Quality of Service Incentive Scheme
Audit of Interruptions Reporting 2007/08
Final Report

18 November 2008

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Audit of Interruptions Reporting 2007/08

Final Report

Submitted to:

Ofgem

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Glossary

BPI	British Power International
CE	CE (UK) Ltd. Incorporating the NEDL and YEDL licensed areas
CI	Customer Interruptions – calculated as per the formula below
CML	Customer Minutes Lost – calculated as per the formula below
CN	Central Networks incorporating CN - East (formerly East Midlands Electricity) and CN - West (formerly Midlands Electricity and Aquila) licensed areas
Consortium	The consortium of BPI and MM
DNO	Distribution Network Operator
DPCR3	Distribution Price Control Review for Period 1 April 2000 to 31 March 2005
DPCR4	Distribution Price Control Review for Period 1 April 2005 to 31 March 2010
EDFE	EDF Energy Group incorporating EPN, LPN and SPN licensed areas
EHV	Extra High Voltage – all voltages above 20kV up to but excluding 132kV
ENMAC	The GE Harris proprietary Energy Network Management and Control System
ENW	Electricity North West
HV	High Voltage – all voltages above 1kV up to and including 20kV
IIP	Information and Incentives Project
IIS	Information and Incentives Scheme
LV	Low Voltage – voltages of less than 1kV
MM	Mott MacDonald
MPAN	Meter Point Administration Number
MPAS	Meter Point Administration Service
MPRS	Meter Point Registration System
NaFIRS	National Fault and Interruptions Reporting Scheme
NEDL	Northern Electricity Distribution Limited
Ofgem	Office of Gas and Electricity Markets
PC-NaFIRS	Langhorne Computers' proprietary software used by DNOs for NaFIRS data capture and reporting to Ofgem
QA	Quality Assurance checking of incident-auditing workbooks carried out as a follow-up to the audit visits
QoS	Quality of Service
rigs	QoS Regulatory Instructions and Guidance version 5, Ofgem, March 2005
SCADA	Supervisory Control and Data Acquisition

SI	Short interruption – an incident in which the loss of supply is less than 3 minutes in duration
SP	ScottishPower - SP Transmission and Distribution incorporating the SPD and SPM licensed areas
SPD	SP Distribution licensed area
SPM	SP Manweb licensed area
SEPD	Southern Electric Power Distribution
SHEPD	Scottish Hydro-Electric Power Distribution
SSE	Scottish and Southern Electricity incorporating the SEPD and SHEPD licensed areas
UUES	United Utilities Electricity Services
WPD	Western Power Distribution incorporating the South Wales and South Western licensed areas
YEDL	Yorkshire Electricity Distribution Limited

Note:

Within this document:

The term “higher voltage” is used to indicate all voltages greater than 1kV.

The term “licensed area” is used, where necessary, to indicate the geographical area under consideration and to differentiate between areas in those situations where a parent company holds more than one distribution licence.

The calculations of Customers Interrupted (CI) and Customer Minutes Lost (CML) within this document are adapted from the formulae contained in the rigs to reflect the CI and CML generated by each stage of the incidents being audited.

CI is the number of customers interrupted in the relevant restoration stage per 100 connected customers. It is calculated as:

- CI = (The sum of the number of customers interrupted) * 100 / (The total number of connected customers)

CML is the duration of interruption to supply expressed as the number of customer minutes lost in the relevant restoration stage per connected customer. It is calculated as:

- CML = (The sum of the number of customers interrupted) * (the interruption duration in minutes) / (The total number of connected customers)

The total number of connected customers is as declared at 30 September 2007.

Summary

Overview

British Power International (BPI) and Mott MacDonald (MM) (the Consortium) has been awarded the contract to assist Ofgem with the Quality of Service (QoS) Incentive Scheme audits of DNOs' interruptions reporting for the reporting years 2007/08, 2008/09 and 2009/10.

This report describes the work carried out and results obtained for the audit of interruptions reporting for the reporting year 01 April 2007 to 31 March 2008. The minimum levels of accuracy that DNOs are required to meet under DPCR4 are set out in the Quality of Service Regulatory Instructions and Guidance version 5 (rigs). These minimum levels of accuracy are shown in the following Table.

