NERC

NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Transmission Availability Data System (TADS)

DATA REPORTING INSTRUCTION MANUAL

December 9, 2010

For Calendar Years 2010 and 2011

to ensure the reliability of the bulk power system

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Version History

Version Date	Major Changes
October 17, 2007	New
November 20, 2007	P. 4. Table 1.5, third row in the "Date" column. Change: December 17, 2007 was changed to January 15, 2008. P.7, Section 2.1. Addition: A new paragraph was added that defines "tie line" for TADS purposes. P. 14. Table 5, Column A. Addition: "For the special first quarter submittal, use "2008" and not "2008Q1." That way the Event ID Codes can be used for the 2008 annual submittal as well." P. 62. AC Circuit that is directly connected to a TADS Transformer. Change: The AC Circuit and Transformer both return to service when both breakers G and H are closed. The exception for a line connected to a transformer described in the definition of In-Service State" in Appendix 6, pp. 3-4 only applies to multi-terminal circuits, not two-terminal circuits. P. 67. Form 4.1. Outage Code D1: This code is associated with the example on p. 62 that was changed. Change: The Outage Duration was changed to 3 minutes from 1 minute Outage ID Codes H2 and H3: Change: The Outage Initiation Code was changed to "Other Facility-Initiated" since the Protection System is not part of an AC Substation. P. 67. Form 4.3. Outage ID Code B2: Changes: The Outage Initiation Code was changed to "Other Element-Initiated" (an AC Circuit) since Transformer did not initiate the reported Transformer outage. Sustained Cause Code changed "Failed AC Equipment" (coding error). Outage ID Code D2: The Outage Initiation Code was changed to "Other Element-Initiated" (an AC Circuit) since Transformer did not initiate the reported Transformer outage. Outage ID Code G: The Fault Type was changed to "None" since there was no fault, just a relay misoperation. The Outage Initiation Code was changed to "Other Facility-Initiated" since the Protection System is not part of the AC Substation.
February 13, 2008	P. 1, Section 1.2.1 We clarified that all voltages are operating voltages. P. 4, Section 1.4.1 We added instructions on how to transmit TADS data securely via e-mail. P. 7, Section 1.9.2 We added new language that emphasizes the need to complete the lower part of Form 1.2 that describes each form's "Submission Status" and "Reason for Not Submitting" forms. This allows us to tell whether a blank form is intended or an oversight. P. 8, Sections 2 and Form 2.1, p. 19 We required that only jointly-owned circuits are to be reported on Form 2.1. We previously required tie lines to be reported even if they were not jointly owned. We eliminated the term "tie line."

February 13, 2008	P. 8, Table 2.1 and p. 19, Form 2.1 (i) We added the ability to specify a three-terminal circuit with a new column D. Other columns letters were changed accordingly. (ii) The TO Element Identifier in column I is now required. With this change, it will be possible to produce outage data of jointly owned facilities for all joint owners. (iii) We extended the number of joint owners from four to ten (columns J-W). P. 9, Table 2.2 and p. 20, Form 2.2 We added a "Not Applicable" column F to keep the column labeling consistent between Forms 2.1 and 2.2. P. 10, Table 3.1 In column B, we clarified that the circuit inventory is not to include circuits which are not normally energized and fully connected to the system or which have not been declared commercially in service by the TO. P. 12, Table 3.2 In column B, we clarified that the Transformer inventory is not to include Transformers which are not normally energized and fully connected to the system (e.g., spares) or which have not been declared commercially in service by the TO. Pp. 14-15, Table 4-1-4.4 (Forms 4.1 -4.4) and pp. 26-29, Forms 4.1-4.4 (i) The TO Element Identifier in column G is now required. It was previously optional. (ii) The Fault Type drop-down menus in column J were changed to correspond to updated Fault Type descriptions. In addition to being having simpler names, Fault Type 4 now includes three phase faults without a ground target. This type of fault was previously omitted. (iii) The Outage Start Time date heading row label in column L was corrected to "mm/dd/yyyy" from "dd/mm/yyyy." (iv) We also changed the Outage Duration format in column M from "hh:mm" to "hhhh:mm." Note that the format is a text field. Enter 860 hours and 20 min. as 860:20. (v) We added an "Outage Continuation Flag" in column Q which is defined in Appendix 6, Section B. P. 15, Section 4.1 We simplified the method for recording outages that continue beyond a reporting year. This section is significantly different. P. 16, Table 5 and p. 29, Form 5 The optional description for an Event's outages in column C may be provided for *any* Event ID Code. It was previously restricted to Event ID Codes having an Event Type 50. P, 21, Form 3.1 The Voltage Class label for row 11 was corrected to "400-499 kV DC Overhead." P. 23, Form 3.3 The Voltage Class for row 4 was corrected to "400-599 kV." Appendix 6 (Definitions), p. 1 For "AC Circuit," we clarified that in-line sectionalizing switches inside an AC Substation are part of the AC Circuit. Also clarified that series compensation within an AC Circuit Boundaries is part of the AC Circuit, while series compensation outside of the AC Circuit boundaries is part of the AC Substation.

April 4, 2008	<u>All circuit illustrations</u> We consistently color-coded all breakers: "red" breakers are closed and "green" breakers are open. <u>P. 2, Section 1.3</u> In the reference to Appendix 2, we changed the phrase "Forms for Jointly-Owned Facilities" to "Forms for Multiple-Owner Elements." • The term "jointly-owned" imparted a legal connotation that TADS did not intend. As an example, consider an AC Circuit that has a 50% of its length each owned *separately* by two TOs. In cases such as these, the physical change of ownership is usually defined at a designated structure or other landmark. In TADS, this is a multi-owner AC Circuit. Now suppose a different ownership arrangement exists whereby the *entire* circuit is 50% owned by each TO under a joint-ownership agreement. This circuit is also a multi-owner AC Circuit. • When the word "facility" means "Element," it was changed to "Element." *Although similar changes appear elsewhere in the Manual regarding these terms, we do not note each incident in this version history.* <u>P. 3, Section 1.3, item 4</u> We had displayed columns that were not used on forms as grayed out and labeled "NA." These columns are now hidden. This change was required for bulk loading on data into webTADS. <u>P. 4, Section 1.5.1</u> Now that OATI is under contract with NERC for the development of webTADS, we modified this section accordingly. <u>P.11, Table 3.1</u> In column B, we changed the requirement to enter an "NA" into a blank cell. Cells without data should now be left blank. This change was required for bulk loading on data into webTADS. <u>Appendix 6 (Definitions), p.1</u> We stated that the terms "Element" and "TADS Element" have the same meaning. <u>Appendix 6 (Definitions), p.12</u> The definition of "Dependent Mode Outage" was clarified by removing the inclusion of "Single Mode Outage" in the definition, which had caused confusion. <u>Appendix 8 (Detailed Automatic Outage Data Examples), p. 81</u> We added a note that described the correct Outage Mode Code had the circuits in the example *not* been on common structures.
November 21, 2008	<u>P. 1, Introduction</u> We added a reference to the Phase II requirement to keep historical supporting data for Automatic Outages beginning in calendar year 2009. <u>P. 2, Section 1.3</u> New Table 1.3 replaces previous text. The new table denotes what sections of the Manual contain the instructions for each form. <u>P. 2, Section 1.3, item 4</u> We added new language that describes a "non-reporting TO" and a "reporting TO."

November 21, 2008	P. 3, Section 1.4 We added a new section that describes who must report TADS data. To simplify administration, we do not require a non-reporting TO who adds TADS Element during a reporting year to report TADS data until the next reporting year. The same consideration is given to a TO who becomes newly registered during a reporting year. We describe the obligations of a reporting TO who is no longer registered. P. 4, Section 1.5 We clarified how a TO can change the default NERC confidentiality classification applicable to a TADS form. P. 5, Section 1.5.1 For transmitting confidential information by e-mail, all entities should use their critical infrastructure protection (CIP) procedures. If those are not yet developed, a default method is provided. P. 5, Section 1.6 We added new language that explains the submittal of 2008 data. Section 1.6.2 describes two changes to the 2008 Excel workbook from the previous workbook. Table 1.6.2 has a schedule for 2008 data entry. P. 6, Section 1.7 We added new language that explains the submittal of 2009 data. Table 1.7 has a schedule for 2009 data entry. P. 7, Section 1.7.1 We added a new section that explains the requirement to keep historical supporting data for Automatic Outages beginning in calendar year 2009. P. 7, Section 1.8 We improved the explanation of webTADS. P. 8, Section 1.9 We expanded the discussion on NERC IDs and TO names. We describe two new Excel workbooks that contain the TADS NERC ID and TO names for 2008 and 2009. P.9, Section 1.10 We included RE Coordinators as well as NERC staff in answering TADS questions. P.18, Section 4, Column L A TO may now enter the Outage Start Time into webTADS as local time (instead of UTC) if the TO is using the GUI in webTADS. This feature does not apply to TOs who bulk load data. P. 18, Section 4.1 We added some examples that show the differences between a UTC calendar year (which TADS uses) and a calendar year in local time.

September 29, 2009	New Non-Automatic Outage Instructions This version is the first version that has instructions for Non-Automatic Outage reporting for calendar year 2010, when both Automatic and Non-Automatic Outages are to be reported. For calendar year 2009, only Automatic Outages are reported. As a result of adding Non-Automatic Outage reporting instructions, several "Non-Automatic" sections/appendices were added: P. 6, Section 1.8 This section has general instructions for 2010 data entry for Automatic and Non-Automatic outages. Specific webTADS enhancements are described for Non-Automatic outages. P. 23, Section 6 This section has instructions for Forms 6.1-6-4 that apply to Non-Automatic Outages. P. 41, Appendix 6 This section has as pictures of Forms 6.1-6.4 worksheets contained in the TADS forms workbook for 2010. P. 94, Appendix 10 This section has examples for Non-Automatic Outages. Renumbered Appendices Appendices 7, 8, and 9 were re-numbered from prior Appendices 6, 7, and 8. Prior Appendix 9 (Regional Entity and NERC Contacts) was replaced with a posted contacts document so that it could be easily updated – see Section 1.11 for the link. UTC Time Entry As described in Section 1.7, beginning with 2009 data, Outage Start Times may be entered in local times. WebTADS will offer the user a choice of local times, and webTADS will convert all non-UTC times to UTC and store the time as UTC in webTADS. New *WebTADS Error Message Interpretation* Document The document is described in Section 1.9.1, and a link is provided to a posted document. On a form-by-form basis, this document shows webTADS error messages and what corrections may be needed to correct the data entry error. Changes in Appendix 7 (Definitions) In addition to adding relevant Non-Automatic definitions, changes were made to clarify several definitions (listed below) as a result of questions and comments from TOs: The page numbers below are those in Appendix 7. P. 5, In-Service State; P. 8, Outage Duration; and P. 18. Fault Type. A redline of Appendix 7 compared the previous Appendix 6 is posted at http://www.nerc.com/filez/tadswg.html. TOs are advised to review this redline document. Changes in Appendix 9 (Detailed Automatic Outage Data Examples) This appendix has eight Automatic Outage examples. The primary TADS data entries for each outage are now summarized in a table on the same page as each outage. In addition, an error was corrected in the outage on page 90 – Event ID Code H-2008. The TADS worksheet on p. 91 for Outage IDs H2 and H3 now has "No fault" as the Fault Type and "Other-Element Initiated" as the Outage Initiation Code.

October 29, 2010	**2011 TADS Workbook (XLS)** Form 2.x Footnote (2) changed as follows: "List any Multiple-Owner circuit that was in-service for at least part of the reporting period." No other 2011 changes to the 2010 workbook. **Data Reporting Instruction Manual (this "Manual")** Multiple Owner unique Element ID for use by reporting TO Page 12-13?? Section 2 – Form 2.x: If a Multiple-Owner circuit configuration changes during the year which changes the number of circuits or mileage, list each of the configurations on Form 2.x with a different Element ID. Each multiple owner Element ID can only be used on Form 4.x and Form 6.x by the reporting TO. The other multiple owners cannot use that Element ID. See Section 2 introduction and Section 2.1 Column I and J-W description. Event Identification (ID) code Form 5 format constraint does not exist. Page 21?? Form 4, Column B Event ID description, Page ?? Form 5, Column A Event ID description, and Page 9?? Appendix 7 Event ID Code definition: The prior manual stated the Event ID code format should end with the reporting year, such as WXY-2008. However, webTADS was originally designed to track each TOs unique Event IDs. webTADS tracks each TOs Event IDs over multiple years and does not permit the same Event ID to be used twice by any given TO. The above format constraint, WXY-2008, was not necessary and was not enforced by webTADS. Any pattern of alphanumeric characters may be used on Form 5 to define the Event ID code. Outages which continue beyond the end of the year Page 22?? Section 4.1, and page ?? Section 6 Outage ID data entry: Each year a new Outage ID Code is required, however, the same prior year Event ID Code should be used. For any given TO, over multiple years, webTADS requires the TO entered Form 4.x Outage ID to only be used on one Automatic Outage. webTADS also separately tracks Form 6.x Outage IDs which can only be used on one Non-Automatic Outage (on Form 6.x). A unique Event ID to be used by more than one TO on their Form 4.x Page 25?? Form 5 "NERC Company" Event ID: For a related set of two or more element Automatic Outages which have different Transmission Owners, a unique NERC wide Event ID code needs to be defined. webTADS keeps a separate list of "NERC Company" wide unique Event ID codes. A "NERC Company" Event ID code may be established by any one TO (or TADS Regional Entity Coordinator) and then used by any TO on their Form 4.x. (Continued on next page)

October 29, 2010	Added an example of a reportable 345kV AC Circuit Non-Automatic Outage during a planned 138kV outage. Page 98??, Appendix 10 – See Example 3. **Appendix 7 Definitions document** Outage which has more than one Fault Type Appendix 7 page 11??: Added guideline and Example 4a & 4b on how to determine the Fault Type to be entered on Form 4.x for an Automatic Outage which has an evolving fault type during successive reclosing attempts. Clarification of Normal Clearing Appendix 7 page 13??: Added clarification for Normal Clearing of non-fault conditions. Added example of Normal Clearing prior to automatic reclosing equipment failure. Clarification of Vandalism, Terrorism or Malicious Acts Automatic Outage Cause Code Appendix 7 page17??: Added clarification regarding Cyber related outages. Clarification of Automatic Outage Cause Codes to be used for misoperations Appendix 7 page 19??: Added clarification regarding misoperations. Also added table of sample misoperation causes and equivalent TADS Cause Codes. Clarification of Other Operational Outage Non-Automatic Cause Code Appendix 7, page 21??: Added clarification and example regarding human error.

Table of Contents

1. Introduction

There are no TADS changes from Calendar Year 2010 reporting requirements to Calendar Year 2011. Editorial changes have been made to this Manual to add clarity and respond to user suggestions for additional examples.

TADS is described in two reports:

1. The *Transmission Availability Data System Revised Final Report* ("Phase I Report") that was approved by the NERC Planning Committee on September 26, 2007 and by the NERC Board of Trustees on October 23, 2007. Phase I addresses the collection of Automatic Outage data beginning in calendar year 2008. The Phase I Report can be found at http://www.nerc.com/filez/tadstf.html.
2. The *Transmission Availability Data System Phase II Final Report* ("Phase II Report") that was approved by the NERC Planning Committee on September 11, 2008 and by the NERC Board of Trustees on October 29, 2008. Phase II addresses the collection of Non-Automatic Outage data beginning in calendar year 2010. The Phase II Report can be found at http://www.nerc.com/filez/tadstf.html.
    - Section 5.1 of the Phase II Report allows NERC to conduct data validation reviews with the submitting Transmission Owners (TOs) of TADS data submissions for Automatic and Non-Automatic Outages. To the extent that a review indicates systematic data entry errors, data entries for previous years may need to be revised. To facilitate the correction of potential data entry errors, TOs are required to maintain historical supporting information used to develop its TADS data for a five-year period. *This requirement begins with the collection of Automatic Outage Data for calendar year 2009.* It is discussed in Section 1.7.1.

We developed this *TADS Data Reporting Instruction Manual* ("Manual") to provide TOs with help in completing the data forms for calendar years 2009 (Automatic Outages only) and 2010 (both Automatic and Non-Automatic Outages). This September 29, 2009 version is an update of a prior November 21, 2008 version.

TADS has data forms, most of which have subparts, for each of the Elements for which outage information is reported. This list shows those Elements:

- AC Circuits ≥ 200 kV (Overhead and Underground Circuits). Radial circuits are included.
- DC Circuits with ≥ +/-200 kV DC voltage
- Transformers with ≥ 200 kV low-side voltage
- AC/DC Back-to-Back Converters with ≥ 200 kV AC voltage, both sides

1.1. Manual Suggestions

We encourage you to send suggestions for improvements to this Manual to TADSComments@nerc.net. This includes everything from typos to unclear instructions. We will note changes in subsequent updated versions of the Manual.

1.2. TADS Definitions

The TADS Definitions document is a stand-alone document that is in Appendix 7. Most of the terms in the forms have specific definitions which may differ from the common usage of the same term. For example, the term "AC Circuit" is specifically defined and includes both two- and three-terminal circuits. Therefore, it is important that the TO refer to the definitions when completing the forms.

1.2.1. AC and DC Voltage Classes

Appendix 7 defines five Voltage Classes. Voltages are operating voltages. These cover the range of possible AC and DC voltages. For reporting, however, we have defined four AC Voltage Classes by combining two voltage ranges, 400-499 kV and 500-599 kV, into one 400-599 kV class since there are no AC Elements in the 400-499 kV range in North America. However, all five Voltage Classes are available for DC Elements.

AC Voltage Classes	DC Voltage Classes
200-299 kV	200-299 kV
300-399 kV	300-399 kV
400-599 kV	400-499 kV
600-799 kV	500-599 kV
	600-799 kV

1.3. Forms Overview

The forms are depicted in Appendices 1-6 as pictures of the worksheets contained in the TADS forms workbooks. Note that Forms 6.x only do not apply to 2009 data, but is required for 2010 data. The six form categories are listed below as well as the Manual location that has the written instructions for completing each form.

Table 1.3

Form Name	Appendix with Form Pictures	Manual Instructions
1.1 Non-Reporting Transmission Owner Statement	Appendix 1	Section 1.11.1
1.2 Reporting Transmission Owner Information	Appendix 1	Section 1.11.2
2.1 Multiple-Owner AC and DC Circuits	Appendix 2	Section 2.1
2.2 Multiple-Owner AC/DC Back-to-Back Converters	Appendix 2	Section 2.2
3.1 AC and DC Circuit Inventory Data	Appendix 3	Section 3.1
3.2 Transformer Inventory Data	Appendix 3	Section 3.2
3.3 AC/DC Back-to-Back Converter Inventory Data	Appendix 3	Section 3.3
3.4 Summary Automatic Outage Data (CY 2009)	Appendix 3	Section 3.4
3.4 No. of Elements with Zero Outages (CY 2010)	Appendix 3	Section 3.4
4.1 AC Circuit Detailed Automatic Outage Data	Appendix 4	Section 4.1
4.2 DC Circuit Detailed Automatic Outage Data	Appendix 4	Section 4.2
4.3 Transformer Detailed Automatic Outage Data	Appendix 4	Section 4.3
4.4 AC/DC Back-to-Back Converter Detailed Automatic Outage Data	Appendix 4	Section 4.4

5. ID Code and Event Type Number Data	Appendix 5	Section 5
6.1 AC Circuit Detailed Non-Automatic Outage Data	Appendix 6	Section 6.1
6.1 DC Circuit Detailed Non-Automatic Outage Data	Appendix 6	Section 6.2
6.3 Transformer Detailed Non-Automatic Outage Data	Appendix 6	Section 6.3
6.4 AC/DC Back-to-Back Converter Detailed Non-Automatic Outage Data	Appendix 6	Section 6.4

Each data form has a common layout.

1. A TO who does not own any TADS Element is referred to as a "non-reporting TO." Those TOs must submit Form 1.1 to its Regional Entity (RE). A TO which owns TADS Elements is referred to as a "reporting TO." On Form 1.2, which is required for a reporting TO, one portion requests the Transmission Owner's name, its NERC ID number, the name of its Regional Entity (RE), its country, and the reporting calendar year. This information is input once on Form 1.2 and linked to subsequent forms. If a TO owns TADS Elements in different regions and/or different countries, it must complete separate TADS submittals to for each region and country.
2. All forms except Forms 4.1-4.4, and Form 5, and Form 6.1-6-4 have row numbers as well as columns with letters (A, B, etc.) The column letters and sometimes the row numbers are used as references in the instructions. With the exception of Forms 3.1-3.4, TOs may add additional rows as needed. If the form has row numbers on it and you add rows, the added rows need to be numbered.
3. Many columns have drop-down menus that correspond to defined choices. For example, all Cause Codes are in a drop-down menu and provide the TO the choice among the *defined* Cause Codes only.
4. To keep the form format and column letter designation the same within a form type, the unused columns are hidden from view. Therefore, column letter designations will not be in sequence when a column has been hidden.

Appendix 8 contains examples to assist the TO in completing Forms 3.1-3.3, which contain inventory data. Appendix 9 contains examples to assist the TO in completing Forms 4.1-4.4, which contain detailed Element Automatic Outage data. Appendix 10 contains examples to assist the TO in completing Forms 6.1-6.4, which contain detailed Element Non-Automatic Outage data.

1.4. Who Must Report

For U.S. TOs, providing 2009 and 2010 TADS data is mandatory for all TOs on the NERC Compliance Registry. For 2010 Non-Automatic outage TADS data, non-U.S. Transmission Owners on the NERC Compliance Registry who are also NERC members are required to supply it. The reason is that as NERC members, they must comply with NERC's *Rules of Procedure*, and because Phase II TADS data was requested in accordance with Section 1600, these non-U.S. Transmission Owners too must provide Phase II TADS data.[1] However, NERC, through the

[1] Phase I was approved by the NERC Board of Trustees prior to the addition of Section 1600 to the *Rules of Procedure*. Because NERC's Phase I TADS approval relied upon Section 39.2(d) of the Federal Energy Regulatory Commission's

regions, will also be requesting TADS data from non-U.S. TOs on the NERC Compliance Registry. Section 1.10 provides additional information about the registry.

The following describe reporting requirements for different TO situations:

1. Non-reporting TOs that do not own any TADS Elements as of the date they submit their completed Form 1.1 (in December prior to the reporting calendar year – e.g., for 2009 calendar year reporting, Form 1.1 would be submitted in December 2008) are not required to report any other TADS data for the reporting calendar year *even if they subsequently become owners of TADS Elements during that calendar year*.[2] However, a TO may voluntarily report data for the year that the TADS Elements are added.
2. TOs that become newly registered during a reporting calendar year are not subject to any TADS reporting requirements until the next calendar year. However, a TO may voluntarily report data for the year that it first becomes newly registered.
3. A non-reporting TO that becomes unregistered during a calendar year is no longer subject to any TADS reporting requirements. However, if a reporting TO becomes unregistered during a reporting calendar year, it has either (i) retired all its TADS Elements or (ii) sold all its TADS Elements. In case (ii), the new TO shall assume the reporting obligation of the unregistered TO for the entire calendar year. This will ensure that all TADS Elements continue to have their data reported.

1.5. Data Confidentiality

Under NERC's confidentiality policy (Section 1500 of NERC's *Rules of Procedures*), the entity claiming that information is confidential must state the category under which such information qualifies as confidential.

