rating.)) \\ \hline \\ \textbf{GS2 = Max} (0, 2.32 * (5L4 \text{ SL}1 \text{ NIC } - 0.16 * \text{ GS1} \\ Z = .21293 \text{ NL Y} + 0.06 * 5L81 \text{ NIC } - 0.16 * \text{ GS1} \\ Z = .21293 \text{ NL Y} + 0.06 * 5L81 \text{ NIC } - 0.16 * \text{ GS1} \\ Z = .21293 \text{ NL Y} + 0.06 * 5L81 \text{ NIC } - 0.16 * \text{ GS1} \\ Z = .21293 \text{ NL Y} + 0.06 * 5L81 \text{ NIC } - 0.16 * \text{ GS1} \\ Z = .21293 \text{ NL Y} + 0.06 * 5L81 \text{ NIC } - 0.15 * \text{ GS1} \\ \hline \\ \textbf{H = Max} (M, M, M2) \\ \hline \\ \textbf{Gen shed at MCA/REV; \text{ GS1} + 2.57 * \text{ M} \\ \hline \textbf{If GS2 = GS1} \\ \textbf{Y} = 2.112 \text{ NL Y} + 0.06 * 5L81 \text{ NIC } - 0.16 * \text{ GS2} \\ Z = .21293 \text{ NL Y} + 0.06 * 5L81 \text{ NIC } - 0.16 * \text{ GS2} \\ Z = .21293 \text{ NL Y} + 0.06 * 5L81 \text{ NIC } - 0.16 * \text{ GS2} \\ Z = .21293 \text{ NL Y} + 0.06 * 5L81 \text{ NIC } - 0.16 * \text{ GS2} \\ \hline \textbf{If Y} = \text{ ML YBST OU PickupMW}, \text{ RI = 0.37 ' (Y - \text{ NL YPST OL_ResetMW}), \text{ Else R1 = 0} \\ \text{ If } Z > 2.239 \text{ OL XA}. \text{ PickupMW}, \text{ RI = 0.37 ' (Y - \text{ NL YPST OL_ResetMW}), \text{ Else R1 = 0} \\ \text{ If } Z > 2.239 \text{ OL XA}. \text{ PickupMW}, \text{ RI = 0.37 ' (Y - \text{ NL YPST OL_ResetMW}), \text{ Else R1 = 0} \\ \text{ If } Z > 2.239 \text{ OL XA}. \text{ PickupMW}, \text{ RI = 0.37 ' (Y - \text{ NL YPST OL_ResetMW}), \text{ Else R1 = 0} \\ \text{ If } Z > 2.239 \text{ OL XA}. \text{ PickupMW}, \text{ RI = 0.37 ' (Y - \text{ NL YPST OL_ResetMW}), \text{ Else M1 = 0} \\ \text{ If } Z > 2.239 \text{ OL XA}. \text{ OL S } 5.82 \text{ NIC - 0.16 ' GS} \\ Z = .2128 \text{ SUR Y = 0.05 ' 5.82 \text{ NIC - 0.15 ' GS} \\ \text{ If } Y > \text{ NL YPST OL_PickupMW}, \text{ MI = 0.37 ' (Y - \text{ NL YPST OL_ResetMW}), \text{ Else M1 = 0} \\ \text{ If } Z > 1.239 \text{ OL XA}. \text{ OL } 5.182 \text{ NIC - 0.16 ' GS} \\ Z = .2128 \text{ SOL XA} (0, 0.35 ' (\text{ SL 2} \text{ NIC - 0.16 ' GS} \\ Z = .2128 \text{ SOL XA} (0, 0.35 ' (\text{ SL 2} \text{ NIC - 0.16 ' GS} \\ Z = .2128 $		 Shed at REV: 1.03 * ((5L75 + 5L77) REV + (5L91 + 5L96) SEL – Y) MW
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$		Y = 3800 if REV Gen <= 2000 MW, or
AND • If REV 5CB9 is 0.0.S., REV G1 and G2 must be selected for shedding. 5L79 Same gen shedding as 5L76 contingency with ACK 5CB8 in service. SL81 GS1 = Max (0, 225 (5L4 MDN + 0.68 * SL81 NIC - 5L42_Over_Rating)) GS2 = Max (0, 3.22 (5L32 NIC + 0.43 * 5L81 NIC - 5L42_Over_Rating)) If GS1 = GS2, Y = 2L12 NLY + 0.06 * 5L81 NIC - 0.16 * GS1 Z = -2L293 NLY + 0.06 * 5L81 NIC - 0.16 * GS1 Z = -2L293 NLY + 0.06 * 5L81 NIC - 0.16 * GS1 Z = -2L293 NLY + 0.06 * 5L81 NIC - 0.16 * GS1 Z = -2L293 NLY + 0.06 * 5L81 NIC - 0.16 * GS1 Z = -2L293 NLY + 0.06 * 5L81 NIC - 0.16 * GS2 Z = -2L293 NLY + 0.06 * 5L81 NIC - 0.16 * GS2 Z = -2L293 NLY + 0.06 * 5L81 NIC - 0.16 * GS2 Z = -2L293 NLY + 0.06 * 5L81 NIC - 0.16 * GS2 Z = -2L293 NLY + 0.06 * 5L81 NIC - 0.16 * GS2 Z = -2L293 NLY + 0.06 * 5L81 NIC - 0.16 * GS2 Z = -2L293 NLY + 0.06 * 5L81 NIC - 0.16 * GS2 Z = -2L293 NLY + 0.06 * 5L81 NIC - 0.16 * GS2 Z = -2L293 NLY + 0.06 * 5L81 NIC - 0.16 * GS2 Z = -2L293 NLY + 0.06 * 5L81 NIC - 0.16 * GS2 Z = -2L293 NLY + 0.06 * 5L81 NIC - 0.16 * GS2 Z = -2L293 NLY + 0.06 * 5L81 NIC - 0.16 * GS2 Z = -2L293 NLY + 0.06 * 5L82 NIC - 0.16 * GS S = d at MCA/REV: GS + 3.64 * M		Y = 4100 if REV Gen > 2000 MW
If REV SCB9 is O.O.S., REV G1 and G2 must be selected for shedding. 5L79 Same gen shedding as 10 const, REV G1 and G2 must be selected for shedding. 5L81 GS1 = Max (0, 2.25 * (6L42 MDN + 0.68 * 5L81 NIC - 5L42_Over_Rating)) GS2 = Max (0, 3.32 * (6L42 MDN + 0.68 * 5L81 NIC - 5L42_Over_Rating)) If GS1 >= GS2, Y = 2L112 NLY + 0.06 * 5L81 NIC - 0.16 * GS1 Z = 2L230 NLY + 0.06 * 5L81 NIC - 0.15 * GS1 If Y > NLYPST OL_ProupMW, M1 = 0.53 * (Y - NLYPST OL_ResetMW), Else M1 = 0 If Z > 2L230 OLRAS_ProupMW, M2 = 0.65 * (Z - 2L293OLRAS_ResetMW), Else M2 = 0 M = Max (M1, M2) Gen shed at MCA/REV: GS1 + 2.57 * M If GS2 > GS1, Y > 2L112 NLY + 0.06 * 5L81 NIC - 0.15 * GS2 Z = 7L230 NLY + 0.06 * 5L81 NIC - 0.15 * GS2 If Y > NLYPST OL_ProupMW, R1 = 0.37 * (Y - NLYPST OL_ResetMW), Else R1 = 0 If Z > 2L230 OLRAS_ProupMW, R1 = 0.37 * (Y - NLYPST OL_ResetMW), Else R1 = 0 If Z > 2L230 OLRAS_ProupMW, R2 = 0.45 * (Z - 2L293OLRAS_ResetMW), Else R2 = 0 R = Max (R1, R2) Gen shed at MCA/REV: GS2 + 3.69 * R 5L82 Shed at MCA/REV: GS + 3.58 * M Where GS and M are celoulated as follows: GS = Max (0, 3.47 * (6L81 NIC + 0.39 * 5L82 NIC - 5L81_Over_Rating)) Y = 2L112 NLY + 0.05 * 6L82 NIC - 0.15 * GS If Y > NLYPST OL_ProupMW, M1 = 0.37 * (Y - NLYPST OL_ResetMW), Else M1 = 0 If Z > 2L230 OLRAS_ProupMW, M1 = 0.37 * (Y - NLYPST OL_ResetMW), Else M2 = 0 M = Max (01, 3.35 * (6L82 NIC + 0.05 * 5L82 NIC - 5L82_Over_Rating)) Y = 2L112 NLY + 0.05 * 5L82 NIC - 0.15 * GS If Y > NLYPST OL_ProupMW, M1 = 0.37 * (Y - NLYPST OL_ResetMW), Else M2 = 0 M = Max (01, M2) 5L83 Shed at MCA/REV: GS + 3.64 * M Where GS and M are calculated as follows: GS = Max		AND
bL/9 Same gen shedding as bL/6 contingency with ACK 5CB8 in service. 5L81 GS1 = Max (0, 2.25 '(5L44 MOX + 0.68 '5L81 NIC -5L44 Over Rating)) IGS2 = Max (0, 2.25 '(5L44 MOX + 0.68 '5L81 NIC -5L44 Over Rating)) If GS1 >= GS2, Y = 2L12 NLY + 0.06 '5L81 NIC - 0.16 ' GS1 Z = .2L293 NLY + 0.06 '5L81 NIC - 0.16 ' GS1 Z = .2L293 OLRAS PickupMW, M2 = 0.65 '(Z - 2L293OLRAS_ResetMW), Else M1 = 0 If Z > 2L293 OLRAS PickupMW, M2 = 0.65 '(Z - 2L293OLRAS_ResetMW), Else M2 = 0 M = Max (M1, M2) Gen shed at MCA/REV: GS1 + 2.57 * M If GS2 > GS1, Y = 2L12 NLY + 0.06 '5L81 NIC - 0.16 ' GS2 Z = .2L293 NLY + 0.06 '5L81 NIC - 0.15 ' GS2 If Y > NLYPST OL_PickupMW, M1 = 0.37 '(Y - NLYPST OL_ResetMW), Else R1 = 0 If Z > 2L293OLRAS PickupMW, R1 = 0.37 '(Y - NLYPST OL_ResetMW), Else R1 = 0 If Z > 2L293OLRAS PickupMW, R2 = 0.45 '(Z - 2L293OLRAS_ResetMW), Else R2 = 0 R = Max (R1, R2) Gen shed at MCA/REV: GS2 + 3.69 * R 5L82 Shed at MCA/REV: GS + 3.58 * M Where GS and M are calculated as follows: GS = Max (0, 3.47 ' 6L81 NIC - 0.15 ' GS If Y > NLYPST OL_PickupMW, M2 = 0.45 ' (Z - 2L293OLRAS_ResetMW), Else M1 = 0 If Z > 2L293 NLY + 0.05 ' 5L82 NIC - 0.16 ' GS Z = .2L293 NLY + 0.05 ' 5L82 NIC - 0.16 ' GS Shed at MCA/REV: GS + 3.58 ' M Where GS and M are calculated as follows: GS = Max (0, 3.37 ' (5L81 NIC + 0.39 ' 5L82 NIC - 5L82_Over_Rating)) Y = 2L12 NLY + 0.05 ' 5L82 NIC - 0.16 ' GS Z = .2L293 NLY + 0.05 ' 5L82 NIC - 0.16 ' GS Z = .2L293 NLY + 0.05 ' 5L82 NIC - 0.16 ' GS Z = .2L293 NLY + 0.05 ' 5L83 NIC - 0.16 ' GS If Y > NLYPST OL_PickupMW, M1 = 0.38 '(Y - NLYPST OL_ResetMW), Else M1 = 0 If Z > 2L293 NLY + 0.05 ' 5L83 NIC - 0.16 ' GS If Y > NLYPST OL_PickupMW, M1 = 0.38 '(Y - NLYPST		If REV 5CB9 is O.O.S., REV G1 and G2 must be selected for shedding.
5L81 GS1 = Max (0, 3.25 '(5L24 MD/N + 0.05 'SL21 NIC - 5L42_Over_Rating)) GS2 = Max (0, 3.32 '(5L22 NIC + 0.43 * 5L81 NIC - 5L82_Over_Rating)) If GS1 >= GS2, Y = 2L112 NLY + 0.06 * 5L81 NIC - 0.16 * GS1 Z = -2L293 NLY + 0.06 * 5L81 NIC - 0.15 * GS1 If Y > NLYPST OL_PerkupMW, M1 = 0.53 '(Y - NLYPST OL_ResetMW), Else M1 = 0 If Y > NLYPST OL_PerkupMW, M2 = 0.65 '(Z - 2L293OLRAS_ResetMW), Else M2 = 0 M = Max (M1, M2) Gen shed at MCA/REV: GS1 + 2.57 * M If GS2 > GS1, Y = 2L112 NLY + 0.06 * 5L81 NIC - 0.16 * GS2 Z = -2L293 NLY + 0.06 * 5L81 NIC - 0.16 * GS2 Z = -2L293 NLY + 0.06 * 5L81 NIC - 0.16 * GS2 Z = -2L293 NLY + 0.06 * 5L81 NIC - 0.16 * GS2 Z = -2L293 NLY + 0.06 * 5L81 NIC - 0.16 * GS2 Z = -2L293 NLY + 0.06 * 5L81 NIC - 0.16 * GS2 Z = -2L293 NLY + 0.06 * 5L81 NIC - 0.16 * GS2 Z = -2L293 NLY + 0.06 * 5L82 NIC - 0.15 * GS If Y > NLYPST OL_ProkupMW, M2 = 0.45 * (Z - 2L293OLRAS_ResetMW), Else R1 = 0 If Z = 2L293 NLY + 0.05 * 5L82 NIC - 0.16 * GS Z = -2L293 NLY + 0.05 * 5L82 NIC - 0.15 * GS If Y > NLYPST OL_ProkupMW, M2 = 0.45 * (Z - 2L293OLRAS_ResetMW), Else M1 = 0 If Z = 2L293 NLY + 0.05 * 5L82 NIC - 0.15 * GS If Y > NLYPST OL_ProkupMW, M2 = 0.45 * (Z - 2L293OLRAS_ResetMW), Else M2 = 0 <td>5L79</td> <td>Same gen shedding as 5L/6 contingency with ACK 5CB8 in service.</td>	5L79	Same gen shedding as 5L/6 contingency with ACK 5CB8 in service.
$ \begin{array}{llllllllllllllllllllllllllllllllllll$	5L81	$GS1 = Max (0, 2.25^{\circ})(5L44 MDN + 0.68^{\circ})(5L81 NIC - 5L44_Over_Rating))$
$ \begin{cases} If GS1 >= GS2, \\ Y = 2L112 NLY + 0.06 * 5L81 NIC - 0.16 * GS1 \\ Z = .2L293 NLY + 0.06 * 5L81 NIC - 0.15 * GS1 \\ If Y > NLYPST OL PickupMW, M1 = 0.53 * (Y - NLYPST OL ResetMW), Else M1 = 0 \\ If Z > 2L2930 RLS = PickupMW, M2 = 0.65 * (Z - 2L2930 LRAS_ResetMW), Else M2 = 0 \\ M = Max (M1, M2) \\ Gen shed at MCA/REV: GS1 + 2.57 * M \\ If GS2 > GS1, \\ Y = 2L112 NLY + 0.06 * 5L81 NIC - 0.16 * GS2 \\ Z = .2L293 NLY + 0.06 * 5L81 NIC - 0.16 * GS2 \\ If Y > NLYPST OL PickupMW, R1 = 0.37 * (Y - NLYPST OL ResetMW), Else R1 = 0 \\ If Z > 2L2930 LRAS_PickupMW, R2 = 0.45 * (Z - 2L2930 LRAS_ResetMW), Else R1 = 0 \\ If Z > 2L2930 LRAS_PickupMW, R2 = 0.45 * (Z - 2L2930 LRAS_ResetMW), Else R2 = 0 \\ R = Max (R1, R2) \\ Gen shed at MCA/REV: GS + 3.58 * M \\ Where GS and M are calculated as follows: \\ GS = Max (0, 3.47 * (5L81 NIC - 0.15 * GS) \\ If Y > NLYPST OL PickupMW, M1 = 0.37 * (Y - NLYPST OL ResetMW), Else M1 = 0 \\ If Z > 2L2930 LRAS_PickupMW, M2 = 0.45 * (Z - 2L2930 LRAS_ResetMW), Else M1 = 0 \\ If Z > 2L2930 LRAS_PickupMW, M1 = 0.37 * (Y - NLYPST OL ResetMW), Else M1 = 0 \\ If Z > 2L2930 LRAS_PickupMW, M1 = 0.37 * (Y - NLYPST OL ResetMW), Else M1 = 0 \\ If Z > 2L2930 LRAS_PickupMW, M2 = 0.45 * (Z - 2L2930 LRAS_ResetMW), Else M1 = 0 \\ If Z > 2L2930 LRAS_PickupMW, M2 = 0.45 * (Z - 2L2930 LRAS_ResetMW), Else M1 = 0 \\ If Z > 2L2930 LRAS_PickupMW, M2 = 0.45 * (Z - 2L2930 LRAS_ResetMW), Else M1 = 0 \\ If Z > 2L2930 LRAS_PickupMW, M1 = 0.37 * (Y - NLYPST OL ResetMW), Else M1 = 0 \\ If Z > 2L2930 LRAS_PickupMW, M1 = 0.37 * (Y - NLYPST OL ResetMW), Else M1 = 0 \\ If Z > 2L2930 LRAS_PickupMW, M2 = 0.45 * (Z - 2L2930 LRAS_ResetMW), Else M1 = 0 \\ If Z > 2L2930 LRAS_PickupMW, M2 = 0.47 * (Z - 2L2930 LRAS_ResetMW), Else M1 = 0 \\ If Z > 2L2930 LRAS_PickupMW, M2 = 0.47 * (Z - 2L2930 LRAS_ResetMW), Else M1 = 0 \\ If Z > 2L2930 LRAS_PickupMW, M1 = 0.38 * (Y - NLYPST OL ResetMW), Else M1 = 0 \\ If Z > 2L2930 LRAS_PickupMW, M2 = 0.47 * (Z - 2L2930 LRAS_ResetMW), Else M1 = 0 \\ If Z > 2L2930 LRAS_PickupMW, M2 = 0.47 * (Z - 2L2930 LRAS_ResetMW), Else M2 = 0$		$GSZ = Max (0, 3.32 (5L62 MIC + 0.43 SL61 MIC - 5L62_OVer_Rating))$
$ \begin{array}{llllllllllllllllllllllllllllllllllll$		If GS1 >= GS2
$ \begin{array}{llllllllllllllllllllllllllllllllllll$		V = 21 112 NLV + 0.06 * 51.81 NLC = 0.16 * GS1
$ \begin{array}{llllllllllllllllllllllllllllllllllll$		7 = -21203 NI V + 0.06 * 51.81 NIC = 0.15 * CS1
if $Z > 2L293OLRAS_PickupMW, M2 = 0.055*(Z > 2L293OLRAS_ResetMW), Else M2 = 0M = Max (M1, M2)Gen shed at MCA/REV: GS1 + 2.57*Mif GS2 > GS1,Y = 2L112 NLY + 0.06*5L81 NIC - 0.16*GS2Z = 2L293 NLY + 0.06*5L81 NIC - 0.15*GS2if Y > NLYPST OL_PickupMW, R1 = 0.37*(Y - NLYPST_OL_ResetMW), Else R1 = 0if Z > 2L293OLRAS_PickupMW, R2 = 0.45*(Z - 2L293OLRAS_ResetMW), Else R2 = 0R = Max (R1, R2)Gen shed at MCA/REV: GS2 + 3.69*R5L82Shed at MCA/REV: GS + 3.58*MWhere GS and M are calculated as follows:GS = Max (0, 3.47*(6L81 NIC - 0.15*GSZ = 2.1282 NIC + 0.05*5L82 NIC - 0.16*GSZ = 2.1283 NLY + 0.05*5L82 NIC - 0.15*GSif Y > NLYPST_OL_PickupMW, M1 = 0.37*(Y - NLYPST_OL_ResetMW), Else M1 = 0if Z > 2.1293 OLRAS_PickupMW, M1 = 0.35*(Z - 2.293OLRAS_ResetMW), Else M1 = 0if Z > 2.1293 OLRAS_PickupMW, M1 = 0.45*(Z - 2.293OLRAS_ResetMW), Else M1 = 0if Z > 2.1293 OLRAS_PickupMW, M2 = 0.45*(Z - 2.293OLRAS_ResetMW), Else M1 = 0if Z > 1.12 NLY + 0.05*5L82 NIC - 0.15*GSif Y > NLYPST_OL_PickupMW, M2 = 0.45*(Z - 2.293OLRAS_ResetMW), Else M1 = 0if Z > 2.1293 OLRAS_PickupMW, M2 = 0.45*(Z - 2.293OLRAS_ResetMW), Else M1 = 0if Z > 2.112 NLY + 0.05*5L83 NIC - 0.15*GSif Y > NLYPST_OL_PickupMW, M1 = 0.37*(Y - NLYPST_OL_ResetMW), Else M1 = 0if Z > 2.112 NLY + 0.05*5L83 NIC - 0.15*GSif Y > NLYPST_OL_PickupMW, M1 = 0.35*(Y - NLYPST_OL_ResetMW), Else M1 = 0if Z > 2.112 NLY + 0.05*5L83 NIC - 0.15*GSif Y > NLYPST_OL_PickupMW, M1 = 0.35*(Y - NLYPST_OL_ResetMW), Else M1 = 0if Z > 2.112 NLY + 0.05*5L83 NIC - 0.15*GSif Y > NLYPST_OL_PickupMW, M1 = 0.35*(Y - NLYPST_OL_ResetMW), Else M1 = 0if Z > 2.112 NLY + 0.05*SL83 NIC - 0.15*GSif Y > NLYPST_OL_PickupMW, M1 = 0.35*(Y - NLYPST_OL_ResetMW), Else M1 = 0if Z > 2.112 NLY + 0.05*SL83 NIC - 0.15*GSif Y > NLYPST_OL_PickupMW, M1 = 0.35*(Y - NLYPST_OL_ResetMW), Else M1 = 0if Z > 2.112 NLY + 0.05*SL83 NIC$		If $Y > NI YPST OI PickupMW M1 = 0.53 * (Y - NI YPST OI ResetMW) Fise M1 = 0$
M = Max (M1, M2) Gen shed at MCA/REV: GS1 + 2.57 * M If GS2 > GS1, Y = 2.L12 NLY + 0.06 * 5L81 NIC - 0.16 * GS2 Z = -2L293 NLY + 0.06 * 5L81 NIC - 0.15 * GS2 If Y > NLYPST OL _PickupMW, R1 = 0.37 * (Y - NLYPST_OL_ResetMW), Else R1 = 0 If Z > 2L2930 NLY + 0.06 * 5L81 NIC - 0.15 * GS2 If Y > NLYPST OL _PickupMW, R2 = 0.45 * (Z - 2L2930LRAS_ResetMW), Else R2 = 0 R = Max (R1, R2) Gen shed at MCA/REV: GS + 3.69 * R 5L82 Shed at MCA/REV: GS + 3.58 * M Where GS and M are calculated as follows: GS = Max (0, 3.47 * (5L81 NIC - 0.39 * 5L82 NIC - 5L81_Over_Rating)) Y = 2L112 NLY + 0.05 * 5L82 NIC - 0.16 * GS Z = -2L293 NLY + 0.05 * 5L82 NIC - 0.15 * GS If Y > NLYPST OL_PickupMW, M1 = 0.37 * (Y - NLYPST OL_ResetMW), Else M1 = 0 If Z > 2L2930LRAS_PickupMW, M2 = 0.45 * (Z - 2L2930LRAS_ResetMW), Else M1 = 0 If Z > 2L2930 NLY + 0.05 * 5L82 NIC - 0.16 * GS Z = -2L293 NLY + 0.05 * 5L83 NIC - 0.15 * GS N = Max (M1, M2) 5L83 Shed at MCA/REV: GS + 3.64 * M Where GS and M are calculated as follows: GS = Max (0, 3.35 * (5L82 NIC + 0.50 * 5L83 NIC - 5L82_Over_Rating)) Y = 2L112 NLY + 0.05 * 5L83 NIC - 0.15 * GS Z = -2L293 NLY + 0.04 * 5L83 NIC - 0.16 * GS Z = -2L293 NLY + 0.04 * 5L83 NIC - 0.16 * GS Z = -2L293 NLY + 0.04 * 5L83 NIC - 0.16 * GS Z = -2L293 NLY + 0.04 * 5L83 NIC - 0.16 * GS Z = -2L293 NLY + 0.04 * 5L83 NIC - 0.16 * GS Z = -2L293 NLY + 0.04 * 5L83		If $7 > 2129301$ RAS, PickupMW, $M^2 = 0.65 * (7 - 2129301)$ RAS, ResetMW), Else $M^2 = 0.000$
Gen shed at MCA/REV: GS1 + 2.57 * MIf GS2 > GS1, Y = 2L112 NLY + 0.06 * 5.81 NIC - 0.16 * GS2 Z = -2.239 NLY + 0.06 * 5.81 NIC - 0.15 * GS2 If Y > NLYPST OL_PickupMW, R1 = 0.37 * (Y - NLYPST OL_ResetMW), Else R1 = 0 If Z > 2L2930LRAS_pickupMW, R2 = 0.45 * (Z - 2L2930LRAS_ResetMW), Else R2 = 0 R = Max (R1, R2) Gen shed at MCA/REV: GS2 + 3.69 * R5L82Shed at MCA/REV: GS + 3.58 * M Where GS and M are calculated as follows: GS = Max (0, 3.47 * (5L81 NIC + 0.39 * 5L82 NIC - 5L81_Over_Rating)) Y = 2.112 NLY + 0.05 * 5L82 NIC - 0.16 * GS Z = -2.293 NLY + 0.05 * 5L82 NIC - 0.16 * GS If Y > NLYPST OL_PickupMW, M1 = 0.37 * (Y - NLYPST OL_ResetMW), Else M1 = 0 If Z > 2L2930LRAS_pickupMW, M2 = 0.45 * (Z - 2L2930LRAS_ResetMW), Else M1 = 0 If Z > 2L2930LRAS_pickupMW, M2 = 0.45 * (Z - 2L2930LRAS_ResetMW), Else M2 = 0 M = Max (M1, M2)5L83Shed at MCA/REV: GS + 3.64 * M Where GS and M are calculated as follows: GS = Max (0, 3.35 * (5L82 NIC - 0.16 * GS Z = -2L2930LRAS_pickupMW, M1 = 0.35 * (Z - 2L2930LRAS_ResetMW), Else M1 = 0 If Z > 2L2930LRAS_pickupMW, M2 = 0.45 * (Z - 2L2930LRAS_ResetMW), Else M2 = 0 M = Max (M1, M2)5L83Shed at MCA/REV: GS + 3.64 * M Where GS and M are calculated as follows: GS = Max (0, 3.35 * (5L82 NIC - 0.16 * GS Z = -2L2930LLY + 0.04 * 5L83 NIC - 0.16 * GS Z = -2L2930LLY + 0.04 * 5L83 NIC - 0.16 * GS Z = -2L2930LLY + 0.04 * 5L83 NIC - 0.16 * GS Z = -2L2930LLY + 0.04 * 5L83 NIC - 0.16 * GS Z = -2L2930LLY + 0.04 * 5L83 NIC - 0.16 * GS Z = -2L2930LLY + 0.04 * 5L83 NIC - 0.16 * GS Z = -2L2930LLY + 0.04 * 5L83 NIC - 0.16 * GS Z = -2L2930LLY + 0.04 * 5L83 NIC - 0.16 * GS Z = -2L2930LLY + 0.04 * 5L83 NIC - 0.16 * GS Z = -2L2930LLY + 0.04 * 5L83 NIC - 0.16 * GS Z = -2L2930LLY + 0.04 * 5L83 NIC - 0.16 * GS Z = -2L2930LLY + 0.04 * 5L83 NIC - 0.16 * GS Z = -2L2930LLY +		M = Max (M1, M2)
If GS2 > GS1, Y = 2L112 NLY + 0.06 * 5L81 NIC - 0.16 * GS2 Z = -2L293 NLY + 0.06 * 5L81 NIC - 0.15 * GS2 J = 7K > NLYP5T OL PickupMW, R1 = 0.37 * (Y - NLYP5T OL ResetMW), Else R1 = 0 If Z > 2L293 OLRAS_PickupMW, R2 = 0.45 * (Z - 2L293 OLRAS_ResetMW), Else R2 = 0 R = Max (R1, R2) Gen shed at MCA/REV: GS2 + 3.69 * R5L82Shed at MCA/REV: GS + 3.58 * M Where GS and M are calculated as follows: GS = Max (0, 3.47 * (5L81 NIC + 0.39 * 5L82 NIC - 5L81_Over_Rating)) Y = 2L112 NLY + 0.05 * 5L82 NIC - 0.16 * GS Z = -2L293 OLRAS_PickupMW, M1 = 0.37 * (Y - NLYPST_OL_ResetMW), Else M1 = 0 if Y > NLYPST OL_PickupMW, M1 = 0.37 * (Y - NLYPST_OL_ResetMW), Else M1 = 0 if Z > 2L293 OLRAS_PickupMW, M2 = 0.45 * (Z - 2L293 OLRAS_ResetMW), Else M1 = 0 if Z > 2L293 OLRAS_PickupMW, M2 = 0.45 * (Z - 2L293 OLRAS_ResetMW), Else M1 = 0 if Z > 2L293 OLRAS_PickupMW, M2 = 0.45 * (Z - 2L293 OLRAS_ResetMW), Else M1 = 0 if Z > 2L293 OLRAS_PickupMW, M2 = 0.45 * (Z - 2L293 OLRAS_ResetMW), Else M1 = 0 if Z > 2L293 OLRAS_PickupMW, M2 = 0.45 * (Z - 2L293 OLRAS_ResetMW), Else M1 = 0 if Z > 2L293 OLRAS_PickupMW, M2 = 0.45 * (Z - 2L293 OLRAS_ResetMW), Else M1 = 0 if Z > 2L293 OLRAS_PickupMW, M1 = 0.38 * (Y - NLYPST_OL_ResetMW), Else M1 = 0 if Z > 2L293 OLRAS_PickupMW, M2 = 0.45 * (Z - 2L293 OLRAS_ResetMW), Else M1 = 0 if Z > 2L293 OLRAS_PickupMW, M1 = 0.38 * (Y - NLYPST_OL_ResetMW), Else M1 = 0 if Z > 2L293 OLRAS_PickupMW, M2 = 0.47 * (Z - 2L293 OLRAS_ResetMW), Else M1 = 0 if Z > 2L293 OLRAS_PickupMW, M2 = 0.47 * (Z - 2L293 OLRAS_ResetMW), Else M1 = 0 if Z > 2L293 OLRAS_PickupMW, M2 = 0.47 * (Z - 2L293 OLRAS_ResetMW), Else M1 = 0 if Z > 2L293 OLRAS_PickupMW, M2 = 0.47 * (Z - 2L293 OLRAS_ResetMW), Else M2 = 0 M = Max (M1, M2)Bypass AMC 5CX1No shedding required Bypass AMC 5CX2No shedding required		Gen shed at MCA/REV: GS1 + 2.57 * M
If GS2 > GS1, Y = 2L112 NLY + 0.06 * 5L81 NIC - 0.16 * GS2 Z = -2L293 NLY + 0.06 * 5L81 NIC - 0.15 * GS2 If Y > NLYPST OL_PickupMW, R1 = 0.37 * (Y - NLYPST OL_ResetMW), Else R1 = 0 If Z > 2L293OLRAS_PickupMW, R2 = 0.45 * (Z - 2L293OLRAS_ResetMW), Else R2 = 0 R = Max (R1, R2) Gen shed at MCA/REV: GS2 + 3.69 * R5L82Shed at MCA/REV: GS + 3.58 * M Where GS and M are calculated as follows: GS = Max (0, 3.47 * (5L81 NIC + 0.39 * 5L82 NIC - 5L81_Over_Rating)) Y = 2L112 NLY + 0.05 * 5L82 NIC - 0.16 * GS Z = -2L293 NLY + 0.05 * 5L82 NIC - 0.15 * GS If Y > NLYPST OL_PickupMW, M1 = 0.37 * (Y - NLYPST_OL_ResetMW), Else M1 = 0 If Z > 2L293OLRAS_PickupMW, M1 = 0.37 * (Y - NLYPST_OL_ResetMW), Else M1 = 0 If Z > 2L293 CLRAS_PickupMW, M1 = 0.37 * (Y - NLYPST_OL_ResetMW), Else M2 = 0 M = Max (M1, M2)5L83Shed at MCA/REV: GS + 3.64 * M Where GS and M are calculated as follows: GS = Max (0, 3.35 * (5L82 NIC - 0.15 * GS If Y > NLYPST OL_PickupMW, M1 = 0.38 * (Y - NLYPST_OL_ResetMW), Else M1 = 0 If Z > 2L293 CLRAS_PickupMW, M1 = 0.38 * (Y - NLYPST_OL_ResetMW), Else M2 = 0 M = Max (M1, M2)5L83Shed at MCA/REV: GS + 3.64 * M Where GS and M are calculated as follows: GS = Max (0, 3.35 * (5L82 NIC - 0.15 * GS If Y > NLYPST OL_PickupMW, M1 = 0.38 * (Y - NLYPST_OL_ResetMW), Else M1 = 0 If Z > 2L293 CLRAS_PickupMW, M1 = 0.38 * (Y - NLYPST_OL_ResetMW), Else M1 = 0 If Z > 2L293 CLRAS_PickupMW, M2 = 0.47 * (Z - 2L293 CLRAS_ResetMW), Else M2 = 0 M = Max (M1, M2)Bypass AMC 5CX1No shedding required Bypass AMC 5CX1No shedding required Bypass AMC 5CX1		
Y = 2.112 NLY + 0.06 * 5L81 NIC - 0.16 * GS2 Z = -2L293 NLY + 0.06 * 5L81 NIC - 0.15 * GS2 If Y > NLYPST_OL_PickupMW, R1 = 0.37 * (Y - NLYPST_OL_ResetMW), Else R1 = 0 If Z > 2L293 OLRAS_PickupMW, R2 = 0.45 * (Z - 2L293 OLRAS_ResetMW), Else R2 = 0 R = Max (R1, R2) Gen shed at MCA/REV: GS2 + 3.69 * R5L82Shed at MCA/REV: GS + 3.58 * M Where GS and M are calculated as follows: GS = Max (0, 3.47 * (5L81 NIC + 0.39 * 5L82 NIC - 5L81_Over_Rating)) Y = 2L112 NLY + 0.05 * 5L82 NIC - 0.16 * GS Z = -2L293 NLY + 0.05 * 5L82 NIC - 0.15 * GS If Y > NLYPST OL_PickupMW, M1 = 0.37 * (Y - NLYPST_OL_ResetMW), Else M1 = 0 If Z > 2L293 OLRAS_PickupMW, M2 = 0.45 * (Z - 2L293 OLRAS_ResetMW), Else M1 = 0 If Z > 2L293 NLY + 0.05 * 5L82 NIC - 0.15 * GS If Y > NLYPST OL_PickupMW, M2 = 0.45 * (Z - 2L293 OLRAS_ResetMW), Else M1 = 0 If Z > 2L293 NLY + 0.05 * 5L82 NIC - 0.16 * GS5L83Shed at MCA/REV: GS + 3.64 * M Where GS and M are calculated as follows: GS = Max (0, 3.35 * (5L82 NIC + 0.50 * 5L83 NIC - 5L82_Over_Rating)) Y = 2L112 NLY + 0.05 * 5L83 NIC - 0.16 * GS If Y > NLYPST OL_PickupMW, M1 = 0.38 * (Y - NLYPST_OL_ResetMW), Else M1 = 0 If Z > 2L293 OLRAS_PickupMW, M1 = 0.38 * (Y - NLYPST_OL_ResetMW), Else M1 = 0 If Z > 2L293 OLRAS_PickupMW, M1 = 0.38 * (Y - NLYPST_OL_ResetMW), Else M1 = 0 If Z > 2L293 OLRAS_PickupMW, M1 = 0.38 * (Y - NLYPST_OL_ResetMW), Else M1 = 0 If Z > 2L293 OLRAS_PickupMW, M2 = 0.47 * (Z - 2L293 OLRAS_ResetMW), Else M2 = 0 M = Max (M1, M2)Bypass AMC 5CX1No shedding required Bypass AWC 5CX1No shedding required M = 0 Max 6M1, M2		If GS2 > GS1,
$ \begin{array}{llllllllllllllllllllllllllllllllllll$		Y = 2L112 NLY + 0.06 * 5L81 NIC - 0.16 * GS2
If $Y > NLYPST OL PickupMW, R1 = 0.37 * (Y - NLYPST OL ResetMW), Else R1 = 0 $		Z = -2L293 NLY + 0.06 * 5L81 NIC - 0.15 * GS2
If $Z > 2L293OLRAS_PickupMW, R2 = 0.45 * (Z - 2L293OLRAS_ResetMW), Else R2 = 0R = Max (R1, R2)Gen shed at MCA/REV: GS + 3.69 * R5L82Shed at MCA/REV: GS + 3.58 * MWhere GS and M are calculated as follows:GS = Max (0, 3.47 * (5L81 NIC + 0.39 * 5L82 NIC - 5L81_Over_Rating))Y = 2L112 NLY + 0.05 * 5L82 NIC - 0.16 * GSZ = -2L293 NLY + 0.05 * 5L82 NIC - 0.16 * GSIf Y > NLYPST OL_PickupMW, M1 = 0.37 * (Y - NLYPST OL_ResetMW), Else M1 = 0If Z > 2L293OLRAS_PickupMW, M2 = 0.45 * (Z - 2L293OLRAS_ResetMW), Else M1 = 0If Z > 2L293OLRAS_PickupMW, M2 = 0.45 * (Z - 2L293OLRAS_ResetMW), Else M2 = 0M = Max (M1, M2)5L83Shed at MCA/REV: GS + 3.64 * MWhere GS and M are calculated as follows:GS = Max (0, 3.35 * (5L82 NIC - 0.16 * GS)Z = -2L293 NLY + 0.04 * 5L83 NIC - 0.15 * GSIf Y > NLYPST OL_PickupMW, M1 = 0.38 * (Y - NLYPST OL_ResetMW), Else M1 = 0if Z > 2L293OLRAS_PickupMW, M1 = 0.38 * (Y - NLYPST OL_ResetMW), Else M1 = 0if Z > 2L293OLRAS_PickupMW, M2 = 0.47 * (Z - 2L293OLRAS_ResetMW), Else M1 = 0if Z > 2L293OLRAS_PickupMW, M2 = 0.47 * (Z - 2L293OLRAS_ResetMW), Else M2 = 0M = Max (M1, M2)Bypass AMC 5CX1No shedding requiredBypass RYC 5CX1No shedding required$		If Y > NLYPST_OL_PickupMW, R1 = 0.37 * (Y - NLYPST_OL_ResetMW), Else R1 = 0
R = Max (R1, R2) Gen shed at MCA/REV: GS2 + 3.69 * R5L82Shed at MCA/REV: GS + 3.58 * M Where GS and M are calculated as follows: GS = Max (0, 3.47 * (5L81 NIC + 0.39 * 5L82 NIC - 5L81_Over_Rating)) Y = 2L112 NLY + 0.05 * 5L82 NIC - 0.16 * GS Z = -2L293 NLY + 0.05 * 5L82 NIC - 0.15 * GS If Y > NLYPST OL PickupMW, M1 = 0.37 * (Y - NLYPST OL ResetMW), Else M1 = 0 If Z > 2L293OLRAS_PickupMW, M2 = 0.45 * (Z - 2L293OLRAS_ResetMW), Else M2 = 0 M = Max (M1, M2)5L83Shed at MCA/REV: GS + 3.64 * M Where GS and M are calculated as follows: 		If $Z > 2L293OLRAS_PickupMW$, $R2 = 0.45 * (Z - 2L293OLRAS_ResetMW)$, Else $R2 = 0$
Gen shed at MCA/REV: GS 2 + 3.69 * R5L82Shed at MCA/REV: GS + 3.58 * MWhere GS and M are calculated as follows: GS = Max (0, 3.47 * (5L81 NIC + 0.39 * 5L82 NIC - 5L81_Over_Rating)) Y = 2L112 NLY + 0.05 * 5L82 NIC - 0.16 * GS Z = -2L293 NLY + 0.05 * 5L82 NIC - 0.15 * GS If Y > NLYPST_OL_PickupIWW, M1 = 0.37 * (Y - NLYPST_OL_ResetIMW), Else M1 = 0 If Z > 2L293OLRAS_PickupIWW, M2 = 0.45 * (Z - 2L293OLRAS_ResetIWW), Else M2 = 0 M = Max (M1, M2)5L83Shed at MCA/REV: GS + 3.64 * M Where GS and M are calculated as follows: GS = Max (0, 3.35 * (5L82 NIC + 0.50 * 5L83 NIC - 5L82_Over_Rating)) Y = 2L112 NLY + 0.05 * 5L83 NIC - 0.16 * GS Z = -2L293 NLY + 0.04 * 5L83 NIC - 0.16 * GS J = 2.2293 OLRAS_PickupIWW, M1 = 0.38 * (Y - NLYPST_OL_ResetIWW), Else M1 = 0 If Z > 2L293 OLRAS_PickupIWW, M2 = 0.47 * (Z - 2L293 OLRAS_ResetIWW), Else M2 = 0 M = Max (M1, M2)Bypass AMC 5CX1No shedding required Bypass RYC 5CX1No shedding requiredNo shedding required		R = Max (R1, R2)
5L82 Shed at MCA/REV: GS + 3.58 * M Where GS and M are calculated as follows: GS = Max (0, 3.47 * (5L81 NIC + 0.39 * 5L82 NIC - 5L81_Over_Rating)) Y = 2L112 NLY + 0.05 * 5L82 NIC - 0.16 * GS Z = -2L293 NLY + 0.05 * 5L82 NIC - 0.15 * GS If Y > NLYPST OL_PickupMW, M1 = 0.37 * (Y - NLYPST_OL_ResetMW), Else M1 = 0 If Z > 2L2930LRAS_PickupMW, M2 = 0.45 * (Z - 2L2930LRAS_ResetMW), Else M2 = 0 M = Max (M1, M2) 5L83 Shed at MCA/REV: GS + 3.64 * M Where GS and M are calculated as follows: GS = Max (0, 3.35 * (5L82 NIC - 0.16 * GS Z = -2L293 NLY + 0.05 * 5L83 NIC - 5L82_Over_Rating)) Y = 2L112 NLY + 0.05 * 5L83 NIC - 0.16 * GS Z = -2L293 NLY + 0.04 * 5L83 NIC - 0.15 * GS If Y > NLYPST_OL_PickupMW, M1 = 0.38 * (Y - NLYPST_OL_ResetMW), Else M1 = 0 If Z > 2L2930LRAS_PickupMW, M1 = 0.38 * (Y - NLYPST_OL_ResetMW), Else M1 = 0 M = Max (M1, M2) Bypass AMC 5CX1 No shedding required Bypass RYC 5CX1 No shedding required Bypass RYC 5CX1 No shedding required		Gen shed at MCA/REV: GS2 + 3.69 * R
SL62 Shed at MCAREV. GS + 3.36 M Where GS and M are calculated as follows: GS = Max (0, 3.47 * (5L81 NIC + 0.39 * 5L82 NIC - 5L81_Over_Rating)) Y = 2L112 NLY + 0.05 * 5L82 NIC - 0.16 * GS Z = -2L293 NLY + 0.05 * 5L82 NIC - 0.15 * GS If Y > NLYPST_OL_PickupMW, M1 = 0.37 * (Y - NLYPST_OL_ResetMW), Else M1 = 0 If Z > 2L2930LRAS_PickupMW, M2 = 0.45 * (Z - 2L2930LRAS_ResetMW), Else M2 = 0 M = Max (M1, M2) 5L83 Shed at MCA/REV: GS + 3.64 * M Where GS and M are calculated as follows: GS = Max (0, 3.35 * (5L82 NIC - 0.50 * 5L83 NIC - 5L82_Over_Rating)) Y = 2L112 NLY + 0.05 * 5L83 NIC - 0.16 * GS Z = -2L293 NLY + 0.04 * 5L83 NIC - 0.15 * (S = If Y > NLYPST_OL_PickupMW, M1 = 0.38 * (Y - NLYPST_OL_ResetMW), Else M1 = 0 If Y > 2L122 NLY + 0.04 * 5L83 NIC - 0.15 * (S = If Y > NLYPST_OL_PickupMW, M1 = 0.38 * (Y - NLYPST_OL_ResetMW), Else M1 = 0 If Y > 2L203 OLRAS_PickupMW, M2 = 0.47 * (Z - 2L293 OLRAS_ResetMW), Else M2 = 0 M = Max (M1, M2) Bypass AMC 5CX1 No shedding required Bypass RYC 5CX1 No shedding required	51.82	Shad at MCA/REV/: CS + 2.59 * M
Where GS and M are calculated as follows: GS = Max (0, 3.47 * (5L81 NIC + 0.39 * 5L82 NIC - 5L81_Over_Rating)) Y = 2L112 NLY + 0.05 * 5L82 NIC - 0.16 * GS Z = -2L293 NLY + 0.05 * 5L82 NIC - 0.15 * GS If Y > NLYPST_OL_PickupMW, M1 = 0.37 * (Y - NLYPST_OL_ResetMW), Else M1 = 0 If Z > 2L293OLRAS_PickupMW, M2 = 0.45 * (Z - 2L293OLRAS_ResetMW), Else M2 = 0 M = Max (M1, M2)5L83Shed at MCA/REV: GS + 3.64 * M Where GS and M are calculated as follows: GS = Max (0, 3.35 * (5L82 NIC + 0.50 * 5L83 NIC - 5L82_Over_Rating)) Y = 2L112 NLY + 0.05 * 5L83 NIC - 0.16 * GS Z = -2L293 NLY + 0.04 * 5L83 NIC - 0.16 * GS Z = -2L293 OLRAS_PickupMW, M1 = 0.38 * (Y - NLYPST_OL_ResetMW), Else M1 = 0 If Z > 2L293OLRAS_PickupMW, M1 = 0.38 * (Y - NLYPST_OL_ResetMW), Else M1 = 0 If Z > 2L293OLRAS_PickupMW, M2 = 0.47 * (Z - 2L293OLRAS_ResetMW), Else M2 = 0 M = Max (M1, M2)Bypass AMC 5CX1No shedding required Bypass RYC 5CX1Bypass RYC 5CX1No shedding required	5L82	Shed at MCA/REV. GS + 3.38 M
SubscriptionSubscriptionGS = Max (0, 3.47* (SL81 NIC + 0.39 * 5L82 NIC - 5L81_Over_Rating)) Y = 2L112 NLY + 0.05 * 5L82 NIC - 0.16 * GS Z = -2L293 NLY + 0.05 * 5L82 NIC - 0.15 * GS If Y > NLYPST_OL_PickupMW, M1 = 0.37 * (Y - NLYPST_OL_ResetMW), Else M1 = 0 If Z > 2L293OLRAS_PickupMW, M2 = 0.45 * (Z - 2L293OLRAS_ResetMW), Else M2 = 0 M = Max (M1, M2)5L83Shed at MCA/REV: GS + 3.64 * M Where GS and M are calculated as follows: GS = Max (0, 3.35 * (5L82 NIC + 0.50 * 5L83 NIC - 5L82_Over_Rating)) Y = 2L112 NLY + 0.05 * 5L83 NIC - 0.16 * GS Z = -2L293 NLY + 0.04 * 5L83 NIC - 0.16 * GS If Y > NLYPST_OL_PickupMW, M1 = 0.38 * (Y - NLYPST_OL_ResetMW), Else M1 = 0 If Z > 2L293 OLRAS_PickupMW, M2 = 0.47 * (Z - 2L293OLRAS_ResetMW), Else M1 = 0 If Z > 2L293OLRAS_PickupMW, M2 = 0.47 * (Z - 2L293OLRAS_ResetMW), Else M2 = 0 M = Max (M1, M2)Bypass AMC 5CX1No shedding requiredBypass RYC 5CX1No shedding required		Where GS and M are calculated as follows:
$\begin{array}{llllllllllllllllllllllllllllllllllll$		GS = Max (0.3.47 * (51.81 NIC + 0.39 * 51.82 NIC - 51.81 Over Rating))
$ \begin{array}{c} Z = -2L293 \text{ NLY } + 0.05 * 5L82 \text{ NIC } - 0.15 * \text{GS} \\ \text{if } Y > \text{NLYPST_OL_PickupMW}, \text{M1} = 0.37 * (Y - \text{NLYPST_OL_ResetMW}), \text{Else M1} = 0 \\ \text{if } Z > 2L2930 \text{ LRAS_PickupMW}, \text{M2} = 0.45 * (Z - 2L2930 \text{ LRAS_ResetMW}), \text{Else M2} = 0 \\ \text{M} = \text{Max } (\text{M1, M2}) \\ \end{array} $		Y = 2L112 NLY + 0.05 * 5L82 NIC - 0.16 * GS
If $Y > NLYPST_OL_PickupMW$, $M1 = 0.37 * (Y - NLYPST_OL_ResetMW)$, Else $M1 = 0$ If $Z > 2L293OLRAS_PickupMW$, $M2 = 0.45 * (Z - 2L293OLRAS_ResetMW)$, Else $M2 = 0$ $M = Max (M1, M2)$ 5L83Shed at MCA/REV: GS + 3.64 * MWhere GS and M are calculated as follows: GS = Max (0, 3.35 * (5L82 NIC + 0.50 * 5L83 NIC - 5L82_Over_Rating)) $Y = 2L112 NLY + 0.05 * 5L83 NIC - 0.16 * GS$ $Z = -2L293 NLY + 0.04 * 5L83 NIC - 0.16 * GSZ = -2L293 NLY + 0.04 * 5L83 NIC - 0.15 * GSIf Y > NLYPST_OL_PickupMW, M1 = 0.38 * (Y - NLYPST_OL_ResetMW), Else M1 = 0If Z > 2L293OLRAS_PickupMW, M2 = 0.47 * (Z - 2L293OLRAS_ResetMW), Else M2 = 0M = Max (M1, M2)Bypass AMC 5CX1No shedding requiredBypass RYC 5CX1No shedding required$		Z = -2L293 NLY + 0.05 * 5L82 NIC - 0.15 * GS
If Z > 2L293OLRAS_PickupMW, M2 = 0.45 * (Z - 2L293OLRAS_ResetMW), Else M2 = 0 M = Max (M1, M2) 5L83 Shed at MCA/REV: GS + 3.64 * M Where GS and M are calculated as follows: GS = Max (0, 3.35 * (5L82 NIC + 0.50 * 5L83 NIC - 5L82_Over_Rating)) Y = 2L112 NLY + 0.05 * 5L83 NIC - 0.16 * GS Z = -2L293 NLY + 0.04 * 5L83 NIC - 0.15 * GS If Y > NLYPST_OL_PickupMW, M1 = 0.38 * (Y - NLYPST_OL_ResetMW), Else M1 = 0 If Z > 2L293 OLRAS_PickupMW, M2 = 0.47 * (Z - 2L293OLRAS_ResetMW), Else M2 = 0 M = Max (M1, M2) Bypass AMC 5CX1 No shedding required Bypass RYC 5CX1 No shedding required		If Y > NLYPST OL PickupMW, M1 = 0.37 * (Y – NLYPST OL ResetMW), Else M1 = 0
$M = Max (M1, M2)$ $M = Max (M2/REV: GS + 3.64 * M$ $M = GS and M are calculated as follows:$ $GS = Max (0, 3.35 * (5L82 NIC + 0.50 * 5L83 NIC - 5L82_Over_Rating))$ $Y = 2L112 NLY + 0.05 * 5L83 NIC - 0.16 * GS$ $Z = -2L293 NLY + 0.04 * 5L83 NIC - 0.15 * GS$ $If Y > NLYPST_OL_PickupMW, M1 = 0.38 * (Y - NLYPST_OL_ResetMW), Else M1 = 0$ $If Z > 2L293OLRAS_PickupMW, M2 = 0.47 * (Z - 2L293OLRAS_ResetMW), Else M2 = 0$ $M = Max (M1, M2)$ $Bypass AMC 5CX1$ $No shedding required$ $Bypass RYC 5CX1$ $No shedding required$		If Z > 2L293OLRAS_PickupMW, M2 = 0.45 * (Z – 2L293OLRAS_ResetMW), Else M2 = 0
5L83 Shed at MCA/REV: GS + 3.64 * M Where GS and M are calculated as follows: GS = Max (0, 3.35 * (5L82 NIC + 0.50 * 5L83 NIC - 5L82_Over_Rating)) Y = 2L112 NLY + 0.05 * 5L83 NIC - 0.16 * GS Z = -2L293 NLY + 0.04 * 5L83 NIC - 0.15 * GS If Y > NLYPST_OL_PickupMW, M1 = 0.38 * (Y - NLYPST_OL_ResetMW), Else M1 = 0 If Z > 2L2930LRAS_PickupMW, M2 = 0.47 * (Z - 2L2930LRAS_ResetMW), Else M2 = 0 M = Max (M1, M2) Bypass AMC 5CX1 No shedding required Bypass RYC 5CX1 No shedding required		M = Max (M1, M2)
5L83 Shed at MCA/REV: GS + 3.64 * M Where GS and M are calculated as follows: GS = Max (0, 3.35 * (5L82 NIC + 0.50 * 5L83 NIC - 5L82_Over_Rating)) Y = 2L112 NLY + 0.05 * 5L83 NIC - 0.16 * GS Z = -2L293 NLY + 0.04 * 5L83 NIC - 0.15 * GS If Y > NLYPST_OL_PickupMW, M1 = 0.38 * (Y - NLYPST_OL_ResetMW), Else M1 = 0 If Z > 2L293 OLRAS_PickupMW, M2 = 0.47 * (Z - 2L293 OLRAS_ResetMW), Else M2 = 0 M = Max (M1, M2) Bypass AMC 5CX1 No shedding required Bypass RYC 5CX1 No shedding required		
Where GS and M are calculated as follows: GS = Max (0, 3.35 * (5L82 NIC + 0.50 * 5L83 NIC - 5L82_Over_Rating)) Y = 2L112 NLY + 0.05 * 5L83 NIC - 0.16 * GS Z = -2L293 NLY + 0.04 * 5L83 NIC - 0.15 * GS If Y > NLYPST_OL_PickupMW, M1 = 0.38 * (Y - NLYPST_OL_ResetMW), Else M1 = 0 If Z > 2L293OLRAS_PickupMW, M2 = 0.47 * (Z - 2L293OLRAS_ResetMW), Else M2 = 0 M = Max (M1, M2)Bypass AMC 5CX1No shedding requiredBypass RYC 5CX1No shedding required	5L83	Shed at MCA/REV: GS + 3.64 * M
Where GS and M are calculated as follows: GS = Max (0, 3.35 * (5L82 NIC + 0.50 * 5L83 NIC - 5L82_Over_Rating)) Y = 2L112 NLY + 0.05 * 5L83 NIC - 0.16 * GS Z = -2L293 NLY + 0.04 * 5L83 NIC - 0.15 * GS If Y > NLYPST_OL_PickupMW, M1 = 0.38 * (Y - NLYPST_OL_ResetMW), Else M1 = 0 If Z > 2L293OLRAS_PickupMW, M2 = 0.47 * (Z - 2L293OLRAS_ResetMW), Else M2 = 0 M = Max (M1, M2)Bypass AMC 5CX1No shedding requiredBypass RYC 5CX1No shedding required		
$GS = Max (0, 3.35 ^{\circ} (5L82 NIC + 0.50 ^{\circ} 5L83 NIC - 5L82_OVer_Rating))$ $Y = 2L112 NLY + 0.05 ^{\circ} 5L83 NIC - 0.16 ^{\circ} GS$ $Z = -2L293 NLY + 0.04 ^{\circ} 5L83 NIC - 0.15 ^{\circ} GS$ If Y > NLYPST_OL_PickupMW, M1 = 0.38 ^{\circ} (Y - NLYPST_OL_ResetMW), Else M1 = 0 If Z > 2L293 OLRAS_PickupMW, M2 = 0.47 ^{\circ} (Z - 2L293 OLRAS_ResetMW), Else M2 = 0 M = Max (M1, M2) Bypass AMC 5CX1 No shedding required Bypass RYC 5CX1 No shedding required No shedding required		Vvnere GS and M are calculated as follows:
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		U = V = 2I + 12 M + 0.05 m = 0.16
Z = -2L293 NLT + 0.04 5L03 NIC - 0.15 GS If Y > NLYPST_OL_PickupMW, M1 = 0.38* (Y - NLYPST_OL_ResetMW), Else M1 = 0 If Z > 2L293OLRAS_PickupMW, M2 = 0.47* (Z - 2L293OLRAS_ResetMW), Else M2 = 0 M = Max (M1, M2) Bypass AMC 5CX1 No shedding required Bypass RYC 5CX1 No shedding required Bypass RYC 5CX1 No shedding required		T = 2L 2 N T = 0.00 0.00 0.10 0.00
If Z > 2L293OLRAS_PickupMW, M2 = 0.47 * (Z - 2L293OLRAS_ResetMW), Else M2 = 0 M = Max (M1, M2) Bypass AMC 5CX1 No shedding required Bypass RYC 5CX1 No shedding required Bypass RYC 5CX1		L = -2L233 INL I = 0.04 3L03 INU = 0.13 GS If $V > NI VDST OL Dickup MM/ M1 = 0.38 * (V = NI VDST OL DecetMM/) Else M1 = 0.$
M = Max (M1, M2) Bypass AMC 5CX1 No shedding required Bypass RYC 5CX1 No shedding required		- - - - - - -
Bypass AMC 5CX1 No shedding required Bypass AMC 5CX2 No shedding required Bypass RYC 5CX1 No shedding required		M = Max (M1 M2)
Bypass AMC 5CX2 No shedding required Bypass RYC 5CX1 No shedding required	Bypass AMC 5CX1	No shedding required
Bypass RYC 5CX1 No shedding required	Bypass AMC 5CX2	No shedding required
	Bypass RYC 5CX1	No shedding required

5L81 and 5L82	GS1 = 1.69 * [5L83 NIC + 0.82 * (5L81 + 5L82) NIC - 5L83_Over_Rating] GS2 = 2.36 * [5L44 MDN + 0.25*(5L81 + 5L82) NIC - 5L44_Over_Rating] GS3 = 6.88 * [2L112 NLY + 0.07 * (5L81 + 5L82) NIC - NLYPST_OL_PickupMW] GS4 = 7.23 * [2L293 SEL + 0.06 * (5L81 + 5L82) NIC - 2L293OLRAS_PickupMW]
	GS = Max (0, G1, G2, G3, G4)
	If AB to BC >= 500 MW AND GS >= 1500 MW, then • Arm DTT 5L94, and
	 Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and
	 Shed at MCA/REV: 0.93 * (GS – AB to BC) Then at SEV/ALH/WAN/BRX/WAX/KCL: 1.63 *[0.93 * (GS – AB to BC) – the armed gen-shedding amount at
	 MCA/REV]. Total armed generation shedding must be limited to (2500 - AB to BC) MW
	If AB to BC < 500 MW or [AB to BC >=500 MW AND GS < 1500], then Shed at MCA/REV: GS
	 Then at SEV/ALH/WAN/BRX/WAX/KCL: 1.63* (GS – the armed gen-shedding amount at MCA/REV). Total armed generation shedding must be limited to 2500 MW.
	If generation shedding is armed, the minimum units on line requirements post-shedding at MCA, REV, SEV, KCL, WAN, ALH, BRX, WAX and the equivalent SEV units specified in Note 14 in Section 3 shall be applied.
5L81 and 5L83	G1 = 1.9 * [5L82 NIC + 0.80 * (5L81 + 5L83) NIC - 5L82_Over_Rating] G2 = 5.9 * [2L112 NLY + 0.09 * (5L81 + 5L83) NIC - NLYPST_OL_PickupMW] G3 = 6.3 * [2L293 SEL + 0.08 * (5L81 + 5L83) NIC - 2L293OLRAS_PickupMW)]
	GS = Max (0, G1, G2, G3)
	If AB to BC >= 500 MW AND GS >= 1500 MW, then • Arm DTT 5L94, and
	 Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and
	 Shed at MCA/REV: 0.93 * (GS – AB to BC) Then at SEV/ALH/WAN/BRX/WAX/KCL: 1.34 *[0.93 * (GS – AB to BC) – the armed gen-shedding amount at MCA/REV1
	 Total armed generation shedding must be limited to (2500 - AB to BC) MW
	If AB to BC < 500 MW or [AB to BC >=500 MW AND GS < 1500], then • Shed at MCA/REV: GS
	 Then at SEV/ALH/WAN/BRX/WAX/KCL: 1.34* (GS- the armed gen-shedding amount at MCA/REV) Total armed generation shedding must be limited to 2500 MW.
	If generation shedding is armed, the minimum units on line requirements post-shedding at MCA, REV, SEV, KCL, WAN, ALH, BRX, WAX and the equivalent SEV units specified in Note 14 in Section 3 shall be applied.
5L82 and 5L83	G1 = 1.9 * [5L81 NIC + 0.78 * (5L82 + 5L83) NIC - 5L81 Over Rating] G2 = 5.9 * [2L112 NLY + 0.10 * (5L82 + 5L83) NIC - NLYPST_OL_PickupMW] G3 = 6.3 * [2L293 SEL + 0.09 * (5L82 + 5L83) NIC - 2L293OLRAS_PickupMW]
	GS = Max (0, G1, G2, G3)
	If AB to BC >= 500 MW AND GS >= 1500 MW, then • Arm DTT 5I 94 and
	 Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and
	 Shed at MCA/REV: 0.93 * (GS – AB to BC) Then at SEV/ALH/WAN/BRX/WAX/KCL: 1.36 *[0.93 * (GS – AB to BC) – the armed gen-shedding amount at
	 MCA/REV] Total armed generation shedding must be limited to (2500 - AB to BC) MW
	If AB to BC < 500 MW or [AB to BC >=500 MW AND GS < 1500], then
	 Shed at MCA/REV: GS Then at SEV/ALH/WAN/BRX/WAX/KCL: 1.36* (GS – the armed gen-shedding amount at MCA/REV) Total armed generation shedding must be limited to 2500 MW.
	If generation shedding is armed, the minimum units on line requirements post-shedding at MCA, REV, SEV, KCL, WAN, ALH, BRX, WAX and the equivalent SEV units specified in Note 14 in Section 3 shall be applied.

5L76 and 5L79	Tables A, B, C and D are applicable to this contingency
5L91 and 5L96	Tables A, B, C and D are applicable to this contingency

