

**TADS Data Reporting Instruction Manual**  
**DRAFT Section 5 and Associated Appendices**  
**With Proposed Event Type Numbers**

Rev. 5/10/2010

## 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 Outage(s) of one or more Elements. The table below describes the data to be 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. The Event ID Code must be appended with the reporting year (e.g., WXY-2008).
B	<p>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.</p> <ul style="list-style-type: none"> <li>• Note that if Event Type No. 11 is selected, the Outage Mode on Forms 4.1, 4.2, or 4.3 (column P) must be "Single Mode Outage."</li> </ul> <p>Table 5.1 below shows the possible Event Type Numbers. See Appendix 7, Section B for the definitions of Normal Clearing, NCCBS, Abnormal Clearing, Delayed Fault Clearing, SPS or RAS, and Event Type Number. A consistent set of definitions is necessary to determine the Event Type Number to be entered in Column B.</p>
C	<u>Optional input:</u> 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	<p>This field indicates whether a disturbance report was filed that was associated with the Event, with the choices 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 <a href="http://www.nerc.com/page.php?cid=5166">http://www.nerc.com/page.php?cid=5166</a>.</p> <p>For example, a TO will know which region its facilities reside (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 TO should answer "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 should answer "Yes." If it cannot be determined accurately from the Event Description, then the TO should answer "Don't know." Every "Don't know" answer is followed up by the Regional Entity coordinators.</p>

**Table 5.1-1**

<b>Events with Normal Clearing</b>	
<b>Event Type No.</b>	<b>Description</b>
05	Single bus section fault or failure (200kV or above) resulting in one or more Automatic Outages.
06	Single internal circuit breaker fault (200kV or above) resulting in one or more Automatic Outages.
11	Automatic Outage of a single Element.
13	Automatic Outage of two or more Elements within one Normal Clearing Circuit Breaker Set (NCCBS).
31	Automatic Outages of two or more TADS adjacent AC Circuits or DC Circuits on common structures. To qualify as Event Type Number 31 the Automatic Outages must be the direct result of the circuits occupying common structures.
49	Automatic Outage(s) with Normal Clearing not covered by Event Type Numbers 05 through 31 above.

All of the above Event Type Numbers 05 to 49 are Events with Normal Clearing. For further explanations and examples regarding the determination of the proper Event Type Numbers, see Appendix 7 Section B definitions for Normal Clearing, NCCBS, Abnormal Clearing, Delayed Fault Clearing, SPS or RAS, and Event Type Number. These Event Type Numbers apply only when the Automatic Outages are the result of Protection Systems and controls disconnecting the elements that are expected to be automatically disconnected for a single event. In contrast, the term Abnormal Clearing is for an Event when Normal Clearing did not occur.

Non-TADS Element outages:

Please note Event Type Number 11 (Automatic Outage of a single Element) is intended to include a single Automatic Outage resulting from one or more non-TADS Element outages. This type of Event should not be entered as Event Type Number 49 other Normal Clearing. If the Element outage results from one or more non-TADS Element outages, the Outage Initiation Code (Form 4) should be entered as “Dependant Mode”. During annual report preparation to provide further analysis, Event Type Number 11 outages may be parsed and summarized by the Outage Mode Codes of “Single Mode” and “Dependant Mode”.

Event Type Number 13 versus Event Type Number 11:

Event Type Number 13 is similar to Event Type Number 11 except a total of two or more Element outages occur within one NCCBS. By keeping type 13 separate from type 11 more statistical granularity can be maintained in the annual report. Also, in a similar fashion to the previous paragraph, if two or more Automatic Outages occur (within one NCCBS) resulting from one or more non-TADS Element outages, the Event Type Number 13 should be entered and the Outage Initiation Code (Form 4) should be entered as “Dependant Mode” on each Automatic Outage. If two or more Automatic Outages occur outside the one NCCBS, do not enter Event Type Number 13. See the Event Analysis Guideline below.

Table 5.1-2

<b>Events with <u>Abnormal Clearing</u></b>	
<b>Event Type No.</b>	<b>Description</b>
60	<b>Breaker Failure:</b> One or more Automatic Outages with Delayed Fault Clearing due to a circuit breaker (200kV and above) being stuck, slow to open or failure to interrupt current.
61	<b>Dependability (failure to operate):</b> One or more Automatic Outages with Delayed Fault Clearing due to failure of a single Protection System (primary or secondary backup) under either of these conditions: <ul style="list-style-type: none"> <li>a. failure to initiate the isolation of a faulted power system Element as designed, or within its designed operating time, or</li> <li>b. In the absence of a fault, failure to operate as intended within its designed operating time. (Item b is a very rare type of event.)</li> </ul>
62	<b>Security (unintended operation):</b> One or more Automatic Outages caused by improper operation (e.g. overtrip) of a Protection System resulting in isolating one or more TADS Elements it is not intended to isolate, either during a fault or in the absence of a fault.
90	Automatic Outage(s) with Abnormal Clearing not covered by Event Types 60 through 62 above.

All of the above Event Type Numbers 60 to 90 are Events with Abnormal Clearing. For further explanations and examples regarding the determination of the proper Event Type Numbers, see Appendix 7 Section B definitions for Normal Clearing, NCCBS, Abnormal Clearing, Delayed Fault Clearing, SPS or RAS, and Event Type Number.

#### Event Description:

An optional event description may be entered on Form 5 in the Description column. In general for Event Type Numbers 05 to 31 (Normal Clearing), and Event Types 60 to 62 (Abnormal Clearing) a description is not needed but may be entered. However, for Event Type Number 49 (other Normal Clearing) or 90 (other Abnormal Clearing), entering a description of the Event would be helpful. Such a description is not mandatory but would provide further clarification of these Events.

#### Historical Event Type Number Cross-reference

The following table shows the previous Event Type numbers and how they map to the new Event Type numbers.