For practicality, we have made judgments that data on certain forms will likely be confidential information because it contains critical energy infrastructure information (CEII), while other information is not confidential. A TO may change NERC's default confidentiality classification in Table 1.5 by sending an e-mail to the NERC project manager – see the TADS Project Manager's contact information in a *Regional Entity and NERC TADS Contacts* document that is posted at http://www.nerc.com/filez/tadswg.html. If a TO wants non-confidential data to be made confidential, the TO must indicate the category or categories defined in Section 1501 in which the data falls. See Section 1502 of the *Rules of Procedure.*

CEII is defined by Federal Energy Regulatory Commission (FERC) rules as follows:[3]

(1) *Critical energy infrastructure information* means specific engineering, vulnerability, or detailed design information about proposed or existing critical infrastructure that:

(i) Relates details about the production, generation, transportation, transmission, or distribution of energy;

(ii) Could be useful to a person in planning an attack on critical infrastructure;

regulations, 18 C.F.R. § 39.2(d), Phase I is mandatory on all U.S. Transmission Owners. However, most non-U.S. Transmission Owners are voluntarily compiling with Phase I.

[2] However, if after submitting From 1.1, a TADS Element is added by the TO prior to December 31 of the year prior to the reporting calendar year, the TO must notify NERC and submit Form 1.2.

[3] 18 C.F.R. 388.113(c)(1)-(2)

(iii) Is exempt from mandatory disclosure under the Freedom of Information Act, 5 U.S.C. 552; and

(iv) Does not simply give the general location of the critical infrastructure.

(2) *Critical infrastructure* means existing and proposed systems and assets, whether physical or virtual, the incapacity or destruction of which would negatively affect security, economic security, public health or safety, or any combination of those matters.

Table 1.5 below summarizes our judgments on confidential information for each form:

Table 1.5

Form	Default Confidentiality
1.1 Non-Reporting Transmission Owner Statement	Not confidential
1.2 Reporting Transmission Owner Information	Not confidential
2.1 Multi-Owner AC and DC Circuits	Confidential-CEII
2.2 Multi-Owner AC/DC Back-to-Back Converters	Confidential-CEII
3.1 AC and DC Circuit Inventory Data	Not confidential
3.2 Transformer Inventory Data	Not confidential
3.3 AC/DC Back-to-Back Converter Inventory Data	Not confidential
3.4 Summary Outage Data (CY 2009)	Confidential-CEII
3.4 No. of Elements with Zero Outages (CY 2010)	Not confidential
4.1 AC Circuit Detailed Automatic Outage Data	Confidential-CEII
4.2 DC Circuit Detailed Automatic Outage Data	Confidential-CEII
4.3 Transformer Detailed Automatic Outage Data	Confidential-CEII
4.4 AC/DC Back-to-Back Converter Detailed Automatic Outage Data	Confidential-CEII
5 Event ID Code and Event Type Number Data	Confidential-CEII
6.1 AC Circuit Detailed Non-Automatic Outage Data	Confidential-CEII
6.2 DC Circuit Detailed Non-Automatic Outage Data	Confidential-CEII
6.3 Transformer Detailed Non-Automatic Outage Data	Confidential-CEII
6.4 AC/DC Back-to-Back Converter Detailed Non-Automatic Outage Data	Confidential-CEII

As described in the Section 2.4.7 of the Phase I Report, regional and NERC annual public performance reports will show *aggregated* confidential information of many TOs. In doing so, no particular TO's data should be identifiable. However, these reports will not inadvertently release confidential information by the display of regional or NERC information from which a TO's confidential information could be ascertained. For example, if the TO in a region is the only owner of assets in a particular Voltage Class, the metrics on that data would not be released if the TO's name and its confidential information could be identified, unless the TO agrees to such a release. If we find that a particular TO's metrics could be identified in a report, we will ask the TO to voluntarily allow us to report its metrics, while keeping other aspects of its data confidential. By "other aspects of its data" we mean other TADS data such the date of an AC Circuit Sustained Outage or the AC Substations that identify the outaged circuit. Those inputs allow an RE or NERC to determine whether outages of different TOs are a single Event. We will address these requests on a case-by-case basis.

1.5.1. Transmitting TADS Data Securely by E-mail

The webTADS data entry software described in Section 1.9 will transmit data securely into webTADS. Therefore, e-mail will primarily be used by TOs to transmit corrections to data that must be entered by a Regional Entity coordinator or NERC staff when webTADS data entry is closed to TOs. If an entity (TO, RE, or NERC) has its own critical infrastructure protection (CIP)

procedure for transmitting confidential information by e-mail, that procedure should be followed. If those procedures are not yet developed, the following process should be followed:

1. Password-protect the document to be transmitted, and send it via e-mail to the recipient. Do not include the password in this e-mail.
2. In a second *separate* e-mail, send the password to the recipient of the document.

1.6. TADS Training

A *TADS Training Schedule* document that contains the latest training information is also posted at http://www.nerc.com/filez/tadswg.html. Training is primarily done by Web conference, and training dates, subjects, and registration information is described in the posted document. Training covers both webTADS and the Manual.

1.7. Calendar Year 2010 Automatic & Non-Automatic Outage Reporting

We opened webTADS for 2010 calendar year data entry on November 19, 2009. The 2010 calendar year workbook is named "2010_TADS_Workbook_ Rev_ 09092009". In addition to having new Forms 6.x, the 2010 workbook corrected the misspelling of "Common Mode Initiating" on Form 4.x.

The 2010 workbook may be downloaded at http://www.nerc.com/filez/tadswg.html.

- A change was made in webTADS that affects the 2009 and beyond data submittal requirement regarding the entry of Outage Start Time. Outage Start Times need not be entered in Coordinated Universal Time (UTC) – webTADS offers a choice of time zones, with UTC being the default, including data that is uploaded in XML files (created either from a TADS Excel spreadsheet or directly by the TO). WebTADS will convert all non-UTC times to UTC and store the time as UTC within webTADS. Previously, this choice of entering the data in local time was only permitted if it was directly entered into webTADS via the graphical user interface (GUI). Although data may be entered in local time, remember that each reporting calendar year is a UTC calendar year. Therefore, in the Eastern Time zone, the TADS calendar year begins on December 31 at 7:00 p.m. Eastern Time. In the Pacific Time zone, the TADS calendar year begins on December 31 at 4:00 p.m. Pacific Time.

Table 1.7 has the timetable for calendar year 2010 data collection.

Table 1.7
Schedule for Calendar Year 2010 Data Entry

Date	Action
November 19, 2009	Open webTADS or 2010 calendar year data entry.
March 1, 2011	Reporting TOs complete submission of all calendar year 2010 data.
Late June, 2011	NERC completes a report on the 2010 statistical results, after performing its data checks.

1.7.1. Record Keeping Requirement for 2009 and Beyond

As noted on page 1 of this Manual, the approval of Phase II by the NERC Board of Trustees included a requirement that TOs who submit Automatic Outage data maintain historical supporting

information used to develop that data for a five-year period. During the comment period on this proposal, many TOs asked that we define more specifically what we mean by "historical supporting information." What a TO should keep for documentation is best determined by the TO, but a simple guideline is this: any information that a TO relied upon to complete a webTADS data entry should be kept for five years.

1.8. Calendar Year 2011 Automatic & Non-Automatic Outage Reporting

Like 2010 data entry, several options exist to enter TADS data. A TO may choose to enter all of its data directly into webTADS via the GUI interface. For large volumes of data a TO may choose to use the TADS Excel spreadsheets to create XML files for uploading the forms shown in Table 1.9 into webTADS. Instead of using the TADS Excel spreadsheets, a TO may choose to create their own XML files directly. The instructions on how a TO can use the XML design specifications posted in webTADS were made available in June 2009 for Calendar Year 2010 data entry including the Non-Automatic outage Forms 6.x. These design specifications[4] are for TOs who wish to bulk-upload their data in XML format directly into webTADS and bypass data entry into Excel spreadsheets to create XML files for uploading. These same 2010 options are available for 2011 data entry.

The present 2011 workbook is named "2011_TADS_Workbook_Rev_10292010" is available at http://www.nerc.com/filez/tadswg.html. Editorial changes to Form 2 footnotes have been made for clarity. [See the change log in the front of this Manual.]

Table 1.8 has the timetable for calendar year 2011 data collection.

Table 1.8
Schedule for Calendar Year 2011 Data Entry

Date	Action
November 30, 2010	Open webTADS for 2011 data entry for Forms 1.2, 2.x, and Form 3.x. Actual 2011 outage data entry on Forms 4.x, 5 and 6.x may begin on 01/01/2011.
March 1, 2012	Reporting TOs complete submission of all calendar year 2011 data.
Late June, 2012	NERC completes a final 2011 report on the results, after performing its data checks.

1.9. WebTADS - TADS Data Entry and Analysis Software

NERC contracted with Open Access Technology International, Inc. (OATI) which developed a software data system named "webTADS" to support several processes, including:

- Data entry
- Data error checking
- Data management
- Data analysis and reporting

The webTADS system allows TOs to directly enter their data or have it bulk-uploaded from XML files, which are created either from the data in entered into spreadsheets or directly by the TO using the XML schema that is posted in webTADS.

[4] Similar specifications are in webTADS for forms that may be bulk-uploaded.

- Bulk-uploading is available for most, but not all, of the TADS forms. Table 1.9 shows which TADS forms may be bulk-uploaded and which must be directly entered into webTADS. Bulk-upload capability is provided for forms that we expect to contain large amounts of data.

Non-reporting TOs (those who have no TADS Elements) do not have access to webTADS, while reporting TOs, REs, and NERC do have access.[4] Instructions for the use of webTADS are posted within webTADS itself for access by authorized persons.

REs are the point of contact for TADS data submittals, and they prescribe the data entry process for TOs within their region.

1. All regions *except* the Western Electricity Coordinating Council (WECC) require TOs to directly input their data into webTADS. Through webTADS, REs will have access to the data for TOs within their region so that they can review that data.
2. WECC is collecting additional data beyond that which is required by TADS, and all data (TADS and non-TADS) data is submitted to them. They, in turn, submit TADS data for all WECC TOs into webTADS.

Table 1.9

Form	Can be bulk-uploaded?
1.1 Non-Reporting Transmission Owner Statement	No[5]
1.2 Reporting Transmission Owner Information	No
2.1 Multiple-Owner AC and DC Circuits	Yes
2.2 Multiple-Owner AC/DC Back-to-Back Converters	Yes
3.1 AC and DC Circuit Inventory Data	No
3.2 Transformer Inventory Data	No
3.3 AC/DC Back-to-Back Converter Inventory Data	No
3.4 Summary Outage Data (CY 2009)	No
3.4 No. of Elements with Zero Outages (CY 2010)	No
4.1 AC Circuit Detailed Automatic Outage Data	Yes
4.2 DC Circuit Detailed Automatic Outage Data	Yes
4.3 Transformer Detailed Automatic Outage Data	Yes
4.4 AC/DC Back-to-Back Converter Detailed Automatic Outage Data	Yes
5 Event ID Code and Event Type Number Data	Yes
6.1 AC Circuit Detailed Non-Automatic Outage Data	Yes
6.2 DC Circuit Detailed Non-Automatic Outage Data	Yes
6.3 Transformer Detailed Non-Automatic Outage Data	Yes
6.4 AC/DC Back-to-Back Converter Detailed Non-Automatic Outage Data	Yes

1.9.1. WebTADS Error Message Interpretations

To aid TOs in interpreting error massages from webTADS, NERC developed a document *WebTADS Error Message Interpretation* that is posted at http://www.nerc.com/filez/tadswg.html. On a form-by-form basis, this document shows webTADS error messages and what corrections may be needed to correct the data entry error.

1.10. NERC IDs and TO Names

Each Transmission Owner is identified by a NERC ID. NERC IDs are not region-specific, i.e., the same Transmission Owner may have the same NERC ID in different regions if the TO owns

[5] Non-reporting TOs will e-mail their contact data to their RE coordinator, who will input it into TADS.

transmission facilities in different regions. The name of each Transmission Owner on the NERC Compliance Registry and its NERC ID is available at http://www.nerc.com/page.php?cid=3|25 under the "Compliance Registry Files" file at the bottom of the page. This registry is updated monthly.

1. For TADS, pseudo NERC IDs have been assigned for various purposes, including allowing for one reporting "pseudo TO" to make one TADS submission for multiple NERC-registered TOs that are owned by a single entity. For example, five NERC-registered Southern Company TOs were given one pseudo NERC ID for a pseudo entity named "Southern Transmission Company." The pseudo NERC IDs are for TADS reporting only. A document entitled *NERC ID Exceptions for TADS* dated February 18, 2008 and posted at http://www.nerc.com/filez/tadstf.html explains the TOs that have been assigned pseudo NERC IDs and why they were assigned.
2. ***For 2010 calendar year reporting***, an Excel workbook "2010_TADS_ NERC_IDs_Rev 02182009" contains the 2010 calendar year consolidated TADS NERC IDs and TO names (i.e., NERC IDs from TOs on the NERC Compliance Registry as well as those with pseudo NERC IDs) *as of September 29, 2009* and may be downloaded at http://www.nerc.com/filez/tadswg.html.

1.11. TADS Help and TADS Contacts

Assistance in completing the forms is available. A list of Regional Entity and NERC staff contacts is in a *Regional Entity and NERC TADS Contacts* document that is posted under Related Files at the following website; http://www.nerc.com/filez/tadswg.html. The following process will be used:

1. Initial questions should be directed to RE coordinators and a copy sent to NERC at tads@nerc.net. The question will be answered as soon as possible. Written questions are encouraged so that RE and NERC staff can log questions and responses.
2. Particular questions may require phone support. For phone support, call the NERC TADS Project Manager.

This process is intended to ensure consistency in responses to questions, and therefore data consistency.

1.12. Administrative Forms with Transmission Owner Information

1.12.1. Form 1.1 Non-Reporting Transmission Owner Statement

Form 1.1 is for TOs who do not own any TADS Elements as of date they submit it. It will be submitted in the December time frame of the year prior to the reporting calendar year. If a Transmission Owner owns no TADS Elements as of its submission date, it provides the contact information of the person completing the form on behalf of the TO who is attesting to that fact. However, if after submitting From 1.1, a TADS Element is added by the TO prior to December 31 of the year prior to the reporting year, the TO must notify NERC and submit Form 1.2.

1.12.2. Form 1.2 Reporting Transmission Owner Information

Form 1.2 asks for three types of TO information.

1. It requests the business contact information for the primary and back-up TADS contact person for the Transmission Owner.
2. It contains a list to confirm which forms were filed and which forms were not filed. The list has drop-down menus for “Submission Status” and “Reason Not Submitted” for the TO to explain which forms were submitted and if not submitted, why they were not submitted (e.g., TO has none of the Elements reported on the form, the TO had no outages, etc.). This ensures that inadvertent form omissions are corrected prior to submittal. For this reason, Form 1.2 is submitted *twice* during each reporting cycle:
    a. In December time frame of the year prior to the reporting year
    b. At the end of the reporting cycle with all other forms.
3. Finally, it lists the NERC default confidentiality status of TO data on each form. See Section 1.5 for instructions regarding changing the default confidentiality status.

2. Forms for Multiple-Owner Elements

These forms are used to ensure that *one* TO takes on the TADS reporting responsibility for multiple-owner Elements for all Automatic and Non-Automatic outages. If a TO has less than 100% ownership interest in such Elements, each TO must enter this Element on Form 2.1 or 2.2. These multiple entries should be coordinated by the TOs involved. This list of such Elements should also include any multiple-owner Element that was in-service for at least part of the reporting period. Such an Element and their associated multiple-owner Element Identifier (Column I below) should be listed on Form 2.x. The coordinated entries should indicate which single TO will take reporting responsibility for Forms 3, 4, 5 and 6. The single TO designated as the Reporting TO (Column G-H below) must include the Element's total circuit mileage on their Form 3. The same Reporting TO must enter the Element's outages on their Form 4 and 6. The calculated metrics are based on the reported inventory and outages. Selecting a single TO to become the Reporting TO for these inventory and outage Forms will avoid duplication of outage and inventory reporting. The other TOs who are multiple owners must be aware that they should not report to TADS on that Element. In addition to the names of all multiple owners, their registered NERC ID (or NERC assigned pseudo ID) of the designated reporting representative is also required to be entered on Form 2.x.

If a TO owns 100% of an Element, the reporting responsibility of that Element belongs to the TO. Do not enter the Element on Forms 2.1 or 2.2. For 100% owned AC Circuits, communication among the TOs who own the AC Substations that bound the circuit is expected for the purpose of identifying data related to the cause of the outages which the reporting TO must supply.

Forms 2.x are submitted *twice* for each reporting cycle:

1. In December of the year prior to the reporting calendar year.
2. At the end of the reporting cycle with all other forms.

The first Form 2.x submission in December confirms who is the reporting TO. The reporting TO should internally collect the multiple owner outage information starting January 1st . webTADS official data entry may occur later in the year, however, the multiple owner outage information should be collected by the designated reporting TO starting January 1st . The second submission reflects any additions or retirements of Elements that are covered by these forms.

Among all of the owners for a particular Element, they must agree on the Element ID to be entered in Column I. Only the TO declared to be the Reporting TO on Form 2.x can use that Element ID. If one of the non-reporting TO owners also enters that Element ID for an Outage, the Outage will be rejected as an error when they complete Form 4.x or Form 6.x. Therefore, Form 2.x must be marked as complete prior to final completion of Form 4.x and Form 6.x. When Form 4.x and Form 6.x are marked complete, software error checks are performed on each outage to confirm that the declared Element ID on Form 2.x has not been used by one of the wrong multiple owners declared on Form 2.x.

2.1. Form 2.1 Multiple-Owner AC and DC Circuits

The characteristics of each multiple-owner circuit are input on this form (one circuit per row). As discussed in Section 2, we expect TOs to mutually agree on who should report outage and inventory information (on Forms 3, 4, 5 and 6) of the multiple-owner circuit information for TADS and which other owners should not report. Do not enter circuits that you do not partially own.

Table 2.1

Column	Form 2.1 Descriptor
None	Questions 1 and 2 in the top of the form ask whether there were any additions of multiple-owner circuits during the reporting year and if so, whether those changes were incorporated into the response. These questions apply to the second submittal only, and appropriate "NA" responses are provided as an answer associated with a first submittal.
A	The type of circuit (AC or DC), input from a drop-down menu, describes the main characteristic of the Element.
B	From – Substation or Terminal Name. The alphanumeric code designating one of the Substation Names for an AC Circuit or one of the Terminal Names for a DC Circuit.
C	To – Substation or Terminal Name. The alphanumeric code designating a second Substation Name for an AC Circuit or a second Terminal Name for a DC Circuit.
D	To2 – Substation or Terminal Name. The alphanumeric code designating a third Substation Name for an AC Circuit or a third Terminal Name for a DC Circuit.
E	The Voltage Class of the Element, input from a drop-down menu. The 400-599 kV Voltage Class can only be used if "AC" is selected in column A, and the 400-499 kV and 500-599 kV Voltage Classes can only be selected if "DC" is selected in column A. Other Voltages Classes (200-299 kV and 600-799 kV) can be used for either AC or DC Circuits. Data that does not conform to this requirement will be rejected and an error notice provided.
F	Underground or Overhead. This Element characteristic is input from a drop-down menu. See the definition of Overhead and Underground in Appendix 7, Section A.
G-H	The NERC ID number and name of the TO with TADS outage reporting responsibility for the multiple-owner circuit.
I	The reporting TO's Element Identifier. This is a required data entry. The multiple owners of this Element shall also use the same Element Identifier on their Form 2.x for this Element. However, only one TO can be designated as the reporting TO for a given set of multiple-owners using the given Element ID.
J-W	The NERC ID numbers and name of the TOs that have an ownership interest in the Element. Up to ten owner names are provided. One of the TOs must be the TO with TADS reporting responsibility input in columns G-H. Among the multiple-owners, only the reporting TO can input the above Column I Element ID for reported outages on their Form 4.x and Form 6.x. The other multiple owners are not permitted to use the above Column I Element ID for outages reported on their Forms 4.x or Form 6.x.

2.2. Form 2.2 Multiple-Owner AC/DC Back-to-Back Converter

The characteristics of each multiple-owner AC/DC Back-to-Back Converter are input on this form (one Element per row). This form is *not* to be used for AC/DC Back-to-Back Converters owned 100% by a single TO.

Table 2.2

Column	Form 2.2 Descriptor
None	Questions 1 and 2 in the top of the form ask whether there were any additions of multiple-owner AC/DC BTB Converters during the reporting year and if so, whether those changes were incorporated into the response. These questions apply to the second submittal only, and appropriate "NA" responses are provided as an answer associated with a first submittal.
A	Converter Station Name. The alphanumeric code designating the converters name.
B	HIDDEN
C	The AC Circuit Voltage Class, input from a drop-down menu, on one side of the converter
D	The AC Circuit Voltage Class, input from a drop-down menu, on the other side of the converter
E-F	HIDDEN
G-H	The NERC ID number and name of the TO with TADS reporting responsibility.
I	The reporting TO's Element Identifier. This is required.
J-Q	The NERC ID numbers and names of the TOs that are multiple owners of the Element. Up to four owner names are provided. One of the TOs must be the TO with TADS reporting responsibility input in column G-H.

3. Forms for Element Inventory and Summary Outage Data

3.1. Form 3.1 AC and DC inventory Data

Form 3.1 is a two-part form:

1. The top half of the form has inventory data for AC and DC Circuits ≥ 200 kV.
2. The bottom half contains Multi-Circuit Structure Mile data for AC Circuits only. If a line section contains two or more common structures which form one or more multi-circuit spans, the total span length can be measured and the associated mileage should be reported in the Multi-Circuit Structure Mile data. If multiple circuits are connected to only one common structure, that structure should be ignored for outage and inventory mileage purposes.
3. All DC Circuits are assumed to have two circuits per structure; therefore, for each DC Circuit Voltage Class, the Multi-Circuit Structure Miles is one-half of the total Circuit Miles.

Table 3.1

Column	Form 3.1 Descriptor
None	Questions 1 and 2 ask whether the coordination requested below for **AC Multi-Circuit Structure Miles Inventory Data** has taken place among TOs that report separate circuits on common structures.
A	Rows 1-4: AC Overhead Circuit Data by Voltage Class
A	Rows 5-8: AC Underground Circuit Data by Voltage Class
A	Rows 9-13: DC Overhead Circuit Data by Voltage Class
A	Rows 14-18: DC Underground Circuit Data by Voltage Class
See Appendix 7, Section A, for definitions of "Overhead" and "Underground"	
AC and DC Circuit Inventory Data	
Appendix 7 has an example that illustrates the data requirements for columns B-K for AC and DC Circuits. Appendix 7 illustrates how to make this calculation for an annual submittal.	
B	The number of circuits that are installed and "in service" at the end of the reporting year in each Voltage Class which are reported by the TO. **This includes multiple-owner circuits that are reported by the TO.** Do not include circuits which are not normally energized and fully connected to the system or which have not been declared commercially in service by the TO. If you have no circuits in a particular Voltage Class, a blank is the default entry in columns B through K.
C	The number of Circuit Miles associated with the circuits in column B.
D	The number of circuits that were added during the year. These could be new circuits or a circuit that, after reconfiguring, defines a new circuit. For example, if an AC Circuit defined by two breakers that has a tap added with another breaker becomes a three-terminal instead of a two-terminal circuit. The three-terminal circuit is an addition, and the previous two-terminal circuit must be removed. The removed circuit will be contained in column H.
E	The equivalent number of circuits added.
F	The number of Circuit Miles added. These Circuit Miles are associated with the number of circuits in column D.
G	The equivalent number of Circuit Miles added.
H	The number of circuits that were removed during the year. In the example discussed for column D, the two-terminal circuit that became a three-terminal circuit would be a circuit that is removed and therefore contained in column H. Note: column H is not used in the calculation in column L.