51 44	GS1 = 3 * (51.81NIC + 0.36 * 51.44MDN - 51.81. Over Rating)
JL44	$GST = 3$ (SECTING + 0.50 SE44MDN = SECT_OVEL_NAILING)
	GS2 = 13.5 (2220CSQ + 0.2 SL44 MDIN - 2120 OVer Rating)
	$GS3 = 32^{\circ} (2L51COK + 0.1^{\circ} 5L44WDN - 2L51COK_OVEr_Rating)$
	M = MAX (GS1, GS2, GS3, 0)
	Y = 2L112 NLY + 0.05 * 5L44 MDN - 0.11 * M
	Z = 2L293 SEL + 0.05 * 5L44 MDN – 0.1 * M
	If Y > NLYPST OL PickupMW
	P1 = 0.44 * (V, NUVPST OL Proof MM)
	$R_1 = 0.44$ (1 - NLTFST OL RESERVE)
	$R_3 = 0.08 + (Y - NLYPST_OL_ResetMW)$
	R5 = 0.04 * (Y - NLYPST_OL_ResetMW)
	Else R1 = 0, R3 = 0, R5 = 0.
	If Z > 2L293OLRAS_PickupMW.
	$R_2 = 0.52 * (7 - 21.2930) RAS Reset MW()$
	$R_{1} = 0.1 \times (7 - 212030) RAS Reset M(M))$
	$P_{C} = 0.04 \times (7.2) 2020(P_{C} = 0.000)$
	$R0 = 0.04$ ($Z = 2L2930LRAS_Reset (VV)$
	Else $R_2 = 0, R_4 = 0, R_6 = 0.$
	Ra = MAX (R1, R2)
	Rb = MAX (R3, R4)
	Rc = MAX (R5, R6)
	Shed at MCA/REV first, and then GMS/PCN the greatest of:
	> D1*(CS1+3*P2)
	$\sim D^{-1}(CS^{-1} + 1.25^{+} \text{Bh})$
	$ D2 (002 + 10.0 \text{ LV}) $ $ D2 * (CS3 + 22* D_{0}) $
	D1 = 1.0 if shedding at MCA/REV, or
	D1 = 3.6 if shedding at GMS/PCN,
	D2 = 1.0 if shedding at MCA/REV, or
	D2 = 1.1 if shedding at GMS/PCN.
	D3 = 1.0 if shedding at MCA/REV or
	D3 = 1.8 if shedding at GMS/PCN
	BS = 1.0 if should get GMG/1 GN,
	Tatal armed generation chedding must be limited to 2500 MW. If exceeding the limit, the Operator can take the following
	notal armed generation shedding must be innited to 2000 WW. If exceeding the innit, the Operator carriake the following
	actions:
	Reduce the flow on 2L129 from ARN to VII.
	Reduce SI generation and increase Peace generation
5L91	Tables A, B, C and D are applicable to this contingency
5L96	 Arm DTT 48L if 5L96 SEL > 800 MW AND if VAS-WTS loop is closed.
	 Shod at KCL /ALHAWANI/BRX/WAX first than SEV/the greatest of:
	= 125 * (51.91 SEL + 51.96 SEL + 7 - Y) or
	• Shed at KCL/ALL I/WARVER WAX first, then SEV the greatest of. > $1.25 * (5L91 \text{ SEL} + 5L96 \text{ SEL} + Z - Y)$, or > $2.40 * (21.112 \text{ NLY} + 0.23 * (51.96 \text{ SEL} + Z) - 400)$ or
	► 1.25 * (5L91 SEL + 5L96 SEL + $Z - Y$), or ► 2.40 * (2L112 NLY + 0.23 * (5L96 SEL + Z) - 400), or ► 2.40 * (2L112 NLY + BDY Gen + 0.23 * (5L96 SEL + Z) - 1160), or
	► Shed at KCL/ALT WARVER WAX first, then SEV the greatest of. ► $1.25 * (5L91 \text{ SEL} + 5L96 \text{ SEL} + Z - Y)$, or ► $2.40 * (2L112 \text{ NLY} + 0.23 * (5L96 \text{ SEL} + Z) - 400)$, or ► $2.40 * (2L112 \text{ NLY} + \text{BDY Gen} + 0.23 * (5L96 \text{ SEL} + Z) - 1160)$, or ► $2.40 * (2L12 \text{ NLY} + \text{BDY Gen} + 0.23 * (5L96 \text{ SEL} + Z) - 1160)$, or
	► 1.25 * (5L91 SEL + 5L96 SEL + $Z - Y$), or ► 2.40 * (2L112 NLY + 0.23 * (5L96 SEL + Z) – 400), or ► 2.40 * (2L112 NLY + BDY Gen + 0.23 * (5L96 SEL + Z) – 1160), or ► 3.04 * (2L293 SEL + 0.17 * (5L96 SEL + Z) – 400), and do not shed WAN for this requirement.
	► 1.25 * (5L91 SEL + 5L96 SEL + $Z - Y$), or ► 2.40 * (2L112 NLY + 0.23 * (5L96 SEL + Z) – 400), or ► 2.40 * (2L112 NLY + BDY Gen + 0.23 * (5L96 SEL + Z) – 1160), or ► 3.04 * (2L293 SEL + 0.17 * (5L96 SEL + Z) – 400), and do not shed WAN for this requirement. Y = 1880 if at least one of ACK 5CX1 & 5CX2 is in service, or
	 Shed at KCL/ALT/WARVERXWAX first, then SLV the greatest of. 1.25 * (5L91 SEL + 5L96 SEL + Z - Y), or 2.40 * (2L112 NLY + 0.23 * (5L96 SEL + Z) - 400), or 2.40 * (2L112 NLY + BDY Gen + 0.23 * (5L96 SEL + Z) - 1160), or 3.04 * (2L293 SEL + 0.17 * (5L96 SEL + Z) - 400), and do not shed WAN for this requirement. Y = 1880 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1800 if none of ACK 5CX1 & 5CX2 is in service AND all SEL T1 & T2 & T4 are in service
	 Shed at KCL/ALT/WARVERVAX first, then SLV the greatest of. 1.25* (5L91 SEL + 5L96 SEL + Z - Y), or 2.40* (2L112 NLY + 0.23* (5L96 SEL + Z) - 400), or 2.40* (2L112 NLY + BDY Gen + 0.23* (5L96 SEL + Z) - 1160), or 3.04* (2L293 SEL + 0.17* (5L96 SEL + Z) - 400), and do not shed WAN for this requirement. Y = 1880 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1800 if none of ACK 5CX1 & 5CX2 is in service AND all SEL T1 & T2 & T4 are in service Z = 48L KET if DTT 48L is armed, or
	Shed at KCL/ALT/WARVERVEX WAX first, then SLV the greatest of. 1.25 * (5L91 SEL + 5L96 SEL + Z − Y), or 2.40 * (2L112 NLY + 0.23 * (5L96 SEL + Z) − 400), or 2.40 * (2L112 NLY + BDY Gen + 0.23 * (5L96 SEL + Z) − 1160), or 3.04 * (2L293 SEL + 0.17 * (5L96 SEL + Z) − 400), and do not shed WAN for this requirement. Y = 1880 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1800 if none of ACK 5CX1 & 5CX2 is in service AND all SEL T1 & T2 & T4 are in service Z = 48L KET if DTT 48L is armed, or Z = 0 if DTT 48L is not armed
5L98	Sited at KCL/ALI I/WARVERVEX WAX first, then SLV the greatest of. 1.25 * (5L91 SEL + 5L96 SEL + Z - Y), or 2.40 * (2L112 NLY + 0.23 * (5L96 SEL + Z) - 400), or 2.40 * (2L112 NLY + BDY Gen + 0.23 * (5L96 SEL + Z) - 1160), or 3.04 * (2L293 SEL + 0.17 * (5L96 SEL + Z) - 400), and do not shed WAN for this requirement. Y = 1880 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1800 if none of ACK 5CX1 & 5CX2 is in service AND all SEL T1 & T2 & T4 are in service Z = 48L KET if DTT 48L is armed, or Z = 0 if DTT 48L is not armed If VAS-VNT loop is closed, then
5L98	 Shed at KCL/ALT/WAR/BKX/WAX first, then SEV the greatest of: 1.25* (5L91 SEL + 5L96 SEL + Z - Y), or 2.40* (2L112 NLY + 0.23* (5L96 SEL + Z) - 400), or 2.40* (2L112 NLY + BDY Gen + 0.23* (5L96 SEL + Z) - 1160), or 3.04* (2L293 SEL + 0.17* (5L96 SEL + Z) - 400), and do not shed WAN for this requirement. Y = 1880 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1800 if none of ACK 5CX1 & 5CX2 is in service AND all SEL T1 & T2 & T4 are in service Z = 48L KET if DTT 48L is armed, or Z = 0 if DTT 48L is not armed If VAS-VNT loop is closed, then Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of:
5L98	 Shed at KCL/ALH/WAR/BKX/WAX first, then SEV the greatest of: 1.25* (5L91 SEL + 5L96 SEL + Z - Y), or 2.40* (2L112 NLY + 0.23* (5L96 SEL + Z) - 400), or 2.40* (2L112 NLY + BDY Gen + 0.23* (5L96 SEL + Z) - 1160), or 3.04* (2L293 SEL + 0.17* (5L96 SEL + Z) - 400), and do not shed WAN for this requirement. Y = 1880 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1800 if none of ACK 5CX1 & 5CX2 is in service AND all SEL T1 & T2 & T4 are in service Z = 48L KET if DTT 48L is armed, or Z = 0 if DTT 48L is not armed If VAS-VNT loop is closed, then Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: 1.60* (5L91 SEL + 5L98 VAS - Y), or
5L98	Since at KCL/ALH/WAN/BKX/WAX first, then SEV the greatest of: $ \begin{array}{l} 1.25^{*} (5L91 SEL + 5L96 SEL + Z - Y), \text{ or} \\ 2.40^{*} (2L112 NLY + 0.23^{*} (5L96 SEL + Z) - 400), \text{ or} \\ 2.40^{*} (2L112 NLY + BDY Gen + 0.23^{*} (5L96 SEL + Z) - 1160), \text{ or} \\ 3.04^{*} (2L293 SEL + 0.17^{*} (5L96 SEL + Z) - 400), \text{ and do not shed WAN for this requirement.} \\ Y = 1880 if at least one of ACK 5CX1 & 5CX2 is in service, or \\ Y = 1800 if none of ACK 5CX1 & 5CX2 is in service AND all SEL T1 & T2 & T4 are in service \\ Z = 48L KET if DTT 48L is armed, or \\ Z = 0 if DTT 48L is not armed If VAS-VNT loop is closed, then $
5L98	 Shed at KCL/ALH/WAW/BKWWAX first, then SLV the greatest of: > 1.25* (5L91 SEL + 5L96 SEL + Z - Y), or > 2.40* (2L112 NLY + 0.23* (5L96 SEL + Z) - 400), or > 2.40* (2L112 NLY + BDY Gen + 0.23* (5L96 SEL + Z) - 1160), or > 3.04* (2L293 SEL + 0.17* (5L96 SEL + Z) - 400), and do not shed WAN for this requirement. Y = 1880 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1800 if none of ACK 5CX1 & 5CX2 is in service AND all SEL T1 & T2 & T4 are in service Z = 48L KET if DTT 48L is armed, or Z = 0 if DTT 48L is not armed If VAS-VNT loop is closed, then Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: > 1.60* (5L91 SEL + 5L98 VAS - Y), or > 2.92* (2L112 NLY + 0.14* 5L98 VAS - 400), or > 4.07* (2L202 SEL + 0.11* 5L98 VAS - 400), and do not shed WAN for this requirement.
5L98	 Siled at KCL/ALH/WAR/BKX/WAX first, then SEV the greatest of. 1.25* (5L91 SEL + 5L96 SEL + Z - Y), or 2.40* (2L112 NLY + 0.23* (5L96 SEL + Z) - 400), or 3.04* (2L293 SEL + 0.17* (5L96 SEL + Z) - 400), and do not shed WAN for this requirement. Y = 1880 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1800 if none of ACK 5CX1 & 5CX2 is in service AND all SEL T1 & T2 & T4 are in service Z = 48L KET if DTT 48L is armed, or Z = 0 if DTT 48L is not armed If VAS-VNT loop is closed, then Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: > 1.60* (5L91 SEL + 5L98 VAS - Y), or > 2.92* (2L112 NLY + 0.14* 5L98 VAS - 400), or > 4.07* (2L293 SEL + 0.11* 5L98 VAS - 400), and do not shed WAN for this requirement.
5L98	 Induct at KCDACH INVARIABLY WAX hirst, then SLV the greatest of: 1.25 * (5L91 SEL + 5L96 SEL + Z - Y), or 2.40 * (2L112 NLY + 0.23 * (5L96 SEL + Z) - 400), or 2.40 * (2L112 NLY + BDY Gen + 0.23 * (5L96 SEL + Z) - 1160), or 3.04 * (2L293 SEL + 0.17 * (5L96 SEL + Z) - 400), and do not shed WAN for this requirement. Y = 1880 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1800 if none of ACK 5CX1 & 5CX2 is in service AND all SEL T1 & T2 & T4 are in service Z = 48L KET if DTT 48L is armed, or Z = 0 if DTT 48L is not armed If VAS-VNT loop is closed, then Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: 1.60 * (5L91 SEL + 5L98 VAS - Y), or 2.92 * (2L112 NLY + 0.14 * 5L98 VAS - 400), or 4.07 * (2L293 SEL + 0.11 * 5L98 VAS - 400), and do not shed WAN for this requirement. Y = 1760 if at least one of ACK 5CX1 & 5CX2 is in service, or
5L98	 Sined at KCL/ALH/WAIV/BKWWAX first, then SEV the greatest of: 1.25* (5L91 SEL + 5L96 SEL + Z - Y), or 2.40* (2L112 NLY + 0.23* (5L96 SEL + Z) - 400), or 3.04* (2L293 SEL + 0.17* (5L96 SEL + Z) - 400), and do not shed WAN for this requirement. Y = 1880 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1800 if none of ACK 5CX1 & 5CX2 is in service AND all SEL T1 & T2 & T4 are in service Z = 48L KET if DTT 48L is armed, or Z = 0 if DTT 48L is not armed If VAS-VNT loop is closed, then Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: 1.60* (5L91 SEL + 5L98 VAS - Y), or 2.92* (2L112 NLY + 0.14* 5L98 VAS - 400), or 4.07* (2L293 SEL + 0.11* 5L98 VAS - 400), and do not shed WAN for this requirement. Y = 1760 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1570 if none of ACK 5CX1 & 5CX2 is in service
5L98	Since at KCL/ALH/WAW/BKW/WAK first, then SEV the greatest of: 1.25* (5L91 SEL + 5L96 SEL + Z - Y), or 2.40* (2L112 NLY + 0.23* (5L96 SEL + Z) - 400), or 2.40* (2L112 NLY + BDY Gen + 0.23* (5L96 SEL + Z) - 1160), or 3.04* (2L293 SEL + 0.17* (5L96 SEL + Z) - 400), and do not shed WAN for this requirement. Y = 1880 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1800 if none of ACK 5CX1 & 5CX2 is in service AND all SEL T1 & T2 & T4 are in service Z = 48L KET if DTT 48L is armed, or Z = 0 if DTT 48L is not armed If VAS-VNT loop is closed, then Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: 1.60* (5L91 SEL + 5L98 VAS - Y), or 2.92* (2L112 NLY + 0.14* 5L98 VAS - 400), or 4.07* (2L293 SEL + 0.11* 5L98 VAS - 400), and do not shed WAN for this requirement. Y = 1760 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1570 if none of ACK 5CX1 & 5CX2 is in service
5L98	 Side at RCL/ALL WARN brown warms, then SLV the greatest of: 1.25* (5L91 SEL + 5L96 SEL + Z - Y), or 2.40* (2L112 NLY + BDY Gen + 0.23* (5L96 SEL + Z) - 1160), or 3.04* (2L293 SEL + 0.17* (5L96 SEL + Z) - 400), and do not shed WAN for this requirement. Y = 1880 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1800 if none of ACK 5CX1 & 5CX2 is in service AND all SEL T1 & T2 & T4 are in service Z = 48L KET if DTT 48L is armed, or Z = 0 if DTT 48L is not armed If VAS-VNT loop is closed, then Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: 1.60* (5L91 SEL + 5L98 VAS - Y), or 2.92* (2L112 NLY + 0.14* 5L98 VAS - 400), and do not shed WAN for this requirement. Y = 1760 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1760 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1570 if none of ACK 5CX1 & 5CX2 is in service
5L98	 Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: 1.25 * (5L91 SEL + 5L96 SEL + Z) - 400), or 2.40 * (2L112 NLY + 0.23 * (5L96 SEL + Z) - 400), or 2.40 * (2L112 NLY + BDY Gen + 0.23 * (5L96 SEL + Z) - 1160), or 3.04 * (2L293 SEL + 0.17 * (5L96 SEL + Z) - 400), and do not shed WAN for this requirement. Y = 1880 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1800 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1800 if none of ACK 5CX1 & 5CX2 is in service AND all SEL T1 & T2 & T4 are in service Z = 48L KET if DTT 48L is armed, or Z = 0 if DTT 48L is not armed If VAS-VNT loop is closed, then Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: > 1.60 * (5L91 SEL + 5L98 VAS - Y), or > 2.92 * (2L112 NLY + 0.14 * 5L98 VAS - 400), or > 4.07 * (2L293 SEL + 0.11 * 5L98 VAS - 400), and do not shed WAN for this requirement. Y = 1760 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1760 if at least one of ACK 5CX1 & 5CX2 is in service Otherwise, Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of:
5L98	 Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: 1.25* (5L91 SEL + 5L98 SEL + Z - Y), or 2.40* (2L112 NLY + 0.23* (5L96 SEL + Z) - 400), or 2.40* (2L112 NLY + BDY Gen + 0.23* (5L96 SEL + Z) - 1160), or 3.04* (2L293 SEL + 0.17* (5L96 SEL + Z) - 400), and do not shed WAN for this requirement. Y = 1880 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1800 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1800 if none of ACK 5CX1 & 5CX2 is in service AND all SEL T1 & T2 & T4 are in service Z = 48L KET if DTT 48L is armed, or Z = 0 if DTT 48L is not armed If VAS-VNT loop is closed, then Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: > 1.60* (5L91 SEL + 5L98 VAS - Y), or > 2.92* (2L112 NLY + 0.14* 5L98 VAS - 400), and do not shed WAN for this requirement. Y = 1760 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1570 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1570 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1570 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1570 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1570 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1570 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1570 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1570 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1570 if none of ACK 5CX1 & 5CX2 is in service
5L98	 Siled at RCL/ALHWAN/BKV/WAX first, then SEV the greatest of: 1.25* (5L91 SEL + 5L98 SEL + Z - Y), or 2.40* (2L112 NLY + BDY Gen + 0.23* (5L96 SEL + Z) - 400), or 3.04* (2L293 SEL + 0.17* (5L96 SEL + Z) - 400), and do not shed WAN for this requirement. Y = 1880 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1800 if none of ACK 5CX1 & 5CX2 is in service AND all SEL T1 & T2 & T4 are in service Z = 48L KET if DTT 48L is armed, or Z = 0 if DTT 48L is not armed If VAS-VNT loop is closed, then Shed at KCL/ALHWAN/BRX/WAX first, then SEV the greatest of: > 1.60* (5L91 SEL + 5L98 VAS - Y), or > 2.92* (2L112 NLY + 0.14*5L98 VAS - 400), and do not shed WAN for this requirement. Y = 1760 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1760 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1570 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1570 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1570 if none of ACK 5CX1 & 5CX2 is in service
5L98	 Siled at KCL/ALHWAN/BRX/WAX first, then SEV the greatest of: > 1.25* (5L91 SEL + 5L96 SEL + Z - Y), or > 2.40* (2L112 NLY + 0.23* (5L96 SEL + Z) - 400), or > 3.04* (2L293 SEL + 0.17* (5L96 SEL + Z) - 400), and do not shed WAN for this requirement. Y = 1880 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1800 if none of ACK 5CX1 & 5CX2 is in service AND all SEL T1 & T2 & T4 are in service Z = 48L KET if DTT 48L is armed, or Z = 0 if DTT 48L is not armed If VAS-VNT loop is closed, then Shed at KCL/ALHWAN/BRX/WAX first, then SEV the greatest of: > 1.60* (5L91 SEL + 5L98 VAS - Y), or > 2.92* (2L112 NLY + 0.14*5L98 VAS - 400), and do not shed WAN for this requirement. Y = 1570 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1570 if none of ACK 5CX1 & 5CX2 is in service. Otherwise, Shed at KCL/ALHWAN/BRX/WAX first, then SEV the greatest of: > 1.56* (5L91 SEL + 5L98 VAS - Y), or > 2.79* (2L112 NLY + 0.16*5L98 VAS - 400), or > 2.79* (2L112 NLY + 0.16*5L98 VAS - 400), or > 2.79* (2L112 NLY + 0.16*5L98 VAS - 400), or > 2.79* (2L12 NLY + 0.16*5L98 VAS - 400), or > 3.92* (2L293 SEL + 0.12*5L98 VAS - 400), or
5L98	 Siled at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: 1.25* (5L91 SEL + 5L96 SEL + Z - Y), or 2.40* (2L112 NLY + BDY Gen + 0.23* (5L96 SEL + Z) - 400), or 3.04* (2L293 SEL + 0.17* (5L96 SEL + Z) - 400), and do not shed WAN for this requirement. Y = 1880 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1800 if none of ACK 5CX1 & 5CX2 is in service AND all SEL T1 & T2 & T4 are in service Z = 48L KET if DTT 48L is armed, or Z = 0 if DTT 48L is not armed If VAS-VNT loop is closed, then Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: 1.60* (5L91 SEL + 5L98 VAS - 400), or 2.92* (2L112 NLY + 0.14* 5L98 VAS - 400), or 4.07* (2L293 SEL + 0.11* 5L98 VAS - 400), and do not shed WAN for this requirement. Y = 1760 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1570 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1570 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1570 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1570 if none of ACK 5CX1 & 5LX2 is in service, or Y = 1760 if at least one of ACK 5CX1 & 5LX2 is in service, or Y = 1760 if at least one of ACK 5CX1 & 5LX2 is in service, or Y = 1760 if at least one of ACK 5CX1 & 5LX2 is in service, or Y = 1760 if at least one of ACK 5LX1 & 5LX2 is in service, or Y = 1760 if at least one of ACK 5LX1 & 5LX2 is in service, or Y = 1760 if at least one of ACK 5LX1 & 5LX2 is in service, or Y = 1760 if at least one of ACK 5LX1 & 5LX2 is in service, or Y = 1760 if at least one of ACK 5LX1 & 5LX2 is in service, or Y = 1740 if at least one of ACK 5LX1 & 5LY2 is in service, or
5L98	 Sided at RCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: 2.40* (2L112 NLY + 0.23* (5L96 SEL + Z) - 400), or 2.40* (2L112 NLY + BDY Gen + 0.23* (5L96 SEL + Z) - 1160), or 3.04* (2L293 SEL + 0.17* (5L96 SEL + Z) - 400), and do not shed WAN for this requirement. Y = 1880 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1800 if none of ACK 5CX1 & 5CX2 is in service AND all SEL T1 & T2 & T4 are in service Z = 48L KET if DTT 48L is armed, or Z = 0 if DTT 48L is not armed If VAS-VNT loop is closed, then Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: > 1.60* (5L91 SEL + 5L98 VAS - Y), or > 2.92* (2L112 NLY + 0.14* 5L98 VAS - 400), and do not shed WAN for this requirement. Y = 1570 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1570 if none of ACK 5CX1 & 5CX2 is in service. Otherwise, Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: > 1.56* (5L91 SEL + 5L98 VAS - Y), or > 2.79* (2L112 NLY + 0.16* 5L92 is in service. Otherwise, Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: > 1.56* (5L91 SEL + 5L98 VAS - Y), or > 2.79* (2L112 NLY + 0.16* 5L98 VAS - 400), or > 3.92* (2L293 SEL + 0.12* 5L98 VAS - 400), or > 3.92* (2L293 SEL + 0.12* 5L98 VAS - 400), or > 3.92* (2L293 SEL + 0.12* 5L98 VAS - 400), or > 3.92* (2L293 SEL + 0.12* 5L98 VAS - 400), or > 3.92* (2L293 SEL + 0.12* 5L98 VAS - 400), or > 3.92* (2L293 SEL + 0.12* 5L98 VAS - 400), or > 3.92* (2L293 SEL + 0.12* 5L98 VAS - 400), or > 1.740 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1730 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1530 if none of ACK 5CX1 & 5CX2 is in service.
5L98 5L96 & 5L98	 Sided at RCL/ALH/WAN/BRWWAX first, then SEV the greatest of: 2.40* (2L112 NLY + 0.23* (5L96 SEL + Z) - 400), or 2.40* (2L112 NLY + BDY Gen + 0.23* (5L96 SEL + Z) - 1160), or 3.04* (2L293 SEL + 0.17* (5L96 SEL + Z) - 400), and do not shed WAN for this requirement. Y = 1880 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1800 if none of ACK 5CX1 & 5CX2 is in service AND all SEL T1 & T2 & T4 are in service Z = 48L KET if DTT 48L is armed, or Z = 01 f DTT 48L is not armed If VAS-VNT loop is closed, then Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: 1.60* (5L91 SEL + 5L98 VAS - Y), or 2.92* (2L112 NLY + 0.14* 5L98 VAS - 400), and do not shed WAN for this requirement. Y = 1760 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1570 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1570 if none of ACK 5CX1 & 5CX2 is in service Otherwise, Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: 1.56* (5L91 SEL + 5L98 VAS - 400), or 2.79* (2L112 NLY + 0.16* 5L98 VAS - 400), or 3.92* (2L293 SEL + 0.11* 5L98 VAS - 400), or 3.92* (2L293 SEL + 0.12* 5L98 VAS - 400), and do not shed WAN for this requirement. Y = 1570 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1570 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1570 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1740 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1740 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1530 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1530 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1530 if none of ACK 5CX1 & 5CX2 is in service
5L98 5L96 & 5L98	 Sined at RCL/ALHWAN/BRX/WAX first, then SEV the greatest of: 2.40 * (2L112 NLY + 0.23 * (5L96 SEL + Z) - 400), or 2.40 * (2L112 NLY + BDY Gen + 0.23 * (5L96 SEL + Z) - 1160), or 3.04 * (2L293 SEL + 0.17 * (5L96 SEL + Z) - 400), and do not shed WAN for this requirement. Y = 1880 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1880 if none of ACK 5CX1 & 5CX2 is in service AND all SEL T1 & T2 & T4 are in service Z = 48L KET if DTT 48L is armed, or Z = 0 if DTT 48L is not armed If VAS-VNT loop is closed, then Shed at KCL/ALHWAN/BRX/WAX first, then SEV the greatest of: > 1.60 * (5L91 SEL + 5L98 VAS - Y), or 2.92 * (2L112 NLY + 0.14 * 5L98 VAS - 400), and do not shed WAN for this requirement. Y = 1760 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1570 if none of ACK 5CX1 & 5CX2 is in service Otherwise, Shed at KCL/ALHWAN/BRX/WAX first, then SEV the greatest of: > 1.60 * (5L91 SEL + 5L98 VAS - 400), and do not shed WAN for this requirement. Y = 1570 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1570 if none of ACK 5CX1 & 5CX2 is in service Otherwise, Shed at KCL/ALHWAN/BRX/WAX first, then SEV the greatest of: > 1.56 * (5L91 SEL + 5L98 VAS - 400), or > 2.79 * (2L122 NLY + 0.16 * 5L98 VAS - 400), or > 3.92 * (2L203 SEL + 0.12 * 5L88 VAS - 400), and do not shed WAN for this requirement. Y = 1740 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1740 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1740 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1740 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1740 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1740 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1740 if at least one of ACK 5CX1 & 5CX2 is in servic
5L98 5L96 & 5L98	 Sined at RCL/ALHWAN/BRX/WAX first, then SEV the greatest of: 2.40 * (2L112 NLY + 0.23 * (5L96 SEL + Z) - 400), or 2.40 * (2L112 NLY + BDY Gen + 0.23 * (5L96 SEL + Z) - 1160), or 3.04 * (2L293 SEL + 0.17 * (5L96 SEL + Z) - 400), and do not shed WAN for this requirement. Y = 1880 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1880 if none of ACK 5CX1 & 5CX2 is in service AND all SEL T1 & T2 & T4 are in service Z = 48L KET if DTT 48L is armed, or Z = 0 if DTT 48L is not armed If VAS-VNT loop is closed, then Shed at KCL/ALHWAN/BRX/WAX first, then SEV the greatest of: > 1.60 * (5L91 SEL + 5L98 VAS - Y), or 2.92 * (2L112 NLY + 0.14 * 5L98 VAS - 400), and do not shed WAN for this requirement. Y = 1760 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1760 if none of ACK 5CX1 & 5CX2 is in service Otherwise, Shed at KCL/ALHWAN/BRX/WAX first, then SEV the greatest of: > 1.65 * (5L91 SEL + 5L98 VAS - 400), or > 2.79 * (2L121 NLY + 0.16 * 5L98 VAS - 400), or > 2.79 * (2L121 NLY + 0.16 * 5L98 VAS - 400), or > 2.79 * (2L112 NLY + 0.16 * 5L98 VAS - 400), or > 2.79 * (2L112 NLY + 0.16 * 5L98 VAS - 400), or > 2.79 * (2L112 NLY + 0.16 * 5L98 VAS - 400), or > 2.79 * (2L123 SEL + 0.12 * 5L98 VAS - 400), or > 2.79 * (2L121 NLY + 0.16 * 5L98 VAS - 400), or > 2.79 * (2L112 NLY + 0.16 * 5L98 VAS - 400), or > 2.79 * (2L112 NLY + 0.16 * 5L98 VAS - 400), or > 1.56 * (5L91 SEL + 5L98 VAS - 400), or > 1.750 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1740 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1530 if none of ACK 5CX1 & 5CX2 is in service. Arm DTT 48L if 5L96 SEL + 200 MW AND if both VAS-WTS and VAS-VNT loops are closed. Shed at KCL/ALHWAN/BRX/WAX first, then SEV the greatest of: > 125 * (5L91
5L98 5L96 & 5L98	 Siled at RCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: > 1.25* (SL91 SEL + 5L96 SEL + Z - 400), or > 2.40* (2L112 NLY + 0.23* (5L96 SEL + Z) - 400), and do not shed WAN for this requirement. Y = 1880 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1880 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1800 if none of ACK 5CX1 & 5CX2 is in service AND all SEL T1 & T2 & T4 are in service Z = 48L KET if DTT 48L is armed. If VAS-VNT loop is closed, then Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: > 1.60* (5L91 SEL + 5L98 VAS - Y), or > 2.92* (2L112 NLY + 0.14* 5L98 VAS - 400), and do not shed WAN for this requirement. Y = 1760 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1760 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1750 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1570 if none of ACK 5CX1 & 5CX2 is in service Otherwise, Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: > 1.56* (5L91 SEL + 5L98 VAS - Y), or > 2.79* (2L112 NLY + 0.16* 5L98 VAS - 400), or > 3.92* (2L293 SEL + 0.12* 5L98 VAS - 400), or > 3.92* (2L293 SEL + 0.12* 5L98 VAS - 400), or > 3.92* (2L293 SEL + 0.12* 5L98 VAS - 400), or > 3.92* (2L293 SEL + 0.12* 5L98 VAS - 400), or > 3.92* (2L293 SEL + 0.12* 5L98 VAS - 400), or > 3.92* (2L293 SEL + 0.12* 5L98 VAS - 400), or > 3.92* (2L293 SEL + 0.12* 5L98 VAS - 400), or > 1.56* (5L91 SEL + 5L98 VAS - 400), or > 1.740 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1730 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1730 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1730 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1530 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1530 if none of ACK 5CX1 & 5CX2 is in service.
5L98 5L96 & 5L98	 Siled at KCL/ALHWAN/BRX/WAX first, then SEV the greatest of: > 1.25* (5L91 SEL + 5L96 SEL + Z - Y), or > 2.40* (2L112 NLY + 8DY Gen + 0.23* (5L96 SEL + Z) - 400), or > 3.04* (2L23) SEL + 0.17* (5L96 SEL + Z) - 400), and do not shed WAN for this requirement. Y = 1880 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1800 if none of ACK SCX1 & 5CX2 is in service, AND all SEL T1 & T2 & T4 are in service Z = 48L KET if DTT 48L is armed, or Z = 0 if DTT 48L is not armed If VAS-VNT loop is closed, then Shed at KCL/ALHWAN/BRX/WAX first, then SEV the greatest of: > 1.60* (5L91 SEL + 5L98 VAS - Y), or > 2.92* (2L112 NLY + 0.14* 5L98 VAS - 400), and do not shed WAN for this requirement. Y = 1760 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1760 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1570 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1570 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1570 if none of ACK 5CX1 & 5CX2 is in service Otherwise, Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: > 1.56* (5L91 SEL + 5L98 VAS - Y), or > 3.92* (2L112 NLY + 0.16* 5L98 VAS - 400), and do not shed WAN for this requirement. Y = 1570 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1740 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1730 if all close of ACK 5CX1 & 5CX2 is in service, or Y = 1730 if all close one of ACK 5CX1 & 5CX2 is in service, or Y = 1530 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1530 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1530 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1530 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1530 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1530 if none of ACK 5CX1 & 5CX2 is in service • Arm DTT48L i
5L98 5L96 & 5L98	 Siled at NCL/ALHWAN/BRX/WAX first, then SEV the greatest of: > 1.25* (5L91 SEL + 5L96 SEL + Z) - 400), or > 2.40* (2L112 NLY + 0.23* (5L96 SEL + Z) - 400), or > 3.04* (2L203 SEL + 0.17* (5L96 SEL + Z) - 400), and do not shed WAN for this requirement. Y = 1880 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1800 if none of ACK 5CX1 & 5CX2 is in service AND all SEL T1 & T2 & T4 are in service Z = 48L KET if DTT 48L is armed, or Z = 0 if DTT 48L is not armed If VAS-VNT loop is closed, then Shed at KCL/ALHWAN/BRX/WAX first, then SEV the greatest of: > 1.60* (5L91 SEL + 5L98 VAS - Y), or > 2.92* (2L112 NLY + 0.14* 5L98 VAS - 400), or > 4.07* (2L293 SEL + 0.11* 5L98 VAS - 400), or > 4.07* (2L293 SEL + 0.11* 5L98 VAS - 400), or Y = 1570 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1570 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1570 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1570 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1740 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1740 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1740 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1740 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1740 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1740 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1740 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1740 if at least one of ACK 5CX1 is 5CX2 is in service, or Y = 1740 if at least one of ACK 5CX1 is 5CX2 is in service, or Y = 1530 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1530 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1530 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1530 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1530 if none of ACK 5
5L98 5L96 & 5L98	 Sited at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: 2.40* (2L112 NLY + 5L96 SEL + Z) - 400), or 2.40* (2L112 NLY + BDY Gen + 0.23* (5L96 SEL + Z) - 1160), or 3.04* (2L293 SEL + 0.17* (5L96 SEL + Z) - 400), and do not shed WAN for this requirement. Y = 1880 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1800 if none of ACK 5CX1 & 5CX2 is in service AND all SEL T1 & T2 & T4 are in service Z = 0 if DTT 48L is armed, or Z = 0 if DTT 48L is not armed If VAS-VNT loop is closed, then Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: > 1.60* (5L91 SEL + 5L98 VAS - Y), or > 2.92* (2L112 NLY + 0.14* 5L98 VAS - 400), or > 4.07* (2L293 SEL + 0.11* 5L98 VAS - 400), and do not shed WAN for this requirement. Y = 1570 if none of ACK 5CX1 & 5CX2 is in service Otherwise, Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: > 1.56* (5L91 SEL + 5L98 VAS - 400), and do not shed WAN for this requirement. Y = 1570 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1570 if none of ACK 5CX1 & 5CX2 is in service Otherwise, Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: > 1.56* (5L91 SEL + 5L98 VAS - 400), or > 2.79* (2L112 NLY + 0.16* 5L98 VAS - 400), or > 3.92* (2L293 SEL + 0.12* 5L98 VAS - 400), or > 3.92* (2L293 SEL + 0.12* 5L98 VAS - 400), and do not shed WAN for this requirement. Y = 1730 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1530 if none of ACK 5CX1 & 5CX2 is in service. Am DTT 48L if 5L96 SEL > 800 MW AND if both VAS-WTS and VAS-VNT loops are closed. Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: > 1.25* (5L91 SEL + 5L96 SEL + 2) - 400), or > 2.49* (2L112 NLY + 0.26* (5L96 SEL + 2) - 400), or > 2.49* (2L112 NLY + 0.26* (5L96 SEL + 2) - 400), or
5L98 5L96 & 5L98	 Siled at KCL/ALHWAN/BKWAX first, then SEV the greatest of: 2.40 * (2L112 NLY + 0.23 * (5L96 SEL + Z) - 400), or 2.40 * (2L112 NLY + BDY Gen + 0.23 * (5L96 SEL + Z) - 1160), or 3.04 * (2L293 SEL + 0.17 * (5L96 SEL + Z) - 400), and do not shed WAN for this requirement. Y = 1880 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1800 if none of ACK 5CX1 & 5CX2 is in service AND all SEL T1 & T2 & T4 are in service Z = 48L KET if DTT 48L is armed, or Z = 0 if DTT 48L is not armed If VAS-VNT loop is closed, then Shed at KCL/ALHWAN/BRWWAX first, then SEV the greatest of: > 1.60 * (5L91 SEL + 5L98 VAS - Y), or > 2.92 * (2L112 NLY + 0.14 * 5L98 VAS - 400), or × 4.07 * (2L293 SEL + 0.11 * 5L98 VAS - 400), or × 1.760 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1760 if at least one of ACK 5CX1 & 5CX2 is in service Otherwise, Shed at KCL/ALHWAN/BRX/WAX first, then SEV the greatest of: > 1.56 * (5L91 SEL + 5.198 VAS - 400), and do not shed WAN for this requirement. Y = 1570 if none of ACK 5CX1 & 5CX2 is in service Otherwise, Shed at KCL/ALHWAN/BRX/WAX first, then SEV the greatest of: > 1.56 * (5L91 SEL + 5.198 VAS - 400), or > 2.79 * (2L112 NLY + 0.16 * 5L98 VAS - 400), or > 3.92 * (2L293 SEL + 0.12 * 5L98 VAS - 400), or > 3.92 * (2L293 SEL + 0.12 * 5L98 VAS - 400), or > 3.92 * (2L293 SEL + 0.12 * 5L98 VAS - 400), or > 2.99 * (2L112 NLY + 0.16 * 5L98 VAS - 400), or > 1.56 * (5L91 SEL + 5L98 VAS - 400), or > 2.99 * (2L122 NLY + 0.16 * 5L98 VAS - 400), or > 2.99 * (2L122 NLY + 0.28 * (5L96 SEL + Z) - 400, or Y = 1530 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1530 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1530 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1550 if at least on
5L98 5L96 & 5L98	 Sined at KCL/ALHWAN/BCK/WAX first, then SCV the greatest of: 2.40* (2L112 NLY + 0.23* (5L96 SEL + Z) - 400), or 2.40* (2L112 NLY + BDY Gen + 0.23* (5L96 SEL + Z) - 1160), or 3.04* (2L233 SEL + 0.17* (5L96 SEL + Z) - 400), and do not shed WAN for this requirement. Y = 1880 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1880 if none of ACK 5CX1 & 5CX2 is in service AND all SEL T1 & T2 & T4 are in service Z = 48L KET if DTT 48L is armed, or Z = 0 if DTT 48L is not armed If VAS-VNT loop is closed, then Shed at KCL/ALHWAN/BRX/WAX first, then SEV the greatest of: > 1.60* (5L91 SEL + 5L98 VAS - Y), or > 2.92* (2L112 NLY + 0.14* 5L98 VAS - 400), and do not shed WAN for this requirement. Y = 1760 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1760 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1760 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1760 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1760 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1760 if at least one of ACK 5CX1 & 5CX2 is in service Otherwise, Shed at KCL/ALHWAN/BRX/WAX first, then SEV the greatest of: > 1.56* (5L91 SEL + 5L98 VAS - Y), or > 2.79* (2L121 NLY + 0.16* 5L98 VAS - 400), and do not shed WAN for this requirement. Y = 1740 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1530 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1530 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1530 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1530 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1530 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1530 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1530 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1530 if none of ACK 5CX1 & 5CX2 is in service, or
5L98 5L96 & 5L98	 Sined at KCL/ALHWAN/BCKWAX first, then SEV the greatest of: 2.40* (2L112 NLY + 0.23* (5L96 SEL + Z) - 400), or 2.40* (2L112 NLY + 0.23* (5L96 SEL + Z) - 400), and do not shed WAN for this requirement. Y = 1880 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1880 if at least one of ACK 5CX1 & 5CX2 is in service AND all SEL T1 & T2 & T4 are in service Z = 48L KET if DTT 48L is armed, or Z = 0 if DTT 48L is not armed If VAS-VNT loop is closed, then Shed at KCL/ALHWAN/BRX/WAX first, then SEV the greatest of: > 1.60* (5L91 SEL + 5L98 VAS - Y), or > 2.92* (2L112 NLY + 0.14* 5L98 VAS - 400), and do not shed WAN for this requirement. Y = 1760 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1770 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1760 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1570 if none of ACK 5CX1 & 5CX2 is in service. Otherwise, Shed at KCL/ALHWAN/BRX/WAX first, then SEV the greatest of: > 1.56* (5L91 SEL + 5L98 VAS - Y), or > 2.79* (2L112 NLY + 0.14* 5L98 VAS - 400), and do not shed WAN for this requirement. Y = 1570 if none of ACK 5CX1 & 5CX2 is in service. Otherwise, Shed at KCL/ALHWAN/BRX/WAX first, then SEV the greatest of: > 1.56* (5L91 SEL + 5L98 VAS - Y), or > 2.79* (2L112 NLY + 0.16* 5L98 VAS - 400), and do not shed WAN for this requirement. Y = 1530 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1530 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1530 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1530 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1530 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1530 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1530 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1550 if at least one of ACK 5CX1 & 5CX2 is in
5L98 5L96 & 5L98	 Sined at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: 2.40* (2L12 NLY + 0.23* (5L96 SEL + Z) – 400), or 2.40* (2L112 NLY + 0.23* (5L96 SEL + Z) – 400), or 3.04* (2L293 SEL + 0.17* (5L96 SEL + Z) – 400), and do not shed WAN for this requirement. Y = 1880 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1880 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1880 if none of ACK 5CX1 & 5CX2 is in service, or Z = 48L KET if DTT 48L is armed, or Z = 0 if DTT 48L is not armed If VAS-VMT loop is closed, then Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: > 1.60* (5L91 SEL + 5L98 VAS - 400), or > 2.92* (2L112 NLY + 0.14* 5L98 VAS - 400), and do not shed WAN for this requirement. Y = 1760 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1760 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1760 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1760 if at least one of ACK 5CX1 & 5CX2 is in service. Otherwise, Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: > 1.56* (5L91 SEL + 5L98 VAS - 400), or > 2.79* (2L122 NLY + 0.16* 5L98 VAS - 400), or > 3.92* (2L293 SEL + 0.12* 5L98 VAS - 400), and do not shed WAN for this requirement. Y = 1760 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1740 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1740 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1740 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1530 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1530 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1530 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1530 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1550 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1550 if at least one of ACK 5CX1 & 5CX
5L98 5L96 & 5L98	 Sined at KCL/ALH/WAN/BRX/WAX first, then SUV the greatest of: 2.40 * (2L112 NLY + 0.23 * (5L96 SEL + Z) – 400), or 2.40 * (2L112 NLY + BDY Gen + 0.23 * (5L96 SEL + Z) – 1160), or 3.04 * (2L293 SEL + 0.17 * (5L96 SEL + Z) – 400), and do not shed WAN for this requirement. Y = 1880 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1880 if none of ACK 5CX1 & 5CX2 is in service AND all SEL T1 & T2 & T4 are in service Z = 48L KET if DTT 48L is armed, or Z = 0 if DTT 48L is not armed Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: > 1.60 * (5L91 SEL + 5L98 VAS - 400), or > 2.92 * (2L122 NLY + 0.14 * 5L98 VAS - 400), or > 2.92 * (2L122 NLY + 0.14 * 5CX2 is in service, or Y = 1570 if none of ACK 5CX1 & 5CX2 is in service Otherwise, Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: > 1.56 * (5L91 SEL + 5L98 VAS - 400), or > 4.07 * (2L233 SEL + 0.11 * 5L98 VAS - 400), or > 2.79 * (2L112 NLY + 0.14 * 5L98 VAS - 400), or Y = 1570 if none of ACK 5CX1 & 5CX2 is in service Otherwise, Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: > 1.56 * (5L91 SEL + 5L98 VAS - Y), or > 2.79 * (2L112 NLY + 0.16 * 5L98 VAS - 400), or > 3.92 * (2L233 SEL + 0.12 * 5L98 VAS - 400), or > 3.92 * (2L23 SEL + 0.12 * 5L98 VAS - 400), or > 3.92 * (2L12 NLY + 0.16 * 5L98 VAS - 400), or > 3.92 * (2L23 SEL + 0.12 * 5L98 VAS - 400), or > 2.79 * (2L112 NLY + 0.16 * 5L98 VAS - 400), or > 3.92 * (2L23 SEL + 0.12 * 5L98 VAS - 400), or > 2.79 * (2L112 NLY + 0.16 * 5L98 VAS - 400), or > 2.79 * (2L112 NLY + 0.16 * 5L98 VAS - 400), or > 2.79 * (2L112 NLY + 0.16 * 5CX2 is in service, or Y = 1530 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1530 if none of ACK 5CX1 & 5CX2 is in service, or > 1.25 * (
5L98 5L96 & 5L98	 Sined at KCL/ALHWAW/BCKWAK first, then SEV the greatestol. 2.40 * (2L112 NLY + 0.23 * (5L96 SEL + Z) – 400), or 2.40 * (2L112 NLY + BDY Gen + 0.23 * (5L96 SEL + Z) – 1160), or 3.04 * (2L293 SEL + 0.17 * (5L96 SEL + Z) – 400), and do not shed WAN for this requirement. Y = 1880 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1880 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1880 if none of ACK 5CX1 & 5CX2 is in service, or Z = 0 if DTT 48L is armed, or Z = 0 if DTT 48L is not armed If VAS-WTIoop is closed, then Shed at KCL/ALHWAN/BRX/WAX first, then SEV the greatest of: > 1.60 * (5L91 SEL + 5L98 VAS – 400), or > 2.92 * (2L112 NLY + 0.14 * 5L98 VAS – 400), or > 2.92 * (2L112 NLY + 0.14 * 5L98 VAS – 400), or > 4.07 * (2L293 SEL + 0.11 * 5L98 VAS – 400), or > 4.07 * (2L293 SEL + 0.11 * 5L98 VAS – 400), or Y = 1760 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1760 if at least one of ACK 5CX1 & 5CX2 is in service Otherwise, Shed at KCL/ALHWAN/BRX/WAX first, then SEV the greatest of: > 1.56 * (5L91 SEL + 5L98 VAS – Y), or > 2.78 * (2L112 NLY + 0.16 * 5L98 VAS – 400), or > 2.78 * (2L112 NLY + 0.16 * 5L98 VAS – 400), or > 3.93 * (2L293 SEL + 0.12 * 5L98 VAS – 400), or > 3.93 * (2L293 SEL + 0.12 * 5L98 VAS – 400), or > 3.93 * (2L112 NLY + 0.16 * 5L98 VAS – 400), or > 3.93 * (2L112 NLY + 0.16 * 5L98 VAS – 400), or > 3.93 * (2L112 NLY + 0.16 * 5L98 VAS – 400), or > 3.93 * (2L112 NLY + 0.16 * 5L98 VAS – 400), or > 3.93 * (2L112 NLY + 0.16 * 5L98 VAS – 400), or > 1.25 * (5L91 SEL + 5L98 SEL + 2.0 + 00), or > 1.26 * (5L91 SEL + 5L98 SEL + 2.0 + 00), or > 1.26 * (5L91 SEL + 5L98 SEL + 2.0 + 00), or > 2.49 * (2L112 NLY + 0.26 * (5L96 SEL + 2.) - 120), or > 2.49 * (2L112 NLY + 0.26 * (5L96 SEL +
5L98 5L96 & 5L98 5L96 & 5L98	 Siled at NCLALIWANDIOUNALISE, the SUM is greates to: 2.40 * (2L112 NLY + 0.23 * (5L96 SEL + Z) - 400), or 2.40 * (2L12 NLY + DV Gen + 0.23 * (5L96 SEL + Z) - 1160), or 3.04 * (2L293 SEL + 0.17 * (5L96 SEL + Z) - 400), and do not shed WAN for this requirement. Y = 1880 if none of ACK SCX1 & 5CX2 is in service, or Y = 1880 if none of ACK SCX1 & 5CX2 is in service, or Z = 0 if DTT 48L is armed, or Z = 0 if DTT 48L is not armed If VAS-VNT loop is closed, then Shed at KCL/ALHWAAN/BRX/WAX first, then SEV the greatest of: > 1.60 * (5L91 SEL + 5L98 VAS - V), or > 2.92 * (2L112 NLY + 0.14 * 5L98 VAS - 400), and do not shed WAN for this requirement. Y = 1570 if none of ACK SCX1 & 5CX2 is in service, or Y = 1570 if none of ACK SCX1 & 5CX2 is in service, or Y = 1570 if none of ACK SCX1 & 5CX2 is in service. Otherwise, Shed at KCL/ALHWAAN/BRX/WAX first, then SEV the greatest of: > 1.66 * (5L91 SEL + 5L98 VAS - V), or > 2.79 * (2L112 NLY + 0.14 * 5L98 VAS - 400), and do not shed WAN for this requirement. Y = 1570 if none of ACK SCX1 & 5CX2 is in service. Otherwise, Shed at KCL/ALHWAAN/BRX/WAX first, then SEV the greatest of: > 1.66 * (5L91 SEL + 5L98 VAS - V), or > 2.79 * (2L112 NLY + 0.16 * 5L98 VAS - 400), and do not shed WAN for this requirement. Y = 1530 if none of ACK SCX1 & 5CX2 is in service, or Y = 1530 if none of ACK SCX1 & SCX2 is in service, or Y = 1530 if none of ACK SCX1 & SCX2 is in service, or Y = 1530 if none of ACK SCX1 & SCX2 is in service, or Y = 1530 if none of ACK SCX1 & SCX2 is in service, or Y = 1530 if none of ACK SCX1 & SCX2 is in service, or Y = 1530 if none of ACK SCX1 & SCX2 is in service, or Y = 1530 if none of ACK SCX1 & SCX2 is in service, or Y = 1530 if least no ef ACK SCX1 & SCX2 is in service, or
5L98 5L96 & 5L98 5L96 & 5L98 5L92 5L94 5L94 5L94 5L94 (1P) or 5L96 (1P) or	 Siled and CLALIWANDROWNAX first, the J = J Y), or 2.40 * (2L112 NLY + 0.23 * (5L96 SEL + Z) - 400), or 2.40 * (2L112 NLY + DY Gen + 0.23 * (5L96 SEL + Z) - 1160), or 3.44 * (2L293 SEL + 0.17 * (5L96 SEL + Z) - 400), and do not shed WAN for this requirement. Y = 1800 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1800 if none of ACK 5CX1 & 5CX2 is in service, or Z = 48L KET if DTT 48L is armed, or Z = 0 if DTT48L is not armed If VAS-VNT loop is closed, then Shed at KCL/ALHWAN/BRXWAX first, then SEV the greatest of: > 1.60 * (5L91 SEL + 5L98 VAS - V), or 2.92 * (2L112 NLY + 0.14 * 5L98 VAS - 400), or > 4.07 * (2L293 SEL + 0.11 * 5L98 VAS - 400), or > 4.07 * (2L293 SEL + 0.11 * 5L98 VAS - 400), or > 4.07 * (2L293 SEL + 0.11 * 5L98 VAS - 400), or > 4.07 * (2L293 SEL + 0.11 * 5L98 VAS - 400), or > 2.92 * (2L112 NLY + 0.14 * 5L98 VAS - 400), or > 2.92 * (2L112 NLY + 0.14 * 5L98 VAS - 400), or > 2.79 * (2L122 NLY + 0.14 * 5L98 VAS - 400), or > 2.79 * (2L121 NLY + 0.16 * 5L98 VAS - 400), or > 2.79 * (2L12 NLY + 0.16 * 5L98 VAS - 400), or > 2.92 * (2L112 NLY + 0.16 * 5L98 VAS - 400), or > 3.92 * (2L12 NLY + 0.16 * 5L98 VAS - 400), or > 3.92 * (2L12 NLY + 0.16 * 5L98 VAS - 400), or > 3.92 * (2L112 NLY + 0.16 * 5L98 VAS - 400), or > 2.79 * (2L112 NLY + 0.16 * 5L98 VAS - 400), or > 2.92 * (2L112 NLY + 0.16 * 5L98 VAS - 400), or > 2.94 * (2L112 NLY + 0.16 * 5L98 VAS - 400), or > 2.94 * (2L112 NLY + 0.16 * 5L98 VAS - 400), or > 2.94 * (2L112 NLY + 0.26 * (5L96 SEL + 2) - 400), or > 1.25 * (5L91 SEL + 5L98 WAS - 400, or > 1.26 * (5L91 SEL + 5L98 WAS - 400, or > 2.49 * (2L112 NLY + 0.26 * (5L96 SEL + 2) - 400), or > 2.49 * (2L112 NLY + 0.26 * (5L96 SEL + 2) - 400), or > 2.49 * (2L112 NLY + 0.26 * (5L96 SEL + 2) - 40

Table 1.19 - 5L91 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

- Limit:
 - 5L96 SEL < 1300 MW from 1 December to April 30, or
 - 5L96 SEL < 1400 MW from 1 May to 30 November
- 5L76 and 5L79 contingency:
 - No 500kV Reactors at ACK in service.
 - Limit total flow on 5L76 and 5L79 from NIC to ACK < 100 MW
- 5L96, or 5L98, or 5L96 & 5L98 contingency:
 - If SEL 5RX3 is available, then limit:
 - (FBC injection into SEL area) + Y < WAN shedable generation amount + ALH MW + BRX MW + WAX MW + 1000 1 SEV @ MIN.MW - Z
 - Otherwise, limit:

(FBC injection into SEL area) + Y < WAN shedable generation amount + ALH MW + BRX MW + WAX MW + 1000 – 1 SEV @ MIN.MW – 1 KCL @ MIN.MW - Z

Where: FBC injection into SEL area = 2L288 BTS + 2L289 BTS + FBC AAL Tie MW + 2L277 WAN - 60L225 KCL - 60L227 KCL - 2L286 SEL MW

- FBC AAL Tie MW = (2L294 AAL-NLY) AAL + (2L294 AAL-CBK) AAL MW
- Alarm if 5L96 SEL + 2L112 NLY + Z < -700 MW AND NATL120S_PST230 >= 0 MW, or

if 5L96 SEL + 2L112 NLY + Z + MATL120S_PST230 < -700 MW AND MATL120S_PST230 < 0 MW If the alarm comes, the BC Hydro Control Centre staff must put more local generation on-line to prevent post-contingency frequency drop down below 59.0 Hz for loss of 5L96.

Where:

•

- Y = AB to BC MW if AB to BC > 0, or
- Y = 0 if AB to BC <= 0 MW
- Z = 48L KET if VAS-WTS loop closed, or
- Z = 0 if VAS-WTS loop open.

Generation Shedding Requirements 5L91 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops) Note: Table E is applicable to this Table.

CONTINGENCY	SHEDDING REQUIREMENTS
5L75 (3P)	ACK 5CB5 in service: Same as table F
	ACK 5CB5 O.O.S. (5L75 contingency will trip open 5L76):
	If REV 5CB9 is 0.0.S., REV G1 and G2 must be selected for shedding.
5L77 (3P)	Same as Table F
5L75 (1P)	Same as Table F
5L77 (1P)	Same as Table F
5L75 (1P) and 5L77 (3P)	Same as Table F
5L75 (3P) and 5L77 (1P)	Same as Table F
5L75 (3P) and 5L77 (3P)	Same as Table F
5276	ACK SCBS IT Service. No gen snedding.
	ACK 5CB8 O.O.S.: (5L76 contingency will trip open 5L75) Same as 5L75 (3P) contingency with ACK 5CB5 O.O.S. in this table.
5L79	No gen shedding. If TSA-PM alarms "VIOLATION_5L76_NORM_RATING", the BC Hydro Control Centre staff shall reduce REV generation to bring the flow on 5L76 ACK below the rating within 30 minutes.
5L81	Same as system normal Table 1.1
5L82	Same as system normal Table 1.1
5L83	Same as system normal lable 1.1
Bypass AMC 5CX1	No shedding required
Bypass AMC 5CX2	No shedding required
51 81 and 51 82	$\frac{1}{100} = 2.9 \times \frac{100}{100} = \frac{100}{100$
JEOT ANU JEOZ	$G_2 = 3.15 \times [51.83 \text{ NIC} + 0.48 \times (51.81 + 51.82) \text{ NIC} - 51.83 \text{ Over rating}$
	$G_3 = 2.95 * [51.87 \text{ NIC} + 0.43 * (51.81 + 51.82) \text{ NIC} - 51.87 \text{ Over Rating]}$
	G4 = 8.46 * [2L112 NLY + 0.07 * (5L81 + 5L82) NIC - NLYPST OL PickupMW]
	G5 = 9.13 * [2L293 SEL+ 0.05 * (5L81 + 5L82) NIC - 2L293OLRAS PickupMW
	GS = Max (0, G1, G2, G3, G4, G5)
	Shed at MCA/REV first: GS
	 Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.82 * (GS – the armed gen-shedding amount at MCA/REV). Do
	not select GMS/PCN for shedding if G3 > 0.
	 Total armed generation shedding must be limited to 2500 MW.
	If generation shedding is armed,
	• Keep a minimum of 2 MCA, 1 REV, 2 SEV and 1 KCL (with high side 2CBs in service) on line post-shedding if SEL
	SRX3 IS available, or keep a minimum of 2 MCA 1 PEV 2 SEV 1 KCL (with high side 2CPs in convice) and 1 aguivalant SEV units on
	 Reep a minimum of 2 MCA, TALV, 2 SEV, TACE (with high side 2CDs in service) and Tequivalent SEV units of line next shedding if SEL 5DV2 is unavailable, or
	 keep a minimum of 2 MCA 1 REV 2 SEV and 2/3 equivalent SEV units on-line post-shed if SEL 5RX3 is available.
	and the whole KCL plant is shutdown in pre-contingency condition or
	 keep a minimum of 2 MCA 1 REV 2 SEV and 1 & 2/3 equivalent SEV units on-line post-shed if SEL 5RX3 is
	unavailable and the whole KCL plant is shutdown in pre-contingency condition.
	If TSA alarms "C5L81 82 - MAX ARMED SHED VIOLATION", the BC Hydro Control Centre staff should take the
	following actions:
	If BC is exporting to US, then reduce BC to US export.
	If BC is importing from US, then
	 reduce (SI and FBC) generation and increase Peace generation, or/and
	reduce (SI and FBC) generation and increase import from US.
5L81 and 5L83	G1 = 3.04 * [5L44 MDN + 0.12 * (5L81 + 5L83) NIC - 5L44_Over_rating] G2 = 3.5 * [5L82 NIC + 0.44 * (5L81 + 5L83) NIC - 5L82_Over_Rating]

CONTINGENCY	SHEDDING REQUIREMENTS
	G3 = 2.91 * [5L87 NIC + 0.44 * (5L81 + 5L83) NIC - 5L87_Over_Rating] G4 = 8.48 * [2L112 NLY + 0.06 * (5L81 + 5L83) NIC - NLYPST_OL_PickupMW] G5 = 9.16 * [2L293 SEL + 0.05 * (5L81 + 5L83) NIC - 2L293OLRAS_PickupMW]
	GS = Max (0, G1, G2, G3, G4, G5)
	 Shed at MCA/REV first: GS Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.85 * (GS – the armed gen-shedding amount at MCA/REV). If G3 > 0, do not select GMS/PCN for shedding. Total armed generation shedding must be limited to 2500 MW.
	 If generation shedding is armed, keep a minimum of 2 MCA, 1 REV, 2 SEV and 1 KCL (with high side 2CBs in service) on line post-shedding if SEL 5RX3 is available, or keep a minimum of 2 MCA, 1 REV, 2 SEV, 1 KCL (with high side 2CBs in service) and 1 equivalent SEV units on line post-shedding if SEL 5RX3 is unavailable, or keep a minimum of 2 MCA, 1 REV, 2 SEV and 2/3 equivalent SEV units on-line post-shed if SEL 5RX3 is available and the whole KCL plant is shutdown in pre-contingency condition, or keep a minimum of 2 MCA, 1 REV, 2 SEV and 1 & 2/3 equivalent SEV units on-line post-shed if SEL 5RX3 is available and the whole KCL plant is shutdown in pre-contingency condition.
	If TSA alarms "C5L81_83 - MAX ARMED SHED VIOLATION", the BC Hydro Control Centre staff should take the following actions: If BC is exporting to US, then reduce BC to US export. If BC is importing from US, then • reduce (SI and FBC) generation and increase Peace generation, or/and • reduce (SI and FBC) generation and increase import from US.
51.82 and 51.83	If generation shedding is armed
	 keep a minimum of 2 MCA, 1 REV, 2 SEV and 1 KCL (with high side 2CBs in service) on line post-shedding if SEL 5RX3 is available, or keep a minimum of 2 MCA, 1 REV, 2 SEV, 1 KCL (with high side 2CBs in service) and 1 equivalent SEV units on line post-shedding if SEL 5RX3 is unavailable, or keep a minimum of 2 MCA, 1 REV, 2 SEV and 2/3 equivalent SEV units on-line post-shed if SEL 5RX3 is available and the whole KCL plant is shutdown in pre-contingency condition, or keep a minimum of 2 MCA, 1 REV, 2 SEV and 1 & 2/3 equivalent SEV units on-line post-shed if SEL 5RX3 is unavailable and the whole KCL plant is shutdown in pre-contingency condition, or
	If TSA alarms "C5L82_83 - MAX ARMED SHED VIOLATION", the BC Hydro Control Centre staff should take the following
	If BC is exporting to US, then reduce BC to US export. If BC is importing from US, then • reduce (SI and FBC) generation and increase Peace generation, or/and • reduce (SI and FBC) generation and increase import from US.
	G1 = 6.7 * [5L42 KLY + 0.27 * (5L82 + 5L83) NIC - 5L42_Over_Rating] G2 = 3.2 * [5L81 NIC + 0.44 * (5L82 + 5L83) NIC - 5L81_Over_Rating] G3 = 2.9 * [5L87 NIC + 0.47 * (5L82 + 5L83) NIC - 5L87_Over_Rating] G4 = 8.7 * [2L112 NLY + 0.05 * (5L82 + 5L83) NIC - NLYPST_OL_PickupMW] G5 = 9.3 * [2L293 SEL + 0.04 * (5L82 + 5L83) NIC - 2L293OLRAS_PickupMW]
	GS = Max (0, G1, G2, G3, G4, G5)
	 Shed at MCA/REV first: GS Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.86 * (GS – the armed gen-shedding amount at MCA/REV). If G3 > 0, do not select GMS/PCN for shedding. Total armed generation shedding must be limited to 2500 MW.
5L76 and 5L79	With VAS-VNT loop closed, then If (5L76 ACK + 5L79 ACK) > 30 MW, then shed REV down to: A - 35MW Keep at least one unit online after shedding. Issue an alarm when under/over shed more than 35MW. A = the 500 kV to 230 kV transfer at ACK – 1L214 VNT - 1L209 SAM – 73L LEE – 100 With VAS-VNT loop open, then If (5L76 ACK + 5L79 ACK) > 20 MW, then shed REV down to: A - 25MW
	Keep at least one unit online after shedding.

	Issue an alarm when under/over shed more than 25MW.
	A = the 500 kV to 230 kV transfer at ACK – 1L214 VNT - 1L209 SAM – 100
	Note. The MW on 1L209 could be approximated by (1.732 * voltage at SAM * the current of 1L209 from SAM).
	If generation shedding is armed,
	Arm DTT ACK 5CX1 if ACK 5CX1 is in service, and
	Arm DTT ACK 5CX2 if ACK 5CX2 is in service.
5L87	No shedding required.

CONTINGENCY	SHEDDING REQUIREMENTS		
5L44	GS1 = 3.5 * (5L81NIC + 0.35 * 5L44MDN – 5L81_Over_Rating) GS2 = 12.5 * (2L20CSQ + 0.2 * 5L44 MDN - 2L20_Over_Rating) GS3 = 31.0 * (2L51COK + 0.1 * 5L44MDN - 2L51COK_Over_Rating)		
	M = MAX (GS1, GS2, GS3, 0) Y = 2L112 NLY + 0.04 * 5L44 MDN – 0.11* M Z = 2L293 SEL + 0.04 * 5L44 MDN – 0.1 * M		
	If Y > NLYPST_OL_PickupMW, R1 = 0.35 * (Y - NLYPST_OL_ResetMW) R3 = 0.08 * (Y - NLYPST_OL_ResetMW) R5 = 0.04 * (Y - NLYPST_OL_ResetMW) Else R1 = 0, R3 = 0, R5 = 0.		
	If Z > 2L293OLRAS_PickupMW, R2 = 0.42 * (Z - 2L293OLRAS_ResetMW) R4 = 0.1 * (Z - 2L293OLRAS_ResetMW) R6 = 0.04 * (Z - 2L293OLRAS_ResetMW) Else R2 = 0, R4 = 0, R6 = 0.		
	Ra = MAX (R1, R2) Rb = MAX (R3, R4) Rc = MAX (R5, R6)		
	 Shed at MCA/REV first, and then GMS/PCN the greatest of: D1 * (GS1 + 3.5* Ra) D2 * (GS2 + 12.5* Rb) D3 * (GS3 + 31.0* Rc) 		
	Where: D1 = 1.0 if shedding at MCA/REV, or D1 = 1.5 if shedding at GMS/PCN, D2 = 1.0 if shedding at MCA/REV, or D2 = 1.05 if shedding at GMS/PCN, D3 = 1.0 if shedding at MCA/REV, or D3 = 1.25 if shedding at GMS/PCN.		
	 Total armed generation shedding must be limited to 2500 MW. If exceeding the limit, the Operator can take the following actions: Reduce the flow on 2L129 from ARN to VIT. Reduce SI generation and increase Peace generation. 		
51.96	Tables A. B. C and D for contingency 5I 91 AND 5I 96 are applicable to this contingency		
(TSA-PM must treat it as "5L91 AND 5L96" contingency because "5L96" signal won't be generated as long as 5L91 O.O.S.)			
5L98	Arm DTT 2L112 RAS Arm DTT 73L RAS if VAS-VNT loop is closed		
	 Shed at KCL/ALH/SEV/WAN/BRX/WAX: 5L98 VAS + 2L112 NLY + Y + Z + W – 850 MW Y = 0 if AB to BC >= 0 MW, or Y = (BC to AB transfer) if BC to AB > 0 MW Z = 73L RGA if DTT 73L RAS is armed, or Z = 0 if DTT 73L RAS is not armed. W = 0 if MATL120S_PST230 <= 0 MW, or W = MATL120S_PST230 if MATL120S_PST230 > 0 MW 		
	 If generation shedding is armed, keep a minimum of 1 SEV unit on-line post-shedding if SEL 5RX3 is available, or keep a minimum of 1 SEV and 1 KCL units on-line post-shedding if SEL 5RX3 is unavailable, or keep a minimum of 1 SEV and 2/3 equiv. SEV units on-line post-shedding if SEL 5RX3 is unavailable and the whole KCL plant is shutdown in pre- contingency condition. 		
	Note: If gen-shedding is armed at KCL, the gen-shedding at KCL shall not cause the 230 kV main buses 2MB4 & 2MB2 to be disconnected from 2MB3 & 2MB1 after shedding.		
5L96 & 5L98	 Arm DTT 2L112 RAS Arm DTT 48L RAS if both VAS-WTS and VAS-VNT loops are closed Shed at KCL/ALH/SEV/WAN/BRX/WAX: 5L96 SEL + 2L112 NLY + Y + Z + W – 850 MW Y = 0 if AB to BC >= 0 MW, or Y = (BC to AB transfer) if BC to AB > 0 MW Z = 48L KET if DTT 48L RAS is armed, or Z = 0 if DTT 48L RAS is not armed. W = 0 if MATL120S_PST230 <= 0 MW, or W = MATL120S_PST230 if MATL120S_PST230 > 0 MW If generation shedding is armed, keep a minimum of 1 SEV unit on-line post-shedding if SEL 5RX3 is available, or keep a minimum of 1 SEV and 1 KCL units on-line post-shedding if SEL 5RX3 is unavailable, or keep a minimum of 1 SEV and 2/3 equiv. SEV units on-line post-shedding if SEL 5RX3 is unavailable and the whole KCL plant is shutdown in pre-contingency condition 		
	Note: If gen-shedding is armed at KCL, the gen-shedding at KCL shall not cause the 230 kV main buses 2MB4 & 2MB2 to be disconnected from 2MB3 & 2MB1 after shedding.		
5L92	(Note: Arming requirements for DTT 5L94, DTT 1L274 and DTT 1L275 are included in SOO 7T-17) Arm DTT 2L112 RAS if		
	 (0 < AB to BC <= 100 MW) AND (2L293 NLY > 400 - 0.7 * 5L92 CBK MW), or (AB to BC > 100 MW) AND (2L293 NLY > 400 - 5L92 CBK + 0.68 * (AB to BC) MW), or (0 <= BC to AB <= 100 MW) AND (2L293 SEL > 400 - 0.87 * 5L92 SEL + 0.2 * (BC to AB) MW), or (BC to AB > 100 MW) AND (2L293 SEL > 400 - 5L92 SEL + 0.7 * (BC to AB) MW) 		

CONTINGENCY	SHEDDING REQUIREMENTS
5L94	 (Note: Arming requirements for DTT 1L274 and DTT 1L275 are included in SOO 7T-17.) Arm DTT 2L112 RAS if 2L112 BDY + 0.3 * (AB to BC) > 400 MW, or 2L293 NLY + 0.2 * (AB to BC) > 400 MW, or 2L112 NLY + 0.3 * (BC to AB) > 400 MW, or 2L293 SEL + 0.2 * (BC to AB) > 400 MW And Shed at KCL/SEV/ALH/WAN/BRX/REV/WAX the greatest of: 5L96 SEL + 2L112 NLY + (BC to AB) - 1250 MW if DTT 2L112 RAS for 5L92 or 5L94 contingency is armed, or 5L96 SEL + (BC to AB) - 1550 MW if DTT 2L112 RAS for 5L92 or 5L94 contingency is armed, or 6L to AB) MW If (BC to US + BC to AB) > 2400 MW, or (BC to AB) - 400 MW If 700 MW < (BC to US + BC to AB) <= 2400 MW If generation shedding is armed, keep a minimum of 2 REV, 2 SEV, 1 KCL and 1/3 equivalent SEV units on-line post-shedding, or keep a minimum of 2 REV, 2 SEV, and 1 equivalent SEV units on-line post-shedding if the who le KCL is shutdown in pre-contingency condition.
Bypass GUI	No shedding required.
5L96 (1P) or 5L98 (1P)	No shedding required.

Table 1.20 - 5L96 O.O.S. (Any Status of VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

• Transfer limit on 5L91 SEL:

If higher transfer on 5L91 SEL is required than the limit shown in the table below for the VAS-WTS loop closed, the Operator should work with FBC to open the VAS-WTS loop (FBC chose the location to open).

Status of	ACK 5CX1 / Transfer Limit on 5L91 SEL (MW)		
VA3-W13 L00p	Service Unit Number	Y <= 380 MW	Y > 380 MW
	>= 1	1450	1300
Both Loops Closed		(to avoid ASM T1/T2 OL)	(to avoid ASM T1/T2 OL)
(Status A)	0	1450	1300
		(to avoid ASM T1/T2 OL)	(to avoid ASM T1/T2 OL)
	>= 1	1800	1530
VAS-WTS Open and VAS-VNT Closed		(to avoid SEL500 < 1.0 pu)	(to avoid SEL500 < 1.0 pu)
(Status B)	0	1700	1360
		(to avoid SEL500 < 1.0 pu)	(to avoid SEL500 < 1.0 pu)
	>= 1	1450	1300
VAS-WTS Closed and VAS-VNT Open		(to avoid ASM T1/T2 OL)	(to avoid ASM T1/T2 OL See Note (a) below)
(Status C)	0	1450	1300
		(to avoid ASM T1/T2 OL)	(to avoid ASM T1/T2 OL See Note (b) below)
	>= 1	1800	1460
Both Loops Open		(to avoid SEL500 < 1.0 pu)	(to avoid SEL500 < 1.00 pu), (See Note (a)
(Status D)		· · · · · · · · · · · · · · · · · · ·	below)
	0	1700	1360
		(to avoid SEL500 < 1.0 pu)	(to avoid SEL500 < 1.00 pu), (See Note (b) below)

Y = FBC's Load calculated by (2L263 VNT + 2L264 VNT + 34L WTS – 5L98 VAS) MW

Note (a): With VAS-VNT loop open, this limit is based on the condition that the FBC's load supplied from VNT is reduced down to 300 MW to maintain voltages in this area above 220 kV.

Note (b): With VAS-VNT loop open, this limit is based on the condition that the FBC's load supplied from VNT is reduced down to 270 MW to maintain voltages in this area above 220 kV.

If alarm comes, the Operator should reduce the flow on 5L91 by:

- Reducing Alberta to BC transfer, and/or
- Reducing FBC's power injection into SEL, and/or
- Reducing SEV / KCL generation, and/or
- Adjusting NLY PST to increase 2L112 (NLY to BDY) transfer.
- 5L76 and 5L79 contingency:
 - Note: Y = 1L209 SAM if 1L209 is not radial, or Y = 0 if 1L209 is radial.
 - U = 48L KET if VAS-WTS loop is closed, or U = 0 if VAS-WTS loop is open
 - W = 73L RGA if VAS-VNT loop is closed, or W = 0 if VAS-VNT loop is open
 - Limit: 5L76 ACK +5L79 ACK + 2L112 NLY + Y + 1L214 VNT + U W < 2500 MW
 - Alarm if 5L76 ACK +5L79 ACK + 2L112 NLY + Y + 1L214 VNT + U W < -700 MW AND MATL120S_PST230 >= 0 MW, or
 - if 5L76 ACK +5L79 ACK + 2L112 NLY + Y + 1L214 VNT + U W + MATL120S_PST230 < -700 MW AND MATL120S_PST230 < 0 MW

If the alarm comes, the BC Hydro Control Centre staff must put more REV or/and SIE generation on-line to prevent post-contingency frequency drop down below 59.0 Hz for loss of 5L76 and 5L79 with 1L209, 1L214 and 2L112 transfer tripped.

- At least two of ACK 5RX4 and 5RX7 and 5RX8 must be available.
- 5L91 contingency:
 - If SEL 5RX3 is available, then limit:

(FBC injection into SEL area) + Y < WAN shedable generation amount + ALH MW + BRX MW + WAX MW + 1000 – 1 SEV @ MIN.MW

Otherwise, limit:

(FBC injection into SEL area) + Y < WAN shedable generation amount + ALH MW + BRX MW + WAX MW + 1000 – 1 SEV @ MIN.MW – 1 KCL @ MIN.MW

Where: FBC injection into SEL area = 2L288 BTS + 2L289 BTS + FBC AAL Tie MW + 2L277 WAN - 60L225 KCL - 60L227 KCL - 2L286 SEL MW

- FBC AAL Tie MW = (2L294 AAL-NLY) AAL + (2L294 AAL-CBK) AAL MW
- Y = AB to BC MW if AB to BC > 0, or
- Y = 0 if AB to BC <= 0
- Alarm if 5L91 SEL + 2L112 NLY + Z < -700 MW AND MATL120S_PST230 >= 0 MW, or

if 5L91 SEL + 2L112 NLY + Z + MATL120S_PST230 < -700 MW AND MATL120S_PST230 < 0 MW

Z = 48L KET if VAS-WTS loop is closed, or Z = 0 if VAS-WTS loop is open

If the alarm comes, the BC Hydro Control Centre staff must put more local generation on-line to prevent post-contingency

frequency drop down below 59.0 Hz for loss of 5L91.

<u>Generation Shedding Requirements</u> (5L96 O.O.S. (Any status of VAS-WTS and VAS-VNT Loops)) Note: Table E is applicable to this Table.

CONTINGENCY	SHEDDING REQUIREMENTS
5L75 (3P)	ACK 5CB5 in service: Same as table F
	ACK 5CB5 0.0.S. (5L75 contingency will trip open 5L76):
	 Same gen shedding as 5L76 contingency with ACK 5CB8 O.O.S. in this table.
5L77 (3P)	Same as Table F
5L75 (1P)	Same as Table F
5L77 (1P)	Same as Table F
5L75 (1P) and 5L77 (3P)	Same as Table F
5L75 (3P) and 5L77 (1P)	Same as Table F
5L75 (3P) and 5L77 (3P)	Same as Table F
5L76	ACK 5CB8 in service: Shed at REV: 1.03 * ((5L75 + 5L77) REV + 5L91SEL – 3260) MW
	ACK 5CB8 O.O.S.: (5L76 contingency will trip open 5L75) Shed at REV: 1.03 * ((5L75 + 5L77) REV + 5L91 SEL – Y) MW
	Y = 2770 if REV Gen <= 2000 MW, or
	Y = 2690 if REV Gen > 2000 MW
	AND
	 If REV 5CB9 is O.O.S., REV G1 and G2 must be selected for shedding.
5L79	Same gen shedding as 5L76 contingency with ACK 5CB8 in service.
5L81	Same as system normal Table 1.1
5L82	Same as system normal Table 1.1
5L83	Same as system normal Table 1.1
Bypass AMC 5CX1	No shedding required
Bypass AMC 5CX2	No shedding required
Bypass RYC 5CX1	No shedding required
	 G3 = 3.23 * [5L87 NIC+ 0.43* (5L81 + 5L82) NIC - 5L87 Over Rating] G4 = 7.68* [2L112 NLY+ 0.07* (5L81 + 5L82) NIC - 2L293OLRAS_PickupMW] G5 = 6.94* [2L293 SEL+ 0.06* (5L81 + 5L82) NIC - 2L293OLRAS_PickupMW] GS = Max (0, G1, G2, G3, G4, G5) Shed at MCA/REV first: GS Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.61 * (GS – the armed gen-shedding amount at MCA/REV). If G3 > 0, do not select GMS/PCN for shedding. Total armed generation shedding must be limited to 2500 MW. If generation shedding is armed, keep a minimum of 2 MCA, 1 REV, 2 SEV and 1 KCL (with high side 2CBs in service) on line post-shedding if SEL 5RX3 is available, or keep a minimum of 2 MCA, 1 REV, 2 SEV, 1 KCL (with high side 2CBs in service) and 1 equivalent SEV units on line post-shedding if SEL 5RX3 is unavailable, or keep a minimum of 2 MCA, 1 REV, 2 SEV and 2/3 equivalent SEV units on-line post-shed if SEL 5RX3 is available and the whole KCL plant is shutdown in pre-contingency condition, or keep a minimum of 2 MCA, 1 REV, 2 SEV and 1 & 2/3 equivalent SEV units on-line post-shed if SEL 5RX3 is unavailable and the whole KCL plant is shutdown in pre-contingency condition. If TSA alarms "C5L81_82 - MAX ARMED SHED VIOLATION", the BC Hydro Control Centre staff should take the following actions: If BC is exporting to US, then reduce BC to US export. If BC is importing from US, then
5L81 and 5L83	$G1 = 3.53^{*} [5L44 \text{ MDN} + 0.1^{*} (5L81 + 5L83) \text{ NIC} - 5L44 \text{_Over} \text{_Rating}]$ $G2 = 4.02^{*} [5L82 \text{ NIC} + 0.45^{*} (5L81 + 5L83) \text{ NIC} - 5L82 \text{_Over} \text{_Rating}]$ $G3 = 3.18^{*} [5L87 \text{ NIC} + 0.43^{*} (5L81 + 5L83) \text{ NIC} - 5L87 \text{_Over} \text{_Rating}]$ $G4 = 7.66^{*} [2L112 \text{ NLY} + 0.07^{*} (5L81 + 5L83) \text{ NIC} - \text{NLYPST} \text{ OL} \text{ PickupMW}]$ $G5 = 6.96^{*} [2L293 \text{ SEL} + 0.06^{*} (5L81 + 5L83) \text{ NIC} - 2L293 \text{OLRAS} \text{_PickupMW}]$

GS = Max (0, G1, G2, G3, G4, G5)

- Shed at MCA/REV first: GS
- Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.59 * (GS the armed gen-shedding amount at MCA/REV). If G3 > 0, do not select GMS/PCN for shedding.
- Total armed generation shedding must be limited to 2500 MW.

If generation shedding is armed,

- keep a minimum of 2 MCA, 1 REV, 2 SEV and 1 KCL (with high side 2CBs in service) on line post-shedding if SEL 5RX3 is available, or
- keep a minimum of 2 MCA, 1 REV, 2 SEV, 1 KCL (with high side 2CBs in service) and 1 equivalent SEV units on line post-shedding if SEL 5RX3 is unavailable, or
- keep a minimum of 2 MCA, 1 REV, 2 SEV and 2/3 equivalent SEV units on-line post-shed if SEL 5RX3 is available and the whole KCL plant is shutdown in pre-contingency condition, or
- keep a minimum of 2 MCA, 1 REV, 2 SEV and 1 & 2/3 equivalent SEV units on-line post-shed if SEL 5RX3 is unavailable and the whole KCL plant is shutdown in pre-contingency condition.

If TSA alarms "C5L81_83 - MAX ARMED SHED VIOLATION", the BC Hydro Control Centre staff should take the following actions:

If BC is exporting to US, then reduce BC to US export.

If BC is importing from US, then

- reduce (SI and FBC) generation and increase Peace generation, or/and
- reduce (SI and FBC) generation and increase import from US.

CONTINGENCY	SHEDDING REQUIREMENTS
5L82 and 5L83	G1 = 6.9 * [5L42 KLY + 0.27 * (5L82 + 5L83) NIC - 5L42_Over_Rating] G2 = 3.6 * [5L81 NIC + 0.44 * (5L82 + 5L83) NIC - 5L81_Over_Rating] G3 = 3.1 * [5L87 NIC + 0.47 * (5L82 + 5L83) NIC - 5L87_Over_Rating] G4 = 8.7 * [2L112 NLY + 0.05 * (5L82 + 5L83) NIC - NLYPST_OL_PickupMW] G5 = 9.3 * [2L293 SEL + 0.05 * (5L82 + 5L83) NIC - 2L293OLRAS_PickupMW]
	GS = Max (0, G1, G2, G3, G4, G5)
	 Shed at MCA/REV first: GS Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 2.04 * (GS – the armed gen-shedding amount at MCA/REV). If G3 > 0, do not select GMS and PCN for shedding. Total armed generation shedding must be limited to 2500 MW.
	 If generation shedding is armed, keep a minimum of 2 MCA, 1 REV, 2 SEV and 1 KCL (with high side 2CBs in service) on line post-shedding if SEL 5RX3 is available, or keep a minimum of 2 MCA, 1 REV, 2 SEV, 1 KCL (with high side 2CBs in service) and 1 equivalent SEV units on line post-shedding if SEL 5RX3 is unavailable, keep a minimum of 2 MCA, 1 REV, 2 SEV and 2/3 equivalent SEV units on-line post-shed if SEL 5RX3 is available and the whole KCL plant is shutdown in pre-contingency condition, or keep a minimum of 2 MCA, 1 REV, 2 SEV and 1 & 2/3 equivalent SEV units on-line post-shed if SEL 5RX3 is unavailable and the whole KCL plant is shutdown in pre-contingency condition.
	If TSA alarms "C5L82_83 - MAX ARMED SHED VIOLATION", the BC Hydro Control Centre staff should take the following actions: If BC is exporting to US, then reduce BC to US export. If BC is importing from US, then • reduce (SI and FBC) generation and increase Peace generation, or/and • reduce (SI and FBC) generation and increase import from US.
5L76 and 5L79	 Arm DTT 1L209 except for 1L209 radial connection, and Arm DTT 1L214, and Arm DTT 2L112, and Arm DTT 48L RAS if VAS-WTS loop is closed, and Arm DTT 73L RAS if VAS-VNT loop is closed, and Shed at REV first, then KCL/ALH/SEV/WAN/BRX/WAX: 5L76 ACK + 5L79 ACK + 2L112 NLY + Z + 1L214 VNT + Y + U + V - W - 850 MW Y = 0 if AB to BC >= 0 MW, or Y = (BC to AB transfer) if BC to AB > 0 MW Z = 1L209 SAM if 1L209 is not radial, or Z = 0 if 1L209 is radial. U = 48L KET if DTT 48L RAS is armed, or U = 0 if DTT 48L RAS is not armed. V = 0 MW if MATL120S_PST230 <= 0 MW, or V = MATL120S_PST230 if MATL120S_PST230 > 0 MW W = 73L RGA if DTT 73L RAS is armed, or W = 0 if DTT 73L RAS is not armed. If generation shedding is armed, then Arm DTT ACK 5CX1 if ACK 5CX1 is in service, and Keep a minimum of 1 REV and 1 SEV unit on-line post-shedding if SEL 5RX3 is available, or Keep a minimum of 1 REV and 1 SEV unit on-line post-shedding if SEL 5RX3 is unavailable, or Keep a minimum of 1 REV and 2/3 equiv. SEV units on-line post-shedding if SEL 5RX3 is unavailable and the whole KCL plant is shutdown in pre-contingency condition.
	Note: If gen-shedding is armed at KCL, the gen-shedding at KCL shall not cause the 230 kV main buses 2MB4 & 2MB2 to be disconnected from 2MB3 & 2MB1 after shedding.
5L87 5L44	No snedding required. Same as Table 1.19 – 5L91 O.O.S.
5L91 (TSA-PM must treat it as "5L91 AND 5L96" contingency because "5L91" signal won't be generated as long as 5L96 O.O.S.)	 Arm DTT 2L112 RAS Arm DTT 48L RAS if VAS-WTS loop is closed Shed at KCL/ALH/SEV/WAN/BRX/WAX: 5L91 SEL + 2L112 NLY + Y + Z + W – 850 MW Y = 0 if AB to BC >= 0 MW, or Y = (BC to AB transfer) if BC to AB > 0 MW Z = 48L KET if DTT 48L RAS is armed, or Z = 0 if DTT 48L RAS is not armed. W = 0 MW if MATL120S_PST230 <= 0 MW, or W = MATL120S_PST230 if MATL120S_PST230 > 0 MW If generation shedding is armed, keep a minimum 1 SEV unit on-line post-shedding if SEL 5RX3 is available, or keep a minimum of 1 SEV and 1 KCL units on-line post-shedding if SEL 5RX3 is unavailable, or keep a minimum of 1 SEV and 2/3 equiv. SEV units on-line post-shedding if SEL 5RX3 is unavailable and the whole KCL plant is shutdown in pre-contingency condition.

	Note: If gen-shedding is armed at KCL, the gen-shedding at KCL shall not cause the 230 kV main buses 2MB4 & 2MB2 to be disconnected from 2MB3 & 2MB1 after shedding.		
5L98	Note to FBC: When both VAS-WTS and VAS-VNT loops are open, 5L98 contingency with 5L96 already out of service		
(TSA-PM must treat it as "5L96 AND 5L98" contingency because "5L 98" signal wort bo	will black out the FBC's loads which are radially connected to VAS. When VAS-VNT loop is open and VAS-WTS loop is closed, 5L98 contingency may cause overloading on ASM T1/T2, or voltage instability in the area which is radially supplied from WTS.		
denerated as long as 51.96	• Arm DTT 491 DAS if both $1/AS M/TS and 1/AS M/TI again are alread and 51.01 SEL > 700 M/M$		
	 Shed at KCL/ALH/BRY/M/AN//MAY first then SEV the greatest of: 		
0.0.0.)	• Shed at KOL/ALI (DIX) (VAN IIISI, then SEV the greatestor. • $1.25 \times (51.01 \text{ SEL} + 7 \text{ V})$ or		
	• 1.25 ($JL9TSLL + Z - T$), 01 - 2.27 * (21.442 NII) (+ 0.24 * 7 - 400) or		
	• $2.37 \text{ (}2L112 \text{ NLY } + 0.24 \text{ `}2 - 400\text{)}, \text{ of}$		
	• $3.05 \times (2L293 \text{ SEL} + 0.17 \times 2 - 400)$, and do not shed WAN for this requirement		
	Y = 1600 if at least 1 ACK 5CX1 and 5CX2 is in service, or		
	Y = 1300 if none of ACK 5CX1 and 5CX2 is in service		
	Z = 48L KET if DTT 48L RAS is armed, or		
	Z = 0 if DTT 48L RAS is not armed.		
5L92	Same as Table 1.19 5L91 O.O.S.		

CONTINGENCY	SHEDDING REQUIREMENTS
5L94	 (Note: Arming requirements for DTT 1L274 and DTT 1L275 are included in SOO 7T-17) Arm DTT 2L112 RAS if 2L112 BDY + 0.3* (AB to BC) > 400 MW, or 2L293 NLY + 0.2* (AB to BC) > 400 MW, or 2L112 NLY + 0.3* (BC to AB) > 400 MW, or 2L293 SEL + 0.2* (BC to AB) > 400 MW And Shed at KCL/SEV/ALH/WAN/BRX/REV/WAX the greatest of: 5L91 SEL+2L112 NLY + (BC to AB) – 1450 MW if DTT 2L112 RAS for 5L92 or 5L94 contingency is armed, or 5L91 SEL + (BC to AB) – 1750 MW if DTT 2L112 RAS for 5L92 or 5L94 contingency is armed, or (BC to AB) MW If (BC to US + BC to AB) > 2400 MW, or (BC to AB) - 400 MW If 700 MW < (BC to US + BC to AB) <= 2400 MW If generation shedding is armed, keep a minimum of 2 REV, 2 SEV, 1 KCL and 1/3 equivalent SEV units on-line post-shedding, or keep a minimum of 2 REV, 2 SEV, and 1 equivalent SEV units on-line post-shedding if the whole KCL plant is shutdown.
Bypass GUI	No shedding required.
5L91 (1P) or 5L98 (1P)	Shed at KCL/SEV/ALH/BRX/WAN/WAX: 1.35 * (5L91 SEL – 1500) MW

Table 1.21 – 5L98 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

 Transfer limit on (5L91 + 5L96) SEL: The limit is to avoid VAS500 < 1.00 pu with VAS-VNT loop closed, or avoid SEL500 < 1.00 pu with VAS-VNT loop open.

Y = FBC s Load calculated by (2L263 VINT + 2L264 VINT + 34L VVTS +5L96 SEL) MVV		
ACK 5CX1 / 5CX2	Transfer Limit on (5L91 + 5L96) SEL (MW)	
In-Service Unit Number	Y <= 380 MW	Y > 380 MW
>= 1	1900	1640
		See Note (a) below
0	1850	1500
		See Note (b) below

Y = FBC's Load calculated by (2L263 VNT + 2L264 VNT + 34L WTS +5L96 SEL) MW

Note (a): When VAS-VNT loop is open, this limit is based on the condition that 73L DGB-RGA circuit is open and the FBC's load supplied from VNT is reduced down to 290 MW to maintain voltages in this area above 220 kV.

Note (b): When VAS-VNT loop is open, this limit is based on the condition that 73L DGB-RGA circuit is open and the FBC's load supplied from VNT is reduced down to 270 MW to maintain voltages in this area above 220 kV.

If alarm comes, the Operator should reduce the flow on 5L91 by:

- Reducing Alberta to BC transfer, and/or
- Reducing FBC's power injection into SEL, and/or
- Reducing SEV / KCL generation, and/or
- Adjusting NLY PST to increase 2L112 (NLY to BDY) transfer.

• 5L76 and 5L79 contingency:

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Note: Y = 1L209 SAM if 1L209 is not radial, or Y = 0 if 1L209 is radial

Limit: 5L76 ACK + 5L79 ACK + 2L112 NLY + 1L214 VNT + Y < 2500 MW

Alarm if 5L76 ACK + 5L79 ACK + 2L112 NLY + 1L214 VNT + Y < -700 MW AND MATL120S_PST230 >= 0 MW, or

if 5L76 ACK + 5L79 ACK + 2L112 NLY + 1L214 VNT + Y + MATL120S_PST230 < -700 MW AND MATL120S_PST230 < 0 MW

If the alarm comes, the BC Hydro Control Centre staff must put more REV or/and SIE generation on-line to prevent post-contingency frequency drop down below 59.0 Hz for loss of 5L76 and 5L79 with 1L209, 1L214 and 2L112 transfer tripped.
At least two of ACK 5RX4 and 5RX7 and 5RX8 must be available.

- 5L91, or 5L91 AND 5L96 contingency:
 - If SEL 5RX3 is available, then limit:

(FBC injection into SEL area) + Y < WAN shedable generation amount + ALH MW + BRX MW + WAX MW + 1000 – 1 SEV @ MIN.MW - Z

Otherwise, limit:

(FBC injection into SEL area) + Y < WAN shedable generation amount + ALH MW + BRX MW + WAX MW + 1000 – 1 SEV @ MIN.MW – 1 KCL @MIN.MW - Z

Where FBC injection into SEL area = 2L288 BTS + 2L289 BTS + FBC AAL Tie MW + 2L277 WAN - 60L225 KCL - 60L227 KCL - 2L286 SEL MW

FBC AAL Tie MW = (2L294 AAL-NLY) AAL + (2L294 AAL-CBK) AAL MW

- Y = AB to BC MW if AB to BC > 0, or
- Y = 0 if AB to BC <= 0
- If both VAS-WTS and VAS-VNT loops are closed, then Z = 48L KET, otherwise, Z = 0

Alarm if 5L91 SEL + 5L96 SEL + 2L112 NLY + Z < -700 MW AND MATL120S_PST230 >= 0 MW, or

if 5L91 SEL + 5L96 SEL + 2L112 NLY + Z + MATL120S_PST230 < -700 MW AND MATL120S_PST230 < 0 MW If both VAS-WTS and VAS-VNT loops are closed, then Z = 48L KET, otherwise, Z = 0.

If the alarm comes, the BC Hydro Control Centre staff must put more local generation on-line to prevent post-contingency frequency drop down below 59.0 Hz for loss of 5L91, or 5L91 and 5L96.

Generation Shedding Requirements (5L98 O.O.S (Any Status of FBC's VAS-WTS and VAS-VNT Loops)) Note: Table E is applicable to this Table.

CONTINGENCY	SHEDDING REQUIREMENTS
5L75 (3P)	ACK 5CB5 in service: Same as Table F
	ACK 5CB5 O.O.S. (5L75 contingency will trip open 5L76):
5I 77 (2D)	Same gen snedding as 5L76 contingency with ACK 5CB8 0.0.5. In this table.
5L77 (3P)	Same as Table F
5L77 (1P)	Same as Table F
5L75 (1P) AND 5L77 (3P)	Same as Table F
5L75 (3P) AND 5L77 (1P)	Same as Table F
5L75 (3P) and 5L77 (3P)	Same as Table F
5L76	ACK 5CB8 in service: Shed at REV: 1.02 * ((5L75 + 5L77) REV + 5L91 SEL – 3150) MW
	ACK 5CB8 O.O.S.: (5L76 contingency will trip open 5L75) • Shed at REV: 1.02 * ((5L75 + 5L77) REV + 5L91 SEL – Y) MW
	Y = 2800 if REV Gen <= 1500, or Y = 2650 if REV Gen > 1500
	AND
51.70	If REV 50B9 is 0.0.5., REV G1 and G2 must be selected for shedding.
5L79 5L91	Same gen snedding as 5L/6 contingency with ACK 5CB8 in service.
51.82	Same as system normal Table 1.1
5L83	Same as system normal Table 1.1
Bypass AMC 5CX1	No shedding required.
Bypass AMC 5CX2	No shedding required.
Bypass RYC 5CX1	No shedding required.
5L81 and 5L82	Same as Table 1.20 – 5L96 O.O.S.
5L81 and 5L83	Same as Table 1.20 – 5L96 O.O.S.
5L82 and 5L83	Same as Table 1.20 – 5L96 0.0.5.
SETO and SETS	Arm DTT 11 214 and
	Arm DTT 2L112 RAS, and
	 Shed at REV first, then KCL/ALH/SEV/WAN/BRX/WAX: 5L76 ACK + 5L79 ACK + 2L112 NLY + 1L214 VNT + Y + Z + V – 850 MW
	Y = 0 if AB to BC >= 0 MW, or Y = (BC to AB transfer) if BC to AB > 0 MW Z = 11 209 SAM if 11 209 is not radial, or Z = 0 if 11 209 is radial
	 V = 0 if MATL120S_PST230 <= 0 MW or V = MATL120S_PST230 if MATL120S_PST230 > 0 MW If generation shedding is armed, then
	Arm DTT ACK 5CX1 if ACK 5CX1 is in service, and
	Arm DTT ACK 5CX2 if ACK 5CX2 is in service, and
	 keep a minimum of 1 REV and 1 SEV unit on-line post-shedding if SEL 5RX3 is available, or keep a minimum of 1 REV, 1 SEV and 1 KCL units on-line post-shedding if SEL 5RX3 is not available, or keep a minimum of 1 REV, 1 SEV and 2/3 equiv. SEV units on-line post-shedding if SEL 5RX3 is not available and the whole KCL plant is shutdown in pre-contingency condition.
	Note: If gen-shedding is armed at KCL, the gen-shedding at KCL shall not cause the 230 kV main buses 2MB4 & 2MB2
51.07	to be disconnected from 2MB3 & 2MB1 after shedding.
5L87	Same as 5L96 O.O.S. Table 1.20
5L91 and 5L96	Arm DTL2L112 RAS Arm DTT 49L DAS if both \/AS \/ATS and \/AS \/AIT loops are alread
	 Ann DTT 46L RAS if both VAS-WTS and VAS-WTF bops are closed Shed at KCL/ALH/SEV/WAN/BRX/WAX: 5L91 SEL + 5L96 SEL + 2L112 NLY + Y + Z + W – 850 MW Y = 0 if AB to BC >= 0 MW, or Y = (BC to AB transfer) if BC to AB > 0 MW
	Z = 48L KET II D T I 48L RAS IS armed, or $Z = 0$ II D T I 48L RAS IS not armed W = 0 if MATI 120S, PST230 <= 0 MW/ or W = MATI 120S, PST230 if MATI 120S, PST230 > 0 MW/
	 If generation shedding is armed, keep a minimum of 1 SEV unit on-line post-shedding if SEL 5RX3 is available, or
	 Keep a minimum of 1 SEV and 1 KCL units on-line post-shedding if SEL 5RX3 is unavailable, or
	 Keep a minimum of 1 SEV and 2/3 equiv. SEV units on-line post-shedding if SEL 5RX3 is unavailable and the whole KCL plant is shutdown in pre-contingency condition.
	Note: If gen-shedding is armed at KCL, the gen-shedding at KCL shall not cause the 230 kV main buses 2MB4 & 2MB2 to be disconnected from 2MB3 & 2MB1 after shedding.
5L44	Same as Table 1.19 – 5L91 O.O.S.
5L91	Arm DTT 2L112 RAS
	Arm DTT 73L RAS if VAS-VNT loop is closed
	 Shed at KCL/ALH/SEV/WAN/BRX/WAX: 5L91 SEL + 2L112 NLY + Y + Z + W – 850 MW
	Y = 0 if AB to BC >= 0 MW, or $Y = (BC to AB transfer)$ if BC to AB > 0 MW
	L = 73L KGA II D I I 73L KAS IS armed, or $L = 0$ II D I I 73L KAS IS NOT armed W = 0 if MATI 120S PST230 <= 0 MW/ or W = MATI 120S PST230 if MATI 120S PST230 > 0 MW/
	If generation shedding is armed, keep a minimum of 1 SEV unit on-line post-shedding if SEL 5RX3 is available or
	keep a minimum of 1 SEV and 1 KCL units on-line post-shedding if SEL 5RX3 is unavailable, or keep a minimum of 1
	SEV and 2/3 equiv. SEV units on-line post-shedding if SEL 5RX3 is unavailable and the whole KCL plant is shutdown in pre-contingency condition.
	Note: If gen-shedding is armed at KCL, the gen-shedding at KCL shall not cause the 230 kV main buses 2MB4 & 2MB2 to be disconnected from 2MB3 & 2MB1 after shedding.

5L96	 Arm DTT 48L RAS if both VAS-WTS and VAS-VNT loops are closed and 5L91 SEL > 700 MW.
(TSA-PM must treat it as	 Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of:
"5L96 AND 5L98"	 1.25 * (5L91 SEL + 5L96 SEL + Z - Y), or
contingency because	 2.37 * (2L112 NLY + 0.24 * (5L96 SEL + Z) – 400, or
"5L96" signal won't be	 2.37 * (2L112 NLY + BDY Gen + 0.24 * (5L96 SEL + Z) – 1120), or
generated as long as 5L98	 3.05 * (2L293 SEL + 0.17 * (5L96 SEL + Z) – 400), and do not shed WAN for this requirement.
0.0.S.)	Y = 1600 if at least one of ACK 5CX1 & 5CX2 is in service, or
	Y = 1300 if none of ACK 5CX1 & 5CX2 is in service
	Z = 48L KET if DTT 48L RAS is armed, or
	Z = 0 if DTT 48L RAS is not armed.
	Note: When both VAS-WTS and VAS-VNT loops are open, 5L96 contingency with 5L98 already out of service will black out the FBC's loads which are radially connected to VAS. When VAS-VNT loop is open and VAS-WTS loop is closed, 5L96 contingency may cause overloading on ASM T1/T2, or voltage instability in the area which is radially supplied from WTS.
5L92	Same as Table 1.19 – 5L91 O.O.S.
5L94	Same as Table 1.20 – 5L96 O.O.S.
Bypass GUI 5CX1	No shedding required.
5L91 (1P) or	Shed at KCL/SEV/ALH/BRX/WAN/WAX: 1.35 * (5L91 SEL – 1500) MW
5L96 (1P)	

Table 1.22 – 5L96 AND 5L98 O.O.S. (Any Status of VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

• Transfer limit on 5L91 SEL:

If higher transfer on 5L91 SEL is required than the limit shown in the table below for the VNT-VAS-WTS loop closed, the VNT-VAS-WTS loop must be open (FBC chose the location to open to assure the voltages in their Okanagan area above 220 kV).

Status of VNT-VAS-WTS Loop	ACK 5CX1 / 5CX2 In-Service Unit Number	Transfer Limit on 5L91 (MW)	
		Y <= 380 MW	Y > 380 MW
Closed	>= 1	1350 (to avoid ASM T1/T2 OL)	800 (to avoid BEN230 < 220 kV, see Note (a) below)
	0	1350 (to avoid ASM T1/T2 OL)	750 (to avoid BEN230 < 220 kV, see Note (a) below)
Open	>= 1	1850 (to avoid SEL500 < 1.0 pu)	1650 if 2 ACK CXs are in service, or 1550 if 1 ACKCX is in service (to avoid BEN230-RGA230-LEE230 < 220 kV, see Notes (a & b) below)
	0	1800 (to avoid SEL500 < 1.0 pu)	1350 (to avoid BEN230-RGA230-LEE230 < 220 kV, see Notes (a & b & c) below)

Y = FBC's Load calculated by (2L263 VNT + 2L264 VNT + 34L WTS) MW

Note (a): This limit is based on the condition per FBC's OO 2P-21 that the FBC's South Okanagan load (RGA plus BEN load) is reduced down to 170 MW to maintain voltage stability in this area.

