



CCO Performance Report

Critical Contingency Event on 13 July 2010

Date of Report : 10 August 2010

1. Introduction

At 14:20 on Tuesday 13 July 2010 an unplanned outage at the Pohokura Production Station (PPS) occurred. Transmission system code curtailment processes took place that reduced shipper nominations and contributed to substantial negative Operational Imbalance (OI) at some interconnection points. Eventually, this resulted in a breach of the critical contingency threshold of 3 hours to 32 barg occurring at Rotowaro. The CCO prepared and published an incident report on the CCO website on 20 July in accordance with r64.

This report has been prepared by the CCO in accordance with Regulation 65 of the Gas Governance (Critical Contingency Management) Regulations 2008. It has been prepared in consultation with the affected Transmission System Owners (TSOs) and any other parties considered necessary.

2. Compliance with the Regulations

[Note: all times indicated in the report are on 13 July 2010]

2.1 Critical Contingency Operator

2.1.1 Critical Contingency Determination

At 19:30 the CCO made a determination that there was a critical contingency in accordance with r48(1)(a). This determination was based on an actual breach occurring at 19:13 at the threshold of 3 hours to 32 barg at Rotowaro specified in the MDL CCMP.

Due to the gradual decline of system conditions towards the threshold values and the possibility that PPS was going to recommence flow it was not appropriate for the CCO make a determination there was a critical contingency under r48(1)(b).

2.1.2 Critical Contingency Declaration

At 19:36 the CCO declared a critical contingency in accordance with r49(1). The critical contingency was declared 23 minutes after the actual breach of the threshold at Rotowaro occurred and 6 minutes after the determination was made at 19:30. This declaration complied with the performance standard contained in the Schedule 2 of the CCO service provider agreement.

The CCO informed the TSOs verbally that a critical contingency had been declared immediately prior to the issue and publication of the declaration notices in accordance with r49(2).

The CCO published the critical contingency declaration notice on the CCO website at 19:36 in accordance with r52. This was immediately followed by the issue of urgent notices by email at 19:39 and SMS text at 19:41 in accordance with r49(2) and r51.

2.1.3 During the Critical Contingency

Throughout the critical contingency the CCO monitored pressure and linepack levels in accordance with R53(1)(a).

Throughout the critical contingency the CCO liaised closely with the TSOs by face-to-face communications in Gas Operations Control with the Duty Gas Controller and the TSO Duty Officer in accordance with 53(1)(b).

By 20:00 the CCO had completed a detailed analysis of current and predicted pressure and linepack trends and had developed a demand curtailment plan for band 1b Large Consumers ready for implementation if required in accordance with r53(1)(d).

At 20:10 the CCO contacted Transpower to establish if pre-existing plans for thermal power generation may provide levels of demand reduction consistent with the developed demand curtailment plans. Transpower confirmed that the planned reduction in gas demand that would occur by 22:30 would substantially match the levels required in the CCO demand curtailment plan. At 20:14 the CCO received new information from the TSOs that PPS now expected to recommence production at 21:00 with full flow by 22:00. Diurnal swing peak demand occurred at ~19:30 and from this time onwards was steadily reducing. Implementation of transmission system code curtailment processes had also resulted in some demand reduction. In view of these factors the CCO decided that demand curtailment directions were not required for the purpose of stabilising pressure and linepack levels in accordance with r53(1)(d).

The CCO did not explore available opportunities to increase gas production from other sources in order to mitigate the severity of the critical contingency in accordance with r53(1)(c). This was due to the timing of the demand reductions described above and PPS resuming production.

Due to the short duration of the critical contingency and no requirements to issue demand curtailment directions the CCO did not provide or publish update information on the status of the Critical Contingency in accordance with r53(1)(f) and r53(1)(g).

Given that load was dropping and PPS came back on stream, the purpose of the Regulations would not have been better achieved by undertaking activities under r53(1)(c), (d), (f) and (g).

Recommendation 1 – The regulations state that the CCO must carry out the activities listed in r53(1)(a)-(g). It may not be appropriate to carry out some of these activities during a critical contingency as was experienced during this event. CCO to discuss this with GIC to obtain clarity regarding the intent and suitability of r53 to manage future similar events.

2.1.4 Termination of the Critical Contingency

At 20:50 PPS resumed production and by 22:30 production rates were at a level in excess of rates prior to the unplanned outage. Between 20:50 and 22:10 PPS

flow stability was monitored and pressure and linepack recovery rates were also monitored closely.