<b>Previous Event Type Numbers (2008 – 2011)</b>	<b>New Event Type Numbers (starting 1/1/2012)</b>
10	11
20	11
30	31
40	31
50	<b>Separated into 2 categories: Normal Clearing – 05, 06, 13, 49; Abnormal Clearing - 60, 61, 62 and 90</b>

### **Event Analysis Guideline:**

When using the revised Event Type Numbers, to reduce the amount of analysis labor required to determine the Event Type code numbers, the following step by step process contains a sample of logical questions and answers to quickly determine the appropriate Event Type Number to be entered on Form 5. Several examples are included in this Instruction Manual with both the given Automatic Outage (Form 4.x) attributes and after using the Steps below, the appropriate determination of Event Type (Form 5). Data entries for each scenario are shown in tables along with each scenario. While not all possible situations could be covered, the examples are complete enough to illustrate Event Type determination.

The process below assumes that all Automatic Outage information required for completion of Form 4.x have already been collected and are available to the user. The user should be familiar with the TADS definitions in Appendix 7 for Normal Clearing, NCCBS, Abnormal Clearing, Delayed Fault Clearing, SPS or RAS, Event, Event ID Code, and Event Type Number. Form 4.x data and associated event analysis is necessary for the determination of the Event Type number to be entered on Form 5. Event Type analysis should not begin until a complete set of Automatic Outages associated with each Event is ready for entry on Form 4.x including their associated event identification (Event ID) code.

The analysis Steps below are intended to reduce the labor resources to complete the determination of Event Type for entry on Form 5. The Steps below will not reduce the labor needed to determine the Form 4 data to be entered for each Automatic Outage. This is a guideline and exceptions can be made as deemed necessary to determine the appropriate Event Type. It is anticipated that the overwhelming majority of Automatic Outages ( 2 of every 3 outages) will be a simple Normal Clearing of a single Element Automatic Outage which did not result from a bus outage or internal circuit breaker fault. For such cases, no additional resources will be necessary to determine the Event Type. Only Steps N1 and N3.1 below will be needed to determine the Event Type Number.

### **Event Type Number Determination:**

Begin at Step N1 with a set of one or more Automatic Outages entered on Form 4.x that has a unique Event ID Code. Follow the process until an Event Type Number for each Event is determined.

#### **Step N1 - Normal Clearing determination:**

Did Normal Clearing occur? (Refer to examples below.)

- Yes – Proceed with Step N2) Normal Clearing below.
- No – Proceed with Step A1) Abnormal Clearing on the next page.

Example of an Event with Normal Clearing:

A 230kV AC Circuit is also tapped by a 230/69kV transformer which has a low side 69kV circuit breaker (but does not have a high side 230kV circuit breaker). In such a case the Normal Clearing

Circuit Breaker Set (NCCBS), as defined in Section B item 16, for this 230kV TADS Element includes the transformer 69kV circuit breaker which is expected to operate as part of the expected Normal Clearing.

Example of an Event with Abnormal Clearing:

For a given Event ID and its associated Automatic Outages, an Event which results from one or more unintended 200kV or above circuit breaker operations or unintended delayed clearing should be coded as Abnormal Clearing. Abnormal Clearing, per Section B definition, is the outage of a TADS Element that does not conform with Normal Clearing. For example, any 200kV or above unintended circuit breaker operations which occur beyond the Normal Clearing Circuit Breaker Set (NCCBS) and results in a total of two or more Automatic Outages should be categorized as Abnormal Clearing. In addition, Delayed Fault Clearing of any one Automatic Outage is also categorized as Abnormal Clearing.

Example of an Event with Normal Clearing beyond the NCCBS:

As intended, Special Protection System (SPS) or Remedial Action Scheme (RAS) may normally trip additional 200kV or above circuit breakers beyond the NCCBS. For a given Event ID and its associated Automatic Outages, an Event which results from one or more expected SPS or RAS normal operations should be coded as Normal Clearing.

### **Step N2 - Screen for Event Type Numbers 05 and 06**

- If one or more Automatic Outages were the result of a Bus Section fault or failure, enter Event Type Number 05.
- If one or more Automatic Outages were the result of a single internal circuit breaker fault, enter Event Type Number 06.

If not Event Type Number 05 or 06, then proceed with Step N3 below.

### **Step N3 – Screen for Event Type Numbers 11 and 13**

Note: for a given Event ID code, each Automatic Outage on Form 4.x has one of the following Outage Mode Codes.

- Single Mode Outage
  - Dependent Mode Initiating Outage
  - Dependent Mode Outage
  - Common Mode Outage
  - Common Mode Initiating Outage
- N3.1) If the Outage Mode Code was “Single Mode Outage”, enter Event Type Number 11.
  - N3.2) For an Event ID with a total of two or more Automatic Outages that occur within one Normal Clearing Circuit Breaker Set (NCCBS), enter Event Type Number 13. The Outage Mode Codes on Form 4.x should be “Dependent Mode Initiating Outage” or “Dependent Mode Outage”.

If not Event Type Number 11 or 13, then proceed with Step N4 below.

### **Step N4 – Screen for Event Type Number 31**

- If two or more Automatic Outages of TADS adjacent AC Circuits or DC Circuits were the direct result of the Elements occupying common structures, enter Event Type Number 31.

If not Event Type Number 31 then proceed with Step N5 below.

### **Step N5 – Screen for Event Type Number 49 – Other Normal Clearing**

- If the Event included other Normal Clearing not covered by Event Type Number 05 to 31, enter Event Type Number 49.

Examples of an Event Type Number 49:

Event Type #49 includes, but is not limited to, Normal Clearing of two or more Normal Clearing Circuit Breaker Sets (NCCBS). For example an airplane crash causes Automatic Outages of two AC Circuits on a common right-of-way. Both circuits trip as expected with Normal Clearing. Event Type #49 should be used for such an event.