	Overall		LV	
Required Level of Accuracy	**Stage 2 – Subset Incident Sample**	**Stage 3 – Full Incident Sample**	**Stage 2 – Subset Incident Sample**	**Stage 3 – Full Incident Sample**
Customer Interruptions (CI)	97%	95%	92%	90%
Customer Minutes Lost (CML)	97%	95%	92%	90%

Audit Process

In thirteen of the licensed areas only Stages 1, 2 and 4 of the four-stage IIS audit process were used to determine the final DNO interruptions reporting accuracies because all thirteen passed the Stage 2 levels of accuracy. In the case of the fourteenth licensed area (CE YEDL), it was necessary to use the Stage 3 LV audit as it failed to meet the required level of accuracy with the Stage 2 LV audit. Stage 1 involved calculating the MPAN accuracy for the relevant licensed area. Stage 2 covered the audit of reporting for the reduced sample of incidents selected by Ofgem and Stage 3 covered the full incident sample of incidents selected by Ofgem. In Stage 4 the MPAN and incident reporting accuracies were combined to give the final reporting accuracies for CI and CML at both the Overall and LV levels. Stage 4 was carried out automatically within Ofgem's incident-auditing workbook. In addition a questionnaire was used to evaluate progress on the relevant connectivity model although connectivity model accuracy was not used in the calculation of final reporting accuracy.

With the exception of the pilot visit, where the whole audit was unannounced, Ofgem circulated the incident samples to DNOs prior to the audit visits and this contained only the pre-selected subset of incidents for use in Stage 2 of the audit process, thus continuing a recommendation from previous IIS audits. Feedback during the visits confirmed that this had saved DNOs a substantial amount of preparation time. A further change introduced this year, again based on a recommendation from the previous year, was that ten of the 11kV incidents and five of the LV incidents selected for auditing were not included in the Stage 2 incident sample ahead of the audit visits. The DNOs were asked to extract the audit trails for these fifteen incidents 'live' during the audit visits. Ofgem disaggregated the incidents selected for audit proportionately across the various voltage levels. Spare incidents were again provided, but these were only audited if it was necessary to substitute them for incidents in the sample that could not be audited.

The additional incidents associated with the need to audit the Stage 3 LV sample were also extracted 'live' during the audit visit.

Following a recommendation from last year's audits, an enlarged sample of those 'incidents' determined by the DNOs to be non-reportable was also examined, the sample being selected to reflect the various categories with which each DNO lists its non-reported incidents.

A sample of telephone numbers contained in Ofgem's quality of telephone response survey was again cross-checked with the DNOs' measurement systems.

The number of people deployed as visiting auditors was slightly increased this year to provide on-going familiarisation and training for back-up people who would be used should either of the two principal visiting auditors be unexpectedly unavailable.

This year, the visiting audit team comprised of one person from the Consortium (BPI) and one or two people from Ofgem. Other members of Ofgem's team attended some of the audit visits, principally as observers.

The Consortium team member concentrated on the audit of the higher voltage incidents and the drafting of the DNO-specific reports. The Ofgem team members concentrated on the audit of the LV incidents and also managed the inputting of audit data into the incident-auditing workbook.

The scrutiny of the sample of non-reported 'incidents' and the audit of the sample of telephone numbers was a role shared between the visiting auditors.

Audit Results

All DNOs passed the audit of the Stage 2 sample at the overall level by exceeding the minimum requirements for CI and CML accuracy. However, as noted above only 13 of the DNOs met the required level of accuracy for the Stage 2 LV audit. Most DNOs have continued to either maintain or to improve the accuracy of their measurement systems. In addition there is evidence that they are implementing the recommendations made during the audit of the 2006/07 reporting year and are continuing to actively train an increasing number of their employees to the requirements of rigs version 5.

The QA checked QoS Incentive Scheme, Combined Stage 1 and Stage 2 audit results are summarised in the following table.

Licensed Area	Overall CI (Minimum Requirement 97%)	Overall CML (Minimum Requirement 97%)	LV CI (Minimum Requirement 92%)	LV CML (Minimum Requirement 92%)
CE – NEDL	99.81%	98.10%	96.34%	96.60%
CE – YEDL	99.90%	99.91%	97.26%	83.13%
CN – East	99.71%	99.74%	99.82%	99.28%
CN – West	99.33%	99.29%	98.57%	99.64%
EDFE – EPN	99.85%	99.31%	95.43%	93.25%
EDFE – LPN	99.70%	99.68%	97.84%	97.24%
EDFE – SPN	99.69%	99.67%	94.65%	97.48%
ENW	99.31%	99.31%	99.81%	99.44%
SPD	99.24%	100.00%	98.00%	97.39%
SPM	99.26%	98.29%	96.73%	96.00%
SSE – SEPD	99.94%	99.96%	98.79%	98.91%
SSE – SHEPD	100.00%	99.89%	99.75%	99.88%
WPD – Sth Wales	99.99%	99.99%	99.99%	99.75%
WPD – Sth West	99.98%	99.98%	99.83%	99.95%

No changes to DNO's measurement systems were found that materially affected reporting accuracy. All calculations presented by the DNOs to support the accuracy of their measurement systems were reviewed and accepted by the visiting auditors.