At 22:32 the CCO made a determination to terminate the critical contingency. Even though the system was not yet capable of supplying gas to all consumers at the level at which gas was supplied immediately before the event that gave rise to the critical contingency in accordance with r60(1), the CCO was satisfied that the supply of gas into the system was sufficient to meet or exceed the reasonably expected consumption of gas following the determination. It is considered that the purpose of the Regulations would not have been better achieved by delaying termination until the following morning. It may be considered that r60(2) is designed to address such situations but, in this instance, no curtailment directions had been issued and it is not clear whether r60(2) could be used.

Recommendation 2 – The conditions of 60(1) did not apply at the termination of the critical contingency. To comply with the regulations the critical contingency should have been terminated no earlier than 07:36 on 14 July in accordance with r60(3)(a). CCO to discuss this with GIC to obtain clarity regarding the intent and suitability of r60(2) and r60(3) to manage future similar events.

The CCO published a critical contingency termination notice on the CCO website at 22:34 in accordance with r63. This was immediately followed by the issue of urgent notices by email at 22:36 and SMS text at 22:39 in accordance with r61 and r62.

2.1.5 Reporting Requirements

The CCO produced and published an Incident Report on the critical contingency in accordance with r64.

The CCO produced and published this Performance Report on the critical contingency in accordance with r65.

2.2 Transmission System Operators

2.2.1 During the Critical Contingency

Vector and MDL TSOs published notices on their respective OATIS systems to advise that the CCO had issued potential critical contingency, critical contingency declaration and critical contingency termination notices in accordance with their Critical Contingency Management Plans (CCMPs) and r54.

2.2.2 Reporting Requirements

Vector and MDL TSOs provided all information requested by the CCO in accordance with r66 for the purposes of the CCO preparing an Incident Report in accordance with r64 and this Performance Report in accordance with r65.

2.2.3 Critical Contingency Price For Contingency Imbalances

TSOs have various obligations under r67 – r82 in relation to their Imbalance Methodology processes. This Performance Report can not address the TSOs compliance with the regulations in this regard due to the timing of these processes.

3. Assessment of the effectiveness of the regulations and key plans

This section of the report assesses the effectiveness of the regulations and key supporting plans/documents. It provides commentary on the extent to which they achieve the purpose of the Regulations and identifies any amendments considered to better achieve the purpose of the regulations. It also takes into account feedback received during debrief sessions and from various industry participants. The purpose of the regulations is *"to achieve the effective management of critical gas outages and other security of supply contingencies without compromising long-term security of supply."*

3.1 Gas Governance (Critical Contingency Management) Regulations 2008

It is considered that the regulations were effective in achieving their stated purpose to the extent a critical contingency was triggered by a breach of a threshold and the determination and declaration of a critical contingency gave the CCO authority to intervene where the market was unable to self-manage.

Due to the nature of the event some of the activities required under r53 did not take place as described in section 2.1.3. Therefore the effectiveness of these activities can not be assessed.

The intent and suitability of r53 and r60 to manage similar future events requires some clarification as noted in recommendations 1 and 2.

3.2 Critical Contingency Management Plans

The processes and procedures in both the Vector and MDL CCMPs generally worked well and as planned throughout the critical contingency. Some short delays occurred when following CCMP processes due to personnel having to refer to documentation for guidance. However information was readily available and this did not impact adversely on the overall management of the event.

Recommendation 3 - TSOs to develop and deliver training modules on CCMP processes to improve levels of familiarity.

It is considered that the threshold set in the MDL CCMP for Rotowaro of 3 hours to 32 barg is appropriate to give sufficient time for market processes to correct a situation before the declaration of the critical contingency is required. MDL pipeline linepack was at ~270,000GJ when PPS tripped at 14:30. The target line pack at this time was 281,000GJ and the deficit was due to existing negative OI at interconnection points. Linepack had dropped to ~242,000GJ when the critical contingency was declared at 19:36. Line pack dropped to a minimum value of ~234,000GJ just after 21:00 and started to improve steadily when PPS recommenced production. This minimum linepack level is historically one of the lowest values recorded and thus confirms that the threshold values are appropriate to prevent critical contingencies from being declared too early or too frequently for this type of event.

