

Recording reliability information

Our network controllers are notified of unplanned interruptions by one of two methods: SCADA notification service operating via the outage management system, or by a customer calling in a fault.

Each time an interruption occurs, a log entry is made into the *job book* detailing the location and time that the interruption occurred. Switching instructions associated with the interruption are recorded in the daily Log. After power is restored the asset which created the fault, and the restoration/completion time(s) are recorded in the *job book*.

Successive interruptions are recorded against the same incident when they occur during the restoration period or are recorded as a separate incident when they occur after the initial incident has been fully restored. Customers who form part of a planned interruption but were not notified are separated out under a different incident and are record as unplanned

An example of an unplanned interruption entered into the *job book*:



Friday, 7 October 2022

Works Supervisor
Engineering Support
Fibre Faults

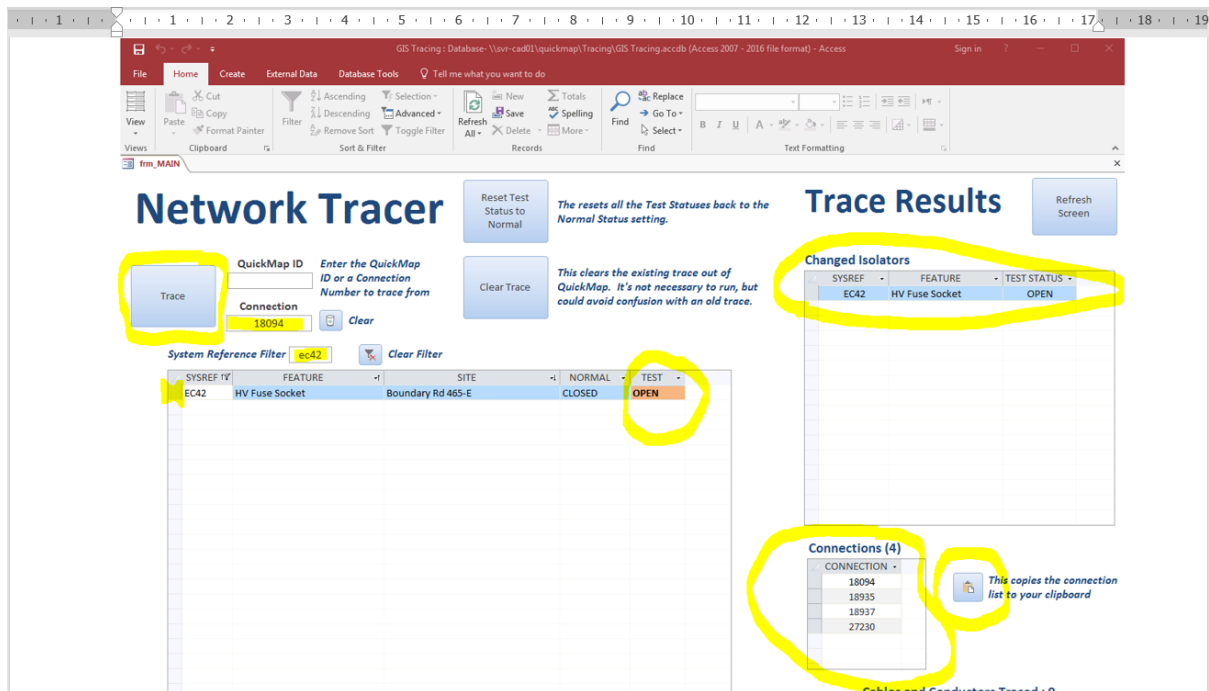
Duty Controller
1st Call Faultman
2nd Call Faultman

689476				Baker Rd Rakaia
GP & AG +	Car hit pole broken arm between RBM Rd and Normandy Rd			
DDI	08:28	12:00		
689478				
GP & GH	Cut down line to woolshed ,broken pole			
DDI	09:14	15:10		

Determining the ICP associated with the interruption

Our GIS system, Quickmap contains the location of ICPs connected to the network, and is used to determine which ICPs were affected by an interruption. The *control centre process manual* sets out the procedure used to determine the number of ICP's affected the interruption.

