



Operating Procedures

ISO New England Operating Procedure No. 19

*Transmission Operations – Appendix C – 345kV
Stuck Breaker Contingencies That Can Have
Unacceptable Inter-Area Impacts*

Effective Date: September 16, 2010
Revision No. 13

Appendix C - 345 kV Stuck Breaker Contingencies That Can Have Unacceptable Inter-Area Impacts

(Assumes "All Lines In" Pre-Contingency Conditions)

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Appendix C - 345 kV Stuck Breaker Contingencies That Can Have Unacceptable Inter-Area Impacts (Assumes "All Lines In" Pre-Contingency Conditions)

345 kV Station	Faulted Circuit	Stuck Breaker	Additional Circuit or Facility Lost Because of Stuck Breaker	Remarks	ID
Tewksbury	337 Sandy Pond (Sandy Pond-Tewksbury)	37-39	339 (Tewksbury-Golden Hills) + Golden Hills (1X) 345/115 kV transformer	Leaves 397 and 338 tied together at Tewksbury.	ZB 11
Southington	329 Frost Bridge (Southington-Frost Bridge)	5T	Southington (3X) 345/115 kV transformer	SPS closes 19T breaker at Southington, tying remaining Southington 1X, 2X and 4X 345/115 kV transformers together.	ZB10
Southington	329 (Southington-Frost Bridge)	4T	3041 (Southington-Scovill Rock)	Leaves the four Southington 345/115 kV transformers on the 3754 line.	ZB09
Millstone	348 (Beseck-Haddam-Millstone)	14T	Millstone 3 Generator	Leaves high-side of Haddam 345/115 kV transformer open-ended at Haddam.	ZB05
Northfield	393/312 (Alps-Berkshire-Northfield) + Berkshire (1X) 345/115 kV XF	3T	381 (Northfield-Vermont Yankee)	Leaves Northfield generation radial on the 354 line at Northfield.	ZB06
Northfield	312/393 (Northfield-Berkshire-Alps) + Berkshire (1X) 345/115 kV transformer	5T	Northfield 3 and 4 Generators	Leaves Northfield 1 & 2 generators, 354 line and 381 line tied together at Northfield.	ZB14

345 kV Station	Faulted Circuit	Stuck Breaker	Additional Circuit or Facility Lost Because of Stuck Breaker	Remarks	ID
Ludlow	3419 (Barbour Hill-Ludlow)	3T	Ludlow (3X) 345/115 kV transformer +301 (Carpenter Hill-Millbury) +302 (Carpenter Hill-Millbury) + Carpenter Hill (1X) 345/115 kV transformer	Leaves 334 line and Stony Brook generators, 354 line and Ludlow 345/115 kV (1X) transformer tied together at Ludlow	ZB21
Deerfield	385 (Buxton-Deerfield)	785	307 (Deerfield-Newington)	Leaves Deerfield 345/115 kV transformer on the 373 line at Deerfield.	785S
Manchester	3424 (Manchester-Kleen) + Manchester (5X) 345/115 kV transformer	19T	Manchester (6X) 345/115 kV transformer	Leaves single Manchester 345/115kV transformer connected at Manchester.	ZB16
Manchester	3424 (Manchester-Kleen) + Manchester (5X) 345/115 kV transformer	18T	Manchester (4X) 345/115 kV transformer	Leaves single Manchester 345/115kV transformer connected at Manchester.	ZB17
Sandy Pond	Sandy Pond (1X) 345/115 kV transformer	314	314 (Sandy Pond-Wachusett)	Leaves single Sandy Pond 345/115kV transformer connected at Sandy Pond.	ZB24
Sandy Pond	Sandy Pond (2X) 345/115 kV transformer	343	343 (Sandy Pond-Wachusett)	Leaves single Sandy Pond 345/115kV transformer connected at Sandy Pond.	ZB25
Orrington	388 (Orrington-Maxcys)	K388-3	Orrington (T2) 345/115 kV transformer	NB interconnected to NE by only the Orrington T1 345/115 kV transformer	388S