Event Type #49 also includes additional Automatic Outages with Normal Clearing which are initiated by Special Protection Systems (SPS), Remedial Action Schemes (RAS), Under Voltage Load Shedding (UVLS), Under Frequency Load Shedding (UFLS), etc.

### **Step A1 - Abnormal Clearing:**

Did Abnormal Clearing occur? (Refer to examples in Step N1.)

- Yes – Proceed with Step A2.
- No – Return to Step N1.

### **Step A2 – Screen for Event Type Number 60; Breaker Failure**

- Among the relay targets associated with this Event, did a Breaker Failure (BF) time-delayed relay target occur on one or more 200kV and above circuit breakers? Did this time-delayed relay operate as intended? If the answer to both of these questions is yes, enter Event Type Number 60. If one or more Automatic Outages experienced Delayed Clearing due to one or more 200kV and above circuit Breaker Failures (BF), enter Event Type Number 60. If the BF relay scheme did not operate as intended, go to Step A3 below.

Such delayed clearing examples include, but are not limited to, a circuit breaker being stuck, or slow to open, or failure to interrupt current. Such failures usually cause a circuit BF time-delayed relay to operate. Therefore, a BF relay target also occurs.

If not Event Type Number 60, then proceed with Step A3 below.

**Step A3 – Screen for Event Type numbers 61 and 62; Dependability or Security failures**

- Dependability (failure to operate): If one or more Automatic Outages experienced delayed clearing due to a Dependability failure to operate, enter Event Type Number 61.

A Dependability failure includes, but is not limited to, a failure of the Protection System (primary or secondary/backup scheme) to;

- initiate the isolation of a faulted power system Element, or
- failure to operate within its designed operating time, or
- failure to operate as intended for non-fault conditions within its designed operating time.

- Security (false or undesirable operations): If one or more Automatic Outages are caused by a Security failure, enter Event Type Number 62.

A Security failure includes improper operation of a Protection System (or its controls);

- in absence of a fault on the power system TADS Element, or
- during a fault it is not designed to protect.

If not Event Type Number 60, 61 or 62 then proceed with Step A4 below.

**Step A4 – Screen for Event Type Number 90; Other Abnormal Clearing**

- If the Event included other Abnormal Clearing not covered by Event Type Number 60, 61 or 62, enter Event Type Number 90.

Example of an Event Type Number 90:

Event Type Number 90 includes, but is not limited to, additional Automatic Outages with Abnormal Clearing which are initiated by Special Protection Systems (SPS), Remedial Action Schemes (RAS), Under Voltage Load Shedding (UVLS), Under Frequency Load Shedding (UFLS), etc. It also includes Abnormal Clearing of multiple faults or failures which are not covered by Event Type Number 60 to 62.

For additional examples for determining the Event Type Number for Normal Clearing and Abnormal Clearing Events, see Appendix 9 – Detailed Automatic Outage Data examples.

### 4.1. AC Circuit Detailed Automatic Outage Data

Form 4.1 AC Circuit Outages										CONFIDENTIAL INFORMATION	
<b>Notes:</b>											
[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.											
<b>AC Circuit Momentary and Sustained Outage Data</b>											
<b>Circuit Substation Boundaries</b>											
(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							
(J)	(K)	(L)	(M)	Cause Codes		(P)	(O)
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]

# Form for Event ID Code and Event Type Number Data

## 5. Event ID Code and Event Type Number Data

**CONFIDENTIAL  
INFORMATION**

### Form 5 Event ID Code and Event Type Number Data

**Notes:**

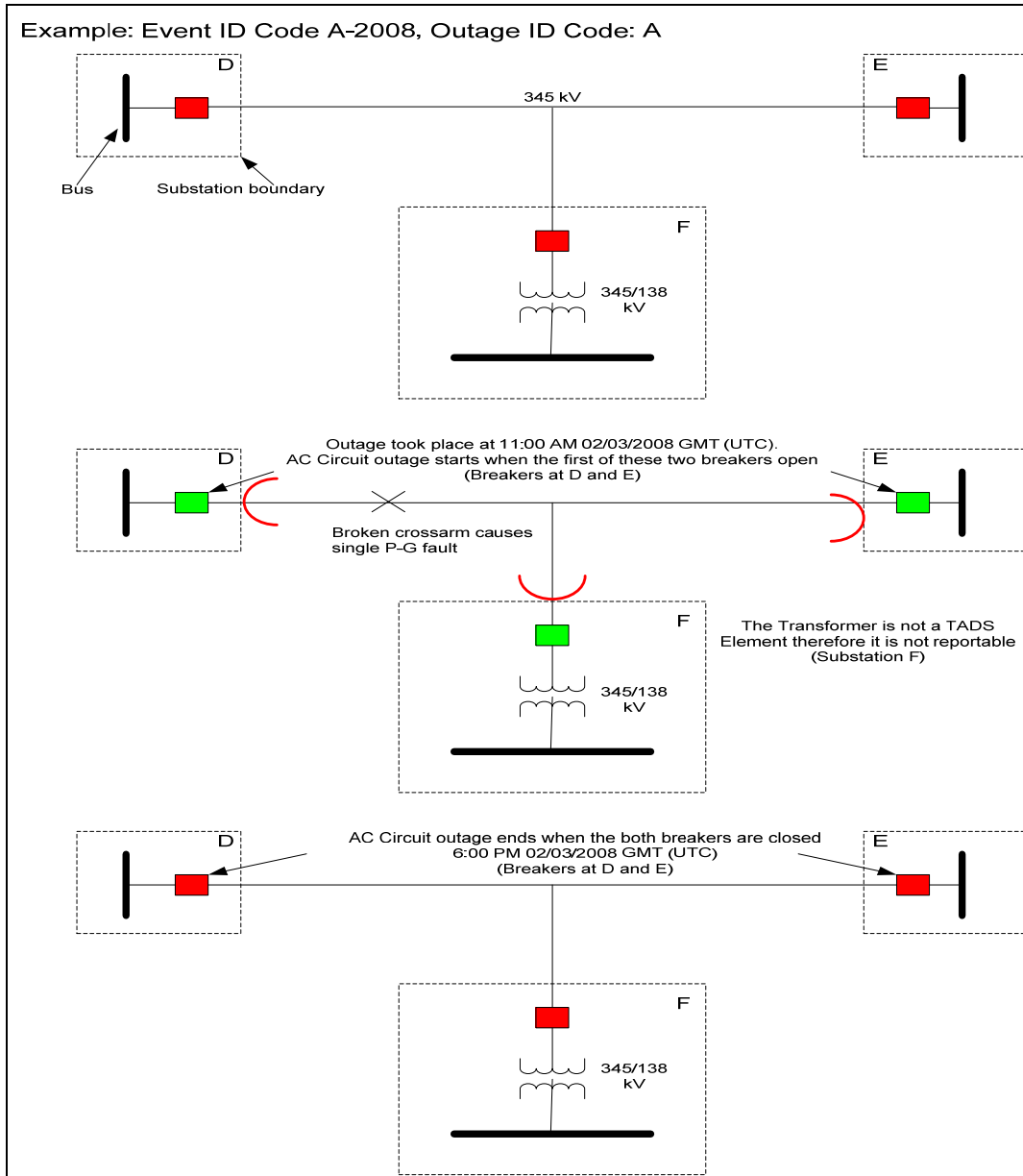
- [1] If a TO owns or reports on Elements in a different NERC Region or in a different country, provide data for each Region and country in a separate workbook.
- [2] The Event ID Code must be appended by the reporting year no. (e.g., 2009).
- [3] See the Table above for Event Type No. Note that if Event Type No. 11 is selected, the Outage Mode on column P on Forms 4.1, 4.2, or 4.3 must be "Single Mode Outage."
- [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>.