See below, an example of how the number of ICP affected is determined.



The above interruption affected the HV fuse socket at 265 Boundary Road, resulting in loss of supply to four connections.

Calculation of SAIDI and SAIFI

Once the number of ICPs affected the by the interruption has been determined, *the interruption data base* is updated using the switching instructions issued by the control room and information completed by the fault person in the field. The *control centre process manual* sets out the process for entering interruptions into the database.

The key data recorded in the *interruption data base* is:

- Interruption type (planned or unplanned, originating on EA's Network or on Transpower's network)
- Feeder affected
- Asset type affected
- Cause of interruption
- Time/date off for each loss of supply stage
- Time/date for each restoration stage
- Number of consumers affected in each stage and
- Explanatory notes.

See below an example of an interruption entered into the *interruption database*.

Edit Event Record
Edit Event Event No: 29569

Event/Job System/Cause Fault/Protect Isolation/Cust Notes

Date: 04-Nov-14 Time: 11:58 Customer#: 1 Mins Lost: 123

Event Description: Pulled up line to woolshed. Brought down by silage making people.

Event Location: 1235 Arundel Rakaia Gorge Rd

Locale:
 Urban Rural Remote

Major Event:

Job Number	Allocation No	JobCost	Employee
614775	45553010		

Edit Job Add Job Delete Job

Print Save Undo List Delete Exit

Edit Event Record
Edit Event Event No: 29569

Event/Job System/Cause Fault/Protect Isolation/Cust Notes

System Affected:
 Private Only
 Network
 Street Light
 Ripple Injection
 Pilot

Highest Voltage Affected: 400/230

SystemType:
 Overhead
 Underground

Print Save Undo List Delete Exit

Edit Event Record
Edit Event Event No: 29569

Event/Job System/Cause Fault/Protect Isolation/Cust Notes

Interruption Type:
 Planned
 Unplanned
 External

Disclosure Category: Foreign Interference

Fault Cause: Foreign Objects

Fault Detail: Defective Connection

Protected Device:
 System Reference Over Current Earth Fault

Edit Device Add Device Delete Device

Print Save Undo List Delete Exit

Edit Event Record
Edit Event Event No: 29569

Event/Job System/Cause Fault/Protect Isolation/Cust Notes

Customers Affected:

EventTime	Isolated	Restored	Cust
4/11/2014 11:58:00 a.m.	Yes	No	1
4/11/2014 2:01:00 p.m.	No	Yes	1

Import Trace Enter Direct Delete Cust Affected

Mins Off	# Customer	Cust Mins Off
123	1	123

Print Save Undo List Delete Exit

For planned work the *interruption database* records a similar amount of information

Edit Event Record
Edit Event Event No: 29540

Event/Job System/Cause Fault/Protect Isolation/Cust Notes

Date: 03-Nov-14 Time: 9:10 Customer#: 132 Mins Lost: 44352

Event Description: Connect Ringmain at & Liven new subdivision

Event Location: Stranges Rd

Locale:
 Urban Rural Remote

Major Event:

Job Number	Allocation No	JobCost	Employee
611159A	Planned		

Edit Job Add Job Delete Job

Print Save Undo List Delete Exit

Edit Event Record
Edit Event Event No: 29540

Event/Job System/Cause Fault/Protect Isolation/Cust Notes

System Affected:
 Private Only
 Network
 Street Light
 Ripple Injection
 Pilot

Did the fault originate on Non Network Lines?