Column	Form 3.1 Descriptor
I	The equivalent number of circuits removed.
J	The number of Circuit Miles removed. These Circuit Miles are associated with the number of circuits in column H.
K	The equivalent number of Circuit Miles removed.
L	This is a calculated value for the equivalent annual number of circuits for the reporting year. Note that column H is not used; it is requested as a "sanity check" for column I.
M	This is a calculated value for the equivalent annual number of Circuit Miles for the reporting year. Note that column J is not used; it is requested as a "sanity check" for column K.
AC Multi-Circuit Structure Miles Inventory Data	
Appendix 7 has an example that illustrates the data requirements for columns B-K for Multi-Circuit Structure Miles. 1. Note: Multi-circuit structures that are occupied *by only one circuit* do not contribute to the tabulation of Multi-Circuit Structure Miles. 2. Appendix 7 illustrates how to make this calculation for an annual submittal. ***For common structures that carry circuits owned by different TOs, we expect the TOs to coordinate with each other on their reporting of Multi-Circuit Structure Miles so that no double counting takes place. As an example, suppose two circuits owned by different TOs occupy common structures for 10 miles. For this section, the combined number of Multi-Circuit Structure Miles reported by the TOs should not exceed 10. We do not want each TO to report 10 miles since that would double count the miles for the region.***	
A	Rows 19-23 AC multi-circuit structure Voltage Class. Note the "Mixed Voltage" class. This class applies to multi-circuit structures that have two TADS AC Circuits of different voltages (e.g., 230 kV and 345 kV) on the same structure. A structure is not a considered a multi-circuit structure for TADS reporting unless in has two or more AC Circuits, each circuit with a voltage $\geq$ 200 kV. Therefore, a structure with a 230 kV and a 138 kV AC Circuit does not contribute to the tabulation of Multi-Circuit Structure Miles.
B	NOT APPLICABLE
C	The number of Multi-Circuit Structure Miles in the Voltage Class associated with AC Circuits reported by the TO at the end of the reporting year. **This includes AC Circuits that are multiple-owner circuits that are reported by the TO.** If you have no multi-circuit structures in a particular Voltage Class, a blank is the default entry in columns C, F, G, J, and K.
D-E	NOT APPLICABLE
F	The number of Multi-Circuit Structure Miles added in the Voltage Class associated with AC Circuits reported by the TO.
G	The equivalent number of Multi-Circuit Structure Miles added.
H-I	NOT APPLICABLE
J	The number of Multi-Circuit Structure Miles removed in the Voltage Class associated with AC Circuits reported by the TO.
K	The equivalent number of Multi-Circuit Structure Miles removed.
L	NOT APPLICABLE
M	This is a calculated value for the equivalent annual number of Multi-Circuit Structure Miles for the reporting year. Note that column J is not used; it is requested as a "sanity check" for column K.
N-Q	NOT APPLICABLE

3.2. Form 3.2 Transformer Inventory Data

The inventory data for Transformer is input on this form.

Table 3.2

Column	Form 3.2 Descriptor
A	Rows 1-4: The Voltage Class of the reported Transformers data, based upon all Transformer's **high-side voltage**. While high-side voltages are reported on this form, each Transformer must have a low-side voltage ≥ 200 kV.
Transformer Inventory Data	
Appendix 7 has an example that illustrates the data requirements for the equivalent number of circuits. The equivalent number of Transformers follows a similar methodology. Appendix 7 illustrates how to make this calculation for an annual submittal.	
B	The number of Transformers that are installed and "in service" at the end of the reporting year of in each Voltage Class. Do not include Transformers that are not normally energized and fully connected to the system (e.g., spares) or which have not been declared commercially in service by the TO. If you have no Transformers in a particular Voltage Class, a blank is the default entry in columns B through F.
C	The number of Transformers that were added during the year. If a Transformer merely replaces a "like" Transformer (same high-side and low-side voltages) at the same location, this does not count as an addition or a removal. If the replacement is not a "like" Transformer, an addition should be counted as well as a removal.
D	The equivalent number of Transformers added.
E	The number of Transformers that were removed. If a Transformer merely replaces a "like" Transformer (same high-side and low-side voltages) at the same location, this does not count as an addition or a removal. If the replacement is not a "like" Transformer, an addition should be counted as well as a removal.
F	The equivalent number of Transformers removed.
G	This is a calculated value for the equivalent annual number of Transformers for the reporting year. Note that column E is not used; it is requested as a "sanity check" for column F.

3.3. Form 3.3 AC/DC BTB Converter Inventory Data

The inventory data for AC/DC BTB Converters is input on this form.

Table 3.3

Column	Form 3.3 Descriptor
A	Rows 1-4: The Voltage Class of the reported AC/DC BTB Converters is the highest AC terminal voltage in the AC/DC BTB Converter. This is a phase-to-phase voltage.
AC/DC BTB Converter Inventory Data	
Appendix 7 has an example that illustrates the data requirements for the equivalent number of circuits. The equivalent number of AC/DC BTB Converters follows a similar methodology. Appendix 7 illustrates how to make this calculation for an annual submittal.	
B	The number of AC/DC BTB Converters that are installed and "in-service" at the end of the reporting year of in each Voltage Class. **This includes multiple-owner AC/DC BTB Converters that are reported by the TO.** The term "in-service" refers to the accounting state of the AC/DC BTB Converter, not its operational state. If you have no AC/DC BTB Converters in a particular Voltage Class, a blank is the default entry in columns B through F.
C	The number of AC/DC BTB Converters that were added during the year.
D	The equivalent number of AC/DC BTB Converters added.

Column	Form 3.3 Descriptor
E	The number of AC/DC BTB Converters that were removed.
F	The equivalent number of AC/DC BTB Converters removed.
G	This is a calculated value for the equivalent annual number of AC/DC BTB Converters for the reporting year. Note that column E is not used; it is requested as a "sanity check" for column F.

Form 3.4 No. of Elements with Zero Automatic Outages (CY 2010 and beyond)

Table 3.4

Column	Form 3.4 Descriptor
A	The Voltage Class of the reported Element. These are the same Voltage Classes used for Elements on the inventory data forms (Forms 3.1, 3.2, and 3.3).
B	Number of Elements with zero Automatic Outages. This number only includes Elements that are in service at the *end of the year*. One way to calculate the number of Elements with zero Automatic Outages is as follows: 1. First find which Elements had *one or more* Automatic Outages by using the data of the detailed Automatic Outage data forms (Forms 4.1-4.4). The optional TO Element Identifier would need to been used to identify the Element itself. 2. From the list of Elements developed in step 1 above, *subtract* the Elements that were removed from service during the year. The result is the number of Elements with one or more outages that were in service at the end of the year. 3. For the final calculation, subtract the result from step 2 from the total number of Elements in service at the end of the year (see column B on the inventory data forms (Forms 3.1, 3.2, or 3.3, as applicable) for this value). The result is the total number of Elements that are in service at the end of the year which had zero Automatic Outages.
C	Number of Elements with zero Non-Automatic Outages. This number only includes Elements that are in service at the *end of the year*. One way to calculate the number of Elements with zero Non-Automatic Outages is as follows: 1. First find which Elements had *one or more* Non-Automatic Outages by using the data of the detailed Non-Automatic Outage data forms (Forms 4.1-4.4). The optional TO Element Identifier would need to been used to identify the Element itself. 2. From the list of Elements developed in step 1 above, *subtract* the Elements that were removed from service during the year. The result is the number of Elements with one or more outages that were in service at the end of the year. 3. For the final calculation, subtract the result from step 2 from the total number of Elements in service at the end of the year (see column B on the inventory data forms (Forms 3.1, 3.2, or 3.3, as applicable) for this value). The result is the total number of Elements that are in service at the end of the year which had zero Non-Automatic Outages.

4. Forms for Detailed Automatic Outage Data

These forms contain data for *each* and *every* Automatic Outage of an Element, both Sustained and Momentary. This form does not have row numbers. Since each line represents an outage and each outage has a unique Outage ID Code, this code is used to identify outage entry.

The first several columns (A-I) contain information that generally describes the Element that was outaged. The single exception is the Event ID Code. The remaining columns (J-P) describe the outage itself. Since there is so much similarity between the columns, all descriptors will be provided once, using the generic term of "Element" instead of AC Circuit, Transformer, etc.

Although we maintain the same "column" letter designations, some columns do not apply to some types of Elements and are therefore "hidden." The hidden columns are listed below."

Form No.	Hidden Columns
4.1	None
4.2	I
4.3	H, I
4.4	H, I

Appendix 8 provides many examples illustrating the completion of the various Form 4 series.

Table 4.1-4.4

Data for Elements That Had an Automatic Outage	
Column	**Forms 4.1-4.4 Descriptor**
A	The Outage ID Code assigned to the outage. This is assigned by the TO. See Appendix 7, Section B for the definition of Outage ID Code. For any given TO, over multiple years, webTADS requires the TO entered Form 4.x Outage ID to be used only once on an Automatic Outage (on Form 4.x).
B	The Event ID Code associated with the outage. This is assigned by the TO on Form 5. See Appendix 7, Section B for the definition of Event ID Code. The Event ID Code used on Form 4.x must be pre-defined on Form 5. .
C	The Element's Voltage Class. This is consistent to the Voltage Class definitions used for Inventory Data on Forms 3.1-3.3. AC Circuit= phase-to-phase Transformer=high-side voltage DC Circuit= phase-to-return AC/DC BTB Converter= highest AC terminal voltage (phase-to-phase)
D-F	Data that provides a description of the physical location of the Element. AC Circuit= AC Substation Names (3 max) Transformer=AC Substation Name DC Circuit= AC/DC Terminal Names (3 max) AC/DC BTB Converter= Its name
G	The TO Element Identifier is a required alphanumeric field that has the TO's internal identifier of the Element. This could be a circuit or transformer TO unique number or other identifier recognized by the reporting TO. For multiple owners of an Element identified on Form 2.x with a given Element ID, only the reporting TO may use that Element ID for outages reported on its Form 4.x. The chosen Element ID must be unique among the specified multiple owners on Form 2.x. This restriction is necessary to avoid duplicate outage entry by the multiple owners.
H	This column is only for AC or DC Circuits and identifies whether the outaged Element in an Overhead or Underground Circuit.
I	The AC Multi-Owner Common Structure Flag. This flag only applies to Form 4.1 and is explained on footnote 3 as well as Appendix 7, Section B where the term is fully defined.

Data for Elements That Had an Automatic Outage	
Column	**Forms 4.1-4.4 Descriptor**
The descriptions that follow use defined terms that the TO should become familiar with. They will not be repeated here. Most data fields have drop-down menus. They each describe various facets of the outage.	
J	The Fault Type (if any) for each circuit Outage, input from a drop-down menu.
K	The Outage Initiation Code, input from a drop-down menu.
L	The Outage Start Time. This may be local time or UTC time. WebTADS will offer a choice of time zones, with UTC being the default. This applies whether the data is entered directly into webTADS or bulk-uploaded via XML files (created either from an Excel workbook or directly by the TO). WebTADS will convert all non-UTC times to UTC and store the time as UTC within webTADS. The use of UTC will allow related outages occurring on Elements reported by different Transmission Owners to be linked. See instructions Section 4.1 below for outages that continue beyond the end of the reporting calendar year.
M	The Outage Duration expressed as hours and minutes. Momentary Outages will enter a "0" (zero) in this field since we round to the nearest minute. A zero entry in column M tells the reviewer that the outage was Momentary. See instructions in Section 4.1 below for outages that continue beyond the end of the reporting year. Note that the format is a text field and requires a colon (":") be entered between the hours and minutes. Enter 860 hours and 20 min. as 860:20. *If the colon is absent the entry will be interpreted as "hours."* If the Outage Duration exceeds the number of hours remaining in the year (based upon the Outage Start Time), the data will be rejected and an error notice provided. If the previous entry of "860:20" were entered as 86020, it would be read as 86, 020 hours and rejected.
N	The Initiating Cause Code, input from a drop-down menu. All Outages must supply an Initiating cause code.
O	The Sustained Cause Code, input from a drop-down menu. This only applies to Sustained Outages. Momentary Outages enter "NA-Momentary."
P	The Outage Mode, input from a drop-down menu.
Q	The Outage Continuation Flag described whether the outages stated and ended within the reporting year or not. The flag is explained in a footnote on the data form as well as in Appendix 7, Section B where the term is fully defined.

4.1. Outages That Continue Beyond the End of the Year

Although data may be entered in local time, remember that each reporting calendar year is a UTC calendar year. Therefore, in the Eastern Time zone, the TADS calendar year 2010 begins on December 31, 2009 at 7:00 p.m. Eastern Time. In the Pacific Time zone, the TADS calendar year 2010 begins on December 31, 2009 at 4:00 p.m. Pacific Time. If an outage begins in a reporting calendar year and continues beyond the end of the year (December 31), the calculation of a total Outage Duration is not possible. In this case, the following process will be observed.

1. Two separate Outage Durations will be input.
    a. For the reporting year when the outage started, the TO inputs the Outage Start Time and calculates an Outage Duration from the Outage Start Time until the end of the reporting calendar year. The Outage Continuation Flag is input as "1." See Appendix 7, Section B for a complete description of this flag.
    b. For the next reporting year, the Outage Continuation Flag is input as "2" and the *same* Event ID Code (defined on the prior year Form 5) will be entered. The Outage Start Time is equal to January 1, 00:00 UTC of that reporting year. Each year a new Outage ID Code is required, however, the same prior year Event ID Code should be

used. If the outage is concluded in that reporting year, an Outage Duration is calculated from the Outage Start Time. If the outage continues to the subsequent reporting year, the Outage Duration is entered as 8760:00, or 8784:00 for a leap year. The Outage Continuation Flag is input as "2."

c. Most outages that are not concluded by the end of a reporting year will conclude in the *next* reporting year. However, an outage may span three or more reporting years. This process described in "b." above continues until the outage ends. The same Event ID Code (defined on Form 5 in the first year) is used for all subsequent years.

2. For purposes of calculating metrics, the metrics in the first reporting year will reflect the outages in that year for frequency calculations. However, the Outage Duration will be split between reporting years as described above, and any outages with Event ID Codes from the prior year will *not* be counted towards the frequency calculation in subsequent years. An outage with a Continuation Flag equal to "2" is ignored in the frequency calculations. However, such an outage is included in the calendar year duration calculations.

5. Form for Event ID Code and Event Type Number Data

TO's assign their own Event ID Codes and associated Event Type Numbers. An Event is a transmission incident that results in the Sustained or Momentary Outages of one or more Elements. The table below describes the data collected for the Event ID Code:

Table 5

Column	Form 5 Descriptor
A	The Event ID Code associated with one or more outages. This is assigned by the TO. See Appendix 7, Section B for the definition of Event and Event ID Code. For a given TO the same Event ID Code cannot be defined more than once on Form 5. The TO cannot define the same code again on Form 5 in any subsequent year.
B	The Event Type No. This is a descriptor of the Event. The table on Form 5 shows the permitted entries, which are in a drop-down menu. • Note that if Event Type No. 10 or 20 is selected, the Outage Mode on Forms 4.1, 4.2, or 4.3 (column P) must be "Single Mode Outage." • Outages of an AC/DC Back-to-Back Converter (Form 4.4) must select Event Type No. 50. Table 5.1 below shows the possible Event Type Numbers based upon several criteria
C	Optional input: Provide a brief description of the Event's outage(s) for any Event ID Code. Please limit the description to 500 characters or less.
D	This field asks whether a disturbance report was filed that was associated with the Event, with different answers contained in a drop-down menu (Yes, No, or Don't know). Year-to-date public (i.e., non-confidential) data of all disturbance report filings are located at http://www.nerc.com/page.php?cid=5|66. As an example of how to use this data for 2009, a TO will know which region it's facilities resides (Region ID), but it should also know its associated Balancing Authority (BA) identified by a Balancing Authority ID. Since the posted information is available in a sortable Excel file, a TO should first sort by its region and BA to determine if any of its Events had a possible disturbance report associated with it. If no disturbances were reported for the TO's region and BA, then the TO should answer "No." If some disturbances were reported, the TO should then examine the disturbance start and end dates and times on the posted information and compare them to the start and end dates and times associated with the individual outages associated with an Event ID. If this comparison shows that the TO's Event outage times are not inside any disturbance report time windows, then the answer above is "No." On the other hand, if a disturbance time interval and an Event time interval overlap, the column with the "Event Description" may provide enough information to determine whether the TO answer is "Yes." If it cannot be determined accurately from the Event Description, then answer "Don't know." Every "Don't know" answer is followed up by the Regional Entity coordinators.

Table 5.1

Element	Outage Mode	# of Element Outages with same Event ID	Normal Clearing?	Common Structure?	= Event Type No.
AC Circuit or Transformer	***Single***	***1 TADS Element***	***Yes***	N/A	***10***
DC Circuit	***Single***	***1 TADS Element***	***Yes***	N/A	***20***
AC Circuit	Any Other than Single	***2 TADS Elements***	***Yes***	***Yes****	***possible 30****
DC Circuit	Any Other than Single	***2 TADS Elements***	***Yes***	***Yes****	***possible 40****
AC Circuit or Transformer	***Any Mode***	>= 1 TADS Element	***No***	N/A	***50***
DC Circuit	***Any Mode***	>= 1 TADS Element	***No***	N/A	***50***
AC Circuit or Transformer	Any Other than Single	***2 TADS Elements***	***Yes***	***No****	***50***
DC Circuit	Any Other than Single	***2 TADS Elements***	***Yes***	***No****	***50***
AC Circuit	Any Other than Single	***2 TADS Elements***	***Yes***	***Yes****	***possible 50****
DC Circuit	Any Other than Single	***2 TADS Elements***	***Yes***	***Yes****	***possible 50****
AC Circuit, Transformer	Any Other than Single	***>2 TADS Elements***	N/A	N/A	***50***
DC Circuit	Any Other than Single	***>2 TADS Elements***	N/A	N/A	***50***
AC/DC Back-to-Back Converter	**Any Mode**	>= 1 TADS Element	N/A	N/A	**50**
Notes:	* Yes = two or more common structures.		No = one or zero common structures.		
	** TO to determine based on available information.				

The above Table 5.1 shows the possible Event Type Numbers based upon several criteria. Prior to using this table the Outage Mode (on Form 4.x) should be determined for each Automatic Outage. That information from Form 4.x is used in the above second column, Outage Mode.

The above third column, "# of Element Outages with the same Event ID", should be based on the Appendix 7 definition of "16. Event Identification (ID) Code". As stated ". . . an Event associated with a Single Mode Outage will have just one Event ID Code. . . . Each outage in a related set of two or more outages (e.g., Dependent Mode, Dependent Mode Initiating, Common Mode, or Common Mode Initiating) shall be given the same Event ID Code." The Outage Mode should be used to determine the related set of two or more outages. The TO chosen unique Event ID code is entered (defined) on Form 5. That Event ID code is entered on Form 4.x for each of the related outages.

The above fourth and fifth columns need to be answered Yes or No. Collectively, based on the available information, the above table can be used to determine the Event Type Number.

For ">2 TADS Elements" please note that an Event ID code defined by a TO on its Form 5 is only unique within that TO. For a related set of two or more Element outages which have different reporting TOs, a unique NERC wide Event ID code must be defined. webTADS keeps a separate list of "NERC Company" wide unique Event ID codes. A NERC wide Event ID code may be established using the "NERC Company" Form 5 data entry screen. Any TO (or TADS Regional Entity Coordinator, REC) can open a "NERC Company" Form 5 to establish a new unique Event ID. Once established that Event ID can then be used by any TO for their related Outages on Form 4.x.

This topic is not related to the declaration of Multiple Owners of a given Element on Form 2.x. Form 2.x information can be ignored when a "NERC Company" Event ID is established by a reporting TO or TADS REC. Form 2.x is used to declare the "reporting TO" to avoid duplicate Outage entry and avoid duplicate inventory entry (on Form 3.x).

6. Forms for Detailed Non-Automatic Outage Data

These forms contain data for *each* and *every* Non-Automatic Outage of an Element, both Planned and Operational. This form does not have row numbers. Since each line represents an outage and each outage has a unique Outage ID Code, this code is used to identify outage entry.

Although we maintain the same "column" letter designations, some columns do not apply to some types of Elements and are therefore "hidden." The hidden columns are listed below.

Form No.	Hidden Columns
6.1	B, I, J, P
6.2	B, I, J, P
6.3	B, E, F, H, I, J, P
6.4	B, E, F, H, I, J, P

Table 6.1-6.4

Data for Elements That Had a Non-Automatic Outage	
Column	**Forms 6.1-6.4 Descriptor**
A	The Outage ID Code assigned to the outage. This is assigned by the TO. See Appendix 7, Section B for the definition of Outage ID Code. For any given TO, over multiple years, webTADS requires the TO entered Form 6.x Outage ID to be used only once on a Non-Automatic Outage (on Form 6.x).
B	HIDDEN
C	The Element's Voltage Class. This is consistent to the Voltage Class definitions used for Inventory Data on Forms 3.1-3.3. AC Circuit= phase-to-phase Transformer=high-side voltage DC Circuit= phase-to-return AC/DC BTB Converter= highest AC terminal voltage (phase-to-phase)
D-F	Data that provides a description of the physical location of the Element. AC Circuit= AC Substation Names (3 max) Transformer=AC Substation Name DC Circuit= AC/DC Terminal Names (3 max) AC/DC BTB Converter= Its name
G	The TO Element Identifier is a required alphanumeric field that has the TO's internal identifier of the Element. This could be a circuit or transformer TO unique number or other identifier recognized by the reporting TO. For multiple owners of an Element identified on Form 2.x with a given Element ID, only the reporting TO may use that Element ID for outages reported on its Form 6.x. The chosen Element ID must be unique among the specified multiple owners on Form 2.x. This restriction is necessary to avoid duplicate outage entry by the multiple owners.
H	This column is only for AC or DC Circuits and identifies whether the outaged Element in an Overhead or Underground Circuit.
I	HIDDEN
The descriptions that follow use defined terms that the TO should become familiar with. They will not be repeated here. Most data fields have drop-down menus. They each describe various facets of the outage.	
J	HIDDEN
K	The Non-Automatic Outage type, Planned or Operational, input from a drop-down menu.