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

## 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

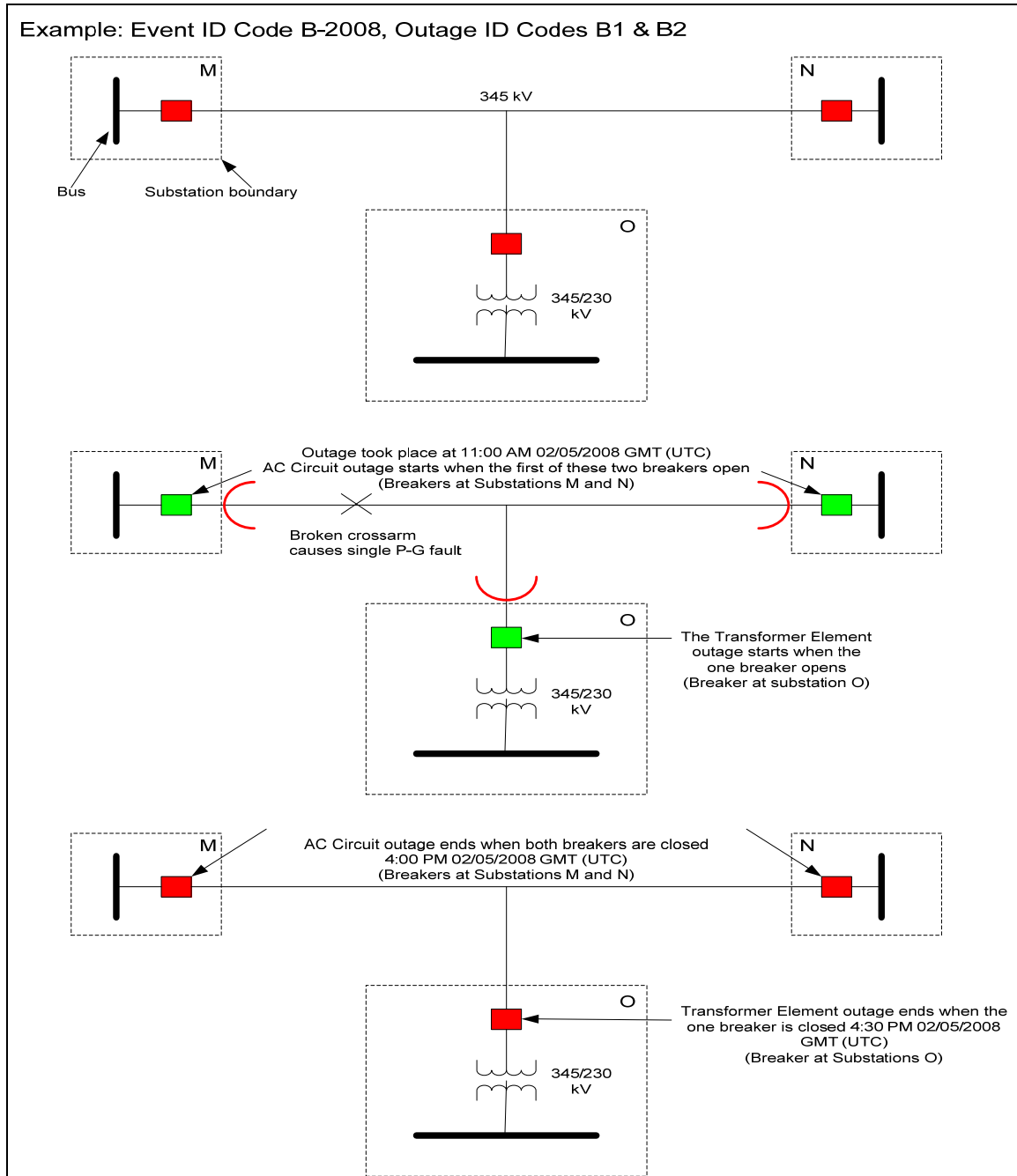


This is a three terminal AC Circuit with a non-TADS Element attached to one of the segments. The non-TADS Element is the 345/138 kV Transformer. Since the Transformer is not a TADS Element outages to the transformer are not reportable.