Highest Voltage Affected: 11 KV

SystemType:
 Overhead
 Underground

Print Save Undo List Delete Exit

Edit Event Record
Edit Event Event No: 29540

Event/Job System/Cause Fault/Protect Isolation/Cust Notes

Interruption Type:
 Planned
 Unplanned
 External

Fault Cause: New Work

Protected Device:
 System Reference Over Current Earth Fault

EC43	No	No
EF44	No	No
EL45	No	No

Edit Device Add Device Delete Device

Print Save Undo List Delete Exit

Edit Event Record
Edit Event Event No: 29540

Event/Job System/Cause Fault/Protect Isolation/Cust Notes

Customers Affected:

EventTime	Isolated	Restored	Cust
3/11/2014 9:10:00 a.m.	Yes	No	132
3/11/2014 2:46:00 p.m.	No	Yes	132

Import Trace Enter Direct Delete Cust Affected

Mins Off	# Customer	Cust Mins Off
336	132	44352

Print Save Undo List Delete Exit

The interruption database calculates the SAIDI and SAIFI value, which is then extracted into the *data warehouse*. Each month we manually extract all unplanned interruptions from the data warehouse and paste the data into the *Electricity Distribution Business Price-Quality Regulation 1 April 2020 reset Reliability normalization and assessment – Demonstration model Final Determination spreadsheet*. This spreadsheet works out the normalized value of SAIDI and SAIFI.

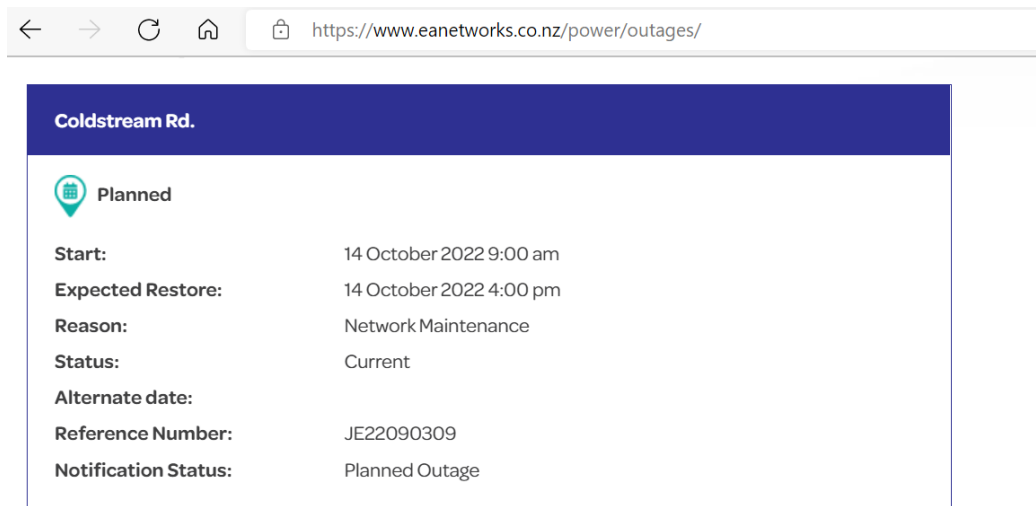
The outage statistics reports are checked for accuracy by the Operations Manager and Regulatory Manager.

Notification of planned interruptions


Requests for planned interruptions are via the operation request database, with the same process being used to record the period that interruption relates to (as above for unplanned interruptions).

Retailers are informed of planned interruptions by the registry and the interruption notice is placed on EA Networks website

See below an example of a planned outage notification on EA Networks website.



The screenshot shows a web browser window with the URL <https://www.eanetworks.co.nz/power/outages/>. The page content is for a planned outage on Coldstream Rd. It features a blue header with the location name, a calendar icon, and a list of details.

Coldstream Rd.	
 Planned	
Start:	14 October 2022 9:00 am
Expected Restore:	14 October 2022 4:00 pm
Reason:	Network Maintenance
Status:	Current
Alternate date:	
Reference Number:	JE22090309
Notification Status:	Planned Outage

Policies and Procedures

EA Networks have no formal policy relating to the capture and recording of interruption data, however procedures are designed to meet the requirements in the disclosure regulations relating to the recording and reliability of data.

We do have the above procedure documents in the Control Centre Processes and Network System Operator Manual.