All DNOs have measurement systems that 'freeze' the record of the number of customers involved in an incident at the higher voltage levels and thus provide a robust audit trail. At the lower voltage level DNOs elected to explain variances in customer numbers if it was relatively easy to do so or where they considered the variance to be significant. A number of DNOs are in a position to record LV customer numbers on feeders at the time of incidents and it was again suggested that in future years such locked records be accepted in a similar way to those at the higher voltages.

Generally, DNOs have maintained the improvements in their recording of pre-arranged interruptions since the audits of reporting years 2005/06 and 2006/07; most are now recording the notified interruption times in their incident reports and all DNOs could provide information regarding the interruption times notified to customers.

Although DNOs have trained their field staff to provide more definitive information on interruption and restoration times, the information provided to support the audit trail for LV incidents was again occasionally variable where it was derived from non-system sources. Whilst the visiting auditors accept that DNOs do not have full phase connectivity, and as such in certain circumstances have to rely on estimates from site, they again noted the different lengths to which DNOs go to validate the information provided. The visiting auditors would expect to see evidence of how LV site estimates had been derived and where possible DNOs to carry out post incident checks to ensure that the site estimate is accurate when compared with system information. A number of DNOs were able to provide excellent notes to pinpoint the location of open-circuit faults and this greatly aided the audit process, such practice is welcomed and encouraged.

There appeared to be no reduction in reporting accuracy associated with the fifteen incidents that were not advised to the DNOs in advance of the audit visits. In general the time taken to produce the necessary audit information and audit the incidents was no greater than the time taken to audit the announced incidents. For the ten unannounced HV incidents, times varied between 1 hour and 2½ hours to complete the audit of these incidents and the visiting auditors readily acknowledge that the number of stages in unannounced incidents has a bearing on this, as does the degree of automation inherent in the DNOs' measurement and reporting systems.

The visiting auditors were pleased to see that several DNOs had again involved different people in this year's audit process, thereby spreading experience within the organisation. The visiting auditors were also pleased to note that some DNOs were enhancing their internal auditing regime, involving more of their personnel in the process. The visiting auditors were especially pleased to note that SSE had continued with the training of the people to succeed a key team member who is due to retire during 2008.

Non-reported 'Incidents'

A sample of those 'incidents' that had not been submitted to Ofgem as contributing to CI or CML was examined for each licensed area. The sample was stratified according to the percentages that each different 'category' of non-reported incident was submitted to Ofgem by each DNO.

A total of two hundred non-reported incidents was examined for each of the two licensed areas that acted as this year's pilot. On the basis of the findings from the pilot visit this number was reduced to one hundred per licensed area for the remaining DNOs.

Quality of Telephone Response

In addition to the audit of incidents, the visiting auditors sampled the DNOs' measurement systems for the records of customers who had telephoned the DNOs associated with three HV and two LV incidents selected at random from the Stage 2 audit sample.

The details of callers captured in the DNOs' measurement systems were compared with the details of callers submitted to Ofgem's telephony consultants for sampling in connection with the quality and speed of telephone response incentive scheme.

Learning Points

The visiting auditors have noted the following learning points:

- Setting and confirming the timetable well in advance again considerably aided the smooth running of the process;
- The modified automated incident-auditing workbook continues to be well received as it provided the DNOs with an 'instant' interim indication of the accuracy results;
- Errors in reporting were generally found to lie in those parts of DNOs' measurement systems where manual input is required;
- The IIS process has become well established and DNOs have generally introduced internal audit regimes that are based upon it. Generally, the results of the IIS audits for reporting year 2007/08 suggest that these internal audits are having a positive effect on DNOs' accuracy of reporting, but a number of the Stage 2 LV results suggest that more needs to be done in some DNOs;
- The information contained within most DNOs' measurement systems enabled the unannounced incidents to be audited without the DNOs having spent time in either producing the documents or recreating the incident in advance of the audit visit;
- Whilst the number used was small, spare incidents should still be included in the sampling regime to provide for those instances where it is not possible to audit one of the sample incidents;
- To save DNOs' potentially unnecessary preparation time, spares should be unannounced ahead of the audit visit and the information for them should only be gathered and audited if they are needed to substitute for a sampled incident;
- All DNOs' measurement systems contain many incidents that are deemed to be non-reportable. Generally, auditable evidence was available to determine why the DNO reached this conclusion, but some non-reported incidents were found that should have been reported;
- DNOs use differing nomenclature to categorise the non-reported incidents and a more 'standard' set of criteria would facilitate better sampling and inter-DNO comparisons:
- This year's approach to the sampling of telephone call details was an improvement on that used last year;
- DNOs should continue to consider periodic rotation of staff responsible for QoS Incentive Scheme reporting so as to spread experience and provide for 'strength in depth' within their teams;
- It is recommended that, where DNOs have more than one control centre, then audits continue to rotate between them, to ensure that as many staff as possible have exposure to, and visibility of, the audit process; and
- The visiting auditors again found it useful to spend time with DNOs reviewing a number of IIS related questions and general Quality of Service issues once the main section of the audits were complete. Such dialogue is welcomed and encouraged; as such the audit timetable should be structured to facilitate this, where DNOs wish to take advantage of the visiting auditors' presence.

General Recommendations

Based on the above comments and observations, the following general recommendations are made:

- The reduced number of people working as visiting auditors should be continued as this enables them to make direct comparisons between DNOs on such matters as acceptable forms of evidence;
- Some DNOs are still using the time of reports of damaged LV cables or the time of an HV neutral earth alarm as the incident start time, when no report has been received that supplies have been lost. The Consortium confirms its previous recommendation that a DNO should not consider an incident to have started until it receives a report that supplies have been lost;
- Similarly, where a DNO believes it has restored supplies, evidence of best endeavours to confirm that supplies have in fact been successfully restored is required in order to support subsequent re-interruption stages or new incidents, otherwise the visiting auditors should consider that earlier restoration attempts have been partly/wholly unsuccessful;
- The visiting auditors were again disappointed that, on a number of occasions of clock stopping, the information as to the nature of the customer's request for restoration work to be suspended and the agreed restart time did not form a robust audit trail. In future it is suggested that, if the rigs were to be amended, a standard restart time should be employed except where DNOs have fully auditable information to support the use of a different restart time;
- A sample of updates to connectivity models should be retained as part of the audit to encourage DNOs to maintain accuracy;
- It is too early to accept the previous request from some DNOs that the visiting auditors should accept as auditable evidence time-stamped "feeder numbers" of the number of customers on an LV feeder at the time of the incident as the processes are not robust throughout all DNOs and it would therefore introduce an unacceptable degree of audit inconsistency between DNOs;
- Continue with the sample of non-reported incidents as sampled by the mix of reasons for not reporting, focussing future samples on those reasons deemed most likely to give rise to potential errors;
- Generally reduce the total number of non-reported 'incidents' to 100 per DNO but consider retaining the number at 200 where this year's audit found evidence of mis-reporting;
- Continue with the sampling from the full population of reported incidents for the reporting year, irrespective of whether they are related to exceptional events;
- Further consider including a table showing absolute accuracy at the overall and LV level as part of the audit report;
- As most DNOs passed the Stage 2 levels of accuracy Ofgem should continue to only issue the Stage 2 incidents ahead of the audit visits. Ofgem would then only issue the Stage 3 incidents to any DNO that failed the Stage 2 levels of accuracy; where necessary, the Stage 3 incidents being audited during a follow-

up audit visit, or, if practicable, by extending the initial audit visit as was the case this year;

- Further consider showing the accuracy of 132kV and EHV incidents and HV incidents separately in addition to including them in the official overall results calculations;
- Similarly, show the number of outlying incidents and those with variances by these categories;
- Following the experience of this year's audit visits, Ofgem should increase the numbers of unannounced incidents at both the LV and the 11kV levels in future audits to add to the additional level of audit rigour;
- In future audits consider including an examination of all those incidents reported as being due to the failure of an infeed from an adjacent DNO or from NG; and
- Continue to include an element of cross-checking of customer details between DNOs' measurement systems with the details of callers submitted to Ofgem's quality of telephone response consultants.