Note (b): This is based on the condition that 48L is open and 42L is meshed, or 40L open and 42L not meshed so that the charging of 75L and 76L would help to maintain RGA230 voltage above 220 kV.

Note (c): This limit is based on the FBC's Kelowna load down to 290 MW to maintain voltage stability in this area.

If alarm comes, the Operator should reduce the flow on 5L91 by:

- Reducing Alberta to BC transfer, and/or
- Reducing FBC's power injection into SEL, and/or
- Reducing SEV / KCL generation, and/or
- Adjusting NLY PST to increase 2L112 (NLY to BDY) transfer.
- 5L76 and 5L79 contingency:

Note: Y = 1L209 SAM if 1L209 is not radial, or Y = 0 if 1L209 is radial

- Limit: 5L76 ACK + 5L79 ACK + 2L112 NLY + 1L214 VNT + Y < 2500 MW
- Alarm if 5L76 ACK + 5L79 ACK + 2L112 NLY + 1L214 VNT + Y < -700 MW AND MATL120S_PST230 >= 0 MW, or if 5L76 ACK + 5L79 ACK + 2L112 NLY + 1L214 VNT + Y + MATL120S_PST230 < -700 MW AND MATL120S_PST230 < 0 MW If the alarm comes, the BC Hydro Control Centre staff must put more REV or/and SIE generation on-line to prevent post-contingency frequency drop down below 59.0 Hz for loss of 5L76 and 5L79 with 1L209, 1L214 and 2L112 transfer tripped.
 At least two of ACK 5RX4 and 5RX7 and 5RX8 must be available.
- 5L91 contingency:
 - If SEL 5RX3 is available, then limit:

(FBC injection into SEL area) + Y < WAN shedable generation amount + ALH MW + BRX MW + WAX MW + 1000 – 1 SEV @ MIN.MW - Z

Otherwise, limit:

(FBC injection into SEL area) + Y < WAN shedable generation amount + ALH MW + BRX MW + WAX MW + 1000 – 1 SEV @ MIN.MW – 1 KCL @MIN.MW - Z

Where FBC injection into SEL area = 2L288 BTS + 2L289 BTS + FBC AAL Tie MW + 2L277 WAN - 60L225 KCL - 60L227 KCL - 2L286 SEL MW

FBC AAL Tie MW = (2L294 AAL-NLY) AAL + (2L294 AAL-CBK) AAL MW

- Y = AB to BC MW if AB to BC > 0, or
- Y = 0 if AB to BC <= 0
- Z = 48L KET if WTS-VAS-VNT loop is closed, or
- Z = 0 if WTS-VAS-VNT loop is open
- Alarm if 5L91 SEL + 2L112 NLY + Z < -700 MW AND MATL120S_PST230 >= 0 MW, or
 - if 5L91 SEL + 2L112 NLY + Z + MATL120S_PST230 < -700 MW AND MATL120S_PST230 < 0 MW
- Z = 48L KET if WTS-VAS-VNT loop is closed, or

Z = 0 if WTS-VAS-VNT loop is open

If the alarm comes, the BC Hydro Control Centre staff must put more local generation on-line to prevent post-contingency frequency drop down below 59.0 Hz for loss of 5L91.

Generation Shedding Requirements (5L96 AND 5L98) O.O.S (Any Status of VAS-WTS and VAS-VNT Loops) Note: Table E is applicable to this Table.

CONTINGENCY	SHEDDING REQUIREMENTS
5L75 (3P)	Same as Table 1.20 – 5L96 O.O.S.
5L77 (3P)	Same as Table F
5L75 (1P)	Same as Table F
5L77 (1P)	Same as Table F
5L75 (1P) and 5L77 (3P)	Same as Table F
5L75 (3P) and 5L77 (1P)	Same as Table F
5L75 (3P) and 5L77 (3P)	Same as Table F
5L76	Same as Table 1.20 - 5L96 O.O.S.
5L79	Same as Table 1.20 – 5L96 O.O.S.
5L81	Same as system normal Table 1.1
5L82	Same as system normal Table 1.1
5L83	Same as system normal Table 1.1
Bypass AMC 5CX1	No shedding required.
Bypass AMC 5CX2	No shedding required.
Bypass RYC 5CX1	No shedding required.
5L81 and 5L82	Same as Table 1.20 – 5L96 O.O.S.
5L81 and 5L83	Same as Table 1.20 – 5L96 O.O.S.
5L82 and 5L83	Same as Table 1.20 – 5L96 O.O.S.
5L76 and 5L79	Arm DTT 1L209 except for 1L209 radial connection, and
	Arm DTT 1L214, and
	Arm DTT 2L112, and
	 Shed at REV first, then KCL/ALH/SEV/WAN/BRXWAX: 5L76 ACK + 5L79 ACK + 2L112 NLY + Z + 1L214 VNT + Y + V - 850 MW Y = 0 if AB to BC >= 0 MW, or Y = (BC to AB transfer) if BC to AB > 0 MW Z = 1L209 SAM if 1L209 is not radial, or Z = 0 if 1L209 is radial. V = 0 if MATL120S_PST230 <= 0 MW, or V = MATL120S_PST230 if MATL120S_PST230 > 0 MW If generation shedding is armed, then Arm DTT ACK 5CX1 if ACK 5CX1 is in service, and Arm DTT ACK 5CX2 if ACK 5CX2 is in service, and keep a minimum of 1 REV and 1 SEV unit on-line post-shedding if SEL 5RX3 is available, or keep a minimum of 1 REV, 1 SEV and 1 KCL units on-line post-shedding if SEL 5RX3 is unavailable, or keep a minimum of 1 REV, 1 SEV and 2/3 equiv. SEV units on-line post-shedding if SEL 5RX3 is unavailable and the whole KCL plant is shutdown in pre-contingency condition. Note: If gen-shedding is armed at KCL, the gen-shedding at KCL shall not cause the 230 kV main buses 2MB4 & 2MB2 to be disconnected from 2MB3 & 2MB1 after shedding.
5L87	Same as Table 1.20 - 5L96 O.O.S.
5L91 (TSA-PM must treat it as "5L91 AND 5L96" contingency because "5L91" signal won't be	 Arm DTT 2L112 RAS Arm DTT 48L RAS if WTS-VAS-VNT loop is closed Shed at KCL/ALH/SEV/WAN/BRX/WAX: 5L91 SEL + 2L112 NLY + Y + Z + W – 850 MW Y = 0 if AB to BC >= 0 MW, or Y = (BC to AB transfer) if BC to AB > 0 MW Z = 48L KET if DTT 48L RAS is armed, or Z = 0 if DTT 48L RAS is not armed
O.O.S.)	W = 0 if MATL120S_PST230 <= 0 MW, or W = MATL120S_PST230 if MATL120S_PST230 > 0 MW If generation shedding is armed, keep a minimum 1 SEV unit on-line post-shedding if SEL 5RX3 is available, or keep a minimum of 1 SEV and 1 KCL units on-line post-shedding if SEL 5RX3 is unavailable, or keep a minimum of 1 SEV and 2/3 equiv. SEV units on-line post-shedding if SEL 5RX3 is available and the whole KCL plant is shutdown in pre-contingency condition. Note: If gen-shedding is armed at KCL, the gen-shedding at KCL shall not cause the 230 kV main buses 2MB4 & 2MB2 to be disconnected from 2MB2 & 2MB4 after shedding
51.44	Samo as Tablo 1.10. 51.01 0.0 S
	Same as Table 1.19 - 5L91 0.0.5.
	Same as Table 1.19 - 5L91 U.U.S. Same as Table 1.20 - 5L06 O.O.S
Bypass CLII 50X1	Same as Table 1.20 - 5190 0.0.3.
51 01/1D)	NO SHEUUING IEUUING. Shad at KCL/SEV/ALU/RDY/WANIAWAY: 1.35 * (51.01.951 - 1500) M/M
JLUI(IF)	DIEU ALTOLIOLVIALII/DIAVVANI/WAA. 1.33 (JLYTOLL - 1300) WW

Table 1.23 - 5L92 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

- Note 2 in Section 2
- 5L87 contingency: Limit (5L81 + 5L82 + 5L83 + 5L87) NIC < 5600 MW when BCH load >= 8500 MW. If TSAPM alarms "Voltage instability for a loss of 5L87", the BC Hydro Control Centre staff shall increase NI generation.
- 5L91 and 5L96 contingency: •
 - Limit: 5L91 SEL + 5L96 SEL + Y + Z < 2500 MW •
 - limit: •

FBC injection into SEL area < WAN shedable generation amount + ALH MW + BRX MW + WAX MW + - Min (1 SEV@MIN MW, 1KCL@MIN MW) - Z + W

Y = 2L112 NLY if 2L112 NLY > 0, or Y = 0 if 2L112 NLY <= 0 Z = 48L KET if VAS-WTS loop closed, or Z = 0 if VAS-WTS loop open W is the lesser of: • 2L294 Over Rating, or

2L294 NLY + CBK 500 kV to 230 kV MW + 1L274 POC – 1L275 NTL + 100

FBC injection into SEL area = 2L288 BTS + 2L289 BTS + FBC AAL Tie MW + 2L277 WAN - 60L225 KCL - 60L227 KCL - 2L286 SEL MW

FBC AAL Tie MW = (2L294 AAL-NLY) AAL + (2L294 AAL-CBK) AAL MW

Generation Shedding Requirements 5L92 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops) Note: Table E is applicable to this Table.

CONTINGENCY	SHEDDING REQUIREMENTS
5L75 (3P)	ACK 5CB5 in service: Same as Table F
	 <u>ACK 5CB5 O.O.S.</u> (5L75 contingency will trip open 5L76): Same gen shedding as 5L76 contingency with ACK 5CB8 O.O.S. in this Table.
5L77 (3P)	Same as Table F
5L75 (1P)	Same as Table F
5L77 (1P)	Same as Table F
5L75 (1P) and 5L77 (3P)	Same as Table F
5L75 (3P) and 5L77 (1P)	Same as Table F
5L75 (3P) and 5L77 (3P)	Same as Table F
5L76	ACK 5CB8 is in service: If REV Gen <= 2000 MW, then shed at REV: 1.03* ((5L75 + 5L77) REV + (5L91 + 5L96) SEL – 4050) MW
	ACK 5CB8 is 0.0.S.: (5L76 contingency will trip open 5L75) Shed at REV: 1.03* ((5L75 + 5L77) REV + (5L91 + 5L96) SEL – Y) MW
	Y = 3770 if REV Gen > 2000 MW
	AND
	If REV 5CB9 is O.O.S., REV G1 and G2 must be selected for shedding.
5L79	Same gen shedding as 5L76 contingency with ACK 5CB8 in service.
5L81	Same as system normal Table 1.1.
5L82	Same as system normal Table 1.1.
5L83	Same as system normal Table 1.1.
Bypass AMC 5CX1	No shedding required.
Bypass AMC 5CX2	No shedding required.
Bypass RYC 5CX1	No shedding required.
5L81 and 5L82	$ \begin{array}{l} \label{eq:G1} \hline \mbox{G1} = 3.06 * [5L44 \mbox{ MDN} + 0.14 * (5L81 + 5L82) \mbox{ NIC} - 5L44 \mbox{ Over} \mbox{ Rating}] \\ \hline \mbox{G2} = 3.33 * [5L83 \mbox{ NIC} + 0.47 * (5L81 + 5L82) \mbox{ NIC} - 5L83 \mbox{ Over} \mbox{ rating}] \\ \hline \mbox{G3} = 3.09 * [5L87 \mbox{ NIC} + 0.42 * (5L81 + 5L82) \mbox{ NIC} - 5L87 \mbox{ Over} \mbox{ Rating}] \\ \hline \mbox{G4} = 6.08 * [2L112 \mbox{ NLY} + 0.08 * (5L81 + 5L82) \mbox{ NIC} - \mbox{ NLYPST} \mbox{ OL} \mbox{ Pickup} \mbox{ MW}] \\ \hline \mbox{G5} = 4.24 * [2L293 \mbox{ SEL} + 0.07 * (5L81 + 5L82) \mbox{ NIC} - 2L293 \mbox{ OLRAS} \mbox{ Pickup} \mbox{ MW}] \\ \hline \end{array} $
	GS = Max (0, G1, G2, G3, G4, G5)
	 Shed at MCA/REV first: GS Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.31 * (GS – the armed gen-shedding amount at MCA/REV). Do not select GMS/PCN for shedding if G3 > 0. Total armed generation shedding must be limited to 2500 MW.
	If generation shedding is armed, the minimum units on line requirements post-shedding at MCA, REV, SEV, KCL, WAN, ALH, BRX, WAX and the equivalent SEV units specified in Note 14 in Section 3 shall be applied.
5L81 and 5L83	G1 = 3.22 * [5L44 MDN + 0.11 * (5L81 + 5L83) NIC - 5L44_Over_Rating] G2 = 3.71 * [5L82 NIC + 0.44 * (5L81 + 5L83) NIC - 5L82_Over_Rating] G3 = 3.05 * [5L87 NIC + 0.43 * (5L81 + 5L83) NIC - 5L87_Over_Rating] G4 = 6.1 * [2L112 NLY + 0.07 * (5L81 + 5L83) NIC - NLYPST_OL_PickupMW] G5 = 4.26 * [2L293 SEL + 0.07 * (5L81 + 5L83) NIC - 2L293OLRAS_PickupMW]
	GS = Max (0, G1, G2, G3, G4, G5)
	 Shed at MCA/REV first: GS Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.26 * (GS – the armed gen-shedding amount at MCA/REV). If G3 > 0, do not select GMS/PCN for shedding. Total armed generation shedding must be limited to 2500 MW.
	If generation shedding is armed, the minimum units on line requirements post-shedding at MCA, REV, SEV, KCL, WAN, ALH, BRX, WAX and the equivalent SEV units specified in Note 14 in Section 3 shall be applied.

CONTINGENCY	SHEDDING REQUIREMENTS
5L82 and 5L83	$ \begin{array}{l} G1 = 6.7 * [5L42 \ \text{KLY} + 0.27 * (5L82 + 5L83) \ \text{NIC} - 5L42 \ \text{Over} \ \text{Rating}] \\ G2 = 3.8 * [5L81 \ \text{NIC} + 0.44 * (5L82 + 5L83) \ \text{NIC} - 5L81 \ \text{Over} \ \text{Rating}] \\ G3 = 2.9 * [5L87 \ \text{NIC} + 0.48 * (5L82 + 5L83) \ \text{NIC} - 5L87 \ \text{Over} \ \text{Rating}] \\ G4 = 6.7 * [2L112 \ \text{NLY} + 0.06 * (5L82 + 5L83) \ \text{NIC} - \frac{\text{NLYPST} \ \text{OL} \ \text{PickupMW}}{\text{G5} = 4.8 * [2L293 \ \text{SEL} + 0.07 * (5L82 + 5L83) \ \text{NIC} - 2L293 \ \text{OLRAS} \ \text{PickupMW}} \end{array} $
	GS = Max (0, G1, G2, G3, G4, G5)
	 Shed at MCA/REV first: GS Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.45 * (GS – the armed gen-shedding amount at MCA/REV). If G3 > 0, do not select GMS/PCN for shedding. Total armed generation shedding must be limited to 2500 MW.
	If generation shedding is armed, the minimum units on line requirements post-shedding at MCA, REV, SEV, KCL, WAN, ALH, BRX, WAX and the equivalent SEV units specified in Note 14 in Section 3 shall be applied.
5L76 and 5L79	 IF (5L76 + 5L79) ACK > 750 MW, then Arm DTT 1L209 except for 1L209 radial connection, and Arm DTT1L214 RAS, and Arm DTT FBC's 48L if VAS-VNT loop is open and VAS-WTS loop is closed, and Apply the following generation shedding rules GS = 1.25 * [(5L76 + 5L79) ACK + 5L98 VAS - 1400] If 2L112 NLY < 0, shed at REV first, then KCL/ALH/SEV/WAN/BRX/WAX: GS
	If 2L112 NLY >= 0, shed at REV first, then KCL/ALH/SEV/WAN/BRX/WAX: (5L76 + 5L79) ACK + Z + 1L214 VNT + W, where Z = 1L209 SAM if 1L209 is not radial, or Z = 0 if 1L209 is radial W = 48L KET if DTT 48L is armed, or W = 0 if DTT 48L is nor armed. The total armed generation shedding amount must be limited to 2500 MW
	 If generation shedding is armed, then Arm DTT ACK 5CX1 if ACK 5CX1 is in service. Arm DTT ACK 5CX2 if ACK 5CX2 is in service. Keep a minimum of 1 REV, 1 SEV, 1 KCL and 1/3 equiv. SEV units on line post-shedding, or keep a minimum of 1 REV, 1 SEV units on line post-shedding if the whole KCL plant is shutdown in pre-contingency condition.
	Note: 5L94 may be tripped by under-voltage protection scheme installed at CBK station after SI has high generation shedding.
5L87	No shedding required.
5L91 and 5L96	 Arm DTT 2L112 RAS Arm DTT 48L RAS if VAS-WTS loop is closed. Shed at KCL/ALH/SEV/WAN/BRX/WAX: 5L91 SEL + 5L96 SEL + 2L112 NLY + Z + (BC/AB transfer) – 100 MW If generation shedding is armed, keep a minimum of 1 SEV unit or 1 KCL unit on-line post-shedding. Where: Z = 48L KET if VAS-WTS loop is closed, or Z = 0 if VAS-WTS loop is open

CONTINGENCY	SHEDDING REQUIREMENTS
5L44	GS1 = 3.5 * (5L81NIC + 0.35 * 5L44MDN – 5L81_Over_Rating) GS2 = 12.5 * (2L20CSQ + 0.2 * 5L44 MDN - 2L20_Over_Rating) GS3 = 31 * (2L51COK + 0.1 * 5L44MDN - 2L51COK_Over_Rating)
	M = MAX (GS1, GS2, GS3, 0) Y = 2L112 NLY + 0.05 * 5L44 MDN – 0.11* M Z = 2L293 SEL + 0.05 * 5L44 MDN – 0.1 * M
	If Y > NLYPST_OL_PickupMW, R1 = 0.37 * (Y - NLYPST_OL_ResetMW) R3 = 0.09 * (Y - NLYPST_OL_ResetMW) R5 = 0.04 * (Y - NLYPST_OL_ResetMW) Else R1 = 0, R3 = 0, R5 = 0.
	If Z > 2L293OLRAS_PickupMW, R2 = 0.45 * (Z - 2L293OLRAS_ResetMW) R4 = 0.11 * (Z - 2L293OLRAS_ResetMW) R6 = 0.05 * (Z - 2L293OLRAS_ResetMW) Else R2 = 0, R4 = 0, R6 = 0.
	Ra = MAX (R1, R2) Rb = MAX (R3, R4) Rc = MAX (R5, R6)
	 Shed at MCA/REV first, and then GMS/PCN the greatest of: D1 * (GS1 + 3.5* Ra) D2 * (GS2 + 12.5* Rb) D3 * (GS3 + 31* Rc) Where:
	D1 = 1.0 if shedding at MCA/REV, or D1 = 1.5 if shedding at GMS/PCN, D2 = 1.0 if shedding at MCA/REV, or D2 = 1.05 if shedding at GMS/PCN, D3 = 1.0 if shedding at MCA/REV, or D3 = 1.25 if shedding at GMS/PCN,
	Total armed generation shedding must be limited to 2500 MW. If exceeding the limit, the Operator can take the following
	 Reduce the flow on 2L129 from ARN to VIT. Reduce SI generation and increase Peace generation.
5L91	 Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: 1.35 * (5L91 SEL+5L96 SEL - Y) MW, or 3.16 * (2L112 NLY + 0.19 * 5L91 SEL - 400), or 2.60 * (2L293 SEL + 0.23 * 5L91 SEL - 400), and do not shed WAN for this requirement. Y = 1700 if SEL T1 & (T2 or/and) & T4 are in service, or Y = 1635 if SEL T1 or (T2 & T3) or T4 is 0.0 S
5L96	 Arm DTT 48L if 5L96 SEL > 800 MW AND if VAS-WTS loop is closed. Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: 1.25 * (5L91 SEL+5L96 SEL + Z - Y), or 2.30 * (2L112 NLY + BDY GEN + 0.24*(5L96 SEL + Z) - 1100) 2.30 * (2L112 NLY + 0.24 * (5L96 SEL + Z) - 400), or 2.66 * (2L293 SEL + 0.19 * (5L96 SEL + Z) - 400), and do not shed WAN for this requirement. Y = 2020 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1800 if none of ACK 5CX1 & 5CX2 is in service Z = 48L KET if DTT 48L is armed, or
5L98	If VAS-VNT loop is closed, then • Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: > 1.18 * (5L91 SEL + 5L98 VAS − Y) > 3.10 * (2L112 NLY + 0.17 * 5L98 VAS − 400), or > 4.36 * (2L293 SEL + 0.15 * 5L98 VAS − 400), and do not shed WAN for this requirement. Y = 1970 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1980 if none of ACK 5CX1 & 5CX2 is in service.
	 Y = 1880 if None of ACK SCX1 & SCX2 is in service Otherwise, Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: 1.14* (5L91 SEL + 5L98 VAS - Y) 3.48* (2L112 NLY + 0.20* 5L98 VAS - 400), or 4.00* (2L293 SEL + 0.18* 5L98 VAS - 400), and do not shed WAN for this requirement. Y = 2050 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1930 if none of ACK 5CX1 & 5CX2 is in service.
5L96 & 5L98	 Arm DTT 48L if 5L96 SEL > 800 MW AND if both VAS-WTS and VAS-VNT loops are closed. Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: 1.25 * (5L91 SEL+5L96 SEL +Z - Y), or 2.60 * (2L112 NLY + BDY GEN + 0.27 * (5L96 SEL + Z) - 1190), or 2.60 * (2L112 NLY + 0.27 * (5L96 SEL + Z) - 400), or 3.02 * (2L293 SEL + 0.21 * (5L96 SEL + Z) - 400), and do not shed WAN for this requirement. Y = 1990 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1720 if none of ACK 5CX1 & 5CX2 is in service Z = 48L KET if DTT 48L is armed, or
5L94	 (Note: Arming requirements for DTT 1L274 and DTT 1L275 are included in SOO 7T-17.) If (BC to US + BC to AB) > 2400 MW, then shed at KCL/SEV/ALH/WAN/BRX/REV/WAX: (BC to AB) MW
Bypass GUI 5CX1 5L91 (1P) or 5L96 (1P) or	No shedding required. No shedding required.
5L98 (1P)	

Table 1.24 - 5L94 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

- Note 2 in Section 2
- 5L87 contingency:

Limit (5L81 + 5L82 + 5L83 + 5L87) NIC < 5600 MW when BCH load >= 8500 MW.

If TSAPM alarms "Voltage instability for loss of 5L87", the BC Hydro Control Centre staff shall increase NI generation.

- 5L91 and 5L96 contingency:
 - If SEL 5RX3 is available, then limit:

(FBC injection into SEL area) < WAN shedable generation amount + ALH MW + BRX MW + WAX MW + 350 + Y - Z, Otherwise, limit:

(FBC injection into SEL area) < WAN shedable generation amount + ALH MW + BRX MW + WAX MW + 350 – 1 SEV@MIN_MW + Y – Z

Where: FBC injection into SEL area = 2L288 BTS + 2L289 BTS + FBC AAL Tie MW + 2L277 WAN - 60L225 KCL MW - 60L227 KCL - 2L286 SEL MW

FBC AAL Tie MW = (2L294 AAL-NLY) AAL + (2L294 AAL-CBK) AAL MW

Y = AB to BC MW if AB to BC > 0 MW, or Y = 0 if AB to BC <= 0 MW Z = 48L KET if VAS-WTS loop is closed, or Z = 0 if VAS-WTS loop is open.

Generation Shedding Requirements

5L94 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Note: Table E is applicable to this Table.

CONTINGENCY	SHEDDING REQUIREMENTS
5L75 (3P)	ACK 5CB5 in service: Same as Table F
	 <u>ACK 5CB5 O.O.S.</u> (5L75 contingency will trip open 5L76): Same gen shedding as 5L76 contingency with ACK 5CB8 O.O.S. in this Table.
5L77 (3P)	Same as Table F
5L75 (1P)	Same as Table F
5L77 (1P)	Same as Table F
5L75 (1P) and 5L77 (3P)	Same as Table F
5L75 (3P) and 5L77 (1P)	Same as Table F
5L75 (3P) and 5L77 (3P)	Same as Table F
5L76	ACK 5CB8 is in service: No gen shedding
	ACK 5CB8 is 0.0.S.: (5L76 contingency will trip open 5L75) Shed at REV: 1.03 * ((5L75 + 5L77) REV + (5L91 + 5L96) SEL – 3915) MW AND If REV 5CB9 is 0.0.S., REV G1 and G2 must be selected for shedding.
5L79	No generation shedding
5L81	Same as system normal Table 1.1
5L82	Same as system normal Table 1.1
5L83	Same as system normal Table 1.1
Bypass AMC 5CX1	No shedding required
Bypass AMC 5CX2	No shedding required.
Bypass RYC 5CX1	No shedding required.

CONTINGENCY	SHEDDING REQUIREMENTS
5L81 and 5L82	G1 = 3.12 * [5L44 MDN + 0.14 * (5L81 + 5L82) NIC - 5L44_Over_Rating] G2 = 3.38 * [5L83NIC + 0.48 * (5L81 + 5L82) NIC - 5L83_Over_Rating] G3 = 3.18 * [5L87 NIC + 0.42 * (5L81 + 5L82) NIC - 5L87_Over_Rating] G4 = 6.31 * [2L112 NLY + 0.07 * (5L81 + 5L82) NIC - NLYPST_OL_PickupMW] G5 = 6.08 * [2L293 SEL + 0.06 * (5L81 + 5L82) NIC - 2L293OLRAS_PickupMW]
	GS = Max (0, G1, G2, G3, G4, G5) Arming condition for DTT 1L274 and DTT 1L275: With Both NTL T1 and T2 in service, If (1L274 + 1L275) NTL - 0.0733 * GS < - 92, arm DTT 1L274 and DTT 1L275;
	With one of NTL T1 and T2 OOS, If (1L274 + 1L275) NTL - 0.0733 * GS < - 46, arm DTT 1L274 and DTT 1L275;
	 If DTT 1L274 and DTT 1L275 are not armed, then Shed at MCA/REV first: GS Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.30 * (GS – the armed gen-shedding amount at MCA/REV). Do not select GMS/PCN for shedding if G3 > 0. Total armed generation shedding must be limited to 2500 MW.
	If the arming conditions for DTT 1L274 and DTT 1L275 are met, then
	G1 = 2.86 * [5L44MSN + 0.14 * (5L81+5L82) NIC - 5L44_Over_Rating] G2 = 3.12 * [5L83NIC + 0.47 * (5L81 + 5L82) NIC - 5L83 Over_Rating] G3 = 2.48 * [5L87NIC + 0.42 * (5L81+5L82) NIC - 5L87_Over_Rating] G4 = 5.32 * [2L112 NLY + 0.07 * (5L81 + 5L82) NIC - NLYPST_OL_PickupMW] G5 = 5.76 * [2L293SEL + 0.06 * (5L81 + 5L82) NIC - 2L293OLRAS_PickupMW]
	<mark>GS = Max (0, G1, G2, G3, G4, G5)</mark>
	 Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and Shed at MCA/REV first: GS Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.24 * (GS – the armed gen-shedding amount at MCA/REV). Do not select GMS/PCN for shedding if G3 > 0. Total armed generation shedding must be limited to 2500 MW.
	If generation shedding is armed, the minimum units on line requirements post-shedding at MCA, REV, SEV, KCL, WAN, ALH, BRX, WAX and the equivalent SEV units specified in Note 14 in Section 3 shall be applied.
5L81 and 5L83	G1 = 3.28 * [5L44 MDN + 0.12 * (5L81 + 5L83) NIC - 5L44_Over_Rating] G2 = 3.76 * [5L82 NIC + 0.44 * (5L81 + 5L83) NIC - 5L82_Over_Rating] G3 = 3.13 * [5L87 NIC + 0.43 * (5L81 + 5L83) NIC - 5L87_Over_Rating] G4 = 6.3 * [2L112 NLY + 0.07 * (5L81 + 5L83) NIC - NLYPST_OL_PickupMW] G5 = 6.1 * [2L293 SEL + 0.06 * (5L81 + 5L83) NIC - 2L293_OL_RAS_PickupMW]
	GS = Max (0, G1, G2, G3, G4, G5)
	Arming condition for DTT 1L274 and DTT 1L275: With Both NTL T1 and T2 in service, If (1L274 + 1L275) NTL - 0.0733 * GS < - 92, arm DTT 1L274 and DTT 1L275; With one of NTL T1 and T2 OOS, If (1L274 + 1L275) NTL - 0.0733 * GS < - 46, arm DTT 1L274 and DTT 1L275;
	 If DTT 1L274 and DTT 1L275 are not armed, then Shed at MCA/REV first: GS Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.31 * (GS – the armed gen-shedding amount at MCA/REV). If G3 > 0, do not select GMS/PCN for shedding. Total armed generation shedding must be limited to 2500 MW.
	If the arming conditions for DTT 1L274 and DTT 1L275 are met, then
	$G1 = 3.0 [5L44 MDN + 0.12] (5L81 + 5L83) NIC - 5L44_OVE[_Rating]G2 = 3.46 * [5L82 NIC + 0.44 * (5L81 + 5L83) NIC - 5L82_Over_Rating]G3 = 2.45 * [5L87 NIC + 0.43 * (5L81 + 5L83) NIC - 5L87_Over_Rating]G4 = 5.3 * [2L112 NLY + 0.07 * (5L81 + 5L83) NIC - NLYPST_OL_PickupMW]G5 = 5.78 * [2L293 SEL + 0.06 * (5L81 + 5L83) NIC - 2L293OLRAS_PickupMW]$
	<mark>GS = Max (0, G1, G2, G3, G4, G5)</mark>
	 Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and Shed at MCA/REV first: GS Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.22 * (GS – the armed gen-shedding amount at MCA/REV). If G3 > 0, do not select GMS/PCN for shedding. Total armed generation shedding must be limited to 2500 MW.
	If generation shedding is armed, the minimum units on line requirements post-shedding at MCA, REV, SEV, KCL, WAN, ALH, BRX, WAX and the equivalent SEV units specified in Note 14 in Section 3 shall be applied.
5L82 and 5L83	G1 = 3.73 * [5L81 NIC + 0.4 * (5L82 + 5L83) NIC - 5L81_Over_Rating] G2 = 3.14 * [5L87 NIC + 0.47 * (5L82 + 5L83) NIC - 5L87_Over_Rating] G3 = 6.45 * [2L112 NLY + 0.07 * (5L82 + 5L83) NIC - NLYPST_OL_PickupMW] G4 = 6.21 * [2L293 SEL + 0.06 * (5L82 + 5L83)NIC - 2L293OLRAS_PickupMW]
	GS = Max (0, G1, G2, G3, G4)
	Arming condition for DTT 1L274 and DTT 1L275: With Both NTL T1 and T2 in service, If (1L274 + 1L275) NTL - 0.0733 * GS < - 92, arm DTT 1L274 and DTT 1L275; With one of NTL T1 and T2 OOS, If (1L274 + 1L275) NTL - 0.0733 * GS < - 46, arm DTT 1L274 and DTT 1L275;

CONTINGENCY	SHEDDING REQUIREMENTS
	 If DTT 1L274 and DTT 1L275 are not armed, then shed at MCA/REV first: GS Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.31 * (GS – the armed gen-shedding amount at MCA/REV). If G2 > 0, do not select GMS/PCN for shedding. Total armed generation shedding must be limited to 2500 MW.
	If the arming conditions for DTT 1L274 and DTT 1L275 are met, then
	G1 = 3.34 * [5L81 NIC + 0.4 * (5L82 + 5L83) NIC - 5L81_Over_Rating] G2 = 2.47 * [5L87 NIC + 0.47 * (5L82 + 5L83) NIC -5L87_Over_Rating] G3 = 4.84 * [2L112 NLY + 0.07 * (5L82 + 5L83) NIC - NLYPST_OL_PickupMW] G4 = 5.63 * [2L293 SEL + 0.06 * (5L82 + 5L83) NIC -2L293OLRAS_PickupMW]
	<mark>GS = Max (0, G1, G2, G3, G4)</mark>
	 Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7 T-17, and Shed at REV/MCA first: GS Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.24 * (GS – the armed gen-shedding amount at REV+MCA). Do not select GMS/PCN for shedding if G2 > 0. Total armed generation shedding must be limited to 2500 MW.
	If generation shedding is armed, the minimum units on line requirements post-shedding at MCA, REV, SEV, KCL, WAN, ALH, BRX, WAX and the equivalent SEV units specified in Note 14 in Section 3 shall be applied.
5L76 and 5L79	<pre>If (5L76 + 5L79) ACK > 750 MW, then Arm DTT 1L209 except for 1L209 radial connection, and Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17 Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17 Arm DTT FBC's 48L if VAS-VNT loop is open and VAS-WTS loop is closed, and Apply the following generation shedding rules if 2L112 NLY < 0, then GS = 1.2* [(5L76 + 5L79) ACK + 5L98 VAS – 1L274 POC + 1L275 NTL - Y] Shed at REV first, then KCL/ALH/SEV/WAN/BRX/WAX: GS Y = 1300 if VAS-VNT loop is closed, or Y = 1200 if VAS-VNT loop is open If 2L112 NLY >= 0, shed at REV fist, then KCL/ALH/SEV/WAN/BRX/WAX: (5L76 + 5L79) ACK + 2 + 1L214 VNT – 1L274 POC + 1L275 NTL + W where Z = 1L209 SAM if 1L209 is not radial, or Z = 0 if 1L209 is radial. W = 48L KET if DTT 48L is armed, or W = 0 if DTT 48L is not armed. The total armed generation shedding amount must be limited to 2500 MW + (BC_AB) If generation shedding is armed, Arm DTT ACK 5CX1 if ACK 5CX1 is in service, and Arm DTT ACK 5CX2 if ACK 5CX2 is in service, and Keep a minimum of 1 REV, 1 SEV, 1 KCL and 1/3 equiv. SEV units on line post-shedding or keep a minimum of 1 REV, 1 SEV and 1 equiv. SEV units on line post-shedding if the whole KCL plant is shutdown in pre-contingency condition.</pre>
5L91 and 5L96	 No shedding required. Arm DTT 48L RAS if VAS-WTS loop is closed. Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17 Shed at KCL/ALH/SEV/WAN/BRX/WAX: 1.02 x (5L91 SEL + 5L96 SEL + Z) + 2L112 NLY – 1L274 POC + 1L275 NTL + 70 - Y Y is the lesser of: 400 MW, or 1200 - BDY gen MW Z = 48L KET if DTT 48L RAS is armed, or Z = 0 if DTT 48L RAS is not armed. KCL may be shed down to 0 MW. If SEL 5RX3 is available, then SEV may be shed down to 0 MW, otherwise keep a minimum of 1 SEV unit on line post shedding. Total armed generation shedding must be limited to: 2500 – 1L274 POC + 1L275 NTL If TSA-PM alarms "insufficient shedding", the BC Hydro Control Centre staff must request FBC to reduce the generation of the BRD/COR/UB0/LB0/SLC, or/and the WAN unit not armed for shedding or run one additional SEV unit as sync. if

SEL 5RX3 is unavailable.	

CONTINGENCY	SHEDDING REQUIREMENTS
5L44	GS1 = 3.5 * (5L81NIC + 0.35 * 5L44MDN – 5L81_Over_Rating) GS2 = 12.5 * (2L20CSQ + 0.2 * 5L44 MDN - 2L20_Over_Rating) GS3 = 31.0 * (2L51COK + 0.1 * 5L44MDN - 2L51COK_Over_Rating)
	M = MAX (GS1, GS2, GS3, 0) Y = 2L112 NLY + 0.05 * 5L44 MDN – 0.11* M Z = 2L293 SEL + 0.05 * 5L44 MDN – 0.1 * M
	If Y > NLYPST_OL_PickupMW, R1 = 0.4 * (Y - NLYPST_OL_ResetMW) R3 = 0.1 * (Y - NLYPST_OL_ResetMW) R5 = 0.04 * (Y - NLYPST_OL_ResetMW) Else R1 = 0, R3 = 0, R5 = 0.
	If Z > 2L293OLRAS_PickupMW, R2 = 0.47 * (Z - 2L293OLRAS_ResetMW) R4 = 0.12 * (Z - 2L293OLRAS_ResetMW) R6 = 0.05 * (Z - 2L293OLRAS_ResetMW) Else R2 = 0, R4 = 0, R6 = 0.
	Ra = MAX (R1, R2) Rb = MAX (R3, R4) Rc = MAX (R5, R6)
	 Shed at MCA/REV first, and then GMS/PCN the greatest of: D1 * (GS1 + 3.5* Ra) D2 * (GS2 + 12.5* Rb) D3 * (GS3 + 31.0* Rc) Where:
	D1 = 1.0 if shedding at MCA/REV, or D1 = 1.5 if shedding at GMS/PCN, D2 = 1.0 if shedding at MCA/REV, or D2 = 1.05 if shedding at GMS/PCN, D3 = 1.0 if shedding at MCA/REV, or D3 = 1.25 if shedding at GMS/PCN.
	Total armed generation shedding must be limited to 2500 MW. If exceeding the limit, the Operator can take the following actions:
	 Reduce the flow on 2L129 from ARN to VII. Reduce SI generation and increase Peace generation
5L91	Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: ▶ 1.28 * (5L91 SEL + 5L96 SEL - Y), or ▶ 3.30 * (2L112 NLY + 0.20 * 5L91 SEL - 400), or ▶ 3.70 * (2L293 SEL + 0.19 * 5L91 SEL - 400), and do not shed WAN for this requirement. Y = 1715 if all SEL T1 & (T2 or/and T3) & T4 are in service, or X = 1620 if SEL T1 or (T2 & T3) or T4 is 0.0 S
5L96	• Arm DTT 48L if 5L96 SEL > 800 MW AND if VAS-WTS loop is closed. • Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: > 1.25 * (5L91 SEL + 5L96 SEL + $Z - Y$) > 2.88 * (2L112 NLY + 0.21 * (5L96 SEL + Z) – 400), or > 2.88 * (2L112 NLY + BDY Gen + 0.21 * (5L96 SEL + Z) – 1200), or > 3.38 * (2L293 SEL + 0.15 * (5L96 SEL + Z) – 400), and do not shed WAN for this requirement. Y = 2080 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1760 if none of ACK 5CX1 & 5CX2 is in service Z = 48L KET if DTT 48L is armed, or Z = 0 if DTT 48L is not armed.
5L98	If VAS-VNT loop is closed, then • Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: > 1.18 * (5L91 SEL + 5L98 VAS – Y), or > 3.11 * (2L112 NLY + 0.17 * 5L98 VAS – 400), or > 4.35 * (2L293 SEL + 0.14 * 5L98 VAS – 400), and do not shed WAN for this requirement. Y = 2000 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1860 if none of ACK 5CX1 & 5CX2 is in service.
	 Otherwise, Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: 1.14 * (5L91 SEL + 5L98 VAS - Y), or 3.05 * (2L112 NLY + 0.20 * 5L98 VAS - 400), or 4.28 * (2L293 SEL + 0.16 * 5L98 VAS - 400), and do not shed WAN for this requirement. Y = 2080 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1960 if none of ACK 5CX1 & 5CX2 is in service.
5L96 & 5L98	 Arm DTT 48L if 5L96 SEL > 800 MW AND if both VAS-WTS and VAS-VNT loops are closed. Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: 1.25* (5L91 SEL + 5L96 SEL + Z - Y) 3.14* (2L112 NLY + 0.24* (5L96 SEL + Z) - 400), or 3.14* (2L112 NLY + BDY Gen + 0.24* (5L96 SEL + Z) - 1230), or 3.28* (2L293 SEL + 0.17* (5L96 SEL + Z) - 400), and do not shed WAN for this requirement. Y = 2050 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1700 if none of ACK 5CX1 & 5CX2 is in service Z = 48L KET if DTT 48L is armed, or
5L92	Arm DTT 2L112 RAS if • 2L293 NLY > 420 – 0.75 * 5L92 CBK, or • 2L293 SEL > 420 – 0.9 * 5L92 SEL
Bypass GUI 5CX1 5L91 (1P) or 5L96 (1P) or	No shedding required. No shedding required.
5L98 (1P)	

Table 1.25 - 5L94 AND 5L96 O.O.S. (Any Status of VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

- Limit: 5L91 SEL < 1300 MW if none of ACK 5CX1 and 5CX2 is in service, or Limit: 5L91 SEL < 1400 MW if at least one of ACK 5CX1 and 5CX2 is in service If alarm comes, the Operator should reduce the flow on 5L91 by:
 - Reducing FBC's power injection into SEL, and/or
 - Reducing SEV / KCL generation, and/or
 - Adjusting NLY PST to increase 2L112 (NLY to BDY) transfer
- 5L76 and 5L79 contingency:
 - At least two of ACK 5RX4 and 5RX7 and 5RX8 must be available.
 - If VAS-VNT loop is closed, limit BDY Gen + 2L112 NLY < 1150 MW.
 - If VAS-VNT loop is open, limit BDY Gen + 2L112 NLY < 1050 MW.
- 5L91 contingency:
 - If SEL 5RX3 is available, then limit:
 - (FBC injection into SEL area) < WAN shedable generation amount + ALH MW + BRX MW + WAX MW + Y + 350

Otherwise, limit:

(FBC injection into SEL area) < WAN shedable generation amount + ALH MW + BRX MW + WAX MW + Y + 350 – 1 SEV@MIN_MW

Where:

FBC injection into SEL area = 2L288 BTS + 2L289 BTS + FBC AAL Tie MW + 2L277 WAN - 60L225 KCL - 60L227 KCL - 2L286 SEL MW

FBC AAL Tie MW = (2L294 AAL-NLY) AAL + (2L294 AAL-CBK) AAL MWY = AB to BC MW if AB to BC > 0 MW, or Y = 0 if AB to BC <= 0 MW

Generation Shedding Requirements

5L94 AND 5L96 O.O.S. (Any Status of VAS-WTS and VAS-VNT Loops) Note: Table E is applicable to this Table.

CONTINGENCY	SHEDDING REQUIREMENTS
5L75 (3P)	ACK 5CB5 in service: Same as Table F
	ACK 5CB5 0.0.5. (5L75 contingency will trip open 5L76):
5I 77 (3P)	Same as Table F
5L75 (1P)	Same as Table F
5L77 (1P)	Same as Table F
5L75 (1P) and 5L77 (3P)	Same as Table F
5L75 (3P) and 5L77 (1P)	Same as Table F
5L75 (3P) and 5L77 (3P)	Same as Table F
5L76	ACK 5CB8 in service: No gen shedding
	ACK 5CB8 0.0.5.: (5L/6 contingency with ACK 5CB50 0.5. in this table
51 79	No den shedding
51.81	Same as system normal Table 1.1
5L82	Same as system normal Table 1.1.
5L83	Same as system normal Table 1.1
Bypass AMC 5CX1	No shedding required.
Bypass AMC 5CX2	No shedding required.
Bypass RYC 5CX1	No shedding required.
5L81 and 5L82	
	G1 = 3.29 * [5L44 MDN+ 0.13 * (5L81 + 5L82) NIC - 5L44_Over_Rating]
	$G2 = 3.51 \times [5L83 \text{ NIC} + 0.49 \times (5L81 + 5L82) \text{ NIC} - 5L83 \text{ Over} \text{ Rating}]$
	$G3 = 3.1^{5}$ [5L87 NIC+ 0.43^{(5L81 + 5L82) NIC - 5L87_Over_Rating]
	G4 = 7.04 [2L112 NLY + 0.07 (5L81 + 5L82) NIC - NLYPST OL PICKUPINIVI] G5 = 6.20 [2L203 SET + 0.06 (5L81 + 5L82) NIC - 2L203 OLPAS PickupMVM
	$65 = 0.23$ [22233 SEC+ 0.00 (3201 + 3202) NIC - 22233 OEIAAS_PICKUpinini
	GS = Max (0, G1, G2, G3, G4, G5)
	Arming condition for DTT 1L274 and DTT 1L275:
	With Both NTL T1 and T2 in service.
	If $(1L274 + 1L275)$ NTL - 0.0734 * GS < - 89, arm DTT 1L274 and DTT 1L275;



	 If generation shedding is armed, keep a minimum of 2 MCA, 1 REV, 2 SEV and 1 KCL (with high side 2CBs in service) on line post-shedding if SEL 5RX3 is available, or keep a minimum of 2 MCA, 1 REV, 2 SEV, 1 KCL (with high side 2CBs in service) and 1 equivalent SEV units on line post-shedding if SEL 5RX3 is unavailable, keep a minimum of 2 MCA, 1 REV, 2 SEV and 2/3 equivalent SEV units on-line post-shed if SEL 5RX3 is available and the whole KCL plant is shutdown in pre-contingency condition, or keep a minimum of 2 MCA, 1 REV, 2 SEV and 1 & 2/3 equivalent SEV units on-line post-shed if SEL 5RX3 is available and the whole KCL plant is shutdown in pre-contingency condition. If TSA alarms "C5L81_82 - MAX ARMED SHED VIOLATION", the BC Hydro Control Centre staff should take the following actions: If BC is exporting to US, then reduce BC to US export. If BC is importing from US, then reduce (SI and FBC) generation and increase Peace generation, or/and reduce (SI and FBC) generation and increase import from US.
5L81 and 5L83	G1 = 3.24 * [5L44 MDN + 0.11 * (5L81+5L83) NIC - 5L44_Over_Rating] G2 = 3.73 * [5L82 NIC + 0.43 * (5L81 + 5L83) NIC - 5L82_Over_Rating] G3 = 3.05 * [5L87 NIC + 0.44 * (5L81 + 5L83) NIC - 5L87_Over_Rating] G4 = 7.04 * [2L112 NLY + 0.06 * (5L81 + 5L83) NIC - NLYPST_OL_PickupMW] G5 = 6.81 * [2L293 SEL + 0.06 * (5L81 + 5L83) NIC - 2L293OLRAS_PickupMW]
	<mark>GS = Max (0, G1, G2, G3, G4, G5)</mark>
	Arming condition for DTT 1L274 and DTT 1L275: With Both NTL T1 and T2 in service, If (1L274 + 1L275) NTL - 0.0734 * GS < - 89, arm DTT 1L274 and DTT 1L275; With one of NTL T1 and T2 OOS, If (1L274 + 1L275) NTL - 0.0734 * GS < - 44.5, arm DTT 1L274 and DTT 1L275;
	 If DTT 1L274 and DTT 1L275 are not armed, then Shed at MCA/REV first: GS Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.56 * (GS – the armed gen-shedding amount at MCA/REV). If G3 > 0, do not select GMS/PCN for shedding. Total armed generation shedding must be limited to 2500 MW.
	If the arming conditions for DTT 1L274 and DTT 1L275 are met, then G1 = 3.24 * [5L44 MDN + 0.11 * (5L81 + 5L83) NIC - 5L44_Over_Rating] G2 = 3.7 * [5L82 NIC + 0.44 * (5L81 + 5L83) NIC - 5L82_Over_Rating] G3 = 2.49 * [5L87 NIC + 0.44 * (5L81 + 5L83) NIC - 5L87_Over_Rating] G4 = 4.89 * [2L112 NLY + 0.07 * (5L81 + 5L83) NIC - NLYPST OL PickupMW] C5 = -7.99 * [2L112 NLY + 0.07 * (5L81 + 5L83) NIC - NLYPST OL PickupMW]
	G5 = 7.08 [2L293 SEL + 0.06 (5L81 + 5L83) NIC - 2L293 OL RAS Pickupiniv]
	• Arm DTT 11 274 and DTT 11 275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7 T-17
	 Ann D THE 274 and D THE 276 exception the rote blocking conditions specified in occubin 5.5 of 000 7 1417, and Shed at MCA/REV first: GS
	 Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.42 * (GS – the armed gen-shedding amount at MCA/REV). Do not select GMS/PCN for shedding if G3 > 0. Total armed generation shedding must be limited to 2500 MW.
	 If generation shedding is armed, keep a minimum of 2 MCA, 1 REV, 2 SEV and 1 KCL (with high side 2CBs in service) on line post-shedding if SEL 5RX3 is available, or keep a minimum of 2 MCA, 1 REV, 2 SEV, 1 KCL (with high side 2CBs in service) and 1 equivalent SEV units on line post-shedding if SEL 5RX3 is unavailable, or keep a minimum of 2 MCA, 1 REV, 2 SEV and 2/3 equivalent SEV units on-line post-shed if SEL 5RX3 is available and the whole KCL plant is shutdown in pre-contingency condition, or keep a minimum of 2 MCA, 1 REV, 2 SEV and 1 & 2/3 equivalent SEV units on-line post-shed if SEL 5RX3 is available and the whole KCL plant is shutdown in pre-contingency condition.
	If BC is exporting to US, then reduce BC to US export. If BC is importing from US, then • reduce (SI and FBC) generation and increase Peace generation, or/and • reduce (SI and FBC) generation and increase import from US.
5L82 and 5L83	G1 = 3.90 * [5L81 NIC + 0.43 * (5L82 + 5L83) NIC - 5L81_Over_Rating] G2 = 3.07 * [5L87 NIC + 0.48 * (5L82 + 5L83) NIC - 5L87_Over_Rating] G3 = 7.25 * [2L112 NLY + 0.06 * (5L82 + 5L83) NIC - NLYPST_OL_PickupMW] G4 = 6.48 * [2L293 SEL + 0.06 * (5L82 + 5L83) NIC - 2L293OLRAS_PickupMW]
	GS = Max (0, G1, G2, G3, G4) Arming condition for DTT 11 274 and DTT 11 275
	With Both NTL T1 and T2 in service, If (1L274 + 1L275) NTL - 0.0734 * GS < -89, arm DTT 1L274 and DTT 1L275; With one of NTL T1 and T2 OOS, If (1L274 + 1L275) NTL - 0.0734 * GS < -44.5, arm DTT 1L274 and DTT 1L275;
	If DTT 1L274 and DTT 1L275 are not armed, then
	 Shed at MCA/REV first: GS Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.49 * (GS – the armed gen-shedding amount at MCA/REV). If G2 > 0, do not select GMS/PCN for shedding. Total armed generation shedding must be limited to 2500 MW.
	If the arming conditions for DTT 1L274 and DTT 1L275 are met, then
	G1 = 3.67 * [5L81 NIC + 0.39 * (5L82 + 5L83) NIC - 5L81_Over_Rating] G2 = 2.5 * [5L87 NIC+ 0.48 * (5L82 + 5L83) NIC -5L87_Over_Rating]

	G3 = 4.99 * [2L112 NLY + 0.07 * (5L82 + 5L83) NIC - NLYPST_OL_PickupMW] G4 = 7.29 * [2L293 SEL + 0.06 * (5L82 + 5L83) NIC - 2L293_OLRAS_PickupMW]
	<mark>GS = Max (0, G1, G2, G3, G4)</mark>
	 Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7 T-17, and
	Shed at MCA/REV first: GS Then at SEV/(ALLIM/AN//REV///CL//CMS//RCN) 1.111 (CS, the armed rep, shedding amount at MCA//REV/)
	 Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.44 * (GS – the armed gen-shedding amount at MCA/REV). Do not select GMS/PCN for shedding if G2 > 0.
	 Total armed generation shedding must be limited to 2500 MW.
	 If generation shedding is armed, keep a minimum of 2 MCA, 1 REV, 2 SEV and 1 KCL (with high side 2CBs in service) on line post-shedding if SEL 5RX3 is available, or keep a minimum of 2 MCA, 1 REV, 2 SEV, 1 KCL (with high side 2CBs in service) and 1 equivalent SEV units on line post-shedding if SEL 5RX3 is unavailable, or keep a minimum of 2 MCA, 1 REV, 2 SEV and 2/3 equivalent SEV units on-line post-shed if SEL 5RX3 is available and the whole KCL plant is shutdown in pre-contingency condition, or keep a minimum of 2 MCA, 1 REV, 2 SEV and 1 & 2/3 equivalent SEV units on-line post-shed if SEL 5RX3 is available and the whole KCL plant is shutdown in pre-contingency condition.
	If TSA alarms "C5L82_83 - MAX ARMED SHED VIOLATION", the BC Hydro Control Centre staff should take the following
	actions:
	If BC is importing from US, then
	 reduce (SI and FBC) generation and increase Peace generation, or/and
	reduce (SI and FBC) generation and increase import from US.
5L76 and 5L79	Arm DTT 1L209 except for 1L209 radial connection, and Arm DTT 1L214 and
	 Arm DTT 1L274, 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and
	Arm DTT 48L RAS if VAS-WTS loop is closed, and
	 If 2L112 NLY >= 0, shed at REV first, then KCL/ALH/SEV/WAN/BRX/WAX: (5) 76 + 5) 79) ACK + 11 214 V/NT - 11 274 POC + 11 275 NTL + 7 + 11
	OR
	 If 2L112 NLY < 0,Arm DTT 73L RAS if VAS-VNT loop is closed, and
	 Shed at REV first, then KCL/ALH/SEV/WAN/BRX/WAX: (5) 76 + 5) 79) ACK + 11 214 VNT + 21 112 NI Y = 11 274 POC + 11 275 NTL + 7 + 11 - W/
	Where: Z = 1L209 SAM if 1L209 is not radial, or Z = 0 if 1L209 is radial
	U = 48L KET if DTT 48L RAS is armed, or $U = 0$ if DTT 48L RAS is not armed.
	W = 73L RGA if DTT 73L RAS is armed, or W = 0 if DTT 73L RAS is not armed.
	If Generation shedding is armed, then
	Arm DTT ACK 5CX1 if ACK 5CX1 is in service, and
	 Arm DTTACK SCX2 if ACK SCX2 is in service, and keep a minimum of 1 REV. 1 SEV and 1 KCL units on-line post-shedding or keep a minimum of 1 REV. 1 SEV
	and 2/3 equiv. SEV units on-line post-shedding if the whole KCL plant is shutdown in pre-contingency
	condition.
	If TSA-PM alarms "insufficient shedding", the BC Hydro Control Centre staff must reduce the generation of the units not
51.07	armed for shedding, or run as sync.
3L07 5L44	No sneuding required.
5L44	Same as Table 1.24 – 5194 0.0.5.
5L91	Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17
AND 5L96" because "5L91"	Arm DTT 48L RAS if VAS-WTS loop is closed Shed at KCL/ALH/SEV/WAN/BRX/WAX ⁻
signal won't be generated	1.02 x (5L91 SEL + 5L96 SEL) + 2L112 NLY – 1L274 POC + 1L275 NTL + 70 - Y + Z
as long as 5L96 O.O.S.)	Y is the lesser of:
	 1200 - BDY gen MW
	Z = 48L KET if DTT 48L RAS is armed, or Z = 0 if DTT 48L RAS is nor armed.
	KCL may be shed down to 0 MW. If SEL 5RX3 is available, then SEV may be shed down to 0 MW, otherwise keep a
	minimum of 1 SEV unit on line post shedding.
	of the BRD/COR/UBO/LBO/SLC, or/and the WAN unit not armed for shedding, or run one additional SEV unit as sync if
51.98	SEL 5RX3 is unavailable. Note: When both VAS-WTS and VAS-WTT loops are open 51.98 contingency with 51.96 already out of service will black
(TSA-PM must treat it as	out the FBC's loads which are radially connected to VAS. When VAS-VNT loop is open and VAS-WTS loop is closed, 5L98
"5L96 AND 5L98"	contingency may cause overloading on ASM T1/T2, or voltage instability in the area which is radially supplied from WTS.
"5L98" signal won't be	
generated as long as 5L96	No shedding required.
<u> </u>	Arm DTT 2L112 BAS if
	> $2L293 \text{ NLY} > 420 - 0.75 * 5L92 \text{ CBK, or}$
	> 2L293 SEL > 420 - 0.9 * 5L92 SEL
5L91 (1P) or 5L98 (1P)	No shedding required

Table 1.26 - 2L112 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

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- 5L91 and 5L96 contingency:
 - Limit: 5L91 SEL + 5L96 SEL + Z < 2500 MW
 - If SEL 5RX3 is available, then limit:
 - (FBC injection into SEL area) + Y < WAN shedable generation amount + ALH MW + BRX MW + WAX MW + 1000 1 SEV @ MIN.MW Z

Otherwise, limit:

(FBC injection into SEL area) + Y < WAN shedable generation amount + ALH MW + BRX MW + WAX MW + 1000 – 1 SEV @ MIN.MW – 1 KCL @ MIN.MW - Z

Where: FBC injection into SEL area = 2L288 BTS + 2L289 BTS + FBC AAL Tie MW + 2L277 WAN - 60L225 KCL -

60L227 KCL – 2L286 SEL MW

FBC AAL Tie MW = (2L294 AAL-NLY) AAL + (2L294 AAL-CBK) AAL MW

- Y = AB to BC MW if AB to BC > 0, or
- Y = 0 if AB to BC <= 0
- Z = 48L KET if VAS-WTS loop is closed, or
- Z = 0 if VAS-WTS loop is open.
- Alarm if 5L91 SEL + 5L96 SEL + Z < -700 MW AND MATL120S_PST230 >= 0 MW, or

If 5L91 SEL + 5L96 SEL + Z + MATL120S_PST230 < -700 MW AND MATL120S_PST230 < 0 MW

If the alarm comes, the BC Hydro Control Centre staff must put more local generation on-line to prevent post-contingency frequency drop down below 59.0 Hz for loss of 5L91 and 5L96.

Generation Shedding Requirements 2L112 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops) Note: Table E is applicable to this Table.

CONTINGENCY	SHEDDING REQUIREMENTS
5L75 (3P)	ACK 5CB5 in service: Same as Table F
	ACK 5CB5 O.O.S. (5L75 contingency will trip open 5L76):
	Same gen snedding as 5L76 contingency with ACK 5CB8 0.0.5. In this Table.
5L77 (3P)	Same as Table F
5L75 (1P)	Same as Table F
<u>5L77 (1P)</u>	Same as Table F
5L75 (1P) and 5L77 (3P)	Same as Table F
5L75 (3P) and 5L77 (1P)	Same as Table F
5L75 (3P) and 5L77 (3P)	Same as Table F
5L76	ACK 5CB8 in service: If REV Gen <= 2000 MW, shed at REV: 1.02 * ((5L75 + 5L77) REV + (5L91 + 5L96) SEL – 4215) MW
	ACK 5CB8 O.O.S.: (5L76 contingency will trip open 5L75) Shed at REV:
	 1.02 * ((5L75 + 5L77) REV + (5L91 + 5L96) SEL – 3765) MW if REV Gen <= 1500 MW, or
	• 1.02 * ((51.75 + 51.77) REV + (51.91 + 51.96) SEL - 4010) MW if 1500 < REV Gen <= 2000 MW
	 If REV 5CB9 is O.O.S., REV G1 and G2 must be selected for shedding.
5L79	Same gen shedding as 5L76 contingency with ACK 5CB8 in service.
5L81	Shed at MCA/REV: 2.14 * (5L44 MDN + 0.62 * 5L81 NIC - 5L44 Over Rating)
5L82	No shedding required
51.83	No shedding required
Bypass AMC 5CX1	No shedding required
Bypass AMC 5CX2	No shedding required
Bypass BYC 5CX1	No shedding required
51 91 and 51 92	$\frac{C1 - 2}{C1 - 2} \frac{70 \times [5]}{44} \frac{44}{MDN} + 0.16 \times (51.91 + 51.92) \text{ NIC} = 51.44 \text{ Over Poting}$
	G2 = 3.0 * [5L83 NIC + 0.49 * (5L81 + 5L82) NIC - 5L83_Over_Rating] G3 = 2.7 * [5L87 NIC + 0.44 * (5L81 + 5L82) NIC - 5L87_Over_Rating] GS = Max (0, G1, G2, G3)
	 If AB to BC >= 500 MW AND GS >= 1500 MW, then Arm DTT 5L94, and Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and Shed at MCA/REV: 0.93 * (GS – AB to BC) Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.1 *[0.93 * (GS – AB to BC) – the armed gen-shedding amount at MCA/REV]. Do not select GMS/PCN for shedding if G3 > 0. Total armed generation shedding must be limited to (2500 - AB to BC) MW
	If AB to BC < 500 MW or [AB to BC >=500 MW AND CS < 1500], then
	 Shed at MCA/REV: GS
	 Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.1 * (GS- the armed gen-shedding amount at MCA/REV). Do not select GMS/PCN for shedding if G3 > 0. Total armed generation shedding must be limited to 2500 MW.
	If generation shedding is armed, the minimum units on line requirements post-shedding at MCA, REV, SEV, KCL, WAN, ALH, BRX, WAX and the equivalent SEV units specified in Note 14 in Section 3 shall be applied.
5L81 and 5L83	G1 = 2.83 * [5L44 MDN + 0.12 * (5L81+5L83) NIC - 5L44_Over_Rating] G2 = 3.28 * [5L82 NIC + 0.45 * (5L81 + 5L83) NIC - 5L82_Over_Rrating] G3 = 2.66 * [5L87 NIC + 0.46 * (5L81 + 5L83) NIC - 5L87_Over_Rating]
	GS = Max (0, G1, G2, G3)
	 If AB to BC >= 500 MW AND GS >= 1500 MW, then Arm DTT 5L94, and Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and Shed at MCA/REV: 0.93 * (GS – AB to BC) Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.1 * [0.93 * (GS – AB to BC) – the armed gen-shedding amount at MCA/REVI. If G3 > 0, do not select GMS and PCN for shedding.

 Total armed generation shedding must be limited to (2500 - AB to BC) MW
 If AB to BC < 500 MW or [AB to BC >=500 MW AND GS < 1500], then Shed at MCA/REV: GS Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.1 * (GS- the armed gen-shedding amount at MCA/REV). If G3 > 0, do not select GMS and PCN for shedding. Total armed generation shedding must be limited to 2500 MW.
If generation shedding is armed, the minimum units on line requirements post-shedding at MCA, REV, SEV, KCL, WAN, ALH, BRX, WAX and the equivalent SEV units specified in Note 14 in Section 3 shall be applied.
CONTINGENCY

5L82 and 5L83
5L76 and 5L79
51.07
<u>⊃∟ờ/</u> 5L91 & 5L96
<u>5L91 & 5L96</u> 5L44

	 Total armed generation shedding must be limited to 2500 MW. If exceeding the limit, the Operator can take the following actions: Reduce the flow on 2L129 from ARN to VIT. Reduce SI generation and increase Peace generation
5L91	 Shed at KCL/ALH/WAN/BRX/WAX first, then SEV: 1.10 * (5L91 SEL+5L96 SEL – Y)
	Y = 1535 if SEL T1 & (T2 or/and T3) & T4 are in service, or
	7 - 1460 II SEL I I 0I (12 & 13)0I 14 IS 0.0.3.
5L96	 Arm DTT 48L if 5L96 SEL > 800 MW and if VAS-WTS loop is closed.
	 Shed at KCL/ALH/WAN/BRX/WAX first, then SEV:
	➢ 1.05 * (5L91 SEL + 5L96 SEL + Z − Y)
	Y = 1620 if at least one of ACK 5CX1 & 5CX2 is in service, or
	Y = 1500 if none of ACK 5CX1 & 5CX2 is in service
	Z = 48L KET if DTT 48L is armed, or
	Z = 0 if DTT 48L is not armed
5L98	If VAS-VNT loop is closed, then:

CONTINGENCY	SHEDDING REQUIREMENTS
	 Shed at KCL/ALH/WAN/BRX/WAX first, then SEV: 1.16 * (5L91 SEL + 5L98 VAS - Y) Y = 1650 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1500 if none of ACK 5CX1 & 5CX2 is in service Otherwise, Shed at KCL/ALH/WAN/BRX/WAX first, then SEV: 1.05 * (5L91 SEL + 5L98 VAS - Y) Y = 1680 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1540 if none of ACK 5CX1 & 5CX2 is in service
5L96 & 5L98	 Arm DTT 48L if 5L96 SEL > 800 MW and if both VAS-WTS and VAS-VNT loops are closed. Shed at KCL/ALH/WAN/BRX/WAX first, then SEV: 1.05 * (5L91 SEL + 5L96 SEL + Z - Y) Y = 1720 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1490 if none of ACK 5CX1 & 5CX2 is in service Z = 48L KET if DTT 48L is armed, or Z = 0 if DTT 48L is not armed
5L92	(Note: Arming requirements for DTT 5L94, DTT 1L274 and DTT 1L275 are included in SOO 7T-17.) No DTT and shedding required.
5L94	 (Note: Arming requirements for DTT 1L274 and DTT 1L275 are included in SOO 7T-17.) If (BC to US + BC to AB) > 2400 MW, then shed at KCL/SEV/ALH/WAN/BRX/REV/WAX: (BC to AB) MW If 700 MW < (BC to US + BC to AB) <= 2400 MW, then shed at KCL/SEV/ALH/WAN/BRX/REV/WAX: (BC to AB) - 400 MW If generation shedding is armed, keep a minimum of 2 REV, 2 SEV, 1 KCL and 1/3 equivalent SEV units on-line post-shedding, or keep a minimum of 2 REV, 2 SEV and 1 equivalent SEV units on-line post-shedding if the whole KCL is shutdown in pre-contingency condition.
Bypass GUI 5CX1	No shedding required.
5L91 (1P) or 5L96 (1P) or 5L98 (1P)	No shedding required.

Table 1.27 - 2L293 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

- Note 3 in Section 2
- 5L91 or 5L96 or 5L98 or (5L96 AND 5L98) contingency: Limit: 2L112 NLY + BDY gen MW < 1100 MW
- 5L92 contingency:
 - When 0 <= BC to AB <= 100, or 0 < AB to BC < AAL/CBK/NTL load, then
 - Limit 2L112 NLY < 370 2L294 NLY 0.5 * 5L92 SEL</p>
 - ➢ Limit 62L WTS to ESS < 270 − 0.5 * 5L92 SEL</p>
 - When BC to AB > 100, or AB to BC > AAL/CBK/NTL load, then
 - Limit: 2L112 NLY < 370 2L294 NLY 0.48 * 5L92 SEL + 0.35 * (BC-AB)</p>
 - Limit: 62L WTS < 270 0.46 * 5L92 SEL + 0.34 * (BC-AB)</p>
 - If above 62L WTS to ESS limit is exceeded, then
 - > reduce BRD generation and increase WAN generation, or
 - reduce 2L112 NLY, or
 - > reduce BC to AB transfer.

(Note: the AAL/CBK/NTL load = 2L294 NLY + CBK 500 kV to 230 kV MW + 1L274 POC - 1L275 NTL MW)

Generation Shedding Requirements 2L293 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops) Note: Table E is applicable to this Table.

CONTINGENCY	SHEDDING REQUIREMENTS
5L75 (3P)	ACK 5CB5 in service: Same as Table F
	 ACK 5CB5 O.O.S. (5L75 contingency will trip open 5L76): Same gen shedding as 5L76 contingency with ACK 5CB8 O.O.S. in this Table.
5L77 (3P)	Same as Table F
5L75 (1P)	Same as Table F
5L77 (1P)	Same as Table F
5L75 (1P) and 5L77 (3P)	Same as Table F
5L75 (3P) and 5L77 (1P)	Same as Table F
5L75 (3P) and 5L77 (3P)	Same as Table F
5L76	ACK 5CB8 in service: If REV Gen <= 2000 MW, shed at REV: 1.15 * ((5L75 + 5L77) REV + (5L91 + 5L96) SEL – 4220) MW
	ACK 5CB8 O.O.S.: (5L76 contingency will trip open 5L75)
	 1.02 * ((5L75 + 5L77) REV + (5L91 + 5L96) SEL – 3810) MW if REV Gen <= 1500 MW, or 1.14 * ((5L75 + 5L77) REV + (5L91 + 5L96) SEL – 3940) MW if 1500 < REV Gen <= 2000 MW, or 1.14 * ((5L75 + 5L77) REV + (5L91 + 5L96) SEL – 4150) MW if REV Gen > 2000 MW AND
	 If REV 5CB9 is O.O.S., REV G1 and G2 must be selected for shedding.
5L79	Same gen shedding as 5L76 contingency with ACK 5CB8 in service.
5L81	Shed at MCA/REV: GS + 3.53 * M
	Where GS and M are calculated as follows:
	GS = Max (0, 2.36 * (5L44 MDN + 0.62 * 5L81 NIC - 5L44_Over_Rating))
	Y = 2L112 NLY + 0.02 * 5L81 NIC - 0.10 * GS
51.00	If Y > NLYPST_OL_PickupMW, M = 0.53 * (Y – NLYPST_OL_ResetMW), Else M = 0
5L82	No shedding required.
5L83	No sheading required.
Bypass AMC 5CX1	No sheading required.
Bypass AMC 5CX2	No sneading required.
Sypass RYC 5CX1	No sneading required.
5L81 and 5L82	$GI = 2.99$ [5L44 MDN + 0.15 (5L81 + 5L82) NIC - 5L44_OVEr_Rating]
	$G_2 = 3.25$ [5183 NIC + 0.47 (5181 + 5182) NIC - 5183 OVer Rating] $G_2 = 2.06 \times [51.87 \text{ NIC} + 0.42 \times (51.81 + 51.82) \text{ NIC} = 51.87 \text{ Over Pating}]$
	$G3 = 2.96 [567 MiC + 0.43 (568) + 5682 MiC - 567 OVEL Rating]G4 = 10.04 * [2L112NLY + 0.05 * (568) + 5682 MiC - NLYPST_OL_PickupMW]$
	GS = Max (0, G1, G2, G3, G4)
	If AB to BC >= 500 MW AND GS >= 1500 MW, then
	Arm D I I 5L94, and Arm D TT 4L976 events for the DAC blacking and division and find in Continue C.C. (CCC) 7T 47
	 Arm DTTTL2/4 and DTTTL2/5 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and
	 Shed at MCA/REV: 0.93 * (GS – AB to BC)

 Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.25 * [0.93 * (GS – AB to BC) – the armed gen-shedding amount at MCA/REV]. Do not select GMS/PCN for shedding if G3 > 0. Total armed generation shedding must be limited to (2500 - AB to BC) MW
 If AB to BC < 500 MW or [AB to BC >=500 MW AND GS < 1500], then Shed at MCA/REV: GS Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.25 * (GS- the armed gen-shedding amount at MCA/REV). Do not select GMS/PCN for shedding if G3 > 0. Total armed generation shedding must be limited to 2500 MW.
If generation shedding is armed, the minimum units on line requirements post-shedding at MCA, REV, SEV, KCL, WAN, ALH, BRX, WAX and the equivalent SEV units specified in Note 14 in Section 3 shall be applied.

CONTINGENCY	SHEDDING REQUIREMENTS
5L81 and 5L83	G1 = 3.14 * [5L44 MDN + 0.12 * (5L81 + 5L83) NIC - 5L44_Over_Rating] G2 = 3.63 * [5L82 NIC + 0.44 * (5L81 + 5L83) NIC - 5L82_Over_Rating] G3 = 2.83 * [5L87 NIC + 0.44 * (5L81 + 5L83) NIC - 5L87_Over_Rating] G4 = 10.08 * [2L112NLY + 0.05 * (5L81 + 5L83) NIC - NLYPST_OL_PickupMW]
	GS = Max (0, G1, G2, G3, G4)
	 If AB to BC >= 500 MW AND GS >= 1500 MW, then Arm DTT 5L94, and Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and Shed at MCA/REV: 0.93 * (GS – AB to BC) Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.24 *[0.93 * (GS – AB to BC) – the armed gen-shedding amount at MCA/REV]. If G3 > 0, do not select GMS and PCN for shedding.
	• Total armed generation shedding must be limited to $(2500 - AB to BC)$ MW
	 Shed at MCA/REV: GS Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.24 * (GS- the armed gen-shedding amount at MCA/REV). If G3 > 0, do not select GMS and PCN for shedding. Total armed generation shedding must be limited to 2500 MW.
	If generation shedding is armed, the minimum units on line requirements post-shedding at MCA, REV, SEV, KCL, WAN, ALH, BRX, WAX and the equivalent SEV units specified in Note 14 in Section 3 shall be applied.
5L82 and 5L83	G1 = 6.6 * [5L42 KLY + 0.27 * (5L82 + 5L83) NIC - 5L42_Over_Rating] G2 = 3.2 * [5L81 NIC + 0.45 * (5L82 + 5L83) NIC - 5L81_Over_Rating] G3 = 2.9 * [5L87 NIC + 0.48 * (5L82+5L83) NIC - 5L87_Over_Rating] G4 = 12.5 * [2L112 NLY + 0.03 * (5L82 + 5L83) NIC - NLYPST_OL_PickupMW]
	GS = Max (0, G1, G2, G3, G4)
	 If AB to BC >= 500 MW AND GS >= 1500 MW, then Arm DTT 5L94, and Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and
	 Shed at MCA/REV: 0.93 * (GS – AB to BC) Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.24 * [0.93 * (GS – AB to BC) – the armed gen-shedding amount at MCA/REV]. If G3 > 0, do not select GMS and PCN for shedding. Total armed generation shedding must be limited to (2500 - AB to BC) MW
	If AB to BC < 500 MW or [AB to BC >=500 MW AND GS < 1500] , then
	 Shed at MCA/REV: GS Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.24 * (GS- the armed gen-shedding amount at MCA/REV). If G3 > 0, do not select GMS and PCN for shedding. Total armed generation shedding must be limited to 2500 MW.
	If generation shedding is armed, the minimum units on line requirements post-shedding at MCA, REV, SEV, KCL, WAN, ALH, BRX, WAX and the equivalent SEV units specified in Note 14 in Section 3 shall be applied.
5L76 and 5L79	BC To AB (MW) Shed at REV first, then KCL/ALH/SEV/WAN/BRX/WAX: 1 15 * [(51 76 + 51 79) ACK + 51 98 VAS = 1300]
	$\frac{(3L/0 + 3L/2)}{(3L/0 + 3L/2)} \text{ ACK} + 3L/2 \text{ VAS} = 1500 \text{ J}$ $\frac{(5L/0 + 5L/2)}{(5L/0 + 5L/2)} \text{ ACK} + 2 + 1L214 \text{ VNT} + W$
	(0,0) 2L112 NLY (MW)
	 GS = 1.20 * [(5L76 + 5L79) ACK + 5L98 VAS - 1300] If GS >1500 and AB to BC > 400 MW, then Arm DTT 5L94, and Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and Shed at REV first, then KCL/ALH/SEV/WAN/BRX/WAX: GS Shed at REV first, then KCL/ALH/SEV/WAN/BRX/WAX: GS GS = (5L76 + 5L79) ACK + 1L214 VNT + Z + W If GS >1500 and AB to BC > 400 MW, then Arm DTT 5L94, and Arm DTT 5L94, and Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and Shed at REV first, then KCL/ALH/SEV/WAN/BRX/WAX: GS Otherwise,
	Shed at REV first, then KCL/ALH/SEV/WAN/BRX/WAX: GS

	 IF (5L76 + 5L79) ACK > 750 MW, then Arm DTT 1L209 except for 1L209 radial connection, and Arm DTT 1L214, and Arm DTT FBC's 48L if VAS-VNT loop is open and VAS-WTS loop is closed, and Apply the above generation shedding rules
	 Z and W value in the above shedding formulas: Z = 1L209 SAM if 1L209 is not radial, or Z = 0 if 1L209 is radial W = 48L KET if DTT 48L is armed, or W = 0 if DTT 48L is not armed
	The total armed generation shedding amount must be limited to 2500 MW If DTT 5L94 is not armed, or
	(the total armed generation shedding amount + AB to BC) must be limited to 2500 MW If DTT 5L94 is armed If generation shedding is armed, then
	Arm DTT ACK 5CX1 if ACK 5CX1 is in service, and
	Arm DTT ACK 5CX2 if ACK 5CX2 is in service, and
	 Keep a minimum of 1 REV, 1 SEV, 1 KCL and 1/3 equiv. SEV units on-line post-shedding or keep a minimum of 1 REV, 1 SEV and 1 equiv. SEV units on-line post-shed if the whole KCL plant is shutdown in pre-contingency condition.
5L87	No shedding required.
5L91 and 5L96	Tables A, B, C and D are applicable to this contingency

CONTINGENCY	SHEDDING REQUIREMENTS
5L44	GS1 = 3.5 * (5L81NIC + 0.35 * 5L44MDN – 5L81_Over_Rating) GS2 = 12.5 * (2L20CSQ + 0.2 * 5L44 MDN - 2L20_Over_Rating) GS3 = 31.5* (2L51COK + 0.1 * 5L44MDN - 2L51COK_Over_Rating)
	 Shed at MCA/REV first, and then GMS/PCN the greatest of: D1 * GS1 D2 * GS2 D3 * GS3
	Where: D1 = 1.0 if shedding at MCA/REV, or D1 = 1.5 if shedding at GMS/PCN, D2 = 1.0 if shedding at MCA/REV, or D2 = 1.05 if shedding at GMS/PCN, D3 = 1.0 if shedding at MCA/REV, or D3 = 1.25 if shedding at GMS/PCN.
	 Total armed generation shedding must be limited to 2500 MW. If exceeding the limit, the Operator can take the following actions: Reduce the flow on 2L129 from ARN to VIT. Reduce SI generation and increase Peace generation.
5L91	 Shed at KCL/ALH/BRX/WAX/SEV (select SEV for shed last): 1.10 * (5L91 SEL + 5L96 SEL – 1580) and Shed at WAN: 2.30 * (2L112 NLY + 0.11 * 5L91 SEL – 400 – 0.18 * (armed KCL/ALH/BRX/WAX/SEV shedding amount for the contingency))
5L96	 Arm DTT 48L if 5L96 SEL > 800 MW AND if VAS-WTS loop is closed. Shed at WAN the greater: 2.05 * (2L112 NLY + 0.17 * (5L96 SEL + Z) – 400) 2.05 * (2L112 NLY + 0.17 * (5L96 SEL + Z) + BDY GEN – 1180) GS = Armed WAN shedding amount for this contingency. Shed at KCL/ALH/BRX/WAX, then SEV the greatest of: 1.20 * (5L91 SEL + 5L96 SEL + Z – Y – 0.48 * GS) 3.74 * (2L112 NLY + 0.17 * (5L96 SEL + Z) – 0.49 * GS - 400) 3.74 * (2L112 NLY + 0.17 * (5L96 SEL + Z) + BDY Gen – 0.49 * GS – 1180) Y = 1990 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1830 if none of ACK 5CX1 & 5CX2 is in service Z = 48L KET if DTT 48L is armed, or Z = 0 if DTT 48L is not armed
5L98	 If VAS-VNT loop is closed, then Shed at WAN: 2.19 * (2L112 NLY + 0.13 * 5L98 VAS – 400) GS = Armed WAN shedding amount for this contingency. Shed at KCL/ALH/BRX/WAX, then SEV the greater of: 1.17 * (5L91 SEL + 5L98 VAS – Y – 0.50 * GS) 4.32 * (2L112 NLY + 0.13 * 5L98 VAS – 0.45 * GS – 400) Y = 1790 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1600 if none of ACK 5CX1 & 5CX2 is in service If VAS-VNT loop is open, then
	 Shed at WAN: 2.16* (2L112 NLY + 0.16 * 5L98 VAS - 400) GS = Armed WAN shedding amount for this contingency. Shed at KCL/ALH/BRX/WAX, then SEV the greater of: 1.14* (5L91 SEL + 5L98 VAS - Y - 0.51* GS) 4.12* (2L112 NLY + 0.16* 5L98 VAS - 0.46* GS - 400) Y = 1790 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1590 if none of ACK 5CX1 & 5CX2 is in service
5L96 & 5L98	 Arm DTT 48L if 5L96 SEL > 800 MW AND if both VAS-WTS and VAS-VNT loops are closed. Shed at WAN the greater of: 2.12* (2L112 NLY + 0.20 * (5L96 SEL + Z) - 400) 2.12* (2L112 NLY + 0.20* (5L96 SEL + Z) + BDY GEN - 1200) GS = Armed WAN shedding amount for this contingency. Shed at KCL/ALH/BRX/WAX, then SEV: 1.20* (5L91 SEL + 5L96 SEL + Z - Y - 0.48* GS) 3.74* (2L112 NLY + 0.20* (5L96 SEL + Z) - 0.44* GS - 400) 3.74* (2L112 NLY + 0.20* (5L96 SEL + Z) + BDY Gen - 0.44* GS - 1200) Y = 1960 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1800 if none of ACK 5CX1 & 5CX2 is in service Z = 48L KET if DTT 48L is armed, or Z = 0 if DTT 48L is not armed
5L92	 (Note: Arming requirements for DTT 5L94, DTT 1L274 and DTT 1L275 are included in SOO 7T-17.) If 0 <= BC to AB <= 100, or 0 < AB to BC <= AAL/CBK/NTL load, then Shed at WAN: 2.3* (62L ESS - 0.43* 5L92 SEL - 270) If BC to AB > 100, then shed at WAN: 2.3* (62L ESS - 0.42* 5L92 SEL + 0.3* (BC-AB) - 270)
	 If AB to BC > AAL/CBK/NTL load, then shed at WAN: 2.3 * (62L ESS - 0.31 * 5L92 SEL + 0.15 * (BC-AB) – 270) (Note: the AAL/CBK/NTL load = 2L294 NLY + CBK 500kV to 230 kV MW + 1L274 POC – 1L275 NTL MW)
DL94	(Note: Arming requirements for D11 1L2/4 and D11 1L2/5 are included in SOO /1-1/.)
	 If (BC to US + BC to AB) > 2400 MW, then shed at KCL/SEV/ALH/BRX/REV/WAX: (BC to AB) MW If 700 MW < (BC to US + BC to AB) <= 2400 MW, then shed at KCL/SEV/ALH/BRX/REV/WAX: (BC to AB) – 400 MW If generation shedding is armed, keep a minimum of 2 REV, 2 SEV, 1 KCL and 1/3 equivalent SEV units on-line post-shedding, or keep a minimum of 2 REV, 2 SEV and 1 equivalent SEV units on-line post-shedding if the whole KCL is shutdown in pre-contingency condition.
Bypass GUI 5CX1	No shedding required.

CONTINGENCY	SHEDDING REQUIREMENTS
5L91 (1P) or 5L96 (1P) or 5L98 (1P)	No shedding required.

Table 1.28 - 2L294 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions: • Notes 2 and 3 in Section 2.

Generation Shedding Requirements 2L294 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops) Note: Tables E and F are applicable to this Table.

