POWER SYSTEM INCIDENT REPORT TRIP OF POINT HENRY NO.1 220 KV BUSBAR ON 29 JULY 2010

PREPARED BY: Electricity System Operations Planning and Performance

FINAL

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1 Introduction

At 13:35 hrs on Thursday 29 July 2010 in the Victoria region, the No.1 220 kV busbar at Point Henry substation tripped and as a result, the Geelong to Point Henry No. 1 220 kV line was unloaded. Approximately 105 MW of customer load at Point Henry was lost as a result of this incident.

This report has been prepared under clause 4.8.15 of the National Electricity Rules to assess the adequacy of the provision and response of facilities & services and the appropriateness of actions taken to restore or maintain power system security.

This report is largely based upon information provided by the owner of Point Henry smelter, Alcoa of Australia Limited (ALCOA). Data from AEMO's Energy Management System has also been used in analysing the event.

All references to time in this report refer to Market time (Australian Eastern Standard Time).

2 Pre-Contingent System Conditions

Prior to the incident, all busbars and transmission lines at Point Henry were in service. Load on Point Henry potlines 1, 2 and 3 were approximately 93 MW, 110 MW and 125 MW respectively.

Figure 1 shows statuses of relevant circuit breakers at Point Henry 220kV switchyard prior to the event.