#### Outage reporting

	Form 4.1	Form 4.3	Form 5	
Fault type	Single P-G fault	No entries	Event Type Number	11
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		

### Three-terminal AC Circuit with a TADS Element



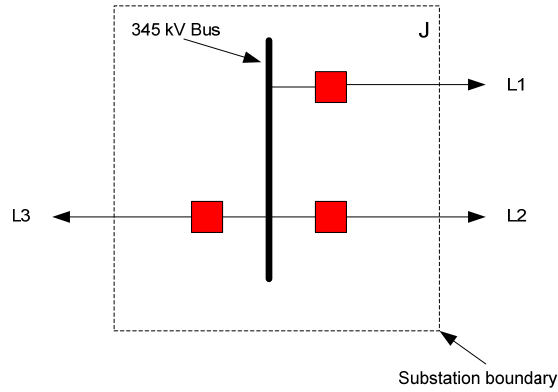
This is a three-terminal AC Circuit with a TADS Transformer attached to one of the segments. Since the Transformer is a TADS Element, its outage is reportable. See Outage reporting table below:

**Outage reporting**

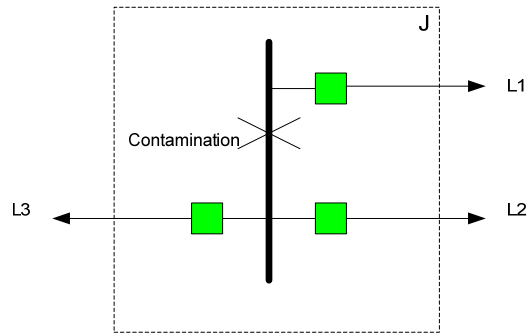
	<b>Form 4.1</b>	<b>Form 4.3</b>	<b>Form 5</b>	
Fault type	Single P-G fault	None	Event Type Number	13
Outage Initiation Code	Element-Initiated	Other-Element Initiated		
Initiating Cause Code	Failed AC Circuit Equipment	Failed AC Circuit Equipment		
Sustained Cause Code	Failed AC Circuit Equipment	Failed AC Circuit Equipment		
Outage Mode Code	Dependent Mode Initiating	Dependent Mode		

### Bus fault that interrupts TADS Elements

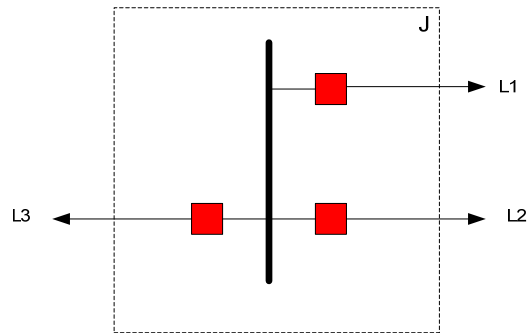
Example: Event ID Code C-2008, Outage ID Codes, C1, C2 and C3



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)