CONTINGENCY	SHEDDING REQUIREMENTS
5L76	Same as Table A
5L79	Same as Table A
5L81	Same as system normal Table 1.1
5L82	Same as system normal Table 1.1
5L83	Same as system normal Table 1.1
Bypass AMC 5CX1	No shedding required.
Bypass AMC 5CX2	No shedding required.
Bypass RYC 5CX1	No shedding required.
5L81 and 5L82	Same as system normal Table 1.1
5L81 and 5L83	Same as system normal Table 1.1
5L82 and 5L83	Same as system normal Table 1.1
5L76 and 5L79	Same as Table 1.27 2L293 O.O.S.
5L87	Same as system normal Table 1.1
5L91 and 5L96	Tables A, B, C and D are applicable to this contingency
5L44	Same as system normal Table 1.1
5L91	Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of:
	▶ 1.23 * (5L91 SEL + 5L96 SEL - Y), or
	> 3.55 * (2L112 NLY + 0.18 * 5L91 SEL - 400), or
	4.25 * (2L293 SEL + 0.19 * 5L91 SEL – 400), and do not shed WAN for this requirement.
	Y = 1790 if all SEL T1 & (T2 or/and T3) & T4 are in service, or
	Y = 1730 if SEL T1 or (T2 & T3) or T4 is O.O.S.
5L96	 Arm DTT 48L if 5L96 SEL > 800 MW AND if VAS-WTS loop is closed.
	 Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of:
	➤ 1.25 * (5L91 SEL + 5L96 SEL + Z - Y), or
	➤ 2.40 * (2L112 NLY + 0.24 * (5L96 SEL + Z) – 400), or
	2.40 * (2L112 NLY + BDY Gen + 0.24 * (5L96 SEL + Z) – 1150), or
	> 2.77 * (2L293 SEL + 0.19 * (5L96 SEL + Z) – 400), and do not shed WAN for this requirement.
	Y = 2140 if at least one of ACK 5CX1 & 5CX2 is in service, or
	Y = 1830 if none of ACK 5CX1 & 5CX2 is in service
	Z = 48L KE I if D I I 48L is armed, or
51.09	Z = U II D I I 48L IS NOT AIMED
5L96	Shod at KCL/ALHAM/AN/RRX/MAX first than SEV the greatest of:
	• Shed at KCL/ALT //WAN/DIV/WAA first, then SLV the greatest of. $> 1.17 * (51.01.9 \pm 51.08)/AS = V)$ or
	\sim 3.12*(21.112 NI V + 0.17* 51.08 \/AS = 400) or
	$4.35 \times (21293 \text{ SEL} + 0.15 \times 5198 \text{ VAS} - 400)$ and do not shed WAN for this requirement
	Y = 1960 if at least one of ACK 5CX1 & 5CX2 is in service or
	Y = 1840 if none of ACK 5CX1 & 5CX2 is in service. If VAS-VNT loop is open then
	 Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of:
	▶ 1.14* (5L91 SEL + 5L98 VAS - Y). or
	$> 3.03^{\circ} (2L112 \text{ NLY} + 0.2^{\circ} \text{ 5L98 VAS} - 400), \text{ or}$
	\rightarrow 4.20 * (2L293 SEL + 0.18 * 5L98 VAS – 400), and do not shed WAN for this requirement.
	Y = 2060 if at least one of ACK 5CX1 & 5CX2 is in service, or
	Y = 1880 if none of ACK 5CX1 & 5CX2 is in service
5L96 & 5L98	 Arm DTT 48L if 5L96 SEL > 800 MW AND if both VAS-WTS and VAS-VNT loops are closed.
	 Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of:
	1.25 * (5L91 SEL + 5L96 SEL + Z – Y), or
	> 2.75 * (2L112 NLY + 0.27 * (5L96 SEL + Z) - 400), or
	2. /5* (2L112 NLY + BDY Gen + 0.27* (5L96 SEL + Z) – 1220), or 0.07* (0L000 OEL + 0.01* (EL00 OEL + Z) – 1020), or
	\sim 2.6/ $(2L293 \text{ SEL} + 0.21 \circ (5L96 \text{ SEL} + 2) - 400)$, and do not shed WAN for this requirement.
	r = 2110 IT at least one of ACK 5CX1 & 5CX2 is in service, or V = 1970 if none of ACK 5CX1 & 5CX2 is in service.
	r = 1070 in 100 ie of AUN DUAT & DUAZ IS III SERVICE 7 = 481 KET if DTT 481 is armod or
	z = 40L KET II D T 40L IS all lieu, 01 7 = 0 if DTT 48L is not armod
51.92	If (BC to US + 50 2 SEL) > 2/00 MW/ then shed at KCL/SEV/ALHAMANI/BRY/BEV/AMAY: 50 02 SEL MW/
JLJZ	• If 700 MW/ < (BC to US + 51.92 SEL) <= 2400 MW , then shed at KCL/SEV/ALI I/WAW/DRAN REV/WAA. SL92 SEL WW • If 700 MW/ < (BC to US + 51.92 SEL) <= 2400 MW then shed at KCL/SEV/ALI HAA/ANI/RRY/REV/MAAY 51.02 SEL = 400
	MW

• If generation shedding is armed, keep a minimum of 2 REV, 2 SEV and 1 equivalent SEV units on-line post shedding.
AND
Arm DTT 2L112 RAS if
2L112 BDY + 0.3 * 5L92 CBK > 400 MW, or
2L293 NLY + 0.3 * 5L92 CBK > 400 MW, or
2L112 NLY + 0.3 * 5L92 SEL – 0.3 * (armed KCL/SEV/ALH/WAN/BRX/REV/WAX shedding amount for 5L92
contingency) > 400 MW, or
2L293 SEL + 0.3 * 5L92 SEL – 0.3 * (armed KCL/SEV/ALH/WAN/BRX/REV/WAX shedding amount for 5L92
contingency) > 400 MW

CONTINGENCY	SHEDDING REQUIREMENTS
5L94	 (Note: Arming requirements for DTT 1L274 and DTT 1L275 are included in SOO 7T-17.) If (BC to US + BC to AB) > 2400 MW, then shed at KCL/SEV/ALH/WAN/BRX/REV/WAX: (BC to AB) MW If 700 MW < (BC to US + BC to AB) <= 2400 MW, then shed at KCL/SEV/ALH/WAN/BRX/REV/WAX: (BC to AB) - 400 MW If generation shedding is armed, keep a minimum of 2 REV, 2 SEV, 1 KCL and 1/3 equivalent SEV units on-line post shedding, or keep a minimum of 2 REV, 2 SEV and 1 equivalent SEV units on-line post-shedding if the whole KCL is shutdown in pre-contingency condition.
	 Arm DTT 2L112 RAS if 2L112 BDY + 0.3 * (AB to BC) > 400 MW, or 2L293 NLY + 0.3 * (AB to BC) > 400 MW, or 2L112 NLY + 0.3 * (BC to AB) - 0.3 * (armed KCL/SEV/ALH/WAN/BRX/REV/WAX shedding amount for 5L94 contingency) > 400 MW, or 2L293 SEL + 0.3 * (BC to AB) - 0.3 * (armed KCL/SEV/ALH/WAN/BRX/REV/WAX shedding amount for 5L94 contingency) > 400 MW.
Bypass GUI 5CX1	No shedding required.
5L91 (1P) or 5L96 (1P) or 5L98 (1P)	No shedding required.

Table 1.29 – 2L277 O.O.S (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:Notes 2 and 3 in Section 2

Generation Shedding Requirements 2L277 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops) Note: Tables E and F are applicable to this Table.

61.76 Same as Table A 61.70 Same as Table A 61.71 Same as system normal Table 1.1 61.82 Same as system normal Table 1.1 61.83 Same as system normal Table 1.1 61.84 Same as system normal Table 1.1 61.83 Same as system normal Table 1.1 61.84 Same as system normal Table 1.1 61.83 Same as system normal Table 1.1 61.84 Same as system normal Table 1.1 51.84 Same as system normal Table 1.1 51.84 Same as system normal Table 1.1 51.84 Same 3.85 51.84 Same 3.85 51.80 Same 3.85 51.80 Same 3.85 51.80 Same 3.85 51.91 Same 3.85 51.92 Same 3.85 51.93 Sa	CONTINGENCY	SHEDDING REQUIREMENTS
52.79 Same as Table A 61.81 Same as system normal Table 1.1 64.82 Same as system normal Table 1.1 64.83 Same as system normal Table 1.1 64.84 Same as system normal Table 1.1 64.83 Same as system normal Table 1.1 64.83 Same as system normal Table 1.1 64.81 and 54.82 Same as system normal Table 1.1 64.81 and 54.83 Same as system normal Table 1.1 64.81 and 54.82 Same as system normal Table 1.1 64.83 and 54.83 Same as system normal Table 1.1 64.84 and 54.83 Same as system normal Table 1.1 64.84 and 54.84 Same as system normal Table 1.1 64.84 and 54.86 Table 1.2 - 22.93 O.0 S. 64.96 Table 1.1 - 21.283 O.0 S. 64.97 Same as system normal Table 1.1 64.98 Table 1.1 - 11.1 Bit 1.1 Bit 1.	5L76	Same as Table A
51.81 Same as system normal Table 1.1 51.82 Same as system normal Table 1.1 51.83 Same as system normal Table 1.1 51.84 Same as system normal Table 1.1 51.85 Same as system normal Table 1.1 51.85 Same as system normal Table 1.1 51.81 Same as system normal Table 1.1 51.81 Same as system normal Table 1.1 51.83 Same as system normal Table 1.1 51.84 Same as system normal Table 1.1 51.87 Same as system normal Table 1.1 51.81 Add 51.85 51.81 Shot at KCLALWWANDBW Market them SEV the greatest of: 51.91 • Shot at KCLALWWANDBW Market them SEV the greatest of: 51.93 • A TO TABL TAB SET + 51.08 SET + 20.00, or > 2.57 (21.21 NLY + 0.81 * 51.95 SET + 20.00, or > 2.57 (21.20 NLY + 0.17 * 51.95 SET + 20.00, or > 2.57 (21.20 NLY + 0.17 * 51.95 SET + 20.00, or > 2.57 (21.20 NLY + 0.17 * 51.95 SET + 20.00, or > 2.57 (2	5L79	Same as Table A
State Same as system normal Table 1.1 Bypass AMC 5CX1 No shedding required. Bypass AMC 5CX2 No shedding required. Bypass AMC 5CX3 No shedding required. Bypass AMC 5CX4 No shedding required. SL1 and SL25 Same as system normal Table 1.1 SL2 and SL25 Same as system normal Table 1.1 SL4 and SL25 Same as system normal Table 1.1 SL4 and SL25 Same as system normal Table 1.1 SL4 and SL25 Same as system normal Table 1.1 SL4 and SL25 Same as system normal Table 1.1 SL4 and SL25 Same as system normal Table 1.1 SL4 and SL25 Same as system normal Table 1.1 SL4 and SL25 Same as system normal Table 1.1 SL4 and SL25 Same as system normal Table 1.1 SL4 and SL25 Same table 1.1	5L81	Same as system normal Table 1.1
B483 Same as system normal Table 1.1 Bypass AMC SCX1 No shedding required. Bypass AMC SCX2 No shedding required. Bypass AMC SCX1 No shedding required. Bypass AMC SCX2 No shedding required. Stat and SL33 Same as system normal Table 1.1 SL34 and SL33 Same as system normal Table 1.1 SL26 and SL33 Same as system normal Table 1.1 SL26 and SL33 Same as table 1.27 - 2.2003 0.0.5 SL44 Same as a table 1.27 - 2.2003 0.1.5 SL44 Same as system normal Table 1.1 SL44 Same as system normal Table 1.4 <	51.82	Same as system normal Table 1.1
Bypass AMC 5CX1 No sheddin required. Bypass AMC 5CX2 No sheddin required. SL81 and SL83 Same as system normal Table 1.1 SL82 and SL83 Same as system normal Table 1.1 SL84 and SL84 Same as system normal Table 1.1 SL94 Banne as System normal Table 1.1 SL94 Same as system normal Table 1.1 SL94 Same as system normal Table 1.1 SL95 Same as system normal Table 1.1 SL96 Thi 'ILD NY + 0.18* SL91 SEL + 400, or > 3.70* (2112 NLY + 0.18* SLE + 500 NV AND TV/SVTO loop is diosed SL96 A mD TH ABL TAB SLE + 2.500 NV AND TV/SVTO loop is diosed > 2.54* (21.12 NLY + 10.2* (21.95 SEL + 2.7 + 400, or > 2.57* (21.25 SEL + 0.2* (21.95 SEL + 2.7 + 400, or > 2.57* (21.25 SEL + 0.2* (21.95 SEL + 2.7 + 400, or > 2.57* (21.25 SEL + 0.2* (21.95 SEL + 2.7 + 400, or > 2.57* (21.25 SEL + 0.2* (21.95 SEL + 2.7 + 400, or > 2.57* (21.25 SEL + 0.2* (20.5 SEL + 2.7 + 400, or <td>51.83</td> <td>Same as system normal Table 1.1</td>	51.83	Same as system normal Table 1.1
Bunss AMC 50:X2 No sheddingrequies. Bypass RVC 50:X1 No sheddingrequied. 51:81 and 51:82 Same as system normal Table 1.1 51:81 and 51:83 Same as system normal Table 1.1 51:81 and 51:83 Same as system normal Table 1.1 51:82 Same as system normal Table 1.1 51:87 Same as system normal Table 1.1 51:87 Same as system normal Table 1.1 51:87 Same as system normal Table 1.1 51:91 Same as system normal Table 1.1	Bypass AMC 5CX1	
But ass PVC SCX1 No. Shedling required. SL81 and SL2 Same as system normal Table 1.1 SL81 and SL3 Same as system normal Table 1.1 SL82 and SL3 Same as system normal Table 1.1 SL82 and SL3 Same as system normal Table 1.1 SL87 and SL3 Same as system normal Table 1.1 SL97 and SL6 Tables A, B, C and D are applicable to this contingency SL44 Same as system normal Table 1.1 SL91 and SL66 Tables A, B, C and D are applicable to this contingency SL44 Same as system normal Table 1.1 SL45 SAM (ZL203 SEL+10.17* SL9 SEL SEC 0.00* (0.0) Y 1.0* (SL9) SEL + SL9.06 SEL + 20.0* (0.0) Y 2.54* (ZL128 NY + Ib DW MAND I* VAS-WTS loop is closed SL75* (SL23 SEL + 0.1* (SL23 SEL + 2.1* - 4.00), or Y 2.54* (ZL128 NY + Ib DW MAND I* VAS-WTS loop is closed SL75* (SL23 SEL + 0.1* SL24 SL24 SL24 SL24 SL24 SL24 SL24 SL24	Bypass AMC 5CX2	No shedding required
11.8 I and 5.182 Same as system normal Table 1.1 5.18 I and 5.183 Same as system normal Table 1.1 5.17 Oct 5.17 Same as system normal Table 1.1 5.187 Same as system normal Table 1.1 5.191 • Shed at KCL1ALHWAWDBRXWAX first, then SEV the greatest of: > 1.10* (5.191 SEL+5.96 SEL - 1600), or > 3.70* (2.112 NLY + 0.15 SEL 5.600 NV/AID I*VACMTTS loop is closed 5.196 • Am DTT K6.1* (1.910 SEL 5* 3000 NV/AID I*VACMTTS loop is closed • She TDT TABLE 1.400 SEL 5* 2000 NV/AID I*VACMTTS loop is closed 5.196 • Am DTT K6.1* (1.910 SEL 5* 3000 NV/AID I*VACMTTS loop is closed • 2.84* (2.112 NLY + 0.37* (5.168 SEL + 2.1 - 2.101, or > 2.54* (2.112 NLY + 0.37* (5.168 SEL + 2.1 - 2.101, or > 2.54* (2.112 NLY + 0.37* (5.168 SEL + 2.1 - 2.101, or > 2.54* (2.112 NLY + 0.37* (5.168 SEL + 2.1 - 2.100, or > 2.64* (2.112 NLY + 0.37* (5.168 SEL + 2.1 - 2.100, or > 1.25* (2.112 NLY + 0.17* 5.168 NSEL + 2.1 - 2.100, or > 2.64* (1.112 NLY + 0.37* (5.168 SEL + 2.1 - 2.100, or > 1.15* (5.161 SEL + 5.106 SCAX is a sext vis a service	Bypass RVC 5CX1	No shedding required
10.19 mod 4183 Same as system moment Table 1.1 15.18 and 5.18 Same as system moment Table 1.1 5.17 Same as system moment Table 1.1 5.17 Same as system moment Table 1.1 5.191 Same as system moment Table 1.1 5.191 Same as system moment Table 1.1 5.191 Shed at KCL/ALHWAVBRXWAX first then SEV the greatest of: > 1.10° (SLI 75.01 SEL - 400, or > 3.80° (ZLI 72.01 SEL - 400, SEL - 4800, or > 3.80° (ZLI 72.01 SEL - 400, SEL - 4800, or > 3.80° (ZLI 72.01 SEL - 400, SEL - 400, or > 2.84° (ZLI 72.01 SEL - 400, SEL - 400, or > 2.84° (ZLI 72.01 SEL - 400, SEL - 420, SEL - 4	51 81 and 51 82	Same as system permal Table 1.1
10.82 mid 4.03 Same as Steam Junian Tools 1.1 10.82 mid 4.03 Same as Steam JUL 7.2.1283 O.O.S. 5.17 md 5.06 Tables A, B. Cand Dare applicable to this contingency. 5.14 md 5.06 Tables A, B. Cand Dare applicable to this contingency. 5.14 md 5.06 Tables A, B. Cand Dare applicable to this contingency. 5.14 md 5.06 Tables A, B. Cand LHWAWRERVWAX first, then SEV the greatest of: > 1.10* (5.19* SEL + 5.00 WYA MD * VAS-WTS loop is closed SLIPE • Am DTT4.81; # 5.19 SEL - 800. or > 2.30* (2128) SEL + 300 WYA MD * VAS-WTS loop is closed • Shed at KCL/ALHWAWRERX/WAX first, then SEV the greatest of: > 1.24* (2112 NLY + 0.15* 5.91 SEL - 400). or > 2.57* (223) SEL + 0.17* 5.91 SEL - 400. > 1.24* (2112 NLY + 0.17* 5.91 SEL - 400.) > 2.44* (2112 NLY + 0.27* (2168 SEL - 7.2 - 1.00). or > 2.57* (223) SEL + 0.17* (5.18 SEL - 2.7 - 1.00). or > 2.64* (2112 NLY + 0.27* (5.18 SEL - 2.7 - 4.00). Y = 1820 if noor ACK SCX 18 A SCX2 is in service, or Y = 4820 if noor ACK SCX 18 A SCX2 is in service, or Y = 1820 if noor ACK SCX 18 A SCX2 is in service, or Y = 170 if noor ACK SCX 18 A SCX 18 - 800. Y = 1810 if noor ACK SCX 18 A SCX2 is in service, or Y = 170 i	5L01 and 5L02	Same as system normal Table 1.1
Line Same as System (LOTINE) Labor 1.1 State Same as System (LOTINE) Labor 1.1 State Tables A. B., Clard Dara applicable to this contingency State Tables A. B., Clard Dara applicable to this contingency State Same as system normal Table 1.1 State Same as Table 2.200 Mole SEL - 1600 MV AND IY VAS-WTS loop is closed State State 1.12 (Same SEL - 2.7), or 2.24 * (Zatt 12 NLY + 0.12 (Same SEL + 2.7), and, or 2.25 * (Same SEL + 2.20 (Same SEL - 2.7), or 2.24 * (Zatt 12 NLY + 0.12 (Same SEL + 2.7), and, or 2.25 * (Same SEL + 2.20 (Same SEL + 2.7), and, or 2.26 * (Zatt 12 NLY + 0.17 (Same SEL + 2.7), and, or 2.27 * (DT T48.15 not amed and or State Same as system normal Table 1.1 Same as system normal Table 1.1 (Same SEL + 2.00 (Same Asec), or </td <td>5L01 and 5L03</td> <td>Same as system normal Table 1.1</td>	5L01 and 5L03	Same as system normal Table 1.1
Start Bill Same Same Same Same Same Same Same Same	5L62 and 5L63	Same as Table 1.27 - 21.202 O O S
3.8.9 Sale and 51.96 Table 5A, B, C and D are applicable to this contingency 51.44 Same as system normal Table 1. Same as system normal Table 1. 51.91 • Sind at KOLLAID SEL-600 x Stint, then SEV the greatest of:		Same as system permet Table 1.1
315.1 mid 32-6 Jack 5, Calif.0 Junit 2010 315.1 mid 32-6 Same as yelam norms Table 1 51.91 • Shed at KCDAL1/WARENCOVEX/Tire, then SEV the greatest of:	SLO7	Same as system formal rable 1.1
31.44 Distance as system (and table 1) 51.91 • Shed at KCLAHWAAN (BRK/WAX first, then SEV the greatest of:		Tables A, B, C and D are applicable to this contingency
51.91 Shed at KCU/ALHWANDEKOWANDER, SEL - 1680, or 	5L44	Same as system normal lable 1.1
image: intervent interven	5L91	Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of:
> 3.0° (21.12 NLY + 0.18° 5.19 SEL - 400), or > 3.0° (21.230 SEL + 007 SEG 58L > 800 MW AND if VAS.WTS loop is closed > 51.96 • Arm DTT48L if 5.196 SEL > 800 MW AND if VAS.WTS loop is closed > 1.25° (SL91 SEL + 51.96 SEL + 2 - 7), or > 2.54° (21.12 NLY + BDY Gen + 0.23° (51.96 SEL + 2) - 400, or > 2.54° (21.12 NLY + BDY Gen + 0.23° (51.96 SEL + 2) - 400, or > 2.54° (21.12 NLY + BDY Gen + 0.23° (51.96 SEL + 2) - 400, or > 2.54° (21.12 NLY + BDY Gen + 0.23° (51.96 SEL + 2) - 400, or > 2.54° (21.13 NLY + 0.18° (51.8 GX2 is in service, or Y = 18201 mone of ACK SCX 18 5CX2 is in service, or Z = 0/ ID TT48L is notarmed 51.98 If VAS-WNT loop is closed, then Y = 1710 if none of ACK SCX 18 5CX2 is in service, or > 2.94° (21.12 NLY + 017° 51.98 VAS - 400), or > 3.06° (21.93 SEL + 0.16° 51.98 VAS - 400), or > 3.06° (21.93 SEL + 0.16° 51.98 VAS - 400), or > 2.98° (21.12 NLY + 0.0° 51.98 VAS - 400), or > 2.98° (21.12 NLY + 0.0° 51.98 VAS - 400), or > 2.98° (21.12 NLY + 0.0° 51.98 VAS - 400), or > 2.98° (21.12 NLY + 0.0° 51.98 VAS - 400), or > 2.98° (21.12 NLY + 0.0° 51.98 VAS - 400), or > 2.98° (21.12 NLY + 0.0° 51.98 VAS - 400), or > 2.98° (21.12 NLY +		▶ 1.10* (5L91 SEL+5L96 SEL – 1680), or
51.96 • 3.50*(21293 SEL + 0.17*0.617 SEL - 400). 51.96 • Am DTT 44L if 51.96 SEL + 200 MV AND if VAS-WTS loop is closed • Shed at KCL/ALHWAN/BRX/WAX first, then SEV the greatest of: • 1.25*(5.91 SEL + 2.90 cm) • 2.54*(21.12 NLY + 0.23*(5.96 SEL + 2.) + 400). • 2.54*(21.12 NLY + 0.23*(5.96 SEL + 2.) + 400). • 2.54*(21.12 NLY + 0.23*(5.96 SEL + 2.) + 400). • 2.54*(21.12 NLY + 0.23*(5.96 SEL + 2.) + 400). • 2.57*(21.230 SEL + 0.21*(5.96 SEL + 2.) + 400). • 2.57*(21.230 SEL + 0.21*(5.96 SEL + 2.) + 400). • 2.54*(21.12 NLY + 0.07*(5.96 SEL + 2.) + 400). • 2.54*(21.12 NLY + 0.07*(5.96 SEL + 2.) + 400). • 2.64*(21.12 NLY + 0.17*(5.96 SEL + 3.04 ANS + 4.00). or • 2.94*(21.12 NLY + 0.17*(5.96 SEL + 3.04 ANS - 4.00). • 2.94*(21.12 NLY + 0.17*(5.96 SEL + 3.96 ANS - 4.00). • 1.17*(5.91 SEL + 5.96 VAS - 4.00). • 1.17*(5.91 SEL + 5.96 VAS - 4.00). • 1.15*(5.91 SEL + 5.96 VAS - 4.00). • 1.15*(5.91 SEL + 5.96 VAS - 4.00). • 1.15*(5.91 SEL + 5.96 VAS - 4.00). • 1.15*(5.91 SEL + 5.90 VAS - 4.90). • 2.94*(21.23 SEL + 0.18*(5.28 SC2 is in service. • 5.864*(5.01 L14 NLY + 0.20*(5.91 VAS - 4.00). or • 2.94*(21.23 SEL + 0.18*(5.92 SEL + 2.)*(5.91 SEL + 2.05*(5.18*(5.95 SEL + 2.)*(5.91 SEL + 2.05*(5.18*(5.95 SEL + 2.)*(5.91 SEL +		$>$ 3.70 $^{\circ}$ (2L112 NLY + 0.18 $^{\circ}$ 5L91 SEL – 400), or
51.96 • Arm D11 48L if 51.96 SEL > 800 MW AND if VAS-W15 loop is closed • Shed at KCL/ALHWAVBRWWAX ifs, then SEV the greatest of: > 1.25 * (5.91 SEL + 51.96 SEL + 2 - Y), or • 2.54 * (21.12 NLY + BDY Gen + 0.23 * (5.96 SEL + 2) - 1120), or > 2.54 * (21.12 NLY + BDY Gen + 0.23 * (5.96 SEL + 2) - 1120), or • 2.54 * (21.12 NLY + BDY Gen + 0.23 * (5.96 SEL + 2) - 1120), or > 2.54 * (21.12 NLY + BDY Gen + 0.23 * (5.96 SEL + 2) - 1120), or • 2.54 * (21.12 NLY + BDY Gen + 0.23 * (5.96 SEL + 2) - 1120), or > 2.54 * (21.12 NLY + BDY Gen + 0.23 * (5.96 SEL + 2) - 1120), or • 2.54 * (21.12 NLY + BDY Gen + 0.23 * (5.96 SEL + 2) - 010), or > 7 * 1820 if none of ACK SCX 18 \$ CX2 is in service, or • 51.98 If VAS-VNT loop is closed, then • 1.17 * (5.91 SEL + 5.198 VAS - 400), or • 2.94 * (21.12 NLY + 0.17 * (5.96 VAS - 400), or > 3.06 * (21.293 SEL + 0.16 * (5.92 KZ 2) is in service, or • 1.15 * (5.91 SEL + 5.198 VAS - 400), or > 1.15 * (5.91 SEL + 5.198 VAS - 400), or • 2.98 * (21.12 NLY + 0.27 * (5.96 VAS - 400), or > 2.98 * (21.12 NLY + 0.27 * (5.96 VAS - 400), or • 2.98 * (21.12 NLY + 0.27 * (5.96 VAS - 400), or > 2.98 * (21.12 NLY + 0.27 * (5.96 VAS - 400), or • 2.98 * (21.12 NLY + 0.27 * (5.96 VAS - 400), or > 2.98 * (21.12 NLY + 0.27 * (5.96 VAS - 400), or • 2.98 * (21.12 NLY + 0.27 * (5.96 VAS - 400), or > 2.5 * (5.91 SEL + 2) - 0.7 * (5.95 SEL + 2) - 0.0 m)		➤ 3.50* (2L293 SEL + 0.17*5L91 SEL - 400).
 Shed at KCL/ALHWAWBRX/WAX first, then SEV the greatest of: 1.25⁺ (51.91 SEL + 2.9⁺), or 2.54⁺ (21.112 NLY + 0.23⁺ (51.96 SEL + 2.) - 100), or 2.55⁺ (21.123 NLY + B0Y Gen + 0.23⁺ (51.96 SEL + 2.) - 400), Y = 200 fir at least one of ACK 55X 18 5CX2 is in service, or Y = 4820 fir none of ACK 5CX 18 5CX2 is in service, or Y = 4820 fir none of ACK 5CX 18 5CX2 is in service, or Z = 48L KET If DTT 48L is an end, or SL98 If VAS-WT100p is closed, then Y AS-WT100p is closed, then Y AS-WT100 none of ACK 5CX 18 5CX2 is in service, or Y = 1701 fir at least one of ACK 5CX 18 5CX2 is in service, or Y = 1701 fir none of ACK 5CX 18 5CX2 is in service, or Y = 1701 fir none of ACK 5CX 18 5CX2 is in service, or Y = 1701 fir none of ACK 5CX 18 5CX2 is in service, or Y = 1701 fir none of ACK 5CX 18 5CX 18 is nevrice, or Y = 1701 fir none of ACK 5CX 18 5CX 18 is nevrice, or Y = 1701 fir none of ACK 5CX 18 5CX 18 is nevrice, or Y = 1701 fir at least one of ACK 5CX 18 5CX 18 is nevrice, or Y = 1701 fir at least one of ACK 5CX 18 5CX 18 is nevrice, or Y = 1701 fir at least one of ACK 5CX 18 5CX 18 is nevrice, or Y = 1701 fir at least one of ACK 5CX 18 5CX 18 is nevrice Shed at KCL/ALHWANI/BRX/WAX first, then SEV the greatest of: Y = 1501 fir at least one of ACK 5CX 18 5CX 18 is nevrice, or Y = 1501 fir at least one of ACK 5CX 18 5CX 18 is nevrice, or Y = 1	5L96	 Arm DTT 48L if 5L96 SEL > 800 MW AND if VAS-WTS loop is closed
> 1.25 * (5.91 SEL + 5L96 SEL + Z - Y), or > 2.54 * (2.112 NLY + 0.23* (5.96 SEL + Z) - 400), or > 2.54 * (2.112 NLY + 0.23* (5.96 SEL + Z) - 1120), or > 2.54 * (2.112 NLY + 0.23* (5.96 SEL + Z) - 1120), or > 2.54 * (2.112 NLY + 0.23* (5.96 SEL + Z) - 400). Y = 240 if at least one of ACK SCX1 & 5CX2 is in service, or Z = 01 DTT 48L is ontamed, or Z = 01 DTT 48L is at amed, or Z = 01 DTT 48L is at CULAH-WAW MBRWAK first, then SEV the greatest of: > 1.17* (5.91 SEL + 51.98 VAS - Y), or > 2.94 * (2.112 NLY + 0.17* (5.98 VAS - 400), or > 2.94 * (2.112 NLY + 0.17* (5.98 VAS - 400), or > 3.06* (2.233 SEL + 0.16* 51.98 VAS - 400), or > 2.94 * (2.112 NLY + 0.17* (5.98 VAS - 400), or > 3.96* (2.123 SEL + 51.98 VAS - 400), or > 2.95 * (2.112 NLY + 0.17* (5.98 VAS - 400), or > 2.85 * (2.112 NLY + 0.17* (5.98 VAS - 400), or > 2.85 * (2.112 NLY + 0.27* (5.98 VAS - 400), or > 2.85 * (2.112 NLY + 0.27* (5.98 VAS - 400), or > 2.98 * (2.112 NLY + 0.27* (5.98 VAS - 400), or > 2.98 * (2.112 NLY + 0.27* (5.98 SEL + 2), -400, or Y = 1700 if none of ACK SCX1 & SCX2 is in service, or Y = 1700 if none of ACK SCX1 & SCX2 is in service 51.96 & 51.98 • Arm DTT 48L if 51.96 SEL + 2 - Y), or >		Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of:
> 2.54 * (2.112 NLY + D23 * (5.09 SEL + 2) - 400, or > 2.54 * (2.112 NLY + BDY Gen + 0.2* (5.09 SEL + 2) - 1120), or > 2.57 * (2.129 SEL + 0.2* * (5.09 SEL + 2) - 400, Y = 2040 if at least one of ACK 5CX1 & 5CX2 is in service, or Z = 48L KET If DTT 48L is armed, or Z = 48L KET If DTT 48L is not armed 5L98 If VAS-WT loop is closed, then • V = 500 (112 NLY + 0.17* 5L98 VAS - 400), or > 2.94 * (2.112 NLY + 0.17* 5L98 VAS - 400), or > 2.94 * (2.112 NLY + 0.17* 5L98 VAS - 400), or > 2.94 * (2.112 NLY + 0.17* 5L98 VAS - 400), or > 2.94 * (2.112 NLY + 0.17* 5L98 VAS - 400), or > 2.94 * (2.112 NLY + 0.17* 5L98 VAS - 400), or > 2.94 * (2.112 NLY + 0.17* 5L98 VAS - 400), or > 2.94 * (2.112 NLY + 0.10* 5L98 VAS - 400), or > 2.95 * (2.112 NLY + 0.27* 5L98 VAS - 400), or > 2.85 * (2.112 NLY + 0.27* 5L98 VAS - 400), or > 2.85 * (2.112 NLY + 0.27* 5L98 VAS - 400), or > 2.85 * (2.112 NLY + 0.27* 5L98 VAS - 400), or > 2.85 * (2.112 NLY + 0.27* 5L98 VAS - 400), or > 2.85 * (2.112 NLY + 0.27* 5L98 VAS - 400), or > 2.85 * (2.112 NLY + 0.27* 5L98 VAS - 400), or > 2.85 * (2.112 NLY + 0.27* 5L98 VAS - 400), or > 1.25 * (2.112 NLY + 0.27* 5L98 5EL + 2) - 1140, or > 2.46*		> $1.25 * (5L91 SEL + 5L96 SEL + Z - Y), or$
> 2.54 * (2.112 NLY + BDY Gen + 0.23 * (5L96 SEL + 2) - 1120), or > 2.57 * (2.23 SEL + 0.21 * (5L96 SEL + 2) - 400). Y = 2840 if at least one of ACK SCX1 & 5CX2 is in service, or Z = 01 DT #48 L is not armed. 5L98 If VAS-VMT loop is closed. then • Shed at KC/LALHWANBRWAK first, then SEV the greatest of: > 1.17 * (5L91 SEL + 5L98 VAS - Y), or > 2.91 DT #48 L is not armed. 5L98 If VAS-VMT loop is closed. then • Shed at KC/LALHWANBRWAK first, then SEV the greatest of: > 1.17 * (5L91 SEL + 5L98 VAS - 400), or > 2.94 * (2L112 NLY + 0.17 * (5L98 VAS - 400), or > 3.06 * (2L233 SEL + 0.16 * 5L98 VAS - 400). Y = 1710 if none of ACK SCX1 & 5CX2 is in service. Otherwise. • Shed at KC/LALHWANBRWAK first, then SEV the greatest of: > 1.5 * (5L91 SEL + 5L98 VAS - 400). Y = 1710 if none of ACK SCX1 & 5CX2 is in service. * 1.5 * (5L91 SEL + 5L98 VAS - 400). Y = 1910 if alleast one of ACK SCX1 & security in service. * 1.5 * (5L91 SEL + 5L98 VAS - 400). Y = 1740 if none of ACK SCX1 & SCX2 is in service. * 1.5 * (5L91 SEL + 5L98 VAS - 400). Y = 1910 if alleast one of ACK SCX1 & SCX2 is in service. * 1.5 * (5L91 SEL + 5L98 SEL		\geq 2.54 * (2L112 NLY + 0.23 * (5L96 SEL + Z) – 400), or
> 2.57 (21293 SEL + 0.21*)(5196 SEL + 2) - 400). Y = 2001 f at least one of ACK SCX1 & SCX2 is in service, or Z = 48, KET IF DTT 48L is armed, or SL98 If VAS-WT loop is closed, then • Shed at KCL/ALHWAN/BRXWAX first, then SEV the greatest of: > 1.7* (54.91 SEL + 54.98 VAS - 400). > 2.94* (21.12 NLY + 0.17* (54.98 VAS - 400). Y = 1710 if none of ACK SCX1 & SCX2 is in service, or Y = 1710 if none of ACK SCX1 & SCX2 is in service, or Y = 1710 if none of ACK SCX1 & SCX2 is in service, or Y = 1710 if none of ACK SCX1 & SCX2 is in service, or Y = 1710 if none of ACK SCX1 & SCX2 is in service, or Y = 1740 if none of ACK SCX1 & SCX2 is in service, or Y = 1740 if none of ACK SCX1 & SCX2 is in service, or Y = 1740 if none of ACK SCX1 & SCX2 is in service, or Y = 1740 if none of ACK SCX1 & SCX2 is in service, or Y = 1740 if none of ACK SCX1 & SCX2 is in service, or Y = 1740 if none of ACK SCX1 & SCX2 is in service, or Y = 1740 if none of ACK SCX1 & SCX2 is in service, or Y = 1740 if none of ACK SCX1 & SCX2 is in service, or Y = 1740 if none of ACK SCX1 & SCX2 is in service, or Y = 1740 if none of ACK SCX1 & SCX2 is in service, or Y = 1740 if none of ACK SCX1 & SCX2 is in service, or Y = 125*		➤ 2.54 * (2L112 NLY + BDY Gen + 0.23 * (5L96 SEL + Z) – 1120), or
$ \begin{array}{ c c c c c } \hline Y = 2040 \mbox{if a beast one of ACK SCX1 & 5CX2 is in service, or \\ Y = 1820 \mbox{if none of ACK SCX1 & 5CX2 is in service \\ Z = 48L KET if DTT 48L is a need, or \\ Z = 0 \mbox{if DTT 48L is not a need} \\ \hline \hline VAS-VNT loop is closed, then \\ \bullet & Shed at KCI/ALHWANBRXWAX first, then SEV the greatest of: \\ & 1.17 * (5L91 SEL + 5L98 VAS - 400), or \\ & 2.94 * (2L12 NLY + 0.17 * 5L98 VAS - 400), or \\ & 3.06 * (2L293 SEL + 0.16 * 5L98 VAS - 400), or \\ & 3.06 * (2L293 SEL + 0.16 * 5L98 VAS - 400). \\ V = 1810 if a test one of ACK SCX1 & 5CX2 is in service, or \\ Y = 1710 \mbox{if none of ACK SCX1 & 5CX2 is in service. Otherwise, \\ \hline Shed at KCI/ALHWANBRXWAX first, then SEV the greatest of: \\ & 1.15 * (5L91 SEL + 5L98 VAS - 400). \\ V = 1910 \mbox{if a test one of ACK SCX1 & 5CX2 is in service. Otherwise, \\ \hline Shed at KCI/ALHWANBRXWAX first, then SEV the greatest of: \\ & 1.15 * (5L91 SEL + 5L98 VAS - 400). \\ V = 1910 \mbox{if a test one of ACK SCX1 & 5CX2 is in service. \\ \hline Y = 1740 \mbox{if none of ACK SCX1 & 5CX2 is in service, or \\ Y = 1740 \mbox{if none of ACK SCX1 & 5CX2 is in service. \\ \hline Y = 1740 \mbox{if none of ACK SCX1 & 5CX2 is in service. \\ \hline Y = 1740 \mbox{if none of ACK SCX1 & 5CX2 is in service. \\ \hline Sle6 & 5L98 \\ \hline Arm DTT 48L \mbox{if SL96 SEL + 2 - Y), or \\ & 2.54 * (2L112 NLY + 0.27 * (5L96 SEL + 2) - 400), or \\ & 2.54 * (2L112 NLY + 0.27 * (5L96 SEL + 2) - 400), or \\ & 2.54 * (2L112 NLY + 0.27 * (5L96 SEL + 2) - 400), or \\ & 2.54 * (2L112 NLY + 0.27 * (5L96 SEL + 2) - 400), or \\ & 2.54 * (2L112 NLY + 0.27 * (5L96 SEL + 2) - 400), or \\ & 2.54 * (2L112 NLY + 0.27 * (5L96 SEL + 2) - 400), or \\ & 2.54 * (2L112 NLY + 0.27 * (5L96 SEL + 2) - 400), or \\ & 2.54 * (2L112 NLY + 0.27 * (5L96 SEL + 2) - 400), or \\ & 2.54 * (2L112 RAS \mbox{if none of ACK SCX1 & 5CX2 is in service, or \\ & Y = 1800 \mbox{if none of ACK SCX1 & 5CX2 is in service, or \\ & Y = 2010 \mbox{if none of ACK SCX1 & 5CX2 is in service, or \\ & Y = 2010 \mbox{if none of ACK SCX1 & 5CX2 is in service, or \\ & Z = 0.16 DTT 40$		\geq 2.57 * (2L293 SEL + 0.21 * (5L96 SEL + Z) – 400).
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $		Y = 2040 if at least one of ACK 5CX1 & 5CX2 is in service, or
2 = 48 LK E IT D11 48 Lis armed, or Z = 010 TT 48 Lis not armed 5L98 If VAS-VNTIoop is closed, then • Shed at KCL/ALHWAN/BRX/WAX first, then SEV the greatest of: > 1.17* (5L91 SEL + 5L98 VAS - Y), or > 2.94* (2L112 NLY + 0.17* 5L98 VAS - 400), or > 3.06* (2L293 SEL + 0.16* 5L98 VAS - 400), or > 3.06* (2L293 SEL + 0.16* 5L98 VAS - 400), or > 2.94* (2L112 NLY + 0.17* 5L98 VAS - 400), or > 2.85* (2L112 NLY + 0.27* 5L98 VAS - 400), or > 2.85* (2L112 NLY + 0.27* 5L98 VAS - 400), or > 2.85* (2L112 NLY + 0.27* 5L98 VAS - 400), or > 2.85* (2L112 NLY + 0.27* 5L98 VAS - 400), or > 2.85* (2L112 NLY + 0.27* 5L98 VAS - 400), or > 2.86* (2L112 NLY + 0.27* (5L98 SAS - 400), or > 2.86* (2L112 NLY + 0.27* (5L98 SAS - 400), or > 2.86* (2L112 NLY + 0.27* (5L98 SEL + 3L94 VAS - 400), or > 2.86* (2L112 NLY + 0.27* (5L98 SEL + 2L) - 400), or > 2.84* (2L112 NLY + 0.27* (5L96 SEL + 2L) - 400), or > 2.54* (2L112 NLY + BDY Gen + 0.27* (5L96 SEL + 2L) - 140), or > 2.54* (2L112 NLY + BDY Gen + 0.27* (5L96 SEL + 2L) - 140), or > 2.54* (2L112 NLY + BDY Gen + 0.27* (5L96 SEL + 2L) - 140), or > 2.54* (2L112 NLY + BDY Gen + 0.27* (5L96 SEL + 2L) - 140), or > 2.54* (2L112 NLY + DDY Gen + 0.27* (5L96 SEL + 2L) - 140), or > 2.54* (2L112 NLY + DDY Gen + 0.27* (5L96 SEL + 2L) - 140), or > 2.54* (2L112 NLY + DDY Gen + 0.27* (5L96 SEL + 2L) - 140), or > 2.54* (2L112 NLY + DDY Gen + 0.27* (5L96 SEL + 2L) - 140), or > 2.64* (2L130 SEL + 0.55* (2L96 SEL + 2L) - 400), or > 2.64* (2L132 NLY + 0.75* 5L92 CBK > 400 MW), or > (D < AB to BC > 100 MW) AMD (2L293 NLY + 0.75* 5L92 CBK > 400 MW), or > (AB to BC > 100 MW) AMD (2L293 SLL + 9.5* 5L92 CBK > 400 MW), or > (AB to BC > 100 MW) AMD (2L293 SLL + 9.5* 5L92 CBK > 400 MW), or > (O < AB to BC < 100 MW) AMD (2L293 SLL + 9.5* 5L92 CBK > 400 MW), or > (O < AB to BC < 100 MW) AMD (2L293 SLL + 9.5* 5L92 CBK > 400 MW), or > (O < AB to BC < 100 MW) AMD (2L293 SLL + 9.5* 5L92 CBK > 400 MW), or > (O < AB to		Y = 1820 if none of ACK 5CX1 & 5CX2 is in service
5L98 If VAS-VNT loop is closed, then • Shed at KCL/ALHWAW/BXXWXX first, then SEV the greatest of: > > 2.94*(2L12 NLY+0.17*5L98 VAS - 400), or > > 2.94*(2L12 NLY+0.17*5L98 VAS - 400), or > > 3.06*(2L293 SEL + 0.16*5L98 VAS - 400), or > > 4.10*(5L91 NLY+0.17*5L98 VAS - 400), or > > 5.96 at KCL/ALHWAN/BXXWAX first, then SEV the greatest of: > > 1.15*(5L91 SEL + 5L98 VAS - 400), or > > 2.98*(2L293 SEL+0.18*5L98 VAS - 400), or > > 2.94*(2L12 NLY+0.27*(5L96 SEL+Z)-10.0* > > 2.94*(2L12 NLY+0.27*(5L96 SEL+Z)-400), or > > 2.54*(2L112 NLY+0.27*(5L96 SEL+Z)-400), or > > 2.44*(2L293 SEL+0.2*(5L8 VAS - 5K2 is in service, or > > 1.95*(5L91 SEL+5L96 SEL+Z)-400, or > > 2.44*(2L129 SEL+0.2*(5L4) SEL+Z		Z = 48L KE I if D I I 48L is armed, or
5L98If VAS-VNT loop is closed, then• Shed at KCL/LHWAWN/BRXWWAX first, then SEV the greatest of: > 1.17* (6L91 SEL + 5L98 VAS - Y), or > 3.06* (2L293 SEL + 0.16* 5L98 VAS - 400), or > 3.06* (2L293 SEL + 0.16* 5L98 VAS - 400), Y = 18101 fat least one of ACK SCX1 & 5CX2 is in service, or Y = 1710 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1710 if none of ACK SCX1 & 5CX2 is in service, or Y = 1710 if none of ACK SCX1 & 5CX2 is in service, or Y = 2.85* (2L112 NLY + 0.17* 5L98 VAS - 400), or > 2.98* (2L293 SEL + 0.18* 5L98 VAS - 400), or > 2.98* (2L293 SEL + 0.18* 5L98 VAS - 400), or Y = 2.98* (2L293 SEL + 0.18* 5L98 VAS - 400), or Y = 1910 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1740 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1740 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1740 if none of ACK 5CX1 & 5CX2 is in service5L96 & 5L98• Arm DTT 48L if 5L96 SEL > 800 MW AND VAS-VNT loop closed • Shed at KCL/ALHWAN/BRX/WAX first, then SEV the greatest of: > 1.25* (6L91 SEL + 5L96 SEL + Z - Y), or > 2.54* (2L112 NLY + 0.27* (5L96 SEL + Z) - 400), or > 2.54* (2L112 NLY + 0.27* (5L96 SEL + Z) - 400), or > 2.54* (2L112 NLY + 0.27* (5L96 SEL + Z) - 410), or > 2.54* (2L112 NLY + 0.27* (5L96 SEL + Z) - 410), or > 2.54* (2L112 NLY + 0.27* (5L96 SEL + Z) - 410), or > 2.54* (2L112 NLY + 0.27* (5L96 SEL + Z) - 400), or > 2.54* (2L112 NLY + 0.27* (5L96 SEL + Z) - 400), or > 2.54* (2L112 NLY + 0.27* (5L96 SEL + Z) - 400), or > 2.54* (2L12 NLY + 0.27* (5L96 SEL + Z) - 400), or > 2.54* (2L12 NLY + 0.27* (5L96 SEL + Z) - 400), or > (2.64 KEX 100 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1800 if none of ACK 5CX1 & 5CX2 is in service, or Y = 2 = 0 if DTT 48L is armed, or Z = 0 if DTT 48L is armed, or Z = 0 if DTT 48L is not armed5L92(Note: Arming requirements for DTT 5L94, DTT 1		Z = 0 if D 11 48L is not armed
• Shed at KUL/ALFWWANUBAWWAN first, then SEV the greatest of: > 2.94 * (2.112 NLY + 0.17 * 5L98 VAS - Y), or > 2.94 * (2.112 NLY + 0.17 * 5L98 VAS - 400), or > 3.06 * (2.293 SEL + 0.16 * 5L98 VAS - 400), or Y = 1810 if at least one of ACK 5CX1 & 5CX2 is in service. or Y = 1710 if none of ACK 5CX1 & 5CX2 is in service. Otherwise, • 5.66 dat KCL/ALHWAN/BRX/WAX first, then SEV the greatest of: > 2.98 * (2.129 SEL + 0.18 * 5L98 VAS - 400), or > 2.98 * (2.129 XEL + 0.18 * 5L98 VAS - 400), or > 2.98 * (2.129 XEL + 0.18 * 5L98 VAS - 400), or > 2.98 * (2.129 XEL + 0.18 * 5L98 VAS - 400), or Y = 1740 if none of ACK 5CX1 & 5CX2 is in service. 5L96 & 5L98 • Arm DTT 48L if 5L96 SEL + 2.900 MW AND VAS-VNT loop closed • 1.5* (1.91 SEL + 5L96 SEL + 2.900 MW AND VAS-VNT loop closed • Shed at KCL/ALHWAN/BRX/WAX first, then SEV the greatest of: > 1.25* (5L91 SEL + 5L96 SEL + 2.9 + 0.0), or > 2.54* (2.112 NLY + 0.27* (5L96 SEL + 2.) + 100, or > 2.54* (2.112 NLY + 0.07* (5L96 SEL + 2.) + 400), or > 2.44* (2L293 SEL + 0.25* (5L96 SEL + 2.) + 400), or > 2.44* (2L293 SEL + 0.25* (5L96 SEL + 2.) + 400), or > 2.44* (2L293 SEL + 0.25* (5L96 SEL + 2.) + 400), or > 2.44* (2L293 SEL + 0.25* (5L96 SEL + 2.) + 400), or > 2.46* (2L293 SEL + 0.2	5L98	If VAS-VNT loop is closed, then
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$		• Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of:
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $		$> 1.17^{\circ}$ (5L91 SEL + 5L98 VAS - Y), or
$ \begin{array}{c} \label{eq:second} \label{eq:second} \\ F = 3.0b^{-}(2.1293 {\rm SEL} + 0.1b^{-} 3.09 {\rm VAS} - 400, \\ Y = 1710 {\rm if} \ {\rm none} \ of \ ACK 5CX 1 8 5CX 2 {\rm is} \ {\rm service}, \ {\rm or} \\ Y = 1710 {\rm if} \ {\rm none} \ of \ ACK 5CX 1 8 5CX 2 {\rm is} \ {\rm service}, \ {\rm Otherwise}, \\ \hline \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$		$\geq 2.94^{\circ} (2L112 \text{ NLY} + 0.17^{\circ} \text{ 5L98 VAS} - 400), \text{ or}$
$ \begin{array}{r} Y = 10101 \text{ at least one of ACK 5CX1 & 5CX2 is in service, of \\ Y = 17101 \text{ if noe of ACK 5CX1 & 5CX2 is in service. Otherwise, \\ \\ Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: \\ \\ \\ > 1.15 * (6L91 SEL + 5L98 VAS - 400), or \\ \\ > 2.85 * (2L112 NLY + 0.20 * 5L98 VAS - 400), or \\ \\ > 2.85 * (2L112 NLY + 0.20 * 5L98 VAS - 400), or \\ \\ > 2.98 * (2L293 SEL + 0.18 * 5L98 VAS - 400), or \\ \\ > 2.98 * (2L293 SEL + 0.18 * 5L98 VAS - 400), or \\ \\ Y = 1740 \text{ if none of ACK 5CX1 & 5CX2 is in service, or } \\ \\ Y = 1740 \text{ if none of ACK 5CX1 & 5CX2 is in service} \\ \hline \\ 5L96 \& 5L98 \\ \hline \\ \text{Arm DTT 48L if 5L96 SEL > 800 MW AND VAS-VNT loop closed \\ \\ \text{Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: } \\ \\ \\ \text{> 1.25 * (6L91 SEL + 5L96 SEL + Z) - 400), or \\ \\ \text{> 2.54 * (2L112 NLY + 0.27 * (5L96 SEL + Z) - 400), or \\ \\ \text{> 2.54 * (2L112 NLY + 0.27 * (5L96 SEL + Z) - 400), or \\ \\ \text{> 2.54 * (2L112 NLY + 0.27 * (5L96 SEL + Z) - 400), or \\ \\ \text{> 2.54 * (2L112 NLY + 0.27 * (5L96 SEL + Z) - 400), or \\ \\ \text{> 2.54 * (2L112 NLY + 0.25 * (5L96 SEL + Z) - 400), or \\ \\ \text{> 2.46 * (2L293 SEL + 0.25 * (5L96 SEL + Z) - 400), or \\ \\ \text{> 2.46 * (2L123 SEL + 0.25 * (5L96 SEL + Z) - 400), or \\ \\ \text{> 2.46 * (2L112 NLY + 0.25 * (5L96 SEL + Z) - 400), or \\ \\ \text{> 2.46 * (2L112 NLY + 0.25 * (5L96 SEL + Z) - 400), or \\ \\ \text{> 2.46 * (2L112 NLY + 0.25 * (5L96 SEL + Z) - 400, in \\ \\ \text{Y = 2010 if at least one of ACK 5CX1 & 5CX2 is in service, or \\ \\ \text{Y = 2010 if at least one of ACK 5CX1 & 5CX2 is in service, or \\ \\ \text{Y = 201 if DTT 48L is not armed } \\ \end{array}$		\sim 3.06 ° (2L293 SEL + 0.16 ° 5L98 VAS - 400).
$ \begin{array}{r} Y = 17.101 \text{ rohe of ACK 5CX1 & 5CX2 is in service. OtherWise, \\ \text{Shed at KCL/ALHWAN/BRWWX first, then SEV the greatest of:} \\ & > 1.15 * (6L91 SEL + 5L98 VAS - Y), or \\ & > 2.98 * (2L293 SEL + 0.18 * 5L98 VAS - 400), or \\ & > 2.98 * (2L293 SEL + 0.18 * 5L98 VAS - 400), \\ Y = 1910 \text{ if a tleast one of ACK 5CX1 & 5CX2 is in service}, or \\ Y = 1740 \text{ if none of ACK 5CX1 & 5CX2 is in service} \\ \hline \\ \text{5L96 & 5L98} & \text{Arm DTT 48L if 5L96 SEL + 800 MW AND VAS-VNT loop closed} \\ & \text{Shed at KCL/ALHWAN/BRX/WXX first, then SEV the greatest of:} \\ & > 1.25 * (5L91 SEL + 5L96 SEL + Z - Y), or \\ & > 2.54 * (2L112 NLY + 0.27 * (5L96 SEL + Z) - 400), or \\ & > 2.54 * (2L112 NLY + 0.27 * (5L96 SEL + Z) - 400), or \\ & > 2.54 * (2L112 NLY + 0.27 * (5L96 SEL + Z) - 400), or \\ & > 2.46 * (2L293 SEL + 0.25 * (5L96 SEL + Z) - 400), Y = 2010 \text{ if a tleast one of ACK 5CX1 & 5CX2 is in service, or } \\ Y = 1800 \text{ if none of ACK 5CX1 & 5CX2 is in service}, or \\ Y = 1800 \text{ if none of ACK 5CX1 & 5CX2 is in service}, or \\ Y = 2010 \text{ if at least one of ACK 5CX1 & 5CX2 is in service}, or \\ Z = 48L KET if DTT 48L is armed, or \\ Z = 0 \text{ if DTT 48L is not armed} \\ \hline \\ \hline \\ \text{5L92} & (Note: Arming requirements for DTT 5L94, DTT 1L274 and DTT 1L275 are included in SOO 7T-17.) \\ Arm DTZ 112 RAS if \\ & > (0 < AB to BC < 100 MW) AND (2L293 NLY + 0.75 * 5L92 CBK > 400 MW), or \\ & > (0 < B to BC < 100 MW) AND (2L293 NLY + 0.75 * 5L92 CBK > 000 MW), or \\ & > (0 < B to BC < 100 MW) AND (2L293 NLY + 0.75 * 5L92 CBK > 0.00 MW), or \\ & > (0 < E B to OK > 100 MW) AND (2L293 SEL + 0.98 * (B to BC) > 400 MW), or \\ & > (B \text{ CL} SEVALLHWAN/BRX/REVWAX shedding amount for 5L94 contingency) > 400 MW) \\ \hline \\ $		Y = 1810 If at least one of AUK 5UX1 & 5UX2 is in service, or
5. Shed at XCUALFINWAW bRX/WAX Inst, Then Set Vine greatest of: > 1.15* (SL91 SEL + 5L98 VAS - Y), or > 2.85* (2L112 NLY + 0.20* 5L98 VAS - 400), or > 2.98* (2L293 SEL + 0.18* 5L98 VAS - 400), Y Y = 1910 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1740 if none of ACK 5CX1 & 5CX2 is in service 5L96 & 5L98 • Arm DTT 48L if 5L96 SEL > 800 MW AND VAS-VNT loop closed • Shed at KCUALH/WAN/BRX/WAX first, then SEV the greatest of: > 1.25* (5L91 SEL + 5L96 SEL + Z - Y), or > 2.54* (2L112 NLY + 0.27* (5L96 SEL + Z - Y), or > 2.54* (2L112 NLY + BDY Gen + 0.27* (5L96 SEL + Z) - 1140), or > 2.54* (2L112 NLY + BDY Gen + 0.27* (5L96 SEL + Z) - 1140), or > 2.54* (2L112 NLY + BDY Gen + 0.27* (5L96 SEL + Z) - 1140), or > 2.54* (2L112 NLY + BDY Gen + 0.27* (5L96 SEL + Z) - 1140), or > 2.64* (2L293 SEL + 0.25* (5L96 SEL + Z) - 400). Y = 2010 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1800 if none of ACK 5CX1 & 5CX2 is in service Z = 48L KET if DTT 48L is armed, or Z = 0 if DTT 48L is not armed 5L92 (Note: Arming requirements for DTT 5L94, DTT 1L274 and DTT 1L275 are included in SOO 7T-17.) Arm DTT 2L12 RAS if > (0 <= BC to AB to BC < 100 MW) AND (2L293 NLY + 0.75* 5L92 CBK > 400 MW), or <		Y = 1/10 if none of ACK 5CX1 & 5CX2 is in service. Otherwise,
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$		• Shed al KOL/ALEI/WAN/BRA/WAA HISI, then SEV the greatest of:
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $		\rightarrow 1.15 " (5L91 SEL + 5L98 VAS - Y), or
$ \begin{array}{ c c c c c } \hline \begin{array}{ c c c } \hline \begin{array}{l} 2.93 & \mbox{L} 2.93 & \mbox{L} 2.42 & \mbox{S} EL + 0.16 ^{\circ} 5.138 & \mbox{S} CX2 & \mbox{s} in service, or \\ \hline \mbox{Y} = 1740 & \mbox{if none of ACK 5CX1 & \mbox{S} CX2 & \mbox{s} in service} \end{array} \end{array} \\ \hline \begin{array}{l} \begin{array}{l} \begin{array}{l} \begin{array}{l} \mbox{S} EL + 0.16 ^{\circ} 5.138 & \mbox{S} CX2 & \mbox{s} in service, or \\ \hline \mbox{Y} = 1740 & \mbox{if none of ACK 5CX1 & \mbox{S} CX2 & \mbox{s} in service} \end{array} \end{array} \\ \hline \begin{array}{l} \begin{array}{l} \begin{array}{l} \mbox{S} EL + 5.196 & \mbox{S} EL + 2.06 & \mbox{S} EL + 2.0 & \mbox{O} PX & \mbox{S} U1 & \mbox{S} CX1 & \mbox{s} In Service, or \\ \hline \mbox{Y} = 2.54 ^{\circ} (2.112 & \mbox{ILV} + 0.27 ^{\circ} (5.196 & \mbox{S} EL + 2.0 - 400), or \\ \hline \mbox{S} 2.54 ^{\circ} (2.112 & \mbox{ILV} + 0.27 ^{\circ} (5.196 & \mbox{S} EL + 2.0 - 400), or \\ \hline \mbox{Y} = 2.010 & \mbox{if a least one of ACK 5CX1 & \mbox{S} CX2 & \mbox{is in service, or } \\ \hline \mbox{Y} = 2.010 & \mbox{if a least one of ACK 5CX1 & \mbox{S} CX2 & \mbox{is in service, or } \\ \hline \mbox{Y} = 2.010 & \mbox{if none of ACK 5CX1 & \mbox{S} CX2 & \mbox{is in service} \\ \hline \mbox{Z} = 0 & \mbox{if DTT 48L is not armed} \end{array} \end{array} $ $ \begin{array}{l} \mbox{5L92} \\ \hline \mbox{SL92} & \left(\mbox{Note: Arming requirements for DTT 5L94, DTT 1L274 and DTT 1L275 are included in SOO 7T-17.) \\ \mbox{Arm DTT 2L112 RAS if} \\ \hline \mbox{O} (0 < AB to BC < 100 & \mbox{MW}) AND (2L293 & \mbox{NLY} + 5L92 & \mbox{CBK} > 400 & \mbox{MW}, or \\ \hline \mbox{V} (0 < AB to BC < 100 & \mbox{MW}) AND (2L293 & \mbox{NLY} + 5L92 & \mbox{SE} L - 0.2 ^{\circ} (BC to AB) > 400 & \mbox{MW}, or \\ \hline \mbox{V} (0 < BC to AB < 100 & \mbox{MW}) AND (2L293 & \mbox{SEL} + 5L92 & \mbox{SE} L - 0.2 ^{\ast} (BC to AB) > 400 & \mbox{MW}, or \\ \hline \mbox{V} (0 < BC to AB < 100 & \mbox{MW}) AND (2L293 & \mbox{SE} L - 0.7 ^{\ast} (BC to AB) > 400 & \mbox{MW}, or \\ \hline \mbox{V} (0 < \mbox{BC} to AB < 100 & \mbox{MW}) AND (2L293 & \mbox{SE} L - 0.7 ^{\ast} (BC to AB) > 0.3 ^{\ast} (armed & \mbox{KCL/SEV/ALHWAN/BRX/REVWAX} shedding amount for 5L94 contingency) > 400 & \mbox{MW} \end{array} \right$		$\geq 2.85^{\circ} (2L112 \text{ NLY} + 0.20^{\circ} \text{ 5L98 VAS} - 400), \text{ or}$
Y = 1910 if at least one of ACK SCX1 & SCX2 is in serviceSL96 & SL98• Arm DTT 48L if SL96 SEL > 800 MW AND VAS-VNT loop closed • Shed at KCL/ALHWAN/BRX/WAX first, then SEV the greatest of: > 1.25 * (5L91 SEL + 5L96 SEL + Z - Y), or > 2.54 * (2L112 NLY + 0.27 * (5L96 SEL + Z) - 400), or > 2.54 * (2L112 NLY + 0.27 * (5L96 SEL + Z) - 400), or > 2.46 * (2L23 SEL + 0.25 * (5L96 SEL + Z) - 400). Y = 2010 if at least one of ACK SCX1 & SCX2 is in service, or Y = 1800 if none of ACK SCX1 & 5CX2 is in service, or Y = 1800 if none of ACK SCX1 & 5CX2 is in service, or Y = 1800 if none of ACK SCX1 & 5CX2 is in service, or Z = 0 if DTT 48L is not armedSL92(Note: Arming requirements for DTT 5L94, DTT 1L274 and DTT 1L275 are included in SOO 7T-17.) Arm DTT 2L112 RAS if > (0 < AB to BC > 100 MW) AND (2L293 NLY + 0.75 * 5L92 CBK > 400 MW), or > (0 < BC to AB > 100 MW) AND (2L293 SEL + 0.95 * 6L92 SEL - 0.2 * (BC to AB) > 400 MW), or > (0 <= BC to AB < 100 MW) AND (2L293 SEL + 0.95 * 5L92 SEL - 0.2 * (BC to AB) > 400 MW), or > (0 <= BC to AB < 100 MW) AND (2L293 SEL + 5L92 SEL - 0.7 * (BC to AB) - 0.3 * (armed KCL/SEV/ALHWAN/BRX/REV/WAX shedding amount for 5L94 contingency) > 400 MW)SL94Same as Table ABypass GUI 5CX1No shedding required. SL93 (1P)		$\sim 2.98^{\circ}$ (2L293 SEL + 0.18° 5L98 VAS - 400).
SL96 & 5L98• Arm DTT 48L if 5L96 SEL > 800 MW AND VAS-VNT loop closed• Shed at KCL/ALHWAN/BRX/WAX first, then SEV the greatest of: > 1.25 * (5L91 SEL + 5L96 SEL + Z - Y), or > 2.54 * (2L112 NLY + 0.27 * (5L96 SEL + Z) - 400), or > 2.54 * (2L112 NLY + 0.27 * (5L96 SEL + Z) - 400), or > 2.54 * (2L112 NLY + BDY Gen + 0.27* (5L96 SEL + Z) - 1140), or > 2.46 * (2L293 SEL + 0.25 * (5L96 SEL + Z) - 400). Y = 2010 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1800 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1800 if none of ACK 5CX1 & 5CX2 is in service Z = 48L KET if DTT 48L is armed, or Z = 0 if DTT 48L is not armed5L92(Note: Arming requirements for DTT 5L94, DTT 1L274 and DTT 1L275 are included in SOO 7T-17.) Arm DTT 2L112 RAS if > (0 < AB to BC <= 100 MW) AND (2L293 NLY + 0.75 * 5L92 CBK > 400 MW), or > (0 <= BC to AB <= 100 MW) AND (2L293 NLY + 5L92 CBK - 0.68 * (AB to BC) > 400 MW), or > (BC to AB <= 100 MW) AND (2L293 SEL + 0.95 * 5L92 SEL - 0.2 * (BC to AB) > 400 MW), or > (BC to AB <= 100 MW) AND (2L293 SEL + 0.95 * 5L92 SEL - 0.7 * (BC to AB) > 400 MW), or > (BC to AB > 100 MW) AND (2L293 SEL + 5L92 SEL - 0.7 * (BC to AB) > 400 MW), or > (BC to AB <= 100 MW) AND (2L293 SEL + 5L92 SEL - 0.7 * (BC to AB) > 0.3 * (armed (CL/SEV/LHWAN/BRX/REV/WAX shedding amount for 5L94 contingency) > 400 MW)5L94Same as Table ABypass GUI 5CX1No shedding required.5L99 (1P) or SL98 (1P)No shedding required.		Y = 1910 If all least one of ACK 5CX 1 & 5CX2 is in service, of $Y = 4740$ if many of ACK 5CX1 & 5CX2 is in service.
5L96 & 5L98Arm DTT 48L if 5L96 SEL > 800 MW AND VAS-VNT loop closed5L96 & 5L98Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: > 1.25 * (5L91 SEL + 5L96 SEL + Z - Y), or > 2.54 * (2L112 NLY + 0.27 * (5L96 SEL + Z) - 400), or > 2.54 * (2L112 NLY + BDY Gen + 0.27 * (5L96 SEL + Z) - 1140), or > 2.46 * (2L293 SEL + 0.25 * (5L96 SEL + Z) - 400). Y = 2010 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1800 if none of ACK 5CX1 & 5CX2 is in service, or Y = 1800 if none of ACK 5CX1 & 5CX2 is in service Z = 48L KET if DTT 48L is armed, or Z = 0 if DTT 48L is not armed5L92(Note: Arming requirements for DTT 5L94, DTT 1L274 and DTT 1L275 are included in SOO 7T-17.) Arm DTT 2L112 RAS if > (0 < AB to BC < 100 MW) AND (2L293 NLY + 0.75 * 5L92 CBK > 400 MW), or > (0 < = BC to AB <= 100 MW) AND (2L293 NLY + 5L92 CBK > 0.68 * (AB to BC) > 400 MW), or > (0 < = BC to AB <= 100 MW) AND (2L293 SEL + 0.95 * 5L92 SEL - 0.2 * (BC to AB) > 400 MW), or > (BC to AB > 100 MW) AND (2L293 SEL + 5L92 SEL - 0.7 * (BC to AB) > 400 MW), or > (BC to AB > 100 MW) AND (2L293 SEL + 5L92 SEL - 0.7 * (BC to AB) > 400 MW), or > (BC to AB > 100 MW) AND (2L293 SEL + 5L92 SEL - 0.7 * (BC to AB) > 400 MW), or > (BC to AB > 100 MW) AND (2L293 SEL + 5L92 SEL - 0.7 * (BC to AB) > 400 MW), or > (BC to AB > 100 MW) AND (2L293 SEL + 5L92 SEL - 0.7 * (BC to AB) > 400 MW), or > (BC to AB > 100 MW) AND (2L293 SEL + 5L92 SEL - 0.7 * (BC to AB) > 400 MW)5L94Same as Table ABypass GUI5CX1No shedding required.5L91 (IP) or 5L96 (IP) or SL98 (IP)No shedding required.		Y = 1/40 it none of ACK 5CX1 & 5CX2 is in service
 Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: 1.25* (5L91 SEL + 5L96 SEL + Z - Y), or 2.54* (2L112 NLY + 0.27* (5L96 SEL + Z) - 400), or 2.54* (2L123 SEL + 0.25* (5L96 SEL + Z) - 400), or 2.46* (2L233 SEL + 0.25* (5L96 SEL + Z) - 400), or 2.46* (2L233 SEL + 0.25* (5L96 SEL + Z) - 400), or Y = 2010 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1800 if none of ACK 5CX1 & 5CX2 is in service Z = 48L KET if DTT 48L is not armed 5L92 (Note: Arming requirements for DTT 5L94, DTT 1L274 and DTT 1L275 are included in SOO 7T-17.) Arm DTT 2L112 RAS if (0 < AB to BC <= 100 MW) AND (2L293 NLY + 0.75* 5L92 CBK > 400 MW), or (AB to BC > 100 MW) AND (2L293 NLY + 5L92 CBK > 0.68* (AB to BC) > 400 MW), or (BC to AB > 100 MW) AND (2L293 SEL + 0.27* (BC to AB) - 0.3* (armed KCL/SEV/ALH/WAN/BRX/REV/WAX shedding amount for 5L94 contingency) > 400 MW) 5L94 Same as Table A Bypass GUI 5CX1 No shedding required. SL91 (IP) or 5L96 (IP) or	51.06 8 51.08	Arm DTT (8) if 51.06 SEL > 800 MW/ AND V/AS V/NT loop closed
SolutionSolutionSolutionSolutionSolution $1.25 * (5.01 SEL + 5.96 SEL + Z) - 400$), or $2.54 * (2L112 NLY + 0.27 * (5.96 SEL + Z) - 400)$, or $2.54 * (2L112 NLY + BDY Gen + 0.27 * (5.96 SEL + Z) - 1140)$, or $2.46 * (2L293 SEL + 0.25 * (5.96 SEL + Z) - 400)$. $Y = 2010$ if at least one of ACK 5CX1 & 5CX2 is in service, or $Y = 1800$ if none of ACK 5CX1 & 5CX2 is in service $Z = 48L$ KET if DTT 48L is armed, or $Z = 0$ if DTT 48L is not armed5L92(Note: Arming requirements for DTT 5L94, DTT 1L274 and DTT 1L275 are included in SOO 7T-17.)Arm DTT 2L112 RAS if> (0 < AB to BC <= 100 MW) AND (2L293 NLY + 0.75 * 5L92 CBK > 400 MW), or> (0 < AB to BC <= 100 MW) AND (2L293 NLY + 0.75 * 5L92 CBK > 400 MW), or> (0 < aB to BC > 100 MW) AND (2L293 NLY + 0.95 * 5L92 SEL - 0.2 * (BC to AB) > 400 MW), or> (BC to AB > 100 MW) AND (2L293 SEL + 0.95 * 5L92 SEL - 0.2 * (BC to AB) > 400 MW), or> (BC to AB > 100 MW) AND (2L293 SEL + 5L92 SEL - 0.7 * (BC to AB) - 0.3 * (armed KCL/SEV/ALH/WAN/BRX/REV/WAX shedding amount for 5L94 contingency) > 400 MW)5L94Same as Table ABypass GUI 5CX1No shedding required.5L98 (1P)No shedding required.	3E90 & 3E90	 Shed at KCL/ALHAWAN/BRX/WAX first then SEV the greatest of:
$5L92$ $(Note: Arming requirements for DTT 5L94, DTT 1L274 and DTT 1L275 are included in SOO 7T-17.) Arm DTT 2L112 RLY and Sift in the set of ACK 5CX1 & 5CX2 is in service, or Y = 1800 if none of ACK 5CX1 & 5CX2 is in service Z = 48L KET if DTT 48L is armed, or Z = 0 if DTT 48L is not armed (Note: Arming requirements for DTT 5L94, DTT 1L274 and DTT 1L275 are included in SOO 7T-17.) Arm DTT 2L112 RAS if (0 < AB to BC <= 100 MW) AND (2L293 NLY + 0.75 * 5L92 CBK > 400 MW), or > (0 < AB to BC <= 100 MW) AND (2L293 NLY + 0.75 * 5L92 CBK > 400 MW), or > (0 < AB to BC <= 100 MW) AND (2L293 NLY + 5L92 CBK - 0.68 * (AB to BC) > 400 MW), or > (0 < BC to AB <= 100 MW) AND (2L293 SEL + 0.97 * (BC to AB) > 400 MW), or > (BC to AB > 100 MW) AND (2L293 SEL + 0.97 * (BC to AB) > 400 MW), or > (BC to AB > 100 MW) AND (2L293 SEL + 0.97 * (BC to AB) > 0.3 * (armed KCL/SEV/ALH/WAN/BRX/REV/WAX shedding amount for 5L94 contingency) > 400 MW) SL94 Same as Table A Bypass GUI 5CX1 No shedding required. SL91 (1P) \text{ or } 5L96 (1P) \text{ or } No shedding required.}$		
$ \begin{array}{c} \begin{array}{c} 2.54 \\ 2.54 \\ (2L112 \ NLT + 0.27 \\ (5L90 \ SEL + 2) - 400), 01 \\ \end{array} \\ \begin{array}{c} \begin{array}{c} > 2.54 \\ > 2.54 \\ (2L293 \ SEL + 0.25 \\ (5L90 \ SEL + 2) - 400). \\ \end{array} \\ \begin{array}{c} \end{array} \\ \begin{array}{c} > 2.46 \\ > 2.46 \\ (2L293 \ SEL + 0.25 \\ (5L90 \ SEL + 2) - 400). \\ \end{array} \\ \begin{array}{c} \end{array} \\ \begin{array}{c} \end{array} \\ \begin{array}{c} > 2.46 \\ (2L293 \ SEL + 0.25 \\ (5L90 \ SEL + 2) - 400). \\ \end{array} \\ \begin{array}{c} \end{array} \\ \begin{array}{c} Y = 2010 \ if \ all \ least \ one \ of \ ACK \ 5CX1 \ & 5CX2 \ is \ n \ service, \ or \\ \end{array} \\ \begin{array}{c} Y = 2010 \ if \ all \ all \ service \\ \end{array} \\ \begin{array}{c} Z = 48L \ KET \ if \ DTT \ 48L \ is \ armed, \ or \\ \end{array} \\ \begin{array}{c} Z = 48L \ KET \ if \ DTT \ 48L \ is \ armed, \ or \\ \end{array} \\ \begin{array}{c} Z = 0 \ if \ DTT \ 48L \ is \ armed, \ or \\\end{array} \\ \begin{array}{c} Z = 0 \ if \ DTT \ 48L \ is \ armed, \ or \\ \end{array} \\ \begin{array}{c} Z = 0 \ if \ DTT \ 48L \ is \ armed, \ or \\\end{array} \\ \begin{array}{c} Z = 0 \ if \ DTT \ 48L \ is \ armed, \ or \\\end{array} \\ \begin{array}{c} Z = 0 \ if \ DTT \ 48L \ is \ armed, \ or \\\end{array} \\ \begin{array}{c} Z = 0 \ if \ DTT \ 48L \ is \ armed, \ or \\\end{array} \\ \begin{array}{c} Z = 0 \ if \ DTT \ 48L \ is \ armed, \ armed \\\end{array} \\ \begin{array}{c} SL92 \\ \end{array} \\ \begin{array}{c} (Note: \ Arming \ requirements \ for \ DTT \ 5L94, \ DTT \ 1L274 \ and \ DTT \ 1L275 \ are \ included \ in \ SOO \ 7T-17.) \\ Arm \ DTT \ 2L12 \ RAS \ if \\\end{array} \\ \begin{array}{c} > 0 \ (AB \ to \ BC \ - 100 \ MW) \ AND \ (2L293 \ NLY + \ 5L92 \ CBK \ - 0.68 \\ (AB \ to \ BC) \ > 400 \ MW), \ or \\\end{array} \\ \begin{array}{c} > (BC \ to \ AB \ - 100 \ MW) \ AND \ (2L293 \ SLL \ + \ 5L92 \ CBK \ - 0.68 \\ (AB \ to \ BC) \ > 400 \ MW), \ or \\\end{array} \\ \begin{array}{c} > (BC \ to \ AB \ - 100 \ MW) \ AND \ (2L293 \ SL \ + \ 5L92 \ SL \ - \ 0.7 \\ \ (BC \ to \ AB) \ - 0.3 \\ (armed \ KCL/SEV/ALHWAN/BRX/REV/WAX \ shedding \ armount \ for \ 5L94 \ contingency) \ > 400 \ MW) \\\end{array} \\ \begin{array}{c} Same \ as \ Table A \ By \ pass \ GUI \ 5CX1 \ No \ shedding \ required \ Same \ Same \ Same \ as \ Table \ A \ Same \ as \ Table \ A \ Same \ Same \ as \ Table \ A \ Same \ A \ Same $		P = 1.25 (3L91 SEL + 3L90 SEL + Z - Y), 01 $> 2.54 \times (21.112 NI V + 0.27 \times (51.06 SEL + Z) - 400) \text{ or}$
5L92 $(Note: Arming requirements for DTT 5L94, DTT 1L274 and DTT 1L275 are included in SOO 7T-17.) Arm DTT 2L112 RAS if > (0 < AB to BC <= 100 MW) AND (2L293 NLY + 0.75 * 5L92 CBK > 400 MW), or > (0 < BC to AB <= 100 MW) AND (2L293 NLY + 5L92 CBK > 400 MW), or > (0 < BC to AB <= 100 MW) AND (2L293 SEL + 0.95 * 5L92 SEL - 0.2 * (BC to AB) > 400 MW), or > (BC to AB > 100 MW) AND (2L293 SEL + 5L92 SEL - 0.7 * (BC to AB) - 0.3 * (armed KCL/SEV/ALH/WAN/BRX/REV/WAX shedding amount for 5L94 contingency) > 400 MW) 5L94 Same as Table A Bypass GUI 5CX1 No shedding required. SL96 (1P) or SL96 (1P) or$		$ = 2.54 (2112 \text{ NLT} + 0.27 (5190 \text{ SEL} + 2) = 400), 01 $ $ = 2.54 \times (2112 \text{ NLV} + \text{RDV} \text{ Con } + 0.27 \times (51.96 \text{ SEL} + 7) = 1140) \text{ or } $
$\begin{array}{c} 1 \\ 1 \\ 2 \\ 2 \\ 2 \\ 2 \\ 2 \\ 2 \\ 2 \\ 2 \\$		2.04 (21121) + 0.01 (010 (010 (010 (010 (010 (010 (010
Y = 1800 if none of ACK 5CX1 & 5CX2 is in service $Y = 1800$ if none of ACK 5CX1 & 5CX2 is in service $Z = 48L$ KET if DTT 48L is armed, or $Z = 0$ if DTT 48L is not armed5L92(Note: Arming requirements for DTT 5L94, DTT 1L274 and DTT 1L275 are included in SOO 7T-17.)Arm DTT 2L112 RAS if> (0 < AB to BC <= 100 MW) AND (2L293 NLY + 0.75 * 5L92 CBK > 400 MW), or> (0 < AB to BC > 100 MW) AND (2L293 NLY + 5L92 CBK - 0.68 * (AB to BC) > 400 MW), or> (0 <= BC to AB <= 100 MW) AND (2L293 SEL + 0.95 * 5L92 SEL - 0.2 * (BC to AB) > 400 MW), or> (BC to AB > 100 MW) AND (2L293 SEL + 5L92 SEL - 0.7 * (BC to AB) > 400 MW), or> (BC to AB > 100 MW) AND (2L293 SEL + 5L92 SEL - 0.7 * (BC to AB) - 0.3 * (armed KCL/SEV/ALH/WAN/BRX/REV/WAX shedding amount for 5L94 contingency) > 400 MW)5L94Same as Table ABypass GUI5CX1No shedding required.5L91 (1P) or 5L96 (1P) orNo shedding required.		V = 2010 if at least one of ACK 5CX1 & 5CX2 is in service, or
Z = 48L KET if DTT 48L is armed, or Z = 0 if DTT 48L is not armed5L92(Note: Arming requirements for DTT 5L94, DTT 1L274 and DTT 1L275 are included in SOO 7T-17.)Arm DTT 2L112 RAS if> (0 < AB to BC <= 100 MW) AND (2L293 NLY + 0.75 * 5L92 CBK > 400 MW), or> (AB to BC > 100 MW) AND (2L293 NLY + 5L92 CBK - 0.68 * (AB to BC) > 400 MW), or> (0 <= BC to AB <= 100 MW) AND (2L293 SEL + 0.95 * 5L92 SEL - 0.2 * (BC to AB) > 400 MW), or> (BC to AB > 100 MW) AND (2L293 SEL + 5L92 SEL - 0.7 * (BC to AB) > 400 MW), or> (BC to AB > 100 MW) AND (2L293 SEL + 5L92 SEL - 0.7 * (BC to AB) - 0.3 * (armed KCL/SEV/ALH/WAN/BRX/REV/WAX shedding amount for 5L94 contingency) > 400 MW)5L94Same as Table ABypass GUI 5CX1No shedding required.5L91 (1P) or 5L96 (1P) or5L98 (1P)No shedding required.		V = 1800 if none of ACK 5CX1 & 5CX2 is in service
Z = 0 if DTT 46L is anned, or $Z = 0$ if DTT 48L is not armed5L92(Note: Arming requirements for DTT 5L94, DTT 1L274 and DTT 1L275 are included in SOO 7T-17.)Arm DTT 2L112 RAS if> (0 < AB to BC > 100 MW) AND (2L293 NLY + 0.75 * 5L92 CBK > 400 MW), or> (AB to BC > 100 MW) AND (2L293 SEL + 0.68 * (AB to BC) > 400 MW), or> (0 <= BC to AB <= 100 MW) AND (2L293 SEL + 0.95 * 5L92 SEL - 0.2 * (BC to AB) > 400 MW), or> (0 <= BC to AB <= 100 MW) AND (2L293 SEL + 5L92 SEL - 0.7 * (BC to AB) > 400 MW), or> (BC to AB > 100 MW) AND (2L293 SEL + 5L92 SEL - 0.7 * (BC to AB) - 0.3 * (armed KCL/SEV/ALH/WAN/BRX/REV/WAX shedding amount for 5L94 contingency) > 400 MW)5L94Same as Table ABypass GUI 5CX1No shedding required.5L91 (1P) or 5L96 (1P) orNo shedding required.		7 = 1000 in the of ACR SCAT & SCA2 is in service 7 = 481 KET if DTT 481 is armed or
5L92 (Note: Arming requirements for DTT 5L94, DTT 1L274 and DTT 1L275 are included in SOO 7T-17.) Arm DTT 2L112 RAS if > (0 < AB to BC <= 100 MW) AND (2L293 NLY + 0.75 * 5L92 CBK > 400 MW), or > (AB to BC > 100 MW) AND (2L293 NLY + 5L92 CBK - 0.68 * (AB to BC) > 400 MW), or > (0 <= BC to AB <= 100 MW) AND (2L293 SEL + 0.95 * 5L92 SEL - 0.2 * (BC to AB) > 400 MW), or > (BC to AB > 100 MW) AND (2L293 SEL + 5L92 SEL - 0.7 * (BC to AB) - 0.3 * (armed KCL/SEV/ALH/WAN/BRX/REV/WAX shedding amount for 5L94 contingency) > 400 MW) 5L94 Same as Table A Bypass GUI 5CX1 No shedding required. 5L91 (1P) or 5L96 (1P) or No shedding required.		Z = 46L RE I II D II 46L IS allifed, of $Z = 0$ if DTT 48L is not armed
5L92 (Note: Arming requirements for DTT 5L94, DTT 1L274 and DTT 1L275 are included in SOO 7T-17.) Arm DTT 2L112 RAS if > (0 < AB to BC <= 100 MW) AND (2L293 NLY + 0.75 * 5L92 CBK > 400 MW), or > (AB to BC > 100 MW) AND (2L293 NLY + 5L92 CBK - 0.68 * (AB to BC) > 400 MW), or > (0 <= BC to AB <= 100 MW) AND (2L293 SEL + 0.95 * 5L92 SEL - 0.2 * (BC to AB) > 400 MW), or > (BC to AB > 100 MW) AND (2L293 SEL + 5L92 SEL - 0.7 * (BC to AB) - 0.3 * (armed KCL/SEV/ALH/WAN/BRX/REV/WAX shedding amount for 5L94 contingency) > 400 MW) 5L94 Same as Table A Bypass GUI 5CX1 No shedding required. 5L91 (1P) or 5L96 (1P) or No shedding required.		
Arm DTT 2L112 RAS if > (0 < AB to BC <= 100 MW) AND (2L293 NLY + 0.75 * 5L92 CBK > 400 MW), or > (AB to BC > 100 MW) AND (2L293 NLY + 5L92 CBK - 0.68 * (AB to BC) > 400 MW), or > (0 <= BC to AB <= 100 MW) AND (2L293 SEL + 0.95 * 5L92 SEL - 0.2 * (BC to AB) > 400 MW), or > (0 <= BC to AB <= 100 MW) AND (2L293 SEL + 5L92 SEL - 0.2 * (BC to AB) > 400 MW), or > (BC to AB > 100 MW) AND (2L293 SEL + 5L92 SEL - 0.7 * (BC to AB) - 0.3 * (armed KCL/SEV/ALH/WAN/BRX/REV/WAX shedding amount for 5L94 contingency) > 400 MW) 5L94 Same as Table A Bypass GUI 5CX1 No shedding required. 5L91 (1P) or 5L96 (1P) or No shedding required.	51.92	Note: Arming requirements for DTT 5I 94. DTT 1I 274 and DTT 1I 275 are included in SOO 7T-17.)
> (0 < AB to BC <= 100 MW) AND (2L293 NLY + 0.75 * 5L92 CBK > 400 MW), or > (AB to BC > 100 MW) AND (2L293 NLY + 5L92 CBK - 0.68 * (AB to BC) > 400 MW), or > (0 <= BC to AB <= 100 MW) AND (2L293 SEL + 0.95 * 5L92 SEL - 0.2 * (BC to AB) > 400 MW), or > (0 <= BC to AB > 100 MW) AND (2L293 SEL + 5L92 SEL - 0.7 * (BC to AB) - 0.3 * (armed KCL/SEV/ALH/WAN/BRX/REV/WAX shedding amount for 5L94 contingency) > 400 MW) 5L94 Same as Table A Bypass GUI 5CX1 No shedding required. 5L91 (1P) or 5L96 (1P) or No shedding required.	3632	Arm DTT 21 112 RAS if
> (AB to BC > 100 MW) AND (2L293 NLY + 5L92 CBK - 0.68 * (AB to BC) > 400 MW), or > (0 <= BC to AB <= 100 MW) AND (2L293 SEL + 0.95 * 5L92 SEL - 0.2 * (BC to AB) > 400 MW), or > (BC to AB > 100 MW) AND (2L293 SEL + 5L92 SEL - 0.7 * (BC to AB) - 0.3 * (armed KCL/SEV/ALH/WAN/BRX/REV/WAX shedding amount for 5L94 contingency) > 400 MW) 5L94 Same as Table A Bypass GUI 5CX1 No shedding required. 5L91 (1P) or 5L96 (1P) or 5L98 (1P)		$(0 \le AB \text{ to } BC \le 100 \text{ MW})$ AND (21 293 NI Y + 0.75 * 51.92 CBK > 400 MW) or
> (0 <= BC to AB <= 100 MW) AND (2L293 SEL + 0.95 * 5L92 SEL - 0.2 * (BC to AB) > 400 MW), or > (BC to AB > 100 MW) AND (2L293 SEL + 5L92 SEL - 0.7 * (BC to AB) - 0.3 * (armed KCL/SEV/ALH/WAN/BRX/REV/WAX shedding amount for 5L94 contingency) > 400 MW) 5L94 Same as Table A Bypass GUI 5CX1 No shedding required. 5L91 (1P) or 5L96 (1P) or 5L96 (1P) or 5L98 (1P)		(a Fig. 6 D C > 100 MW) AND (21 293 NI Y + 51 92 CBK - 0.68 * (AB to BC) > 400 MW) or
> (BC to AB > 100 MW) AND (2L293 SEL + 5L92 SEL - 0.7 * (BC to AB) - 0.3 * (armed KCL/SEV/ALH/WAN/BRX/REV/WAX shedding amount for 5L94 contingency) > 400 MW) 5L94 Same as Table A Bypass GUI 5CX1 No shedding required. 5L91 (1P) or 5L96 (1P) or 5L98 (1P) No shedding required.		$(0 \le BC \text{ to } AB \le 100 \text{ MW})$ AND (21 293 SEL + 0.95 * 51.92 SEL - 0.2 * (BC to AB) > 400 MW) or
KCL/SEV/ALH/WAN/BRX/REV/WAX shedding amount for 5L94 contingency) > 400 MW) 5L94 Same as Table A Bypass GUI 5CX1 No shedding required. 5L91 (1P) or 5L96 (1P) or No shedding required.		\rightarrow (BC to AB > 100 MW) AND (2L293 SEL + 5L92 SEL - 0.7* (BC to AB) - 0.3* (armed
5L94 Same as Table A Bypass GUI 5CX1 No shedding required. 5L94 (1P) or 5L96 (1P) or No shedding required.		KCL/SEV/ALH/WAN/BRX/REV/WAX shedding amount for 5L94 contingency) > 400 MW)
Bypass GUI 5CX1 No shedding required. 5L91 (1P) or 5L96 (1P) or 5L98 (1P) No shedding required.	5L94	Same as Table A
5L91 (1P) or 5L96 (1P) or No shedding required. 5L98 (1P)	Bypass GUI 5CX1	No shedding required.
5L98 (1P)	5L91 (1P) or 5L96 (1P) or	No shedding required.
	<u>5L98 (1P)</u>	

Table 1.30 – 5L40 or 5L41 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

- Notes 2 and 3 in Section 2.
- 5L87 Contingency:

Limit (5L81 + 5L82 + 5L83 + 5L87) NIC < 4750 MW when BCH load >= 8500 MW. If TSAPM alarms "Voltage instability for a loss of 5L87", the BC Hydro Control Centre staff shall increase NI generation.