1 Introduction

Background

1.1 The Office of Gas and Electricity Markets (Ofgem) is committed to an ongoing programme of work to strengthen incentives on Distribution Network Operators (DNOs) to deliver an appropriate quality of service to customers. This involves the definition and ongoing review of appropriate output measures. In addition, reporting and audit arrangements have been put in place to help maintain the consistency and accuracy of DNOs' reporting. Amongst the output measures on which DNOs are required to report are the number and duration of interruptions to supply per year.

1.2 Ofgem introduced standard definitions and guidance and minimum levels of accuracy that DNOs must meet for reporting quality of supply data. These are set out in Ofgem's Regulatory Instructions and Guidance (rigs)[1].

Audit of DNOs' Measurements Systems and Reporting

1.3 In 2001 Ofgem commissioned BPI and MM (the Consortium) to develop a framework for the annual auditing of incident reporting systems used by DNOs under the Information and Incentives Project (IIP). The initial contract ran for three years during which time DNOs undertook a significant amount of development work on their measurement systems. Development of the incident reporting process has taken place through a collaborative approach between Ofgem and the DNOs with the Consortium providing technical and analytical support on Ofgem's behalf as required. Under the initial contract an interim review was carried out in 2001 and IIP audits of measurement systems followed in 2002 and 2003. The contracts to carry out the IIP audits for the reporting years 2003/04, 2004/05, 2005/06 and 2006/07 were also awarded to the Consortium. Full details of all audits carried out to date are available on the Ofgem website[2].

1.4 On 1 April 2005 Ofgem introduced a revised incentive scheme which provides financial incentives to DNOs with respect to the average quality of service they provide in 3 main areas:

- The number of interruptions to supply;
- The duration of interruptions to supply; and
- The quality of telephone response.

1.5 DNOs may be rewarded or penalised by up to 3 per cent of revenue, depending on performance relative to their interruptions targets in each year of the scheme. The incentive scheme includes a mechanism for adjusting DNOs' reported performance for the number and duration of interruptions for inaccuracy to help ensure that DNOs are not unfairly rewarded or penalised due to measurement issues.

[1] Quality of Service Regulatory Instructions and Guidance version 5, Ofgem, March 2005.

[2] Separate final reports by Mott MacDonald/British Power International - Information and Incentives Project, Audit of Incident Reporting for the years 2001/02, 2002/03, 2003/04 2004/05 and 2005/06.

Aims of the Audit

1.6 The aims of the audit of DNOs' interruptions reporting for the reporting year 01 April 2007 to 31 March 2008 are to:

- Identify any significant changes in a DNO's measurement systems and their impact (if any) on the accuracy of reported information;
- Identify whether there are any significant weaknesses in the systems that DNOs have in place to report incidents, CI and CML and to provide recommendations for improvement(s) in these systems;
- Determine whether the DNOs are complying with the requirements of rigs version 5 for reporting;
- Provide an indication of the time taken to audit unannounced incidents;
- Explore the audit trail for a sample of incidents that DNOs had deemed to be non-reportable;
- Determine the overall accuracy of reported information;
- Sample DNOs' accuracy of submitting callers' details to Ofgem's telephony consultants for sampling in connection with the quality and speed of telephone response incentive scheme; and
- Provide an opinion on the appropriate numerical adjustments to DNOs' reported information so that they are not unfairly rewarded or penalised in the incentive scheme due to any problem in their measurement systems.

The Audit Approach

1.7 Following discussions with Ofgem and the DNOs the changes in approach to the audits and calculation of accuracy introduced for the audit of reporting years 2005/06 and 2006/07 have been maintained. These include the use of:

- Stage 2 audit of the subset of selected incidents to a higher accuracy requirement with the Stage 3 audit of the full incident sample only being required if the Stage 2 accuracy is not met;
- A consolidated questionnaire, issues list, and sign-off document;
- A reduction in the number of people working as visiting auditors over that of previous reporting years;
- One of the principal two-person visiting audit team being from Ofgem; and
- A streamlined audit reporting process with sign-off of key documents at a more formal meeting at the conclusion of each visit.

Report Structure

The main body of this report sets out the audit findings and accuracy of interruptions reporting for the reporting year 2007/08. The report is structured as follows:

- Section 2 of this report gives a description of the four stage audit process for 2007/08;

- Section 3 sets out the key results of the audit together with any differences in interpretation of the rigs found across DNOs;
- Section 4 gives details of key lessons learned as a result of this year's audit and comments on areas of best practice; and
- Appendix A gives a schedule of key information from the automated incident-auditing workbooks, individual audit reports for each licensed area are set out in Appendices B to O.