Data for Elements That Had a Non-Automatic Outage	
Column	**Forms 6.1-6.4 Descriptor**
L	The Outage Start Time. This may be local time or UTC time. WebTADS will offer a choice of time zones, with UTC being the default. This applies whether the data is entered directly into webTADS or bulk-uploaded via XML files (created either from an Excel workbook or directly by the TO). WebTADS will convert all non-UTC times to UTC and store the time as UTC within webTADS. The use of UTC will allow related outages occurring on Elements reported by different Transmission Owners to be linked. See instructions Section 6.1 below for outages that continue beyond the end of the reporting calendar year.
M	The Outage Duration expressed as hours and minutes. Momentary Outages will enter a "0" (zero) in this field since we round to the nearest minute. A zero entry in column M tells the reviewer that the outage was Momentary. See instructions in Section 6.1 below for outages that continue beyond the end of the reporting year. Note that the format is a text field and requires a colon (":") be entered between the hours and minutes. Enter 860 hours and 20 min. as 860:20. *If the colon is absent the entry will be interpreted as "hours."* If the Outage Duration exceeds the number of hours remaining in the year (based upon the Outage Start Time), the data will be rejected and an error notice provided. If the previous entry of "860:20" were entered as 86020, it would be read as 86, 020 hours and rejected.
N	For Planned Outages, the Planned Outage Cause Code, input from a drop-down menu. If the outage type selected in column K was an Operational Outage, select "NA" for this entry.
O	For Operational Outages, the Operational Outage Cause Code, input from a drop-down menu. If the outage type selected in column K was an Planned Outage, select "NA" for this entry
P	HIDDEN
Q	The Outage Continuation Flag described whether the outages stated and ended within the reporting year or not. The flag is explained in a footnote on the data form as well as in Appendix 7, Section B where the term is fully defined.

6.1. Outages That Continue Beyond the End of the Year

Although data may be entered in local time, remember that each reporting calendar year is a UTC calendar year. Therefore, in the Eastern Time zone, the TADS calendar year 2010 begins on December 31, 2009 at 7:00 p.m. Eastern Time. In the Pacific Time zone, the TADS calendar year 2010 begins on December 31, 2009 at 4:00 p.m. Pacific Time. If an outage begins in a reporting calendar year and continues beyond the end of the year (December 31), the calculation of a total Outage Duration is not possible. In this case, the following process will be observed.

1. Two separate Outage Durations will be input.
    a. For the reporting year when the outage started, the TO inputs the Outage Start Time and calculates an Outage Duration from the Outage Start Time until the end of the reporting year. The Outage Continuation Flag is input as "1." See Appendix 7, Section B for a complete description of this flag.
    b. For the next reporting year, the Outage Continuation Flag is input as "2." The Outage Start Time is entered as January 1, 00:00 UTC of that reporting year. If the outage is concluded in that reporting year, an Outage Duration is calculated from the Outage Start Time. If the outage continues to the subsequent reporting year, the Outage Duration is entered as 8760:00, or 8784:00 for a leap year.

c. Most outages that are not concluded by the end of a reporting year will conclude in the *next* reporting year. However, an outage may span three or more reporting years. This process described in "b." above continues until the outage ends.

2. For purposes of calculating metrics, the metrics in the first reporting year will reflect the outage in that year for frequency calculations. However, the Outage Duration will be split between reporting years as described above, and any outages from the prior year will *not* be counted towards the frequency calculation in subsequent years. An outage with a Continuation Flag equal to "2" is ignored in the frequency calculations. However, the outage is included in the calendar year duration calculations.

Appendix 1 Administrative Forms with Transmission Owner Information

1.1. Non-Reporting Transmission Owner Statement

Form 1.1 Non-Reporting Transmission Owner Statement		
	Data is not Confidential	
Row No.	NERC ID	
1	Transmission Owner Name:	
2	Regional Entity Name:	
3	Country:	
4	Reporting Year:	
5		
6	As of date below, the Transmission Owner named above affirms that it	
7	**does not** own any transmission assets as defined below:	
8	**1. AC Circuits ≥ 200 kV (Overhead and Underground)**	
9	**2. Transformers with ≥ 200 kV low-side voltage**	
10	**3. AC/DC Back-to-Back Converters with ≥ 200 kV AC voltage, both sides**	
11	**4. DC Circuits with ≥ +/-200 kV DC voltage**	
12		
13	The definitions of the terms used above are provided in the NERC TADS	
14	*Data Reporting Instruction Manual* posted at	
15	http://www.nerc.com/~filez/tadstf.html.	
16		
17	On behalf of the Transmission Owner named above, this statement is submitted by:	
18	Name	
19	Title	
20	Company	
21	Mailing Address	
22		
23		
24		
25	E-mail address	
26	Telephone (office)	
27	Telephone (mobile)	
28	Date	

1.2. Reporting Transmission Owner Information

Form 1.2:

Form 1.2 Reporting Transmission Owner Information					
	Data is not Confidential		The TO acknowledges that it owns or will report on one or more Elements as defined below		
Row No.	NERC ID		1. AC Circuits ≥ 200 kV (Overhead and Underground)		
1	Transmission Owner Name:		2. Transformers with ≥ 200 kV low-side voltage		
2	Regional Entity Name:		3. AC/DC Back-to-Back Converters with ≥ 200 kV AC voltage, both sides		
3	Country:		4. DC Circuits with ≥ +/-200 kV DC voltage		
4	Reporting Year:				
5					
6	TO Contacts:				
7	Name		Primary:		
8	Title				
9	Mailing Address				
10					
11					
12	E-mail address				
13	Telephone (office)				
14	Telephone (mobile)				
15					
16	Name		Secondary:		
17	Title				
18	Mailing Address				
19					
20					
21	E-mail address				
22	Telephone (office)				
23	Telephone (mobile)				

TADS Application Checklist					
Form No.	Short Form Name	Submission Status	Reason Not Submitted	NERC Default Confidentiality Status*	Exportable
1.1	TO TADS Statement	Not Submitted	Must be submitted if Non-Reporting	Contact Data - Data is **not** Confidential.	No
1.2	TO Contacts:	Submitted	Must be submitted	Contact Data - Data is **not** Confidential.	No
2.1	Joint AC/DC Ckts	Submitted	NA; form was submitted	Confidential - Critical Energy Infastructure Information	Yes
2.2	Joint AC/DC BTB Converters	Not Submitted	No data of this type	Confidential - Critical Energy Infastructure Information	Yes
3.1	AC/DC Ckt. Inven.	Submitted	NA; form was submitted	Data is **not** Confidential.	No
3.2	Transformer Inven.	Submitted	NA; form was submitted	Data is **not** Confidential.	No
3.3	AC/DC BTB Con. Inven.	Not Submitted	No Elements of this type	Data is **not** Confidential.	No
3.4	No. of Elements w.Zero Outages	Submitted	NA; form was submitted	Data is **not** Confidential.	No
4.1	AC Circuit Outages	Submitted	NA; form was submitted	Confidential - Critical Energy Infastructure Information	Yes
4.2	DC Circuit Outages	Not Submitted	No Elements of this type	Confidential - Critical Energy Infastructure Information	Yes
4.3	Transformer Outages	Not Submitted	No Outages	Confidential - Critical Energy Infastructure Information	Yes
4.4	AC/DC BTB Con.Outages	Not Submitted	No Elements of this type	Confidential - Critical Energy Infastructure Information	Yes
5.0	Event ID Codes	Submitted	NA; form was submitted	Confidential - Critical Energy Infastructure Information	Yes

* If the TO wants to change NERC's confidentiality classification for any data, please explain in a separate letter

Appendix 2 Forms for Multiple-Owner Elements

2.1. Multiple-Owner AC and DC Circuits

Form 2.1 Multi-Owner AC and DC Circuits								CONFIDENTIAL INFORMATION		
1. Were multi-owner AC and DC Circuits added during the reporting year?								NA - 1st submittal		
2. If the answer to the question above is "yes," does this Form 2.1 reflect the additions?								NA		
Notes:										
[1]	If a TO owns or reports on Elements in a different NERC Region or in a different country, provide data for each Region and country in a separate workbook.									
[2]	The fraction of the reporting period that the circuit is in-service. 1.0 = in-service for entire reporting period.									
	This form lists all the AC and DC Circuits that are jointly-owned and which are ≥ 200 kV. One TO must assume reporting responsibility, and that TO must be indentified in columns H and I.									
	To ensure that outage data on these Elements are reported, the TO must list each jointly-owned circuit, the joint-owners and the TO that is reporting outage data on the circuit.									
		Substation/Terminal Name								
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	
Row No.	Type of Circuit (AC or DC)	From	To	To2	Voltage Class	Overhead or Underground	Reporting TO's NERC ID	Reporting TO's Name	Reporting TO's Element Identifier	
1										

Continued…

Names of All Transmission Owners (occurs up to 10x)									
(J)	(K)	(L)	(M)	(N)	(O)	(P)	(Q)		
TO#1 NERC ID	TO#1 Name	TO#2 NERC ID	TO#2 Name	TO#3 NERC ID	TO#3 Name	TO#4 NERC ID	TO#4 Name		

2.2. Multiple-Owner AC/DC Back-to-Back Converters

Form 2.2 Multi-Owner AC/DC BTB Converters											CONFIDENTIAL INFORMATION
1. Were multi-owner AC/DC Back-to-Back Converters added during the reporting year?											NA - 1st submittal
2. If the answer to the question above is "yes," does this Form 2.2 reflect the additions?											NA
Notes:											
[1] If a TO owns or reports on Elements in a different NERC Region or in a different country, provide data for each Region and country in a separate workbook.											
[2] Columns B, E, and F are hidden because they contain no data for this form											
This form lists all the AC/DC Back-to-Back Converters that have multiple owners and which are ≥ 200 kV AC on both sides. One TO must assume reporting responsibility, and that TO must be indentified in columns G											
To ensure that outage data on these Elements are reported, the TO must list each multiple-owner converter, the multiple owners and the TO that is reporting outage data on the converter.											
		AC Circuit Voltage Class					Names of All Transmission Owners				
	(A)	(C)	(D)	(G)	(H)	(I)	(J)	(K)	(L)		(M)
Row No.	Name of AC/DC Back-to-Back Converter Station	on one side	on second side	Reporting TO's NERC ID	Reporting TO's Name	Reporting TO's Element Identifier	TO#1 NERC ID	TO#1 Name	TO#2 NERC ID		TO#2 Name
1											

Continued…

Names of All Transmission Owners				
(N)		(O)	(P)	(Q)
TO#3 NERC ID		TO#3 Name	TO#4 NERC ID	TO#4 Name

Appendix 3 Forms for Element Inventory and Summary Outage Data

3.1. AC and DC Circuit Inventory Data

Form 3.1 AC and DC Circuit Inventory Data		Data is not Confidential	Answers
Transmission Owner Coordination Questions	1. Do any of the Multi-Circuit Structure Miles contain circuits on the common structures that are reported by you and another Transmission Owner(s)?		No
	2. If the answer to question 1 is "yes," have you and the other Transmission Owner(s) coordinated your reporting to insure that no double counting of Multi-Circuit Structure Miles are being reported for the circuits on these structures?		Not applicable

Notes:

[1] If a TO owns or reports on Elements in a different NERC Region or in a different country, provide data for each Region and country in a separate workbook.

[2] AC Circuit Voltages are phase-to-phase. DC Circuit Voltages are phase-to-return.

[3] See examples in the TADS Data Reporting Instruction Manual.

[4] Mixed TADS voltages (e.g., 230 kV and 345 kV) on common structures.

AC and DC Circuit Inventory Data

	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
Row No.	Voltage Class [2]	No. of Circuits (End-of-Year)	Circuit Miles (End-of-Year)	No. of Circuits Added	Equivalent Annual No. of Circuits Added [3]	No. of Circuit Miles for Circuits Added	Equivalent Annual No. of Circuit Miles for Circuits Added [3]	No. of Circuits Removed	Equivalent Annual No. of Circuits Removed [3]	No. of Circuit Miles for Circuits Removed	Equivalent Annual No. of Circuit Miles for Circuits Removed [3]	CALCULATED Annual Equivalent No. of Circuits = B-D+E+I	CALCULATED Annual Equivalent No. of Circuit Miles = C-F+G+K
1	200-299 kV AC Overhead												
2	300-399 kV AC Overhead												
3	400-599 kV AC Overhead												
4	600-799 kV AC Overhead												
5	200-299 kV AC Underground												
6	300-399 kV AC Underground												
7	400-599 kV AC Underground												
8	600-799 kV AC Underground												
9	200-299 kV DC Overhead												
10	300-399 kV DC Overhead												
11	400-499 kV DC Overhead												
12	500-599 kV DC Overhead												
13	600-799 kV DC Overhead												
14	200-299 kV DC Underground												
15	300-399 kV DC Underground												
16	400-499 kV DC Underground												
17	500-599 kV DC Underground												
18	600-799 kV DC Underground												

AC Muliti-Circuit Structure Miles Inventory Data

	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
	Voltage Class [2]		Multi-Circuit Structure Miles (End-of-Year)			No. of Multi-Circuit Structure Miles for Circuits Added	Equivalent Annual No. of Multi-Circuit Structure Miles for Cicuits Added [3]			No. of Multi-Circuit Structure Miles for Circuits Removed	Equivalent Annual No. of Multi-Circuit Structure Miles for Circuits Removed [3]		CALCULATED Annual Equivalent No. of Multi-Circuit Structure Miles = C-F+G+K
19	200-299 kV AC												
20	300-399 kV AC												
21	400-599 kV AC												
22	600-799 kV AC												
23	Mixed Voltages [4]												

3.2. Transformer Inventory Data

Form 3.2 Transformer Inventory Data					Data is not Confidential		
Notes:							
[1]	If a TO owns or reports on Elements in a different NERC Region or in a different country, provide data for each Region and country in a separate workbook.						
[2]	Report high-side phase-to-phase voltage. However, to be reported on this Form 3.2, the Transformer must have a low-side voltage that is ≥ 200 kV.						
[3]	Only report transformers that are "in-service." Do not include spares.						
[4]	See example in the Data Reporting Instruction Manual.						
	(A)	**(B)**	**(C)**	**(D)**	**(E)**	**(F)**	**(G)**
Row No.	**AC Voltage Class [2]**	**No. of Transformers (End-of-Year) [3]**	**No. of Transformers Added**	**Equivalent Annual No. of Transformers Added [4]**	**No. of Transformers Removed**	**Equivalent Annual No. of Transformers Removed [4]**	**CALCULATED Annual Equivalent No. of Transformers = B-C+D+F**
1	200-299 kV						
2	300-399 kV						
3	400-599 kV						
4	600-799 kV						

3.3. AC/DC Back-to-Back Converter Inventory Data

Form 3.3 AC/DC BTB Converter Inventory Data						Data is not Confidential	
Notes:							
[1]	If a TO owns or reports on Elements in a different NERC Region or in a different country, provide data for each Region and country in a separate workbook.						
[2]	Report the highest terminal AC voltage (phase-to-phase).						
[3]	See example in the Data Reporting Instruction Manual.						
	(A)	**(B)**	**(C)**	**(D)**	**(E)**	**(F)**	**(G)**
Row No.	**Voltage Class [2]**	**No. of Converters (End-of-Year)**	**No. of Converters Added**	**Equivalent Annual No. of Converters Added [3]**	**No. of Converters Removed**	**Equivalent Annual No. of Converters Removed [3]**	**CALCULATED Annual Equivalent No. of Converters = B-C+D+F**
1	200-299 kV						
2	300-399 kV						
3	400-599 kV						
4	600-799 kV						

CY 2010 Form 3.4:

3.4. Number of Elements with Zero Outages - CY 2010

Form 3.4 No. of Elements with Zero Outages			Data is not Confidential
Notes:			
[1]	If a TO reports on Elements in a different NERC Region or in a different country, provide data for each Region and country in a separate workbook.		
[2]	AC Circuit Voltages are phase-to-phase. DC Circuit Voltages are phase-to-return.		
[3]	Only consider circuits with zero outages that are "in-service" at the end of the year.		
[4]	Report high-side phase-to-phase voltage. However, to be reported, the Transformer must have a low-side voltage that is ≥ 200 kV.		
[5]	Only consider transformers with zero outages that are "in-service" at the end of the year. Do not includes spares.		
[6]	Report the highest terminal AC voltage (phase-to-phase).		
[7]	Only consider converters with zero outages that are "in-service" at the end of the year.		

		AC & DC Circuit Automatic Outages	AC & DC Circuit Non-Automatic Outages
	(A)	(B)	(C)
Row No.	Voltage Class [2]	No. of Circuits with Zero Automatic Outages [3]	No. of Circuits with Zero Non-Automatic Outages [3]
1	200-299 kV AC Overhead		
2	300-399 kV AC Overhead		
3	400-599 kV AC Overhead		
4	600-799 kV AC Overhead		
5	200-299 kV AC Underground		
6	300-399 kV AC Underground		
7	400-599 kV AC Underground		
8	600-799 kV AC Underground		
9	200-299 kV DC Overhead		
10	300-399 kV DC Overhead		
11	400-499 kV DC Overhead		
12	500-599 kV DC Overhead		
13	600-799 kV DC Overhead		
14	200-299 kV DC Underground		
15	300-399 kV DC Underground		
16	400-499 kV DC Underground		
17	500-599 kV DC Underground		
18	600-799 kV DC Underground		

		Transformer Automatic Outages	Transformer Non-Automatic Outages
	(A)	(B)	(C)
Row No.	Voltage Class [4]	Number of Transformers with Zero Automatic Outages [5]	Number of Transformers with Zero Non-Automatic Outages [5]
19	200-299 kV		
20	300-399 kV		
21	400-599 kV		
22	600-799 kV		

		AC/DC BTB Converters Automatic Outages	AC/DC BTB Converters Non-Automatic Outages
	(A)	(B)	(C)
Row No.	Voltage Class [6]	Number of Converters with Zero Automatic Outages [7]	Number of Converters with Zero Non-Automatic Outages [7]
23	200-299 kV		
24	300-399 kV		
25	400-599 kV		
26	600-799 kV		

Appendix 4 Forms for Detailed Automatic Outage Data

4.1. AC Circuit Detailed Automatic Outage Data

Form 4.1 AC Circuit Outages — CONFIDENTIAL INFORMATION

Notes:

[1] If a TO owns or reports on Elements in a different NERC Region or in a different country, provide data for each Region and country in a separate workbook.

[2] The Event ID Code is defined on Form 5. If the outage is carried over from a previous year, use the Event ID Code for the original outage.

[3] 0 = Not applicable (Circuit is not on common structures with another circuit, or the circuit is on common structures, but all circuits are reported by the reporting Transmission Owner.
1 = Circuit is on common structures with another circuit that is being reported by another Transmission Owner.

[4] For outages which started in another (previous) reporting year, enter 01/01/yyyy 00:00 as the Outage Start Time, where yyyy is the current reporting year.

[5] Report zero hours and zero minutes Outage Duration for Momentary Outages. For outages that started in a previous reporting year, enter the Outage Duration for the current reporting year only.

[6] For Momentary Outages, enter "NA-Momentary"

[7] 0 = Outage began and ended within the reporting year; 1= Outage began in the reporting year but continues into the next reporting year; 2 = Outage started in another (previous) reporting year.

AC Circuit Momentary and Sustained Outage Data

				Circuit Substation Boundaries						
(A)	(B)	(C)	(D)	(E)	(F)	(G)		(H)	(I)
Outage ID Code	Event ID Code [2]	Voltage Class	AC Substation Name #1	AC Substation Name #2	AC Substation Name #3	TO Element Identifier	(AC Circuit)	OH or UG?	AC Multi-Owner Com. Struct. Flag [3]

Continued…

AC Circuit Momentary and Sustained Outage Data

				Cause Codes			
(J)	(K)	(L)	(M)	(N)	(O)	(P)	(Q)
Fault Type	Outage Initiation Code	Start Time (mm/dd/yyyy hh:mm) [4]	Outage Duration hhhh:mm [5]	Initiating Cause Code	Sustained Cause Code [6]	Outage Mode	Outage Continuation Code [7]

4.2. DC Circuit Detailed Automatic Outage Data

Form 4.2 DC Circuit Outages							CONFIDENTIAL INFORMATION		
Notes:									
[1] If a TO owns or reports on Elements in a different NERC Region or in a different country, provide data for each Region and country in a separate workbook.									
[2] The Event ID Code is defined on Form 5.									
[3] For outages which started in another (previous) reporting year, enter 01/01/yyyy 00:00 as the Outage Start Time, where yyyy is the current reporting year.									
[4] Report zero hours and zero minutes Outage Duration for Momentary Outages.									
[5] For Momentary Outages, enter "NA-Momentary"									
[6] 0 = Outage began and ended within the reporting year; 1= Outage began in the reporting year but continues into the next reporting year; 2 = Outage started in another (previous) reporting year.									
DC Circuit Momentary and Sustained Outage Data									
			Circuit Terminal Boundaries						
(A)	(B)	(C)	(D)	(E)	(F)	(G)		(H)	(J)
Outage ID Code	Event ID Code [2]	Voltage Class	AC/DC Terminal Name #1	AC/DC Terminal Name #2	AC/DC Terminal Name #3	TO Element Identifier	(DC Circuit)	OH or UG?	Fault Type

Continued…

DC Circuit Momentary and Sustained Outage Data							
			Cause Codes				
(K)	(L)	(M)	(N)	(O)	(P)	(Q)	
Outage Initiation Code	Start Time (mm/dd/yyyy hh:mm) [3]	Outage Duration hhhh:mm [4]	Initiating Cause Code	Sustained Cause Code [5]	Outage Mode	Outage Continuation Code [6]	

4.3. Transformer Detailed Automatic Outage Data

Form 4.3 Transformer Outages							CONFIDENTIAL INFORMATION		
Notes:									
[1] If a TO owns or reports on Elements in a different NERC Region or in a different country, provide data for each Region and country in a separate workbook.									
[2] The Event ID Code is defined on Form 5.									
[3] For outages which started in another (previous) reporting year, enter 01/01/yyyy 00:00 as the Outage Start Time, where yyyy is the current reporting year.									
[4] Report zero hours and zero minutes Outage Duration for Momentary Outages.									
[5] For Momentary Outages, enter "NA-Momentary"									
[6] 0 = Outage began and ended within the reporting year; 1= Outage began in the reporting year but continues into the next reporting year; 2 = Outage started in another (previous) reporting year.									
Transformer Momentary and Sustained Outage Data									
(A)	(B)	(C)	(D)	(G)	(J)	(K)	(L)	(M)	
Outage ID Code	Event ID Code [2]	High-Side Voltage Class	Located at (AC Sub. Name)	TO Element Identifier (Transformer)	Fault Type	Outage Initiation Code	Start Time (mm/dd/yyyy hh:mm) [3]	Outage Duration hhhh:mm [4]	

Continued…

Transformer Momentary and Sustained Outage Data			
Cause Codes			
(N)	(O)	(P)	(Q)
Initiating Cause Code	Sustained Cause Code [5]	Outage Mode	Outage Continuation Code [6]

4.4. AC/DC Back-to-Back Converter Detailed Automatic Outage Data

Form 4.4 AC/DC BTB Converter Outages							CONFIDENTIAL INFORMATION	
Notes:								
[1] If a TO owns or reports on Elements in a different NERC Region or in a different country, provide data for each Region and country in a separate workbook.								
[2] The Event ID Code is defined on Form 5.								
[3] Report the highest terminal AC voltage (phase-to-phase).								
[4] For outages which started in another (previous) reporting year, enter 01/01/yyyy 00:00 as the Outage Start Time, where yyyy is the current reporting year.								
[5] Report zero hours and zero minutes Outage Duration for Momentary Outages.								
[6] For Momentary Outages, do not us the "Unavailable" Cause Code. For Sustained Outages, the "Unavailable" Cause Code may be used for either Initiating Outage Code or the Sustained Outage Code, but not both.								
[7] 0 = Outage began and ended within the reporting year; 1= Outage began in the reporting year but continues into the next reporting year; 2 = Outage started in another (previous) reporting year.								
AC/DC Back-to-Back Converter Momentary and Sustained Outage Data								
(A)	(B)	(C)	(D)	(G)	(J)	(K)	(L)	(M)
Outage ID Code	Event ID Code [2]	Voltage Class [3]	Converter Name	TO Element Identifier (AC/DC BTB)	Fault Type	Outage Initiation Code	Start Time (mm/dd/yyyy hh:mm) [4]	Outage Duration hhhh:mm [5]

Continued…

AC/DC Back-to-Back Converter Momentary and Sustained Outage Data			
Cause Codes			
(N)	(O)	(P)	(Q)
Initiating Cause Code	Sustained Cause Code [6]	Outage Mode	Outage Continuation Code [7]

Appendix 5 Form for Event ID Code and Event Type Number Data

Form 5 Event ID Code and Event Type Number Data — **CONFIDENTIAL INFORMATION**

Notes:

[1] If a TO owns or reports on Elements in a different NERC Region or in a different country, provide data for each Region and country in a separate workbook.