Generation Shedding Requirements 5L40 or 5L41 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops) Note: Tables A, B, C, D, E and F are applicable to this Table.

CONTINGENCY	SHEDDING REQUIREMENTS
5L81	Shed at MCA/REV: GS + 2.68 * M Where GS and M are calculated as follows: GS = Max (0, 2.09 * (5L44 MDN + 0.72 * 5L81 NIC - 5L44_Over_Rating)) Y = 2L112 NLY + 0.03 * 5L81 NIC - 0.15 * GS Z = -2L293 NLY + 0.03 * 5L81 NIC - 0.14 * GS If Y > NLYPST_OL_PickupMW, M1 = 0.63* (Y - NLYPST_OL_ResetMW), Else M1 = 0 If Z > 2L293OLRAS_PickupMW, M2 = 0.76 * (Z - 2L293OLRAS_Reset MW), Else M2 = 0 M = Max (M1, M2)
5L82	No shedding required.
5L83	Shed at MCA/REV: GS + 4.40 * M Where GS and M are calculated as follows: GS = Max (0, 3.43 * (5L82 NIC + 0.42 * 5L83 NIC - 5L82_Over_Rating)) Y = 2L112 NLY + 0.04 * 5L83 NIC - 0.17 * GS Z = -2L293 NLY + 0.04 * 5L83 NIC - 0.16 * GS If Y > NLYPST_OL_PickupMW, M1 = 0.30 * (Y - NLYPST_OL_ResetMW), Else M1 = 0 If Z > 2L293OLRAS_PickupMW, M2 = 0.36 * (Z - 2L293OLRAS_ResetMW), Else M2 = 0 M = Max (M1, M2)
5L87	No shedding required.
5L44	$ \begin{array}{l} GS1 = 3.5 * (5L81NIC + 0.35 * 5L44MDN - 5L81_Over_Rating) \\ GS2 = 11 * (2L20CSQ + 0.2 * 5L44 MDN - 2L20_Over_Rating) \\ GS3 = 27.5 * (2L51COK + 0.1 * 5L44MDN - 2L20_Over_Rating) \\ \end{array} \\ \begin{array}{l} M = MAX (GS1, GS2, GS3, 0) \\ Y = 2L12 NLY + 0.06 * 5L44 MDN - 0.15 * M \\ Z = 2L293 SEL + 0.06 * 5L44 MDN - 0.15 * M \\ Z = 2L293 SEL + 0.06 * 5L44 MDN - 0.14 * M \\ \end{array} \\ \begin{array}{l} \text{ff } Y > \frac{NLYPST_OL_PickupMW}{N}, \\ R1 = 0.46 * (Y - NLYPST_OL_ResetMW) \\ R3 = 0.1 * (Y - NLYPST_OL_ResetMW) \\ R3 = 0.1 * (Y - NLYPST_OL_ResetMW) \\ R5 = 0.04 * (Y - NLYPST_OL_ResetMW) \\ \end{array} \\ \begin{array}{l} \text{is } P = 0.04 * (Y - NLYPST_OL_ResetMW) \\ R2 = 0.55 * (Z - 2L293OLRAS_ResetMW) \\ R4 = 0.13 * (Z - 2L293OLRAS_ResetMW) \\ R6 = 0.05 * (Z - 2L293OLRAS_ResetMW) \\ \end{array} \\ \begin{array}{l} \text{gs } R2 = 0, R4 = 0, R6 = 0. \\ \end{array} \\ \begin{array}{l} \text{gs } Rate = 0, R4 = 0, R6 = 0. \\ \end{array} \\ \begin{array}{l} \text{Rate } Rate (R1, R2) \\ Rb = MAX (R3, R4) \\ Rc = MAX (R4, R5, R6) \\ \end{array} \\ \begin{array}{l} \text{shed at } MCA/REV \text{ first, and then GMS/PCN the greatest of:} \\ D = D3 * (GS3 + 27.5^* Rc) \\ Where: \\ D = 1.0 \text{ if shedding at MCA/REV, or} \\ D = 1.2 \text{ if shedding at MCA/REV, or} \\ \end{array} \\ \end{array} $

D2 = 1.0 if shedding at MCA/REV, or D2 = 0.9 if shedding at GMS/PCN, D3 = 1.0 if shedding at MCA/REV, or D3 = 1.0 if shedding at GMS/PCN.

Total armed generation shedding must be limited to 2500 MW. If exceeding the limit, the Operator can take the following actions:

- Reduce the flow on 2L129 from ARN to VIT.
- Reduce SI generation and increase Peace generation

5L81 and 5L82	G1 = 5.2 * [5L42 KLY + 0.29 * (5L81 + 5L82) NIC - 5L42_Over_Rating] G2 = 2.41 * [5L44 MDN+ 0.28 * (5L81 + 5L82) NIC - 5L44_Over_Rating] G3 = 2.92 * [5L83 NIC + 0.54 * (5L81 + 5L82) NIC - 5L83_Over_Rating] G4 = 3.88 * [5L87 NIC + 0.35 * (5L81 + 5L82) NIC - 5L87_Over_Rating]
	G5 = 5.97 * [2L112 NLY+ 0.09 * (5L81 + 5L82) NIC - NLYPST_OL_PickupMW] G6 = 6.4 * [2L293 SEL+ 0.07 * (5L81 + 5L82) NIC - 2L293OLRAS_PickupMW]
	GS = Max (0, G1, G2, G3, G4, G5 <mark>, G6</mark>)
	 If AB to BC >= 500 MW AND GS >= 1500 MW, then Arm DTT 5L94, and Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and Shed at MCA/REV first: 0.93 * (GS – AB to BC) Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.38 * [0.93 * (GS – AB to BC) – the armed gen-shedding amount at MCA/REV]. Do not select GMS/PCN for shedding if G4 > 0. Total armed generation shedding must be limited to (2500 - AB to BC) MW
	 If AB to BC < 500 MW or [AB to BC >=500 MW AND GS < 1500], then Shed at MCA/REV first: GS Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.38 * (GS – the armed gen-shedding amount at MCA/REV). Do not select GMS/PCN for shedding if G4 > 0. Total armed generation shedding must be limited to 2500 MW.
	If generation shedding is armed, the minimum units on line requirements post-shedding at MCA, REV, SEV, KCL, WAN, ALH, BRX, WAX and the equivalent SEV units specified in Note 14 in Section 3 shall be applied.
5L81 and 5L83	$ \begin{array}{l} G1 = 5.23 & [5L42 \ \text{KLY} + 0.29 & (5L81 + 5L83) \ \text{NIC} - 5L42 \ \text{Over} \ \text{Rating}] \\ G2 = 2.43 & [5L44 \ \text{MDN} + 0.24 & (5L81 + 5L83) \ \text{NIC} - 5L44 \ \text{Over} \ \text{Rating}] \\ G3 = 3.28 & [5L82 \ \text{NIC} + 0.49 & (5L81 + 5L83) \ \text{NIC} - 5L82 \ \text{Over} \ \text{Rating}] \\ G4 = 3.81 & [5L87 \ \text{NIC} + 0.35 & (5L81 + 5L83) \ \text{NIC} - 5L87 \ \text{Over} \ \text{Rating}] \\ G5 = 5.94 & [2L112 \ \text{NLY} + 0.08 & (5L81 + 5L83) \ \text{NIC} - \text{NLYPST} \ \text{OL} \ \text{PickupMW}] \\ G6 = 6.39 & [2L293 \ \text{SEL} + 0.07 & (5L81 + 5L83) \ \text{NIC} - 2L2930 \ \text{LRAS} \ \text{PickupMW}] \\ \end{array} $
	GS = Max (0, G1, G2, G3, G4, G5, G6)
	 If AB to BC >= 500 MW AND GS >= 1500 MW, then Arm DTT 5L94, and Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and Shed at MCA/REV first: 0.93 * (GS – AB to BC) Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.39 * [0.93 * (GS – AB to BC) – the armed gen-shedding amount at MCA/REV]. If G4 > 0, do not select GMS and PCN for shedding. Total armed generation shedding must be limited to (2500 - AB to BC) MW
	 If AB to BC < 500 MW or [AB to BC >=500 MW AND GS < 1500], then Shed at MCA/REV first: GS Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.39 * (GS – the armed gen-shedding amount at MCA/REV). If G4 > 0, do not select GMS and PCN for shedding. Total armed generation shedding must be limited to 2500 MW.
	If generation shedding is armed, the minimum units on line requirements post-shedding at MCA, REV, SEV, KCL, WAN, ALH, BRX, WAX and the equivalent SEV units specified in Note 14 in Section 3 shall be applied.
5L82 and 5L83	G1= 4.8 * [5L42 KLY + 0.36 * (5L82 + 5L83) NIC - 5L42_Over_Rating] G2= 3.2 * [5L81 NIC + 0.51 * (5L82 + 5L83) NIC - 5L81_Over_Rating] G3 = 3.7 * [5L87 NIC + 0.40 * (5L82 + 5L83) NIC - 5L87_Over_Rating] G4 = 6.6 * [2L112 NLY + 0.07 * (5L82 + 5L83) NIC - NLYPST_OL_PickupMW] G5 = 7.1 * [2L293 SEL + 0.06 * (5L82 + 5L83) NIC - 2L293OLRAS_PickupMW]
	GS = Max (0, G1, G2, G3, G4, G5)
	 If AB to BC >= 500 MW AND GS >= 1500 MW, then Arm DTT 5L94, and Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and Shed at MCA/REV first: 0.93 * (GS – AB to BC) Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.41 * [0.93 * (GS – AB to BC) – the armed gen-shedding amount at MCA/REV]. If G3 > 0, do not select GMS and PCN for shedding. Total armed generation shedding must be limited to (2500 - AB to BC) MW
	 If AB to BC < 500 MW or [AB to BC >= 500 MW AND GS < 1500], then Shed at MCA/REV first: GS Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.41 * (GS – the armed gen-shedding amount at MCA/REV). If G3 > 0, do not select GMS and PCN for shedding.

 Total armed generation shedding must be limited to 2500 MW.
If generation shedding is armed, the minimum units on line requirements post-shedding at MCA, REV, SEV, KCL, WAN, ALH, BRX, WAX and the equivalent SEV units specified in Note 14 in Section 3 shall be applied.

Table 1.31 - 5L42 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

- Notes 2 and 3 in Section 2.
- 5L87 contingency: Limit (5L81 + 5L82 + 5L83 + 5L87) NIC < 5250 MW when BCH load >= 8500 MW.
 If TSAPM alarms "Voltage instability for a loss of 5L87", the BC Hydro Control Centre staff shall increase NI generation.

Generation Shedding Requirements

5L42 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops) Note: Tables A, B, C, D, E and F are applicable to this Table.

EL 04	hed at MCA/REV: GS + 2 63 * M
₩h	<pre>'here GS and M are calculated as follows: GS = Max (0, 2.95 * (5L44 MDN + 0.57 * 5L81 NIC - 5L44_Over_Rating)) Y = 2L112 NLY + 0.05 * 5L81 NIC - 0.15 * GS Z = -2L293 NLY + 0.04 * 5L81 NIC - 0.14 * GS If Y > NLYPST_OL_PickupMW, M1 = 0.46 * (Y - NLYPST_OL_ResetMW), Else M1 = 0 If Z > 2L293OLRAS_PickupMW, M2 = 0.55 * (Z - 2L293OLRAS_Reset MW), Else M2 = 0 M = Max (M1, M2)</pre>
5L82 No	o shedding required.
5L83 No	o shedding required.
5L87 No	o shedding required.
	GS1 = 3.5 * (6L81NIC + 0.35 * 5L44MDN - 5L81_Over_Rating) GS2 = 14.5 * (2L20CSQ + 0.2 * 5L44 MDN - 2L20_Over_Rating) GS3 = 37.5 * (2L51COK + 0.1 * 5L44 MDN - 2L51COK_Över_Rating) M = MAX (GS1, GS2, GS3, 0) Y = 2L112 NLY + 0.05 * 5L44 MDN - 0.13 * M Z = 2L293 SEL + 0.05 * 5L44 MDN - 0.13 * M Z = 2L293 SEL + 0.05 * 5L44 MDN - 0.11 * M If Y > NLYPST_OL_PickupMW, R1 = 0.38 * (Y - NLYPST_OL_ResetMW) R3 = 0.07 * (Y - NLYPST_OL_ResetMW) R5 = 0.04 * (Y - NLYPST_OL_ResetMW) R5 = 0.04 * (Y - NLYPST_OL_ResetMW) R6 = 0.05 * (Z - 2L293OLRAS_ResetMW) R4 = 0.1 * (Z - 2L293OLRAS_ResetMW) R6 = 0.05 * (Z - 2L293OLRAS_ResetMW) R6 = 0.05 * (Z - 2L293OLRAS_ResetMW) R6 = 0.05 * (Z - 2L293OLRAS_ResetMW) Else R2 = 0, R4 = 0, R6 = 0. Ra = MAX (R1, R2) Rb = MAX (R5, R6) • Shed at MCA/REV first, and then GMS/PCN the greatest of: > D1 * (CS1 + 3.5 * Ra) > D2 * (GS2 + 14.5 * Rb) > D3 * (CS3 + 37.5 * Rc) Where: D1 = 1.0 if shedding at MCA/REV, or D1 = 1.7 if shedding at MCA/REV, or D2 = 1.0 if shedding at MCA/REV, or D2 = 1.0 if shedding at MCA/REV, or D3 = 1.0 if shedding at MCA/REV, or D3 = 1.0 if shedding at MCA/REV, or D3 = 2.2 if shedding at GMS/PCN, D3 = 1.0 if shedding at MCA/REV, or D3 = 2.2 if shedding at GMS/PCN, Total armed generation shedding must be limited to 2500 MW. If exceeding the limit, the Operator can take the following actions: • Reduce the flow on 2L129 from ARN to VIT.

5L81 and 5L82	G1 = 3.28 * [5L87 NIC+ 0.35 * (5L81 + 5L82) NIC - 5L87_Over_Rating] G2 = 3.16 * [5L83 NIC+ 0.55 * (5L81 + 5L82) NIC - 5L83_Over_Rating] G3 = 4.81 * [5L41 KLY+ 0.30 * (5L81 + 5L82) NIC - 5L41_Over_Rating] G4 = 10.53 * [2L112 NLY+ 0.06 * (5L81 + 5L82) NIC - NLYPST_OL_PickupMW] G5 = 10.53 * [2L293 SEL+ 0.05 * (5L81 + 5L82) NIC - 2L293OLRAS_PickupMW]
	GS = Max (G1,G2,G3, G4, G5)
	 If AB to BC >= 500 MW AND GS >= 1500 MW, then Arm DTT 5L94, and Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and Shed at MCA/REV first: 0.93 * (GS – AB to BC) Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.53 * [0.93 * (GS – AB to BC) – the armed gen-shedding amount at MCA/REV]. Do not select GMS/PCN for shedding if G1 > 0. Total armed generation shedding must be limited to (2500 - AB to BC) MW
	 If AB to BC < 500 MW or [AB to BC >= 500 MW AND GS < 1500], then Shed at MCA/REV first: GS Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.53 * (GS – the armed gen-shedding amount at MCA/REV). Do not select GMS/PCN for shedding if G1 > 0. Total armed generation shedding must be limited to 2500 MW.
	If generation shedding is armed, the minimum units on line requirements post-shedding at MCA, REV, SEV, KCL, WAN, ALH, BRX, WAX and the equivalent SEV units specified in Note 14 in Section 3 shall be applied.

5L81 and 5L83	G1 = 4.9 * [5L41 KLY + 0.30 * (5L81 + 5L83) NIC - 5L41_Over_Rating] G2 = 3.0 * [5L82 NIC + 0.58 * (5L81 + 5L83) NIC - 5L82_Over_Rating] G3 = 3.8 * [5L87 NIC + 0.34 * (5L81 + 5L83) NIC - 5L87_Over_Rating] G4 = 6.9 * [2L112 NLY + 0.06 * (5L81 + 5L83) NIC - NLYPST_OL_PickupMW] G5 = 7.3 * [2L293 SEL + 0.06 * (5L81 + 5L83) NIC - 2L293OLRAS_PickupMW]
	GS = Max (0, G1, G2, G3, G4, G5)
	 If AB to BC >= 500 MW AND GS >= 1500 MW, then Arm DTT 5L94, and Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and Shed at MCA/REV first: 0.93 * (GS – AB to BC) Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.38 * [0.93 * (GS – AB to BC) – the armed gen-shedding amount at MCA/REV]. If G3 > 0, do not select GMS and PCN for shedding. Total armed generation shedding must be limited to (2500 - AB to BC) MW
	 If AB to BC < 500 MW or [AB to BC >= 500 MW AND GS < 1500], then Shed at MCA/REV first: GS Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.38 * (GS – the armed gen-shedding amount at MCA/REV). If G3 > 0, do not select GMS and PCN for shedding. Total armed generation shedding must be limited to 2500 MW.
5L82 and 5L83	G1 = 5.3 * [5L41 KLY + 0.31 * (5L82 + 5L83) NIC - 5L41_Over_Rating] G2 = 3.0 * [5L81 NIC + 0.55 * (5L82 + 5L83) NIC - 5L81_Over_Rating] G3 = 3.9 * [5L87 NIC + 0.36 * (5L82 + 5L83) NIC - 5L87_Over_Rating] G4 = 6.8 * [2L112 NLY + 0.07 * (5L82 + 5L83) NIC - NLYPST_OL_PickupMW] G5 = 7.3 * [2L293 SEL + 0.06 * (5L82 + 5L83) NIC - 2L293OLRAS_PickupMW]
	GS = Max (0, G1, G2, G3, G4, G5)
	If AB to BC >= 500 MW AND GS >= 1500 MW, then • Arm DTT 5L94, and
	 Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and Shed at MCA/REV first: 0.93 * (GS – AB to BC)
	 Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.37 * [0.93 * (GS – AB to BC) – the armed gen-shedding amount at MCA/REV]. If G3 > 0, do not select GMS and PCN for shedding. Total armed generation shedding must be limited to (2500 - AB to BC) MW
	 If AB to BC < 500 MW or [AB to BC >= 500 MW AND GS < 1500], then Shed at MCA/REV first: GS Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.37 * (GS – the armed gen-shedding amount at MCA/REV). If G3 > 0, do not select GMS and PCN for shedding. Total armed generation shedding must be limited to 2500 MW.

Table 1.32 - 5L44 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

- Notes 2 and 3 in Section 2.
- 5L87 contingency: Limit (5L81 + 5L82 + 5L83 + 5L87) NIC < 5300 MW when BCH load >= 8500 MW.
 - If TSAPM alarms "Voltage instability for a loss of 5L87", the BC Hydro Control Centre staff shall increase NI generation.
- Limit: 5L81 NIC MW <= 5L81_Norm_Rating If TSA-PM alarms "VIOLATION_5L81_NORM_RATING", the BC Hydro Control Centre staff shall take the following actions to reduce the flow on 5L81 from NIC within its continuous rating:
 - Reduce 2L129 flow, or
 - Increase LM/VI/Peace generation and reduce SI generation, or
 - Reduce AB to BC transfer, or
 - Reduce BC export to US.
- 2L50 contingency:
 - ► Limit:
 - 2L51 COK + 0.4 * 2L50 BSY <= 2L51COK_Over_Rating

If TSA-PM alarms "VIOLATION_2L51 COK OVER RATING_2L50CTG", then the BC Hydro Control Centre staff shall take the following actions:

- Reduce flow on 2L129 ARN, or
- Increase generation at SEE, RUS and SFL, or
- Reduce generation at BR and North Shore Area, or
- Reduce export to US on 5L51 and 5L52.
- 2L11 contingency:

► Limit: 2L51 COK + 0.45 * 2L11 BSY <= 2L51COK_Over_Rating

If TSA-PM alarms "VIOLATION_2L51 COK OVER RATING_2L11CTG", then the BC Hydro Control Centre staff shall take the following actions:

- Reduce flow on 2L129 ARN, or
- Increase generation at SEE, RUS and SFL, or
- Reduce generation at BR and North Shore Area, or
- Reduce export to US on 5L51 and 5L52.
- 2L49 contingency:
 - ► Limit: 2L51 COK + 0.50 * 2L49 MDN <= 2L51COK_Over_Rating

If TSA-PM alarms "VIOLATION_2L51 COK OVER RATING_2L49CTG", then the BC Hydro Control Centre staff shall take the following actions:

- Reduce flow on 2L129 ARN, or
- Increase generation at SEE, RUS and SFL, or
- Reduce generation at BR and North Shore Area, or
- Reduce export to US on 5L51 and 5L52.
- 2L51 contingency:
 - ► Limit: 2L50 BSY + 0.25 * 2L51 COK <= 2L50_Over_Rating

If TSA-PM alarms "VIOLATION_2L50 OVER RATING_2L51CTG", then the BC Hydro Control Centre staff shall take the following actions: • Reduce flow on 2L129 ARN, or

- Increase generation at SEE, RUS and SFL, or
- Reduce generation at BR and North Shore Area, or
- Reduce export to US on 5L51 and 5L52.

Generation Shedding Requirements

5L44 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

CONTINGENCY	SHEDDING REQUIREMENTS
5L81	GS1 = 3.5 * (5L41 KLY + 0.44 * 5L81 NIC - 5L41_Over_Rating) GS2 = 11* (2L20 CSQ + 0.19 * 5L81 NIC - 2L20 Over Rating) GS3 = 28 * (2L51 COK + 0.1 * 5L81 NIC - 2L51COK_Over_Rating) M = MAX (GS1, GS2, GS3, 0) Y = 2L112 NLY + 0.12 * 5L81 NIC - 0.16* M Z = 2L293 SEL + 0.11 * 5L81 NIC - 0.14 * M If Y > NLYPST_OL_PickupMW, R1 = 0.38 * (Y - NLYPST_OL_ResetMW)



5L82	No shedding required.
5L83	No shedding required.
5L81 and 5L82	G1 = 4.13 * [5L41 KLY + 0.29 * (5L81 + 5L82) NIC - 5L41_Over_Rating] G2 = 2.75 * [5L87 NIC + 0.47 * (5L81 + 5L82) NIC - 5L87_Over_Rating] G3 = 5.52 * [2L112 NLY + 0.09 * (5L81 + 5L82) NIC - NLYPST_OL_PickupMW] G4 = 5.94 * [2L293 SEL+ 0.08 * (5L81 + 5L82) NIC - 2L293OLRAS_PickupMW] G8 = Max (0, G1, G2, G3, G4)
	 If AB to BC >= 500 MW AND GS >= 1500 MW, then Arm DTT 5L94, and Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and Shed at MCA/REV first: 0.93 * (GS – AB to BC) Then at SEV/ALH/WAN/BRX/WAX/KCL: 1.32 * [0.93 * (GS – AB to BC) – the armed gen-shedding amount at MCA/REV]. If G2 > 0, do not select GMS/PCN for shedding Total armed generation shedding must be limited to (2500 - AB to BC) MW
	 If AB to BC < 500 MW or [AB to BC >= 500 MW AND GS < 1500], then Shed at MCA/REV first: GS Then at SEV/ALH/WAN/BRX/WAX/KCL: 1.32* (GS – the armed gen-shedding amount at MCA/REV). If G2 > 0, do not select GMS/PCN for shedding Total armed generation shedding must be limited to 2500 MW.
	If generation shedding is armed, the minimum units on line requirements post-shedding at MCA, REV, SEV, KCL, WAN, ALH, BRX, WAX and the equivalent SEV units specified in Note 14 in Section 3 shall be applied.
5L81 and 5L83	G1 = 4.16 * [5L41 KLY + 0.29 * (5L81 + 5L83) NIC - 5L41_Over_Rating] G2 = 5.38 * [5L82 NIC + 0.37 * (5L81 + 5L83) NIC - 5L82_Over_Rating] G3 = 2.74 * [5L87 NIC + 0.47 * (5L81 + 5L83) NIC - 5L87_Over_Rating] G4 = 5.54 * [2L112 NLY + 0.09 * (5L81 + 5L83) NIC - NLYPST_OL_PickupMW] G5 = 5.96 * [2L293 SEL + 0.08 * (5L81 + 5L83) NIC - 2L293OLRAS_PickupMW]
	 GS = Max (0, G1, G2, G3, G4, G5) If AB to BC >= 500 MW AND GS >= 1500 MW, then Arm DTT 5L94, and Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and Shed at MCA/REV first: 0.93 * (GS – AB to BC) Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.28 * [0.93 * (GS – AB to BC) – the armed gen-shedding amount at MCA/REV]. If G3 > 0, do not select GMS and PCN for shedding. Total armed generation shedding must be limited to (2500 - AB to BC) MW
	 If AB to BC < 500 MW or [AB to BC >= 500 MW AND GS < 1500], then Shed at MCA/REV first: GS Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.28 * (GS – the armed gen-shedding amount at MCA/REV). If G3 > 0, do not select GMS and PCN for shedding. Total armed generation shedding must be limited to 2500 MW.
	If generation shedding is armed, the minimum units on line requirements post-shedding at MCA, REV, SEV, KCL, WAN, ALH, BRX, WAX and the equivalent SEV units specified in Note 14 in Section 3 shall be applied.
5L82 and 5L83	G1 = 3.0 * [5L81 NIC + 0.35 * (5L82 + 5L83) NIC - 5L81_Over_Rating] G2 = 3.4 * [5L87 NIC + 0.59 * (5L82 + 5L83) NIC - 5L87_Over_Rating] G3 = 8.3 * [2L112 NLY + 0.04 * (5L82 + 5L83) NIC - NLYPST_OL_PickupMW] G4 = 8.9 * [2L293 SEL + 0.03 * (5L82 + 5L83) NIC - 2L293OLRAS_PickupMW] GS = Max (0, G1, G2, G3, G4)
	 If AB to BC >= 500 MW AND GS >= 1500 MW, then Arm DTT 5L94, and Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and Shed at MCA/REV first: 0.93 * (GS – AB to BC) Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.28 * [0.93 * (GS – AB to BC) – the armed gen-shedding amount at MCA/REV]. If G2 > 0, do not select GMS and PCN for shedding. Total armed generation shedding must be limited to (2500 - AB to BC) MW
	 If AB to BC < 500 MW or [AB to BC >= 500 MW AND GS < 1500], then Shed at MCA/REV first: GS Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.28 * (GS – the armed gen-shedding amount at MCA/REV). If G2 > 0, do not select GMS and PCN for shedding. Total armed generation shedding must be limited to 2500 MW.

	If generation shedding is armed, the minimum units on line requirements post-shedding at MCA, REV, SEV, KCL, WAN, ALH, BRX, WAX and the equivalent SEV units specified in Note 14 in Section 3 shall be applied.
5L87	No shedding required.

Table 1.33 - 5L45 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

• Notes 2 and 3 in Section 2.

- 5L87 Contingency:
 - Limit (5L81 + 5L82 + 5L83 + 5L87) NIC < 4350 MW when BCH load >= 8500 MW.

If TSAPM alarms "Voltage instability for loss of 5L87", the BC Hydro Control Centre staff shall increase NI generation.

Generation Shedding Requirements

5L45 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops) Note: Tables A, B, C, D, E and F are applicable to this Table.

CONTINGENCY	SHEDDING REQUIREMENTS
5L81	Shed at MCA/REV: GS + 2.41 * R
	Where GS and M are calculated as follows: GS = Max (0, 2.88 * (5L44 MDN + 0.58 * 5L81 NIC - 5L44_Over_Rating)) Y = 2L112 NLY + 0.05 * 5L81 NIC - 0.15 * GS Z = -2L293 NLY + 0.04 * 5L81 NIC - 0.14 * GS If Y > NLYPST_OL_PickupMW, R1 = 0.48 * (Y - NLYPST_OL_ResetMW), Else R1 = 0 If Z > 2L293OLRAS_PickupMW, R2 = 0.58 * (Z - 2L293OLRAS_Reset MW), Else R2 = 0 R = Max (R1, R2)
5L82	No shedding required.
5L83	No shedding required.
5L87	No shedding required.
5L44	GS1 = 3.5 * (5L81NIC + 0.35 * 5L44MDN – 5L81_Over_Rating) GS2 = 14.5 * (2L20CSQ + 0.2 * 5L44 MDN - 2L20_Over_Rating) GS3 = 33 * (2L51COK + 0.1 * 5L44MDN - 2L51COK_Over_Rating) M = MAX (GS1, GS2, GS3, 0) Y = 2L112 NLY + 0.05 * 5L44 MDN – 0.13 * M Z = 2L293 SEL + 0.05 * 5L44 MDN – 0.11 * M
	If Y > NLYPST_OL_PickupMW, R1 = 0.38 * (Y - NLYPST_OL_ResetMW) R3 = 0.08 * (Y - NLYPST_OL_ResetMW) R5 = 0.04 * (Y - NLYPST_OL_ResetMW) Else R1 = 0, R3 = 0, R5 = 0.
	If Z > 2L293OLRAS_PickupMW, R2 = 0.45 * (Z - 2L293OLRAS_ResetMW) R4 = 0.1 * (Z - 2L293OLRAS_ResetMW) R6 = 0.05 * (Z - 2L293OLRAS_ResetMW) Else R2 = 0, R4 = 0, R6 = 0.
	Ra = MAX (R1, R2) Rb = MAX (R3, R4) Rc = MAX (R5, R6)
	 Shed at MCA/REV first, and then GMS/PCN the greatest of: D1*(GS1+3.5*Ra) D2*(GS2+14.5*Rb) D3*(GS3+33*Rc) Where: D1 = 1.0 if shedding at MCA/REV, or D1 = 1.7 if shedding at GMS/PCN, D2 = 1.0 if shedding at MCA/REV, or D2 = 1.5 if shedding at GMS/PCN, D3 = 1.0 if shedding at MCA/REV, or D3 = 2.5 if shedding at GMS/PCN.
	 Total armed generation shedding must be limited to 2500 MW. If exceeding the limit, the Operator can take the following actions: Reduce the flow on 2L129 from ARN to VIT. Reduce SI generation and increase Peace generation.
5L81 and 5L82	G1 = 7.07 * [5L41 KLY + 0.22 * (5L81 + 5L82) NIC - 5L41_Over_Rating] G2 = 3.38 * [5L83 NIC + 0.51 * (5L81 + 5L82) NIC - 5L83_Over_Rating] G3 = 3.61 * [5L87 NIC + 0.36 * (5L81 + 5L82) NIC -5L87_Over_Rating]



5L81 and 5L83	$ \begin{array}{l} G1 = 6.85 * [5L41 \ KLY + 0.23 * (5L81 + 5L83) \ NIC - 5L41 \ Over \ Rating] \\ G2 = 3.74 * [5L82 \ NIC + 0.46 * (5L81 + 5L83) \ NIC - 5L82 \ Over \ Rating] \\ G3 = 3.55 * [5L87 \ NIC + 0.37 * (5L81 + 5L83) \ NIC - 5L87 \ Over \ Rating] \\ G4 = 6.09 * [2L112 \ NLY + 0.09 * (5L81 + 5L83) \ NIC - NLYPST \ OL \ PickupMW] \\ G5 = 6.39 * [2L293 \ SEL + 0.07 * (5L81 + 5L83) \ NIC - 2L293 \ OLRAS \ PickupMW] \\ G8 = Max \ (0, \ G1, \ G2, \ G3, \ G4, \ G5) \end{array} $
	 If AB to BC >= 500 MW AND GS >= 1500 MW, then Arm DTT 5L94, and Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and Shed at MCA/REV first: 0.93 * (GS – AB to BC) Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.34 * [0.93 * (GS – AB to BC) – the armed gen-shedding amount at MCA/REV]. If G3 > 0, do not select GMS and PCN for shedding. Total armed generation shedding must be limited to (2500 - AB to BC) MW
	 If AB to BC < 500 MW or [AB to BC >= 500 MW AND GS < 1500], then Shed at MCA/REV first: GS Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.34 * (GS – the armed gen-shedding amount at MCA/REV). If G3 > 0, do not select GMS and PCN for shedding. Total armed generation shedding must be limited to 2500 MW. If generation shedding is armed, the minimum units on line requirements post-shedding at MCA, REV, SEV, KCL, WAN, ALH, BRX, WAX and the equivalent SEV units specified in Note 14 in Section 3 shall be applied.
5L82 and 5L83	$ \begin{array}{l} G1 = 6.2 * [5L41 \ \text{KLY} + 0.27 * (5L82 + 5L83) \ \text{NIC} - 5L41 \ \text{Over} \ \text{Rating}] \\ G2 = 3.8 * [5L81 \ \text{NIC} + 0.51 * (5L82 + 5L83) \ \text{NIC} - 5L81 \ \text{Over} \ \text{Rating}] \\ G3 = 3.4 * [5L87 \ \text{NIC} + 0.40 * (5L82 + 5L83) \ \text{NIC} - 5L87 \ \text{Over} \ \text{Rating}] \\ G4 = 6.5 * [2L112 \ \text{NLY} + 0.07 * (5L82 + 5L83) \ \text{NIC} - \frac{\text{NLYPST} \ \text{OL} \ \text{PickupMW}}{\text{G5} = 7.0 * [2L293 \ \text{SEL} + 0.06 * (5L82 + 5L83) \ \text{NIC} - 2L293 \ \text{OLRAS} \ \text{PickupMW}} \\ GS = Max \ (0, \ G1, \ G2, \ G3, \ G4, \ G5) \end{array} $
	 If AB to BC >= 500 MW AND GS >= 1500 MW, then Arm DTT 5L94, and Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and Shed at MCA/REV first: 0.93 * (GS – AB to BC) Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.49 * [0.93 * (GS – AB to BC) – the armed gen-shedding amount at MCA/REV]. If G3 > 0, do not select GMS and PCN for shedding. If G3 > 0, do not select GMS and PCN for shedding.
	 Total armed generation shedding must be limited to (2500 - AB to BC) MW If AB to BC < 500 MW or [AB to BC >= 500 MW AND GS < 1500], then Shed at MCA/REV first: GS Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.49 * (GS – the armed gen-shedding amount at MCA/REV). If G3 > 0, do not select GMS and PCN for shedding. Total armed generation shedding must be limited to 2500 MW.
	If generation shedding is armed, the minimum units on line requirements post-shedding at MCA, REV, SEV, KCL, WAN, ALH, BRX, WAX and the equivalent SEV units specified in Note 14 in Section 3 shall be applied.

Table 1.34 - GUI 5CX1 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:Notes 2 and 3 in Section 2.

Generation Shedding Requirements GUI 5CX1 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops) Note: Tables A, B, C, D, E and F are applicable to this Table.

CONTINGENCY	SHEDDING REQUIREMENTS
5L81	Gen shed at MCA/REV: GS + 3.26 * R
	Where GS and R are calculated as follows:
	$GS = Max (0, 2.45 * (5L44 MDN + 0.68 * 5L81 NIC - 5L44_OVer_Rating))$ Y = 2L112 NLY + 0.05 * 5L81 NIC - 0.15 * GS
	Z = -2L293 NLY + 0.05 * 5L81 NIC - 0.14 * GS If Y > NLYPST_OL_PickupMW_R1 = 0.52 * (Y - NLYPST_OL_ResetMW), Else R1 = 0
	If $Z > 2L293OLRAS_PickupMW$, $R2 = 0.63 * (Z - 2L293OLRAS_ResetMW)$, Else $R2 = 0$ R = Max (R1, R2)
5L82	No shedding required.
5L83 5L87	No shedding required.
5L44	GS1 = 3.5 * (5L81NIC + 0.35 * 5L44MDN – 5L81_Over_Rating) GS2 = 13.5 * (2L20CSQ + 0.2 * 5L44 MDN - 2L20_Over_Rating) GS3 = 33 * (2L51COK + 0.1 * 5L44MDN - 2L51COK_Over_Rating)
	M = MAX (GS1, GS2, GS3, 0) Y = 2L112 NLY + 0.05 * 5L44 MDN – 0.12* M Z = 2L293 SEL + 0.05 * 5L44 MDN – 0.11 * M
	If Y > NLYPST_OL_PickupMW, R1 = 0.4 * (Y - NLYPST_OL_ResetMW) R3 = 0.1 * (Y - NLYPST_OL_ResetMW)
	$R5 = 0.04 * (Y - NLYPST_OL_ResetMW)$ Else R1 = 0, R3 = 0, R5 = 0
	If Z > 2L293OLRAS_PickupMW, R2 = 0.46 * (Z - 2L293OLRAS_ResetMW) R4 = 0.1 * (Z - 2L293OLRAS_ResetMW) R6 = 0.05 * (Z - 2L293OLRAS_ResetMW) Else R2 = 0, R4 = 0, R6 = 0
	Ra = MAX (R1, R2) Rb = MAX (R3, R4) Rc = MAX (R5, R6)
	 Shed at MCA/REV first, and then GMS/PCN the greatest of: D1* (GS1 + 3.5 * Ra) D2* (GS2 + 13.5 * Rb) D3* (GS3 + 33 * Rc) Where:
	D1 = 1.0 if shedding at MCA/REV, or D1 = 2 if shedding at GMS/PCN, D2 = 1.0 if shedding at MCA/REV, or D2 = 1.25 if shedding at GMS/PCN, D3 = 1.0 if shedding at MCA/REV, or D3 = 1.6 if shedding at GMS/PCN,
	Total armed generation shedding must be limited to 2500 MW. If exceeding the limit, the Operator can take the following actions:
	 Reduce the flow on 2L129 from ARN to VIT. Reduce SI generation and increase Peace generation
5L81 and 5L82	GS1 = 3.01 * [5L83 NIC + 0.54*(5L81 + 5L82) NIC - 5L83_Over_Rating] GS2 = 3.45 * [5L44 NIC + 0.13*(5L81 + 5L82) NIC - 5L44 Over Rating] GS3 = 8.02 * [2L112 NLY + 0.06 * (5L81 + 5L82) NIC - NLYPST_OL_PickupMW] GS4 = 8.44 * [2L293 SEL+ 0.05 * (5L81 + 5L82) NIC - 2L293OLRAS_PickupMW]
	GS = Max (0, G1, G2, G3, G4)
	If AB to BC >= 500 MW AND GS >= 1500 MW, then
	 Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and
	 Shed at MCA/REV first: 0.93 * (GS – AB to BC) Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.51 * [0.93 * (GS – AB to BC) – the armed gen-shedding
	 amount at MCA/REV] Total armed generation shedding must be limited to (2500 - AB to BC) MW
	If AB to BC < 500 MW or [AB to BC >=500 MW AND GS < 1500], then
	 Shed at MCA/REV first: GS Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.51 * (GS – the armed gen-shedding amount at MCA/REV) Total armed generation shedding must be limited to 2500 MW.
	If generation shedding is armed, the minimum units on line requirements post-shedding at MCA, REV, SEV, KCL, WAN, ALH, BRX, WAX and the equivalent SEV units specified in Note 14 in Section 3 shall be applied.
5L81 and 5L83	G1 = 10.6 * [5L42 KLY + 0.16 * (5L81 + 5L83) NIC - 5L42_Over_Rating] G2 = 2.9 * [5L82 NIC + 0.55 * (5L81 + 5L83) NIC - 5L82_Over_Rating] G3 = 6.4 * [2L112 NLY + 0.07 * (5L81 + 5L83) NIC - NLYPST_OL_PickupMW] G4 = 6.9 * [2L293 SEL + 0.06 * (5L81 + 5L83) NIC - 2L293OLRAS_PickupMW]

	GS = Max (0, G1, G2, G3, G4)
	 If AB to BC >= 500 MW AND GS >= 1500 MW, then Arm DTT 5L94, and Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and Shed at MCA/REV first: 0.93 * (GS – AB to BC) Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.36 * [0.93 * (GS – AB to BC) – the armed gen-shedding amount at MCA/REV] Total armed generation shedding must be limited to (2500 - AB to BC) MW
	 If AB to BC < 500 MW or [AB to BC >=500 MW AND GS < 1500], then Shed at MCA/REV first: GS Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.36 * (GS – the armed gen-shedding amount at MCA/REV) Total armed generation shedding must be limited to 2500 MW. If generation shedding is armed, the minimum units on line requirements post-shedding at MCA, REV, SEV, KCL, WAN, ALH, BRX, WAX and the equivalent SEV units specified in Note 14 in Section 3 shall be applied.
51 82 and 51 83	$C_1 = 8.6 \times [51.42 \text{ KLV} + 0.23 \times (51.82 + 51.83) \text{ NIC} = 51.42 \text{ Over Bating}$
	$G2 = 3.0 * [5L81 \text{ NIC} + 0.52 * (5L82 + 5L83) \text{ NIC} - 5L81 \text{ Over Rating}]$ $G3 = 6.6 * [2L112 \text{ NLY} + 0.07 * (5L82 + 5L83) \text{ NIC} - \frac{\text{NLYPST_OL_PickupMW}}{\text{G4} = 7.0 * [2L293 \text{ SEL} + 0.06 * (5L82 + 5L83) \text{ NIC} - 2L293 \text{ OLRAS_PickupMW}]$ $G8 = Max (0, C1, C2, C3, C4)$
	GG = Max(0, G1, G2, G3, G4)
	If AB to BC >= 500 MW AND GS >= 1500 MW, then
	 Arm DTT 5L94, and Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and Shed at MCA/REV first: 0.93 * (GS – AB to BC)
	 Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.35 * [0.93 * (GS – AB to BC) – the armed gen-shedding amount at MCA/REV]
	Iotal armed generation shedding must be limited to (2500 - AB to BC) MW
	 If AB to BC < 500 MW or [AB to BC >= 500 MW AND GS < 1500], then Shed at MCA/REV first: GS Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.35 * (GS – the armed gen-shedding amount at MCA/REV) Total armed generation shedding must be limited to 2500 MW.
	If generation shedding is armed, the minimum units on line requirements post-shedding at MCA, REV, SEV, KCL, WAN, ALH, BRX, WAX and the equivalent SEV units specified in Note 14 in Section 3 shall be applied.

Table 1.35 - AMC 5CX1 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

- Notes 2 and 3 in Section 2.
- 5L87 contingency: Limit (5L81 + 5L82 + 5L83 + 5L87) NIC < 5100 MW when BCH load >= 8500 MW.
 - If TSAPM alarms "Voltage instability for a loss of 5L87", the BC Hydro Control Centre staff shall increase NI generation.
- Limit: 5L44 MDN MW <= 5L44_Norm_Rating If TSA alarms "VIOLATION_5L44_NORM_RATING", then the BC Hydro Control Centre staff shall take the following actions to reduce the flow on 5L44 from MDN within its continuous rating:
 - Reduce SI generation, or
 - Reduce LM to VI transfer on 2L129, or
 - Reduce ING to CUS transfer

Generation Shedding Requirements

AMC 5CX1 Series Capacitor Bank O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops) Note: Tables A, B, C, D, E and F are applicable to this Table.

CONTINGENCY	SHEDDING REQUIREMENTS
5L81	Gen shed at MCA/REV: GS + 2.98 * R Where GS and R are calculated as follows: GS = Max (0, 2.54 * (5L44 MDN + 0.61 * 5L81 NIC - 5L44_Over_Rating)) Y = 2L112 NLY + 0.04 * 5L81 NIC - 0.15 * GS Z = -2L293 NLY + 0.06 * 5L81 NIC - 0.14 * GS If Y > NLYPST_OL_PickupMW, R1 = 0.51 * (Y - NLYPST_OL_ResetMW), Else R1 = 0 If Z > 2L293OLRAS_PickupMW, R2 = 0.53 * (Z - 2L293OLRAS_ResetMW), Else R2 = 0
5L82	R = Max (R1, R2) No shedding required.
5L83	No shedding required.
5L81 and 5L82	G1 = 3.46 * [5L83 NIC + 0.48 * (5L81 + 5L82) NIC - 5L83_Over_Rating] G2 = 3.26 * [5L87 NIC + 0.42 * (5L81 + 5L82) NIC -5L87_Over_Rating] G3 = 6.3 * [2L112 NLY + 0.07 * (5L81 + 5L82) NIC -NLYPST_OL_PickupMW] G4 = 6.79 * [2L293 SEL+ 0.06* (5L81 + 5L82) NIC -2L293OLRAS_PickupMW]
	GS = Max(0, G1, G2, G3, G4)
	 If AB to BC >= 500 MW AND GS >= 1500 MW, then Arm DTT 5L94, and Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and Shed at MCA/REV first: 0.93 * (GS – AB to BC) Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.3 * [0.93 * (GS – AB to BC) – the armed gen-shedding amount at MCA/REV]. Do not select GMS/PCN for shedding if G2 > 0. Total armed generation shedding must be limited to (2500 - AB to BC) MW
	 If AB to BC < 500 MW or [AB to BC >= 500 MW AND GS < 1500], then Shed at MCA/REV first: GS Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.3 * (GS – the armed gen-shedding amount at MCA/REV). Do not select GMS/PCN for shedding if G2 > 0. Total armed generation shedding must be limited to 2500 MW.
	If generation shedding is armed, the minimum units on line requirements post-shedding at MCA, REV, SEV, KCL, WAN, ALH, BRX, WAX and the equivalent SEV units specified in Note 14 in Section 3 shall be applied.
5L81 and 5L83	G1 = 3.76 * [5L82 NIC + 0.45 * (5L81+ 5L83) NIC - 5L82_Over_Rating] G2 = 3.21 * [5L87 NIC + 0.43 * (5L81 + 5L83) NIC - 5L87_Over_Rating] G3 = 6.5 * [2L112 NLY + 0.07 * (5L81 + 5L83) NIC - NLYPST_OL_PickupMW] G4 = 6.76 * [2L293 SEL + 0.06 * (5L81 + 5L83) NIC - 2L293OLRAS_PickupMW]
	GS = Max (0, G1, G2, G3, G4)
	 If AB to BC >= 500 MW AND GS >= 1500 MW, then Arm DTT 5L94, and Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and Shed at MCA/REV first: 0.93 * (GS – AB to BC) Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.35 * [0.93 * (GS – AB to BC) – the armed gen-shedding amount at MCA/REV]. If G2 > 0, do not select GMS and PCN for shedding. Total armed generation shedding must be limited to (2500 - AB to BC) MW
	 If AB to BC < 500 MW or [AB to BC >= 500 MW AND GS < 1500], then Shed at MCA/REV first: GS Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.35 * (GS – the armed gen-shedding amount at MCA/REV). If G2 > 0, do not select GMS and PCN for shedding. Total armed generation shedding must be limited to 2500 MW.
	If generation shedding is armed, the minimum units on line requirements post-shedding at MCA, REV, SEV, KCL, WAN, ALH, BRX, WAX and the equivalent SEV units specified in Note 14 in Section 3 shall be applied.
5L82 and 5L83	$G1 = 5.7 * [5L42 \text{ KLY} + 0.32 * (5L82 + 5L83) \text{ NIC} - 5L42_Over_Rating]$ $G2 = 2.5 * [5L87 \text{ NIC} + 0.58 * (5L82 + 5L83) \text{ NIC} - 5L87_Over_Rating]$ $G3 = 6.7 * [2L112 \text{ NLY} + 0.07 * (5L82 + 5L83) \text{ NIC} - \frac{\text{NLYPST_OL_PickupMW}}{\text{G4} = 7.1 * [2L293 \text{ SEL} + 0.06 * (5L82 + 5L83) \text{ NIC} - 2L293 \text{ OLRAS_PickupMW}]$ $GS = Max (0, G1, G2, G3, G4)$
	00 - 101ax (0, 01, 02, 03, 04)
	 If AB to BC >= 500 MW AND GS >= 1500 MW, then Arm DTT 5L94, and Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and Shed at MCA/REV first: 0.93 * (GS – AB to BC) Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.32 * [0.93 * (GS – AB to BC) – the armed gen-shedding amount at MCA/REV]. If G2 > 0, do not select GMS and PCN for shedding.

	 Total armed generation shedding must be limited to (2500 - AB to BC) MW
	If AB to BC < 500 MW or [AB to BC >= 500 MW AND GS < 1500] , then
	Shed at MCA/REV first: GS
	 Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.32 * (GS – the armed gen-shedding amount at MCA/REV). If G2 > 0, do not select GMS and PCN for shedding
	 Total armed generation shedding must be limited to 2500 MW.
	If a constraint checkling is smooth the minimum swite on line requirements prost checkling at MOA, DEV, CEV, KOL, MAAN
	ALH, BRX, WAX and the equivalent SEV units specified in Note 14 in Section 3 shall be applied.
51.87	Shed at REV/MCA: 2.7 * (0.14 * 5I.87 NIC + 5I.44 MDN + 50 – 5I.44. Over Rating)
5L44	GS1 = 5 * (5L41KLY + 0.3 * 5L44MDN – 5L41_Over_Rating)
	GS2 = 12.5 * (2L20CSQ + 0.2 * 5L44 MDN - 2L20_OVEr_Rating) GS3 = 30 * (2L51COK + 0.1 * 5L44MDN - 2L51COK_Over_Rating)
	M = MAX (GS1, GS2, GS3, 0)
	Y = 2L112 NLY + 0.06 * 5L44 MDN - 0.12 * MZ = 2L293 SEL + 0.05 * 5L44 MDN - 0.10 * M
	If Y > NLYPST_OL_PickupMW, P1 = 0.28 * (V = NLYPST_OL_ResetMW)
	R3 = 0.1 * (Y - NLYPST OL Reset MW)
	$R5 = 0.04 * (Y - \frac{NLYPST_OL_ResetMW}{})$
	Else R1 = 0, R3 = 0, R5 = 0.
	If Z > 2L293OLRAS_PickupMW,
	R2 = 0.33 * (Z - 2L293OLRAS_ResetMW)
	$R4 = 0.13^{\circ} (Z - 2L2930LRAS_Reset MW)$ R6 = 0.05 * (Z - 2L2930LRAS_Reset MW)
	Else $R2 = 0$, $R4 = 0$, $R6 = 0$.
	$B_{a} = MAX(B1, B2)$
	Rb = MAX (R3, R4)
	Rc = MAX (R5, R6)
	 Shed at MCA/REV first, and then GMS/PCN the greatest of:
	➢ D1*(GS1+5*Ra)
	$D2^*(GS2 + 12.5 * Rb)$
	Where:
	D1 = 1.0 if shedding at MCA/REV, or
	D1 = 0.7 if shedding at GMS/PCN, D2 = 1.0 if shedding at MCA/PEV, or
	D2 = 1.2 if shedding at MCA/REV, of $D2 = 1.2$ if shedding at GMS/PCN.
	D3 = 1.0 if shedding at MCA/REV, or
	D3 = 1.5 if shedding at GMS/PCN.
	Total armed generation shedding must be limited to 2500 MW. If exceeding the limit, the Operator can take the following
	actions:
	 Reduce the flow of 2L 129 from AKN to VT. Reduce SI generation and increase Peace generation

Table 1.36 – AMC 5CX2 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

- Notes 2 and 3 in Section 2.
- 5L87 contingency:
 - Limit (5L81 + 5L82 + 5L83 + 5L87) NIC < 5100 MW when BCH load >= 8500 MW.

If TSAPM alarms "Voltage instability for a loss of 5L87", the BC Hydro Control Centre staff shall increase NI generation.

Generation Shedding Requirements

AMC 5CX2 Series Capacitor Bank O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops) Note: Tables A, B, C, D, E and F are applicable to this Table.

CONTINGENCY	SHEDDING REQUIREMENTS
5L81	Gen shed at MCA/REV: GS + 2.84 * R Where GS and R are calculated as follows: GS = Max (0, 2.77 * (5L44 MDN + 0.59 * 5L81 NIC - 5L44_Over_Rating)) Y = 2L112 NLY + 0.05 * 5L81 NIC - 0.16 * GS Z = -2L293 NLY + 0.04 * 5L81 NIC - 0.15 * GS If Y > NLYPST_OL_PickupMW, R1 = 0.49 * (Y - NLYPST_OL_ResetMW), Else R1 = 0 If Z > 2L293OLRAS_PickupMW, R2 = 0.59 * (Z - 2L293OLRAS_ResetMW), Else R2 = 0 R = Max (R1, R2)
5L82	No shedding required
5L83	
	$G1 = 3.24^{\circ} [5L44 [MDN + 0.25^{\circ} (5L81 + 5L82)] NIC - 5L44 [Over_Rating]$ $G2 = 3.51^{\circ} [5L83 NIC + 0.47^{\circ} (5L81 + 5L82)] NIC - 5L83 [Over_Rating]$ $G3 = 3.26^{\circ} [5L87 NIC + 0.43^{\circ} (5L81 + 5L82)] NIC - 5L87 [Over_Rating]$ $G4 = 6.3^{\circ} [2L112 NLY + 0.08^{\circ} (5L81 + 5L82)] NIC - NLYPST [OL_PickupMW]$ $G5 = 6.57^{\circ} [2L293 SEL + 0.06^{\circ} (5L81 + 5L82)] NIC - 2L293OLRAS_PickupMW]$ $GS = Max (0, G1, G2, G3, G4, G5)$
	 If AB to BC >= 500 MW AND GS >= 1500 MW, then Arm DTT 5L94, and Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and Shed at MCA/REV first: 0.93 * (GS – AB to BC) Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.38 * [0.93 * (GS – AB to BC) – the armed gen-shedding amount at MCA/REV]. If G3 > 0, do not select GMS/ PCN for shedding. Total armed generation shedding must be limited to (2500 - AB to BC) MW
	 If AB to BC < 500 MW or [AB to BC >= 500 MW AND GS < 1500], then Shed at MCA/REV first: GS Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.38 * (GS – the armed gen-shedding amount at MCA/REV). If G3 > 0, do not select GMS/PCN for shedding. Total armed generation shedding must be limited to 2500 MW.
	If generation shedding is armed, the minimum units on line requirements post-shedding at MCA, REV, SEV, KCL, WAN, ALH, BRX, WAX and the equivalent SEV units specified in Note 14 in Section 3 shall be applied.
5L81 and 5L83	G1 = 7.86 * [5L41 KLY + 0.22 * (5L81 + 5L83) NIC - 5L41_Over_Rating] G2 = 6.4 * [5L42 KLY + 0.25 * (5L81 + 5L83) NIC - 5L42_Over_Rating] G3 = 2.56 * [5L87 NIC + 0.56 * (5L81 + 5L83) NIC - 5L87_Over_Rating] G4 = 5.37 *[2L112 NLY + 0.1 * (5L81 + 5L83) NIC - NLYPST_OL_PickupMW] G5 = 5.49 * [2L293 SEL + 0.1 * (5L81 + 5L83) NIC - 2L293OLRAS_PickupMW]
	GS = Max (0, G1, G2, G3, G4, <mark>G5</mark>) If AB to BC >= 500 MW AND GS >= 1500 MW, then
	 Arm DTT 5L94, and Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and Shed at MCA/REV first: 0.93 * (GS – AB to BC) Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.29 * [0.93 * (GS – AB to BC) – the armed gen-shedding amount at MCA/REV]. If G3 > 0, do not select GMS/PCN for shedding. Total armed generation shedding must be limited to (2500 - AB to BC) MW
	 If AB to BC < 500 MW or [AB to BC >= 500 MW AND GS < 1500], then Shed at MCA/REV first: GS Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.29 * (GS – the armed gen-shedding amount at MCA/REV). If G3 > 0, do not select GMS/PCN for shedding. Total armed generation shedding must be limited to 2500 MW.
	If generation shedding is armed, the minimum units on line requirements post-shedding at MCA, REV, SEV, KCL, WAN, ALH, BRX, WAX and the equivalent SEV units specified in Note 14 in Section 3 shall be applied.
5L82 and 5L83	$ \begin{array}{l} G1 = 7.1 * [5L42 \ KLY + 0.27 * (5L82 + 5L83) \ NIC - 5L42 \ Over \ Rating] \\ G2 = 3.9 * [5L81 \ NIC + 0.44 * (5L82 + 5L83) \ NIC - 5L81 \ Over \ Rating] \\ G3 = 3.1 * [5L87 \ NIC + 0.47 * (5L82 + 5L83) \ NIC - 5L87 \ Over \ Rating] \\ G4 = 6.9 * [2L112 \ NLY + 0.06 * (5L82 + 5L83) \ NIC - \ NLYPST \ OL \ PickupMW] \\ G5 = 7.4 * [2L293 \ SEL + 0.05 * (5L82 + 5L83) \ NIC - 2L293 \ OLRAS \ PickupMW] \\ \end{array} $
	GS = Max (0, G1, G2, G3, G4, G5)
	 If AB to BC >= 500 MW AND GS >= 1500 MW, then Arm DTT 5L94, and Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and Shed at MCA/REV first: 0.93 * (GS – AB to BC) Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.47 * [0.93 * (GS – AB to BC) – the armed gen-shedding amount at MCA/REV]. If G3 > 0, do not select GMS/PCN for shedding. Total armed generation shedding must be limited to (2500 - AB to BC) MW

	 If AB to BC < 500 MW or [AB to BC >= 500 MW AND GS < 1500], then Shed at MCA/REV first: GS Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.47 * (GS – the armed gen-shedding amount at MCA/REV). If G3 > 0, do not select GMS/PCN for shedding. Total armed generation shedding must be limited to 2500 MW. If generation shedding is armed, the minimum units on line requirements post-shedding at MCA, REV, SEV, KCL, WAN, ALH, BRX, WAX and the equivalent SEV units specified in Note 14 in Section 3 shall be applied.
5L87	No shedding required.
5L44	$ GS1 = 3.5 * (5L81NIC + 0.35 * 5L44MDN - 5L81_Over_Rating) GS2 = 13.5 * (2L50CS + 0.2 * 5L44 MDN - 2L51COK_Over_Rating) M = MAX (GS1, GS2, GS3, 0) Y = 2L112 NLY + 0.05 * 5L44 MDN - 0.12 * M Z = 2L293 SEL + 0.05 * 5L44 MDN - 0.10 * M If Y > NLYPST OL_PickupMW, R1 = 0.38 '(Y - NLYPST OL_ResetMW) R3 = 0.1 * (Y - NLYPST OL_ResetMW) R3 = 0.1 * (Y - NLYPST OL_ResetMW) R3 = 0.4 * (Y - NLYPST OL_ResetMW) R8 = 0.04 * (Y - NLYPST OL_ResetMW) R8 = 0.04 * (Y - NLYPST OL_ResetMW) R8 = 0.04 * (Z - 2L293OLRAS_ResetMW) R8 = 0.05 * (Z - 3L293OLRAS_ResetMW) R8 = 0.05 * (Z - 3L3 * R5 * R6) Where: D1 * (GS1 + 3.5 * Ra) > D2 * (GS2 + 13.5 * Rb) > D2 * (GS2 + 13.5 * Rc) Where: D1 = 1.0 if shedding at MCA/REV, or D1 = 1.0 if shedding at MCA/REV, or D1 = 1.0 if shedding at MCA/REV, or D2 = 1.15 if shedding at MCA/REV, or D2 = 1.15 if shedding at MCA/REV, or D3 = 1.35 if shedding at MCA/REV, or D3 = 1$

Table 1.37 - CHP 5CX1 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

- Notes 2 and 3 in Section 2.
- 5L87 contingency:
 - Limit (5L81 + 5L82 + 5L83 + 5L87) NIC < 5250 MW when BCH load >= 8500 MW.

If TSAPM alarms "Voltage instability for a loss of 5L87", the BC Hydro Control Centre staff shall increase NI generation.

Generation Shedding Requirements

CHP 5CX1 Series Capacitor Bank O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops) Note: Tables A, B, C, D, E and F are applicable to this Table.

CONTINGENCY	SHEDDING REQUIREMENTS
5L81	Gen shed at MCA/REV: GS + 2.56 * R Where GS and R are calculated as follows: GS = Max (0, 2.31 * (5L44 MDN + 0.66 * 5L81 NIC - 5L44_Over_Rating)) Y = 2L112 NLY + 0.04 * 5L81 NIC - 0.15 * GS Z = -2L293 NLY + 0.04 * 5L81 NIC - 0.14 * GS If Y > NLYPST OL_PickupMW, R1 = 0.55 * (Y - NLYPST OL_ResetMW), Else R1 = 0 If Z > 2L293OLRAS_PickupMW, R2 = 0.67 * (Z - 2L293OLRAS_ResetMW), Else R2 = 0 R = Max (R1, R2)
5L82	No shedding required.
5L83	No shedding required.
5L87	No shedding required.
5L44	GS1 = 3.5 * (5L81NIC + 0.38 * 5L44MDN – 5L81_Over_Rating) GS2 = 13.5 * (2L20CSQ + 0.2 * 5L44 MDN - 2L20_Over_Rating) GS3 = 37.5 * (2L51COK + 0.1 * 5L44MDN - 2L51COK_Over_Rating)
	M = MAX (GS1, GS2, GS3, 0) $Y = 2L112 NLY + 0.05 * 5L44 MDN - 0.12* M$ $Z = 2L293 SEL + 0.05 * 5L44 MDN - 0.10 * M$
	If $Y > NLYPST OL PickupMW,$ R1 = 0.40 * (Y - NLYPST OL ResetMW) R3 = 0.1 * (Y - NLYPST_OL_ResetMW) R5 = 0.04 * (Y - NLYPST OL ResetMW) Else R1 = 0, R3 = 0, R5 = 0.
	If Z > 2L293OLRAS_PickupMW, R2 = 0.5 * (Z - 2L293OLRAS_ResetMW) R4 = 0.12 * (Z - 2L293OLRAS_ResetMW) R6 = 0.05 * (Z - 2L293OLRAS_ResetMW) Else R2 = 0, R4 = 0, R6 = 0.
	Ra = MAX (R1, R2) Rb = MAX (R3, R4) Rc = MAX (R5, R6)
	 Shed at MCA/REV first, and then GMS/PCN the greatest of: D1* (GS1 + 3.5* Ra) D2* (GS2 + 13.5* Rb) D3* (GS3 + 37.5* Rc) Where: D1 = 1.0 if shedding at MCA/REV, or D1 = 1.45 if shedding at GMS/PCN, D2 = 1.0 if shedding at MCA/REV, or D2 = 1.05 if shedding at GMS/PCN, D3 = 1.0 if shedding at GMS/PCN.
	 Total armed generation shedding must be limited to 2500 MW. If exceeding the limit, the Operator can take the following actions: Reduce the flow on 2L129 from ARN to VIT. Reduce SI generation and increase Peace generation
5L81 and 5L82	G1 = 6.66 * [5L42 KLY + 0.24 * (5L81 + 5L82) NIC - 5L42_Over_Rating] G2 = 2.81 * [5L44 MDN + 0.19 * (5L81 + 5L82) NIC - 5L44_Over_Rating]



5L81 and 5L83	G1 = 6.64 * [5L42 KLY + 0.24 * (5L81 + 5L83) NIC - 5L42_Over_Rating] G2 = 2.84 * [5L44 MDN + 0.18 * (5L81 + 5L83) NIC - 5L44_Over_Rating] G3 = 3.6 * [5L82 NIC + 0.47 * (5L81 + 5L83) NIC - 5L82_Over_Rating] G4 = 3.46 * [5L87 NIC + 0.4 * (5L81 + 5L83) NIC - 5L87_Over_Rating] G5 = 6.26 * [2L112 NLY + 0.08 * (5L81 + 5L83) NIC - NLYPST_OL_PickupMW] G6 = 6.69 * [2L293 SEL + 0.07 * (5L81 + 5L83) NIC - 2L293OLRAS_PickupMW]
	GS = Max (0, G1, G2, G3, G4, G5 <mark>, G6</mark>)
	 If AB to BC >= 500 MW AND GS >= 1500 MW, then Arm DTT 5L94, and Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and Shed at MCA/REV first: 0.93 * (GS – AB to BC) Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.41 * [0.93 * (GS – AB to BC) – the armed gen-shedding amount at MCA/REV]. If G4 > 0, do not select GMS and PCN for shedding. Total armed generation shedding must be limited to (2500 - AB to BC) MW
	 If AB to BC < 500 MW or [AB to BC >= 500 MW AND GS < 1500], then Shed at MCA/REV first: GS Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.41 * (GS – the armed gen-shedding amount at MCA/REV). If G4 > 0, do not select GMS and PCN for shedding. Total armed generation shedding must be limited to 2500 MW.
	If generation shedding is armed, the minimum units on line requirements post-shedding at MCA, REV, SEV, KCL, WAN, ALH, BRX, WAX and the equivalent SEV units specified in Note 14 in Section 3 shall be applied.
5L82 and 5L83	G1 = 6.0 * [5L42 KLY + 0.30 * (5L82 + 5L83) NIC - 5L42_Over_Rating] G2 = 4.0 * [5L81 NIC + 0.46 * (5L82 + 5L83) NIC - 5L81_Over_Rating]
	G3 = 3.4 * [5L87 NIC + 0.45 * (5L82 + 5L83) NIC - 5L87_Over_Rating] G4 = 6.5 * [2L112 NLY + 0.06 * (5L82 + 5L83) NIC - <u>NLYPST_OL_PickupMW</u>] G5 = 7.0 * [2L293 SEL + 0.06 * (5L82 + 5L83) NIC - 2L293OLRAS_PickupMW]
	G3 = 3.4 * [5L87 NIC + 0.45 * (5L82 + 5L83) NIC - 5L87_Over_Rating] G4 = 6.5 * [2L112 NLY + 0.06 * (5L82 + 5L83) NIC - NLYPST_OL_PickupMW] G5 = 7.0 * [2L293 SEL + 0.06 * (5L82 + 5L83) NIC - 2L293OLRAS_PickupMW] GS = Max (0, G1, G2, G3, G4, G5)
	G3 = 3.4 * [5L87 NIC + 0.45 * (5L82 + 5L83) NIC - 5L87_Over_Rating] G4 = 6.5 * [2L112 NLY + 0.06 * (5L82 + 5L83) NIC - NLYPST OL PickupMW] G5 = 7.0 * [2L293 SEL + 0.06 * (5L82 + 5L83) NIC - 2L293OLRAS_PickupMW] GS = Max (0, G1, G2, G3, G4, G5) If AB to BC >= 500 MW AND GS >= 1500 MW, then • Arm DTT 5L94, and • Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and • Shed at MCA/REV first: 0.93 * (GS – AB to BC) • Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.52 * [0.93 * (GS – AB to BC) – the armed gen-shedding amount at MCA/REV]. If G3 > 0, do not select GMS and PCN for shedding. • Total armed generation shedding must be limited to (2500 - AB to BC) MW
	G3 = 3.4 * [5L87 NIC + 0.45 * (5L82 + 5L83) NIC - 5L87_Over_Rating] G4 = 6.5 * [2L112 NLY + 0.06 * (5L82 + 5L83) NIC - NLYPST OL_PickupMW] G5 = 7.0 * [2L293 SEL + 0.06 * (5L82 + 5L83) NIC - 2L293OLRAS_PickupMW] GS = Max (0, G1, G2, G3, G4, G5) If AB to BC >= 500 MW AND GS >= 1500 MW, then Arm DTT 5L94, and Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and Shed at MCA/REV first: 0.93 * (GS – AB to BC) Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.52 * [0.93 * (GS – AB to BC) – the armed gen-shedding amount at MCA/REV]. If G3 > 0, do not select GMS and PCN for shedding. Total armed generation shedding must be limited to (2500 - AB to BC) MW If AB to BC < 500 MW or [AB to BC >= 500 MW AND GS < 1500], then Shed at MCA/REV first: GS Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.52 * (GS – the armed gen-shedding amount at MCA/REV). If G3 > 0, do not select GMS and PCN for shedding. Total armed generation shedding must be limited to 2500 MW.

Table 1.38 – CRK 5CX1 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

- Notes 2 and 3 in Section 2.
- 5L87 contingency:
 - Limit (5L81 + 5L82 + 5L83 + 5L87) NIC < 5250 MW when BCH load >= 8500 MW.

If TSAPM alarms "Voltage instability for a loss of 5L87", the BC Hydro Control Centre staff shall increase NI generation.

Generation Shedding Requirements

CRK 5CX1 Series capacitor Bank O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops) Note: Tables A, B, C, D, E and F are applicable to this Table.

CONTINGENCY	SHEDDING REQUIREMENTS
5L81	Gen shed at MCA/REV: GS + 2.75 * R
	Where GS and R are calculated as follows: GS = Max (0, 2.64 * (5L44 MDN + 0.60 * 5L81 NIC - 5L44_Over_Rating)) Y = 2L112 NLY + 0.04 * 5L81 NIC - 0.15 * GS Z = -2L293 NLY + 0.04 * 5L81 NIC - 0.14 * GS If Y > NLYPST_OL_PickupMW, R1 = 0.50 * (Y - NLYPST_OL_ResetMW), Else R1 = 0 If Z > 2L293OLRAS_PickupMW, R2 = 0.60 * (Z - 2L293OLRAS_ResetMW), Else R2 = 0 R = Max (R1, R2)
5L82	No shedding required.
5L83	No shedding required.
5L81 and 5L82	G1 = 7.62 * [5L41 KLY + 0.2 * (5L81 + 5L82) NIC - 5L41_Over_Rating] G2 = 3.51 * [5L44 MDN + 0.09 * (5L81 + 5L82) NIC - 5L44_Over_Rating] G3 = 3.35 * [5L83 NIC + 0.5 * (5L81 + 5L82) NIC - 5L83_Over_Rating] G4 = 3.45 * [5L87 NIC + 0.4 * (5L81 + 5L82) NIC - 5L87_Over_Rating] G5 = 6.02 * [2L112 NLY + 0.08 * (5L81 + 5L82) NIC - NLYPST_OL_PickupMW] G6 = 6.35 * [2L293 SEL + 0.07 * (5L81 + 5L82) NIC - 2L293OLRAS_PickupMW]
	GS = Max (0, G1,G2,G3, G4, G5 <mark>, G6</mark>)
	 If AB to BC >= 500 MW AND GS >= 1500 MW, then Arm DTT 5L94, and Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and Shed at MCA/REV first: 0.93 * (GS – AB to BC) Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.37 * [0.93 * (GS – AB to BC) – the armed gen-shedding amount at MCA/REV]. Do not select GMS/PCN for shedding if G4 > 0. Total armed generation shedding must be limited to (2500 - AB to BC) MW
	 If AB to BC < 500 MW or [AB to BC >= 500 MW AND GS < 1500], then Shed at MCA/REV first: GS Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.37 * (GS – the armed gen-shedding amount at MCA/REV). Do not select GMS/PCN for shedding if G4 > 0. Total armed generation shedding must be limited to 2500 MW.
	If generation shedding is armed, the minimum units on line requirements post-shedding at MCA, REV, SEV, KCL, WAN, ALH, BRX, WAX and the equivalent SEV units specified in Note 14 in Section 3 shall be applied.
5L81 and 5L83	G1 = 7.43 * [5L41 KLY + 0.2 * (5L81 + 5L83) NIC - 5L41_Over_Rating] G2 = 3.78 * [5L82 NIC + 0.46 * (5L81 + 5L83) NIC - 5L82_Over_Rating] G3 = 3.4 * [5L87 NIC + 0.4 * (5L81 + 5L83) NIC - 5L87_Over_Rating] G4 = 6.04 * [2L112 NLY + 0.08 * (5L81 + 5L83) NIC - NLYPST_OL_PickupMW] G5 = 6.35 * [2L293 SEL + 0.07 * (5L81 + 5L83) NIC - 2L2930LRAS_PickupMW]
	GS = Max (0, G1, G2, G3, G4, G5)
	 If AB to BC >= 500 MW AND GS >= 1500 MW, then Arm DTT 5L94, and Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and Shed at MCA/REV first: 0.93 * (GS – AB to BC) Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.37 * [0.93 * (GS – AB to BC) – the armed gen-shedding amount at MCA/REV]. If G3 > 0, do not select GMS and PCN for shedding. Total armed generation shedding must be limited to (2500 - AB to BC) MW
	 If AB to BC < 500 MW or [AB to BC >= 500 MW AND GS < 1500], then Shed at MCA/REV first: GS Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.37 * (GS – the armed gen-shedding amount at MCA/REV). If G3 > 0, do not select GMS and PCN for shedding. Total armed generation shedding must be limited to 2500 MW.
	If generation shedding is armed, the minimum units on line requirements post-shedding at MCA, REV, SEV, KCL, WAN, ALH, BRX, WAX and the equivalent SEV units specified in Note 14 in Section 3 shall be applied.
5L82 and 5L83	G1 = 7.2 * [5L41 KLY + 0.21 * (5L82 + 5L83) NIC - 5L41_Over_Rating] G2 = 3.9 * [5L81 NIC + 0.47 * (5L82 + 5L83) NIC - 5L81_Over_Rating] G3 = 3.3 * [5L87 NIC + 0.44 * (5L82 + 5L83) NIC - 5L87_Over_Rating] G4 = 6.7 * [2L112 NLY + 0.06 * (5L82 + 5L83) NIC - NLYPST_OL_PickupMW] G5 = 7.1 * [2L293 SEL + 0.06 * (5L82 + 5L83) NIC - 2L293OLRAS_PickupMW]
	GS = Max (0, G1, G2, G3, G4, G5)
	 If AB to BC >= 500 MW AND GS >= 1500 MW, then Arm DTT 5L94, and Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and Shed at MCA/REV first: 0.93 * (GS – AB to BC) Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.34 * [0.93 * (GS – AB to BC) – the armed gen-shedding amount at MCA/REV]. If G3 > 0, do not select GMS and PCN for shedding. Total armed generation shedding must be limited to (2500 - AB to BC) MW

	 If AB to BC < 500 MW or [AB to BC >= 500 MW AND GS < 1500], then Shed at MCA/REV first: GS Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.34 * (GS – the armed gen-shedding amount at MCA/REV). If G3 > 0, do not select GMS and PCN for shedding. Total armed generation shedding must be limited to 2500 MW. If generation shedding is armed, the minimum units on line requirements post-shedding at MCA, REV, SEV, KCL, WAN, ALH, BRX, WAX and the equivalent SEV units specified in Note 14 in Section 3 shall be applied.
5L87	No shedding required.
<u>5L87</u> 5L44	No shedding required. GS1 = 3.5 * (5L91NIC + 0.35 * 5L44 MDN - 5L81_Over_Rating) GS2 = 3.5 * (2L51COK + 0.1 * 5L44 MDN - 2L20_Over_Rating) M = MAX (GS1, GS2, GS3, 0) Y = 2L112 NLY + 0.05 * 5L44 MDN - 0.12* M Z = 2L239 SEL + 0.05 * 5L44 MDN - 0.12* M Z = 2L39 SEL + 0.05 * 5L44 MDN - 0.12* M X = 0.13* (Y - NLYPST OL_ResettMW) R1 = 0.38 * (Y - NLYPST OL_ResettMW) R3 = 0.1 * (Y - NLYPST OL_ResettMW) R5 = 0.04 * (Y - NLYPST OL_ResettMW) R2 = 0.46 * (Z - 2L293OLRAS_ResettMW) R4 = 0.1* (Z - 2L293OLRAS_ResettMW) R6 = 0.05 * (Z - 2L293OLRAS_ResettMW) Else R1 = 0, R3 = 0, R6 = 0. Ra = MAX (R1, R2) Rb = MAX (R3, R4) Rc = MAX (R5, R6) • Shed at MCA/REV first, and then GMS/PCN the greatest of: > D1 * (GS1 + 3.5* Ra) > D2* (GS2 + 13.5* Rb) > D3* (GS3 + 33.5* Rc) Where: D1 = 1.01 if shedding at MCA/REV, or D1 = 1.01 if shedding at MCA/REV, or D2 = 1.25 if shedding at MCA/REV, or D3 = 1.001 if shedding at MCA/REV, or D4 = 1.001 if shedding at MCA/REV, or D5 = 1.001 if shedding at MCA/REV, or D5 = 1.001 if shedding at MCA/REV, or D6 = 1.001

Table 1.39 - RYC 5CX1 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

- Notes 2 and 3 in Section 2.
- 5L87 contingency: Limit (5L81 + 5L82 + 5L83 + 5L87) NIC < 5100 MW when BCH load >= 8500 MW.
 If TSAPM alarms "Voltage instability for a loss of 5L87", the BC Hydro Control Centre staff shall increase NI generation.

Generation Shedding Requirements

RYC 5CX1 Series Capacitor Bank O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops) Note: Tables A, B, C, D, E and F are applicable to this Table.