345 kV Station	Faulted Circuit	Stuck Breaker	Additional Circuit or Facility Lost Because of Stuck Breaker	Remarks	ID
Barbour Hill	395 (Manchester–Meeksville Junction–North Bloomfield)	3T	Barbour Hill 345/115kV (1X) transformer +3419 (Ludlow-Barbour Hill)	Isolates Barbour Hill station from the 345kV system	ZB18
Barbour Hill	3419 (Ludlow–Barbour Hill)	4T	Barbour Hill 345/115kV (1X) transformer + 395 (Barbour Hill-Bloomfield-Manchester)	Isolates Barbour Hill station from the 345kV system	ZB19
Barbour Hill	3419 (Ludlow–Barbour Hill)	5T	395 (Barbour Hill-North Bloomfield-Manchester) + Barbour Hill 345/115kV (1X) transformer	Isolates Barbour Hill station from the 345kV system	ZB20
Beseck	3827 (Beseck-E.Devon)	8T	362 (Beseck-Haddam Neck)	Leaves the 348 and 3754 lines connected together through Beseck	ZB22
E.Devon	3827 (Beseck-E.Devon)	11T	East Devon 345/115 kV (2X) transformer	Leaves the 3619 and 3165 lines tied together through E.Devon	ZB23

OP 19 Appendix C Revision History

Document History (This Document History documents action taken on the equivalent NEPOOL Procedure prior to the RTO Operations Date as well revisions made to the ISO New England Procedure subsequent to the RTO Operations Date.)

Rev. No.	Date	Reason
Rev 1	7/22/98	
Rev 2	10/12/04	Updated Stuck Breaker Contingencies
Rev 3	02/01/05	Updated to conform to RTO
Rev 4	01/31/06	Removed the 5T stuck breaker at Long Mountain because it is no longer applicable
Rev 5	04/24/06	Updated Stuck Breaker Contingencies
Rev 6	01/17/07	Updated Stuck Breaker Contingencies, Removed the 7T and 8T stuck breaker at Scovill Rock
Rev 7	02/15/07	Updated Stuck Breaker Contingencies, Removed the 851 Deerfield Contingency
Rev 8	05/30/07	Updated Stuck Breaker Remarks as a result of Ward Hill and Wachusett projects
Rev 9	11/19/07	Added the Orrington K388-3 Stuck Breaker Contingency as a result of the NRI Project
Rev 10	06/26/08	Added Barbour Hill stuck breakers and nomenclature edits for Southington 4T, Millstone 14T, Manchester 18T & 19T, and Sandy Pond 343 stuck breakers
Rev 11	06/05/09	For ZB09 Remarks Section changed 348 to 3754; Deleted loss of the 4X xfmr on loss of 348; Added new Ludlow 3T ZB21; Deleted Ludlow 5T (No longer needed due to installation of series Ludlow 6T Breaker); Revised Vermont Yankee Faulted Circuit Section 379 line terminal nomenclature & corrected ZB09 Remarks; Modified Barbour Hill 3T, 4T, 5T (ZB18, ZB19, ZB20) rows: added information to each Additional Circuit Section; Added all information for 2 new Stuck Breaker rows: Beseck 8T and E.Devon 11T
Rev 12	08/24/09	Added stuck breaker contingencies Sandy Pond 314 & developed new IDs for 314 breaker to be ZB24 & 343 breaker to be ZB25.
Rev 13	09/16/10	Annual review by procedure owner; Format changed, font changed to Arial, added Table of Contents, added Uncontrolled document disclaimer to 1 st page footer, and "Uncontrolled" to all footers; Deleted contingency ID 379S, Contingency ZB16 replaced "353 (Manchester-Scovill Rock)" with "3424 (Manchester-Kleen)"; Contingency ZB17 replaced "353 (Manchester-Scovill Rock)" with "3424 (Manchester-Kleen)";