[2]

[3] See the Table above for Event Type No. Note that if Event Type No. 10 or 20 is selected, the Outage Mode on column P on Forms 4.1, 4.2, or 4.3 must be "Single Mode Outage." Outages of an AC/DC Back-to-Back Converter (Form 4.4) must select Event Type No. 50.

[4] Optional input: Provide a brief description of the Event outage(s) for any Event ID Code. Please limit the description to 500 characters or less.

[5] Was an EOP-004 report filed at NERC that was associated with the Event? Year-to-date public (i.e., non-confidential) data of all disturbance report filings are located at http://www.nerc.com/page.php?cid=5|66.

Event Type No.	Table 1 Category from the TPL Standards	Description
10	B	Automatic Outage of an AC Circuit or Transformer with Normal Clearing.
20	B	Automatic Outage of a DC Circuit with Normal Clearing.
30	C	Automatic Outage of two ADJACENT AC Circuits on common structures with Normal
40	C	Automatic Outage of two ADJACENT DC Circuits on the common structures with
50	NA	Other - please describe the event (optional)

Event ID Code Data

(A)	(B)		(D)
Event ID Code [2]	**Event Type No. [3]**	**Description of the Event (optional) [4]**	**Disturbance Report Filed [5]**

Appendix 6 Forms for Detailed Non-Automatic Outage Data

6.1 AC Circuit Detailed Non-Automatic Outage Data

Form 6.1 AC Non-Automatic Circuit Outages						CONFIDENTIAL INFORMATION		
Notes:								
[1] If a TO owns or reports on Elements in a different NERC Region or in a different country, provide data for each Region and country in a separate workbook.								
[2] For outages which started in another (previous) reporting year, enter 01/01/yyyy 00:00 as the Outage Start Time, where yyyy is the current reporting year.								
[3] For outages that started in a previous reporting year, enter the Outage Duration for the current reporting year only.								
[4] Enter "NA" if the outage is ***NOT*** a Planned Outage								
[5] Enter "NA" if the outage is ***NOT*** a Operational Outage								
[6] 0 = Outage began and ended within the reporting year; 1= Outage began in the reporting year but continues into the next reporting year; 2 = Outage started in another (previous) reporting year.								
AC Circuit Non-Automatic Outage Data								
			Circuit Substation Boundaries					
(A)		**(C)**	**(D)**	**(E)**	**(F)**	**(G)**	**(H)**	**(K)**
Outage ID Code		**Voltage Class**	**AC Substation Name #1**	**AC Substation Name #2**	**AC Substation Name #3**	**TO Element Identifier (AC Circuit)**	**OH or UG?**	**Non-Automatic Outage Type**

Continued…

AC Circuit Non-Automatic Outage Data				
		Cause Codes		
(L)	**(M)**	**(N)**	**(O)**	**(Q)**
Start Time (mm/dd/yyyy hh:mm) (UTC) [2]	**Outage Duration hhhh:mm [3]**	**Planned Outage Cause Code [4]**	**Operational Outage Cause Code [5]**	**Outage Continuation Code [6]**

6.2 DC Circuit Detailed Non-Automatic Outage Data

Form 6.2 DC Circuit Non-Automatic Outages					CONFIDENTIAL INFORMATION		
Notes:							
[1]	If a TO owns or reports on Elements in a different NERC Region or in a different country, provide data for each Region and country in a separate workbook.						
[2]	For outages which started in another (previous) reporting year, enter 01/01/yyyy 00:00 as the Outage Start Time, where yyyy is the current reporting year.						
[3]	For outages that started in a previous reporting year, enter the Outage Duration for the current reporting year only.						
[4]	Enter "NA" if the outage is ***NOT*** a Planned Outage						
[5]	Enter "NA" if the outage is ***NOT*** a Operational Outage						
[6]	0 = Outage began and ended within the reporting year; 1= Outage began in the reporting year but continues into the next reporting year; 2 = Outage started in another (previous) reporting year.						
	DC Circuit Non-Automatic Outage Data						
			Circuit Terminal Boundaries				
	(A)	**(C)**	**(D)**	**(E)**	**(F)**	**(G)**	**(H)**	**(K)**
	Outage ID Code	**Voltage Class**	**AC/DC Terminal Name #1**	**AC/DC Terminal Name #2**	**AC/DC Terminal Name #3**	**TO Element Identifier (DC Circuit)**	**OH or UG?**	**Non-Automatic Outage Type**

Continued…

DC Circuit Non-Automatic Outage Data				
		Cause Codes		
(L)	**(M)**	**(N)**	**(O)**	**(Q)**
Start Time (mm/dd/yyyy hh:mm) (UTC) [	**Outage Duration hhhh:mm [3**	**Planned Outage Cause Code [4]**	**Operational Outage Cause Code [5]**	**Outage Continuation Code [6**

6.3 Transformer Detailed Non-Automatic Outage Data

Form 6.3 Transformer Non-Automatic Outages				CONFIDENTIAL INFORMATION	
Notes:					
[1] If a TO owns or reports on Elements in a different NERC Region or in a different country, provide data for each Region and country in a separate workbook.					
[2] For outages which started in another (previous) reporting year, enter 01/01/yyyy 00:00 as the Outage Start Time, where yyyy is the current reporting year.					
[3] For outages that started in a previous reporting year, enter the Outage Duration for the current reporting year only.					
[4] Enter "NA" if the outage is ***NOT*** a Planned Outage					
[5] Enter "NA" if the outage is ***NOT*** a Operational Outage					
[6] 0 = Outage began and ended within the reporting year; 1= Outage began in the reporting year but continues into the next reporting year; 2 = Outage started in another (previous) reporting year.					
Transformer Non-Automatic Outage Data					
(A)	(C)	(D)	(G)	(K)	(L)
Outage ID Code	High-Side Voltage Class	Located at (AC Sub. Name)	TO Element Identifier (Transformer)	Non-Automatic OutageType	Start Time (mm/dd/yyyy hh:mm) (UTC) [2]

Continued…

Transformer Non-Automatic Outage Data			
	Cause Codes		
(M)	(N)	(O)	(Q)
Outage Duration hhhh:mm [3]	Planned Outage Cause Code [4]	Operational Outage Cause Code [5]	Outage Continuation Code [6]

6.4 AC/DC Back-to-Back Converter Detailed Non-Automatic Outage Data

Form 6.4 AC/DC BTB Converter Non-Automatic Outages					CONFIDENTIAL INFORMATION
Notes:					
[1]	If a TO owns or reports on Elements in a different NERC Region or in a different country, provide data for each Region and country in a separate workbook.				
[2]	Report the highest terminal AC voltage (phase-to-phase).				
[3]	For outages which started in another (previous) reporting year, enter 01/01/yyyy 00:00 as the Outage Start Time, where yyyy is the current reporting year.				
[4]	For outages that started in a previous reporting year, enter the Outage Duration for the current reporting year only.				
[5]	Enter "NA" if the outage is NOT a Planned Outage				
[6]	Enter "NA" if the outage is NOT a Operational Outage				
[7]	0 = Outage began and ended within the reporting year; 1= Outage began in the reporting year but continues into the next reporting year; 2 = Outage started in another (previous) reporting year.				

AC/DC Back-to-Back Converter Non-Automatic Outage Data					
(A)	(C)	(D)	(G)	(K)	(L)
Outage ID Code	Voltage Class [2]	Converter Name	TO Element Identifier (AC/DC BTB)	Non-Automatic OutageType	Start Time (mm/dd/yyyy hh:mm) (UTC) [3]

Continued…

AC/DC Back-to-Back Converter Non-Automatic Outage Data			
	Cause Codes		
(M)	(N)	(O)	(Q)
Outage Duration hhhh:mm [4]	Planned Outage Cause Code [5]	Operational Outage Cause Code [6]	Outage Continuation Code [7]

Appendix 7 TADS Definitions

The *TADS Definitions* is a separate document with its own page numbering.

Appendix 8 Inventory Data Examples

The following examples demonstrate a calculation method that can be used to complete the TADS inventory spreadsheet data on Form 3.1 associated with the number of AC Circuits, the number of Circuit Miles, and the number of Multi-Circuit Structure Miles. However, the methods used to determine the inventory data associated with the number of AC Circuits can be used for any Element.

The TADS Task Force acknowledges that other calculation methods can be utilized to complete the inventory spreadsheet. Every reporting entity must determine the method that is best for their organization.

Base Model:

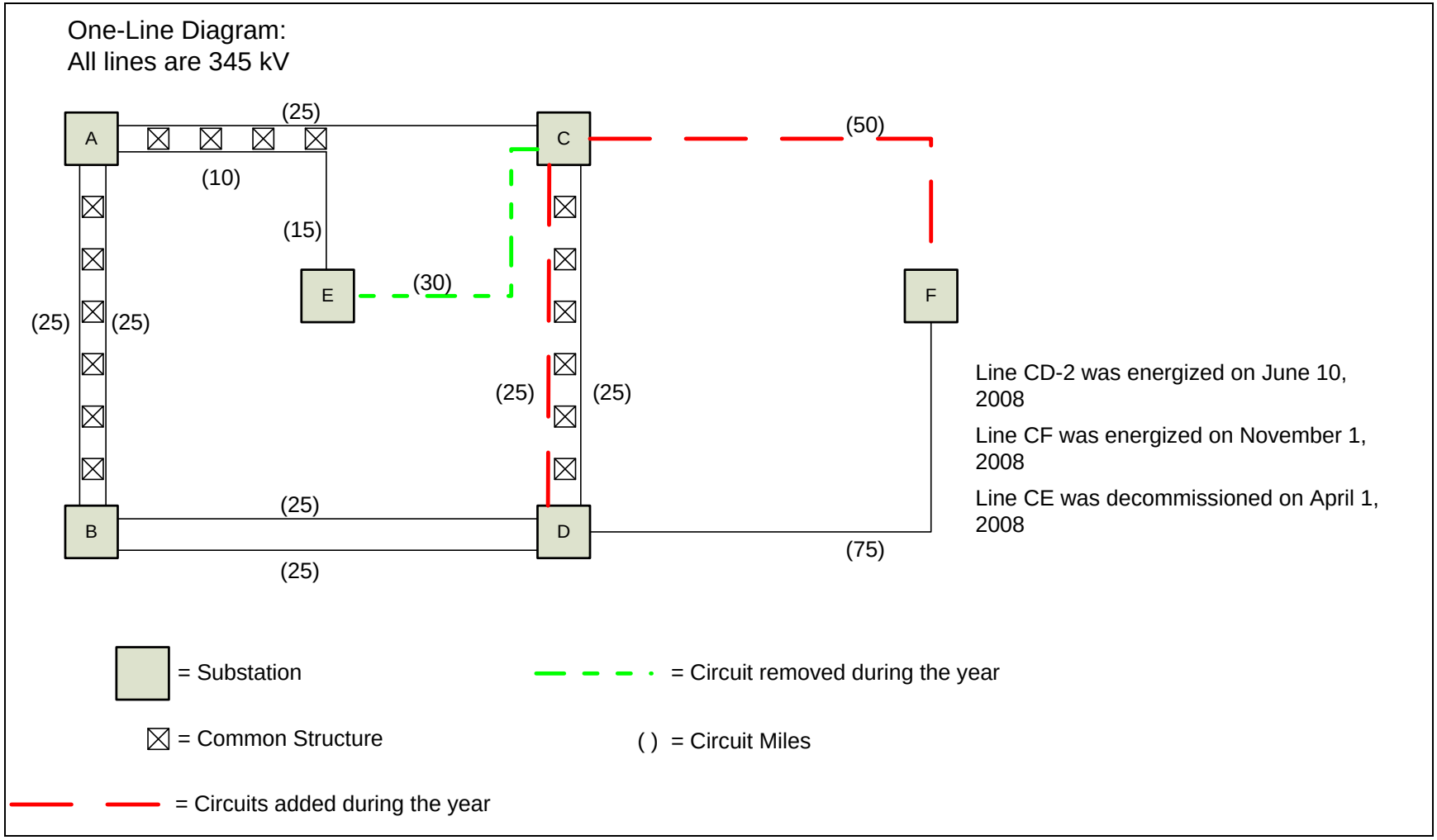


Figure 1: One-line diagram showing both new and removed circuits

Calculation 1: No. of AC Circuits and Circuit Miles that were *in-service* at the end of the reporting year [FORM 3.1]

Circuit Miles calculations (Elements at the end of the year)	
Element Identification	Circuit Miles
AB-1	25
AB-2	25
BD-1	25
BD-2	25
AE	25
AC	25
CD-1	25
DF	75
CD-2	25
CF	50
Total Circuit Miles	325

10 would be entered into the column titled "No. of Circuits (End of Year)"
325 would be entered into the column titled "Circuit miles (End of Year)"

Calculation 2: No. of AC Circuits and Circuit Miles that were *added or removed* during the reporting year [FORM 3.1]

Circuit Miles Calculations (Elements added, retired or changed during the year)				
Element Identification	Circuit Miles	Number of Days from In-Service date to the end of the reporting year	Equivalent Annual Element Value	Equivalent Circuit Miles
CD-2	25	205	.56	14.04
CF	50	61	.17	8.36
Totals for Elements added			.73	22.4
Element Identification	Circuit Miles	Number of days from retirement/change date to the beginning of the reporting year	Equivalent Annual Element Value	Equivalent Circuit Miles
CE	30	91	.25	7.4
Total for Elements retired or changed			.25	7.4

2 would be entered into the column titled "No. of Circuits Added"
0.73 would be entered into the column titled "Equivalent Annual No. of Circuits Added [3]" (205/366) + (61/366) = 0.73 **(2008 is a leap year)**
75 would be entered into the column titled "No. of Circuit Miles for Circuits Added"

22.4 would be entered into the column titled "Equivalent Annual No. of Circuit Miles for Circuits Added [3]"

25 Miles (205/366) + 50 Miles (61/366) = 22.4 **(2008 is a leap year)**

1 would be entered into the column titled "No. of Circuits removed"

.25 would be entered into the column titled "Equivalent Annual No. of Circuits Removed [3]" 91/366 = .25 **(2008 is a leap year)**

30 would be entered into the column titled "No. of Circuit Miles for Circuits Removed"

7.4 would be entered into the column titled "Equivalent Annual No. of Circuit Miles for Circuits Removed [3]"

30 Miles (91/366) = 7.4 **(2008 is a leap year)**

Calculation 3: Multi-Circuit Structure Miles for AC Circuits that were in-service at the end of the reporting year [FORM 3.1]

Multi-Circuit Structure Miles Calculations (Elements at the end of the year)	
Element Identification	Multi-Circuit Structure Miles
AB-1 & AB-2	25
AC & AE	10
CD-1 & CD-2	25
Total Structure Miles	60

60 would be entered into the column titled "Multi-Circuit Structure Miles (End of Year)"

Calculation 4: Multi-Circuit Structure Miles for AC Circuits that were added or removed during the reporting year [FORM 3.1]

Multi-Circuit Structure Miles Calculations (Elements added during the year)			
Element Identification	Multi-Circuit Structure Miles	Number of Days from In-Service date to the end of the reporting year	Equivalent Multi-Circuit Structure Miles
CD-1 & CD-2	25	205	14.04
Total Equivalent Structure Miles added during the year			14.04

25 would be entered into the column titled "Multi-Circuit Structure Miles for Circuits Added"

14.04 would be entered into the column titled "Equivalent Annual No. of Multi-Circuit Structure Miles for Circuits Added"

25 Structure Miles (205/366) = 14.04 **(2008 is a leap year)**

Two Questions in Form 3.1

Base Example:

None of Multi-Circuit Structure Miles are on a common structure reported by another Transmission Owner.

Transmission Owner Coordination Questions	1. Do any of the Multi-Circuit Structure Miles contain circuits on the common structures that are reported by you and another Transmission Owner(s)?	No
	2. If the answer to question 1 is "yes," have you and the other Transmission Owner(s) coordinated your reporting to insure that no double counting of Multi-Circuit Structure Miles are being reported for the circuits on these structures?	Not applicable

Situation 1:

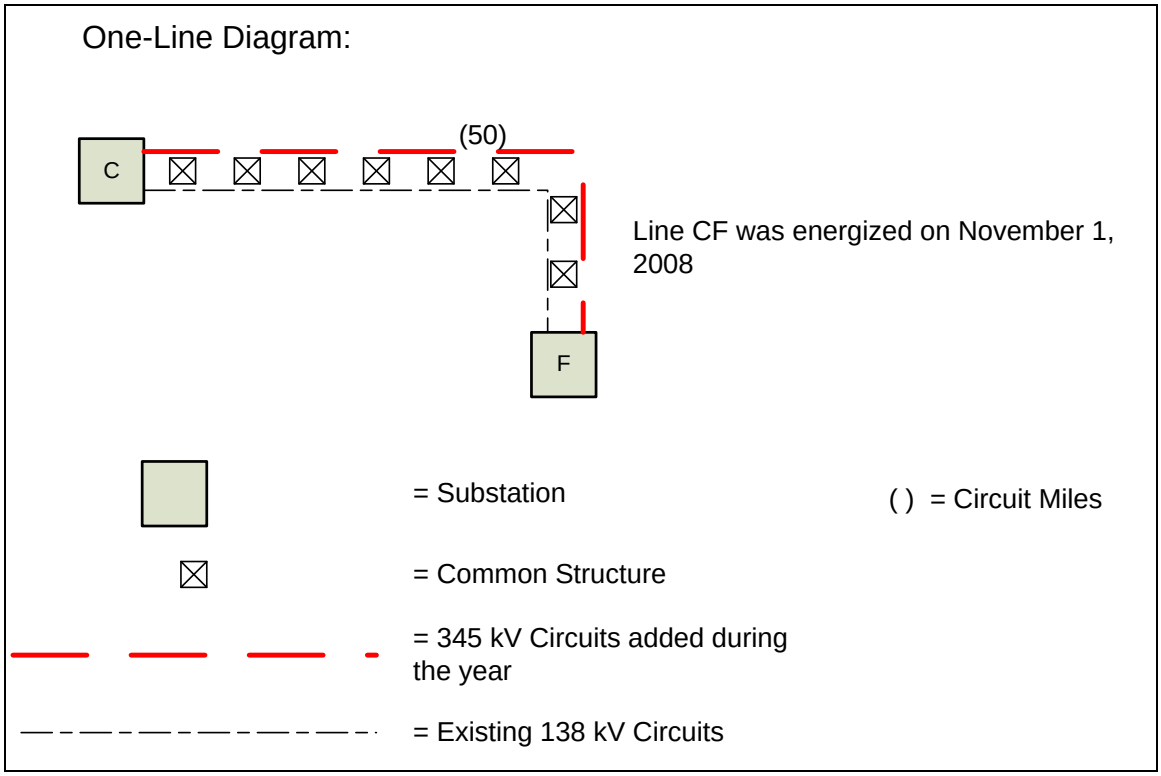


Figure 2: The addition of a TADS Element on a common structure with a non-TADS Element

In this situation AC Circuit CF was placed on a common structure with an existing 138 kV circuit. For TADS this common structure situation shall not be included in the Multi-Circuit Structure Mile calculation. For TADS you are only to report those Multi-Circuit Structure Miles where two or more TADS Elements share a common structure.

The calculations for AC Circuit CF are the same as in the Base Model.

Base Case and Situation 1 Inventory Data, Form 3.1

	AC and DC Circuit Inventory Data												
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
Row No.	Voltage Class [2]	No. of Circuits (End-of-Year)	Circuit Miles (End-of-Year)	No. of Circuits Added	Equivalent Annual No. of Circuits Added [3]	No. of Circuit Miles for Circuits Added	Equivalent Annual No. of Circuit Miles for Circuits Added [3]	No. of Circuits Removed	Equivalent Annual No. of Circuits Removed [3]	No. of Circuit Miles for Circuits Removed	Equivalent Annual No. of Circuit Miles for Circuits Removed [3]	CALCULATED Annual Equivalent No. of Circuits = B-D+E+I	CALCULATED Annual Eqivalent No. of Circuit Miles = C-F+G+K
1	200-299 kV AC Overhead	0.0		0.0				0.0				0.0	0.0
2	300-399 kV AC Overhead	11.0	345.0	4.0	1.6	170.0	62.3	2.0	0.8	105.0	50.9	9.4	288.2
3	400-499 kV AC Overhead	0.0		0.0				0.0				0.0	0.0
4	500-599 kV AC Overhead	0.0		0.0				0.0				0.0	0.0
5	600-799 kV AC Overhead	0.0		0.0				0.0				0.0	0.0

	AC Muliti-Circuit Structure Miles Inventory Data												
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
	Voltage Class [2]		Multi-Circuit Structure Miles (End-of-Year)			No. of Multi-Circuit Structure Miles for Circuits Added	Equivalent Annual No. of Multi-Circuit Structure Miles for Cicuits Added [3]			No. of Multi-Circuit Structure Miles for Circuits Removed	Equivalent Annual No. of Multi-Circuit Structure Miles for Circuits Removed [3]		CALCULATED Annual Equivalent No. of Multi-Circuit Structure Miles = C-F+G+K
19	200-299 kV AC												
20	300-399 kV AC		60.0			25.0	14.0			0.0	0.0		49.0
21	400-599 kV AC												
22	600-799 kV AC												
23	Mixed Voltages [4]												

Situation 2:

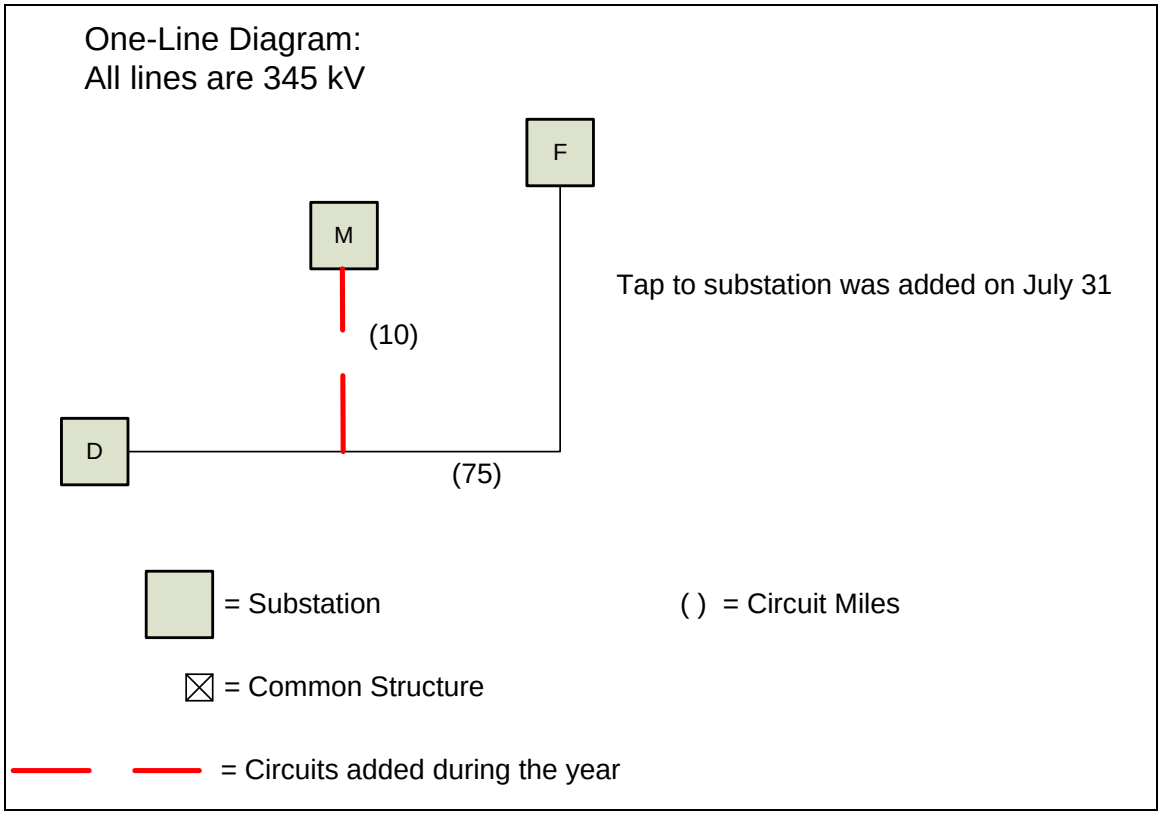


Figure 3: Tap addition

In this example we are demonstrating how to calculate your inventory data if, in addition to the work that was done in the Base Model, you added a 10 mile tap off AC Circuit DF.