CONTINGENCY	SHEDDING REQUIREMENTS
5L81	Gen shed at MCA/REV: GS + 3.18 * R Where GS and R are calculated as follows: GS = Max (0, 2.81 * (5L44 MDN + 0.58 * 5L81 NIC - 5L44_Over_Rating)) Y = 2L112 NLY + 0.05 * 5L81 NIC - 0.16 * GS Z = -2L293 NLY + 0.04 * 5L81 NIC - 0.14 * GS If Y > NLYPST_OL_PickupMW, R1 = 0.48 * (Y - NLYPST_OL_ResetMW), Else R1 = 0
	If Z > 2L293OLRAS_PickupMW, R2 = 0.58 * (Z - 2L293OLRAS_ResetMW), Else R2 = 0 R = Max (R1, R2)
5L82	No shedding required
5L81 and 5L82	$ \begin{array}{l} G1 = 7.85 * [5L41KLY + 0.22 * (5L81 + 5L82) NIC - 5L41_Over_Rating] \\ G2 = 6.4 * [5L42 KLY + 0.27 * (5L81 + 5L82) NIC - 5L42_Over_Rating] \\ G3 = 2.53 * [5L87 NIC + 0.56 * (5L81 + 5L82) NIC - 5L87_Over_Rating] \\ G4 = 5.7 * [2L112 NLY + 0.1 * (5L81 + 5L82) NIC - NLYPST_OL_PickupMW] \\ G5 = 5.52 * [2L293 SEL + 0.09 * (5L81 + 5L82) NIC - 2L293OLRAS_PickupMW] \\ \end{array} $
	GS = Max (0, G1, G2, G3, G4 <mark>, G5</mark>)
	 If AB to BC >= 500 MW AND GS >= 1500 MW, then Arm DTT 5L94, and Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and Shed at MCA/REV first: 0.93 * (GS – AB to BC) Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.30 * [0.93 * (GS – AB to BC) – the armed gen-shedding amount at MCA/REV]. Do not select GMS/PCN for shedding if G3 > 0. Total armed generation shedding must be limited to (2500 - AB to BC) MW
	 If AB to BC < 500 MW or [AB to BC >= 500 MW AND GS < 1500], then Shed at MCA/REV first: GS Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.30 * (GS – the armed gen-shedding amount at MCA/REV). Do not select GMS/PCN for shedding if G3 > 0. Total armed generation shedding must be limited to 2500 MW.
	If generation shedding is armed, the minimum units on line requirements post-shedding at MCA, REV, SEV, KCL, WAN, ALH, BRX, WAX and the equivalent SEV units specified in Note 14 in Section 3 shall be applied.
5L81 and 5L83	G1 = 3.82 * [5L82 NIC + 0.43 * (5L81 + 5L83) NIC - 5L82_Over_Rating] G2 = 3.21 * [5L87 NIC + 0.44 * (5L81 + 5L83) NIC - 5L87_Over_Rating] G3 = 6.74 * [2L112 NLY + 0.07 * (5L81 + 5L83) NIC - NLYPST_OL_PickupMW] G4 = 6.7 * [2L293 SEL + 0.06 * (5L81 + 5L83) NIC - 2L293OLRAS_PickupMW]
	GS = Max (0, G1, G2, G3, G4)
	 If AB to BC >= 500 MW AND GS >= 1500 MW, then Arm DTT 5L94, and Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and Shed at MCA/REV first: 0.93 * (GS – AB to BC) Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.34 * [0.93 * (GS – AB to BC) – the armed gen-shedding amount at MCA/REV]. If G2 > 0, do not select GMS and PCN for shedding. Total armed generation shedding must be limited to (2500 - AB to BC) MW
	 If AB to BC < 500 MW or [AB to BC >= 500 MW AND GS < 1500], then Shed at MCA/REV first: GS Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.34 * (GS – the armed gen-shedding amount at MCA/REV). If G2 > 0, do not select GMS and PCN for shedding. Total armed generation shedding must be limited to 2500 MW.
	If generation shedding is armed, the minimum units on line requirements post-shedding at MCA, REV, SEV, KCL, WAN, ALH, BRX, WAX and the equivalent SEV units specified in Note 14 in Section 3 shall be applied.
5L82 and 5L83	G1 = 7.1 * [5L42 KLY + 0.27 * (5L82 + 5L83) NIC - 5L42_Over_Rating] G2 = 3.9 * [5L81 NIC + 0.44 * (5L82 + 5L83) NIC - 5L81_Over_Rating] G3 = 3.1 * [5L87 NIC + 0.47 * (5L82 + 5L83) NIC - 5L87_Over_Rating] G4 = 6.9 * [2L112 NLY + 0.06 * (5L82 + 5L83) NIC - NLYPST_OL_PickupMW] G5 = 7.4 * [2L293 SEL + 0.05 * (5L82 + 5L83) NIC - 2L293OLRAS_PickupMW]
	GS = Max (0, G1, G2, G3, G4, G5)
	 If AB to BC >= 500 MW AND GS >= 1500 MW, then Arm DTT 5L94, and Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and Shed at MCA/REV first: 0.93 * (GS – AB to BC) Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.46 * [0.93 * (GS – AB to BC) – the armed gen-shedding amount at MCA/REV]. If G3 > 0, do not select GMS and PCN for shedding. Total armed generation shedding must be limited to (2500 - AB to BC) MW
	If AB to BC < 500 MW or [AB to BC >= 500 MW AND GS < 1500], then Shod at MCA/PEV first: CS
	 Shed at IVICA/REV IIIST. GS Then at SEV/ALH/WAN/BRX/WAX/KCL/GMS/PCN: 1.46 * (GS – the armed gen-shedding amount at MCA/REV). If

	 G3 > 0, do not select GMS and PCN for shedding. Total armed generation shedding must be limited to 2500 MW.
	If generation shedding is armed, the minimum units on line requirements post-shedding at MCA, REV, SEV, KCL, WAN, ALH, BRX, WAX and the equivalent SEV units specified in Note 14 in Section 3 shall be applied.
5L87	No shedding required.
5L44	Same as AMC 5CX2 O.O.S. – Table 1.36.

Table 1.40 – VAS T1 or T2 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions: Notes 2 and 3 in Section 2.

Generation Shedding Requirements (VAS T1 or T2) O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops) Note: Tables E and F are applicable to this Table.

CONTINGENCY	SHEDDING REQUIREMENTS
5L76	Tables A, B, C and D are applicable to this contingency
5L79	Tables A, B, C and D are applicable to this contingency
5L81	Same as system normal Table 1.1
5L82	Same as system normal Table 1.1
5L83	Same as system normal Table 1.1
Bypass AMC 5CX1	No shedding required.
Bypass AMC 5CX2	No shedding required.
Bypass RYC 5CX1	No shedding required.
5L81 and 5L82	Same as system normal Table 1.1
5L81 and 5L83	Same as system normal Table 1.1
5L82 and 5L83	Same as system normal Table 1.1
5L76 and 5L79	Tables A, B, C and D are applicable to this contingency
5L87	Same as system normal Table 1.1
5L91 and 5L96	Tables A, B, C and D are applicable to this contingency
5L44	Same as system normal Table 1.1
5L91	Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of:
	 1.20 * (5L91 SEL+ 5L96 SEL – 1700),
	 3.4 * (2L112 NLY + 0.21 * 5L91 SEL – 400), or
	 3.8 * (2L293 SEL + 0.17 * 5L91 SEL – 400), and do not shed WAN for this requirement.
5L96	Arm DTT 48L if VAS-WTS loop is closed AND 5L96 SEL > 600 MW
	Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of:
	1.25 * (5L91 SEL + 5L96 SEL + Z – Y), or
	2.37 * (2L112 NLY + 0.24 * (5L96 SEL + Z) – 400), or
	2.37 * (2L112 NLY + BDY Gen + 0.24 * (5L96 SEL + Z) – 1120), or
	3.05 * (2L293 SEL + 0.17 * (5L96 SEL + Z) – 400), and do not shed WAN for this requirement.
	Y = 2050 if at least one of ACK 5CX1 & 5CX2 is in service, or
	Y = 1820 if none of ACK 5CX1 & 5CX2 is in service
	Z = 48L KET if DTT 48L is armed, or
	Z = 0 if DTT 48L is not armed
5L98	 Arm DTT 73L if VAS-VNT loop is closed and 5L98 VAS > 620 MW
	Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of:
	> 1.25 * (5L91 SEL + 5L98 VAS + Z − Y), or
	$\geq 2.75 * (2L112 \text{ NLY} + 0.22 * (5L98 \text{ VAS} + Z) - 400), \text{ or}$
	➤ 2.75* (2L112 NLY + BDY Gen + 0.22* (5L98 VAS + Z) - 1180), or
	\rightarrow 3.18 ^ (2L293 SEL + 0.17 ^ (5L98 VAS + 2) – 400), and do not shed WAN for this requirement.
	Y = 2120 IT at least one of ACK 5CX1 & 5CX2 is in service, or $X = 4050$ if no result ACK 5CX1 & 5CX2 is in service.
	Y = 1950 II hole of ACK 5CK I & 5CK2 is in service Z = 721, DCA if DTT 721 is arread, an
	Z = 73L RGA II D TT 73L is armed, or $Z = 0$ if DTT 73L is not armed
ELOG and ELOS	Z = 011 DT1 75L is not annieu
	Samo as Tablo A
51.04	Same as Table A
Bypass CIII	Danie as Table A
51.01 (1P) or 51.06 (1P) or	No gen shedding required
5L98 (1P)	

Table 1.41 – VAS T1 AND T2 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

- Note 2 in Section 2.
- 5L91 and 5L96 contingency:
 - Limit: 5L91 SEL + 5L96 SEL + Y + Z < 2500 MW
 - Y = 2L112 NLY if 2L112 NLY > 0, or Y = 0 if 2L112 NLY <= 0

Z = 48L KET if both VAS-WTS and VAS-VNT loops are closed, or Z = 0 if VAS-WTS loop or/and VAS-VNT loop is/are open

• If SEL 5RX3 is available, then limit:

(FBC injection into SEL area) + W < WAN shedable generation amount + ALH MW + BRX MW + WAX MW + 1000 – 1 SEV @ MIN.MW

Otherwise, limit:

(FBC injection into SEL area) + W < WAN shedable generation amount + ALH MW + BRX MW + WAX MW + 1000 – 1 SEV @ MIN.MW – 1 KCL @MIN.MW

Where FBC injection into SEL area = 2L288 BTS + 2L289 BTS + FBC AAL Tie MW + 2L277 WAN - 60L225 KCL - 60L227 KCL - 2L286 SEL MW

- FBC AAL Tie MW = (2L294 AAL-NLY) AAL + (2L294 AAL-CBK) AAL MW
- W = AB to BC MW if AB to BC > 0, or
- W = 0 if AB to BC <= 0
- Alarm if 5L91 SEL + 5L96 SEL + 2L112 NLY + Z < -700 MW AND MATL120S_PST230 >= 0 MW, or
- If 5L91 SEL + 5L96 SEL + 2L112 NLY + Z + MATL120S_PST230 < -700 MW AND MATL120S_PST230 < 0 MW Z = 48L KET if both VAS-WTS and VAS-VNT loops are closed, or Z = 0 if VAS-WTS loop or/and VAS-VNT loop is/are open If the alarm comes, the BC Hydro Control Centre staff must put more local generation on-line to prevent post-contingency frequency drop down below 59.0 Hz for loss of 5L91 and 5L96.

Generation Shedding Requirements

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(VAS T1 AND T2) 0.0.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops) Note: Tables E and F are applicable to this Table.

CONTINGENCY	SHEDDING REQUIREMENTS
5L76	Same as Table A
5L79	Same gen shedding as 5L76 contingency with ACK 5CB8 in service in Table A
5L81	Same as system normal Table 1.1
5L82	Same as system normal Table 1.1
5L83	Same as system normal Table 1.1
Bypass AMC 5CX1	No sheddina required.
Bypass AMC 5CX2	No shedding required
Bypass RYC 5CX1	No shedding required
5 81 and 5 82	Same as system normal Table 1.1
51 81 and 51 83	Same as system normal Table 1.1
51 82 and 51 83	Same as system normal Table 1.1
51 76 and 51 79	Same as Table D
51.87	Same as system normal Table 1 1
51 91 and 51 96	• Arm DTT 2I 112 RAS
	 Arm DTT 49L DAS if both \/AS WTS and \/AS \/NT loops are alread
	AITH DTT 40L RAS II DUIT VAS-WITS and VAS-VINT IOOPS are closed Shed at KCL/ALL/SEL/MAN/DDXMAX/EL 04 SEL + EL 06 SEL + 9L 449 NLV + V + 7 + V - 950 MM/
	 Shed at KUL/ALH/SEV/WAN/BRAWWAA: SL91 SEL + SL90 SEL + 2L112 NL1 + 1 + 2 + V - 650 WWW V = 0.16 AD to DO > = 0.000 WWW
	Y = U A D O D C >= U V V O V = (D C to A D > 0 A) V = (D C to A D transfor) if D C to A D > 0 A) V = (D C to A D > 0 A)
	$r = (D \cup U A D \cup I a I S I I D \cup U A D > U M W$ z = 49 U K E T if D T 49 U D A S is armost ar
	Z = 40L RET II D TT 40L RAS IS allified, 01 $Z = 0$ if DTT 40L BAS is not armod
	Z = 0 II D I I 40L RAS IS INITATILEU. V = 0 MW/ if MATI 400C, DET220 <= 0 MW/ or $V = MATI 420C$, DET220 if MATI 420C, DET220 > 0 MW/
	V = 0 MW II MATLIZUS_PSIZ30 <= 0 MW, 01 V = MATLIZUS_PSIZ30 II MATLIZUS_PSIZ30 > 0 MW
	minimum of 1 SEV and 1 KCL units on line post shedding if SEL 5PX2 is unavailable, or keep a minimum of 1 SEV and 2/3
	aquiv SEV units on line post shedding if SEL 5PY2 is uppygilable and the whole KCL plant is shutdown in proceeding on av
	equiv. SEV units on-line post-sheuding if SEL SRAS is unavailable and the whole RCL plant is shutdown in pre-contingency
	Note: If gen-shedding is armed at KCL, the gen-shedding at KCL shall not cause the 230 kV main buses 2MB4 & 2MB2 to
	he disconnected from 2MB3 & 2MB1 after shedding
51 44	Same as system normal Table 1 1
5 91	Arm DTT 48L if both VAS-WTS and VAS-VNT loops are closed AND if (5L91 SEL + 5L96 SEL + 48L KET) > 1650 MW
0201	Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of:
	• $1.16 * (51.01.5 \pm 1.06.5 \pm 1.7.1750.)$ or
	• $3.30 \times (21.112 \text{ NHV} \pm 0.21 \times (51.01 \text{ SEL} \pm 7) \times (400) \text{ or}$
	• $3.50 (2112 \text{ NL}1 + 0.21 (3191 \text{ SL}1 + 2) = 400), 01$ • $2.50 * (21202 \text{ SE}1 + 0.19 * (5101 \text{ SE}1 + 7) - 400), and do not check W/ANI for this requirement$
	• 5.50 (2L295 SEL + 0.16 (SL91 SEL + 2) = 400), and up not she wwan for this requirement. 7 = 491 KET if DTT 491 DAS is armodor
	Z = 40L RET II D T 40L RAS IS allifed, 01 $Z = 0$ if DTT 40L RAS is not armod
51.06	Z = 0 II DTT 40L RAS IS NOT ATTIEU. A rm DTT 40L if both VAS W/TS and VAS VAIT loops are alread AND if (5) 01 SEL + 51 06 SEL + 49L KET > 1700 MW/
5L90	 AIIII D TT 40L II DOUT VAS-WTS and VAS-WTT loops are closed AND II (SL9T SEL + SL90 SEL + 40L RET) > 1700 WW Shed at KCL /AL HAVAN/DBX/WAS first than SEV the graptest of:
	• Sheu al KOL/ALH/WAW/DRW/WAX hist, then SEV the greatest of. $\sim 1.25 \times (51.01.9 \text{ EL}) \times 51.06 \text{ SEL} \times 7 \times 10^{\circ} \text{ or}$
	$ = 1.23 (3L9) 3EL + 3L90 3EL + 2 = 7), 0) \\ = 2.63 \times (21.112 \text{ NIV} \pm 0.23 \times (51.06 \text{ SEL} \pm 7) = 400) \text{ or } $
	$\sim 2.63 \times (21.112 \text{ NLV} + \text{RDV} \text{ Con } + 0.23 \times (51.06 \text{ SEL} + 7) = 1150) \text{ or}$
	\sim 2.05 (2L112 NL1 + DD1 GeI1 + 0.25 (3L90 SLL + 2) = 1100), 01
	V = 2080 if at least one of ACK 5CX1 & 5CX2 is in service, or
	Y = 1800 if none of ACK 5CX1 & 5CX2 is in service
	7 = 481 KET if DTT 481 RAS is armed or
	Z = 0 if DTT 48L RAS is not armed
5 98	Same as 51.96 contingency in this table except that the value of 1700 MW included in the 1 st bullet is changed to 1500 MW
5 96 & 5 98	Arm DTT 48L if both VAS-WTS and VAS-VNT loops are closed AND if (5L91 SFL + 5L96 SFL + 48L KFT) > 1650 MW
	Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of:
	$\ge 1.25^{*}(51.91 \text{ SEL} + 51.96 \text{ SEL} + 7 - Y) \text{ or}$
	$\geq 2.96 * (2L112 \text{ NLY} + 0.26 * (5L96 \text{ SEL} + Z) - 400), \text{ or}$
	$\geq 2.96 \times (2L112 \text{ NLY} + \text{BDY Gen} + 0.26 \times (5L96 \text{ SEL} + Z) - 1160), \text{ or}$
	> 3.00 * (2L293 SEL + 0.20 * (5L96 SEL + Z) – 400), and do not shed WAN for this requirement.
	Y = 2010 if at least one of ACK 5CX1 & 5CX2 is in service, or
	Y = 1740 if none of ACK 5CX1 & 5CX2 is in service
	Z = 48L KET if DTT 48L RAS is armed, or
	Z = 0 if DTT 48L RAS is not armed.
5L92	Same as system normal Table A
5L94	Same as system normal Table A
Bypass GUI 5CX1	No shedding required.
5L91 (1P) or 5L96 (1P) or	No shedding required.
5L98 (ÌP)	

Table 1.42 – FBC's 75L or 76L O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions: Notes 2 and 3 in Section 2.

Generation Shedding Requirements FBC's (75L or 76L) O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops) Note: Tables E and F are applicable to this Table.

CONTINGENCY	SHEDDING REQUIREMENTS
5L76	Tables A, B, C and D are applicable to this contingency
5L79	Tables A, B, C and D are applicable to this contingency
5L81	Same as system normal Table 1.1
5L82	Same as system normal Table 1.1
5L83	Same as system normal Table 1.1
Bypass AMC 5CX2	No shedding required
Bypass AMC 5CX1	No shedding required
Bypass RYC 5CX1	No shedding required
5L81 and 5L82	Same as system normal Table 1.1
5L81 and 5L83	Same as system normal Table 1.1
5L82 and 5L83	Same as system normal Table 1.1
5L76 and 5L79	Tables A, B, C and D are applicable to this contingency
5L87	Same as system normal Table 1.1
5L91 and 5L96	Tables A, B, C and D are applicable to this contingency
5L44	Same as system normal Table 1.1
5L91	Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of:
	 1.17 * (5L91 SEL+5L96 SEL – Y),
	 3.56 * (2L112 NLY + 0.18 * 5L91 SEL – 400), or
	 4.10 * (2L293 SEL + 0.18 * 5L91 SEL – 400), and do not shed WAN for this requirement.
	Y = 1715 if SEL T1 & (T2 or/and T3) & T4 are in service, or
51.00	Y = 1675 if SEL T1 or (T2 & T3) or T4 is O.O.S.
5L96	Tables A, B, C and D are applicable to this contingency
5L98	Table A, B, C and D are applicable to this contingency
5L96 & 5L98	Arm DTT 48L if 5L96 SEL > 800 MW and both VAS-WTS and VAS-VNT loops are closed
	Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of:
	> $1.25 * (5L91 SEL + 5L96 SEL + Z - Y), or$
	$\geq 2.50^{\circ} (2L112 \text{ NLY} + 0.24^{\circ} (5L96 \text{ SEL} + Z) - 400), \text{ or}$
	\sim 2.50 ° (2L112 NLY + BDY Gen + 0.24 ° (5L96 SEL + 2) – 1100), or
	\gg 2.93 ° (2L293 SEL + 0.20 ° (5L96 SEL + 2) – 400), and do not sned WAIN for this requirement.
	Y = 2050 if all least one of ACK 5CX1 & 5CX2 is in service, of $X = 1970$ if none of ACK 5CX1 & 5CX2 is in service.
	7 = 1070 in hole of ACR JCAT & JCAZ IS IN Service 7 = 491 KET if DTT 491 is armed or
	Z = 46L RETT DTT 46L is attried, of Z = 0 if DTT 48L is not armed
5L92	Same as Table A
5L94	Same as Table A
Bypass GUI	No shedding required.
5L91 (1P) or 5L96 (1P) or	No shedding required.
5L98 (1P)	

Table 1.43 – 2L20 or 2L44 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions: → Notes 2 and 3 in Section 2.

Generation Shedding Requirements 2L20 or 2L44 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

CONTINGENCY	SHEDDING REQUIREMENTS
5L81	Same as system normal Table 1.1
5L82	Same as system normal Table 1.1
5L83	Same as system normal Table 1.1
5L87	Same as system normal Table 1.1
5L44	GS1 = 3.5 * (5L81NIC + 0.38 * 5L44MDN – 5L81_Over_Rating) GS2 = 10.5 * (2L22MDN + 0.25 * 5L44 MDN - 2L22_Over_Rating)
	M = MAX (GS1, GS2, 0) Y = 2L112 NLY + 0.05 * 5L44 MDN – 0.12* M Z = 2L293 SEL + 0.05 * 5L44 MDN – 0.10 * M
	If Y > <mark>NLYPST_OL_PickupMW</mark> , R1 = 0.38 * (Y - <mark>NLYPST_OL_ResetMW</mark>) R3 = 0.12 * (Y - <mark>NLYPST_OL_ResetMW</mark>) Else R1 = 0, R3 = 0.
	If Z > 2L293OLRAS_PickupMW, R2 = 0.46 * (Z - 2L293OLRAS_ResetMW) R4 = 0.15 * (Z - 2L293OLRAS_ResetMW) Else R2 = 0, R4 = 0.
	Ra = MAX (R1, R2) Rb = MAX (R3, R4)
	 Shed at MCA/REV first, and then GMS/PCN the greatest of: D1*(GS1+3.5*Ra) D2*(GS2+10.5*Rb) Where: D1 = 1.0 if shedding at MCA/REV, or D1 = 1.65 if shedding at GMS/PCN, D2 = 1.0 if shedding at MCA/REV, or
	 D2 = 1.25 if shedding at GMS/PCN. Total armed generation shedding must be limited to 2500 MW. If exceeding the limit, the Operator can take the following actions: Reduce the flow on 2L129 from ARN to VIT. Reduce SI generation and increase Peace generation
51.91 and 51.92	Sama as system normal Table 1.1
	Same as system normal Table 1.1
1 5L82 and 5L83	I Same as system normal lable 1.1

Table 1.44 – 2L22 or 2L27 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

 \blacktriangleright Notes 2 and 3 in Section 2.

<u>Generation Shedding Requirements</u> 2L22 or 2L27 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

CONTINGENCY	SHEDDING REQUIREMENTS
5L81	Same as system normal Table 1.1
5L82	Same as system normal Table 1.1
5L83	Same as system normal Table 1.1
5L87	Same as system normal Table 1.1
5L44	GS1 = 3.5 * (5L81NIC + 0.38 * 5L44MDN – 5L81_Over_Rating) GS2 = 10.5 * (2L20CSQ + 0.28 * 5L44 MDN - 2L20_Over_Rating)
	M = MAX (GS1, GS2, 0) Y = 2L112 NLY + 0.05 * 5L44 MDN – 0.13* M Z = 2L293 SEL + 0.05 * 5L44 MDN – 0.12 * M
	If Y > <mark>NLYPST_OL_PickupMW</mark> , R1 = 0.38 * (Y - <mark>NLYPST_OL_ResetMW</mark>) R3 = 0.12 * (Y - <mark>NLYPST_OL_ResetMW</mark>) Else R1 = 0, R3 = 0.
	If Z > 2L293OLRAS_PickupMW, R2 = 0.46 * (Z - 2L293OLRAS_ResetMW) R4 = 0.15 * (Z - 2L293OLRAS_ResetMW) Else R2 = 0, R4 = 0.
	Ra = MAX (R1, R2) Rb = MAX (R3, R4)
	 Shed at MCA/REV first, and then GMS/PCN the greatest of: D1 * (GS1 + 3.5* Ra) D2 * (GS2 + 10.5* Rb) Where: D1 = 1.0 if shedding at MCA/REV, or D1 = 1.65 if shedding at GMS/PCN, D2 = 1.0 if shedding at MCA/REV, or
	 D2 = 1.25 If shedding at GMS/PCN. Total armed generation shedding must be limited to 2500 MW. If exceeding the limit, the Operator can take the following actions: Reduce the flow on 2L129 from ARN to VIT. Reduce SI generation and increase Peace generation
5L81 and 5L82	Same as system normal Table 1.1
5L81 and 5L83	Same as system normal lable 1.1
5L82 and 5L83	Same as system normal Table 1.1

Table 1.45 – 2L64 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

```
5L44 Contingency:
Limit: 2L56 CAM TAP + 0.12 * 5L44 ING + E <= 2L56_OverRating</p>
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```
Where E is calculated as follows:

Y = 2L112 BDY + 0.041 * 5L44 ING
Z = 2L293 NLY + 0.033 * 5L44 ING
If Y > NLYPST_OL_PickupMW,

E1 = 0.068 * (Y - NLYPST_OL_ResetMW)

Otherwise,

E1 = 0

If Z > 2L293OLRAS_PickupMW,

E2 = 0.083 * (Z - 2L293OLRAS_ResetMW)

Otherwise,

E2 = 0

E= Max (E1, E2)
```

If TSA-PM alarms "VIOLATION_2L56 (CAM TAP-MAN) OVER RATING_5L44CTG", then the BC Hydro Control Centre staff shall take the following actions:

- Increase flow on 2L129 ARN, or
- Increase LM generation, or
- Reduce import on 5L51 and 5L52
- > Notes 2 and 3 in Section 2.

Generation Shedding Requirements 2L64 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

CONTINGENCY	SHEDDING REQUIREMENTS
5L81	Same as system normal Table 1.1
5L82	Same as system normal Table 1.1
5L83	Same as system normal Table 1.1
5L87	Same as system normal Table 1.1
5L44	GS1 = 3.5 * (5L81NIC + 0.35 * 5L44MDN – 5L81_Over_Rating) GS2 = 13.5 * (2L20CSQ + 0.2 * 5L44 MDN - 2L20_Over_Rating) GS3 = 21.5 * (2L45SPG + 0.1 * 5L44MDN - 2L45_Over_Rating) M = MAX (GS1, GS2, GS3, 0)
	Y = 2L112 NLY + 0.05 * 5L44 MDN - 0.12* M Z = 2L293 SEL + 0.05 * 5L44 MDN - 0.10 * M
	R1 = 0.38 * (Y - NLYPST_OL_ResetMW) R3 = 0.1 * (Y - NLYPST_OL_ResetMW) R5 = 0.06 * (Y - NLYPST_OL_ResetMW) Else R1 = 0, R3 = 0, R5 = 0.
	If Z > 2L293OLRAS_PickupMW, R2 = 0.46 * (Z - 2L293OLRAS_ResetMW) R4 = 0.1 * (Z - 2L293OLRAS_ResetMW) R6 = 0.06 * (Z - 2L293OLRAS_ResetMW) Else R2 = 0, R4 = 0, R6 = 0.
	Ra = MAX (R1, R2) Rb = MAX (R3, R4) Rc = MAX (R5, R6)
	 Shed at MCA/REV first, and then GMS/PCN the greatest of: D1* (GS1 + 3.5* Ra) D2* (GS2 + 13.5* Rb) D3* (GS3 + 21.5* Rc) Where:
	D1 = 1.0 if shedding at MCA/REV, or D1 = 1.65 if shedding at GMS/PCN, D2 = 1.0 if shedding at MCA/REV, or D2 = 1.25 if shedding at GMS/PCN, D3 = 1.0 if shedding at MCA/REV, or
	D3 = 1.25 if shedding at GMS/PCN.
	following actions: • Reduce the flow on 2L129 from ARN to VIT.
	Reduce SI generation and increase Peace generation
5L81 and 5L82	Same as system normal Table 1.1
5L81 and 5L83	Same as system normal Table 1.1
5L82 and 5L83	Same as system normal Table 1.1

Table 2.2 – 5L83 AND 5L71 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

- Pre-Outage Restrictions:
 Limit: 5L72 MCA <= 5L72_Norm_Rating MW
 Notes: 2 and 3 in Section 2.

Generation Shedding Requirements

5L83 AND 5L71 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

CONTINGENCY	SHEDDING REQUIREMENTS
5L72 (3P) (TSA-PM must treat it as "5L71 (3P) AND 5L72 (3P)" contingency to obtain required RAS functions)	Same as 5L71 (3P) and 5L72 (3P) contingency in Table E
5L72 (1P)	Same as 5L71 O.O.S. Table 1.2
Bypass SYA 5CX2	Same as 5L71 O.O.S. Table 1.2
5L81	Same as 5L83 O.O.S. Table 1.16
5L82	Same as 5L83 O.O.S. Table 1.16
5L81 and 5L82	 Same as 5L83 O.O.S. Table 1.16 with the following exception: If generation shedding is armed, AND If on-line MCA units >= 2 and if SEL 5RX3 is available, keep a minimum of 2 MCA, 2 REV, 2 SEV and 2/3 equivalent SEV units on line post-shedding, or If on-line MCA units >= 2 and if SEL 5RX3 is unavailable, keep a minimum of 2 MCA, 2 REV, 2 SEV and 1 & 2/3 equivalent SEV units on line post-shedding, or If on-line MCA unit = 1 and if SEL 5RX3 is available, keep a minimum of 1 MCA, 2 REV, 2 SEV and 2/3 equivalent SEV units on line post-shedding, or If on-line MCA unit = 1 and if SEL 5RX3 is unavailable, keep a minimum of 1 MCA, 2 REV, 2 SEV and 2/3 equivalent SEV units on line post-shedding, or If on-line MCA unit = 1 and if SEL 5RX3 is unavailable, keep a minimum of 1 MCA, 2 REV, 2 SEV and 1 & 2/3 equivalent SEV units on line post-shedding, or
5L87	Shed at MCA/REV: 1.1 * ((5L81 + 5L82 + 5L87) NIC - 4100) MW
5L44	Same as 5L83 O.O.S. Table 1.16
Table 2.3 – 5L83 AND 5L72 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

- Limit: 5L71 MCA <= 5L71_Norm_Rating MW
- Notes: 2 and 3 in Section 2.

Generation Shedding Requirements 5L83 AND 5L72 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

CONTINGENCY	SHEDDING REQUIREMENTS
5L71 (3P) (TSA-PM must treat it as	Same as 5L71 (3P) and 5L72 (3P) contingency in Table E
"5L71 (3P) AND 5L72 (3P)"	
contingency to obtain	
5L71 (1P)	Same as 5L72 (1P) contingency in 5L71 O.O.S. Table 1.2
Bypass SYA 5CX1	Same as Bypass SYA 5CX2 in 5L71 O.O.S. Table 1.2
5L81	Same as 5L83 O.O.S. Table 1.16
5L82	Same as 5L83 O.O.S. Table 1.16, with additional requirement of selecting MCA units for shedding first and keeping a
	minimum of 2 MCA units on-line post-shedding.
5L81 and 5L82	Same as 5L83 AND 5L71 O.O.S. Table 2.2.
5L87	Same as 5L83 AND 5L71 O.O.S. Table 2.2
5L44	Same as 5L83 O.O.S. Table 1.16

Table 2.4 – 5L83 AND SYA 5CX1 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

• Notes: 2 and 3 in Section 2.

Generation Shedding Requirements 5L83 AND SYA 5CX1 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

CONTINGENCY	SHEDDING REQUIREMENTS
5L71 (3P)	Same as SYA 5CX1 O.O.S. Table 1.4
5L72 (3P)	Same as SYA 5CX1 O.O.S. Table 1.4
5L71 (1P)	Same as SYA 5CX1 O.O.S. Table 1.4
5L72 (1P)	Same as SYA 5CX1 O.O.S. Table 1.4
Bypass SYA 5CX2	Same as SYA 5CX1 O.O.S. Table 1.4
5L71 (3P) and 5L72 (1P)	Same as SYA 5CX1 O.O.S. Table 1.4
5L71 (1P) and 5L72 (3P)	Same as SYA 5CX1 O.O.S. Table 1.4
5L71 (1P) and 5L72 (1P)	Same as SYA 5CX1 O.O.S. Table 1.4
5L71 (3P) and 5L72 (3P)	Same as Table E
5L81	Same as 5L83 O.O.S. Table 1.16
5L82	Same as 5L83 O.O.S. Table 1.16
5L81 and 5L82	Same as 5L83 O.O.S. Table 1.16
5L87	Same as 5L83 O.O.S. Table 1.16
5L44	Same as 5L83 O.O.S. Table 1.16

Table 2.5 – 5L83 AND SYA 5CX2 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

• Notes: 2 and 3 in Section 2.

Generation Shedding Requirements 5L83 AND SYA 5CX2 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

CONTINGENCY	SHEDDING REQUIREMENTS
5L71 (3P)	Same as SYA 5CX2 0.0.S Table 1.5
5L72 (3P)	Same as SYA 5CX2 0.0.S Table 1.5
5L71 (1P)	Same as SYA 5CX2 0.0.S Table 1.5
5L72 (1P)	Same as SYA 5CX2 0.0.S Table 1.5
Bypass SYA 5CX1	Same as SYA 5CX2 0.0.S Table 1.5
5L71 (3P) and 5L72 (1P)	Same as SYA 5CX2 0.0.S Table 1.5
5L71 (1P) and 5L72 (3P)	Same as SYA 5CX2 0.0.S Table 1.5
5L71 (1P) and 5L72 (1P)	Same as SYA 5CX2 0.0.S Table 1.5
5L71 (3P) and 5L72 (3P)	Same as Table E
5L81	Same as system normal Table 1.1
5L82	Same as system normal Table 1.1
5L81 and 5L82	Same as system normal Table 1.1
5L87	Same as system normal Table 1.1
5L44	Same as system normal Table 1.1

Table 2.6 – 5L83 AND SYA 5CX1 AND SYA 5CX2 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

• Notes: 2 and 3 in Section 2.

Generation Shedding Requirements 5L83 AND SYA 5CX1 AND SYA 5CX2 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

CONTINGENCY	SHEDDING REQUIREMENTS
5L71 (3P)	Same as SYA 5CX2 O.O.S Table 1.5
5L72 (3P)	Same as SYA 5CX1 0.0.S Table 1.4
5L71 (1P)	Same as SYA 5CX1 AND SYA 5CX2 O.O.S. Table 1.6
5L72 (1P)	Same as SYA 5CX1 AND SYA 5CX2 O.O.S. Table 1.6
5L71 (3P) and 5L72 (1P)	Same as SYA 5CX1 AND SYA 5CX2 O.O.S. Table 1.6
5L71 (1P) and 5L72 (3P)	Same as SYA 5CX1 AND SYA 5CX2 O.O.S. Table 1.6
5L71 (1P) and 5L72 (1P)	Same as SYA 5CX1 AND SYA 5CX2 O.O.S. Table 1.6
5L71 (3P) and 5L72 (3P)	Same as Table E
5L81	Same as 5L83 O.O.S. Table 1.16
5L82	Same as 5L83 O.O.S. Table 1.16
5L81 and 5L82	Same as 5L83 O.O.S. Table 1.16
5L87	Same as 5L83 O.O.S. Table 1.16
5L44	Same as 5L83 O.O.S. Table 1.16

Table 2.7 – 5L83 AND 5L71 AND SYA 5CX2 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

• Notes: 2 and 3 in Section 2.



Interpretation of the above MCA MW limit diagram.

The segment from point (0, 1700) to point (2590, 1700) is a voltage stability limit for a 5L82 contingency. The segment from point (2590, 1700) to point (3370, 1610) is a voltage stability limit for a 5L87 contingency. The segment from point (3370, 1610) to point (3600, 1270) is limited by the maximum generation shedding capability of 2500MW for 5L81 & 5L82 contingency.

Generation Shedding Requirements 5L83 AND 5L71 AND SYA 5CX2 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

CONTINGENCY	SHEDDING REQUIREMENTS
5L72 (3P) (TSA-PM must treat it as "5L71 (3P) AND 5L72 (3P)" contingency to obtain	Same as 5L71 (3P) and 5L72 (3P) contingency in Table E
required RAS functions) 5L72 (1P)	Same as 5L71 AND SYA 5CX2 O.O.S. Table 1.7
5L81	Same as 5L83 O.O.S. Table 1.16
5L82	Same as 5L83 O.O.S. Table 1.16
5L81 and 5L82	Same as 5L83 AND 5L71 O.O.S. Table 2.2
5L87	Same as 5L83 AND 5L71 O.O.S. Table 2.2
5L44	Same as 5L83 O.O.S. Table 1.16

Table 2.8 – 5L83 AND 5L72 AND SYA 5CX1 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

- Notes: 2 and 3 in Section 2.
- MCA MW output limit:
- same as the nomogram in Table 2.7.

Generation Shedding Requirements 5L83 AND 5L72 AND SYA 5CX1 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

CONTINGENCY	SHEDDING REQUIREMENTS
5L71 (3P)	Same as 5L71 (3P) and 5L72 (3P) contingency in Table E.
(TSA-PM must treat it as	
"5L71 (3P) AND 5L72 (3P)"	
contingency to obtain	
required RAS functions)	
5L71 (1P)	Same as 5L72 (1P) contingency in Table 1.7 – 5L71 AND SYA 5CX2 O.O.S.
5L81	Same as 5L83 O.O.S Table 1.16
5L82	Same as 5L83 O.O.S. Table 1.16, with additional requirement of selecting MCA units for shedding first and keeping a minimum 2 MCA units on-line post-shedding.
5L81 and 5L82	Same as 5L83 AND 5L71 O.O.S. Table 2.2
5L87	Same as 5L83 AND 5L71 O.O.S. Table 2.2
5L44	Same as 5L83 O.O.S. Table 1.16

Table 2.9 - 5L83 AND 5L71 AND 5L72 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

- Notes 2 and 3 in Section 2.
- This table is applicable to BCH load <= 8500 MW. Both 5L71 and 5L72 O.O.S. should be avoided when BCH load > 8500 MW. If the • outage cannot be avoided, special studies are required.
 For restrictions of NIC 500 kV reactors, refer to Section 8.3.9 in 7T-18.

Generation Shedding Requirements: 5L83 AND 5L71 and 5L72 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops) Note: Table F is applicable to this Table.

CONTINGENCY	SHEDDING REQUIREMENTS
5L76	Same as Table A
5L79	Same as Table A
5L81	Shed at REV: the shedding requirement is the same as 5L83 O.O.S. Table 1.16
5L82	Shed at REV: the shedding requirement is the same as 5L83 O.O.S. Table 1.16
Bypass AMC 5CX2, or Bypass AMC 5CX1	No shedding required
5L81 and 5L82	If generation shedding is armed, keep a minimum of 2 REV, 2 SEV and 2/3 equivalent SEV units on line post-shedding if SEL 5RX3 is available, or keep a minimum of 2 REV, 2 SEV and 1 & 2/3 equivalent SEV units on line post-shedding if SEL 5RX3 is unavailable.
	If TSA-PM alarms "C5L81_82 - MAX ARMED SHED VIOLATION", the BC Hydro Control Centre staff should take the following actions: If BC is exporting to US, then reduce BC to US export. If BC is importing from US, then • reduce (SI and FBC) generation and increase Peace generation, or/and • reduce (SI and FBC) generation and increase import from US
	If 2L112 NLY < 200 MW OR 0.10 * (5L81 + 5L82) NIC + 2L293 SEL > 420, then GS is the greater of: • 1.13 * [(5L81 + 5L82 + 5L87) NIC + (2L92 + 2L93) SVA + 2L112 NLY – 2250], or • 1.15 * [(5L81 + 5L82) NIC + (5L41 + 5L42 + 2L90) KLY + 2L112 NLY – 3800]
	If 2L112 NLY >= 200 AND 0.10 * (5L81 + 5L82) NIC + 2L293 SEL <= 420, then GS is the greater of: • 1.18 * [(5L81 + 5L82 + 5L87) NIC + (2L92 + 2L93) SVA – 2250], or • 1.20 * [(5L81 + 5L82) NIC + (5L41 + 5L42 + 2L90) KLY – 3800]
	 If AB to BC >= 500 MW AND GS >= 1500 MW, then Arm DTT 5L94, and Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and If 2L112 NLY < 200 MW OR 0.10* (5L81 + 5L82) NIC + 2L293 SEL > 420, then Shed at REV/SEV/KCL/ALH/WAN/BRX/WAX first, then GMS/PCN: 0.93*GS - 1.05*AB to BC Otherwise Shed at REV/SEV/KCL/ALH/WAN/BRX/WAX first, then GMS/PCN: 0.93*GS - 1.10*AB to BC Total armed generation shedding must be limited to 2500 - AB to BC
	If AB to BC < 500 MW or [AB to BC >= 500 MW AND GS < 1500] , then • Shed at REV/SEV/KCL/ALH/WAN/BRX/WAX first, then GMS/PCN: GS • Total armed generation shedding must be limited to 2500 MW
	Arm DTT 2L112 RAS, If • 2L112 NLY < 200 AND GS > 0, or • 0.10* (5L81 + 5L82) NIC + 2L293 SEL > 420

CONTINGENCY	SHEDDING REQUIREMENTS
5L76 and 5L79	Same as 5L71 AND 5L72 O.O.S. Table 1.9
5L87	No generation shedding
5L91 and 5L96	Tables A, B, C and D are applicable to this contingency
5L44	Same as 5L83 O.O.S. Table 1.16 except for no shedding at MCA.
5L91	Tables A, B, C and D are applicable to this contingency
5L96	Tables A, B, C and D are applicable to this contingency
5L98	Both VAS-WTS and VAS-VNT loops closed, or VAS-WTS loop open and VAS-VNT loop closed
	Same as Table A Both VAS-WTS and VAS-VNT loops open, or VAS-VNT loop open and VAS-WTS loop closed Same as Table C
5L96 & 5L98	Both VAS-WTS and VAS-VNT loops closed • Same as Tables A VAS-WTS loop open, or VAS-VNT loop open, or both VAS-WTS and VAS-VNT loops open • Same as Table C
5L92	Same as Table A
5L94	Same as Table A
Bypass GUI	No generation shedding
5L91 (1P) or 5L96 (1P) or	No generation shedding
5L98 (1P)	

Table 2.10 - 5L83 AND 5L75 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

- Limit: 5L77 REV <= 5L77_Norm_Rating MW
- Notes 2 and 3 in Section $\overline{2}$.

Generation Shedding Requirements Note: Tables A, B, C, D and E are applicable to this Table, except for single contingencies 5L76, 5L79 as indicated in this table.

CONTINGENCY	SHEDDING REQUIREMENTS
5L77 (3P) (TSA-PM must treat it as "5L75 (3P) and 5L77 (3P)" contingency to obtain required RAS functions)	Same as 5L75 (3P) and 5L77 (3P) contingency in Table F.
5L77 (1P)	Shed at REV: REV Gen - 2000 MW
5L76	Shed at REV: 1.03 * (5L77 REV + (5L91 + 5L96) SEL – 4000) MW if REV Gen <= 2000 MW
5L79	Same gen shedding as 5L76 contingency.
5L81	Same as 5L83 O.O.S. Table 1.16
5L82	Same as 5L83 O.O.S. Table 1.16
5L81 and 5L82	Same as 5L83 O.O.S. Table 1.16
5L87	Same as 5L83 O.O.S. Table 1.16
5L44	Same as 5L83 O.O.S. Table 1.16

Table 2.11 – 5L83 AND 5L77 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions

- Limit: 5L75 REV <= 5L75_Norm_Rating MW
 Notes: 2 and 3 in Section 2.

Generation Shedding Requirements Note: Tables A, B, C, D and E are applicable to this Table, except for single contingencies 5L76, 5L79 as indicated in this table.

CONTINGENCY	SHEDDING REQUIREMENTS
5L75 (3P) (TSA-PM must treat it as	Same as 5L75 (3P) and 5L77 (3P) contingency in Table F.
"5L75 (3P) and 5L77 (3P)" contingency to obtain	
required RAS functions)	
5L75 (1P)	Shed at REV: REV Gen - 2000 MW
5L76	<u>ACK 5CB8 in service</u> : Shed at REV: 1.03 * (5L75 REV + (5L91 + 5L96) SEL – 4000) MW if REV Gen <= 2000 MW <u>ACK 5CB8 O.O.S.</u> : (5L76 contingency will trip open 5L75) Shed REV down to 0 MW.
5L79	Same gen shedding as 5L76 contingency with ACK 5CB8 in service.
5L81	Same as 5L83 O.O.S. Table 1.16
5L82	Same as 5L83 O.O.S. Table 1.16
5L81 and 5L82	Same as 5L83 O.O.S. Table 1.16
5L87	Same as 5L83 O.O.S. Table 1.16
5L44	Same as 5L83 O.O.S. Table 1.16

Table 2.12 – 5L83 AND 5L76 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:Notes: 2 and 3 in Section 2

Generation Shedding Requirements 5L83 AND 5L76 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops) Note: Table E is applicable to this Table.

CONTINGENCY	SHEDDING REQUIREMENTS
5L75 (3P)	If REV 5CB9 is O.O.S., REV G1 and G2 must be selected for shedding.
5L77 (3P)	Same as Table F
5L75 (1P)	Same as Table F
5L77 (1P)	Same as Table F
5L75 (1P) and 5L77 (3P)	Same as Table F
5L75 (3P) and 5L77 (1P)	Same as ACK 5CB5 in service in Table F
5L75 (3P) and 5L77 (3P)	Same as Table F
5L81	Same as 5L83 O.O.S. Table 1.16
5L82	Same as 5L83 O.O.S. Table 1.16
Bypass AMC 5CX1, or Bypass AMC 5CX2	No shedding required
5L81 and 5L82	Same as 5L83 O.O.S. Table 1.16
5L79	Tables A, B, C and D for contingency 5L76 AND 5L79 are applicable to this contingency
5L87	Shed at MCA/REV: 1.14 * ((5L81 + 5L82 + 5L87) NIC - 4000) MW
5L91 and 5L96	Tables A, B, C and D are applicable to this contingency
5L44	Same as 5L83 O.O.S. Table 1.16
5L91	Tables A, B, C and D are applicable to this contingency
5L96	Arm DTT 48L if 5L96 SEL > 800 MW AND if VAS-WTS loop is closed
	Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of:
	2.20 * (5L79 ACK + 0.60 * (5L96 SEL + Z) – 5L79_Over_Rating)
	➤ 1.25 * (5L79 ACK + 5L96 SEL + Z – Y), or
	> 2.45 * (2L112 NLY + 0.25 * (5L96 SEL + Z) − 400), or
	2.45 * (2L112 NLY + BDY Gen + 0.25 * (5L96 SEL + Z) – 1170), or
	> 3.10 * (2L293 SEL + 0.19 * (5L96 SEL + Z) – 400), and do not shed WAN for this requirement
	Y = Min (3050, 1800 + 0.60 * REV MW) if at least one of ACK 5CX1 & 5CX2 is in service, or
	Y = Min (2/90, 1500 + 0.60 ^ REV MW) if none of ACK 5CX1 & 5CX2 is in service
	Z = 48L KE I If D I I 48L is armed, or
	Z = UII D I I 48L IS NOT armed
5L98	I VAS-VNT 100P IS Closed, then Shed at KCL/ALHAVAN/PRY/WAY first than SEV/ the greatest of:
	• Sheu al KCL/ALH/WAW/DKW/WAX HISI, then SEV the greatest of. $1.04 \pm (ELZO, ACK, LO, ZZ \pm ELOO)/(AS, ELZO, Over, Define)$
	$P = 1.94 = (5L/9 ACK + 0.77 - 5L96 VAS - 5L/9 - 0Ver_Raling)$ 1.72 * (5L70 ACK + 5L08 VAS - V) or
	\sim 1.75 (3L/9 ACK + 3L90 VAS - 7), 01 \sim 2.71 * (2L112 NI V + 0.21 * 5L98 V/AS - 400) or
	$\sim 2.71 \text{ (2L112 NLT + 0.21 3L30 VAS = 400), 01}$ $\sim 2.71 (2L112 NLV + RDV Gen + 0.21 51.08 VAS = 1200) or$
	\sim 2.71 (22112 M21 + 0.01 Gen + 0.21 - 0.26 VAS = 1200), of \sim 3.75 * (21.293 SEL + 0.17 * 51.98 VAS = 400) and do not shed WAN for this requirement
	$Y = (1700 \pm 0.56 \times \text{REV} \text{MW})$ if at least one of ACK 5CX1 & 5CX2 is in service or
	$Y = (1500 \pm 0.56 \pm \text{REV} \text{ MW})$ if none of ACK 5CX1 & 5CX2 is in service
	Otherwise.
	Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of:
	1.94 * (5L79 ACK + 0.77 * 5L98 VAS – 5L79 Over Rating)
	> 1.70 * (5L79 ACK + 5L98 VAS – Y), or
	2.60 * (2L112 NLY + 0.25 * 5L98 VAS – 400), or
	2.60 * (2L112 NLY + BDY Gen + 0.25 * 5L98 VAS – 1200), or
	3.60 * (2L293 SEL + 0.20 * 5L98 VAS – 400), and do not shed WAN for this requirement
	Y = Min (2950, 1560 + 0.60 * REV MW) if at least one of ACK 5CX1 & 5CX2 is in service, or
	Y = Min (2750, 1360 + 0.60 * REV MW) if none of ACK 5CX1 & 5CX2 is in service
5L96 & 5L98	 Arm DTT 48L if 5L96 SEL > 800 MW AND if both VAS-WTS and VAS-VNT loops are closed.
	Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of:
	2.20* (5L79 ACK + 0.64* (5L96 SEL + Z) – 5L79_Over_Rating)
	\rightarrow 1.25 ° (5L/9 ACK + 5L96 SEL +Z - Y), or
	2.44° (2L112 NLY + 0.24° (5L96 SEL + 2) - 400), or
	\sim 2.44 ° (2L112 NLY + BDY Gen + 0.24 ° (5L90 SEL + 2) - 1350), of \sim 2.56 * (2L202 SEL + 0.19 * 5L06 SEL - 400), and do not also M/AN for this requirement.
	V = Min (2070 + 0.64 * DEV/MW) if at least one of ACK 5CX1.8 5CX2 is in service, or
	Y = Min (2370, 1370 + 0.64 * REV/MW) if none of ACK 5CX1 & 5CX2 is in service.
	7 = 481 KFT if DTT 481 is armed or
	Z = 0 if DTT 48L is not armed
5L92	Same as Table A
5L94	Same as Table A
Bypass GUI	No shedding required.
5L91 (1P) or	No shedding required.
5L96 (1P) or	
5L98 (1P)	

Table 2.13 – 5L83 AND 5L79 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

- Pre-Outage Restrictions:
 Limit: 5L76 ACK <= 5L76_Norm_Rating MW
 Notes 2 and 3 in Section 2

Generation Shedding Requirements 5L83 AND 5L79 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops) Note: Table E is applicable to this Table.

CONTINGENCY	SHEDDING REQUIREMENTS
5L75 (3P)	ACK 5CB5 in service: Same as Table F.
	ACK 5CB5 O.O.S.: (5L75 contingency will trip open 5L76) No gen shedding. (note: The gen shedding for 5L76 contingency in this table has covered this contingency)
5L77 (3P)	Same as Table F
5L75 (1P)	Same as Table F
5L77 (1P)	Same as Table F
5L75 (1P) and 5L77 (3P)	Same as Table F
5L75 (3P) and 5L77 (1P)	<u>ACK 5CB5 in service:</u> Same as Table F
	ACK 5CB5 O.O.S.: (5L75 (3P) & 5L77 (1P) contingency will trip open 5L76) Shed REV down to 500 MW.
	• If REV 5CB9 is 0.0.S., REV G1 and G2 must be selected for shedding.
	If generation shedding is armed, keep a minimum of 1 REV unit on-line post-shedding, which should be the same REV
	unit as for 5L76 contingency in this table.
5L75 (3P) and 5L77 (3P)	Same as Table F
5L81	Same as 5L83 O.O.S. Table 1.16
5L82	Same as 5L83 O.O.S. Table 1.16
Bypass AMC 5CX1, or Bypass AMC 5CX2	No shedding required
5L81 and 5L82	Same as 5L83 O.O.S. Table 1.16
5L76	Tables A, B, C and D for contingency 5L76 AND 5L79 are applicable to this contingency.
5L87	Same as 5L83 AND 5L76 O.O.S. Table 2.12
5L91 and 5L96	Tables A, B, C and D are applicable to this contingency
5L44	Same as 5L83 O.O.S. Table 1.16
5L91	Tables A, B, C and D are applicable to this contingency
5L96	 Arm DTT 48L if 5L96 SEL > 800 MW AND if VAS-WTS loop is closed
	Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of:
	2.20 * (5L76 ACK + 0.60 * (5L96 SEL + Z) – 5L76_Over_Rating)
	> 1.25 * (5L76 ACK + 5L96 SEL + $Z - Y$), or
	➤ 2.45 * (2L112 NLY + 0.25 * (5L96 SEL + Z) - 400), or
	2.45 * (2L112 NLY + BDY Gen + 0.25 * (5L96 SEL + Z) – 1170), or
	> $3.10 * (2L293 \text{ SEL} + 0.19 * (5L96 \text{ SEL} + Z) - 400)$, and do not shed WAN for this requirement
	Y = Min (3050, 1800 + 0.60 * REV MW) if at least one of ACK 5CX1 & 5CX2 is in service, or
	$Y = Min (2/90, 1500 + 0.60^{\circ} \text{ REV MW})$ if none of ACK 5CX1 & 5CX2 is in service.
	Z = 46L KET II DTI 46L IS all lieu, 01
	Z = 0 II D I I 46L IS NOT ATTION 51.76 NORM RATING" the BC Hydro Control Centre staff shall take the following
	• If ISA-FM diams VIOLATION_5L70_NORM_RATING, the DC Hydro Control Centre start shall take the following actions to bring the flow on 5L76 ACK below the rating within 30 minutes:
	Poduco PEV or SIE gonoration or
	 Reduce REV of SiE generation, of Boduce flow on 2L112 from BDV to NLV or
	 Reduce now off zeria indirident to the r, of Poduce import from Alberta
51.08	If VAS-VNT loop is closed, then
3230	 Shed at KCL/ALH/WAN/BRX/WAX first then SEV the greatest of:
	$> 1.94 \times (51.76 \text{ ACK} + 0.77 \times 51.98 \text{ VAS} - 51.76 \text{ Over Rating})$
	\rightarrow 1.73 * (5L76 ACK + 5L98 VAS – Y), or
	2.71 * (2L112 NLY + 0.21 * 5L98 VAS – 400), or
	2.71 * (2L112 NLY + BDY Gen + 0.21 * 5L98 VAS – 1200), or
	3.75 * (2L293 SEL + 0.17 * 5L98 VAS – 400), and do not shed WAN for this requirement
	Y = (1750 + 0.56 * REV MW) if at least one of ACK 5CX1 & 5CX2 is in service, or
	Y = (1500 + 0.56 * REV MW) if none of ACK 5CX1 & 5CX2 is in service.
	Otherwise,
	 Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of:
	1.94 * (5L76 ACK + 0.77 * 5L98 VAS – 5L76_Over_Rating)
	$\gg 1.70^{\circ} (5L/6 \text{ ACK} + 5L98 \text{ VAS} - Y), \text{ or}$
	$\geq 2.60 * (2L112 \text{ NLY} + 0.25 * 5L98 \text{ VAS} - 400), \text{ or}$
	2.00" (2LTT2 NLY + BDY Gen + 0.25 * 5L98 VAS - 1200), or 2.60 * (2L202 SEL + 0.20 * 5L08) (AS - 400) and do not alread (MAN) for this requirement.
	\mathcal{P} 3.00 (2L293 SEL + 0.20 SL98 VAS - 400), and do not shed wan for this requirement
	$r = \text{IVIIII} (2900, 1000 \pm 0.00)$ REV IVIV) IT at least one of ACK 5CX1 & 5CX2 is in service.
	 If TSA-PM alarms "\/IOLATION 51.76 NORM RATING" the RC Hydro Control Centre staffshall take the following.
	actions to bring the flow on 51.76 ACK below the rating within 30 minutes:
	 Reduce REV or SIE generation or
	Reduce flow on 2L112 from BDY to NLY, or
	Reduce import from Alberta

CONTINGENCY	SHEDDING REQUIREMENTS
5L96 & 5L98	 Arm DTT 48L if 5L96 SEL > 800 MW AND if both VAS-WTS and VAS-VNT loops are closed. Shed at KCL/ALH/WAN/BRX first/WAX, then SEV the greatest of: 2.20 * (5L76 ACK + 0.64 * (5L96 SEL + Z) – 5L76_Over_Rating) 1.25 * (5L76 ACK + 5L96 SEL + Z – Y), or 2.44 * (2L112 NLY + 0.24 * (5L96 SEL + Z) – 400), or 2.44 * (2L112 NLY + BDY Gen + 0.24 * (5L96 SEL + Z) – 1350), or 2.56 * (2L293 SEL + 0.18 * (5L96 SEL + Z) – 400), and do not shed WAN for this requirement Y = Min (2970, 1570 + 0.64 * REV MW) if at least one of ACK 5CX1 & 5CX2 is in service, or Y = Min (2770, 1370 + 0.64 * REV MW) if none of ACK 5CX1 & 5CX2 is in service Z = 48L KET if DTT 48L is armed, or Z = 0 if DTT 48L is not armed If TSA-PM alarms "VIOLATION_5L76_NORM_RATING", the BC Hydro Control Centre staff shall take the following actions to bring the flow on 5L76 ACK below the rating within 30 minutes: Reduce REV or SIE generation, or Reduce flow on 2L112 from BDY to NLY, or Reduce import from Alberta
5L92	Same as Table A
5L94	Same as Table A
Bypass GUI	No shedding required.
5L91 (1P) or 5L96 (1P) or 5L98 (1P)	No shedding required.

Table 2.14 - 5L83 AND 5L81 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

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- Notes 2 and 3 in Section 2
 - Limit: 5L82 NIC MW <= 5L82_Norm_Rating
 - If TSA-PM alarms "VIOLATION_5L82_NORM_RATING", the BC Hydro Control Centre staff shall take the following actions to reduce the flow on 5L82 from NIC within its continuous rating:
 - Reduce SI generation and increase LM / VI / Peace generation, or
 - Reduce AB to BC transfer or
 - Reduce ING to CUS transfer
- 5L44 contingency:

Limit: 2L64 KI2 + 0.19 * 5L44 ING + M <= 2L64_Over_Rating

Where M is calculated as follows:

Y = 2L112 BDY + 0.059 * 5L44 INGZ = 2L293 NLY + 0.048 * 5L44 INGIf Y > $NLYPST_OL_PickupMW$, R1 = $0.139 * (Y - NLYPST_OL_ResetMW)$, Else R1 = 0 If Z > $2L293OLRAS_PickupMW$, R2 = $0.172 * (Z - 2L293OLRAS_ResetMW)$, Else R2 = 0 M= Max (R1, R2)

If TSA-PM alarms "VIOLATION_2L64 KI2 OVER RATING_5L44CTG", then the BC Hydro Control Centre staff shall take the following actions:

- Increase flow on 2L129 ARN, or
- Increase LM generation, or
- Reduce import on 5L51 and 5L52.

Table 2.14 Generation Shedding Requirements

5L83 AND 5L81 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops) Note: Tables E and F are applicable to this Table.

CONTINGENCY	SHEDDING REQUIREMENTS			
5L76	ACK 5CB8 in service: No Generation shedding			
	 <u>ACK 5CB8 O.O.S.:</u> (5L76 contingency will trip open 5L75) If REV Gen <= 2000 MW, shed at REV: 1.05 * ((5L75 + 5L77) REV + (5L91 + 5L96) SEL – 4040) MW AND If REV 5CB9 is O.O.S., REV G1 and G2 must be selected for shedding. 			
51 79	No Generation shedding			
5L82 (TSA-PM must treat it as "5L81 AND 5L82" contingency to obtain required RAS functions) Bypass AMC 5CX2 or	Same as 5L81 and 5L82 double contingency in 5L83 O.O.S. Table 1.16 (Note: Note 10 in Section 3 is applicable to this contingency)			
Bypass AMC 5CX1				
5L76 and 5L79	Tables A, B, C and D are applicable to this contingency			
5L87	Shed at MCA/REV: 1.28 * (5L82 NIC + 5L87 NIC – 2700)			
5L91 and 5L96	Tables A, B, C and D are applicable to this contingency			
5L44	GS1 = 3.5 * (5L41KLY + 0.38 * 5L44MDN – 5L41_Over_Rating) GS2 = 9 * (2L20CSQ + 0.26 * 5L44 MDN - 2L20_Over_Rating) GS3 = 20.5 * (2L51COK + 0.13 * 5L44MDN - 2L51COK_Over_Rating)			
	M = MAX (GS1, GS2, GS3, 0) Y = 2L112 NLY + 0.07 * 5L44 MDN – 0.14* M Z = 2L293 SEL + 0.06 * 5L44 MDN – 0.13 * M			
	If Y > NLYPST_OL_PickupMW, R1 = 0.45 * (Y - NLYPST_OL_ResetMW) R3 = 0.15 * (Y - NLYPST_OL_ResetMW) R5 = 0.08 * (Y - NLYPST_OL_ResetMW) Else R1 = 0, R3 = 0, R5 = 0.			
	If Z > 2L293OLRAS_PickupMW, R2 = 0.50 * (Z - 2L293OLRAS_ResetMW) R4 = 0.18 * (Z - 2L293OLRAS_ResetMW) R6 = 0.08 * (Z - 2L293OLRAS_ResetMW) Else R2 = 0, R4 = 0, R6 = 0.			
	Ra = MAX (R1, R2) Rb = MAX (R3, R4) Rc = MAX (R5, R6)			
	 Shed at MCA/REV first, and then GMS/PCN the greatest of: D1* (GS1 + 3.5* Ra) D2* (GS2 + 9* Rb) D3* (GS3 + 20.5* Rc) Where: D1 = 1.0 if shedding at MCA/REV, or D1 = 0.95 if shedding at GMS/PCN, D2 = 1.0 if shedding at MCA/REV, or D2 = 1.3 if shedding at MCA/REV, or D3 = 1.0 if shedding at GMS/PCN, D3 = 1.0 if shedding at GMS/PCN, D3 = 1.5 if shedding at GMS/PCN. Total armed generation shedding must be limited to 2500 MW. If exceeding the limit, the Operator can take the following actions: Reduce the flow on 21 129 from ABN to V/IT 			
5L91	Reduce SI generation and increase Peace generation Tables A. B. C and D are applicable to this contingency			

5L96	Arm DTT 48L if 5L96 SEL > 800 MW AND if VAS-WTS loop is closed			
	Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of:			
	➤ 1.25 * (5L91 SEL + 5L96 SEL + Z – Y), or			
	➤ 2.59 * (2L112 NLY + 0.22 * (5L96 SEL + Z) – 400), or			
	2.59 * (2L112 NLY + BDY Gen + 0.22 * (5L96 SEL + Z) – 1180), or			
	3.34 * (2L293 SEL + 0.16 * (5L96 SEL + Z) – 400), and do not shed WAN for this requirement.			
	Y = 2200 if at least one of ACK 5CX1 & 5CX2 is in service, or			
	Y = 1900 if none of ACK 5CX1 & 5CX2 is in service AND all SEL T1 & T2 & T4 are in service			
	Z = 48L KET if DTT 48L is armed, or			
	Z = 0 if DTT 48L is not armed			
5L98	If VAS-VNT loop is closed, then			
	Shed at KCL/ALH/WAN/BRX/WAX first then SEV the greatest of:			
	> 1.86 * (51.91 SEI + 51.98 VAS - Y) or			
	$\sim 2.78 \times (21.112 \text{ NI V} + 0.18 \times 51.98 \text{ V/AS} - 400) \text{ or}$			
	\sim 3.82 * (21.203 SE1 + 0.15 * 51.98 V/AS - 400), and do not shed W/AN for this requirement			
	V = 1010 if at least one of ACK 5CX1 & 5CX2 is in service, or			
	V = 1900 if pape of ACK 5CX1 8 5CX2 is in convice.			
	Cthorwise			
	Unerwise, Shad at KCL/ALHAMAN/PRY/MAY first than SEV/ the greatest of:			
	• Sned at KUL/ALH/WAN/BRX/WAX TIRST, then SEV the greatest of:			
	► 1.00 ($0L_{9}$ $3L_{1}$ = 0.21 × 51.09 VAS = 1), 01 > 2.68 × (21.112 NI V + 0.21 × 51.09 VAS = 400) or			
	2.68° (2L112 NLY + 0.21 $^{\circ}$ 5L98 VAS - 400), or			
	$>$ 3.69 $^{\circ}$ (2L293 SEL + 0.17 $^{\circ}$ 5L98 VAS – 400), and do not shed VVAN for this requirement.			
	Y = 1950 if at least one of ACK 5CX1 & 5CX2 is in service, or			
	Y = 1770 if none of ACK 5CX1 & 5CX2 is in service			
5L96 & 5L98	 Arm DTT 48L if 5L96 SEL > 800 MW AND if both VAS-WTS and VAS-VNT loops are closed. 			
	Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of:			
	➤ 1.25 * (5L91 SEL + 5L96 SEL + Z – Y), or			
	2.88 * (2L112 NLY + 0.25 * (5L96 SEL + Z) – 400), or			
	2.88 * (2L112 NLY + BDY Gen + 0.25 * (5L96 SEL + Z) – 1160) or			
	3.24 * (2L293 SEL + 0.19 * (5L96 SEL + Z) – 400), and do not shed WAN for this requirement.			
	Y = 2170 if at least one of ACK 5CX1 & 5CX2 is in service, or			
	Y = 1830 if none of ACK 5CX1 & 5CX2 is in service			
	Z = 48L KET if DTT 48L is armed, or			
	Z = 0 if DTT 48L is not armed			
5L92	Same as Table A			
5L94	Same as Table A			
Bypass GUI	No shedding required.			
5L91 (1P) or 5L96 (1P) or	No shedding required.			
5L98 (1P)				
/				

Table 2.15 - 5L83 AND 5L82 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

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- Notes 2 and 3 in Section 2
 - Limit: 5L81 NIC MW <= 5L81_Norm_Rating
 - If TSA-PM alarms "VIOLATION_5L81_NORM_RATING", the BC Hydro Control Centre staff shall take the following actions to reduce the flow on 5L81 from NIC within its continuous rating:
 - Reduce SI generation and increase LM / VI / Peace generation, or
 - Reduce AB to BC transfer or
 - Reduce ING to CUS transfer
- 5L44 contingency:

Limit: 2L64 KI2 + 0.20 * 5L44 ING + M <= 2L64_Over_Rating

Where M is calculated as follows:

Y = 2L112 BDY + 0.022 * 5L44 INGZ = 2L293 NLY + 0.018 * 5L44 INGIf Y > NLYPST_OL_PickupMW, R1 = $0.04 * (Y - NLYPST_OL_ResetMW)$, Else R1 = 0 If Z > 2L293OLRAS_PickupMW, R2 = $0.050 * (Z - 2L293OLRAS_ResetMW)$, Else R2 = 0 M= Max (R1, R2)

If TSA-PM alarms "VIOLATION_2L64 KI2 OVER RATING_5L44CTG", then the BC Hydro Control Centre staff shall take the following actions:

- Increase flow on 2L129 ARN, or
- Increase LM generation, or
- Reduce import on 5L51 and 5L52.

Generation Shedding Requirements

5L83 AND 5L82 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops) Note: Tables E and F are applicable to this Table.

CONTINGENCY	SHEDDING REQUIREMENTS
5L76	Same as Table 2.14 – 5L83 AND 5L81 O.O.S.
5L79	No Generation shedding.
5L81 (TSA-PM must treat it as	Same as 5L81 and 5L82 double contingency in 5L83 O.O.S. Table 1.16
"5L81 AND 5L82" contingency to obtain required RAS functions)	(Note: Note 9 in Section 3 is applicable to this contingency)
Bypass AMC 5CX2, or Bypass AMC 5CX1	No shedding required
5L76 and 5L79	Tables A, B, C and D are applicable to this contingency
5L87	Shed at MCA/REV: 1.28 * (5L81 NIC + 5L87 NIC – 2700)
5L91 and 5L96	Tables A, B, C and D are applicable to this contingency
5L44	No generation shedding required.
5L91	Tables A, B, C and D are applicable to this contingency
5L96	Same as Table 2.14 – 5L83 AND 5L81 O.O.S.
5L98	Same as Table 2.14 – 5L83 AND 5L81 O.O.S.
5L96 & 5L98	Same as Table 2.14 – 5L83 AND 5L81 O.O.S.
5L92	Same as Table A
5L94	Same as Table A
Bypass GUI	No shedding required.
5L91 (1P) or 5L96 (1P) or 5L98 (1P)	No Shedding required.

Table 2.17 – 5L83 AND 5L87 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

- Note: 1. This generation shedding table is not intended for the extended 5L83 AND 5L87 O.O.S.
 - 2. For extended outage of 5L87, pick up the generation shedding table for 5L83 AND 5L87 AND (5L71 or 5L72) O.O.S.

Pre-Outage Restrictions:

- Notes 2 and 3 in Section 2
- 5L81 & 5L82 contingency:

If BC is importing from US, then limit total flow on 5L81 AND 5L82 from NIC to:

• 3300 – (total import from 5L51 AND 5L52 measured at ING) MW

This limitation is to prevent transient voltage collapse in the ING and MDN areas.

Generation Shedding Requirements 5L83 AND 5L87 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops) Note: Table E is applicable to this Table.

CONTINGENCY	SHEDDING REQUIREMENTS		
5L75 (3P)	ACK 5CB5 in service: Same as Table F		
	 <u>ACK 5CB5 O.O.S.</u>: (5L75 contingency will trip open 5L76) Same gen shedding as 5L76 contingency with ACK 5CB8 O.O.S. in this Table 2.17. 		
5L77 (3P)	Same as Table F		
5L75 (1P)	Same as Table F		
5L77 (1P)	Same as Table F		
5L75 (1P) and 5L77 (3P)	Same as Table F		
5L75 (3P) and 5L77 (1P)	Same as Table F		
5L75 (3P) and 5L77 (3P)	Same as Table F		
5L76	ACK 5CB8 in service: If REV Gen <= 2000 MW, shed at REV: 1.03 * ((5L75 + 5L77) REV + (5L91 + 5L96) SEL – 4270) MW		
	 <u>ACK 5CB8 O.O.S.:</u> (5L76 contingency will trip open 5L75) Shed at REV: 1.03 * ((5L75 + 5L77) REV + (5L91 + 5L96) SEL – Y) MW Y = 3800 if REV Gen <= 2000 MW, or Y = 4100 if REV Gen > 2000 MW AND If REV 5CB9 is O.O.S. REV G1 and G2 must be selected for shedding 		
51 79	Same gen shedding as 51.76 contingency with ACK 5CB8 in service		
5L81	Shed at MCA/REV: GS + 1.69 * M Where GS and M are calculated as follows: GS = Max (0, 1.69 * (5L82 NIC + 0.80 * 5L81 NIC - 5L82_Over_Rating)) Y = 2L112 NLY + 0.08 * 5L81 NIC - 0.16 * GS Z = -2L293 NLY + 0.07 * 5L81 NIC - 0.15 * GS If Y > NLYPST_OL_PickupMW, M1 = 0.73 * (Y - NLYPST_OL_ResetMW), Else M1 = 0 If Z > 2L293OLRAS_PickupMW, M2 = 0.90 * (Z - 2L293OLRAS_ResetMW), Else M2 = 0 M = Max (M1, M2)		
5L82	Shed at MCA/REV: GS + 1.71 * M Where GS and M are calculated as follows: GS = Max (0, 1.71 * (5L81 NIC + 0.79 * 5L82 NIC - 5L81_Over_Rating)) Y = 2L112 NLY + 0.08 * 5L82 NIC - 0.16 * GS Z = -2L293 NLY + 0.07 * 5L82 NIC - 0.15 * GS If Y > NLYPST_OL_PickupMW, M1 = 0.73 * (Y - NLYPST_OL_ResetMW), Else M1 = 0 If Z > 2L293OLRAS_PickupMW, M2 = 0.89 * (Z - 2L293OLRAS_ResetMW), Else M2 = 0 M = Max (M1, M2)		
Bypass AMC 5CX1, or Bypass AMC 5CX2	No shedding required		
5L81 and 5L82	If generation shedding is armed, keep a minimum of 2 MCA, 2 REV, 2 SEV and 2/3 equivalent SEV units on line post- shedding if SEL 5RX3 is available, or keep a minimum of 2 MCA, 2 REV, 2 SEV and 1 & 2/3 equivalent SEV units on line post-shedding if SEL 5RX3 is unavailable. Expect high voltage at NIC and overloading on 1L243, VVW T3, SVA T1/T3, 1L242 and 1L241. Further reduction of SI generation will be required.		
	If TSA-PM alarms "C5L81_82 – MAX ARMED SHED VIOLATION", the BC Hydro Control Centre staff should take the following actions: • reduce AB to BC transfer, or • reduce SI and FBC generation		
	 The following is the generation shedding requirement: Arm DTT 2L112 RAS Arm NIC RX RAS Shed at MCA/REV/KCL/SEV/ALH/WAN/BRX/WAX: 1.1 * (5L81 NIC + 5L82 NIC + 2L112 NLY) If generation shedding is armed, then Arm DTT ACK 5CX1 RAS if ACK 5CX1 is in service, and Arm DTT ACK 5CX2 RAS if ACK 5CX2 is in service 		
	Total armed generation shedding is limited to: 2500 MW		
5L76 and 5L79	Tables A, B, C and D are applicable to this contingency		
5L91 and 5L96	Tables A, B, C and D are applicable to this contingency		
5L44	No shedding required.		
5L91	Tables A, B, C and D are applicable to this contingency		

CONTINGENCY	SHEDDING REQUIREMENTS
5L96	 Arm DTT 48L if 5L96 SEL > 800 MW AND if VAS-WTS loop is closed. Shed at KCL /ALH/WAN/BRX/WAX first, then SEV the greatest of:
	> 1.25 * (5L91 SEL + 5L96 SEL + $Z - Y$), or
	> $2.40 \times (2L112 \text{ NLY} + 0.23 \times (5L96 \text{ SEL} + Z) - 400)$, or 2.40 \times (2L112 \times LY + BDX Gop + 0.23 \times (5L96 \text{ SEL} + Z) - 1160) or
	\sim 3.04 * (2L293 SEL + 0.17 * (5L96 SEL + Z) – 400), and do not shed WAN for this requirement.
	Y = 1880 if at least one of ACK 5CX1 & 5CX2 is in service, or
	Y = 1800 if none of ACK 5CX1 & 5CX2 is in service AND all SEL 11 & 12 & 14 are in service Z = 481 KET if DTT48L is armed or
	Z = 0 if DTT 48L is not armed
5L98	If VAS-VNT loop is closed, then
	 Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: 1.60*(50.01.SEL + 50.02.VAS - V) or
	$2.92 \times (2L112 \text{ NLY} + 0.14 \times 5L98 \text{ VAS} - 400). \text{ or}$
	4.07 * (2L293 SEL + 0.11 * 5L98 VAS – 400), and do not shed WAN for this requirement.
	Y = 1760 if at least one of ACK 5CX1 & 5CX2 is in service, or X = 1570 if none of ACK 5CX1 & 5CX2 is in service.
	Otherwise,
	Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of:
	~ 1.50 (5L91 SEC + 5L98 VAS - 1), 01 $\sim 2.79 \times (2L112 \text{ NLY} + 0.16 \times 5L98 \text{ VAS} - 400)$, or
	3.92 * (2L293 SEL + 0.12 * 5L98 VAS – 400), and do not shed WAN for this requirement.
	Y = 1740 if at least one of ACK 5CX1 & 5CX2 is in service, or X = 1530 if none of ACK 5CX1 & 5CX2 is in service.
5L96 & 5L98	 Arm DTT 48L if 5L96 SEL > 800 MW AND if both VAS-WTS and VAS-VNT loops are closed.
	Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of:
	> $1.25 * (5L91 SEL + 5L96 SEL + Z - Y), or$
	$\sim 2.49^{\circ} (2L112 \text{ NLY} + 0.26^{\circ} (5L96 \text{ SEL} + Z) - 400), \text{ or}$ > 2.49 * (2L112 NLY + BDY Gen + 0.26 * (5L96 SEL + Z) - 1210), or
	\geq 2.94 * (2L293 SEL + 0.20 * (5L96 SEL + Z) – 400), and do not shed WAN for this requirement.
	Y = 1850 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1700 if name of ACK 5CX1 & 5CX2 is in service.
	Z = 48L KET if DTT 48L is armed, or
	Z = 0 if DTT 48L is not armed
5L92	Same as Table A
5L94	Same as Table A
5L91 (1P) or 5L96 (1P) or	No shedding required

Table 2.18 – 5L83 AND 5L87 AND 5L71 O.O.S., or 5L83 AND 5L87 AND 5L72 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

- Notes: 2 and 3 in Section 2.
- 5L81 & 5L82 contingency:
- For extended 5L87 outage,
 - The South Interior West 138 kV system must be split using procedure in Section 7.2. The purpose of splitting SIW 138 kV system is to prevent overloading 1L243 and VVW T3 for loss of 5L81 AND 5L82.
 - When 5L83 and 5L87 are O.O.S., one of 5L71 and 5L72 must be taken out of service to control the NIC 500 kV bus voltage.
 - The total flow on 5L81 AND 5L82 must be limited as follows:
 - 1. If BC is importing from both US AND Alberta, then limit total flow on 5L81 AND 5L82 from NIC to the lesser of:
 - 2500 2L112 NLY, or
 - 3300 (total import from 5L51 AND 5L52 measured at ING) MW.

These limitations are to prevent transient voltage collapse in the ING and MDN areas or unacceptable transient overvoltage in SI area for loss of 5L81 and 5L82.

- 2. If BC is importing from US AND exporting to Alberta, then limit total flow on 5L81 AND 5L82 from NIC to the lesser of:
 - 2500 2L112 NLY, or
 - 2600 BC to AB 2L112 NLY, or
 - 3300 (total import from 5L51 AND 5L52 (MW) measured at ING).

These limitations are to prevent transient voltage collapse in the ING and MDN areas or unacceptable transient overvoltage in SI area for loss of 5L81 AND 5L82.

If BC is exporting to US AND importing from Alberta, then limit total flow on 5L81 AND 5L82 from NIC below:
 2500 – 2L112 NLY.

This limitation is to prevent unacceptable transient overvoltage in SI area for loss of 5L81 AND 5L82.

- 4. If BC is exporting to both US AND Alberta, then limit total flow on 5L81 AND 5L82 from NIC to the lesser of:
 - 2500 2L112 NLY, or
 - 2600 BC to AB 2L112 NLY

This limitation is to prevent unacceptable transient overvoltage in SI area for loss of 5L81 and 5L82.

- The following system conditions are also required:
 - Limit MCA Gen <= 1100 MW, each of MCA units shall not exceed 450 MW, and 2 MCA units must be in SC mode or generating less than 100 MW each unit.
 - The following reactors must be in service:
 - MCA 5RX3 if 5L71 is O.O.S., or MCA 5RX4 if 5L72 is O.O.S.
 - ACK 5RX4, and
 - SEL 5RX2, and
 - CBK 5RX4, 5RX5, and
 - CBK 12RX32
 - All NIC (5RX3, 5RX4, 5RX11), ACK (5RX7, 5RX8) and SEL 5RX3 must be available.
 - CBK 12CX2 and 12CX3 must be out of service.
 - The following pre-contingency voltages must be maintained:
 - MCA <= 515 kV
 - REV <= 515 kV
 - NIC <= 530 kV
 - KCL <= 237 kV
 - SEV <= 237 kV
 - If these TSA-PM alarms are received:

"5L81 82 - INSUFFICIENT GEN SHED ARMED" or/and

"5L81_82 - MIN UNITS ONLINE VIOLATION"

the BC Hydro Control Centre staff should take the following actions:

- reduce import from Alberta, or
- reduce MW output of minimum units on-line (MUOL), or
- put more unit(s) at REV and SEV on-line as S/C.

Generation Shedding Requirements 5L83 AND 5L87 AND 5L71 O.O.S. or 5L83 AND 5L87 AND 5L72 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

CONTINGENCY	SHEDDING REQUIREMENTS
5L71 (3P) with 5L72 O.O.S, (TSA-PM must treat it as "5L71 AND 5L72" contingency to obtain required RAS functions)	Same as 5L71 (3P) and 5L72 (3P) contingency in Table E
5L72 (3P) with 5L71 O.O.S, (TSA-PM must treat it as "5L71 AND 5L72" contingency to obtain required BAS functions)	Same as 5L71 (3P) and 5L72 (3P) contingency in Table E
5L71 (1P) with 5L72 O.O.S.	Shed MCA down to 1500 MW.
5L72 (1P) with 5L71 O.O.S.	Same as 5L71 (1P) with 5L72 O.O.S. in this table.
Bypass SYA 5CX1 with 5L72 O.O.S.	Shed MCA down to 1500 MW.
5L71 O.O.S. 5L75 (3P)	ACK 5CB5 in service: Same as Table F
	ACK 5CB5 0.0.S. (5L75 contingency will trip open 5L76):
5L77 (3P)	Same as Table F
5L75 (1P)	Same as Table F
5L77 (1P)	Same as Table F
5L75 (1P) and 5L77 (3P)	Same as Table F
5L75 (3P) and 5L77 (1P)	Same as Table F
5L75 (3P) and 5L77 (3P)	Same as Table F
	<u>ACK 5CB8 O.O.S.</u> (5L76 contingency will trip open 5L75): Same as 5L75 (3P) contingency with ACK 5CB5 O.O.S. in this Table
5L79	No gen shedding.
5L81	Shed at MCA/REV: GS + 1.65 * M Where GS and M are calculated as follows: GS = Max (0, 1.65 * (5L82 NIC + 0.87 * 5L81 NIC - 5L82_Over_Rating)) Y = 2L112 NLY + 0.09 * 5L81 NIC - 0.15 * GS Z = -2L293 NLY + 0.08 * 5L81 NIC - 0.14 * GS If Y > NLYPST_OL_PickupMW, M1 = 0.81 * (Y - NLYPST_OL_ResetMW), Else M1 = 0 If Z > 2L293OLRAS_PickupMW, M2 = 0.98 * (Z - 2L293OLRAS_ResetMW), Else M2 = 0 M = Max (M1, M2)
5L82	$\frac{5L71 \text{ O.O.S.:}}{\text{Shed at MCA/REV: GS} + 1.60 * \text{ M}}$ Where GS and M are calculated as follows: GS = Max (0, 1.60 * (5L81 NIC + 0.86 * 5L82 NIC - 5L81_Over_Rating)) Y = 2L112 NLY + 0.10 * 5L82 NIC - 0.15 * GS Z = -2L293 NLY + 0.08 * 5L82 NIC - 0.14 * GS If Y > NLYPST_OL_PickupMW, M1 = 0.81 * (Y - NLYPST_OL_ResetMW), Else M1 = 0 If Z > 2L293OLRAS_PickupMW, M2 = 0.98 * (Z - 2L293OLRAS_ResetMW), Else M2 = 0 M = Max (M1, M2) $\frac{5L72 \text{ O.O.S.:}}{Shed at MCA first, then REV: the same shedding requirement as the condition of 5L71 O.O.S. in this table, and keep a minimum of 2 MCA units on-line post-shedding$
Bypass AMC 5CX1, or	No shedding required.
Bypass AMC 5CX2 5L81 and 5L82	 Arm DTT 2L112 RAS Arm NIC RX RAS Shed at MCA/REV/KCL/SEV/ALH/WAN/BRX/WAX: (5L81 + 5L82) NIC + 2L112 NLY – Y + Z Y = 600 + 1/3 * (AB to BC) if Alberta is exporting to BC, or Y = (600 – BC to AB) if BC is exporting to Alberta Z = 0 if MATL120S_PST230 <= 0 MW, or Z = MATL120S_PST230 if MATL120S_PST230 > 0 MW If generation shedding is armed, then Arm DTT ACK 5CX1 if ACK 5CX1 is in service, and Arm DTT ACK 5CX2 if ACK 5CX2 is in service, and Keep a minimum of 2 MCA, 1 REV, 2 SEV and 1 & 2/3 equivalent SEV units on line post-shedding.
5L76 and 5L79	Tables A, B, C and D are applicable to this contingency
5L91 and 5L96	Tables A, B, C and D are applicable to this contingency
5L44 5L01	No sneading required.
51.96	Same as 51.83 AND 51.87 O. O. S. Table 2.17
5L98	Same as 5L83 AND 5L87 O.O.S. Table 2.17
5L96 & 5L98	Same as 5L83 AND 5L87 O.O.S. Table 2.17
5L92	Same as Table A
5L94	Same as Table A
5L91 (1P) or 5L96 (1P) or 5L98 (1P)	No shedding required.