2 Audit Processes

Overview

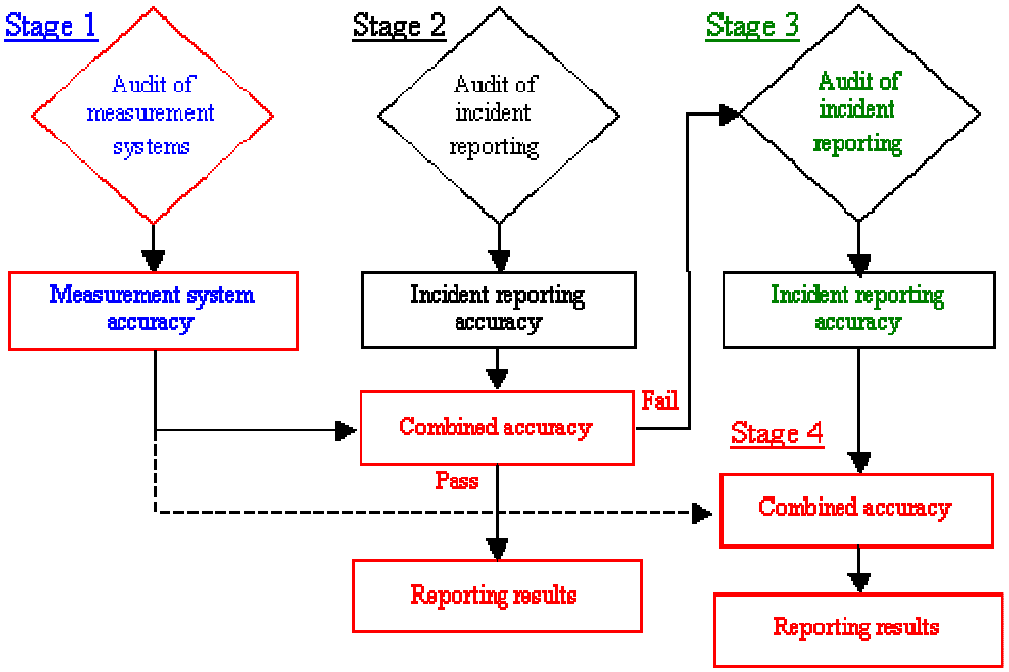
2.1 As in previous years the central component of the audit process was an audit visit to each licensed area. Two or three visiting auditors carried out the audit visits, one from the Consortium and the others from Ofgem, working together with the DNO audit team. The aim was to foster a collaborative approach to achieve agreement during the visit wherever possible. Other members of Ofgem's team observed several of the audit visits.

2.2 For the audit of reporting year 2007/08 the visiting auditors again used Ofgem's modified automated incident-auditing workbook. This enabled the calculation and statistical work to be done in parallel with the collection of information on the audit visit. The visiting auditors were therefore again able to give an immediate and robust interim estimate of the results during the audit visit. In addition, a streamlined DNO audit report template was again used to enable agreement of report content without the subsequent need for circulation and comment on draft reports. A more formal meeting at the conclusion of the audit visit enabled sign-off of the interim results and report subject to a Quality Assurance (QA) check of the results.

Audit Process

2.3 Figure 1 shows the four-stage audit process on which this report is based.

Figure 1 Audit Process Flow Chart



2.4 The approach to Stages 1, 2 and 3 was to circulate an audit questionnaire and the Stage 2 audit sample of incidents (except the ten unannounced 11kV and the five unannounced LV incidents) in advance of carrying out the audit visit to each DNO.

2.5 The pilot audit visit to WPD was carried out completely unannounced.

2.6 Updated accuracies of each DNO's measurement systems and the accuracies of each DNO's reporting using these systems were then calculated based upon the information gained during the audit visit. The accuracies of Stages 1 and 2 were then combined automatically in Ofgem's incident-auditing workbook to give the reduced sample Stage 4 Overall reporting accuracy for each licensed area. This process built directly upon the lessons learned from previous audits.

2.7 In the event of a DNO failing to meet the required levels of accuracy for the Stage 2 reduced sample, the Stage 3 full sample was audited and the result combined with the Stage 1 result to provide a revised Stage 4 accuracy.