Calculation 1a: No. of AC Circuits and Circuit Miles that were in-service at the end of the reporting year [FORM 3.1]

Circuit Miles calculations (Elements at the end of the year)	
Element Identification	Circuit Miles
AB-1	25
AB-2	25
BD-1	25
BD-2	25
AE	25
AC	25
CD-1	25
DMF	85
CD-2	25
CF	50
Total Circuit Miles	335

10 would be entered into the column titled “No. of Circuits (End of Year)”
335 would be entered into the column titled “Circuit miles (End of Year)”

Calculation 2a: No. of AC Circuits and Circuit Miles that were added or removed during the reporting year [FORM 3.1]

Circuit Miles Calculations (Elements added, retired or changed during the year)				
Element Identification	Circuit Miles	Number of days from in-service date through the end of the reporting year	Equivalent Annual Element Value	Equivalent Circuit Miles
CD-2	25	205	.56	14.04
CF	50	61	.17	8.36
DFM	85	154	.42	35.7
		Totals for Elements added	1.15	58.1
Element Identification	Circuit Miles	Number of days from retirement/change date to the beginning of the reporting year	Equivalent Annual Element Value	Equivalent Circuit Miles
CE	30	91	.25	7.4
DF	75	212	.58	43.5
		Total for Elements retired or changed	.83	50.9

3 would be entered into the column titled "No. of Circuits Added"
1.15 would be entered into the column titled "Equivalent Annual No. of Circuits Added [3]" *(Excel will display to the first significant digit)*
(205/366) + (61/366) + (154/366) = 1.15 **(2008 is a leap year)**
160 would be entered into the column titled "No. of Circuit Miles for Circuits Added"
58.1 would be entered into the column titled "Equivalent Annual No. of Circuit Miles for Circuits Added [3]"
25 Miles (205/366) + 50 Miles (61/366) + 85 Miles (154/366) = 58.1
(2008 is a leap year)
2 would be entered into the column titled "No. of Circuits removed"
.83 would be entered into the column titled "Equivalent Annual No. of Circuits Removed [3]" (91/366) + (212/366) = .83 **(2008 is a leap year)**
105 would be entered into the column titled "No. of Circuit Miles for Circuits Removed"
50.9 would be entered into the column titled "Equivalent Annual No. of Circuit Miles for Circuits Removed [3]"
30 Miles (91/366) + 75 Miles (212/366) = 50.9 **(2008 is a leap year)**

Calculation 3a: Multi-Circuit Structure Miles for AC Circuits that were in-service at the end of the reporting year [FORM 3.1]

This calculation is the same as in the Base Model.

Calculation 4a: Multi-Circuit Structure Miles for AC Circuits that were added or removed during the reporting year. [FORM 3.1]

This calculation is the same as in the Base Model.

Situation 2 Inventory Data, Form 3.1

	AC and DC Circuit Inventory Data												
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
Row No.	Voltage Class [2]	No. of Circuits (End-of-Year)	Circuit Miles (End-of-Year)	No. of Circuits Added	Equivalent Annual No. of Circuits Added [3]	No. of Circuit Miles for Circuits Added	Equivalent Annual No. of Circuit Miles for Circuits Added [3]	No. of Circuits Removed	Equivalent Annual No. of Circuits Removed [3]	No. of Circuit Miles for Circuits Removed	Equivalent Annual No. of Circuit Miles for Circuits Removed [3]	CALCULATED Annual Equivalent No. of Circuits = B-D+E+I	CALCULATED Annual Equivalent No. of Circuit Miles = C-F+G+K
1	200-299 kV AC Overhead												
2	300-399 kV AC Overhead	10	335.0	3	1.20	160.0	58.1	1	0.83	105.0	50.9	9.0	284.0
3	400-599 kV AC Overhead												
4	600-799 kV AC Overhead												

Multi-Circuit Structure Miles data is the same as the Base Case

Situation 3:

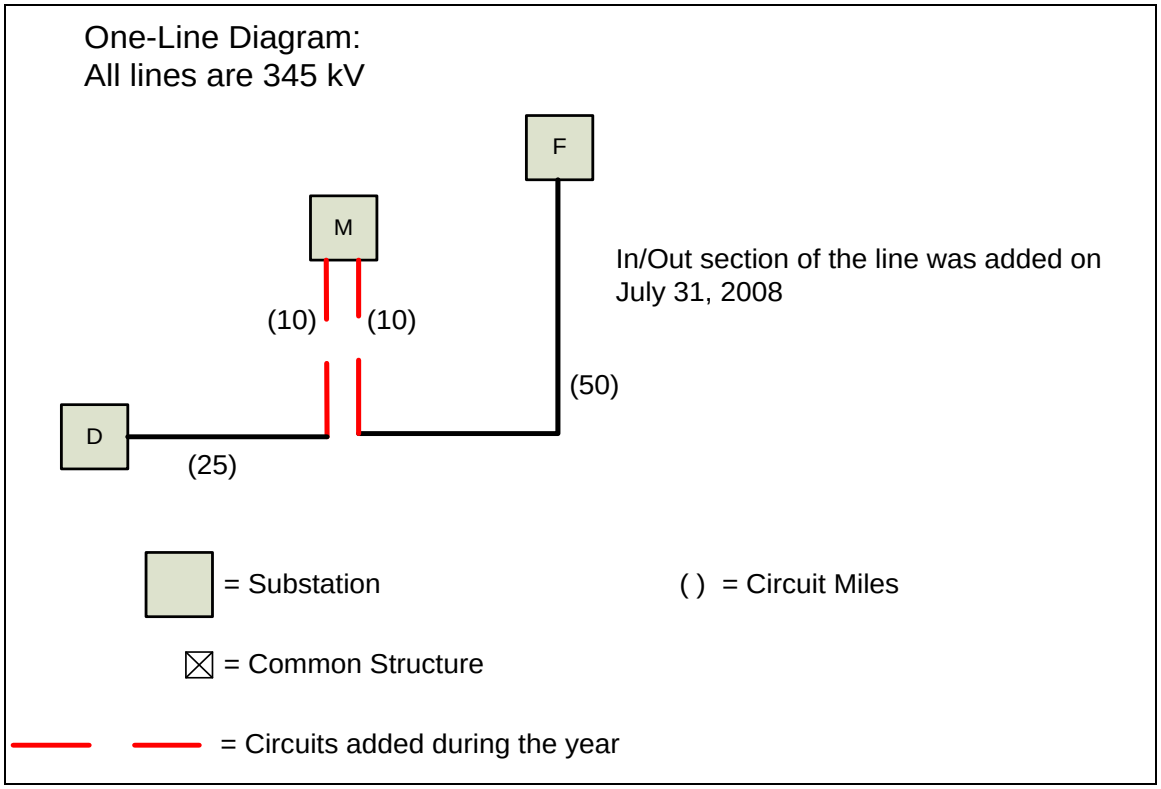


Figure 4: In/Out section addition

In this example we are demonstrating how to calculate your inventory data if, in addition to the work that was done in the Base Model, you added two 10-mile sections for a new substation.

Calculation 1b: No. of AC Circuits and Circuit Miles that were in-service at the end of the reporting year [FORM 3.1]

Circuit Miles calculations (Elements at the end of the year)	
Element Identification	Circuit Miles
AB-1	25
AB-2	25
BD-1	25
BD-2	25
AE	25
AC	25
CD-1	25
DM	35
MF	60
CD-2	25
CF	50
Total Circuit Miles	345

11 would be entered into the column titled "No. of Circuits (End of Year)"
345 would be entered into the column titled "Circuit miles (End of Year)"

Calculation 2b: No. of AC Circuits and Circuit Miles that were added or removed during the reporting year [FORM 3.1]

Circuit Miles Calculations (Elements added, retired or changed during the year)				
Element Identification	Circuit Miles	Number of days from in-service date through the end of the reporting year	Equivalent Annual Element Value	Equivalent Circuit Miles
CD-2	25	205	.56	14.04
CF	50	61	.17	8.36
DM	35	154	.42	14.7
MF	60	154	.42	25.2
Totals for Elements added			1.57	62.3
Element Identification	Circuit Miles	Number of days from retirement/change date to the beginning of the reporting year	Equivalent Annual Element Value	Equivalent Circuit Miles
CE	30	91	.25	7.4
DF	75	212	.58	43.5
Total for Elements retired or changed			.83	50.9

4 would be entered into the column titled "No. of Circuits Added"
1.57 would be entered into the column titled "Equivalent Annual No. of Circuits Added [3]" (205/366) + (61/366) + (154/366) + (154/366) = 1.57 **(2008 is a leap year)**
170 would be entered into the column titled "No. of Circuit Miles for Circuits Added"
62.3 would be entered into the column titled "Equivalent Annual No. of Circuit Miles for Circuits Added [3]"

25 Miles (205/366) + 50 Miles (61/366) + 35 Miles (154/366) + 60 Miles (154/366) = 62.3
(2008 is a leap year)

2 would be entered into the column titled "No. of Circuits removed"
.83 would be entered into the column titled "Equivalent Annual No. of Circuits Removed [3]" (91/366) + (212/366) = .83 **(2008 is a leap year)**
105 would be entered into the column titled "No. of Circuit Miles for Circuits Removed"
50.9 would be entered into the column titled "Equivalent Annual No. of Circuit Miles for Circuits Removed [3]"

30 Miles (91/366) + 75 Miles (212/366) = 50.9 **(2008 is a leap year)**

Calculation 3b: Multi-Circuit Structure Miles for AC Circuits that were in-service at the end of the reporting year [FORM 3.1]

This calculation is the same as in the Base Model.

Calculation 4b: Multi-Circuit Structure Miles for AC Circuits that were added or removed during the reporting year [FORM 3.1]

This calculation is the same as in the Base Model.

Situation 3 Inventory Data, Form 3.1

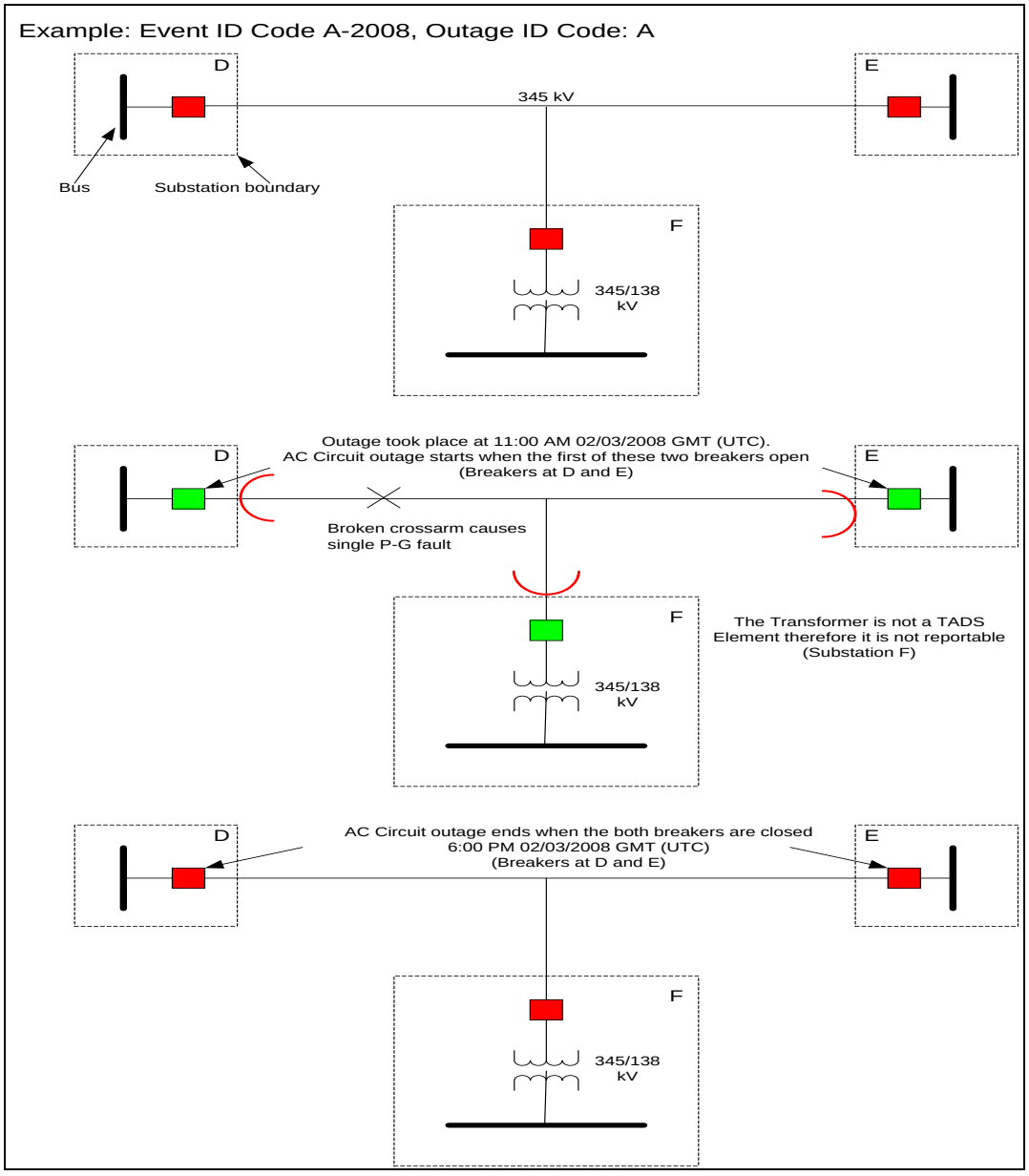
	AC and DC Circuit Inventory Data												
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
Row No.	Voltage Class [2]	No. of Circuits (End-of-Year)	Circuit Miles (End-of-Year)	No. of Circuits Added	Equivalent Annual No. of Circuits Added [3]	No. of Circuit Miles for Circuits Added	Equivalent Annual No. of Circuit Miles for Circuits Added [3]	No. of Circuits Removed	Equivalent Annual No. of Circuits Removed [3]	No. of Circuit Miles for Circuits Removed	Equivalent Annual No. of Circuit Miles for Circuits Removed [3]	CALCULATED Annual Equivalent No. of Circuits = B-D+E+I	CALCULATED Annual Equivalent No. of Circuit Miles = C-F+G+K
1	200-299 kV AC Overhead												
2	300-399 kV AC Overhead	11.0	345.0	4.0	1.6	170.0	62.3	2.0	0.8	105.0	50.9	9.4	288.2
3	400-599 kV AC Overhead												
4	600-799 kV AC Overhead												

Multi-Circuit Structure Miles data is the same as the Base Case

Appendix 9 Detailed Automatic Outage Data Examples

The following examples illustrate several AC Circuit Automatic Outages scenarios accompanied by (in most cases) a Transformer Automatic Outage scenario. Data entries for each scenario are shown in tables along with each scenario. Finally, illustrations of the applicable sections of Form 4.1, Form 4.2, and Form 5 with the appropriate data entries for all outages are shown. While not all possible situations could be covered, the examples are complete enough to help with outage interpretation.

Three-terminal AC Circuit with a non-TADS Element

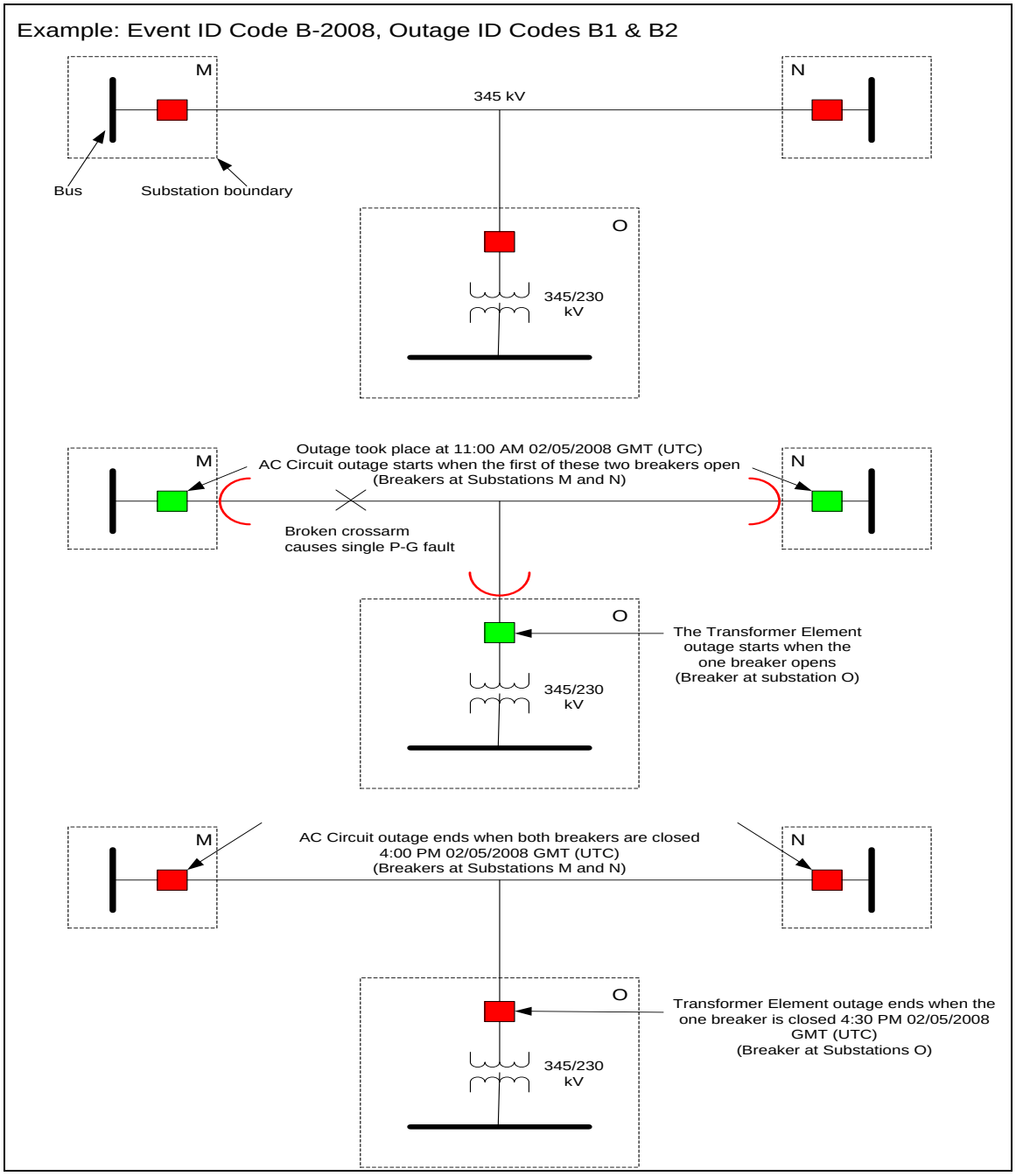


This is a three terminal AC Circuit with a non-TADS Element attached to one of the segments. The non-TADS Element is the 345/138 kV Transformer. Since the Transformer is not a TADS Element outages to the transformer are not reportable.

Outage reporting

	Form 4.1	Form 4.3
Fault type	Single P-G fault	No entries
Outage Initiation Code	Element-Initiated	No entries
Initiating Cause Code	Failed AC Equipment	No entries
Sustained Cause Code	Failed AC Equipment	No entries
Outage Mode Code	Single Mode	No entries

Three-terminal AC Circuit with a TADS Element



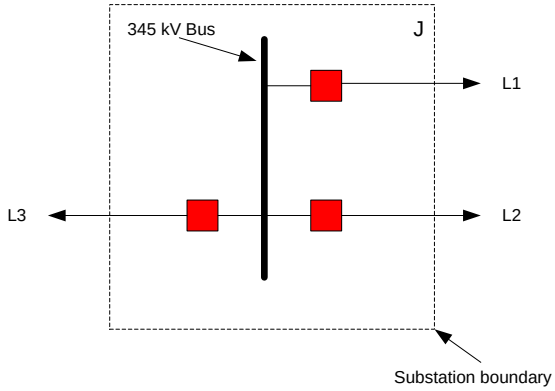
This is a three-terminal AC Circuit with a TADS Transformer attached to one of the segments. Since the Transformer is a TADS Element, its outage is reportable.