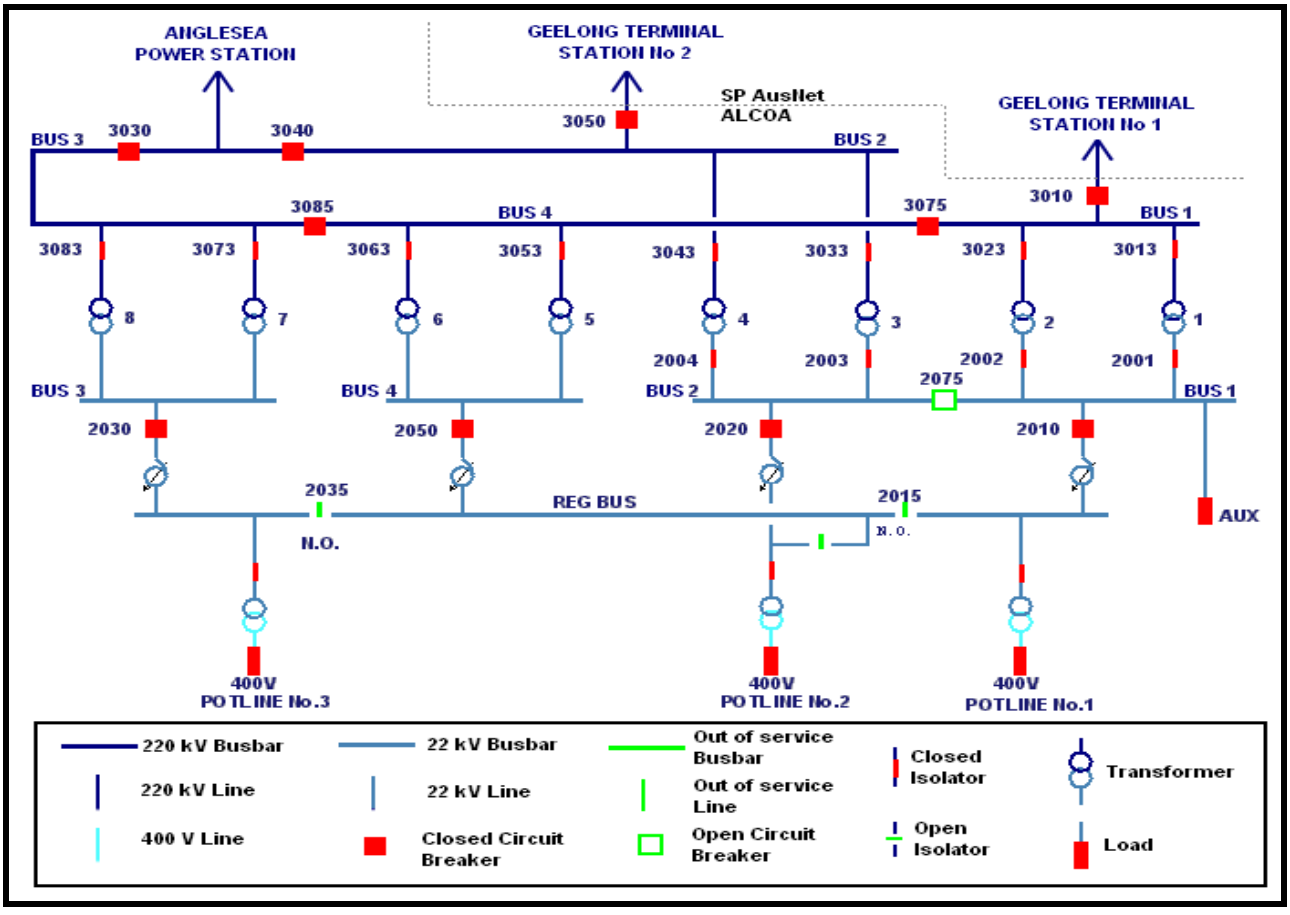

Figure 1 - Statuses of relevant circuit breakers at Point Henry 220kV switchyard prior to the event

3 Summary of Events

At 13:35 hrs on Thursday 29 July 2010, the No.1 220 kV busbar at Point Henry tripped as a result of the operation of the No.1 22 kV busbar back-up protection.

The following circuit breakers opened as a result of the protection operation:

- Point Henry to Geelong No. 1 220 kV line circuit breaker at Point Henry (3010)
- Point Henry busbar No. 1 to 4 220 kV tie circuit breaker (3075)

The operation of these circuit breakers de-energised both the No.1 220 kV busbar and the No.1 22 kV busbar at Point Henry and off-loaded the Geelong to Point Henry No. 1 220 kV transmission line. Potline No. 1 and plant auxiliary load totalling approximately 105 MW was also off-loaded. Figure 2 shows the status of the relevant circuit breakers after the operation of the protections.

The operation of the protection that caused the trip was attributed to a handheld meter being inadvertently dropped on a protection relay associated with the No.1 22kV busbar protection.