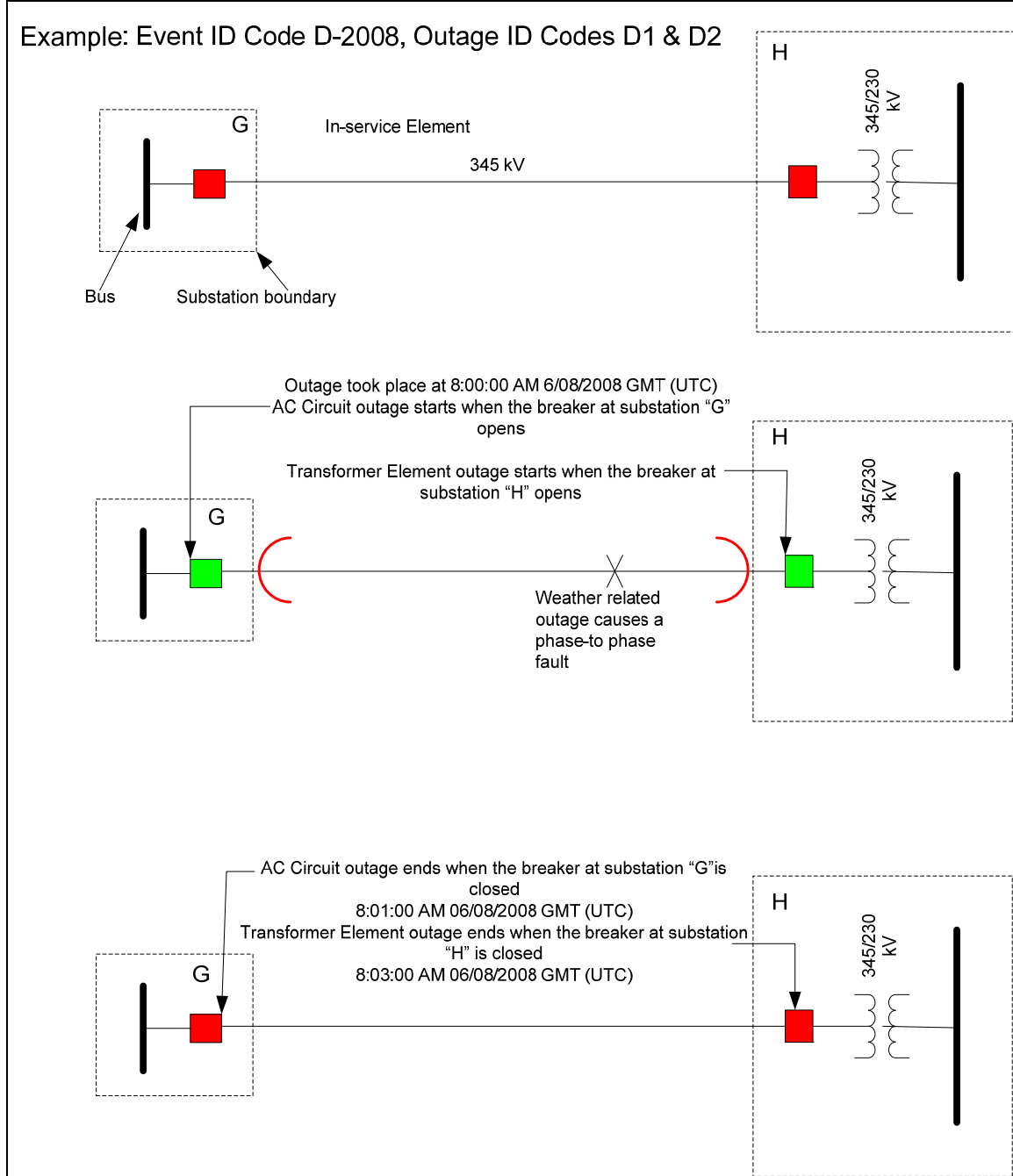


This is an outage of a 345 kV bus caused by contamination. No damage resulted, and all the AC Circuits connected to the bus are reportable. See Outage reporting table below:

**Outage reporting**

	<b>Form 4.1</b>	<b>Form 4.3</b>	<b>Form 5</b>	
Fault type	Single P-G fault	No entries	Event Type Number	05
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**

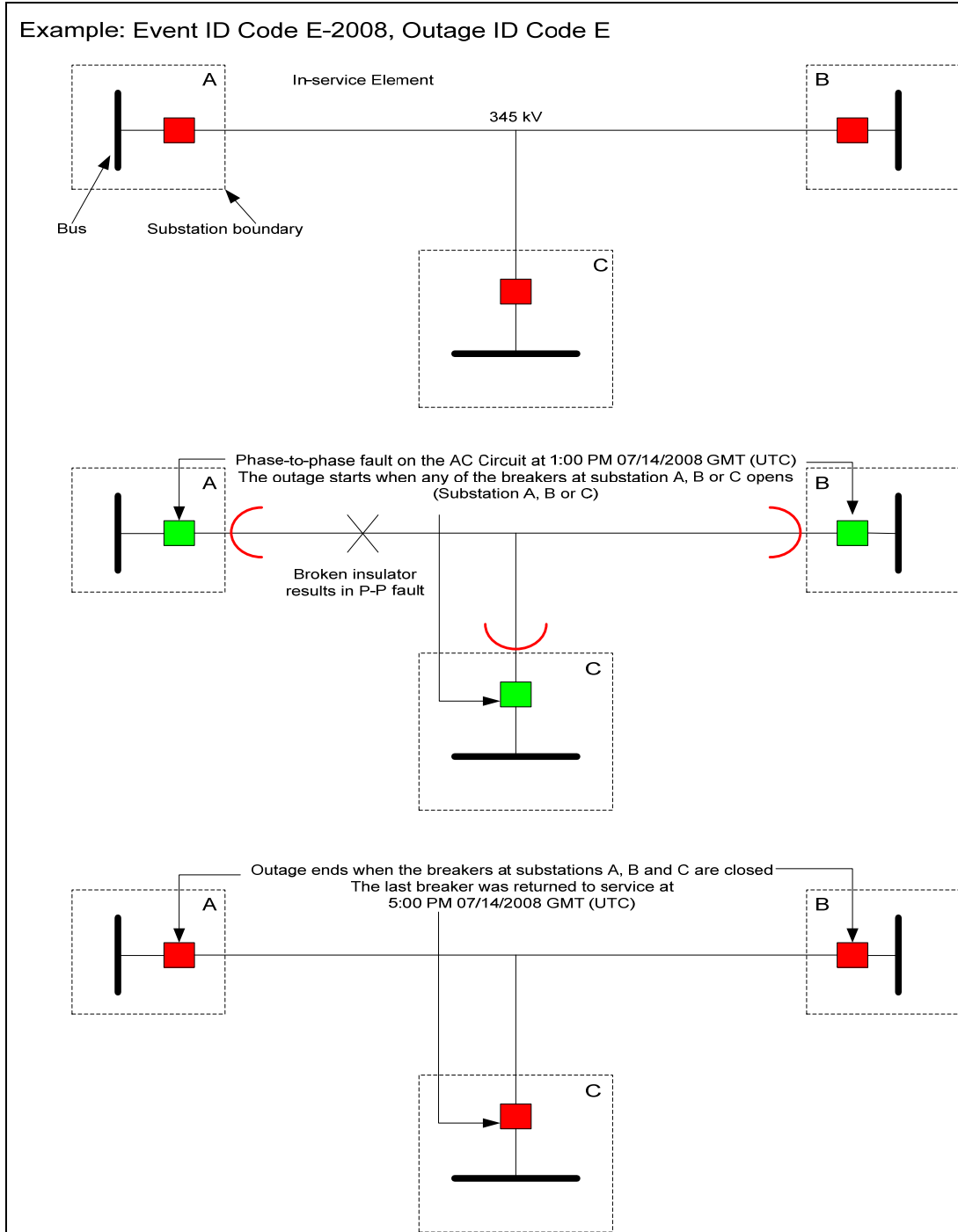


The AC Circuit is not damaged, and service is quickly restored. See Outage reporting table below:

**Outage reporting**

	<b>Form 4.1</b>	<b>Form 4.3</b>	<b>Form 5</b>	
Fault type	P-P fault	No fault	Event Type Number	13
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