Outage reporting

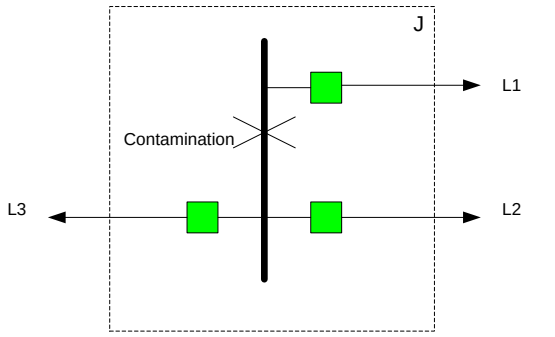
	Form 4.1	Form 4.3
Fault type	Single P-G fault	None
Outage Initiation Code	Element-Initiated	Other-Element Initiated
Initiating Cause Code	Failed AC Equipment	Failed AC Equipment
Sustained Cause Code	Failed AC Equipment	Failed AC Equipment
Outage Mode Code	Dependent Mode Initiating	Dependent Mode

Bus fault that interrupts TADS Elements

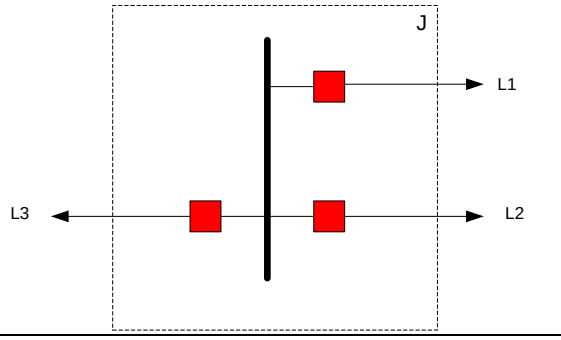
Example: Event ID Code C-2008, Outage ID Codes, C1, C2 and C3



Single P-G fault on the Bus at 6:00 PM 4/29/2008 GMT (UTC)



Individual outages are over when corresponding line breakers are placed in-service
Breakers for L1 and L2 were closed at 6:20 PM 04/29/2008 GMT (UTC)
Breaker for L3 was closed at 7:00 PM 4/29/2008 GMT (UTC)

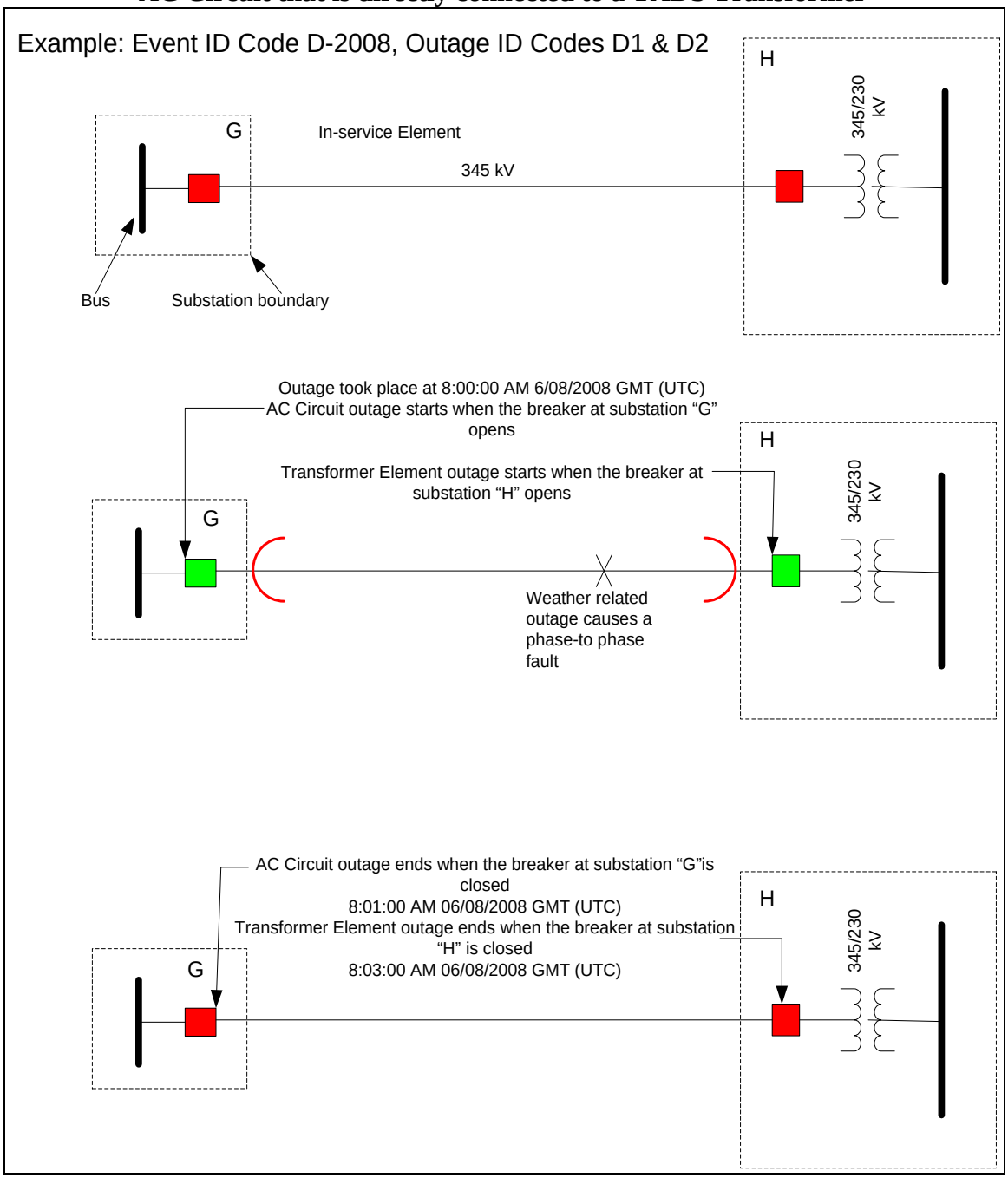


This is an outage of a 345 kV bus caused by contamination. No damage resulted, and all the AC Circuits connected to the bus are reportable.

Outage reporting

	Form 4.1	Form 4.3
Fault type	Single P-G fault	No entries
Outage Initiation Code	AC Substation-Initiated	No entries
Initiating Cause Code	Contamination	No entries
Sustained Cause Code	Contamination	No entries
Outage Mode Code	Common Mode	No entries

AC Circuit that is directly connected to a TADS Transformer



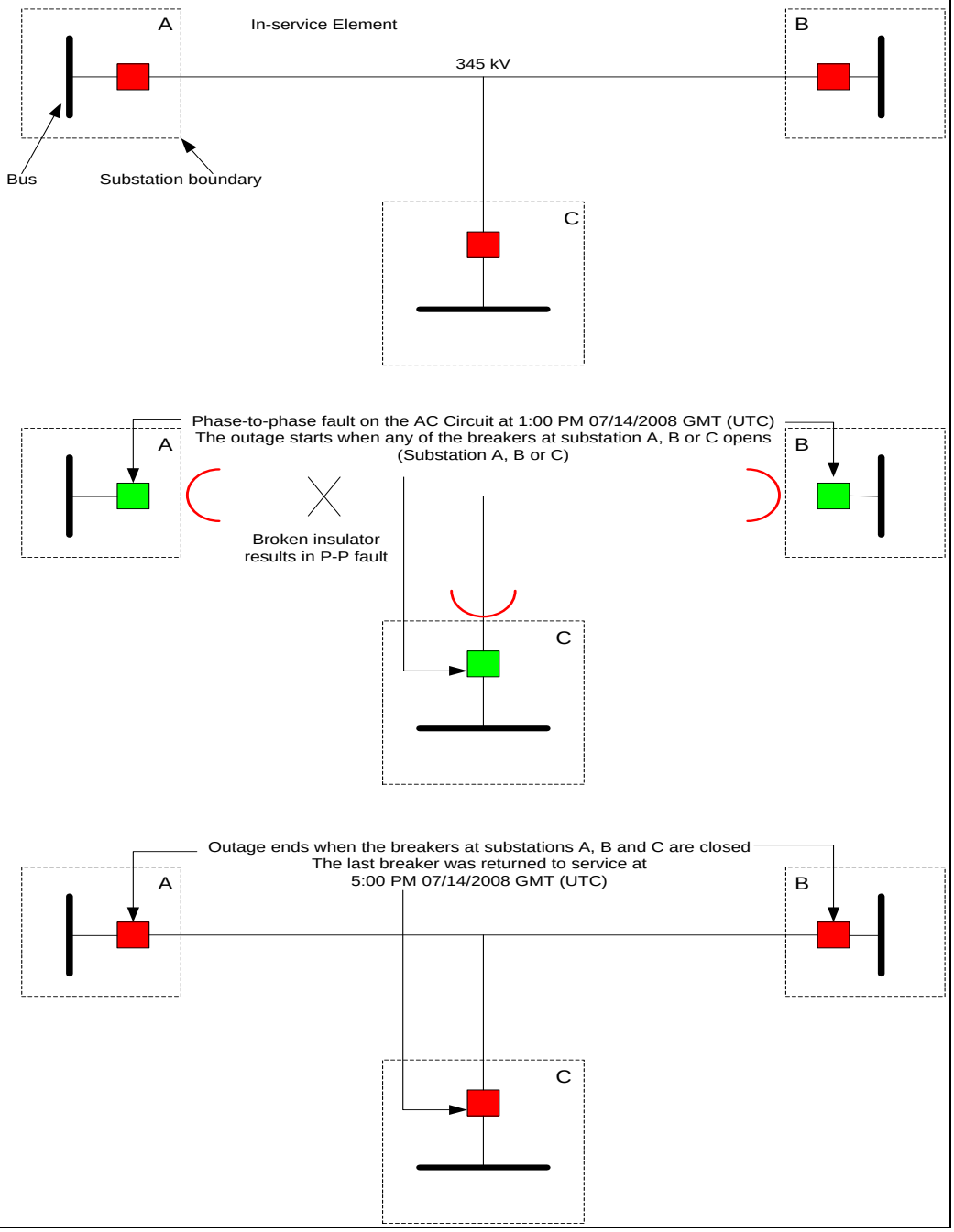
The AC Circuit is not damaged, and service is quickly restored.

Outage reporting

	Form 4.1	Form 4.3
Fault type	P-P fault	No fault
Outage Initiation Code	Element-Initiated	Other-Element Initiated
Initiating Cause Code	Weather, excluding lightning	Weather, excluding lightning
Sustained Cause Code	Weather, excluding lightning	Weather, excluding lightning
Outage Mode Code	Dependent Mode Initiating	Dependent Mode

Three-terminal AC Circuit

Example: Event ID Code E-2008, Outage ID Code E

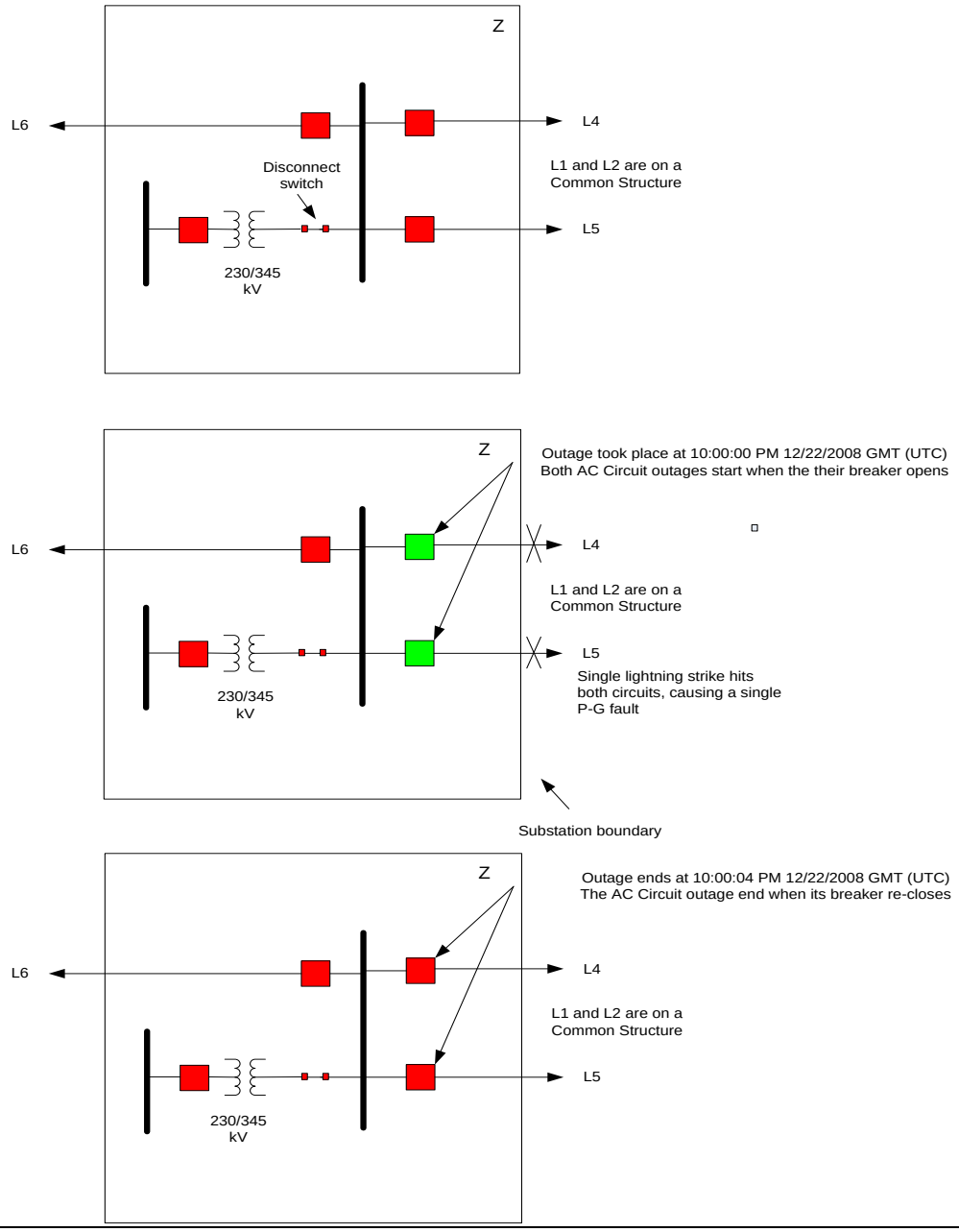


Outage reporting

	Form 4.1	Form 4.3
Fault type	P-P fault	No entries
Outage Initiation Code	Element-Initiated	No entries
Initiating Cause Code	Failed AC Circuit Equipment	No entries
Sustained Cause Code	Failed AC Circuit Equipment	No entries
Outage Mode Code	Single Mode	No entries

Common cause outage to two AC Circuits

Example: Event ID Code F-2008, Outage ID Code F1 & F2



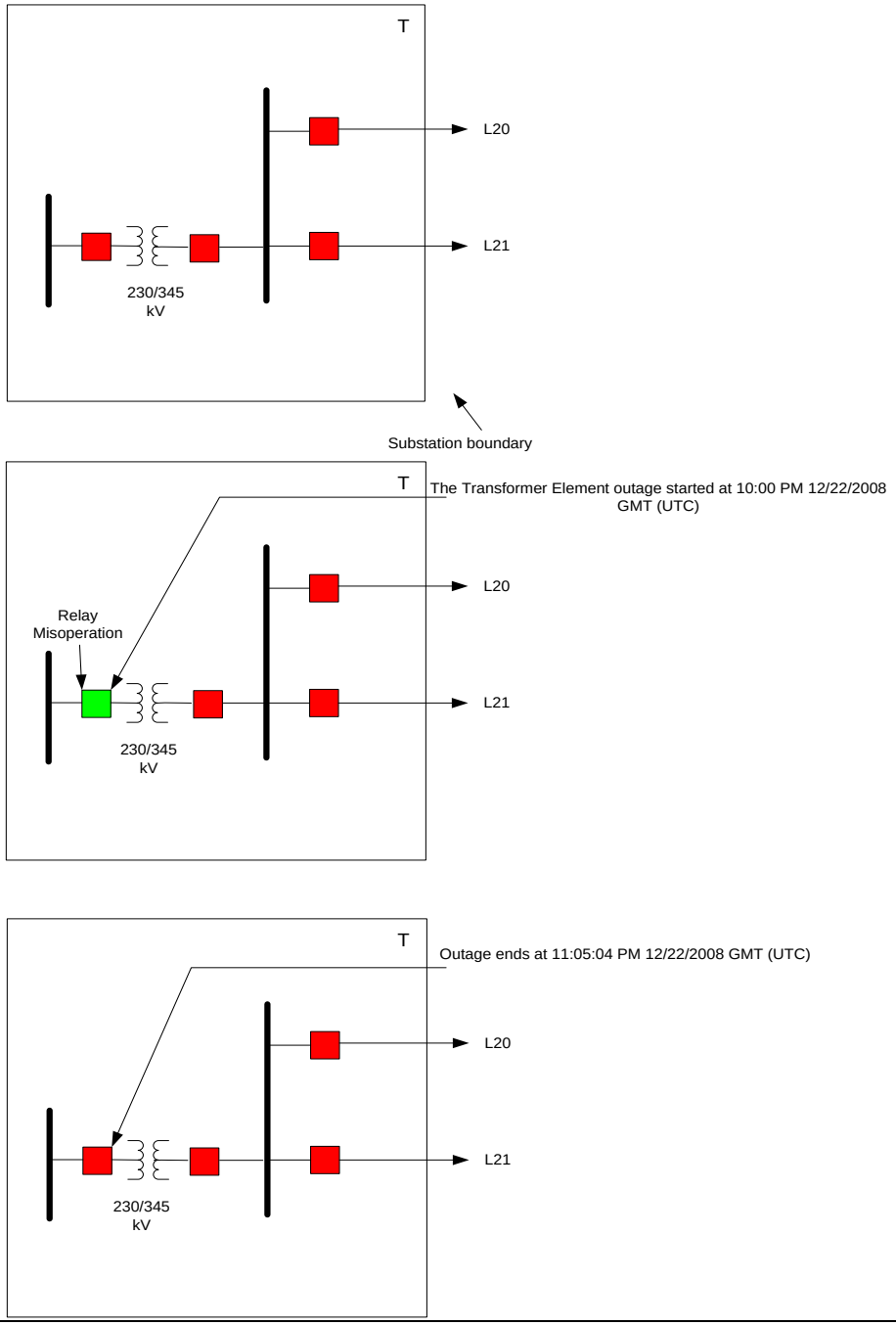
Outage reporting

	Form 4.1 (L4 & L5)	Form 4.3
Fault type	Single P-G fault	No entries
Outage Initiation Code	Element-Initiated	No entries
Initiating Cause Code	Lightning	No entries
Sustained Cause Code	NA - Momentary	No entries
Outage Mode Code	Common Mode	No entries

Note: The outages would have been characterized as a Common Mode Outage even if the AC Circuits had not been on common structures.

Transformer outage

Example: Event ID Code G-2008, Outage ID Code G



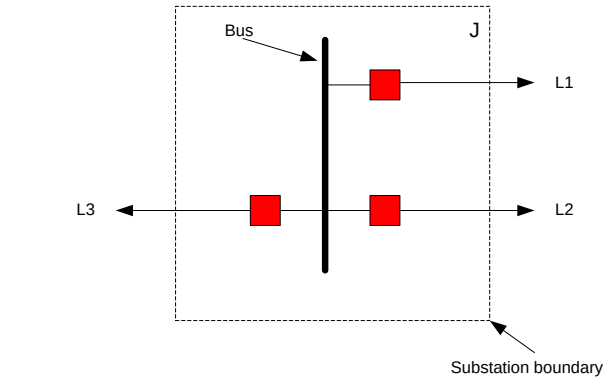
Only the Transformer was outaged because of the relay misoperation.

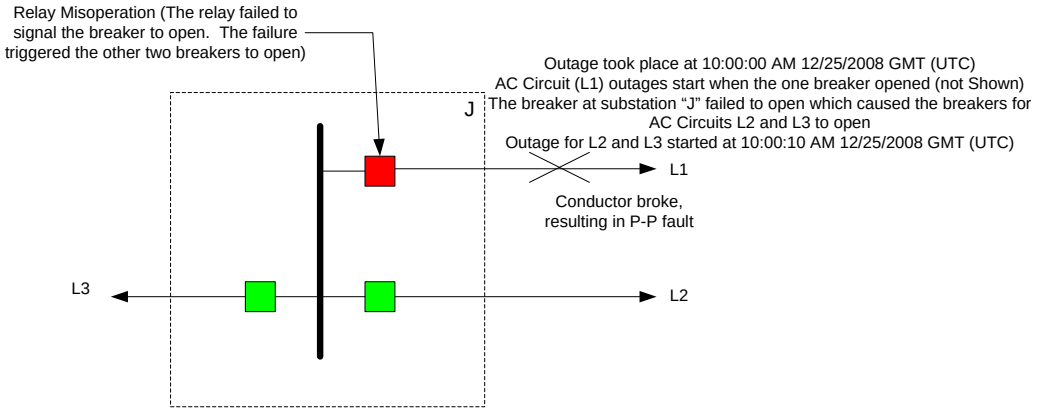
Outage reporting

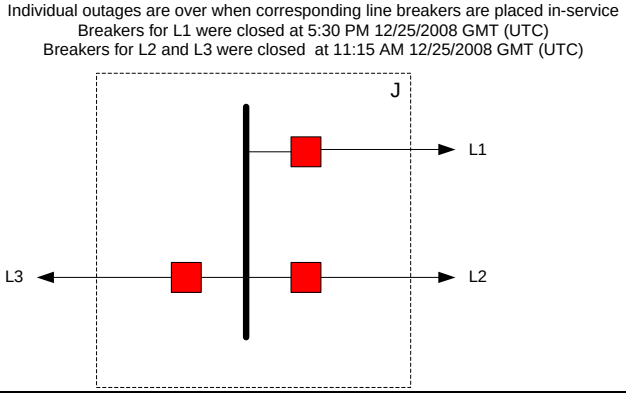
	Form 4.1	Form 4.3
Fault type	No entries	No-Fault
Outage Initiation Code	No entries	Other-Facility Initiated
Initiating Cause Code	No entries	Failed Protection System Equipment
Sustained Cause Code	No entries	Failed Protection System Equipment
Outage Mode Code	No entries	Single Mode

AC Circuit outage with a breaker failure

Example: Event ID Code H-2008, Outage ID Code H1, H2 & H3







Outage reporting

	Form 4.1 – L1	Form 4.1- (L2 & L3)
Fault type	P-P fault	No fault
Outage Initiation Code	Element-Initiated	Other Element-Initiated
Initiating Cause Code	Failed AC Circuit Equipment	Failed Protection System Equipment
Sustained Cause Code	Failed AC Circuit Equipment	Failed Protection System Equipment
Outage Mode Code	Dependent Mode Initiating	Dependent Mode

Form 4.1 AC Circuit Detailed Automatic Outage Data

AC Circuit Momentary and Sustained Outage Data

			Circuit Substation Boundaries						
(A)	(B)	(C)	(D)	(E)	(F)	(G)		(H)	(I)
Outage ID Code	Event ID Code [2]	Voltage Class	AC Substation Name #1	AC Substation Name #2	AC Substation Name #3	TO Element Identifier	(AC Circuit)	OH or UG?	AC Multi-Owner Com. Struct. Flag [3]
A	A-2008	300-399 kV	D	E	F	345-DEF		OH	0
B1	B-2008	300-399 kV	M	N	O	345-MNO		OH	0
C1	C-2008	300-399 kV	J	K		345-JK		OH	0
C2	C-2008	300-399 kV	J	Q		345-JQ		OH	0
C3	C-2008	300-399 kV	J	X		3345-JX		OH	0
D1	D-2008	300-399 kV	G	H		345-GH		OH	0
E	E-2008	300-399 kV	A	B	C	345-ABC		OH	0
F1	F-2008	300-399 kV	Z	W		345-ZW		OH	0
F2	F-2008	300-399 kV	Z	Y		345-ZY		OH	0
H1	H-2008	300-399 kV	J	K		345-JK		OH	0
H2	H-2008	300-399 kV	J	Q		345-JQ		OH	0
H3	H-2008	300-399 kV	J	X		3345-JX		OH	0