Table 2.19 - 5L83 AND 5L91 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

- Limit:
 - 5L96 SEL < 1300 MW from 1 December to 30 April, or
 - 5L96 SEL < 1400 MW from 1 May to 30 November
 - 5L76 and 5L79 contingency:
 - No 500kV Reactors at ACK in service.
 - Limit total flow on 5L76 and 5L79 from NIC to ACK < 100 MW
 - 5L96, or 5L98, or 5L96 & 5L98 contingency:
 - If SEL 5RX3 is available, then limit:
 - (FBC injection into SEL area) + Y < WAN shedable generation amount + ALH MW + BRX MW + WAX MW + 1000 1 SEV @ MIN.MW - Z

Otherwise, limit:

(FBC injection into SEL area) + Y < WAN shedable generation amount + ALH MW + BRX MW + WAX MW + 1000 – 1 SEV @ MIN.MW – 1 KCL @ MIN.MW - Z

Where: FBC injection into SEL area = 2L288 BTS + 2L289 BTS + FBC AAL Tie MW + 2L277 WAN - 60L225 KCL - 60L227 KCL - 2L286 SEL MW

- FBC AAL Tie MW = (2L294 AAL-NLY) AAL + (2L294 AAL-CBK) AAL MW
- Alarm if 5L96 SEL + 2L112 NLY + Z < -700 MW AND MATL120S_PST230 >= 0 MW, or

if 5L96 SEL + 2L112 NLY + Z + MATL120S_PST230 < -700 MW AND MATL120S_PST230 < 0 MW If the alarm comes, the BC Hydro Control Centre staff must put more local generation on-line to prevent post-contingency frequency drop down below 59.0 Hz for loss of 5L96.

Where: Y = AB to BC MW if AB to BC > 0, or Y = 0 if AB to BC <= 0 MW Z = 48L KET if VAS-WTS loop closed, or Z = 0 if VAS-WTS loop open.

• 5L44 contingency:

Limit: 2L64 Kl2 + 0.154 * 5L44 ING + M <= 2L64_Over_Rating Where M is calculated as follows: Y = 2L112 BDY + 0.031 * 5L44 ING Z = 2L293 NLY + 0.026 * 5L44 ING If Y > NLYPST_OL_PickupMW, R1 = 0.062 * (Y – NLYPST_OL_ResetMW), Else R1 = 0 If Z > 2L293OLRAS_PickupMW, R2 = 0.077 * (Z - 2L293OLRAS_ResetMW), Else R2 = 0 M = Max (R1, R2)

If TSA-PM alarms "VIOLATION_2L64 KI2 OVER RATING_5L44CTG", then the BC Hydro Control Centre staff shall take the following actions:

- Increase flow on 2L129 ARN, or
- Increase LM generation, or
- Reduce import on 5L51 and 5L52.

Generation Shedding Requirements 5L83 AND 5L91 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops) Note: Table E is applicable to this Table.

CONTINGENCY	SHEDDING REQUIREMENTS
5L75 (3P)	ACK 5CB5 in service: Same as table F
	ACK 5CB5 O.O.S. (5L75 contingency will trip open 5L76): • If REV 5CB9 is O.O.S., REV G1 and G2 must be selected for shedding.
5L77 (3P)	Same as Table F
5L75 (1P)	Same as Table F
5L77 (1P)	Same as Table F
5L75 (1P) and 5L77 (3P)	Same as Table F
5L75 (3P) and 5L77 (1P)	Same as Table F
5L75 (3P) and 5L77 (3P)	Same as Table F
5L76	ACK 5CB8 in service: No gen shedding.
	ACK 5CB8 O.O.S.: (5L76 contingency will trip open 5L75) Same as 5L75 (3P) contingency with ACK 5CB5 O.O.S. in this table.
5L79	No gen shedding. If TSA-PM alarms "VIOLATION_5L76_NORM_RATING", the BC Hydro Control Centre staff shall reduce REV generation to bring the flow on 5L76 ACK below the rating within 30 minutes.
5L81	Same as 5L83 O.O.S. Table 1.16
5L82	Same as 5L83 O.O.S. Table 1.16
Bypass AMC 5CX1, or Bypass AMC 5CX2	No shedding required
5L81 and 5L82	If generation shedding is armed, keep a minimum of 2 MCA, 1 REV, 2 SEV and 2/3 equivalent SEV units on line post- shedding if SEL 5RX3 is available, or keep a minimum of 2 MCA, 1 REV, 2 SEV and 1 & 2/3 equivalent SEV units on line post-shedding if SEL 5RX3 is unavailable.
	If TSA-PM alarms "C5L81_82 - MAX ARMED SHED VIOLATION", the BC Hydro Control Centre staff should take the following actions: If BC is exporting to US, then reduce BC to US export. If BC is importing from US, then
	 reduce (SI and FBC) generation and increase Peace generation, or/and reduce (SI and FBC) generation and increase import from US.
	The following are the generation shedding and RAS arming requirements:
	If 2L112 NLY < 200 MW OR 0.10 * (5L81 + 5L82) NIC + 2L293 SEL > 420, then Shed at MCA/REV/SEV/KCL/ALH/WAN/BRX/WAX first, then GMS/PCN the greater of: • 1.13 * [(5L81 + 5L82 + 5L87) NIC + (2L92 + 2L93) SVA + 2L112 NLY – 2250], or • 1.15 * [(5L81 + 5L82) NIC + (5L41 + 5L42 + 2L90) KLY + 2L112 NLY – 3800]
	If 2L112 NLY >= 200 AND 0.10 * (5L81 + 5L82) NIC + 2L293 SEL <= 420, then Shed at MCA/REV/SEV/KCL/ALH/WAN/BRX/WAX first, then GMS/PCN the greater of: • 1.18 * [(5L81 + 5L82 + 5L87) NIC + (2L92 + 2L93) SVA – 2250], or

CONTINGENCY	SHEDDING REQUIREMENTS		
	• 1.20 * [(5L81 + 5L82) NIC + (5L41 + 5L42 + 2L90) KLY – 3800]		
	Arm DTT 2L112 RAS, If • 2L112 NLY < 200 AND generation shedding is required, or • 0.10 * (5L81 + 5L82) NIC + 2L293 SEL > 420		
	The total armed generation shedding must be limited to 2500 MW		
5L76 and 5L79	Same as 5L91 O.O.S. Table 1.19.		
5L87 5L44	Shed at MCA/REV: 1.11 ^ ((5L81 + 5L82 + 5L87) NIC - 4050) MW GS1 = 3.5 * (5L81NIC + 0.3 * 5L44MDN - 5L81_Over_Rating) GS2 = 14.5 * (2L20CSQ + 0.22 * 5L44 MDN - 2L20_Over_Rating) GS3 = 37.5 * (2L51COK + 0.1 * 5L44MDN - 2L51COK_Over_Rating)		
	M = MAX (GS1, GS2, GS3, 0) Y = 2L112 NLY + 0.05 * 5L44 MDN – 0.12* M Z = 2L293 SEL + 0.05 * 5L44 MDN – 0.10 * M		
	If Y > NLYPST_OL_PickupMW, R1 = 0.4 * (Y - NLYPST_OL_ResetMW) R3 = 0.1 * (Y - NLYPST_OL_ResetMW) R5 = 0.05 * (Y - NLYPST_OL_ResetMW) Else R1 = 0, R3 = 0, R5 = 0.		
	If Z > 2L293OLRAS_PickupMW, R2 = 0.48 * (Z - 2L293OLRAS_ResetMW) R4 = 0.1 * (Z - 2L293OLRAS_ResetMW) R6 = 0.05 * (Z - 2L293OLRAS_ResetMW) Else R2 = 0, R4 = 0, R6 = 0.		
	Ra = MAX (R1, R2) Rb = MAX (R3, R4) Rc = MAX (R5, R6)		
	 Shed at MCA/REV first, and then GMS/PCN the greatest of: > D1 * (GS1 + 3.5* Ra) > D2 * (GS2 + 14.5* Rb) > D3 * (GS3 + 37.5* Rc) Where: 		
	D1 = 1.0 if shedding at MCA/REV, of $D1 = 1.65 if shedding at GMS/PCN,$ $D2 = 1.0 if shedding at MCA/REV, or$ $D3 = 1.0 if shedding at MCA/REV, or$ $D3 = 1.0 if shedding at MCA/REV, or$		
	D3 = 1.25 if shedding at GMS/PCN. Total armed generation shedding must be limited to 2500 MW. If exceeding the limit, the Operator can take the following		
	 actions: Reduce the flow on 2L129 from ARN to VIT. Reduce SI generation and increase Peace generation 		
5L96 (TSA-PM must treat it as "5L91 AND 5L96" contingency because "5L96" signal won't be generated as long as 5L91 O.O.S.)	Tables A, B, C and D for contingency 5L91 AND 5L96 are applicable to this contingency		
5L98	Same as 5L91 O.O.S. Table 1.19.		
5L92	(Note: Arming requirements for DTT 5L94, DTT 1L274 and DTT 1L275 are included in SOO 7T-17) Arm DTT 2L112 RAS if (0 < AB to BC <= 100 MW) AND (2L293 NLY > 400 - 0.7 * 5L92 CBK MW), or (AB to BC > 100 MW) AND (2L293 NLY > 400 - 5L92 CBK + 0.68 * (AB to BC) MW), or (0 <= BC to AB <= 100 MW) AND (2L293 SEL > 400 - 0.87 * 5L92 SEL + 0.2 * (BC to AB) MW), or (BC to AB > 100 MW) AND (2L 293 SEL > 400 - 5L 92 SEL + 0.7 * (BC to AB) MW), or		
5L94	Same as 5L91 O.O.S. Table 1.19.		
Bypass GUI	No shedding required.		
	L NIA, a la a dadha a wa wa ha d		

9L90	(IP)	101
5L98	(1P))

No shedding required.

Table 2.20 - 5L83 AND 5L96 O.O.S. (Any Status of VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

• Transfer limit on 5L91 SEL:

If higher transfer on 5L91 SEL is required than the limit shown in the table below for the VAS-WTS loop closed, the Operator should work with FBC to open the VAS-WTS loop (FBC chose the location to open).

Status of	ACK 5CX1 / 5CX2 In- Service Unit Number	Transfer Limit on 5L91 SEL (MW)		
VAS-WIS LOOP		Y <= 380 MW	Y > 380 MW	
Both Loops Closed (Status A)	>= 1	1450 (to avoid ASM T1/T2 OL)	1300 (to avoid ASM T1/T2 OL)	
	0	1450 (to avoid ASM T1/T2 OL)	1300 (to avoid ASM T1/T2 OL)	
VAS-WTS Open and VAS- VNT Closed (Status B)	>= 1	1800 (to avoid SEL500 < 1.0 pu)	1530 (to avoid SEL500 < 1.0 pu)	
	0	1700 (to avoid SEL500 < 1.0 pu)	1360 (to avoid SEL500 < 1.0 pu)	
VAS-WTS Closed and VAS- VNT Open	>= 1	1450 (to avoid ASM T1/T2 OL)	1300 (to avoid ASM T1/T2 OL See Note (a) below)	
(Status C)	0	1450 (to avoid ASM T1/T2 OL)	1300 (to avoid ASM T1/T2 OL See Note (b) below)	
Both Loops Open (Status D)	>= 1	1800 (to avoid SEL500 < 1.0 pu)	1460 (to avoid SEL500 < 1.00 pu), (See Note (a) below)	
	0	1700 (to avoid SEL500 < 1.0 pu)	1360 (to avoid SEL500 < 1.00 pu), (See Note (b) below)	

Y = FBC's Load calculated by (2L263 VNT + 2L264 VNT + 34L WTS – 5L98 VAS) MW

Note (a): With VAS-VNT loop open, this limit is based on the condition that the FBC's load supplied from VNT is reduced down to 300 MW to maintain voltages in this area above 220 kV.

Note (b): With VAS-VNT loop open, this limit is based on the condition that the FBC's load supplied from VNT is reduced down to 270 MW to maintain voltages in this area above 220 kV.

If alarm comes, the BC Hydro Operator should reduce the flow on 5L91 by:

- Reducing Alberta to BC transfer, and/or
- Reducing FBC's power injection into SEL, and/or
- Reducing SEV / KCL generation, and/or
- Adjusting NLY PST to increase 2L112 (NLY to BDY) transfer.
- 5L76 and 5L79 contingency:

Note: Y = 1L209 SAM if 1L209 is not radial, or Y = 0 if 1L209 is radial.

- U = 48L KET if VAS-WTS loop is closed, or U = 0 if VAS-WTS loop is open
- W = 73L RGA if VAS-VNT loop is closed, or W = 0 if VAS-VNT loop is open
- Limit: 5L76 ACK +5L79 ACK + 2L112 NLY + Y + 1L214 VNT + U W < 2500 MW
- Alarm if 5L76 ACK +5L79 ACK + 2L112 NLY + Y + 1L214 VNT + U W < -700 MW AND MATL120S_PST230 >= 0 MW, or if 5L76 ACK +5L79 ACK + 2L112 NLY + Y + 1L214 VNT + U - W + MATL120S_PST230 < -700 MW AND MATL120S_PST230 < 0 MW If the alarm comes, the BC Hydro Control Centre staff must put more REV or/and SIE generation on-line to prevent post-contingency frequency drop down below 59.0 Hz for loss of 5L76 and 5L79 with 1L209, 1L214 and 2L112 transfer tripped.
- At least two of ACK 5RX4 and 5RX7 and 5RX8 must be available.
- 5L91 contingency:
 - If SEL 5RX3 is available, then limit:
 - (FBC injection into SEL area) + Y < WAN shedable generation amount + ALH MW + BRX MW + WAX MW + 1000 1 SEV @ MIN.MW Otherwise, limit:
 - (FBC injection into SEL area) + Y < WAN shedable generation amount + ALH MW + BRX MW + WAX MW + 1000 1 SEV @ MIN.MW 1 KCL @ MIN.MW

Where: FBC injection into SEL area = 2L288 BTS + 2L289 BTS + FBC AAL Tie MW + 2L277 WAN - 60L225 KCL - 60L227 KCL - 2L286 SEL MW

FBC AAL Tie MW = (2L294 AAL-NLY) AAL + (2L294 AAL-CBK) AAL MW Y = AB to BC MW if AB to BC > 0, or

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Y = 0 if AB to BC <= 0
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• Alarm if 5L91 SEL + 2L112 NLY + Z < -700 MW AND MATL120S_PST230 >= 0 MW, or

if 5L91 SEL + 2L112 NLY + Z + MATL120S_PST230 < -700 MW AND MATL120S_PST230 < 0 MW

Z = 48L KET if VAS-WTS loop is closed, or Z = 0 if VAS-WTS loop is open

If the alarm comes, the BC Hydro Control Centre staff must put more local generation on-line to prevent post-contingency frequency drop down below 59.0 Hz for loss of 5L91.

• 5L44 contingency:

Limit: 2L64 Kl2 + 0.156 * 5L44 ING + M <= 2L64_Over_Rating Where M is calculated as follows: Y = 2L112 BDY + 0.028 * 5L44 ING Z = 2L293 NLY + 0.023 * 5L44 ING If Y> NLYPST_OL_PickupMW, R1 = 0.059 * (Y - NLYPST_OL_ResetMW), Else R1 = 0 If Z > 2L293OLRAS_PickupMW: R2 = 0.074 * (Z - 2L293OLRAS_ResetMW), Else R2 = 0 M = Max (R1, R2)

If TSA-PM alarms "VIOLATION_2L64 KI2 OVER RATING_5L44CTG", then the BC Hydro Control Centre staff shall take the following actions:

- Increase flow on 2L129 ARN, or
- Increase LM generation, or
- Reduce import on 5L51 and 5L52.

<u>Generation Shedding Requirements</u> (5L83 AND 5L96 O.O.S. (Any status of VAS-WTS and VAS-VNT Loops)) Note: Table E is applicable to this Table.

CONTINGENCY	SHEDDING REQUIREMENTS		
5L75 (3P)	ACK 5CB5 in service: Same as table F		
	ACK 5CB5 O.O.S. (5L75 contingency will trip open 5L76): • Same gen shedding as 5L76 contingency with ACK 5CB8 O.O.S. in this table		
5I 77 (3P)	Same as Table F		
5L75 (1D)	Same as Table F		
5L75 (1P)	Same of Table F		
5175(1P) and $5177(2P)$	Same os Table E		
5L75(1P) and $5L77(3P)$	Same of Table F		
5L75(3P) and $5L77(1P)$	Same of Table F		
5L75(3P) and $5L77(3P)$			
3270	Shed at REV: 1.03 * ((5L75 + 5L77) REV + 5L91SEL – 3260) MW		
	ACK 5CB8 O.O.S.: (5L76 contingency will trip open 5L75) • Shed at REV: 1.03 * ((5L75 + 5L77) REV + 5L91 SEL – Y) MW Y = 2770 if REV Gen <= 2000 MW, or Y = 2690 if REV Gen > 2000 MW		
	If REV 5CB9 is O.O.S., REV G1 and G2 must be selected for shedding.		
5L79	Same gen shedding as 5L76 contingency with ACK 5CB8 in service in this table.		
5L81	Shed at MCA/REV: GS + 3.44 * M Where GS and M are calculated as follows: GS = Max (0, 3.44 * (5L82 NIC + 0.45 * 5L81 NIC - 5L82_Over_Rating)) Y = 2L112 NLY + 0.05 * 5L81 NIC - 0.14 * GS Z = -2L293 NLY + 0.04 * 5L81 NIC - 0.13 * GS If Y > NLYPST_OL_PickupMW, M1 = 0.31 * (Y - NLYPST_OL_ResetMW), Else M1 = 0 If Z > 2L293OLRAS_PickupMW, M2 = 0.38 * (Z - 2L293OLRAS_ResetMW), Else M2 = 0 M = Max (M1, M2)		
5L82	Shed at MCA/REV: GS + 3.46 * M Where GS and M are calculated as follows: GS = Max (0, 3.46 * (5L81 NIC + 0.43 * 5L82 NIC - 5L81_Over_Rating)) Y = 2L112 NLY + 0.05 * 5L82 NIC - 0.14 * GS Z = -2L293 NLY + 0.04 * 5L82 NIC - 0.13 * GS If Y > NLYPST_OL_PickupMW, M1 = 0.31 * (Y - NLYPST_OL_ResetMW), Else M1 = 0 If Z > 2L293OLRAS_PickupMW, M2 = 0.39 * (Z - 2L293OLRAS_ResetMW), Else M2 = 0 M = Max (M1, M2)		
Bypass AMC 5CX1, or Bypass AMC 5CX2	No shedding required		
5L81 and 5L82	Same as Table 2.19 – 5L83 AND 5L91 O.O.S.		
5L76 and 5L79	Same as 5L96 O.O.S. Table 1.20.		
5L87	Shed at MCA/REV: 1.1 * ((5L81 + 5L82 + 5L87) NIC - 3900) MW		
5L44	Same as Table 2.19 – 5L83 AND 5L91 O.O.S.		
5L91 (TSA-PM must treat it as "5L91 AND 5L96" contingency because "5L91" signal won't be generated as long as 5L96 O.O.S.)	Same as 5L96 O.O.S. Table 1.20.		
5L98 (TSA-PM must treat it as "5L96 AND 5L98" contingency because "5L98" signal won't be generated as long as 5L96	 Note to FBC: When both VAS-WTS and VAS-VNT loops are open, 5L98 contingency with 5L96 already out of service will black out the FBC's loads which are radially connected to VAS. When VAS-VNT loop is open and VAS-WTS loop is closed, 5L98 contingency may cause overloading on ASM T1/T2, or voltage instability in the area which is radially supplied from WTS. Arm DTT 48L RAS if both VAS-WTS and VAS-VNT loops are closed and 5L91 SEL > 700 MW. 		
0.0.S.)	 Shed at KCL/ALH/BRX/WAN/WAX first, then SEV the greatest of: 1.25 * (5L91 SEL + Z - Y), or 2.37 * (2L112 NLY + 0.24 * Z - 400), or 3.05 * (2L293 SEL + 0.17 * Z - 400), and do not shed WAN for this requirement Y = 1600 if at least 1 ACK 5CX1 and 5Cx2 is in service, or 		

	Y = 1300 if none of ACK 5CX1 and 5Cx2 is in service
	Z = 48L KET if DTT 48L RAS is armed, or
	Z = 0 if DTT 48L RAS is not armed.
5L92	Same as Table 1.19 5L91 O.O.S.
5L94	Same as 5L96 O.O.S. Table 1.20.
Bypass GUI	No shedding required.
5L91 (1P) or 5L98 (1P)	Shed at KCL/SEV/ALH/BRX/WAN/WAX: 1.35 * (5L91 SEL – 1500) MW

Table 2.21 – 5L83 AND 5L98 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

• Transfer limit on (5L91 + 5L96) SEL:

The limit is to avoid VAS500 < 1.00 pu with VAS-VNT loop closed, or avoid SEL500 < 1.00 pu with VAS-VNT loop open.

T – FDC S LUau Calculateu Dy (2L203 VINT +)	2L204 VINT + 34L VVIS +3L90 3EL/ WIV	
ACK 5CX1 / 5CX2	Transfer Limit on (5L91 + 5L96) SEL (N	/IVV)
In-Service Unit Number	Y <= 380 MW	Y > 380 MW
>= 1	1900	1640
		See Note (a) below
0	1850	1500
		See Note (b) below

Y = FBC's Load calculated by (2L263 VNT + 2L264 VNT + 34L WTS +5L96 SEL) MW

Note (a): When VAS-VNT loop is open, this limit is based on the condition that 73L DGB-RGA circuit is open and the FBC's load supplied from VNT is reduced down to 290 MW to maintain voltages in this area above 220 kV.

Note (b): When VAS-VNT loop is open, this limit is based on the condition that 73L DGB-RGA circuit is open and the FBC's load supplied from VNT is reduced down to 270 MW to maintain voltages in this area above 220 kV.

If alarm comes, the BC Hydro Operator should reduce the flow on 5L91 by:

- Reducing Alberta to BC transfer, and/or
- Reducing FBC's power injection into SEL, and/or
- Reducing SEV / KCL generation, and/or
- Adjusting NLY PST to increase 2L112 (NLY to BDY) transfer.

• 5L76 and 5L79 contingency:

Note: Y = 1L209 SAM if 1L209 is not radial, or Y = 0 if 1L209 is radial

- Limit: 5L76 ACK + 5L79 ACK + 2L112 NLY + 1L214 VNT + Y < 2500 MW
- Alarm if 5L76 ACK + 5L79 ACK + 2L112 NLY + 1L214 VNT + Y < -700 MW AND MATL120S_PST230 >= 0 MW, or if 5L76 ACK + 5L79 ACK + 2L112 NLY + 1L214 VNT + Y + MATL120S_PST230 < -700 MW AND MATL120S_PST230 < 0 MW
 If the alarm comes, the BC Hydro Control Centre staff must put more REV or/and SIE generation on-line to prevent post-contingency frequency drop down below 59.0 Hz for loss of 5L76 and 5L79 with 1L209, 1L214 and 2L112 transfer tripped.
- At least two of ACK 5RX4 and 5RX7 and 5RX8 must be available.
- 5L91, or 5L91 AND 5L96 contingency:
 - If SEL 5RX3 is available, then limit:

(FBC injection into SEL area) + Y < WAN shedable generation amount + ALH MW + BRX MW + WAX MW + 1000 – 1 SEV @ MIN.MW - Z

Otherwise, limit:

(FBC injection into SEL area) + Y < WAN shedable generation amount + ALH MW + BRX MW + WAX MW + 1000 – 1 SEV @ MIN.MW – 1 KCL @MIN.MW - Z

Where FBC injection into SEL area = 2L288 BTS + 2L289 BTS + FBC AAL Tie MW + 2L277 WAN - 60L225 KCL - 60L227 KCL - 2L286 SEL MW

- FBC AAL Tie MW = (2L294 AAL-NLY) AAL + (2L294 AAL-CBK) AAL MW
- Y = AB to BC MW if AB to BC > 0, or
- Y = 0 if AB to BC <= 0
- If both VAS-WTS and VAS-VNT loops are closed, then Z = 48L KET, otherwise, Z = 0
- Alarm if 5L91 SEL + 5L96 SEL + 2L112 NLY + Z < -700 MW AND MATL120S_PST230 >= 0 MW, or

if 5L91 SEL + 5L96 SEL + 2L112 NLY + Z + MATL120S_PST230 < -700 MW AND MATL120S_PST230 < 0 MW

If both VAS-WTS and VAS-VNT loops are closed, then Z = 48L KET, otherwise, Z = 0.

If the alarm comes, the BC Hydro Control Centre staff must put more local generation on-line to prevent post-contingency frequency drop down below 59.0 Hz for loss of 5L91, or 5L91 and 5L96.

Generation Shedding Requirements (5L83 AND 5L98 O.O.S (Any Status of FBC's VAS-WTS and VAS-VNT Loops)) Note: Table E is applicable to this Table.

CONTINGENCY	SHEDDING REQUIREMENTS
5L75 (3P)	ACK 5CB5 in service: Same as Table F
	ACK 5CB5 O.O.S. (5L75 contingency will trip open 5L76):
	 Same gen shedding as 5L76 contingency with ACK 5CB8 O.O.S. in this table.
5L77 (3P)	Same as Table F
5L75 (1P)	Same as Table F
5L77 (1P)	Same as Table F
5L75 (1P) AND 5L77 (3P)	Same as Table F
5L75 (3P) AND 5L77 (1P)	Same as Table F
5L75 (3P) and 5L77 (3P)	Same as Table F
5L76	ACK 5CB8 in service:
	Shed at REV: 1.02 * ((5L75 + 5L77) REV + 5L91 SEL – 3150) MW
	ACK 5CB8 O.O.S.: (5L76 contingency will trip open 5L75)
	 Shed at REV: 1.02 * ((5L75 + 5L77) REV + 5L91 SEL – Y) MW
	Y = 2800 if REV Gen <= 1500, or
	Y = 2650 if REV Gen > 1500
	If REV 5CB9 is 0.0.5., REV G1 and G2 must be selected for shedding.
5L79	Same gen shedding as 5L76 contingency with ACK 5CB8 in service in this table.
5L81	Same as Table 2.20 – 5L83 AND 5L96 O.O.S
5L82	Same as Table 2.20 – 5L83 AND 5L96 O.O.S
Bypass AMC 5CX1 or Bypass AMC 5CX2	No shedding required.
5L81 and 5L82	Same as Table 2.19 – 5L83 AND 5L91 O.O.S.
5L76 and 5L79	Same as Table 1.21 – 5L98 O.O.S
5L87	Same as 5L83 AND 5L96 O.O.S. Table 2.20
5L91 and 5L96	Same as Table 1.21 – 5L98 O.O.S
5L44	Same as Table 2.19 – 5L83 AND 5L91 O.O.S.
5L91	Same as Table 1.21 – 5L98 O.O.S
5L96	 Arm DTT 48L RAS if both VAS-WTS and VAS-VNT loops are closed and 5L91 SEL > 700 MW.
(TSA-PM must treat it as	 Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of:
"5L96 AND 5L98"	 1.25 * (5L91 SEL + 5L96 SEL + Z - Y), or
contingency because	 2.37 * (2L112 NLY + 0.24 * (5L96 SEL + Z) – 400), or
"5L96" signal won't be	 2.37 * (2L112 NLY + BDY Gen + 0.24 * (5L96 SEL + Z) – 1120), or
generated as long as 5L98	 3.05 * (2L293 SEL + 0.17 * (5L96 SEL + Z) – 400), and do not shed WAN for this requirement.
0.0.8.)	Y = 1600 if at least one of ACK 5CX1 & 5CX2 is in service, or
	Y = 1300 if none of ACK 5CX1 & 5CX2 is in service
	Z = 48L KET if DTT 48L RAS is armed, or
	Z = 0 if DTT 48L RAS is not armed.
	Note: When both VAS-WTS and VAS-VNT loops are open, 5L96 contingency with 5L98 already out of service will black
	out the FBC's loads which are radially connected to VAS. When VAS-VNT loop is open and VAS-WTS loop is closed,
	5L96 contingency may cause overloading on ASM T1/T2, or voltage instability in the area which is radially supplied from
	WTS.
5L92	Same as Table 2.19 – 5L83 AND 5L91 O.O.S.
5L94	Same as 5L96 O.O.S. Table 1.20.
Bypass GUI 5CX1	No shedding required.
5L91 (1P) or 5L96 (1P)	Shed at KCL/SEV/ALH/BRX/WAN/WAX: 1.35 * (5L91 SEL – 1500) MW

Table 2.22 – 5L83 AND 5L96 AND 5L98 O.O.S. (Any Status of VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

• Transfer limit on 5L91 SEL:

If higher transfer on 5L91 SEL is required than the limit shown in the table below for the VNT-VAS-WTS loop closed, the VNT-VAS-WTS loop must be open (FBC chose the location to open to assure the voltages in their Okanagan area above 220 kV).

Status of VNT-VAS-WTS Loop	ACK 5CX1 / 5CX2 In-Service Unit Number	Transfer Limit on 5L91 (MW)	
		Y <= 380 MW	Y > 380 MW
Closed	>= 1	1350 (to avoid ASM T1/T2 OL)	800 (to avoid BEN230 < 220 kV, see Note (a) below)
	0	1350 (to avoid ASM T1/T2 OL)	750 (to avoid BEN230 < 220 kV, see Note (a) below)
Open	>= 1	1850 (to avoid SEL500 < 1.0 pu)	1650 if 2 ACK CXs are in service, or 1550 if 1 ACKCX is in service (to avoid BEN230- RGA230-LEE230 < 220 kV, see Notes (a & b) below)
	0	1800 (to avoid SEL500 < 1.0 pu)	1350 (to avoid BEN230-RGA230-LEE230 < 220 kV, see Notes (a & b & c) below)

Y = FBC's Load calculated by (2L263 VNT + 2L264 VNT + 34L WTS) MW

Note (a): This limit is based on the condition per FBC's OO 2P-21 that the FBC's South Okanagan load (RGA plus BEN load) is reduced down to 170 MW to maintain voltage stability in this area.

Note (b): This is based on the condition that 48L is open and 42L is meshed, or 40L open and 42L not meshed so that the charging of 75L and 76L would help to maintain RGA230 voltage above 220 kV.

Note (c): This limit is based on the FBC's Kelowna load down to 290 MW to maintain voltage stability in this area.

If alarm comes, the BC Hydro Control Centre staff should reduce the flow on 5L91 by:

- Reducing Alberta to BC transfer, and/or
- Reducing FBC's power injection into SEL, and/or
- Reducing SEV / KCL generation, and/or
- Adjusting NLY PST to increase 2L112 (NLY to BDY) transfer.

• 5L76 and 5L79 contingency:

Note: Y = 1L209 SAM if 1L209 is not radial, or Y = 0 if 1L209 is radial

- Limit: 5L76 ACK + 5L79 ACK + 2L112 NLY + 1L214 VNT + Y < 2500 MW
- Alarm if 5L76 ACK + 5L79 ACK + 2L112 NLY + 1L214 VNT + Y < -700 MW AND MATL120S_PST230 >= 0 MW, or if 5L76 ACK + 5L79 ACK + 2L112 NLY + 1L214 VNT + Y + MATL120S_PST230 < -700 MW AND MATL120S_PST230 < 0 MW If the alarm comes, the BC Hydro Control Centre staff must put more REV or/and SIE generation on-line to prevent post-contingency frequency drop down below 59.0 Hz for loss of 5L76 and 5L79 with 1L209, 1L214 and 2L112 transfer tripped.
 At least two of ACK 5RX4 and 5RX7 and 5RX8 must be available.
- 5L91 contingency:
 - If SEL 5RX3 is available, then limit:

(FBC injection into SEL area) + Y < WAN shedable generation amount + ALH MW + BRX MW + WAX MW + 1000 – 1 SEV @ MIN.MW - Z

Otherwise, limit:

(FBC injection into SEL area) + Y < WAN shedable generation amount + ALH MW + BRX MW + WAX MW + 1000 – 1 SEV @ MIN.MW – 1 KCL @MIN.MW - Z

Where FBC injection into SEL area = 2L288 BTS + 2L289 BTS + FBC AAL Tie MW + 2L277 WAN - 60L225 KCL - 60L227 KCL - 2L286 SEL MW

FBC AAL Tie MW = (2L294 AAL-NLY) AAL + (2L294 AAL-CBK) AAL MW

- Y = AB to BC MW if AB to BC > 0, or
- Y = 0 if AB to BC <= 0
- Z = 48L KET if WTS-VAS-VNT loop is closed, or
- Z = 0 if WTS-VAS-VNT loop is open
- Alarm if 5L91 SEL + 2L112 NLY + Ż < -700 MW AND MATL120S_PST230 >= 0 MW, or
 - if 5L91 SEL + 2L112 NLY + Z + MATL120S_PST230 < -700 MW AND MATL120S_PST230 < 0 MW
 - Z = 48L KET if WTS-VAS-VNT loop is closed, or

Z = 0 if WTS-VAS-VNT loop is open

If the alarm comes, the BC Hydro Control Centre staff must put more local generation on-line to prevent post-contingency frequency drop down below 59.0 Hz for loss of 5L91.

Generation Shedding Requirements (5L83 AND 5L96 AND 5L98) O.O.S (Any Status of VAS-WTS and VAS-VNT Loops) Note: Table E is applicable to this Table.

CONTINGENCY	SHEDDING REQUIREMENTS
5L75 (3P)	Same as Table 2.20 – 5L83 AND 5L96 O.O.S.
5L77 (3P)	Same as Table F
5L75 (1P)	Same as Table F
5L77 (1P)	Same as Table F
5L75 (1P) and 5L77 (3P)	Same as Table F
5L75 (3P) and 5L77 (1P)	Same as Table F
5L75 (3P) and 5L77 (3P)	Same as Table F
5L76	Same as Table 2.20 – 5L83 AND 5L96 O.O.S.
5L79	Same as Table 2.20 – 5L83 AND 5L96 O.O.S.
5L81	Same as Table 2.20 – 5L83 AND 5L96 O.O.S.
5L82	Same as Table 2.20 – 5L83 AND 5L96 O.O.S.
Bypass AMC 5CX1 or	No shedding required.
Bypass AMC 5CX2	
5L81 and 5L82	Same as Table 2.19 – 5L83 AND 5L91 O.O.S.
5L76 and 5L79	Same as Table 1.22 – 5L96 AND 5L98 O.O.S.
5L87	Same as Table 1.20 - 5L96 O.O.S.
5L91	Same as Table 1.22 – 5L96 AND 5L98 O.O.S.
(TSA-PM must treat it as	
"5L91 AND 5L96"	
contingency because	
"5L91" signal won't be	
generated as long as 5L96	
0.0.5.)	
5L44	Same as Table 2.19 – 5L83 AND 5L91 0.0.5.
5192	Same as Table 2.19 – 5L83 AND 5L91 U.U.S.
5L94	Same as Table 2.20 – 5L83 AND 5L96 O.O.S.
Bypass GUI 5CX1	
5L91(1P)	Shed at KCL/SEV/ALH/BRX/WAN/WAX: 1.35 * (5L91 SEL – 1500) MW

Table 2.23 - 5L83 AND 5L92 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

- Notes 2 in Section 2
- 5L91 and 5L96 contingency:
 - Limit: 5L91 SEL + 5L96 SEL + Y + Z < 2500 MW
 - limit:
 - FBC injection into SEL area < WAN shedable generation amount + ALH MW + BRX MW + WAX MW - Min (1 SEV@MIN_MW, 1 KCL @MIN_MW) - Z + W

Y = 2L112 NLY if 2L112 NLY > 0, or Y = 0 if 2L112 NLY <= 0 Z = 48L KET if VAS-WTS loop closed, or Z = 0 if VAS-WTS loop openW is the lesser of:
• 2L294_Over_Rating, or
• 2L294 \text{ NLY } + CBK 500 \text{ kV to } 230 \text{ kV MW } + 1L274 \text{ POC} - 1L275 \text{ NTL } + 100
FBC injection into SEL area = 2L288 BTS + 2L289 BTS + FBC AAL Tie MW + 2L277 WAN - 60L225 KCL - 60L227 KCL - 2L286 SEL MW
FBC AAL Tie MW = (2L294 AAL-NLY) AAL + (2L294 AAL-CBK) AAL MW

• 5L44 contingency:

Limit: 2L64 KI2 + 0.155 * 5L44 ING + M <= 2L64_Over_Rating Where M is calculated as follows: Y = 2L112 BDY + 0.031 * 5L44 ING Z = 2L293 NLY + 0.033 * 5L44 ING If Y > <u>NLYPST_OL_PickupMW</u>, R1 = 0.064 * (Y-<u>NLYPST_OL_ResetMW</u>), Else R1 = 0 If Z > 2L293OLRAS_PickupMW, R2 = 0.082 * (Z - 2L293OLRAS_ResetMW), Else R2 = 0 M = Max (R1, R2)

If TSA-PM alarms "VIOLATION_2L64 KI2 OVER RATING_5L44CTG", then the BC Hydro Control Centre staff shall take the following actions:

- Increase flow on 2L129 ARN, or
- Increase LM generation, or
- Reduce import on 5L51 and 5L52.

Generation Shedding Requirements 5L83 AND 5L92 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops) Note: Table E is applicable to this Table.

CONTINGENCY	SHEDDING REQUIREMENTS
5L75 (3P)	ACK 5CB5 in service: Same as Table F
	 <u>ACK 5CB5 O.O.S.</u> (5L75 contingency will trip open 5L76): Same gen shedding as 5L76 contingency with ACK 5CB8 O.O.S. in this Table.
5L77 (3P)	Same as Table F
5L75 (1P)	Same as Table F
5L77 (1P)	Same as Table F
5L75 (1P) and 5L77 (3P)	Same as Table F
5L75 (3P) and 5L77 (1P)	
5L75 (3P) and 5L77 (3P)	Same as Table F
5L76	ACK 5CB8 is in service: If REV Gen <= 2000 MW, then shed at REV: 1.03* ((5L75 + 5L77) REV + (5L91 + 5L96) SEL – 4050) MW
	ACK 5CB8 is O.O.S.: (5L76 contingency will trip open 5L75)
	Shed at REV: 1.03 * ((5L75 + 5L77) REV + (5L91 + 5L96) SEL – Y) MW
	Y = 3570 if REV Gen <= 2000 MW, or
	Y = 3770 if REV Gen > 2000 MW
	AND
	 If REV 5CB9 is O.O.S., REV G1 and G2 must be selected for shedding.
5L79	Same gen shedding as 5L76 contingency with ACK 5CB8 in service.
5L81	Shed at MCA/REV: GS + 3.17 * M
	Where GS and M are calculated as follows:
	GS = Max (0, 3.17 * (5L82 NIC + 0.45 * 5L81 NIC - 5L82_Over_Rating))
	Y = 2L112 NLY + 0.06 * 5L81 NIC - 0.15 * GS
	Z = -2L293 NLY + 0.06 * 5L81 NIC - 0.21 * GS
	If Y > NLYPST_OL_PickupMW, M1 = 0.39 * (Y – NLYPST_OL_ResetMW), Else M1 = 0
	If $Z > 2L293OLRAS_PickupMW$, M2 = 0.48 * (Z – 2L293OLRAS_ResetMW), Else M2 = 0
-	M = Max (M1, M2)
5L82	Shed at MCA/REV: GS + 3.23 * M
	Where GS and M are calculated as follows:
	$GS = Max (0, 3.23^{\circ} (5L81 \text{ NIC} + 0.43^{\circ} 5L82 \text{ NIC} - 5L81_\text{Over} \text{Rating}))$
	Y = 2L112 NLY + 0.05 + 5L82 NIC - 0.15 + GS
	$Z = -2L293$ NLY + 0.06 ^ 5L82 NIC - 0.21 ^ GS
	Y > V =
	If $Z > 2L293OLRAS_PICKUPINIVV$, $MZ = 0.47 \text{ (}Z - 2L293OLRAS_Reset MVV)$, Else $MZ = 0$
Bypass AMC 50X1 or	No shadding raquirad
Bypass AMC 50X1, 01	
51.81 and 51.82	Same as 51.83 O O S. Table 1.16
51 76 and 51 70	Same as $5102 \cap OS$ Table 1.23
51.87	Shed at $MCA/REV/(1.1 * /(51.81 + 51.82 + 51.87) MIC = 4350) MW$
51 01 and 51 06	Same as $51.02 \cap OS$ Table 1.23
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CONTINGENCY	SHEDDING REQUIREMENTS
5L44	GS1 = 3.5 * (5L81NIC + 0.3 * 5L44MDN – 5L81_Over_Rating) GS2 = 14.5 * (2L20CSQ + 0.22 * 5L44 MDN - 2L20_Over_Rating) GS3 = 37.5 * (2L51COK + 0.1 * 5L44MDN - 2L51COK_Over_Rating)
	M = MAX (GS1, GS2, GS3, 0) Y = 2L112 NLY + 0.05 * 5L44 MDN – 0.13* M Z = 2L293 SEL + 0.05 * 5L44 MDN – 0.14 * M
	If Y > NLYPST_OL_PickupMW, R1 = 0.42 * (Y - NLYPST_OL_ResetMW) R3 = 0.1 * (Y - NLYPST_OL_ResetMW) R5 = 0.05 * (Y - NLYPST_OL_ResetMW) Else R1 = 0, R3 = 0, R5 = 0.
	If Z > 2L293OLRAS_PickupMW, R2 = 0.5 * (Z - 2L293OLRAS_ResetMW) R4 = 0.1 * (Z - 2L293OLRAS_ResetMW) R6 = 0.05 * (Z - 2L293OLRAS_ResetMW) Else R2 = 0, R4 = 0, R6 = 0.
	Ra = MAX (R1, R2) Rb = MAX (R3, R4) Rc = MAX (R5, R6)
	 Shed at MCA/REV first, and then GMS/PCN the greatest of: D1* (GS1 + 3.5* Ra) D2* (GS2 + 14.5* Rb) D3* (GS3 + 37.5* Rc) Where:
	D1 = 1.0 if shedding at MCA/REV, or D1 = 1.65 if shedding at GMS/PCN, D2 = 1.0 if shedding at MCA/REV, or D2 = 1.1 if shedding at GMS/PCN, D3 = 1.0 if shedding at MCA/REV, or D3 = 1.25 if shedding at GMS/PCN.
	 Total armed generation shedding must be limited to 2500 MW. If exceeding the limit, the Operator can take the following actions: Reduce the flow on 2L129 from ARN to VIT. Reduce SI generation and increase Peace generation
51.04	
2Fà1	 Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: 1.35 * (5L91 SEL+5L96 SEL - Y) MW, or 3.16 * (2L112 NLY + 0.19 * 5L91 SEL - 400), or 2.60 * (2L293 SEL + 0.23 * 5L91 SEL - 400), and do not shed WAN for this requirement. Y = 1700 if SEL T1 & (T2 or/and) & T4 are in service, or Y = 1635 if SEL T1 or (T2 & T3) or T4 is O.O.S.
5L96	 Arm DTT 48L if 5L96 SEL > 800 MW AND if VAS-WTS loop is closed. Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: 1.25 * (5L91 SEL+5L96 SEL + Z - Y), or 2.30 * (2L112 NLY + BDY GEN + 0.24*(5L96 SEL + Z) - 1100) 2.30 * (2L112 NLY + 0.24 * (5L96 SEL + Z) - 400), or 2.66 * (2L293 SEL + 0.19 * (5L96 SEL + Z) - 400), and do not shed WAN for this requirement. Y = 2020 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1800 if none of ACK 5CX1 & 5CX2 is in service Z = 48L KET if DTT 48L is armed, or
5L98	 If VAS-VNT loop is closed, then Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: > 1.18 * (5L91 SEL + 5L98 VAS - Y) > 3.10 * (2L112 NLY + 0.17 * 5L98 VAS - 400), or > 4.36 * (2L293 SEL + 0.15 * 5L98 VAS - 400), and do not shed WAN for this requirement. Y = 1970 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1880 if none of ACK 5CX1 & 5CX2 is in service.
	 Otherwise, Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: 1.14* (5L91 SEL + 5L98 VAS - Y) 3.48* (2L112 NLY + 0.20* 5L98 VAS - 400), or 4.00* (2L293 SEL + 0.18* 5L98 VAS - 400), and do not shed WAN for this requirement. Y = 2050 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1930 if none of ACK 5CX1 & 5CX2 is in service.
5L96 & 5L98	 Arm DTT 48L if 5L96 SEL > 800 MW AND if both VAS-WTS and VAS-VNT loops are closed. Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: 1.25 * (5L91 SEL+5L96 SEL +Z - Y), or 2.60 * (2L112 NLY + BDY GEN + 0.27 * (5L96 SEL + Z) - 1190), or 2.60 * (2L112 NLY + 0.27 * (5L96 SEL + Z) - 400), or 3.02 * (2L293 SEL + 0.21 * (5L96 SEL + Z) - 400), and do not shed WAN for this requirement. Y = 1990 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1720 if none of ACK 5CX1 & 5CX2 is in service Z = 48L KET if DTT 48L is armed, or Z = 0 if DTT 48L is not armed
5L94	 (Note: Arming requirements for DTT 1L274 and DTT 1L275 are included in SOO 7T-17.) If (BC to US + BC to AB) > 2400 MW, then shed at KCL/SEV/ALH/WAN/BRX/REV/WAX: (BC to AB) MW
Bypass GUI 5CX1 5L91 (1P) or 5L96 (1P) or 5L98 (1P)	No shedding required. No shedding required.

Table 2.24 – 5L83 AND 5L94 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

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- Notes 2 in Section 2
 - 5L91 and 5L96 contingency:
 - If SEL 5RX3 is available, then limit:

(FBC injection into SEL area) < WAN shedable generation amount + ALH MW + BRX MW + WAX MW + 350 + Y - Z,

Otherwise, limit:

(FBC injection into SEL area) < WAN shedable generation amount + ALH MW + BRX MW + WAX MW + 350 – 1 SEV@MIN_MW + Y – Z

Where: FBC injection into SEL area = 2L288 BTS + 2L289 BTS + FBC AAL Tie MW + 2L277 WAN - 60L225 KCL MW - 60L227 KCL - 2L286 SEL MW

FBC AAL Tie MW = (2L294 AAL-NLY) AAL + (2L294 AAL-CBK) AAL MW

Y = AB to BC MW if AB to BC > 0 MW, or Y = 0 if AB to BC <= 0 MW Z = 48L KET if VAS-WTS loop is closed, or

- Z = 0 if VAS-WTS loop is open.
- 5L44 contingency:

Limit: 2L64 Kl2 + 0.155 * 5L44 ING + M <= 2L64_Over_Rating Where M is calculated as follows: Y = 2L112 BDY + 0.032 * 5L44 ING Z = 2L293 NLY + 0.027 * 5L44 ING If Y > NLYPST_OL_PickupMW, R1 = 0.066 * (Y- NLYPST_OL_ResetMW), Else R1 =0 If Z > 2L293OLRAS_PickupMW, R2 = 0.083 * (Z – 2L293OLRAS_ResetMW), Else R2 = 0 M = Max (R1, R2)

If TSA-PM alarms "VIOLATION_2L64 KI2 OVER RATING_5L44CTG", then the BC Hydro Control Centre staff shall take the following actions:

- Increase flow on 2L129 ARN, or
- Increase LM generation, or
- Reduce import on 5L51 and 5L52.

Generation Shedding Requirements 5L83 AND 5L94 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops) Note: Table E is applicable to this Table.

CONTINGENCY	SHEDDING REQUIREMENTS
5L75 (3P)	ACK 5CB5 in service: Same as Table F
	ACK 5CB5 0.0.5. (5L75 contingency will trip open 5L76):
5I 77 (3P)	Same as Table F
5L75 (1P)	Same as Table F
5L77 (1P)	Same as Table F
5L75 (1P) and 5L77 (3P)	Same as Table F
5L75 (3P) and 5L77 (1P)	Same as Table F
5L75 (3P) and 5L77 (3P)	Same as Table F
5L76	ACK 5CB8 is in service: No gen shedding
	ACK 5CB8 is O.O.S.: (5L76 contingency will trip open 5L75) Shed at REV: 1.03 * ((5L75 + 5L77) REV + (5L91 + 5L96) SEL – 3915) MW AND If REV 5CB9 is O.O.S., REV G1 and G2 must be selected for shedding.
5L79	No generation shedding
5L81	Same as 5L83 O.O.S. Table 1.16
5L82	Same as 5L83 O.O.S. Table 1.16
Bypass AMC 5CX1, or Bypass AMC 5CX2	No shedding required

CONTINGENCY	SHEDDING REQUIREMENTS
5L81 and 5L82	If generation shedding is armed, keep a minimum of 2 MCA, 2 REV, 2 SEV and 2/3 equivalent SEV units on line post- shedding if SEL 5RX3 is available, or keep a minimum of 2 MCA, 2 REV, 2 SEV and 1 & 2/3 equivalent SEV units on line post-shedding if SEL 5RX3 is unavailable.
	If TSA-PM alarms "C5L81_82 - MAX ARMED SHED VIOLATION", the BC Hydro Control Centre staff should take the following actions: If BC is exporting to US, then reduce BC to US export.
	 If BC is importing from US, then reduce (SI and FBC) generation and increase Peace generation, or/and reduce (SI and FBC) generation and increase import from US
	The following are the generation shedding and RAS arming requirements:
	If 2L112 NLY < 200 MW OR 0.10 * (5L81 + 5L82) NIC + 2L293 SEL > 420, then GS is the greater of: • 1.13 * [(5L81 + 5L82 + 5L87) NIC + (2L92 + 2L93) SVA + 2L112 NLY – 2250], or • 1.15 * [(5L81 + 5L82) NIC + (5L41 + 5L42 + 2L90) KLY + 2L112 NLY – 3800]
	If 2L112 NLY >= 200 AND 0.10 * (5L81 + 5L82) NIC + 2L293 SEL <= 420, then GS is the greater of: • 1.18 * [(5L81 + 5L82 + 5L87) NIC + (2L92 + 2L93) SVA – 2250], or • 1.20 * [(5L81 + 5L82) NIC + (5L41 + 5L42 + 2L90) KLY – 3800]
	 If GS >= 500 MW, then Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and
	 Shed at MCA/REV/SEV/KCL/ALH/WAN/BRX/WAX first, then GMS/PCN: 0.93 * GS + (BC_AB) Total armed generation shedding must be limited to 2500 + (BC_AB)
	If GS < 500, then shed at MCA/REV/SEV/KCL/ALH/WAN/BRX/WAX first, then GMS/PCN: GS
	Arm DTT 2L112 RAS, If • 2L112 NLY < 200 AND GS > 0 , or • 0.10 * (5L81 + 5L82) NIC + 2L293 SEL > 420
5L76 and 5L79	Same as 5L94 O.O.S. Table 1.24
5L91 and 5L96	Arm DTT 48L RAS if VAS-WTS loop is closed.
	 Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17 Shed at KCL/ALH/SEV/WAN/BRX/WAX:
	1.02 x (5L91 SEL + 5L96 SEL + Z) + 2L112 NLY – 1L274 POC + 1L275 NTL + 70 - Y Y is the lesser of:
	 1200 - BDY gen MW 7 = 49L KET if DTT 49L BAS is armed or
	Z = 46L KeT II DTT 46L RAS is anned, of Z = 0 if DTT 48L RAS is not armed.
	If SEL 5RX3 is available, then SEV may be shed down to 0 MW, otherwise keep a minimum of 1 SEV unit on line post shedding.
	 Total armed generation shedding must be limited to: 2500 – 1L274 POC + 1L275 NTL If TSA-PM alarms "insufficient shedding", the BC Hydro Control Centre staff must request FBC to reduce the generation of the BRD/COR/UBO/LBO/SLC, or/and the WAN unit not armed for shedding, or run one additional SEV unit as sync if
5L44	SEL 5RX3 is unavailable. Same as Table 2.23 – 5L83 AND 5L92 O.O.S.
5L91	Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of:
	 3.30* (2L112 NLY + 0.20* 5L91 SEL – 400), or 3.70* (2L293 SEL + 0.19* 5L91 SEL – 400), and do not shed WAN for this requirement. Y = 1715 if all SEL T1 & (T2 or/and T3) & T4 are in service, or Y = 1620 if SEL T1 or (T2 & T3) or T4 is O O S
5L96	Arm DTT 48L if 5L96 SEL > 800 MW AND if VAS-WTS loop is closed. Shed at KCL /AL HAWAN/BRX/WAX first, then SEV the greatest of:
	> $1.25 * (5L91 SEL + 5L96 SEL + Z - Y)$ > $2.88 * (2L112 NLY + 0.21 * (5L96 SEL + Z) - 400). or$
	> 2.88 * (2L112 NLY + BDY Gen + 0.21 * (5L96 SEL + Z) – 1200), or > 3.38 * (2L293 SEL + 0.15 * (5L96 SEL + Z) – 400), and do not shed WAN for this requirement.
	Y = 2080 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1760 if none of ACK 5CX1 & 5CX2 is in service
	Z = 48L KET if DTT 48L is armed, or Z = 0 if DTT 48L is not armed
5L98	 If VAS-VNT loop is closed, then Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of:
	 1.18* (5L91 SEL + 5L98 VAS - Y), or 3.11* (2L112 NLY + 0.17* 5L98 VAS - 400), or 4.25* (01202 SEL + 0.14* 5L08 VAS - 400) and do not abod WAN for this requirement.
	Y = 4.35 "(2L293 SEL + 0.14 " 5L98 VAS = 400), and do not shed WAN for this requirement. Y = 2000 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1860 if none of ACK 5CX1 & 5CX2 is in service.
	 Otherwise, Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of:
	> $1.14 * (5L91 SEL + 5L98 VAS - Y), or$ > $3.05 * (2L112 NLY + 0.20 * 5L98 VAS - 400), or$
	\blacktriangleright 4.28 * (2L293 SEL + 0.16 * 5L98 VAS – 400), and do not shed WAN for this requirement. Y = 2080 if at least one of ACK 5CX1 & 5CX2 is in service, or
	Y = 1960 if none of ACK 5CX1 & 5CX2 is in service.
5L96 & 5L98	 Arm DTT 48L if 5L96 SEL > 800 MW AND if both VAS-WTS and VAS-VNT loops are closed. Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of:
	 1.25 * (5L91 SEL + 5L96 SEL + Z - Y) 3.14 * (2L112 NLY + 0.24 * (5L96 SEL + Z) - 400), or
	 3.14 * (2L112 NLY + BDY Gen + 0.24 * (5L96 SEL + Z) – 1230), or 3.28 * (2L293 SEL + 0.17 * (5L96 SEL + Z) – 400), and do not shed WAN for this requirement.
	Y = 2050 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1700 if none of ACK 5CX1 & 5CX2 is in service
	Z = 48L KE I If D I I 48L is armed, or Z = 0 if DTT 48L is not armed

CONTINGENCY	SHEDDING REQUIREMENTS
5L92	Arm DTT 2L112 RAS if • 2L293 NLY > 420 – 0.75 * 5L92 CBK, or • 2L293 SEL > 420 – 0.9 * 5L92 SEL
Bypass GUI 5CX1	No shedding required.
5L91 (1P) or 5L96 (1P) or 5L98 (1P)	No shedding required.

Table 2.25 - 5L83 AND 5L94 AND 5L96 O.O.S. (Any Status of VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

 Limit: 5L91 SEL < 1300 MW if none of ACK 5CX1 and 5CX2 is in service, or Limit: 5L91 SEL < 1400 MW if at least one of ACK 5CX1 and 5CX2 is in service If alarm comes, the BC Hydro Control Centre staff should reduce the flow on 5L91 by:

- Reducing FBC's power injection into SEL, and/or
- Reducing SEV / KCL generation, and/or
- Adjusting NLY PST to increase 2L112 (NLY to BDY) transfer
- 5L76 and 5L79 contingency:
 - At least two of ACK 5RX4 and 5RX7 and 5RX8 must be available.
 - If VAS-VNT loop is closed, limit BDY Gen + 2L112 NLY < 1150 MW.
 - If VAS-VNT loop is open, limit BDY Gen + 2L112 NLY < 1050 MW.
- 5L91 contingency:

If SEL 5RX3 is available, then limit:

(FBC injection into SEL area) < WAN shedable generation amount + ALH MW + BRX MW + WAX MW + Y + 350 Otherwise, limit:

(FBC injection into SEL area) < WAN shedable generation amount + ALH MW + BRX MW + WAX MW + Y + 350 – 1 SEV@MIN_MW

Where:

FBC injection into SEL area = 2L288 BTS + 2L289 BTS + FBC AAL Tie MW + 2L277 WAN - 60L225 KCL - 60L227 KCL - 2L286 SEL MW

FBC AAL Tie MW = (2L294 AAL-NLY) AAL + (2L294 AAL-CBK) AAL MWY = AB to BC MW if AB to BC > 0 MW, or Y = 0 if AB to BC <= 0 MW

• 5L44 contingency:

Limit: 2L64 KI2 + 0.156 * 5L44 ING + M <= 2L64_Over_Rating Where M is calculated as follows:

- Y = 2L112 BDY + 0.029 * 5L44 ING
- Z = 2L293 NLY + 0.024 * 5L44 ING
- If Y > NLYPST_OL_PickupMW, R1 = 0.063 * (Y NLYPST_OL_ResetMW), Else R1 = 0
- If Z > 2L293OLRAS_PickupMW, R2 = 0.080 * (Z 2L293OLRAS_ResetMW), Else R2=0
- M = Max (R1, R2)

If TSA-PM alarms "VIOLATION_2L64 KI2 OVER RATING_5L44CTG", then the BC Hydro Control Centre staff shall take the following actions:

- Increase flow on 2L129 ARN, or
- Increase LM generation, or
- Reduce import on 5L51 and 5L52.

Generation Shedding Requirements 5L83 AND 5L94 AND 5L96 O.O.S. (Any Status of VAS-WTS and VAS-VNT Loops) Note: Table E is applicable to this Table.

CONTINGENCY	SHEDDING REQUIREMENTS
5L75 (3P)	ACK 5CB5 in service: Same as Table F
	ACK 5CB5 O.O.S. (5L75 contingency will trip open 5L76):
	If REV 5CB9 is 0.0.5., REV G1 and G2 must be selected for shedding.
5L77 (3P)	Same as Table F
5L75 (1P)	Same as Table F
5L77 (1P)	Same as Table F
5L75 (1P) and 5L77 (3P)	Same as Table F
5L/5 (3P) and 5L/7 (1P)	Same as Table F
5L75 (3P) and 5L77 (3P)	Same as Table F
5L76	ACK 5CB8 in service: No generation shedding
	ACK 5CB8 O.O.S.: (5L76 contingency will trip open 5L75)
	Same as 5L75 (3P) contingency with ACK 5CB5 0.0.S. in this table
5L79	No generation shedding
5L81	No shedding required.
5L82	No shedding required.
Bypass AMC 5CX1, or	No shedding required.
Bypass AMC 5CX2	
5L81 and 5L82	Same as Table 2.24 – 5L83 AND 5L94 O.O.S.
5L76 and 5L79	Same as Table 1.25 – 5L94 AND 5L96 O.O.S.
5L87	Same as 5L83 AND 5L96 O.O.S. Table 2.20

5L44	GS1 = 3.5 * (5L81NIC + 0.3 * 5L44MDN – 5L81 Over Rating)
	GS2 = 14.5 * (2L20CSQ + 0.22 * 5L44 MDN - 2L20_Over_Rating)
	GS3 = 37.5 * (2L51COK + 0.1 * 5L44MDN - 2L51COK_Over_Rating)
	M = MAX (GS1, GS2, GS3, 0)
	Y = 2L112 NLY + 0.05 * 5L44 MDN - 0.13 * M
	Z = 2L293 SEL + 0.05 5L44 MDN - 0.11 M
	If Y > NI YPST OL PickupMW
	R1 = 0.42 * (Y - NI YPST OL Reset MW)
	$R_3 = 0.1 * (Y - NLYPST OL Reset MW)$
	R5 = 0.05 * (Y - NLYPST OL ResetMW)
	Else R1 = 0, R3 = 0, R5 = 0.
	If $Z > 2L293OLRAS_PickupMW$,
	$R2 = 0.5^{(2)} - 2L2930LRAS_Reset MW)$ $R4 = 0.1 * (7 - 2L2030LRAS_Reset MW)$
	$R4 = 0.1$ (Z = 2L2930LRAS_Reset/WW) R6 = 0.05 * (7 = 2L2930LRAS_Reset/WW)
	Fise R2 = 0. R4 = 0. R6 = 0.
	Ra = MAX (R1, R2)
	Rb = MAX (R3, R4)
	Rc = MAX (R5, R6)
	 Shed at MCA/REV first, and then GMS/PCN the greatest of:
	\sim D1* (GS1+3.5* Ba)
	D2*(GS2+14.5*Rb)
	D3 * (GS3 + 37.5* Rc)
	Where:
	D1 = 1.0 if shedding at MCA/REV, or
	D1 = 1.65 If shedding at GMS/PCN, D2 = 1.0 if shedding at MCA/DEV/ or
	D2 = 1.0 If shedding at MCA/REV, of $D2 = 1.1$ if shedding at GMS/PCN
	D3 = 1.0 if shedding at MCA/REV or
	D3 = 1.25 if shedding at GMS/PCN.
	Total armed generation shedding must be limited to 2500 MW. If exceeding the limit, the Operator can take the following
	actions: Peduce the flow on 2L120 from A PN to V/IT
	Reduce the now off 2L 129 from ARN to VIT. Reduce SL generation and increase Reace generation
5L91	Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17
(ISA-PM must use "5L91	Arm D I I 48L RAS IF VAS-W IS loop is closed
signal won't be generated	 Sned at KUL/ALH/SEV/WAN/BRX/WAX: 1.02 x /5L01 SEL + 5L06 SEL + 2L112 NLV - 1L274 DOC + 1L275 NTL + 70 - V + 7
as long as 5L96 O.O.S.)	Y is the lesser of:
5	• 400 MW. or
	• 1200 - BDY gen MW
	Z = 48L KET if DTT 48L RAS is armed, or Z = 0 if DTT 48L RAS is nor armed.
	KCL may be shed down to 0 MW. If SEL 5RX3 is available, then SEV may be shed down to 0 MW, otherwise keep a minimum of 1 SEV upit on line post shedding.
	 If TSA-PM alarms "insufficient shedding" the BC Hydro Control Centre staff must request EBC to reduce the generation
	of the BRD/COR/UBO/LBO/SLC, or/and the WAN unit not armed for shedding, or run one additional SEV unit as sync, if
	SEL 5RX3 is unavailable.
5L98	Note: When both VAS-WTS and VAS-VNT loops are open, 5L98 contingency with 5L96 already out of service will black
(TSA-PM must treat it as	out the FBC's loads which are radially connected to VAS. When VAS-VNT loop is open and VAS-WTS loop is closed, 5L98
"5L96 AND 5L98"	contingency may cause overloading on ASM T1/T2, or voltage instability in the area which is radially supplied from WTS.
"51 08" signal was't be	
denerated as long as 51 06	No shedding required
0.0.S.)	
5L92	Arm DTT 2L112 RAS if
	> $2L293 \text{ NLY} > 420 - 0.75 * 5L92 CBK, or$
Bypass CLII 5CV4	➢ ZLZ93 SEL > 420 - 0.9 ^ 5L92 SEL No shodding required
5 91 (1P) or 5 98 (1P)	No shedding required

Table 2.26 - 5L83 AND 2L112 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

- 5L44 Contingency:
 - Limit:

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• 2L64 KI2 + 0.157 * 5L44 ING < 2L64_Over_Rating, or

If TSA-PM alarms "VIOLATION_2L64 KI2 OVER RATING_5L44CTG", then the BC Hydro Control Centre staff shall take the following actions:

- Increase flow on 2L129 ARN, or
- Increase LM generation, or
- Reduce import on 5L51 and 5L52.
- 5L91 and 5L96 contingency:
 - Limit: 5L91 SEL + 5L96 SEL + Z < 2500 MW
 - If SEL 5RX3 is available, then limit:
 - (FBC injection into SEL area) + Y < WAN shedable generation amount + ALH MW + BRX MW + WAX MW + 1000 1 SEV @ MIN.MW Z

Otherwise, limit:

(FBC injection into SEL area) + Y < WAN shedable generation amount + ALH MW + BRX MW + WAX MW + 1000 – 1 SEV @ MIN.MW – 1 KCL @ MIN.MW - Z

Where: FBC injection into SEL area = 2L288 BTS + 2L289 BTS + FBC AAL Tie MW + 2L277 WAN - 60L225 KCL -

60L227 KCL – 2L286 SEL MW

FBC AAL Tie MW = (2L294 AAL-NLY) AAL + (2L294 AAL-CBK) AAL MW

- Y = AB to BC MW if AB to BC > 0, or
- Y = 0 if AB to BC <= 0
- Z = 48L KET if VAS-WTS loop is closed, or
- Z = 0 if VAS-WTS loop is open.

Alarm if 5L91 SEL + 5L96 SEL + Z < -700 MW AND MATL120S_PST230 >= 0 MW, or

If 5L91 SEL + 5L96 SEL + Z + MATL120S_PST230 < -700 MW AND MATL120S_PST230 < 0 MW

If the alarm comes, the BC Hydro Control Centre staff must put more local generation on-line to prevent post-contingency frequency drop down below 59.0 Hz for loss of 5L91 and 5L96.
Generation Shedding Requirements 5L83 AND 2L112 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops) Note: Table E is applicable to this Table.

CONTINGENCY	SHEDDING REQUIREMENTS		
5L75 (3P)	ACK 5CB5 in service: Same as Table F		
	 <u>ACK 5CB5 O.O.S.</u> (5L75 contingency will trip open 5L76): Same gen shedding as 5L76 contingency with ACK 5CB8 O.O.S. in this Table. 		
5L77 (3P)	Same as Table F		
5L75 (1P)	Same as Table F		
5L77 (1P)	Same as Table F		
5L/5(1P) and $5L/7(3P)$	Same as Table F		
5L75 (3P) and 5L77 (1P)	Same as Table F		
5L76	ACK 5CB8 in service: If REV Gen <= 2000 MW, shed at REV: 1.02 * ((5L75 + 5L77) REV + (5L91 + 5L96) SEL – 4215) MW		
	ACK 5CB8 O.O.S.: (5L76 contingency will trip open 5L75) Shed at REV:		
	 1.02 * ((5L75 + 5L77) REV + (5L91 + 5L96) SEL – 3765) MW if REV Gen <= 1500 MW, or 1.02 * ((5L75 + 5L77) REV + (5L91 + 5L96) SEL – 4010) MW if 1500 < REV Gen <= 2000 MW AND 		
EL 70	If REV 5CB9 is O.O.S., REV G1 and G2 must be selected for shedding.		
5L81	Shed at MCA/REV: 2.77 * (5L82 NIC + 0.47 * 5L81 NIC - 5L82_Over_Rating)		
5L82	Shed at MCA/REV: 2.83 * (5L81 NIC + 0.45 * 5L82 NIC - 5L81_Over_Rating)		
Bypass AMC 5CX1, or Bypass AMC 5CX2	No shedding required		
5L81 and 5L82	If generation shedding is armed, keep a minimum of 2 MCA, 1 REV, 2 SEV and 2/3 equivalent SEV units on line post- shedding if SEL 5RX3 is available, or keep a minimum of 2 MCA, 2 REV, 2 SEV and 1 & 2/3 equivalent SEV units on line post-shedding if SEL 5RX3 is unavailable.		
	If TSA-PM alarms "C5L81_82 - MAX ARMED SHED VIOLATION", the BC Hydro Control Centre staff should take the following actions: If BC is exporting to US, then Reduce BC to US export. If BC is importing from US, then Reduce (SI and FBC) generation and increase Peace generation, or/and Reduce (SI and FBC) generation and increase import from US		
	The following are the generation shedding and RAS arming requirements: GS is the greater of: • 1.13 * [(5L81 + 5L82 + 5L87) NIC + (2L92 + 2L93) SVA - 2250], or • 1.15 * [(5L81 + 5L82) NIC + (5L41 + 5L42 + 2L90) KLY - 3800] If AB to BC >= 500 MW AND GS >= 1500 MW, then		
	 Arm DTT 5L94, and Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, 		
	 and Shed at MCA/REV/SEV/KCL/ALH/WAN/BRX/WAX first, then GMS/PCN: 0.93 * GS – 1.05 *AB to BC Total armed generation shedding must be limited to 2500 - AB to BC 		
	If AB to BC < 500 MW or [AB to BC >= 500 MW AND GS < 1500], then • Shed at MCA/REV/SEV/KCL/ALH/WAN/BRX/WAX first, then GMS/PCN: GS • Total armed generation shedding must be limited to 2500 MW		
5L76 and 5L79	Same as 2L112 O.O.S. Table 1.26		
5L87	Same as 5L83 O.O.S. Table 1.16		
5L91 & 5L96 5L44	Tables A, B, C and D are applicable to this contingency with the exception that arming DTT 2L112 RAS is not required.GS1 = 3.5 * (5L81NIC + 0.3 * 5L44MDN – 5L81_Over_Rating)GS2 = 13.5 * (2L20CSQ + 0.22 * 5L44 MDN - 2L20_Over_Rating)GS3 = 35.5* (2L51COK + 0.1 * 5L44MDN - 2L51COK_Over_Rating)		
	 Shed at MCA/REV first, and then GMS/PCN the greatest of: D1 * GS1 D2 * GS2 D3 * GS3 Where: 		
	D1 = 1.0 if shedding at MCA/REV, or D1 = 1.6 if shedding at GMS/PCN, D2 = 1.0 if shedding at MCA/REV, or D2 = 1.1 if shedding at GMS/PCN, D3 = 1.0 if shedding at MCA/REV, or D3 = 1.25 if shedding at GMS/PCN.		
	 Total armed generation shedding must be limited to 2500 MW. If exceeding the limit, the Operator can take the following actions: Reduce the flow on 2L129 from ARN to VIT. Reduce SI generation and increase Peace generation 		
5L91	 Shed at KCL/ALH/WAN/BRX/WAX first, then SEV: 1.10 * (5L91 SEL+5L96 SEL – Y) Y = 1535 if SEL T1 & (T2 or/and T3) & T4 are in service, or Y = 1480 if SEL T1 or (T2 & T3) or T4 is O.O.S. 		

CONTINGENCY	SHEDDING REQUIREMENTS
5L96	Arm DTT 48L if 5L96 SEL > 800 MW and if VAS-WTS loop is closed.
	Shed at KCL/ALH/WAN/BRX/WAX first, then SEV:
	$ \sum_{i=1}^{\infty} 1.05 \times (5L91 \text{ SEL} + 5L96 \text{ SEL} + Z - Y) $
	Y = 1020 if a least one of ACK 5CX1 & 5CX2 is in service. Y = 1500 if none of ACK 5CX1 & 5CX2 is in service.
	Z = 48L KET if DTT 48L is armed, or
	Z = 0 if DTT 48L is not armed
5L98	If VAS-VNT loop is closed, then
	 Shed at KCL/ALH/WAN/BRX/WAX first, then SEV: 1.16 * (5L91 SEL + 5L98 VAS – Y)
	Y = 1650 if at least one of ACK 5CX1 & 5CX2 is in service, or
	Y = 1500 if none of ACK 5CX1 & 5CX2 is in service
	Otherwise, Shed at KCL/ALHAMAN/BRY/WAY first then SEV: $1.05 \times (51.01 \text{ SEL} + 51.08 \text{ VAS} - \text{V})$
	Y = 1680 if at least one of ACK 5CX1 & 5CX2 is in service or
	Y = 1540 if none of ACK 5CX1 & 5CX2 is in service
5L96 & 5L98	 Arm DTT 48L if 5L96 SEL > 800 MW and if both VAS-WTS and VAS-VNT loops are closed.
	 Shed at KCL/ALH/WAN/BRX/WAX first, then SEV: 1.05 * (5L91 SEL + 5L96 SEL + Z – Y)
	Y = 1720 if at least one of ACK 5CX1 & 5CX2 is in service, or
	Y = 1490 if none of ACK 5CX1 & 5CX2 is in service
	Z = 46L KeT II DTT 46L IS almed, of Z = 0 if DTT 48L is not armed
5L92	(Note: Arming requirements for DTT 5L94, DTT 1L274 and DTT 1L275 are included in SOO 7T-17.)
	No DTT and shedding required.
5L94	Same as 2L112 O.O.S. Table 1.26
ELOL (1D) or ELOC (1D) or	No shedding required.

Table 2.27 – 5L83 AND 2L293 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

- Note 3 in Section 2
- 5L44 Contingency:
 - Limit: 2L64 KI2 + 0.156 * 5L44 ING + M <= 2L64_Over_Rating
 - Where M is calculated as follows:

Y = 2L112 BDY + 0.02 * 5L44 ING

If Y > NLYPST_OL_PickupMW, M = 0.056 * (Y - NLYPST_OL_ResetMW), Else M = 0

If TSA-PM alarms "VIOLATION_2L64 KI2 OVER RATING_5L44CTG", then the BC Hydro Control Centre staff shall take the following actions:

- Increase flow on 2L129 ARN, or
- Increase LM generation, or
- Reduce import on 5L51 and 5L52.
- 5L91 or 5L96 or 5L98 or (5L96 AND 5L98) contingency: Limit: 2L112 NLY + BDY gen MW < 1100 MW
- 5L92 contingency:

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- When 0 <= BC to AB <= 100, or 0 < AB to BC < AAL/CBK/NTL load, then
 - Limit 2L112 NLY < 370 2L294 NLY 0.5 * 5L92 SEL</p>
 - ▶ Limit 62L WTS to ESS < 270 0.5 * 5L92 SEL
- When BC to AB > 100, or AB to BC > AAL/CBK/NTL load, then
 - Limit: 2L112 NLY < 370 2L294 NLY 0.48 * 5L92 SEL + 0.35 * (BC-AB)</p>
 - Limit: 62L WTS < 270 0.46 * 5L92 SEL + 0.34 * (BC-AB)</p>
 - If above 62L WTS to ESS limit is exceeded, then
 - > reduce BRD generation and increase WAN generation, or
 - reduce 2L112 NLY, or
 - > reduce BC to AB transfer.

(Note: the AAL/CBK/NTL load = 2L294 NLY + CBK 500 kV to 230 kV MW + 1L274 POC – 1L275 NTL MW)

Generation Shedding Requirements 5L83 AND 2L293 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops) Note: Table E is applicable to this Table.

CONTINGENCY	SHEDDING REQUIREMENTS
5L75 (3P)	ACK 5CB5 in service: Same as Table F
	ACK 5CB5 O.O.S. (5L75 contingency will trip open 5L76): • Same gen shedding as 5L76 contingency with ACK 5CB8 O.O.S. in this Table.
5L77 (3P)	Same as Table F
5L75 (1P)	Same as Table F
5L77 (1P)	Same as Table F
5L75 (1P) and 5L77 (3P)	Same as Table F
5L75 (3P) and 5L77 (1P)	Same as Table F
5L75 (3P) and 5L77 (3P)	Same as Table F
5L76	ACK 5CB8 in service: If REV Gen <= 2000 MW, shed at REV: 1.15 * ((5L75 + 5L77) REV + (5L91 + 5L96) SEL – 4220) MW
	ACK 5CB8 O.O.S.: (5L76 contingency will trip open 5L75) Shed at REV: • 1.02 * ((5L75 + 5L77) REV + (5L91 + 5L96) SEL – 3810) MW if REV Gen <= 1500 MW, or • 1.14 * ((5L75 + 5L77) REV + (5L91 + 5L96) SEL – 3940) MW if 1500 < REV Gen <= 2000 MW, or • 1.14 * ((5L75 + 5L77) REV + (5L91 + 5L96) SEL – 4150) MW if REV Gen > 2000 MW AND • If REV 5CB9 is O.O.S., REV G1 and G2 must be selected for shedding.
51 79	Same gen shedding as 51.76 contingency with ACK 5CB8 in service in this table
5L81	Shed at MCA/REV: GS + 3.02 * M Where GS and M are calculated as follows: GS = Max (0, 3.02 * (5L82 NIC + 0.46 * 5L81 NIC - 5L82_Over_Rating)) Y = 2L112 NLY + 0.03 * 5L81 NIC - 0.09 * GS If Y > NLYPST_OL_PickupMW, M = 0.38 * (Y – NLYPST_OL_ResetMW), Else M = 0
5L82	Shed at MCA/REV: GS + 3.09 * M Where GS and M are calculated as follows: GS = Max (0, 3.09 * (5L81 NIC + 0.44 * 5L82 NIC - 5L81_Over_Rating)) Y = 2L112 NLY + 0.03 * 5L82 NIC - 0.09 * GS If Y > NLYPST_OL_PickupMW, M = 0.37 * (Y - NLYPST_OL_ResetMW), Else M = 0
Bypass AMC 5CX1, or Bypass AMC 5CX2	No shedding required

CONTINGENCY	SHEDDING REQUIREMENTS
5L81 and 5L82	If generation shedding is armed, keep a minimum of 2 MCA, 1 REV, 2 SEV and 2/3 equivalent SEV units on line post- shedding if SEL 5RX3 is available, or keep a minimum of 2 MCA, 2 REV, 2 SEV and 1 & 2/3 equivalent SEV units on line post-shedding if SEL 5RX3 is unavailable.
	If TSA-PM alarms "C5L81_82 - MAX ARMED SHED VIOLATION", the BC Hydro Control Centre staff should take the following actions: If BC is exporting to US, then reduce BC to US export. If BC is importing from US, then • reduce (SI and FBC) generation and increase Peace generation, or/and • reduce (SI and FBC) generation and increase import from US
	The following are the generation shedding and RAS arming requirements:
	If 2L112 NLY < 200 MW, then GS is the greater of: • 1.13 * [(5L81 + 5L82 + 5L87) NIC + (2L92 + 2L93) SVA + 2L112 NLY – 2250], or • 1.15 * [(5L81 + 5L82) NIC + (5L41 + 5L42 + 2L90) KLY + 2L112 NLY – 3800]
	If 2L112 NLY >= 200, then GS is the greater of: • 1.18 * [(5L81 + 5L82 + 5L87) NIC + (2L92 + 2L93) SVA – 2250], or • 1.20 * [(5L81 + 5L82) NIC + (5L41 + 5L42 + 2L90) KLY – 3800]
	If AB to BC >= 500 MW AND GS >= 1500 MW , then
	 Arm DTT 5L94, and Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T- 17, and If 2L112 NLX < 200 MW/, then
	Shed at MCA/REV/SEV/KCL/ALH/WAN/BRX/WAX first, then GMS/PCN: 0.93 * GS – 1.05 * AB to BC Otherwise
	 Shed at MCA/REV/SEV/KCL/ALH/WAN/BRX/WAX first, then GMS/PCN: 0.93 * GS - 1.10 * AB to BC Total armed generation shedding must be limited to 2500 - AB to BC
	 If AB to BC < 500 MW or [AB to BC >= 500 MW AND GS < 1500], then Shed at MCA/REV/SEV/KCL/ALH/WAN/BRX/WAX first, then GMS/PCN: GS Total armed generation shedding must be limited to 2500 MW
	Arm DTT 2L112 RAS, If • 2L112 NLY < 200 AND GS > 0
5L76 and 5L79	Same as 2L293 O.O.S. Table 1.27
5L91 and 5L96	Tables A. B. C and D are applicable to this contingency
5L44	GS1 = 3.5 * (5L81NIC + 0.3 * 5L44MDN – 5L81_Over_Rating) GS2 = 14.5 * (2L20CSQ + 0.22 * 5L44 MDN - 2L20_Over_Rating) GS3 = 36.5 * (2L51COK + 0.1 * 5L44MDN - 2L51COK_Over_Rating)
	Shed at MCA/REV first, and then GMS/PCN the greatest of: D1 * GS1 D2 * GS2 D3 * GS3
	Where: D1 = 1.0 if shedding at MCA/REV, or D1 = 1.65 if shedding at GMS/PCN, D2 = 1.0 if shedding at MCA/REV, or D2 = 1.1 if shedding at GMS/PCN, D3 = 1.0 if shedding at MCA/REV, or D3 = 1.25 if shedding at GMS/PCN.
	Total armed generation shedding must be limited to 2500 MW. If exceeding the limit, the Operator can take the following actions: Reduce the flow on 2L129 from ARN to VIT. Reduce SI generation and increase Peace generation.
51.01	Shod at KCL (AL H/RDX MAX/SE)/ (aslast SE)/for shad last); 4.40 * (EL 04 SEL + EL 06 SEL + 4500)
JLA1	 Shed at KCL/ALH/DKX/WAX/SEV (select SEV for shed last): 1.10 (SL91 SEL + 5L96 SEL - 1580) and Shed at WAN: 2.30 * (2L112 NLY + 0.11 * 5L91 SEL - 400 - 0.18 * (armed KCL/ALH/BRX/WAX/SEV)
	shedding amount for the contingency))
5L96	 Arm DTT 48L if 5L96 SEL > 800 MW AND if VAS-WTS loop is closed. Shed at WAN the greater:
	 2.05 (2L112 NLY + 0.17 (5L96 SEL + 2) - 400) 2.05 * (2L112 NLY + 0.17 * (5L96 SEL + 2) + BDY GEN - 1180) GS = Armed WAN shedding amount for this contingency.