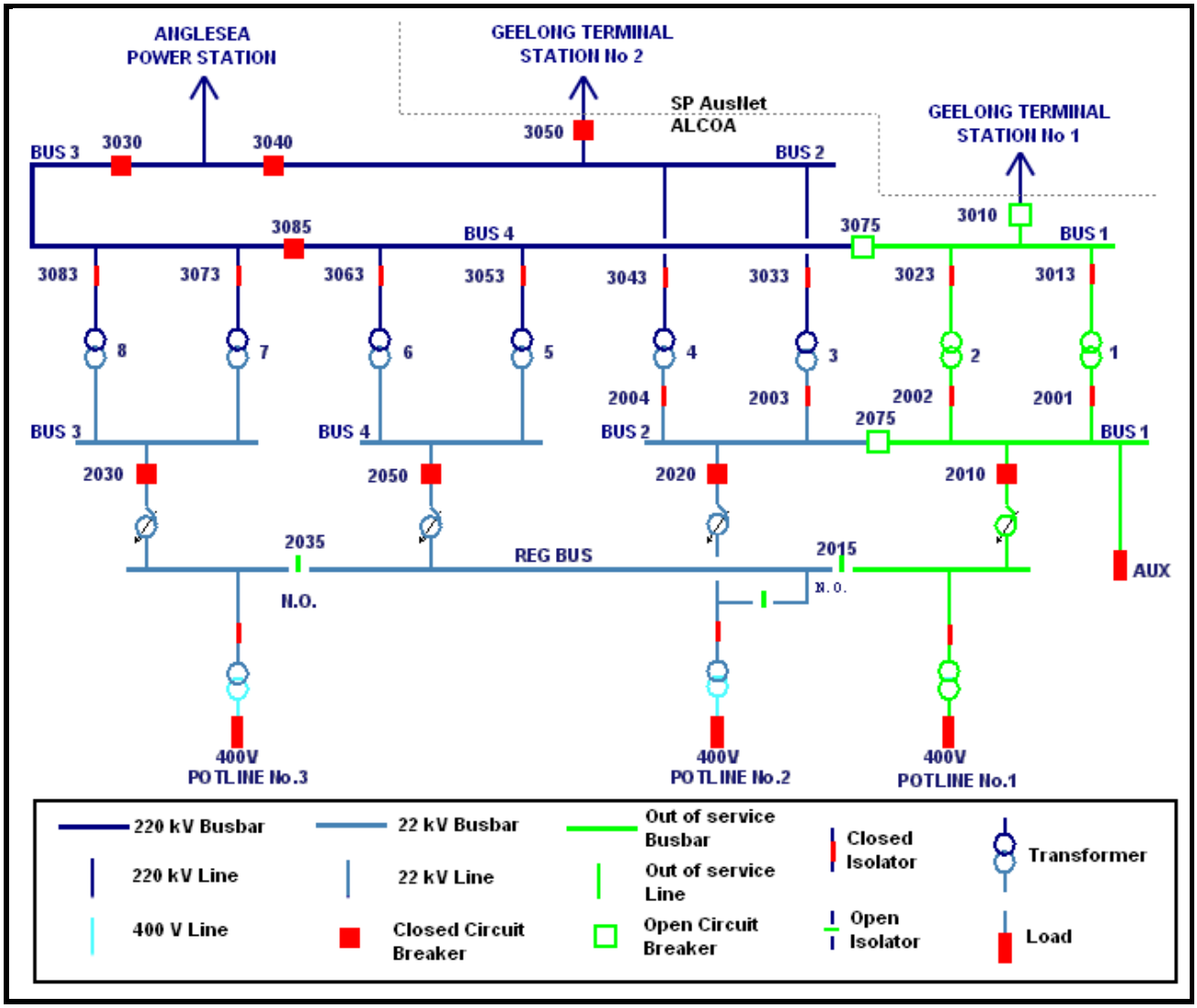

Figure 2 - Statuses of relevant circuit breakers at Point Henry 220kV switchyard after the event

4 Power System Security Assessment

The power system voltages and frequencies remained within the normal operating bands throughout the event. The maximum and minimum frequencies observed during the event were 50.07 Hz and 49.97 Hz respectively. The power system remained in a secure operating state throughout the duration of the event.

5 Immediate Actions

Following the event, ALCOA advised that the impact of a dropped handheld meter onto the protection relay momentarily picked up its trip contact. The subsequent relay and circuit breaker operations were consistent with the design of the 22 kV busbar back up protection.

After AEMO granted permission, the No.1 220 kV busbar was restored at 13:48 hrs. The No.1 22 kV busbar and the plant feeder were restored by 13:49 hrs and the Potline No. 1 was placed on load at 13:52 hrs.

6 Follow-up Action

ALCOA has advised AEMO that work practices have since been modified to avoid the reoccurrence of such incidents in future. AEMO was satisfied that the event did not require reclassification of the loss of Point Henry No. 1 220 kV busbar as a credible contingency event.

At 14:03 hrs, AEMO control room issued market notice 32493, advising the occurrence of this incident.

7 Conclusion

At 13:35 hrs on Thursday 29 July 2010, the No.1 220 kV busbar at Point Henry tripped as a result of a spurious operation of the No.1 22 kV busbar back-up protection off-loading the Point Henry No.1 potline. The Geelong to Point Henry No. 1 220 kV line was also off-loaded due to the busbar trip. The spurious operation was caused by the impact of an inadvertently dropped handheld meter on to a protection relay. ALCOA work practices have since been revised to avoid the reoccurrence of such incidents.

8 Recommendations

Nil