Continued…

AC Circuit Momentary and Sustained Outage Data

					Cause Codes			
(A)	(J)	(K)	(L)	(M)	(N)	(O)	(P)	(Q)
Outage ID Code	Fault Type	Outage Initiation Code	Start Time (mm/dd/yyyy hh:mm) (UTC) [4]	Outage Duration hhhh:mm [5]	Initiating Cause Code [6]	Sustained Cause Code [7]	Outage Mode	Outage Continuation Code [8]
A	Single P-G fault	Element-Initiated	2/3/2008 11:00	7:00	Failed AC Circuit Equipment	Failed AC Circuit Equipment	Single Mode	0
B1	Single P-G fault	Element-Initiated	2/5/2008 11:00	5:00	Failed AC Circuit Equipment	Failed AC Circuit Equipment	Dependent Mode Initiating	0
C1	Single P-G fault	AC Substation-Initiated	4/29/2008 18:00	0:20	Contamination	Contamination	Common Mode	0
C2	Single P-G fault	AC Substation-Initiated	4/29/2008 18:00	0:20	Contamination	Contamination	Common Mode	0
C3	Single P-G fault	AC Substation-Initiated	4/29/2008 18:00	1:00	Contamination	Contamination	Common Mode	0
D1	P-P fault	Element-Initiated	6/8/2008 8:00	0:03	Weather, excluding lightning	Weather, excluding lightning	Dependent Mode Initiating	0
E	P-P fault	Element-Initiated	7/14/2008 13:00	4:00	Failed AC Circuit Equipment	Failed AC Circuit Equipment	Single Mode	0
F1	Single P-G fault	Element-Initiated	12/22/2008 22:00	0:00	Lightning	NA- Momentary	Common Mode	0
F2	Single P-G fault	Element-Initiated	12/22/2008 22:00	0:00	Lightning	NA- Momentary	Common Mode	0
H1	P-P fault	Element-Initiated	12/25/2008 10:00	7:30	Failed AC Circuit Equipment	Failed AC Circuit Equipment	Dependent Mode Initiating	0
H2	No fault	Other Element-Initiated	12/25/2008 10:00	1:15	Failed Protection System Equipment	Failed Protection System Equipment	Dependent Mode	0
H3	No fault	Other Element-Initiated	12/25/2008 10:00	1:15	Failed Protection System Equipment	Failed Protection System Equipment	Dependent Mode	0

Form 4.3 Transformer Detailed Automatic Outage Data

Transformer Momentary and Sustained Outage Data							
(A)	(B)	(C)	(D)	(G)	(J)	(K)	(L)
Outage ID Code	Event ID Code [2]	High-Side Voltage Class	Located at (AC Sub. Name)	TO Element Identifier (Transformer)	Fault Type	Outage Initiation Code	Start Time (mm/dd/yyyy hh:mm) (UTC) [3]
B2	B-2008	300-399 kV	O	xtrm #1-O	No fault	Other Element-Initiated	2/5/2008 11:00
D2	D-2008	300-399 kV	H	xtrm #1-H	No fault	Other Element-Initiated	6/8/2008 8:00
G	G-2008	300-399 kV	T	xtrm #1-T	No fault	Other Facility-Initiated	12/22/2008 22:00

Transformer Momentary and Sustained Outage Data					
		Cause Codes			
(A)	(M)	(N)	(O)	(P)	(Q)
Outage ID Code	Outage Duration hhhh:mm [4]	Initiating Cause Code [5]	Sustained Cause Code [6]	Outage Mode	Outage Continuation Code [7]
B2	5:30	Failed AC Circuit Equipment	Failed AC Circuit Equipment	Dependent Mode	0
D2	0:03	Weather, excluding lightning	Weather, excluding lightning	Dependent Mode	0
G	1:05	Failed Protection System Equipment	Failed Protection System Equipment	Single Mode	0

Form 5 Event ID Code

Event Type No.	Table 1 Category from the TPL Standards	Description
10	B	Automatic Outage of an AC Circuit or Transformer with Normal Clearing.
20	B	Automatic Outage of a DC Circuit with Normal Clearing.
30	C	Automatic Outage of two ADJACENT AC Circuits on common structures with Normal Clearing.
40	C	Automatic Outage of two ADJACENT DC Circuits on the common structures with Normal Clearing.
50	NA	Other - please describe the event (optional)

Event ID Code Data

(A)	(B)	(C)	(D)
Event ID Code [2]	Event Type No. [3]	Description of Event ID Code [4]	Disturbance Report Filed [5]
A-2008	10		No
B-2008	50	Outage of Transmission Line and Transformer	No
C-2008	50	Bus Outage	No
D-2008	50	Outage of Transmission Line and Transformer	No
E-2008	10		No
F-2008	30		No
G-2008	10		No
H-2008	50	Fault on a Transmission Line followed by a system protection failure	No

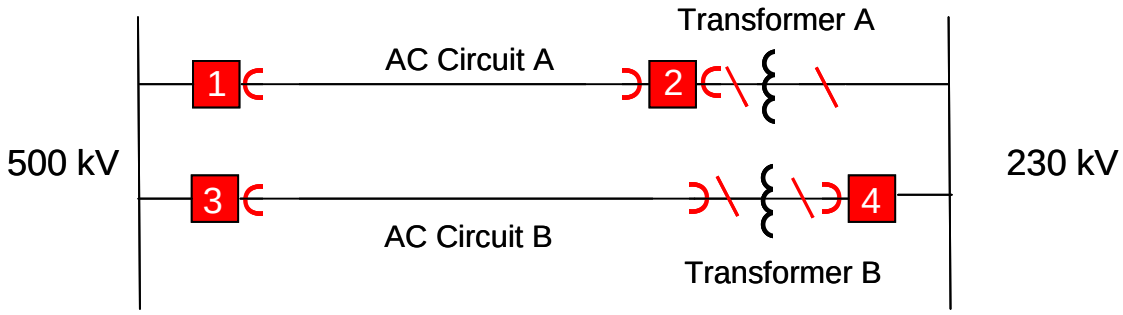
Appendix 10 Planned Outages and the 30-Minute Exclusion Examples

The definition of Planned Outage (Appendix 7, section B) states that "[Planned] Outages of TADS Elements of 30 minutes or less duration resulting from switching steps or sequences that are performed in preparation or restoration of an outage of another element are not reportable." The examples which follow illustrate the exclusion of such outages.

Example 1

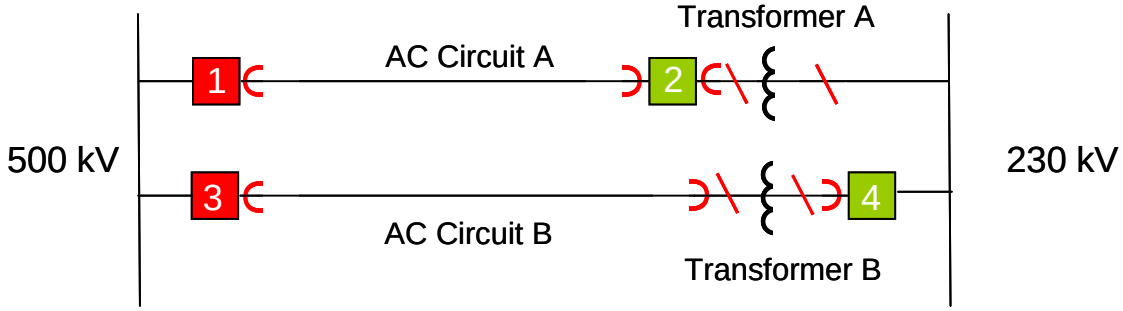
In the circuit below, the TO performs a Planned Outage for Transformer A. The circuit prior to any switching is shown in Figure 10-1

Figure 10-1
Circuit prior to any switching



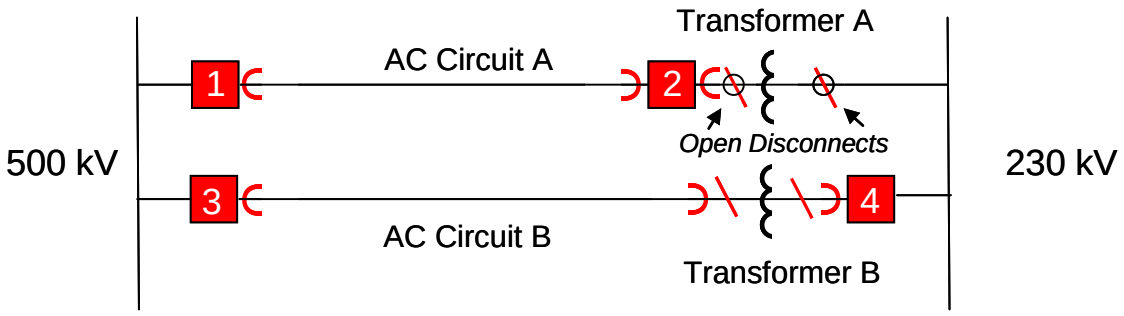
To isolate Transformer A, the TO first opens breakers 2 and 4. The opening of these breakers begins outages of three Elements: AC Circuit A, Transformer A, and Transformer B. The circuit at t=0 just after the switching is shown below in Figure 10-2. We assume the breakers are opened nearly simultaneously, so the three Element outages commence at t=0.

Figure 10-2
Circuit after switching (t=0)



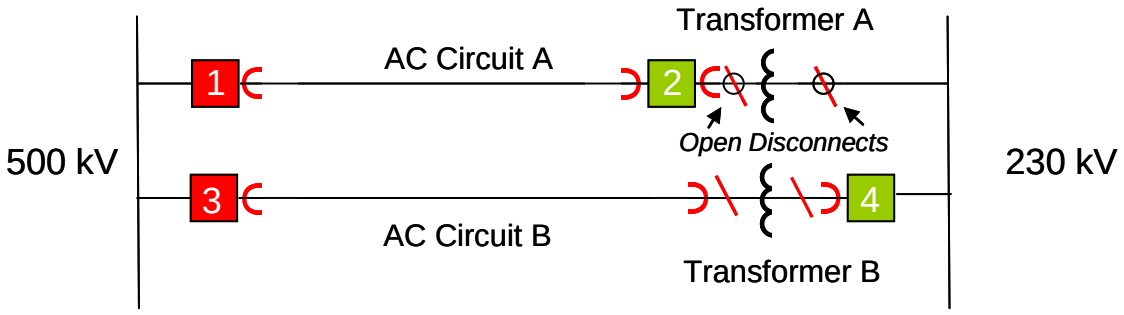
After 10 minutes, the two disconnect switches (one on the 500 kV side and the other on the 230 kV side) are opened, and breakers 2 and 4 are closed. Transformer A is still out of service, while AC Circuit A and Transformer B are back in service, having endured a Planned Outage of 10 minutes.

Figure 10-3
Circuit after switching (t=10 min.)



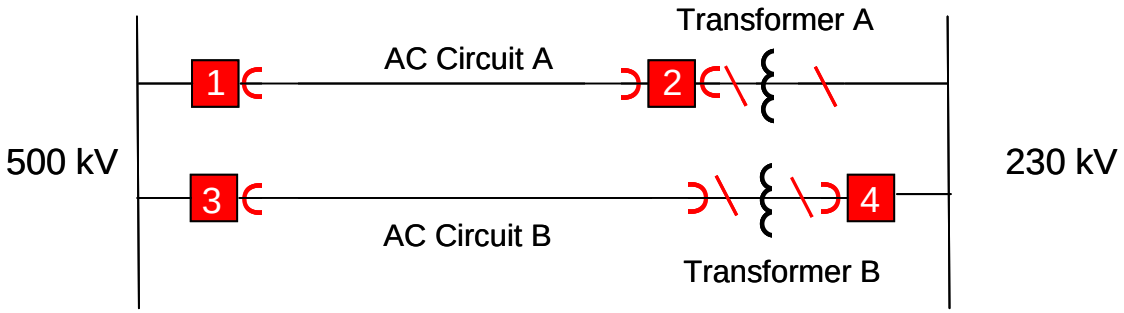
At this point, maintenance commences on Transformer A, and after two hours, Transformer A is ready to be placed back in-service. At time t = 2 hours and 10 minutes, breakers 2 and 4 are opened, and AC Circuit A and Transformer B experience another outage that commences at t= 2 hours and 10 minutes.

Figure 10-4
Circuit after switching (t=2 hr. 10 min.)



After 25 additional minutes lapse, the TO has closed the open disconnect switches and closed breakers 2 and 4. All circuit Elements are back in service. The configuration in Figure 10-5 is the same configuration of Figure 10-1.

Figure 10-5
Circuit after switching (t=2 hr. 35 min.)



The table below summarizes each Element's Outage Duration.

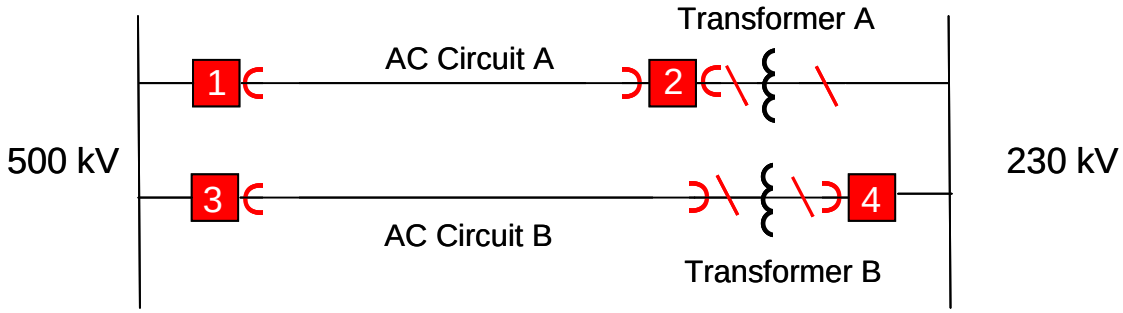
Element	Outage Start Time	Outage End Time	Outage Duration
Transformer A	t=0	t= 2 hr. 35 min	2 hr. 35 min.
AC Circuit A	t=0	t= 10 min.	10 min.
Transformer B	t=0	t= 10 min.	10 min.
AC Circuit A	t=2 hr. 10	t= 2 hr. 35 min.	25 min.
Transformer B	t=2 hr. 10	t= 2 hr. 35 min.	25 min.

Because the two outages experienced by AC Circuit A and Transformer B are each 30 minutes or less, they are not reported as part of the 30-minute exclusion.

Example 2

In the circuit below, the TO performs a Planned Outage for Transformer B. The circuit prior to any switching is shown in Figure 10-5

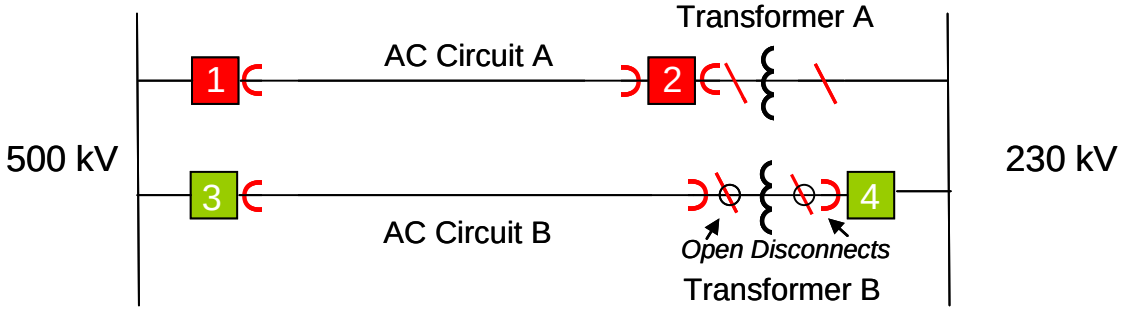
Figure 10-5
Circuit prior to any switching



To isolate Transformer B, the TO opens breakers 3 and 4. The opening of these breakers begins the outage of two Elements: AC Circuit B and Transformer B. We open the disconnect switches on Transformer B for safety in case either breaker 3 or 4 are accidently closed.

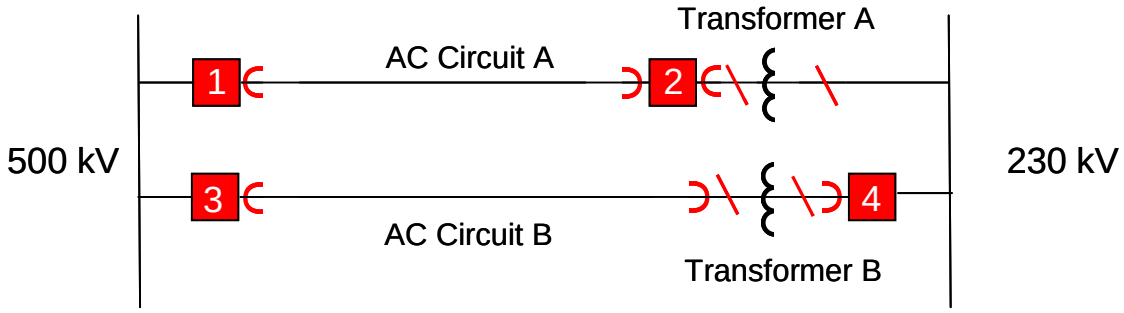
The circuit at t=0 just after the switching is shown below n Figure 10-6. We assume the breakers and disconnect switches are opened nearly simultaneously, so the two Element outages commence at t=0.

Figure 10-6
Circuit after switching (t=0)



After 3 hours and 10 minutes, the maintenance is completed and the disconnect switches are closed and breakers 3 and 4 are returned to service. The configuration in Figure 10-7 is the same configuration of Figure 10-5.

Figure 10-7
Circuit after switching (t=3 hr. 10 min.)



The table below summarizes each Element's Outage Duration.

Element	Outage Start Time	Outage End Time	Outage Duration
Transformer B	t=0	t= 3 hr. 10 min.	3 hr. 10 min.
AC Circuit B	t=0	t= 3 hr. 10 min.	3 hr. 10 min.

Because AC Circuit B was out for greater than 30 minutes, its outage is not excluded. It is assigned the same Planned Outage Cause Code as Transformer B which had the intended outage.

Example 2A – Reportable Outage which is less than 30 minutes

Assume that the Transformer B outage in Example 2 was only 25 minutes in duration instead of 3 hours and 10 minutes. The table below summarizes each Element's Outage Duration for this shorter outage time.

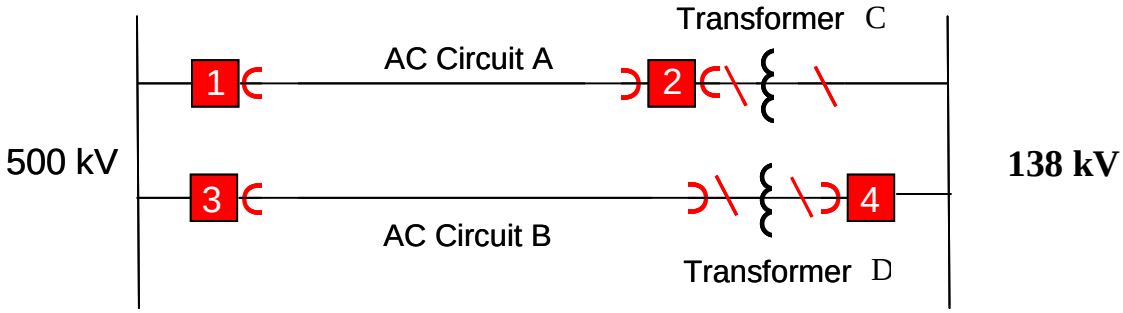
Element	Outage Start Time	Outage End Time	Outage Duration
Transformer B	t=0	t= 25 min.	25 min.
AC Circuit B	t=0	t= 25 min.	25 min.

While the outage of Transformer B is reported since it was the Element that had the Planned Outage, because AC Circuit B was out for 25 minutes, which is "30 minutes or less," its outage is excluded from reporting.

Example 3 – Reportable 345kV AC Circuit Incidental Outage during Planned 138kV Outage

A TO performs a planned outage of Transformer D (500/138 kV) and Circuit Breaker 4 below. Transformer D maintenance inspection is completed in 31 minutes, however, Circuit Breaker 4 remains out of service for 8 hrs to modify its relay and control circuits. The circuits prior to any switching are shown in Figure 10-8

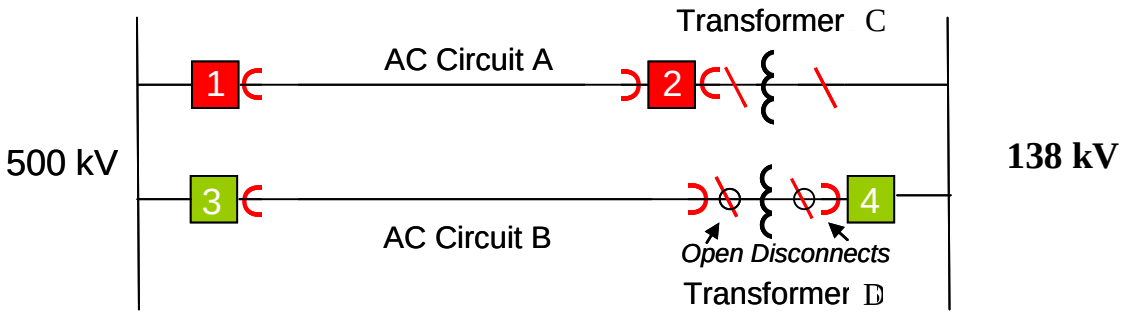
Figure 10-8
Circuit prior to any switching



To isolate Transformer D, the TO opens breakers 3 and 4. The opening of these breakers begin an incidental outage of one TADS Element, the 500 kV AC Circuit B. The planned outage of 500/138 kV Transformer D, and 138 kV Circuit Breaker 4 are now underway. Both disconnect switches on Transformer D are opened for safety (Figure 10-9).

The circuit at t=0 just after the switching is shown below. The Transformer D planned outage and AC Circuit B incidental outage both start at t=0.

Figure 10-9
Circuit after switching (t=0)



After 31 minutes, the maintenance inspection of Transform D is completed. The high side 500 kV disconnect switch of Transformer D is closed and 500 kV Circuit Breaker 3 is closed. Transformer D is now energized but Circuit Breaker 4 remains open to complete its control system modifications. AC Circuit B has returned to an In-Service state. Transformer D is not In-Service and its outage continues. Transformer D remains in an out of service state for 8 hours until 138 kV Circuit Breaker 4 is returned to service.

The table below summarizes each outage duration.

Circuit	Start Time	Outage End Time	Outage Duration
500 kV AC Circuit B	t=0	t= 31 min.	31 min.
Transformer D (500/138 kV)	t=0	HS t=31 min. LS t= 8 hrs.	8 hrs.
138 kV Circuit Breaker 4	t=0	t= 8 hrs.	8 hrs.

Even though 500 kV AC Circuit B was an incidental outage, since its outage duration was more than 30 minutes, that Element Outage is reportable as a planned Non-Automatic outage. Since the low side of Transformer D is less than 200 kV, this transformer is not a TADS reportable Element. Therefore, for the planned outage of these 138 kV facilities, ***only*** AC Circuit B is reportable in TADS. This incidental AC Circuit outage should be assigned a Planned Outage Cause Code for the Transformer D maintenance inspection which had the intended outage. Only one outage would be reported in TADS -- the 500 kV AC Circuit incidental outage.

Example 3A – Non-Reportable Outage which is 30 minutes or less
If Circuit Breaker 3 and the high side disconnect of Transformer D had been closed in 30 minutes or less, the incidental AC Circuit B outage would ***not*** be reportable in TADS. In that case ***none*** of the outages would be reportable in TADS.