One of the new data fields created by the TSOs in SCADA is a calculated time to reach the Pmin values at the defined threshold points combined with associated alarm activation levels. This information is made available to the CCO via the SCADA terminal in the CCO office. It was noted that the calculated time to 32barg at Rotowaro was fluctuating erratically. This may have been caused by the operation of the Rotowaro station equipment and compressors or by

deficiencies in the algorithm in SCADA. Due to the erratic fluctuation the SCADA data could not be relied upon to give an accurate indication of the estimated time to the threshold pressure. Data was processed manually by the TSO and interpolated to predict estimated time to the threshold pressure.

Recommendation 4 - The TSOs should review the suitability of the algorithms and alarm settings used to monitor the critical contingency threshold values in SCADA. These should be amended to ensure they represent a meaningful indication of estimated time to threshold pressures. [Note: a similar recommendation 1.1(b) was identified in the CCO test exercise report]

Prior to and during the critical contingency the TSOs issued a number notices on OATIS to advise of low line pack, MPOC s15.2 curtailment initiated by interconnected parties and Operational Flow Orders (OFOs) to corresponding interconnection points. The timing and magnitude of the curtailments may not have been sufficient for the market to make the necessary adjustments to avoid the declaration of the critical contingency. Large negative OI at some interconnection points continued to occur prior to and during the critical contingency.

3.3 CCO Information Guide

The processes and procedures in the Information Guide generally worked well and as planned throughout the critical contingency.

Prior to determining that there was a critical contingency the CCO published a potential critical contingency notification on the CCO website at 17:53. This was immediately followed by the issue of urgent notices by email at 17.56 and SMS text at 18:00. This decision was based on PPS not having recommenced production as previously advised combined with the imminent onset of evening peak demand on a cold night and the anticipated accelerated loss of system pressure and linepack associated with continuing large negative OI at interconnection points. At 17:37 the CCO contacted Transpower to inform them of the potential critical contingency conditions. The pre-critical contingency processes worked well and alerted industry stakeholders of the deteriorating pipeline conditions caused by the unplanned production outage.

Post event feedback indicated that the notices did not contain enough information about the circumstances, actions being taken and the predicted time to resolution critical contingency. The notices did however contain the information required under r49(2) and r61. It was noted in section 2.1.3 that due to the short duration of the critical contingency and there not being a requirement to issue demand curtailment directions the CCO did not provide or publish update information on the status of the critical contingency in accordance with r53(1)(f) and r53(1)(g). The final paragraphs of Sections 2.2 and 2.3 of the CCO Information Guide include provision for the CCO to issue status updates.

Recommendation 5 - The CCO should implement improved processes to ensure that during future critical contingencies that regular critical contingency status/information updates are issued separately to the formal notices required under the regulations. Critical contingency status updates would include more detailed commentary and forecasts about the event and be posted on the CCO website.

Recommendation 6 - It was also noted that under r53(1)(f)(ii) that the CCO should also inform interconnected parties, retailers and shippers of the status of the critical contingency. The CCO should ensure that these parties are aware that status update notices will be published on the CCO internet site and that they should refer to this for further information during a critical contingency.

During the critical contingency some of the stakeholders who received notices were not sure what they meant or what actions they should take. This resulted in some phone calls being made to seek guidance and clarification.

Recommendation 7 - The CCO has developed plans to deliver update briefings and refresher training on the critical contingency process to all stakeholders and parties potentially affected by a critical contingency. This is a work stream identified in the SPACCO and the CCO should complete delivery of this plan.

3.4 CCO Communications Plan

The processes and procedures in the Communications Plan generally worked well and as planned throughout the critical contingency.

4. Other Observations

During high winter gas demand periods unplanned outages at either of the major production stations (Oaonui or Pohokura) have potential to cause MDL pipeline pressure and linepack to fall rapidly. Transmission system code nominations and curtailment processes will usually correct such situations well in advance of critical contingency thresholds being approached. However other factors such as low pre-existing line pack, time of day and weather conditions will influence the speed and magnitude of the deterioration of pipeline conditions.

The relatively low MDL pipeline line pack at the time the PPS outage occurred may indicate that shipper demand forecasting and nominations may require some review and improvement.

Prior to and during the critical contingency shippers had the option of seeking supply from alternative sources subject to the existing supply position at these sources and nomination time frame restrictions. It wasn't evident that these mechanisms took place before the event which may indicate the requirement for review and improvement. The application of the imbalance methodologies and any subsequent critical contingency cash outs may provide additional incentive to review this issue.