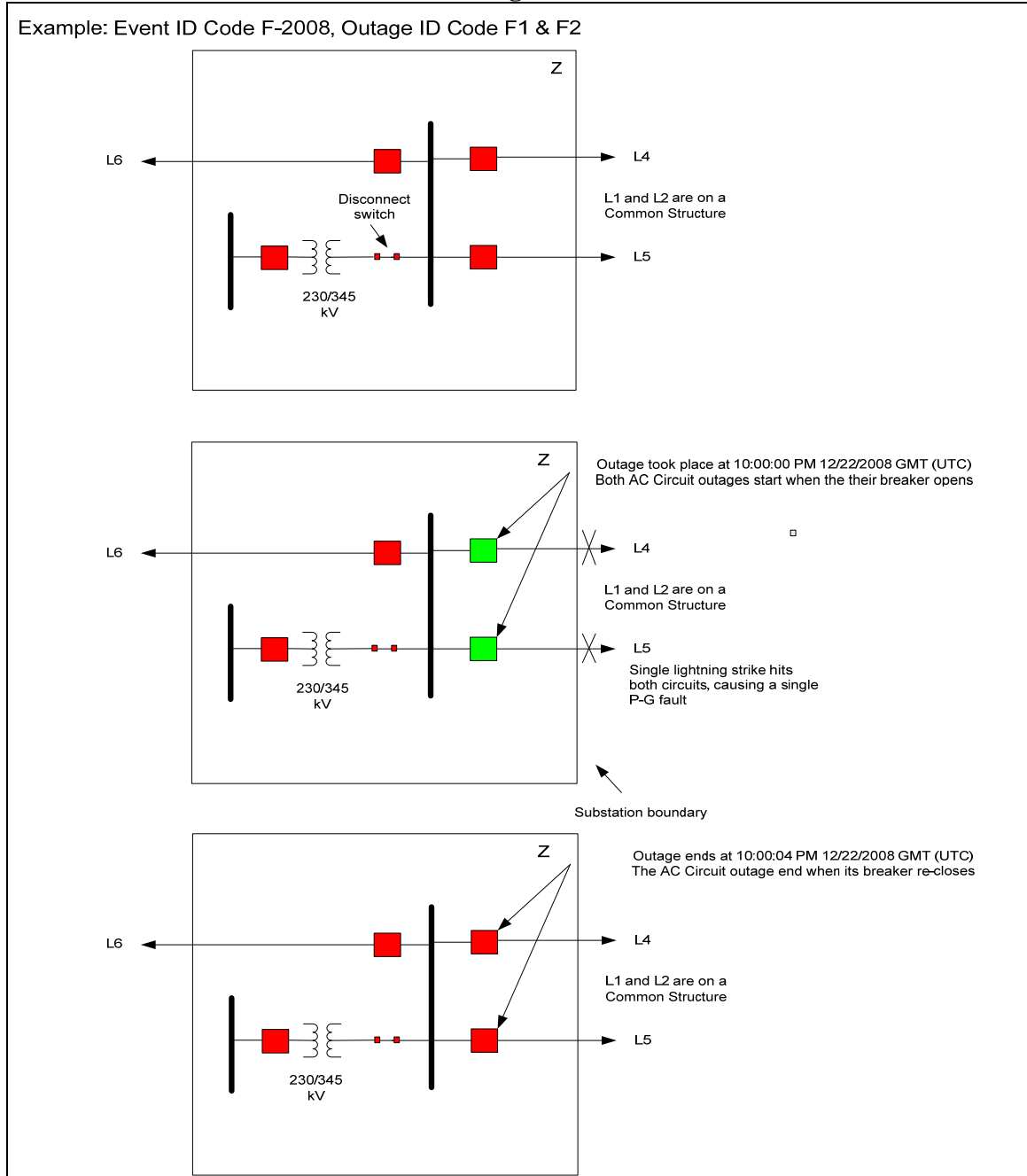


See Outage reporting table below:

**Outage reporting**

	<b>Form 4.1</b>	<b>Form 4.3</b>	<b>Form 5</b>	
Fault type	P-P fault	No entries	Event Type Number	11
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



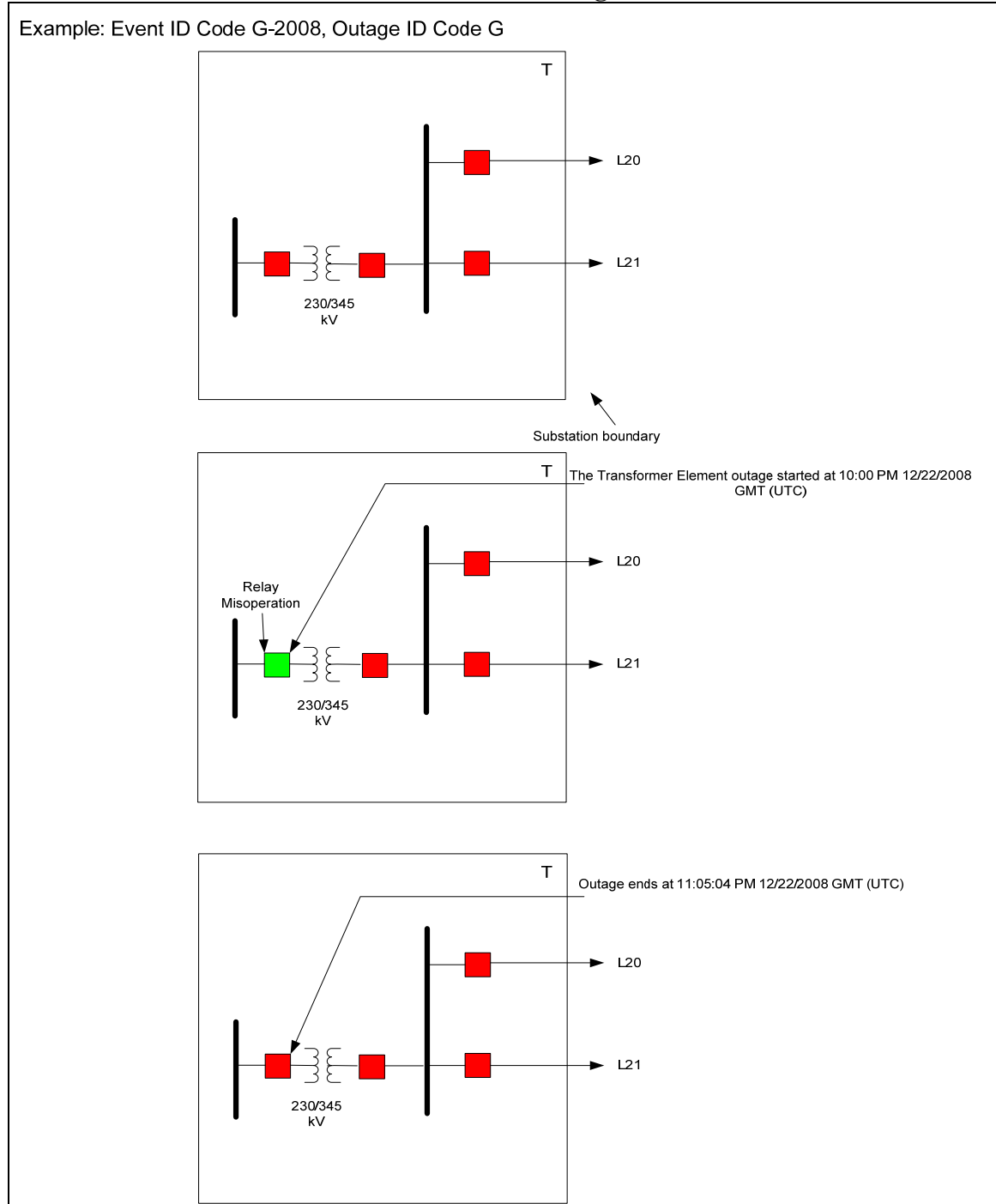
See Outage reporting table below:

**Outage reporting**

	<b>Form 4.1 (L4 &amp; L5)</b>	<b>Form 4.3</b>	<b>Form 5</b>	
Fault type	Single P-G fault	No entries	Event Type Number	31
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



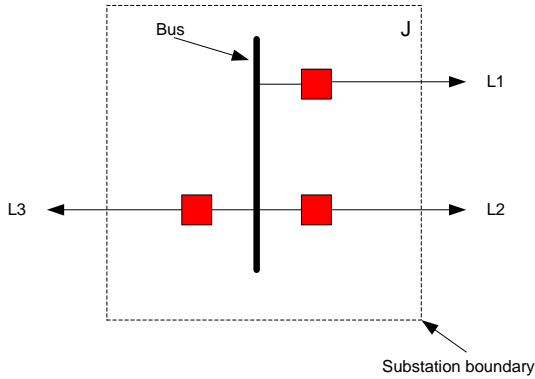
Only the Transformer was outaged because of the relay misoperation. See Outage reporting table below:

**Outage reporting**

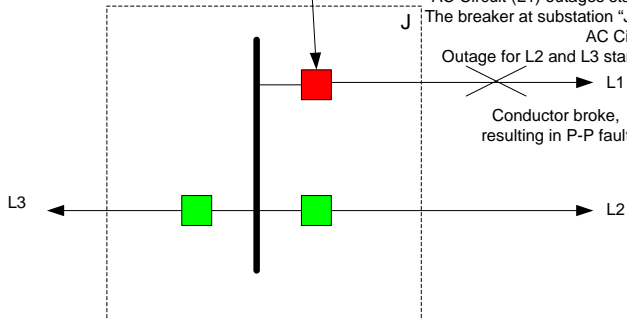
	<b>Form 4.1</b>	<b>Form 4.3</b>	<b>Form 5</b>	
Fault type	No entries	No-Fault	Event Type Number	11
Outage Initiation Code	No entries	Other-Facility Initiated		
Initiating Cause Code	No entries	Failed Protection System Equipment		
Sustained Cause Code	No entries	Failed Protection System Equipment		
Outage 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

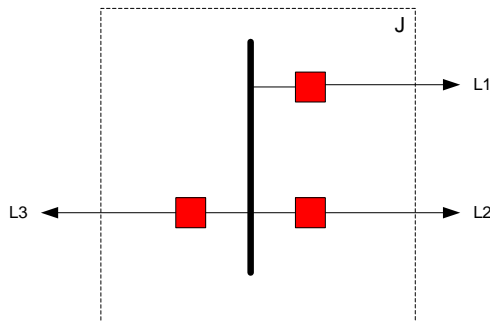


Relay Misoperation (The relay failed to signal the breaker to open. The failure triggered the other two breakers to open)



Outage took place at 10:00:00 AM 12/25/2008 GMT (UTC)  
 AC Circuit (L1) outages start when the one breaker opened (not shown)  
 The breaker at substation "J" failed to open which caused the breakers for AC Circuits L2 and L3 to open  
 Outage for L2 and L3 started at 10:00:10 AM 12/25/2008 GMT (UTC)  
 Conductor broke, resulting in P-P fault

Individual outages are over when corresponding line breakers are placed in-service  
 Breakers for L1 were closed at 5:30 PM 12/25/2008 GMT (UTC)  
 Breakers for L2 and L3 were closed at 11:15 AM 12/25/2008 GMT (UTC)



See Outage reporting table below:

**Outage reporting**

	<b>Form 4.1 – L1</b>	<b>Form 4.1- (L2 &amp; L3)</b>	<b>Form 5</b>	
Fault type	P-P fault	No fault	Event Type Number	60
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					
(A)	(M)	Cause Codes		(P)	(Q)
		(N)	(O)		
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

<b>Event ID Code Data</b>			
(A) Event ID Code [2]	(B) Event Type No. [3]	Description of the Event (optional) [4]	(D) Disturbance Report Filed [5]
A-2008	11		No
B-2008	13	Outage of 345kV Transmission Line and 345/230kV Transformer	No
C-2008	05	Bus Outage	No
D-2008	13	Outage of 345kV Transmission Line and 345/230kV Transformer	No
E-2008	11		No
F-2008	31		No
G-2008	11		No
H-2008	60	Fault on an AC Circuit and a CB equipment failure resulting in a stuck circuit breaker	No