Shed at KCL/ALH/BRX/WAX, then SEV the greatest of:
1.20 * (5L91 SEL + 5L96 SEL + Z – Y – 0.48 * GS)
3.74 * (2L112 NLY + 0.17 * (5L96 SEL + Z) – 0.49 * GS - 400)
3.74 * (2L112 NLY + 0.17 * (5L96 SEL + Z) + BDY Gen – 0.49 * GS – 1180)
Y = 1990 if at least one of ACK 5CX1 & 5CX2 is in service, or
Y = 1830 if none of ACK 5CX1 & 5CX2 is in service
Z = 48L KET if DTT 48L is armed, or
Z = 0 if DTT 48L is not armed

CONTINGENCY	SHEDDING REQUIREMENTS
5L98	 If VAS-VNT loop is closed, then Shed at WAN: 2.19 * (2L112 NLY + 0.13 * 5L98 VAS - 400) GS = Armed WAN shedding amount for this contingency. Shed at KCL/ALH/BRX/WAX, then SEV the greater of: 1.17 * (5L91 SEL + 5L98 VAS - Y - 0.50 * GS) 4.32 * (2L112 NLY + 0.13 * 5L98 VAS - 0.45 * GS - 400)
	Y = 1790 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1600 if none of ACK 5CX1 & 5CX2 is in service
	 If VAS-VNT loop is open, then Shed at WAN: 2.16* (2L112 NLY + 0.16 * 5L98 VAS - 400) GS = Armed WAN shedding amount for this contingency. Shed at KCL/ALH/BRX/WAX, then SEV the greater of: 1.14* (5L91 SEL + 5L98 VAS - Y - 0.51* GS) 4.12* (2L112 NLY + 0.16* 5L98 VAS - 0.46* GS - 400) Y = 1790 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1590 if none of ACK 5CX1 & 5CX2 is in service
5L96 & 5L98	 Arm DTT 48L if 5L96 SEL > 800 MW AND if both VAS-WTS and VAS-VNT loops are closed. Shed at WAN the greater of: 2.12 * (2L112 NLY + 0.20 * (5L96 SEL + Z) - 400) 2.12 * (2L112 NLY + 0.20 * (5L96 SEL + Z) + BDY GEN - 1200) GS = Armed WAN shedding amount for this contingency. Shed at KCL/ALH/BRX/WAX, then SEV: 1.20 * (5L91 SEL + 5L96 SEL + Z - Y - 0.48 * GS) 3.74 * (2L112 NLY + 0.20 * (5L96 SEL + Z) - 0.44 * GS - 400) 3.74 * (2L112 NLY + 0.20 * (5L96 SEL + Z) + BDY Gen - 0.44 * GS - 1200) Y = 1960 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1800 if none of ACK 5CX1 & 5CX2 is in service Z = 48L KET if DTT 48L is armed, or Z = 0 if DTT 48L is not armed
5L92	 (Note: Arming requirements for DTT 5L94, DTT 1L274 and DTT 1L275 are included in SOO 7T-17.) If 0 <= BC to AB <= 100, or 0 < AB to BC <= AAL/CBK/NTL load, then Shed at WAN: 2.3 * (62L ESS - 0.43 * 5L92 SEL - 270) If BC to AB > 100, then shed at WAN: 2.3 * (62L ESS - 0.42 * 5L92 SEL + 0.3 * (BC-AB) - 270) If AB to BC > AAL/CBK/NTL load, then shed at WAN: 2.3 * (62L ESS - 0.31 * 5L92 SEL + 0.15 * (BC-AB) - 270) (Note: the AAL/CBK/NTL load = 2L294 NLY +CBK 500kV to 230 kV MW + 1L274 POC - 1L275 NTL MW)
5L94	Same as 2L293 O.O.S. Table 1.27
Bypass GUI 5CX1	No shedding required.
5L91 (1P) or 5L96 (1P) or	No sneading required.

Table 2.28 - 5L83 AND 2L294 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions: • Notes 2 and 3 in Section 2

Generation Shedding Requirements 5L83 AND 2L294 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops) Note: Tables E and F are applicable to this Table.

CONTINGENCY	SHEDDING REQUIREMENTS
5L76	Same as Table A
5L79	Same as Table A
5L81	Same as 5L83 O.O.S. Table 1.16
5L82	Same as 5L83 O.O.S. Table 1.16
Bypass AMC 5CX1, or Bypass AMC 5CX2	No shedding required.
5L81 and 5L82	Same as 5L83 O.O.S. Table 1.16
5L76 and 5L79	Same as 5L83 AND 2L293 O.O.S. Table 2.27
5L87	Same as 5L83 O.O.S. Table 1.16
5L91 and 5L96	Tables A, B, C and D are applicable to this contingency
5L44	Same as 5L83 O.O.S. Table 1.16
5L91	 Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: 1.23 * (5L91 SEL + 5L96 SEL - Y), or 3.55 * (2L112 NLY + 0.18 * 5L91 SEL - 400), or 4.25 * (2L293 SEL + 0.19 * 5L91 SEL - 400), and do not shed WAN for this requirement. Y = 1790 if all SEL T1 & (T2 or/and T3) & T4 are in service, or Y = 1730 if SEL T1 or (T2 & T3) or T4 is O.O.S.
5L96	 Arm DTT 48L if 5L96 SEL > 800 MW AND if VAS-WTS loop is closed. Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: 1.25* (5L91 SEL + 5L96 SEL + Z - Y), or 2.40* (2L112 NLY + 0.24* (5L96 SEL + Z) - 400), or 2.40* (2L112 NLY + BDY Gen + 0.24* (5L96 SEL + Z) - 1150), or 2.77* (2L293 SEL + 0.19* (5L96 SEL + Z) - 400), and do not shed WAN for this requirement. Y = 2140 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1830 if none of ACK 5CX1 & 5CX2 is in service Z = 48L KET if DTT 48L is armed, or
5L98	 If VAS-VNT loop is closed, then Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: 1.17* (5L91 SEL + 5L98 VAS - Y), or 3.12* (2L112 NLY + 0.17* 5L98 VAS - 400), or 4.35* (2L293 SEL + 0.15*5L98 VAS - 400), and do not shed WAN for this requirement. Y = 1960 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1840 if none of ACK 5CX1 & 5CX2 is in service. If VAS-VNT loop is open, then Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: 1.14* (5L91 SEL + 5L98 VAS - Y), or 3.03* (2L112 NLY + 0.2*5L98 VAS - 400), or 4.20* (2L293 SEL + 0.18*5L98 VAS - 400), and do not shed WAN for this requirement. Y = 2060 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1880 if none of ACK 5CX1 & 5CX2 is in service
5L96 & 5L98	 Arm DTT 48L if 5L96 SEL > 800 MW AND if both VAS-WTS and VAS-VNT loops are closed. Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: 1.25* (5L91 SEL + 5L96 SEL + Z - Y), or 2.75* (2L112 NLY + 0.27* (5L96 SEL + Z) - 400), or 2.75* (2L112 NLY + BDY Gen + 0.27* (5L96 SEL + Z) - 1220), or 2.67* (2L293 SEL + 0.21* (5L96 SEL + Z) - 400), and do not shed WAN for this requirement. Y = 2110 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1870 if none of ACK 5CX1 & 5CX2 is in service Z = 48L KET if DTT 48L is armed, or Z = 0 if DTT 48L is not armed
5L92	 If (BC to US + 5L92 SEL) > 2400 MW, then shed at KCL/SEV/ALH/WAN/BRX/REV/WAX: 5L92 SEL MW If 700 MW < (BC to US + 5L92 SEL) <= 2400 MW, then shed at KCL/SEV/ALH/WAN/BRX/REV/WAX: 5L92 SEL – 400 MW If generation shedding is armed, keep a minimum of 2 REV, 2 SEV and 1 equivalent SEV units on-line post shedding. AND Arm DTT 2L112 RAS if 2L112 BDY + 0.3 * 5L92 CBK > 400 MW, or 2L293 NLY + 0.3 * 5L92 CBK > 400 MW, or 2L112 NLY + 0.3 * 5L92 SEL – 0.3 * (armed KCL/SEV/ALH/WAN/BRX/REV/WAX shedding amount for 5L92 contingency) > 400 MW, or 2L293 SEL + 0.3 * 5L92 SEL – 0.3 * (armed KCL/SEV/ALH/WAN/BRX/REV/WAX shedding amount for 5L92 contingency) > 400 MW, or
5L94	Same as 2L294 O.O.S. Table 1.28
Bypass GUI 5CX1	No shedding required.
5L91 (1P) or 5L96 (1P) or 5L98 (1P)	No shedding required.

Table 2.29 – 5L83 AND 2L277 O.O.S (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:Notes 2 and 3 in Section 2.

Generation Shedding Requirements 5L83 AND 2L277 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops) Note: Tables E and F are applicable to this Table.

CONTINGENCY	SHEDDING REQUIREMENTS				
5L76	Same as Table A				
5L79	Same as Table A				
5L81	Same as 5L83 O.O.S. Table 1.16				
5L82	Same 5L83 O.O.S. Table 1.16				
Bypass AMC 5CX1, or Bypass AMC 5CX2	No shedding required.				
5L81 and 5L82	Same as 5L83 O.O.S. Table 1.16				
5L76 and 5L79	Same as 5L83 AND 2L293 O.O.S. Table 2.27				
5L87	Same as 5L83 O.O.S. Table 1.16				
5L91 and 5L96	Tables A, B, C and D are applicable to this contingency				
_5L44	Same as system normal Table 1.1				
5L91	 Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: > 1.10* (5L91 SEL+5L96 SEL - 1680), or > 3.70* (2L112 NLY + 0.18* 5L91 SEL - 400), or > 3.50* (2L293 SEL + 0.17* 5L91 SEL - 400). 				
5L96	 Arm DTT 48L if 5L96 SEL > 800 MW AND if VAS-WTS loop is closed Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: 1.25* (5L91 SEL + 5L96 SEL + Z - Y), or 2.54* (2L112 NLY + 0.23* (5L96 SEL + Z) - 400), or 2.54* (2L112 NLY + BDY Gen + 0.23* (5L96 SEL + Z) - 1120), or 2.57* (2L293 SEL + 0.21* (5L96 SEL + Z) - 400). Y = 2040 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1820 if none of ACK 5CX1 & 5CX2 is in service Z = 48L KET if DTT 48L is armed, or Z = 0 if DTT 48L is not armed 				
5L98	 If VAS-VNT loop is closed, then Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: 1.17 * (5L91 SEL + 5L98 VAS - Y), or 2.94 * (2L112 NLY + 0.17 * 5L98 VAS - 400), or 3.06 * (2L293 SEL + 0.16 * 5L98 VAS - 400). Y = 1810 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1710 if none of ACK 5CX1 & 5CX2 is in service. Otherwise, Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: 1.15 * (5L91 SEL + 5L98 VAS - Y), or 2.85 * (2L112 NLY + 0.20 * 5L98 VAS - 400), or 2.98 * (2L293 SEL + 0.18 * 5L98 VAS - 400). Y = 1910 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1910 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1740 if none of ACK 5CX1 & 5CX2 is in service 				
5L96 & 5L98	 Arm DTT 48L if 5L96 SEL > 800 MW AND VAS-VNT loop closed Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: 1.25 * (5L91 SEL + 5L96 SEL + Z − Y), or 2.54 * (2L112 NLY + 0.27 * (5L96 SEL + Z) − 400), or 2.54 * (2L112 NLY + BDY Gen + 0.27 * (5L96 SEL + Z) − 1140), or 2.46 * (2L293 SEL + 0.25 * (5L96 SEL + Z) − 400). Y = 2010 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1800 if none of ACK 5CX1 & 5CX2 is in service Z = 48L KET if DTT 48L is armed, or Z = 0 if DTT 48L is not armed 				
5L92	 (Note: Arming requirements for DTT 5L94, DTT 1L274 and DTT 1L275 are included in SOO 7T-17.) Arm DTT 2L112 RAS if > (0 < AB to BC <= 100 MW) AND (2L293 NLY + 0.75 * 5L92 CBK > 400 MW), or > (AB to BC > 100 MW) AND (2L293 NLY + 5L92 CBK - 0.68 * (AB to BC) > 400 MW), or > (0 <= BC to AB <= 100 MW) AND (2L293 SEL + 0.95 * 5L92 SEL - 0.2 * (BC to AB) > 400 MW), or > (BC to AB > 100 MW) AND (2L293 SEL + 5L92 SEL - 0.7 * (BC to AB) - 0.3 * (armed KCL/SEV/ALH/WAN/BRX/REV/WAX shedding amount for 5L94 contingency) > 400 MW) 				
5L94	Same as Table A				
Bypass GUI 5CX1	No shedding required.				
5L91 (1P) or 5L96 (1P) or	No shedding required.				
5L98 (1P)					

Table 2.30 - 5L83 AND 5L40 O.O.S., or 5L83 AND 5L41 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

- Notes 2 and 3 in Section 2.
- Limit: 5L82 NIC MW <= 5L82_Norm_Rating

If TSA-PM alarms "VIOLATION_5L82_NORM_RATING", the BC Hydro Control Centre staff shall take the following actions to reduce the flow on 5L82 from NIC within its continuous rating:

- Reduce SI generation and increase LM / VI / Peace generation, or
- Reduce AB- BC transfer or,
- Reduce ING to CUS transfer
- 5L44 contingency:
 - Limit:
 - 2L64 KI2 + 0.178 * 5L44 ING + M1 <= 2L64_Over_Rating, or
 - - 2L56 MAN + 0.121 * 5L44 ING + M2 <= 2L56_Over_Rating, or
 - 2L27 ING + 0.197 * 5L44 ING + M3 <= 2L27_Over_Rating

Where M1, M2 and M3 are calculated as follows:

```
Y = 2L112 BDY + 0.043 * 5L44 ING
Z = 2L293 NLY + 0.036 * 5L44 ING
If Y > NLYPST_OL_PickupMW:
   R1 = 0.083 * (Y – NLYPST_OL_ResetMW)
   R2 = 0.057 * (Y – NLYPST_OL_ResetMW)
   R3 = 0.097 * (Y – NLYPST_OL_ResetMW)
Else:
   R1 = 0
   R2 = 0
   R3 = 0
If Z > 2L293OLRAS PickupMW:
   R4 = 0.103 * (Z - 2L293OLRAS ResetMW)
   R5 = 0.070 * (Z - 2L2930LRAS ResetMW)
   R6 = 0.120 * (Z – 2L293OLRAS_ResetMW)
Else:
   R4 = 0
   R5 = 0
   R6 = 0
M1 = Max (R1, R4)
M2 = Max (R2, R5)
M3 = Max (R3, R6)
```

If TSA-PM alarms "VIOLATION_2L64 KI2 OVER RATING_5L44CTG" and/or "VIOLATION_2L56 MAN OVER RATING_5L44CTG" and/or "VIOLATION 2L27 ING OVER RATING 5L44CTG", then the BC Hydro Control Centre staff shall take the following actions:

- Increase flow on 2L129 ARN, or
- Increase LM generation, or
- Reduce import on 5L51 and 5L52.

Generation Shedding Requirements

5L83 AND 5L40 O.O.S. or 5L83 AND 5L41 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops) Note: Tables A, B, C, D, E and F are applicable to this Table.

CONTINGENCY	SHEDDING REQUIREMENTS
5L81	GS1 = Max (0, 4.44 * (5L42 KLY + 0.31 * 5L81 NIC - 5L42_Over_Rating)) GS2 = Max (0, 2.62 * (5L82 NIC + 0.55 * 5L81 NIC - 5L82_Over_Rating))
	If GS1 >= GS2, Y = 2L112 NLY + 0.07 * 5L81 NIC - 0.13 * GS1 Z = -2L293 NLY + 0.06 * 5L81 NIC - 0.12 * GS1 If Y > NLYPST_OL_PickupMW, M1 = 0.29 * (Y - NLYPST_OL_ResetMW), Else M1 = 0 If Z > 2L293OLRAS_PickupMW, M2 = 0.35 * (Z - 2L293OLRAS_ResetMW), Else M2 = 0 M = Max (M1, M2)
	Gen shed at MCA/REV : GS1 + 4.44 * M
	If GS2 > GS1, Y= 2L112 NLY + 0.07 * 5L81 NIC-0.13 * GS2 Z = -2L293 NLY + 0.06 * 5L81 NIC-0.12 * GS2 If Y > NLYPST_OL_PickupMW, R1 = 0.49 * (Y – NLYPST_OL_ResetMW), Else R1 = 0 If Z > 2L293OLRAS_PickupMW, R2 = 0.60 * (Z – 2L293OLRAS_ResetMW), Else R2 = 0 R = Max (R1, R2)
51.82	Gen shed at MCA/REV: GS2 + 2.62 * R
	$GS2 = Max (0, 2.66 * (5L81 NIC + 0.55 * 5L82 NIC - 5L81_Over_Rating))$
	If GS1 >= GS2, Y = 2L112 NLY + 0.06 * 5L82 NIC - 0.13 * GS1 Z = -2L293 NLY + 0.05 * 5L82 NIC - 0.12 * GS1 If Y > NLYPST_OL_PickupMW, M1 = 0.30 * (Y - NLYPST_OL_ResetMW), Else M1 = 0 If Z > 2L293OLRAS_PickupMW, M2 = 0.36 * (Z - 2L293OLRAS_ResetMW), Else M2 = 0 M = Max (M1, M2)
	Gen shed at MCA/REV: GS1+ 4.39 * M
	If GS2 > GS1, Y = 2L112 NLY + 0.06 * 5L82 NIC - 0.13 * GS2 Z = -2L293 NLY + 0.05 * 5L82 NIC - 0.12 * GS2 If Y > NLYPST_OL_PickupMW, R1 = 0.48 * (Y - NLYPST_OL_ResetMW), Else R1 = 0 If Z > 2L293OLRAS_PickupMW, R2 = 0.59 * (Z - 2L293OLRAS_ResetMW), Else R2 = 0 R = Max (R1, R2) Gen shed at MCA/REV: GS2 + 2.66 * R

5L87	Shed at MCA/REV: 1.13 * ((5L81 + 5L82 + 5L87) NIC - 4400) MW
5L44	GS1 = 3.5 * (5L81NIC + 0.41 * 5L44MDN – 5L81_Over_Rating) GS2 = 15.5 * (2L20CSQ + 0.25 * 5L44 MDN - 2L20_Over_Rating) GS3 = 40.5 * (2L51COK + 0.12 * 5L44MDN - 2L51COK_Over_Rating)
	M = MAX (GS1, GS2, GS3, 0) Y = 2L112 NLY + 0.06 * 5L44 MDN – 0.16* M Z = 2L293 SEL + 0.06 * 5L44 MDN – 0.14 * M
	If Y > NLYPST_OL_PickupMW, R1 = 0.48 * (Y - NLYPST_OL_ResetMW) R3 = 0.1 * (Y - NLYPST_OL_ResetMW) R5 = 0.05 * (Y - NLYPST_OL_ResetMW) Else R1 = 0, R3 = 0, R5 = 0.
	If Z > 2L293OLRAS_PickupMW, R2 = 0.58 * (Z - 2L293OLRAS_ResetMW) R4 = 0.1 * (Z - 2L293OLRAS_ResetMW) R6 = 0.05 * (Z - 2L293OLRAS_ResetMW) Else R2 = 0, R4 = 0, R6 = 0.
	Ra = MAX (R1, R2) Rb = MAX (R3, R4) Rc = MAX (R5, R6)
	 Shed at MCA/REV first, and then GMS/PCN the greatest of: D1 * (GS1 + 3.5* Ra) D2 * (GS2 + 15.5* Rb) D3 * (GS3 + 40.5* Rc) Where:
	D1 = 1.0 if shedding at MCA/REV, or D1 = 1.35 if shedding at GMS/PCN, D2 = 1.0 if shedding at MCA/REV, or D2 = 1.0 if shedding at GMS/PCN, D3 = 1.0 if shedding at MCA/REV, or D3 = 1.1 if shedding at GMS/PCN.
	Total armed generation shedding must be limited to 2500 MW. If exceeding the limit, the Operator can take the following actions: • Reduce the flow on 2L129 from ARN to VIT.
	Reduce SI generation and increase Peace generation
5L81 and 5L82	If generation shedding is armed, keep a minimum of 2 MCA, 1 REV, 2 SEV and 2/3 equivalent SEV units on line post- shedding if SEL 5RX3 is available, or keep a minimum of 2 MCA, 2 REV, 2 SEV and 1 & 2/3 equivalent SEV units on line post-shedding.
	If TSA-PM alarms "C5L81_82 - MAX ARMED SHED VIOLATION", the BC Hydro Control Centre staff should take the following actions: If BC is exporting to US, then • reduce AB to BC transfer if AB to BC transfer > 500 MW, or/and • reduce BC to US export. If BC is importing from US, then • reduce AB to BC transfer if AB to BC transfer > 475 MW, or/and • reduce (SI AND FBC) generation and increase Peace generation, or/and • reduce (SI AND FBC) generation and increase import from US
	The following are the generation shedding and RAS arming requirements:
	If 2L112 NLY < 200 MW OR 0.14 * (5L81 + 5L82) NIC + 2L293 SEL > 420, then GS is the greater of: • 1.13 * [(5L81 + 5L82 + 5L87) NIC + (2L92 + 2L93) SVA + 2L112 NLY – 2250], or • 1.15 * [(5L81 + 5L82) NIC + (5L41 + 5L42 + 2L90) KLY + 2L112 NLY – 2150]
	If 2L112 NLY >= 200 AND 0.14 * (5L81 + 5L82) NIC + 2L293 SEL <= 420, then GS is the greater of: • 1.18 * [(5L81 + 5L82 + 5L87) NIC + (2L92 + 2L93) SVA – 2250], or • 1.20 * [(5L81 + 5L82) NIC + (5L41 + 5L42 + 2L90) KLY – 2150]
	 If AB to BC >= 500 MW AND GS >= 1500 MW, then Arm DTT 5L94, and Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17,
	and • If 2L112 NLY < 200 MW OR 0.14 * (5L81 + 5L82) NIC + 2L293 SEL > 420, then Shed at MCA/REV/SEV/KCL/ALH/WAN/BRX/WAX first, then GMS/PCN: 0.93 * GS – 1.05 * AB to BC

•	Otherwise Shed at MCA/REV/SEV/KCL/ALH/WAN/BRX/WAX first, then GMS/PCN: 0.93 * GS - 1.10 * AB to BC Total armed generation shedding must be limited to 2500 - AB to BC
If AB to B	BC < 500 MW or [AB to BC >= 500 MW AND GS < 1500], then Shed at MCA/REV/SEV/KCL/ALH/WAN/BRX/WAX first, then GMS/PCN: GS Total armed generation shedding must be limited to 2500 MW
Arm DTT • •	2L112 RAS, If 2L112 NLY < 200 AND GS > 0 , or 0.14 * (5L81 + 5L82) NIC + 2L293 SEL > 420

Table 2.31 – 5L83 AND 5L42 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

- Notes 2 and 3 in Section 2.
- Limit: 5L82 NIC MW <= 5L82_Norm_Rating

If TSA-PM alarms "VIOLATION_5L82_NORM_RATING", the BC Hydro Control Centre staff shall take the following actions to reduce the flow on 5L82 from NIC within its continuous rating:

- Reduce SI generation and increase LM / VI / Peace generation, or,
- Reduce AB to BC transfer, or
- Reduce ING to CUS transfer.
- 5L44 contingency:
 - Limit 2L129 ARN to the lesser of:
 - 590 MW, or
 - 2L129_0.5hr_Rating 0.075 * 5L44 ING MW

If TSA-PM alarms "VIOLATION_2L129 ARN MW LIMIT_5L44CTG", the BC Hydro Control Centre staff shall take the following actions to bring the flow on 2L129 ARN within the limit:

- Increase VI generation, or
- Reduce CUS to ING flow
- Limit:
 - 2L64 KI2 + 0.176 * 5L44 ING + M1 <= 2L64_Over_Rating, or
 - - 2L56 MAN + 0.120 * 5L44 ING + M2 <= 2L56_Over_Rating, or
 - 2L27 ING + 0.196 * 5L44 ING + M3 <= 2L27_Over_Rating

Where M1, M2 and M3 are calculated as follows:

- Y = 2L112 BDY + 0.029 * 5L44 ING
- Z = 2L293 NLY + 0.025 * 5L44 ING

If Y > NLYPST_OL_PickupMW:

R1 = 0.057 * (Y - NLYPST OL ResetMW) R2 = 0.039 * (Y - NLYPST_OL_ResetMW) R3 = 0.064 * (Y - NLYPST_OL_ResetMW) Else: R1 = 0 R2 = 0 R3 = 0

If Z > 2L293OLRAS_PickupMW:

R4 = 0.071 * (Z – 2L293OLRAS_ResetMW) R5 = 0.048 * (Z – 2L293OLRAS_ResetMW) R6 = 0.079 * (Z – 2L293OLRAS_ResetMW) Else: R4 = 0 R5 = 0 R6 = 0

M1 = Max (R1, R4) M2 = Max (R2, R5) M3 = Max (R3, R6)

If TSA-PM alarms "VIOLATION_2L64 KI2 OVER RATING_5L44CTG" and/or "VIOLATION_2L56 MAN OVER RATING_5L44CTG" and/or "VIOLATION_2L27 ING OVER RATING_5L44CTG", then the BC Hydro Control Centre staff shall take the following actions:

- Increase flow on 2L129 ARN, or
- Increase LM generation, or
- Reduce import on 5L51 and 5L52.

Generation Shedding Requirements

5L83 AND 5L42 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops) Note: Tables A, B, C, D, E and F are applicable to this Table.

CONTINGENCY	SHEDDING REQUIREMENTS
5L81	GS1 = Max (0, 4.95 * (5L41 KLY + 0.30 * 5L81 NIC - 5L41_Over_Rating)) GS2 = Max (0, 2.59 * (5L82 NIC + 0.55 * 5L81 NIC - 5L82_Over_Rating))
	If GS1 >= GS2,
	Y = 2L112 NLY + 0.07 * 5L81 NIC - 0.13 * GS1 Z = -2L293 NLY + 0.06 * 5L81 NIC - 0.12 * GS1 If Y > NLYPST_OL_PickupMW A, M1 = 0.27 * (Y - NLYPST_OL_ResetMW), Else M1 = 0 If Z > 2L293OLRAS_PickupMW, M2 = 0.32 * (Z - 2L293OLRAS_ResetMW), Else M2 = 0 M = Max (M1, M2)
	Gen shed at MCA/REV: GS1+ 4.95 * M
	If GS2 > GS1, Y = 2L112 NLY + 0.07 * 5L81 NIC - 0.13 * GS2 Z = -2L293 NLY + 0.06 * 5L81 NIC - 0.12 * GS2 If Y > NLYPST_OL_PickupMW, R1 = 0.50 * (Y - NLYPST_OL_ResetMW), Else R1 = 0 If Z > 2L293OLRAS_PickupMW, R2 = 0.61 * (Z - 2L293OLRAS_ResetMW), Else R2 = 0 R = Max (R1, R2)
	Gen shed at MCA/REV: GS2+2.59 * R
5L82	GS1 = Max (0, 5.12 * (5L41 KLY + 0.29 * 5L82 NIC - 5L41_Over_Rating)) GS2 = Max (0, 2.59 * (5L81 NIC + 0.55 * 5L82 NIC - 5L81_Over_Rating))
	If GS1>= GS2, Y = 2L112 NLY + 0.06 * 5L82 NIC - 0.13 * GS1 Z = -2L293 NLY + 0.05 * 5L82 NIC - 0.12 * GS1 If Y > NLYPST_OL_PickupMW, M1 = 0.26 * (Y - NLYPST_OL_ResetMW), Else M1 = 0 If Z > 2L293OLRAS_PickupMW, M2 = 0.32 * (Z - 2L293OLRAS_ResetMW), Else M2 = 0 M = Max (M1, M2)

	Gen shed at MCA/REV: GS1 + 5.12 * M If GS2 > GS1, Y = 2L112 NLY + 0.06 * 5L82 NIC - 0.13 * GS2 Z = -2L293 NLY + 0.05 * 5L82 NIC - 0.12 * GS2 If Y > NLYPST_OL_PickupMW, R1 = 0.50 * (Y2 - NLYPST_OL_ResetMW), Else R1 = 0 If Z > 2L293OLRAS_PickupMW, R2 = 0.61* (Z2 - 2L293OLRAS_ResetMW), Else R2 = 0 R = Max (R1, R2) Gen shed at MCA/REV: GS2 + 2.59 * R
5L87	Shed at MCA/REV: 1.1 * ((5L81 + 5L82 + 5L87) NIC - 4600) MW
5L44	No shedding required
5L81 and 5L82	If generation shedding is armed, keep a minimum of 2 MCA, 1 REV, 2 SEV and 2/3 equivalent SEV units on line post- shedding if SEL 5RX3 is available, or keep a minimum of 2 MCA, 2 REV, 2 SEV and 1 & 2/3 equivalent SEV units on line post-shedding if SEL 5RX3 is unavailable. If TSA-PM alarms "C5L81_82 - MAX ARMED SHED VIOLATION", the BC Hydro Control Centre staff should take the following actions: If BC is exporting to US, then reduce BC to US export. If BC is importing from US, then • reduce (SI AND FBC) generation and increase Peace generation, or • reduce (SI AND FBC) generation and increase import from US The following are the generation shedding and RAS arming requirements: If 2L112 NLY < 200 MW OR 0.10 * (5L81 + 5L82) NIC + 2L293 SEL > 420, then GS is the greater of: • 1.13 * [(5L81 + 5L82 + 5L87) NIC + (2L92 + 2L93) SVA + 2L112 NLY - 2250], or • 1.15 * [(5L81 + 5L82) NIC + (5L41 + 2L90) KLY + 2L112 NLY - A] If 2L112 NLY >= 200 AND 0.10 * (5L81 + 5L82) NIC + 2L293 SEL <= 420, then GS is the greater of: • 1.18 * [[(5L81 + 5L82 + 5L87) NIC + (2L92 + 2L93) SVA - 2250], or • 1.20 * [[(5L81 + 5L82 + 5L87) NIC + (2L92 + 2L93) SVA - 2250], or • 1.20 * [[(5L81 + 5L82) NIC + (5L41 + 2L90) KLY - A]
	 The constant A in the above gen-shedding formulas is determined by status of 2L90: If 2L90 is in service, then A = 1880 IF 2L90 is open, then A = 2165
	If AB to BC >= 450 MW AND GS >= 1500 MW, then Arm DTT 5L94, and Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and If 2L112 NLY < 200 MW OR 0.10 * (5L81 + 5L82) NIC + 2L293 SEL > 420, then Shed at MCA/REV/SEV/KCL/ALH/WAN/BRX/WAX first, then GMS/PCN: 0.93 * GS – 1.05 * AB to BC Otherwise Shed at MCA/REV/SEV/KCL/ALH/WAN/BRX/WAX first, then GMS/PCN: 0.93 * GS – 1.10 * AB to BC Total armed generation shedding must be limited to 2500 - AB to BC If AB to BC < 450 MW or [AB to BC >= 450 MW AND GS < 1500], then Shed at MCA/REV/SEV/KCL/ALH/WAN/BRX/WAX first, then GMS/PCN: GS Total armed generation shedding must be limited to 2500 Arm DTT 2L112 RAS, If 2L112 NLY < 200 AND GS > 0, or 0.10 * (5L81 + 5L82) NIC + 2L293 SEL > 420

Table 2.32 – 5L83 AND 5L44 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

- Notes 2 and 3 in Section 2.
 - Limit: 5L81 NIC MW <= 5L81_Norm_Rating

If TSA-PM alarms "VIOLATION_5L81_NORM_RATING", the BC Hydro Control Centre staff shall take the following actions to reduce the flow on 5L81 from NIC within its continuous rating:

- Reduce 2L129 flow, or
- Increase LM/VI/Peace generation and reduce SI generation, or
- Reduce AB to BC transfer, or
- Reduce BC export to US.
- 5L82 contingency:
 - ► Limit:
 - 2L64 KI2 + 0.15 * 5L82 NIC <= 2L64_Over_Rating, or

If TSA-PM alarms "VIOLATION_2L64 KI2 OVER RATING_5L82CTG", then the BC Hydro Control Centre staff shall take the following actions:

- Increase flow on 2L129 ARN, or
- Increase LM generation, or
- Reduce import on 5L51 and 5L52.
- ► Limit: LM+VI Load Supplied from ILM+US <= 5300 MW

Where: LM+VI Load Supplied from ILM+US = (5L41+5L42+2L90) KLY + (5L81 + 5L82) NIC - (5L51 + 5L52) ING If TSA-PM alarms "VIOLATION_LM+VI LOAD SUPPLIED FROM ILM+US > 5300MW", the BC Hydro Control Centre staff shall increase LM / VI / BR generation to meet the requirement.

▶ If 4900 MW < LM+VI Load Supplied from ILM+US <= 5300 MW, at least 3 BSY SC must be on-line.

2L50 contingency:

► Limit:

• 2L51 COK + 0.40 * 2L50 BSY <= 2L51COK_Over_Rating

If TSA-PM alarms "VIOLATION_2L51 COK OVER RATING_2L50CTG", then the BC Hydro Control Centre staff shall take the following actions:

- Reduce flow on 2L129 ARN, or
- Increase generation at SEE, RUS and SFL, or
- Reduce generation at BR and North Shore Area, or
- Reduce export to US on 5L51 and 5L52.
- 2L11 contingency:

► Limit: 2L51 COK + 0.45 * 2L11 BSY <= 2L51COK Over Rating

If TSA-PM alarms "VIOLATION_2L51 COK OVER RATING_2L11CTG", then the BC Hydro Control Centre staff shall take the following actions:

- Reduce flow on 2L129 ARN, or
- Increase generation at SEE, RUS and SFL, or
- Reduce generation at BR and North Shore Area, or
- Reduce export to US on 5L51 and 5L52.
- 2L49 contingency:
 - ► Limit: 2L51 COK + 0.50 * 2L49 MDN <= 2L51COK_Over_Rating

If TSA-PM alarms "VIOLATION_2L51 COK OVER RATING_2L49CTG", then the BC Hydro Control Centre staff shall take the following actions:

- Reduce flow on 2L129 ARN, or
- Increase generation at SEE, RUS and SFL, or
- Reduce generation at BR and North Shore Area, or
- Reduce export to US on 5L51 and 5L52.
- 2L51 contingency:
 - ► Limit: 2L50 BSY + 0.25 * 2L51 COK <= 2L50 Over Rating

If TSA-PM alarms "VIOLATION_2L50 OVER RATING_2L51CTG", then the BC Hydro Control Centre staff shall take the following actions:

- Reduce flow on 2L129 ARN, or
- Increase generation at SEE, RUS and SFL, or
- Reduce generation at BR and North Shore Area, or
- Reduce export to US on 5L51 and 5L52.

Generation Shedding Requirements

5L83 AND 5L44 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops) Note: Tables A, B, C, D, E and F are applicable to this Table.

CONTINGENCY	SHEDDING REQUIREMENTS
5L81	 Gen-shedding at REV/MCA the greatest of: 11.6 * (2L22 MDN + 0.14 * 5L81 NIC + 5 - 2L22_Over_Rating), or 13.5 * (2L64 SPG + 0.13 * 5L81 NIC + 5 - 2L64_Over_Rating), or 19.2 * (2L51 COK + 0.09 * 5L81 NIC + 5 - 2L51COK_Over_Rating) If TSA-PM alarms "<5L81CTG_5L44O.O.S.>: INSUFFICIENT SHEDDING AT <rev mca="">", then the BC Hydro Control Centre staff shall take the following actions to meet the requirement:</rev> Reduce 2L129 flow Increase VI generation Increase SEE, RUS, and SFL generation.
5L82	Shed at MCA/REV: • 3.23 * (5L87 NIC + 0.58* 5L82 NIC – 5L87_Over_Rating) MW If generation shedding is required, keep a minimum of 2 MCA and 2 REV units on-line post-shedding. If TSA-PM alarms "<5L82CTG_5L44O.O.S.>: MIN# UNITS ONLINE VIOLATION", or "VIOLATION_5L87_NORM_RATING" post-contingency, the BC Hydro Control Centre staff shall take the following actions to meet the requirement: • Reduce MCA or REV or SIE generation, or • Reduce flow on 2L112 from BDY to NLY, or • Reduce import from Alberta.
5L81 and 5L82	Same as 5L83 O.O.S. Table 1.16
5L87	Same as 5L83 O.O.S. Table 1.16

Table 2.33 – 5L83 AND 5L45 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions: • Notes 2 and 3 in Section 2.

Generation Shedding Requirements 5L83 AND 5L45 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops) Note: Tables A, B, C, D, E and F are applicable to this Table.

CONTINGENCY	SHEDDING REQUIREMENTS
5L81	Gen shed at MCA/REV: GS + 2.92 * R Where GS and R are calculated as follows: GS = Max (0, 2.92 * (5L82 NIC + 0.50 * 5L81 NIC - 5L82_Over_Rating)) Y = 2L112 NLY + 0.06 * 5L81 NIC - 0.17 * GS Z = -2L293 NLY + 0.05 * 5L81 NIC - 0.15 * GS If Y > NLYPST_OL_PickupMW, R1 = 0.41 * (Y - NLYPST_OL_ResetMW), Else R1 = 0 If Z > 2L293OLRAS_PickupMW, R2 = 0.50 * (Z - 2L293OLRAS_ResetMW), Else R2 = 0 R = Max (R1, R2)
5L82	Gen shed at REV/MCA: GS + 3.06 * R Where GS and R are calculated as follows: GS = Max (0, 3.06 * (5L81 NIC + 0.50 * 5L82 NIC - 5L81_Over_Rating)) Y = 2L112 NLY + 0.06 * 5L82 NIC - 0.15 * GS Z = -2L293 NLY + 0.05 * 5L82 NIC - 0.14 * GS If Y > NLYPST_OL_PickupMW, R1 = 0.41 * (Y - NLYPST_OL_ResetMW), Else R1 = 0 If Z > 2L293OLRAS_PickupMW, R2 = 0.50 * (Z - 2L293OLRAS_ResetMW), Else R2 = 0 R = Max (R1, R2)
5L87	Shed at MCA/REV: 1.1 * ((5L81 + 5L82 + 5L87) NIC - 4300) MW
5L44	No shedding required
5L81 and 5L82	If generation shedding is armed, keep a minimum of 2 MCA, 1 REV, 2 SEV and 2/3 equivalent SEV units on line post- shedding if SEL 5RX3 is available, or keep a minimum of 2 MCA, 2 REV, 2 SEV and 1 & 2/3 equivalent SEV units on line post-shedding if SEL 5RX3 is unavailable. If TSA-PM alarms "C5L81_82 - MAX ARMED SHED VIOLATION", the BC Hydro Control Centre staff should take the following actions:
	 If BC is exporting to US, then reduce BC to US export. If BC is importing from US, then reduce (SI and FBC) generation and increase Peace generation, or/and reduce (SI and FBC) generation and increase import from US
	The following are the generation shedding and RAS arming requirements:
	If 2L112 NLY < 200 MW OR 0.10 * (5L81 + 5L82) NIC + 2L293 SEL > 420, then GS is the greater of: • 1.13 * [(5L81 + 5L82 + 5L87) NIC + (2L92 + 2L93) SVA + 2L112 NLY – 2250], or • 1.15 * [(5L81 + 5L82) NIC + (5L41 + 5L42 + 2L90) KLY + 2L112 NLY – 3200]
	If 2L112 NLY >= 200 AND 0.10 * (5L81 + 5L82) NIC + 2L293 SEL <= 420, then GS is the greater of: • 1.18 * [(5L81 + 5L82 + 5L87) NIC + (2L92 + 2L93) SVA - 2250], or • 1.20 * [(5L81 + 5L82) NIC + (5L41 + 5L42 + 2L90) KLY - 3200]
	 If AB to BC >= 400 MW AND GS >= 1500 MW, then Arm DTT 5L94, and Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and If 2I 112 NI X < 200 MW OR 0 10* (5I 81 + 5I 82) NIC + 2I 293 SEL > 420 then
	 Shed at MCA/REV/SEV/KCL/ALH/WAN/BRX/WAX first, then GMS/PCN: 0.93 * GS – 1.05 * AB to BC Otherwise Shed at MCA/REV/SEV/KCL/ALH/WAN/BRX/WAX first, then GMS/PCN: 0.93 * GS – 1.10 * AB to BC Total armed generation shedding must be limited to: 2500 - AB to BC
	If AB to BC < 400 MW or [AB to BC >= 400 MW AND GS < 1500], then • Shed at MCA/REV/SEV/KCL/ALH/WAN/BRX/WAX first, then GMS/PCN: GS • Total armed generation shedding must be limited to 2500 Arm DTT 2L112 RAS, If • 2L112 NLY < 200 AND GS > 0, or • 0.10 * (5L81 + 5L82) NIC + 2L293 SEL > 420

Table 2.34 – 5L83 AND GUI 5CX1 Series Capacitor Bank O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

- Notes 2 and 3 in Section 2.
- 5L44 Contingency: ٠
 - Limit: 2L64 KI2 + 0.16 * 5L44 ING + M <= 2L64_Over_Rating
 - Where M is calculated as follows: Y = 2L112 BDY + 0.034 * 5L44 ING
 - Z = 2L293 NLY + 0.028 * 5L44 ING
 - If Y > NLYPST_OL_PickupMW, R1 = 0.074 * (Y NLYPST_OL_ResetMW), Else R1 = 0
 - If Z > 2L293OLRAS_PickupMW, R2 = 0.091 * (Z 2L293OLRAS_ResetMW), Else R2 = 0
 - M = Max (R1, R2)
 - If TSA-PM alarms "VIOLATION_2L64 KI2 OVER RATING_5L44CTG", then the BC Hydro Control Centre staff shall take the following actions:
 - Increase flow on 2L129 ARN, or
 - Increase LM generation, or •
 - ٠ Reduce import on 5L51 and 5L52.

Generation Shedding Requirements 5L83 AND GUI 5CX1 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops) Note: Tables A, B, C, D, E and F are applicable to this Table.

CONTINGENCY	SHEDDING REQUIREMENTS
5L81	Gen shed at MCA/REV: GS + 3.09 * R Where GS and R are calculated as follows: GS = Max (0, 3.09 * (5L82 NIC + 0.48 * 5L81 NIC - 5L82_Over_Rating)) Y = 2L112 NLY + 0.06 * 5L81 NIC - 0.15 * GS Z = -2L293 NLY + 0.05 * 5L81 NIC - 0.14 * GS If Y > NLYPST_OL_PickupMW, R1 = 0.41 * (Y - NLYPST_OL_ResetMW), Else R1 = 0 If Z > 2L293OLRAS_PickupMW, R2 = 0.50 * (Z - 2L293OLRAS_ResetMW), Else R2 = 0 R = Max (R1, R2)
5L82	Gen shed at REV/MCA: GS + 3.12 * R Where GS and R are calculated as follows: GS = Max (0, $3.12 \text{ * (5L81 NIC + } 0.46 \text{ * 5L82 NIC - 5L81_Over_Rating))}$ Y = $2L112 \text{ NLY + } 0.06 \text{ * 5L82 NIC - } 0.15 \text{ * GS}$ Z = $-2L293 \text{ NLY + } 0.05 \text{ * 5L82 NIC - } 0.14 \text{ * GS}$ If Y > NLYPST_OL_PickupMW, R1 = $0.41 \text{ * (Y - } \text{NLYPST_OL_ResetMW})$, Else R1 = 0 If Z > $2L2930LRAS_PickupMW$, R2 = $0.50 \text{ * (Z - } 2L2930LRAS_ResetMW})$, Else R2 = 0 R = Max (R1, R2)
51.87	Shed at MCA/REV: 1 12 * ((5 81 + 5 82 + 5 87) NIC – 4500)
5L87 5L44	$GS1 = 3.5 * (5L81NIC + 0.32 * 5L44MDN - 5L81_Over_Rating)$ $GS2 = 15 * (2L20CSQ + 0.22 * 5L44 MDN - 2L20_Over_Rating)$ $GS3 = 40.5 * (2L51COK + 0.1 * 5L44MDN - 2L51COK_Over_Rating)$ $M = MAX (GS1, GS2, GS3, 0)$ $Y = 2L112 NLY + 0.05 * 5L44 MDN - 0.12 * M$ $Z = 2L293 SEL + 0.05 * 5L44 MDN - 0.11 * M$
	$R1 = 0.45 * (Y - NLYPST OL ResetMW)$ $R3 = 0.1 * (Y - NLYPST OL ResetMW)$ $R5 = 0.05 * (Y - NLYPST OL ResetMW)$ Else R1 = 0, R3 = 0, R5 = 0. If Z > 2L293OLRAS_PickupMW, R2 = 0.52 * (Z - 2L293OLRAS_ResetMW) R4 = 0.1 * (Z - 2L293OLRAS_ResetMW) R6 = 0.05 * (Z - 2L293OLRAS_ResetMW) Else R2 = 0, R4 = 0, R6 = 0.
	Ra = MAX (R1, R2) Rb = MAX (R3, R4) Rc = MAX (R5, R6) • Shed at MCA/REV first, and then GMS/PCN the greatest of: > D1* (GS1 + 3.5* Ra) > D2* (GS2 + 15* Rb) > D3* (GS3 + 40.5* Rc) Where: D1 = 1.0 if shedding at MCA/REV, or D1 = 2.25 if shedding at MCA/REV, or D2 = 1.0 if shedding at GMS/PCN, D2 = 1.0 if shedding at GMS/PCN, D3 = 1.0 if shedding at GMS/PCN, D3 = 1.25 if shedding at GMS/PCN. Total armed generation shedding must be limited to 2500 MW. If exceeding the limit, the Operator can take the following actions:
	 actions: Reduce the flow on 2L129 from ARN to VIT. Reduce SI generation and increase Peace generation
5L81 and 5L82	If generation shedding is armed, keep a minimum of 2 MCA, 1 REV, 2 SEV and 2/3 equivalent SEV units on line post- shedding if SEL 5RX3 is available, or keep a minimum of 2 MCA, 2 REV, 2 SEV and 1 & 2/3 equivalent SEV units on line post-shedding if SEL 5RX3 is unavailable. If TSA-PM alarms "C5L81_82 - MAX ARMED SHED VIOLATION", the BC Hydro Control Centre staff should take the following actions: If BC is exporting to US, then reduce BC to US export. If BC is importing from US, then • reduce (SI AND FBC) generation and increase Peace generation, or/and • reduce (SI AND FBC) generation and increase import from US

The following are the generation shedding and RAS arming requirements: If 2L112 NLY < 200 MW OR 0.10 * (5L81 + 5L82) NIC + 2L293 SEL > 420, then GS is the greater of: • 1.13 * [(5L81 + 5L82 + 5L87) NIC + (2L92 + 2L93) SVA + 2L112 NLY - 1650], or • 1.15 * [(5L81 + 5L82) NIC + (5L41 + 5L42 + 2L90) KLY + 2L112 NLY - 3800]
If 2L112 NLY >= 200 AND 0.10 * (5L81 + 5L82) NIC + 2L293 SEL <= 420, then GS is the greater of: • 1.18 * [(5L81 + 5L82 + 5L87) NIC + (2L92 + 2L93) SVA – 1650], or • 1.20 * [(5L81 + 5L82) NIC + (5L41 + 5L42 + 2L90) KLY – 3800]
 If AB to BC >= 500 MW AND GS >= 1500 MW, then Arm DTT 5L94, and Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and If 2L112 NLY < 200 MW OR 0.10 * (5L81 + 5L82) NIC + 2L293 SEL > 420, then Shed at MCA/REV/SEV/KCL/ALH/WAN/BRX/WAX first, then GMS/PCN: 0.93 * GS – 1.05 * AB to BC Otherwise Shed at MCA/REV/SEV/KCL/ALH/WAN/BRX/WAX first, then GMS/PCN: 0.93 * GS – 1.10 * AB to BC Total armed generation shedding must be limited to 2500 - AB to BC
<pre>If AB to BC < 500 MW or [AB to BC >= 500 MW AND GS < 1500], then Shed at MCA/REV/SEV/KCL/ALH/WAN/BRX/WAX first, then GMS/PCN: GS Total armed generation shedding must be limited to 2500 Arm DTT 2L112 RAS, If 2L112 NLY < 200 AND GS > 0, or 0.10 * (5L81 + 5L82) NIC + 2L293 SEL > 420</pre>

Table 2.35 – 5L83 AND AMC 5CX1 Series Capacitor Bank O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

- Notes 2 and 3 in Section 2.
- Limit: 5L82 NIC MW <= 5L82_Norm_Rating

If TSA-PM alarms "VIOLATION_5L82_NORM_RATING", the BC Hydro Control Centre staff shall take the following actions to reduce the flow on 5L82 from NIC within its continuous rating:

- Reduce SI generation and increase LM / VI / Peace generation, or
- Reduce AB to BC transfer, or
- Reduce ING to CUS transfer
- 5L44 Contingency:

Limit: 2L64 KI2 + 0.17 * 5L44 ING + M <= 2L64 Over Rating

Where M is calculated as follows:

Y = 2L112 BDY + 0.041 * 5L44 INGZ = 2L293 NLY + 0.034 * 5L44 INGIf Y > NLYPST_OL_PickupMW, R1 = $0.087 * (Y - NLYPST_OL_ResetMW)$, Else R1 = 0 If Z > $2L293OLRAS_PickupMW$, R2 = $0.107 * (Z - 2L293OLRAS_ResetMW)$, Else R2 = 0 M= Max (R1, R2)

If TSA-PM alarms "VIOLATION_2L64 KI2 OVER RATING_5L44CTG", then the BC Hydro Control Centre staff shall take the following actions:

- Increase flow on 2L129 ARN, or
- Increase LM generation, or
- Reduce import on 5L51 and 5L52.

Generation Shedding Requirements

5L83 AND AMC 5CX1 Series Capacitor Bank O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops) Note: Tables A, B, C, D, E and F are applicable to this Table.

CONTINGENCY	SHEDDING REQUIREMENTS
5L81	No shedding required
5L82	Gen shed at MCA/REV: GS + 3.33 * R Where GS and R are calculated as follows: GS = Max (0, 3.33 * (5L81 NIC + 0.43 * 5L82 NIC - 5L81_BypassAMC1_Over_Rating)) Y = 2L112 NLY + 0.05 * 5L82 NIC - 0.14 * GS Z = -2L293 NLY + 0.04 * 5L82 NIC - 0.13 * GS If Y > NLYPST_OL_PickupMW, R1 = 0.38 * (Y - NLYPST_OL_ResetMW), Else R1 = 0 If Z > 2L293OLRAS_PickupMW, R2 = 0.46 * (Z - 2L293OLRAS_ResetMW), Else R2 = 0 R = Max (R1, R2)
5L81 and 5L82	Same as 5L83 O.O.S. Table 1.16
5L87	Shed at MCA/REV: 1.28 * (5L81 NIC + 5L82 NIC + 5L87 NIC – 3950)
5L44	Site 3: 5.4 (REV. 1.26 (StarWeb 3: SL44MDD - 5L41-Over Rating) GS2 = 13.5* (2L20CSQ + 0.23* 5L44MDD - 2L20 Over_Rating) GS3 = 38* (2L51COK + 0.1*5L44MDD - 2L51COK_Over_Rating) GS3 = 38* (2L51COK + 0.1*5L44MDD - 0.14* M Z = 2L293 SEL + 0.06*5L44 MDN - 0.14* M Z = 2L293 SEL + 0.06*5L44 MDN - 0.13* M If Y > NLYPST OL PickupMW, R1 = 0.3* (Y - NLYPST OL ResetMW) R3 = 0.1* (Y - NLYPST OL ResetMW) R3 = 0.1* (Y - NLYPST OL ResetMW) R5 = 0.05* (Y - NLYPST OL ResetMW) R5 = 0.05* (Z - 2L293OLRAS ResetMW) R4 = 0, R3 = 0, R5 = 0. If Z > 2L293OLRAS PickupMW, R2 = 0.35* (Z - 2L293OLRAS ResetMW) R4 = 0, 12* (Z - 2L293OLRAS ResetMW) R6 = 0.05* (Z - 2L293OLRAS ResetMW) R6 = 0.06* (Z - 2L293OLRAS ResetMW) R6 = 0.07* (Z - 2L293OLRAS ResetMW) R6 = 0.08* (Z - 2L293OLRAS ResetMW) R6 = 0.08* (Z - 2L293OLRAS ResetMW) R6 = 0.08* (Z - 2L293OLRAS ResetMW) R6 = 0.18* (R1, R2) R7 MAX (R3, R4) R0 = MAX (R1, R2) R0 = MAX (R5, R6) • D1* (GS1 + 5.5* Ra) > D3* (GS3 + 38* Rc) Where: D1 = 1.01 if shedding at MCA/REV, or
	Reduce SI generation and increase Peace generation

Table 2.36 – 5L83 AND AMC 5CX2 Series Capacitor Bank O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

- Notes 2 and 3 in Section 2.
- Limit: 5L81 NIC MW <= 5L81_Norm_Rating

If TSA-PM alarms "VIOLATION_5L81_NORM_RATING", the BC Hydro Control Centre staff shall take the following actions to reduce the flow on 5L81 from NIC within its continuous rating:

- Reduce SI generation and increase LM / VI / Peace generation, or
- Reduce AB to BC transfer, or
- Reduce ING to CUS transfer
- 5L44 Contingency:

Limit: 2L64 KI2 + 0.17 * 5L44 ING + M <= 2L64 Over Rating

Where M is calculated as follows:

 $\begin{array}{l} Y = 2L112 \ \text{BDY} + 0.030 * 5L44 \ \text{ING} \\ Z = 2L293 \ \text{NLY} + 0.024 * 5L44 \ \text{ING} \\ \text{If } Y > \frac{\text{NLYPST_OL_PickupMW}}{\text{NLYPST_OL_PickupMW}}, \ \text{R1} = 0.068 * (Y - \frac{\text{NLYPST_OL_ResetMW}}{\text{NLYPST_OL_ResetMW}}), \ \text{Else } \text{R1} = 0 \\ \text{If } Z > 2L293 \\ \text{OLRAS_PickupMW}, \ \text{R2} = 0.084 * (Z - 2L293 \\ \text{OLRAS_ResetMW}), \ \text{Else } \text{R2} = 0 \\ \text{M} = \text{Max} (\text{R1}, \text{R2}) \end{array}$

If TSA-PM alarms "VIOLATION_2L64 KI2 OVER RATING_5L44CTG", then the BC Hydro Control Centre staff shall take the following actions:

- Increase flow on 2L129 ARN, or
- Increase LM generation, or
- Reduce import on 5L51 and 5L52.

Generation Shedding Requirements

5L83 AND AMC 5CX2 Series Capacitor Bank O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops) Note: Tables A, B, C, D, E and F are applicable to this Table.

CONTINGENCY	SHEDDING REQUIREMENTS
5L81	Gen shed at MCA/REV: GS + 3.26 * R Where GS and R are calculated as follows: GS = Max (0, 3.26 * (5L82 NIC + 0.45 * 5L81 NIC - 5L82_BypassAMC2_Over_Rating)) Y = 2L112 NLY + 0.06 * 5L81 NIC - 0.15 * GS Z = -2L293 NLY + 0.05 * 5L81 NIC - 0.14 * GS If Y > NLYPST_OL_PickupMW, R1 = 0.39 * (Y - NLYPST_OL_ResetMW), Else R1 = 0 If Z > 2L293OLRAS_PickupMW, R2 = 0.47 * (Z - 2L293OLRAS_ResetMW), Else R2 = 0 R = Max (R1, R2)
5L82	No shedding required
5L81 and 5L82	Same as 5L83 O.O.S. Table 1.16
5L87 5L44	Shed at MCA/REV: 1.28 * (5L81 NIC + 5L82 NIC + 5L87 NIC - 4100) GS1 = 3.5 * (5L81NIC + 0.26 * 5L44MDN - 5L81_Over_Rating) GS2 = 16.5 * (2L20CSQ + 0.25 * 5L44 MDN - 2L20_Over_Rating) GS3 = 38.5 * (2L51COK + 0.12 * 5L44MDN - 2L51COK_Over_Rating) M = MAX (GS1, GS2, GS3, 0) Y = 2L112 NLY + 0.06 * 5L44 MDN - 0.13* M Z = 2L293 SEL + 0.05 * 5L44 MDN - 0.12 * M If Y > NLYPST OL_PickupMW,
	R1 = 0.45 * (Y - NLYPST OL ResetMW) R3 = 0.1* (Y - NLYPST OL ResetMW) R5 = 0.05* (Y - NLYPST OL ResetMW) Else R1 = 0, R3 = 0, R5 = 0. If $Z > 2L2930LRAS_PickupMW$, R2 = 0.5* (Z - 2L2930LRAS_ResetMW) R4 = 0.1* (Z - 2L2930LRAS_ResetMW) R6 = 0.05* (Z - 2L2930LRAS_ResetMW) Else R2 = 0, R4 = 0, R6 = 0. Ra = MAX (R1, R2) Rb = MAX (R3, R4) Rc = MAX (R5, R6) • Shed at MCA/REV first, and then GMS/PCN the greatest of: > D1* (GS1 + 3.5* Ra)



Table 2.37 – 5L83 AND CHP 5CX1 Series Capacitor Bank O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

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- Notes 2 and 3 in Section 2.
 - 5L44 Contingency: Limit: 2L64 Kl2 + 0.17 * 5L44 ING + M <= 2L64_Over_Rating Where M is calculated as follows: Y = 2L112 BDY + 0.038 * 5L44 ING Z = 2L293 NLY + 0.031 * 5L44 ING If Y > NLYPST_OL_PickupMW, R1 = 0.080 * (Y - NLYPST_OL_ResetMW), Else R1 = 0 If Z > 2L293OLRAS_PickupMW, R2 = 0.098 * (Z - 2L293OLRAS_ResetMW), Else R2 = 0 M = Max (R1, R2)

If TSA-PM alarms "VIOLATION_2L64 KI2 OVER RATING_5L44CTG", then the BC Hydro Control Centre staff shall take the following actions:

- Increase flow on 2L129 ARN, or
- Increase LM generation, or
- Reduce import on 5L51 and 5L52.

Generation Shedding Requirements

5L83 AND CHP 5CX1 Series Capacitor Bank O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops) Note: Tables A, B, C, D, E and F are applicable to this Table.

CONTINGENCY	SHEDDING REQUIREMENTS
5L81	Gen shed at MCA/REV: GS + 3.07 * R Where GS and R are calculated as follows: GS = Max (0, 3.07 * (5L82 NIC + 0.49 * 5L81 NIC - 5L82_Over_Rating)) Y = 2L112 NLY + 0.06 * 5L81 NIC - 0.15 * GS Z = -2L293 NLY + 0.05 * 5L81 NIC - 0.14 * GS If Y > , R1 = 0.42 * (Y - NLYPST_OL_ResetMW), Else R1 = 0 If Z > , R2 = 0.51 * (Z - 2L293OLRAS_ResetMW), Else R2 = 0 R = Max (R1, R2)
5L82	Gen shed at REV/MCA: GS + 3.10 * R Where GS and R are calculated as follows: GS = Max (0, 3.10 * (5L81 NIC + 0.46 * 5L82 NIC - 5L81_Over_Rating)) Y = 2L112 NLY + 0.05 * 5L82 NIC - 0.15 * GS Z = -2L293 NLY + 0.05 * 5L82 NIC - 0.14 * GS If Y > NLYPST_OL_PickupMW, R1 = 0.41 * (Y - NLYPST_OL_ResetMW), Else R1 = 0 If Z > 2L293OLRAS_PickupMW, R2 = 0.50 * (Z - 2L293OLRAS_ResetMW), Else R2 = 0 R = Max (R1, R2)
5L87	Shed at MCA/REV: 1.1* ((5L81 + 5L82 + 5L87) NIC – 4450) MW
5L44	$GS1 = 3.5 * (5L81NIC + 0.35 * 5L44MDN - 5L81_Over_Rating)$ $GS2 = 13.5 * (2L20CSQ + 0.25 * 5L44 MDN - 2L20 Over Rating)$ $GS3 = 37.5 * (2L51COK + 0.1 * 5L44MDN - 2L51COK_Over_Rating)$ $M = MAX (GS1, GS2, GS3, 0)$ $Y = 2L112 NLY + 0.05 * 5L44 MDN - 0.13 * M$ $Z = 2L293 SEL + 0.05 * 5L44 MDN - 0.12 * M$ If $Y > NLYPST_OL_PickupMW$, $R1 = 0.45 * (Y - NLYPST_OL_ResetMW)$ $R5 = 0.05 * (Y - NLYPST_OL_ResetMW)$ Else R1 = 0, R3 = 0, R5 = 0. If $Z > 2L293OLRAS_PickupMW$, $R2 = 0.52 * (Z - 2L293OLRAS_ResetMW)$ $R4 = 0.1 * (Z - 2L293OLRAS_ResetMW)$ Else R2 = 0, R4 = 0, R6 = 0. Ra = MAX (R1 R2)
	 Rd = MAX (R1, R2) Rb = MAX (R3, R4) Rc = MAX (R5, R6) Shed at MCA/REV first, and then GMS/PCN the greatest of: D1*(CS1+2.5* Po)
	> $D1^{*}$ (GS1+3.5 (Ka) > $D2^{*}$ (GS2 + 13.5 (Kb) > $D3^{*}$ (GS3 + 37.5 (Kc) Where: D1 = 1.0 if shedding at MCA/REV, or
	D1 = 1.55 if shedding at GMS/PCN, D2 = 1.0 if shedding at MCA/REV, or D2 = 1.0 if shedding at GMS/PCN, D3 = 1.0 if shedding at MCA/REV, or D3 = 1.2 if shedding at GMS/PCN.
	Total armed generation shedding must be limited to 2500 MW. If exceeding the limit, the Operator can take the following actions: Reduce the flow on 2L129 from ARN to VIT. Reduce SI generation and increase Peace generation.
5L81 and 5L82	If generation shedding is armed, keep a minimum of 2 MCA, 1 REV, 2 SEV and 2/3 equivalent SEV units on line post- shedding if SEL 5RX3 is available, or keep a minimum of 2 MCA, 2 REV, 2 SEV and 1 & 2/3 equivalent SEV units on line post-shedding if SEL 5RX3 is unavailable.
	If TSA-PM alarms "C5L81_82 - MAX ARMED SHED VIOLATION", the BC Hydro Control Centre staff should take the following actions: If BC is exporting to US, then reduce BC to US export

 If BC is importing from US, then reduce (SI AND FBC) generation and increase Peace generation, or/and reduce (SI AND FBC) generation and increase import from US
The following are the generation shedding and RAS arming requirements:
If 2L112 NLY < 200 MW OR 0.10 * (5L81 + 5L82) NIC + 2L293 SEL > 420, then GS is the greater of: • 1.13 * [(5L81 + 5L82 + 5L87) NIC + (2L92 + 2L93) SVA + 2L112 NLY – 2250], or • 1.15 * [(5L81 + 5L82) NIC + (5L41 + 5L42 + 2L90) KLY + 2L112 NLY – 3000]
If 2L112 NLY >= 200 AND 0.10 * (5L81 + 5L82) NIC + 2L293 SEL <= 420, then GS is the greater of: • 1.18 * [(5L81 + 5L82 + 5L87) NIC + (2L92 + 2L93) SVA – 2250], or • 1.20 * [(5L81 + 5L82) NIC + (5L41 + 5L42 + 2L90) KLY – 3000]
 If AB to BC >= 500 MW AND GS >= 1500 MW, then Arm DTT 5L94, and Arm DTT 1L274 and DTT 1L275 except for the RAS blocking conditions specified in Section 9.3 of SOO 7T-17, and If 2L112 NLY < 200 MW OR 0.10 * (5L81 + 5L82) NIC + 2L293 SEL > 420, then
 Shed at MCA/REV/SEV/KCL/ALH/WAN/BRX/WAX first, then GMS/PCN: 0.93 * GS – 1.05 * AB to BC Otherwise Shed at MCA/REV/SEV/KCL/ALH/WAN/BRX/WAX first, then GMS/PCN: 0.93 * GS – 1.10 * AB to BC Total armed generation shedding must be limited to 2500 - AB to BC
 If AB to BC < 500 MW or [AB to BC >= 500 MW AND GS < 1500], then Shed at MCA/REV/SEV/KCL/ALH/WAN/BRX/WAX first, then GMS/PCN: GS Total armed generation shedding must be limited to 2500
Arm DTT 2L112 RAS, If • 2L112 NLY < 200 AND GS > 0 , or • 0.10 * (5L81 + 5L82) NIC + 2L293 SEL > 420

Table 2.38 – 5L83 AND CRK 5CX1 Series Capacitor Bank O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

• Notes 2 and 3 in Section 2.

Generation Shedding Requirements 5L83 AND CRK 5CX1 Series capacitor Bank O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops) Note: Tables A, B, C, D, E and F are applicable to this Table.

CONTINGENCY	SHEDDING REQUIREMENTS
5L81	Gen shed at MCA/REV: GS + $3.10 \times R$ Where GS and R are calculated as follows: GS = Max (0, $3.10 \times (5L82 \text{ NIC} + 0.48 \times 5L81 \text{ NIC} - 5L82_Over_Rating))$ Y = $2L112 \text{ NLY} + 0.06 \times 5L81 \text{ NIC} - 0.15 \times GS$ Z = $-2L293 \text{ NLY} + 0.05 \times 5L81 \text{ NIC} - 0.14 \times GS$ If Y > NLYPST_OL_PickupMW, R1 = $0.41 \times (Y - \text{NLYPST_OL_ResetMW})$, Else R1 = 0 If Z > $2L293 \text{ OLRAS_PickupMW}$, R2 = $0.50 \times (Z - 2L293 \text{ OLRAS_ResetMW})$, Else R2 = 0 R = Max (R1, R2)
5L82	Gen shed at MCA/REV: GS + $3.04 \times R$ Where GS and R are calculated as follows: GS = Max (0, $3.04 \times (5L81 \text{ NIC} + 0.46 \times 5L82 \text{ NIC} - 5L81_\text{Over}Rating))$ Y = $2L112 \text{ NLY} + 0.06 \times 5L82 \text{ NIC} - 0.17 \times GS$ Z = $-2L293 \text{ NLY} + 0.05 \times 5L82 \text{ NIC} - 0.15 \times GS$ If Y > NLYPST_OL_PickupMW, R1 = $0.41 \times (Y - \text{NLYPST_OL}ResetMW)$, Else R1 = 0 If Z > $2L293 \text{ OLRAS}_PickupMW$, R2 = $0.50 \times (Z - 2L293 \text{ OLRAS}_ResetMW)$, Else R2 = 0 R = Max (R1, R2)
5L81 and 5L82	Same as 5L83 O.O.S. Table 1.16
5L87	Shed at MCA/REV: 1.1 * ((5L81 + 5L82 + 5L87) NIC – 4550) MW
5L44	Same as 5L83 O.O.S. Table 1.16

Table 2.40 – 5L83 AND (VAS T1 or T2) O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions: • Notes 2 and 3 in Section 2.

Generation Shedding Requirements 5L83 AND (VAS T1 or T2) O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops) Note: Tables E and F are applicable to this Table.

CONTINGENCY	SHEDDING REQUIREMENTS
5L76	Tables A, B, C and D are applicable to this contingency
5L79	Tables A, B, C and D are applicable to this contingency
5L81	Same as 5L83 O.O.S. Table 1.16
5L82	Same as 5L83 O.O.S. Table 1.16
Bypass AMC 5CX1, or	No shedding required.
Superside States	
	Same as 5L83 0.0.5. Table 1.16
5L76 and 5L79	Tables A, B, C and D are applicable to this contingency
5L87	Same as 5L83 O.O.S. Table 1.16
5L91 and 5L96	Tables A, B, C and D are applicable to this contingency
5L44	Same as 5L83 O.O.S. Table 1.16
5L91	Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of:
	• $1.20^{(5L91 SEL+5L96 SEL-1700)}$,
	• 3.4 * (2L112 NLY + 0.21 * 5L91 SEL – 400), or
	 3.8 * (2L293 SEL + 0.17 * 5L91 SEL – 400), and do not shed WAN for this requirement.
5L96	Arm DTT 48L if VAS-WTS loop is closed AND 5L96 SEL > 600 MW
	Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of:
	1.25 * (5L91 SEL + 5L96 SEL + Z – Y), or
	➤ 2.37 * (2L112 NLY + 0.24 * (5L96 SEL + Z) – 400), or
	2.37 * (2L112 NLY + BDY Gen + 0.24 * (5L96 SEL + Z) – 1120), or
	3.05 * (2L293 SEL + 0.17 * (5L96 SEL + Z) – 400), and do not shed WAN for this requirement.
	Y = 2050 if at least one of ACK 5CX1 & 5CX2 is in service, or
	Y = 1820 if none of ACK 5CX1 & 5CX2 is in service
	Z = 48L KET if DTT 48L is armed, or
	Z = 0 if DTT 48L is not armed
5L98	 Arm DTT 73L if VAS-VNT loop is closed and 5L98 VAS > 620 MW
	Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of:
	▶ 1.25 * (5L91 SEL + 5L98 VAS + Z - Y), or
	2.75 * (2L112 NLY + 0.22 * (5L98 VAS + Z) – 400), or
	2.75 * (2L112 NLY + BDY Gen + 0.22 * (5L98 VAS + Z) – 1180), or
	3.18 * (2L293 SEL + 0.17 * (5L98 VAS + Z) – 400), and do not shed WAN for this requirement.
	Y = 2120 if at least one of ACK 5CX1 & 5CX2 is in service, or
	Y = 1950 if none of ACK 5CX1 & 5CX2 is in service
	Z = 73L RGA if DTT 73L is armed, or
	Z = 0 if DTT 73L is not armed
5L96 and 5L98	Tables A, B, C and D are applicable to this contingency
5L92	Same as Table A
5L94	Same as Table A
Bypass GUI	No gen shedding required.
5L91 (1P) or 5L96 (1P) or	No gen shedding required.
5L98 (ÌP)	

Table 2.41 – 5L83 AND (VAS T1 AND T2) O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

• Note 2 in Section 2.

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- 5L91 and 5L96 contingency:
 - Limit: 5L91 SEL + 5L96 SEL + Y + Z < 2500 MW
 - Y = 2L112 NLY if 2L112 NLY > 0, or Y = 0 if 2L112 NLY <= 0
 - Z = 48L KET if both VAS-WTS and VAS-VNT loops are closed, or Z = 0 if VAS-WTS loop or/and VAS-VNT loop is/are open If SEL 5RX3 is available, then limit:
 - (FBC injection into SEL area) + W < WAN shedable generation amount + ALH MW + BRX MW + WAX MW + 1000 1 SEV @ MIN.MW

Otherwise, limit:

(FBC injection into SEL area) + W < WAN shedable generation amount + ALH MW + BRX MW + WAX MW + 1000 – 1 SEV @ MIN.MW – 1 KCL @MIN.MW

Where FBC injection into SEL area = 2L288 BTS + 2L289 BTS + FBC AAL Tie MW + 2L277 WAN - 60L225 KCL - 60L227 KCL - 2L286 SEL MW

- FBC AAL Tie MW = (2L294 AAL-NLY) AAL + (2L294 AAL-CBK) AAL MW
- W = AB to BC MW if AB to BC > 0, or
- W = 0 if AB to BC ≤ 0

Alarm if 5L91 SEL + 5L96 SEL + 2L112 NLY + Z < -700 MW AND MATL120S_PST230 >= 0 MW, or If 5L91 SEL + 5L96 SEL + 2L112 NLY + Z + MATL120S_PST230 < -700 MW AND MATL120S_PST230 < 0 MW Z = 48L KET if both VAS-WTS and VAS-VNT loops are closed, or Z = 0 if VAS-WTS loop or/and VAS-VNT loop is/are open If the alarm comes, the BC Hydro Control Centre staff must put more local generation on-line to prevent post-contingency frequency drop down below 59.0 Hz for loss of 5L91 and 5L96.

Generation Shedding Requirements

5L83 AND (VAS T1 AND T2) O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops) Note: Tables E and F are applicable to this Table.

CONTINGENCY	SHEDDING REQUIREMENTS
5L76	Same as Table A
5L79	Same gen shedding as 5L76 contingency with ACK 5CB8 in service in Table A
5L81	Same as 5L83 O.O.S. Table 1.16
5L82	Same as 5L83 O.O.S. Table 1.16
Bypass AMC 5CX1 or Bypass AMC 5CX2	No shedding required.
5L81 and 5L82	Same as 5L83 O.O.S. Table 1.16
5L76 and 5L79	Same as Table D
5L87	Same as 5L83 O.O.S. Table 1.16
5L91 and 5L96	Same as VAX T1 AND T2 O.O.S. Table 1.41
5L44	Same as 5L83 O.O.S. Table 1.16
5L91	 Arm DTT 48L if both VAS-WTS and VAS-VNT loops are closed AND if (5L91 SEL + 5L96 SEL + 48L KET) > 1650 MW Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: 1.16* (5L91 SEL+5L96 SEL + Z - 1750), or 3.30* (2L112 NLY + 0.21* (5L91 SEL + Z) - 400), or 3.50* (2L293 SEL + 0.18* (5L91 SEL + Z) - 400), and do not shed WAN for this requirement. Z = 48L KET if DTT 48L RAS is armed, or Z = 0 if DTT 48L RAS is not armed.
5L96	 Arm DTT 48L if both VAS-WTS and VAS-VNT loops are closed AND if (5L91 SEL + 5L96 SEL + 48L KET) > 1700 MW Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: 1.25 * (5L91 SEL + 5L96 SEL + Z - Y), or 2.63 * (2L112 NLY + 0.23 * (5L96 SEL + Z) - 400), or 2.63 * (2L112 NLY + BDY Gen + 0.23 * (5L96 SEL + Z) - 1150), or 3.10 * (2L293 SEL + 0.19 * (5L96 SEL + Z) - 400), and do not shed WAN for this requirement. Y = 2080 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1800 if none of ACK 5CX1 & 5CX2 is in service Z = 48L KET if DTT 48L RAS is armed, or Z = 0 if DTT 48L RAS is not armed.
5L98	Same as 5L96 contingency in this table except that the value of 1700 MW included in the 1 st bullet is changed to 1500 MW
5L96 & 5L98	 Arm DTT 48L if both VAS-WTS and VAS-VNT loops are closed AND if (5L91 SEL + 5L96 SEL + 48L KET) > 1650 MW Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: 1.25*(5L91 SEL + 5L96 SEL + Z - Y), or 2.96* (2L112 NLY + 0.26* (5L96 SEL + Z) - 400), or 2.96* (2L112 NLY + BDY Gen + 0.26* (5L96 SEL + Z) - 1160), or 3.00* (2L293 SEL + 0.20* (5L96 SEL + Z) - 400), and do not shed WAN for this requirement. Y = 2010 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1740 if none of ACK 5CX1 & 5CX2 is in service Z = 48L KET if DTT 48L RAS is armed, or Z = 0 if DTT 48L RAS is not armed.
5L92	Same as system normal Table A
5L94	Same as system normal Table A
Bypass GUI 5CX1	No shedding required.
5L91 (1P) or 5L96 (1P) or 5L98 (1P)	No shedding required.

Table 2.42 – 5L83 AND FBC's (75L or 76L) O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:Notes 2 and 3 in Section 2.

Generation Shedding Requirements 5L83 O.O.S. AND FBC's (75L or 76L) O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops) Note: Tables E and F are applicable to this Table.

CONTINGENCY	SHEDDING REQUIREMENTS
5L76	Tables A, B, C and D are applicable to this contingency
5L79	Tables A, B, C and D are applicable to this contingency
5L81	Same as 5L83 O.O.S. Table 1.16
5L82	Same as 5L83 O.O.S. Table 1.16
Bypass AMC 5CX2, or Bypass AMC 5CX1	No shedding required
5L81 and 5L82	Same as 5L83 O.O.S. Table 1.16
5L76 and 5L79	Tables A, B, C and D are applicable to this contingency
5L87	Same as 5L83 O.O.S. Table 1.16
5L91 and 5L96	Tables A, B, C and D are applicable to this contingency
5L44	Same as 5L83 O.O.S. Table 1.16
5L91	 Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: 1.17 * (5L91 SEL+5L96 SEL - Y), 3.56 * (2L112 NLY + 0.18 * 5L91 SEL - 400), or 4.10 * (2L293 SEL + 0.18 * 5L91 SEL - 400), and do not shed WAN for this requirement. Y = 1715 if SEL T1 & (T2 or/and T3) & T4 are in service, or Y = 1675 if SEL T1 or (T2 & T3) or T4 is O.O.S.
5L96	Tables A, B, C and D are applicable to this contingency
5L98	Tables A, B, C and D are applicable to this contingency
5L96 & 5L98	 Arm DTT 48L if 5L96 SEL > 800 MW and both VAS-WTS and VAS-VNT loops are closed Shed at KCL/ALH/WAN/BRX/WAX first, then SEV the greatest of: 1.25 * (5L91 SEL + 5L96 SEL + Z - Y), or 2.50 * (2L112 NLY + 0.24 * (5L96 SEL + Z) - 400), or 2.50 * (2L112 NLY + BDY Gen + 0.24 * (5L96 SEL + Z) - 1100), or 2.93 * (2L293 SEL + 0.20 * (5L96 SEL + Z) - 400), and do not shed WAN for this requirement. Y = 2050 if at least one of ACK 5CX1 & 5CX2 is in service, or Y = 1870 if none of ACK 5CX1 & 5CX2 is in service Z = 48L KET if DTT 48L is armed, or Z = 0 if DTT 48L is not armed.
5L92	Same as Table A
5L94	Same as Table A
Bypass GUI	No shedding required.
5L91 (1P) or 5L96 (1P) or 5L98 (1P)	No shedding required.

Table 2.43 – 5L83 AND 2L20 O.O.S., or 5L83 AND 2L44 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

 \gg Notes 2 and 3 in Section 2.

Generation Shedding Requirements 5L83 AND 2L20 O.O.S., or 5L83 AND 2L44 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Note: Tables A, B, C, D, E and F are applicable to this Table.

CONTINGENCY	SHEDDING REQUIREMENTS
5L81	Same as 5L83 O.O.S. 1.16
5L82	Same as 5L83 O.O.S. Table 1.16
5L87	Same as 5L83 O.O.S. Table 1.16
5L44	GS1 = 3.5 * (5L81NIC + 0.35 * 5L44MDN – 5L81_Over_Rating) GS2 = 12 * (2L22MDN + 0.3 * 5L44 MDN - 2L22_Over_Rating)
	M = MAX (GS1, GS2, 0) Y = 2L112 NLY + 0.05 * 5L44 MDN – 0.12* M Z = 2L293 SEL + 0.05 * 5L44 MDN – 0.10 * M
	If Y > NLYPST_OL_PickupMW, R1 = 0.42 * (Y - NLYPST_OL_ResetMW) R3 = 0.12 * (Y - NLYPST_OL_ResetMW) Else R1 = 0, R3 = 0.
	If Z > 2L293OLRAS_PickupMW, R2 = 0.50 * (Z - 2L293OLRAS_ResetMW) R4 = 0.15 * (Z - 2L293OLRAS_ResetMW) Else R2 = 0, R4 = 0.
	Ra = MAX (R1, R2) Rb = MAX (R3, R4)
	 Shed at MCA/REV first, and then GMS/PCN the greatest of: D1* (GS1 + 3.5* Ra) D2* (GS2 + 12* Rb) Where: D1 = 1.0 if shedding at MCA/REV, or D1 = 1.7 if shedding at GMS/PCN, D2 = 1.0 if shedding at MCA/REV, or D2 = 1.15 if shedding at GMS/PCN.
	 Total armed generation shedding must be limited to 2500 MW. If exceeding the limit, the Operator can take the following actions: Reduce the flow on 2L129 from ARN to VIT. Reduce SI generation and increase Peace generation
5L81 and 5L82	Same as 5L83 O.O.S. Table 1.16

Table 2.44 – 5L83 AND 2L22 O.O.S., or 5L83 AND 2L27 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Pre-Outage Restrictions:

5L44 Contingency:
 Limit: 2L64 Kl2 + 0.22 * 5L44 ING + M <= 2L64_Over_Rating
 Where M is calculated as follows:
 Y = 2L112 BDY + 0.037 * 5L44 ING
 Z = 2L293 NLY + 0.029 * 5L44 ING
 If Y > NLYPST_OL_PickupMW, R1 = 0.231 * (Y - NLYPST_OL_ResetMW), Else R1 = 0
 If Z > 2L293OLRAS_PickupMW, R2 = 0.193 * (Z - 2L293OLRAS_ResetMW), Else R2 = 0
 M = Max (R1, R2)

If TSA-PM alarms "VIOLATION_2L64 KI2 OVER RATING_5L44CTG", then the BC Hydro Control Centre staff shall take the following actions:

- Increase flow on 2L129 ARN, or
- Increase LM generation, or
- Reduce import on 5L51 and 5L52.
- Notes 2 and 3 in Section 2

Generation Shedding Requirements 5L83 AND 2L22 O.O.S. or 5L83 AND 2L27 O.O.S. (Any Status of FBC's VAS-WTS and VAS-VNT Loops)

Note: Tables A, B, C, D, E and F are applicable to this Table.

CONTINGENCY	SHEDDING REQUIREMENTS
5L81	Same as 5L83 O.O.S. Table 1.16
5L82	Same as 5L83 O.O.S. Table 1.16
5L87	Same as 5L83 O.O.S. Table 1.16
5L44	GS1 = 3.5 * (5L81NIC + 0.35 * 5L44MDN – 5L81_Over_Rating) GS2 = 11 * (2L20MDN + 0.32 * 5L44 MDN - 2L20_Over_Rating)
	M = MAX (GS1, GS2, 0) Y = 2L112 NLY + 0.05 * 5L44 MDN – 0.12* M Z = 2L293 SEL + 0.05 * 5L44 MDN – 0.10 * M
	If Y > <mark>NLYPST_OL_PickupMW</mark> , R1 = 0.42 * (Y - NLYPST_OL_ResetMW) R3 = 0.13 * (Y - <mark>NLYPST_OL_ResetMW</mark>) Else R1 = 0, R3 = 0.
	If Z > 2L293OLRAS_PickupMW, R2 = 0.50 * (Z - 2L293OLRAS_ResetMW) R4 = 0.15 * (Z - 2L293OLRAS_ResetMW) Else R2 = 0, R4 = 0.
	Ra = MAX (R1, R2) Rb = MAX (R3, R4)
	 Shed at MCA/REV first, and then GMS/PCN the greatest of: D1* (GS1 + 3.5* Ra) D2* (GS2 + 11* Rb) Where: D1 = 1.0 if shedding at MCA/REV, or D1 = 1.7 if shedding at GMS/PCN, D2 = 1.0 if shedding at MCA/REV, or D2 = 1.2 if shedding at GMS/PCN
	 Total armed generation shedding must be limited to 2500 MW. If exceeding the limit, the Operator can take the following actions: Reduce the flow on 2L129 from ARN to VIT. Reduce SI generation and increase Peace generation
5L81 and 5L82	Same as 5L83 0.0.5. Table 1.16