Audit Process Stage 1

2.8 This relates to the calculation of HV and LV MPAN accuracy. The calculation of MPAN accuracy is the same as for the audit of reporting years 2005/06 and 2006/07, which reflects the number of primary traded MPANs active in a DNO's connectivity model relative to its total number of customers from MPRS. Taking MPAN count in MPRS as 100% accurate, the MPAN accuracy for HV and LV is then taken as the number of MPANs in the connectivity model capable of attracting CI and CML at the relevant voltage level expressed as a percentage of MPANs in MPRS. It is calculated as follows:

- HV/LV MPAN Accuracy = (Total number of primary traded MPANs assigned to true feeders at HV and above or LV as appropriate) / (Total number of primary traded MPANs).

2.9 MPAN accuracy can be greater than 100% if there is a delay in removing disconnected MPANs in the connectivity model relative to MPRS.

2.10 At LV, MPANs attached to true feeders (as opposed to dummy feeders or other temporary holding arrangements) in the DNO's connectivity model will be registered as losing supply when the feeder or substation to which they are attached becomes disconnected from the distribution system. These are therefore capable of attracting CI and CML even though they may not be correctly connected within the DNO's connectivity model. By comparison, LV MPANs not connected to true feeders (e.g. connected to dummy feeders or postcodes that never lose supply) are not capable of attracting CI and CML. At the higher voltage levels, MPANs attached to dummy LV feeders will lose supply when the substation becomes disconnected and, in this case, would attract CI and CML.

2.11 MPANs attached to true feeders may not be attached to the correct feeder or substation for a variety of reasons and this would give rise to incorrect reporting of CI and CML for a proportion of individual incidents. However, audit work in previous years supports the view that the number of MPANs connected to incorrect feeders or substations is low, randomly distributed and continues to diminish in all licensed areas.

2.12 An audit questionnaire was prepared to enable visiting auditors to check on the on-going accuracy of the connectivity model in each licensed area and to ensure that DNOs are retaining the focus on its continual improvement. The questionnaire circulated to DNOs prior to the audit visits examined the following:

- Any changes that DNOs have made to the way that they interpret the definition and guidance contained in the rigs version 5 since their introduction on 01 April, 2005;
- Any changes that DNOs have made to the way in which they identify primary traded MPANs;
- Outputs from quality control and monitoring of primary traded MPAN systems and connectivity models;
- Any future changes that DNOs have planned for their measurement systems; and
- Follow-up to any recommendations that had been made as a result of the audit for the 2006/07 reporting year.

2.13 In their answers to the questionnaire the DNOs were asked to identify the effects of their methodologies on connectivity model accuracy together with supporting calculations.

2.14 In order to determine the finalised Stage 1 MPAN accuracy for the overall sample used in the combined accuracy calculation, Ofgem's automated incident-auditing workbook calculated a weighted average of the higher voltage MPAN accuracy and LV MPAN accuracy based on the contribution to overall annual higher voltage and LV CI.

Audit Process Stages 2 and 3

2.15 Stage 2 of the 2007/08 audit consisted of the audit of incidents and the combination of results into the incident reporting accuracies by means of Ofgem's automated incident-auditing workbook.

2.16 Ofgem selected a sample of 150 incidents from each licensed area, split between HV and above and LV according to the respective contribution to CI and CML (with a minimum of 50 LV incidents). The samples were split into two parts, Stage 2 and Stage 3 such that:

- The Stage 2 Overall samples consisted of 50 HV and above incidents and 30 LV incidents (i.e. a total of 80 incidents). The 30 LV incidents also made up the Stage 2 LV samples; and
- The Stage 3 Overall samples consisted of all 150 HV and above and LV incidents. All the LV incidents (minimum 50) made up the Stage 3 LV samples.

2.17 Following the recommendation from the previous two years' audits, Ofgem did not circulate the Stage 3 audit samples to the DNOs ahead of the audit visits as this saved abortive preparation time for the DNOs.

2.18 Spare incidents were included to substitute for incidents that might prove impossible to audit.

2.19 The ten unannounced 11kV incidents and the five unannounced LV incidents were audited directly from the DNOs' measurement systems without the DNOs having had to pre-prepare documented audit trail information.

2.20 The audit team audited each of the incidents in the Stage 2 sample initially and then used the incident-auditing workbook to calculate the Stage 2 accuracy figures.

All the calculated Stage 2 Overall and thirteen of the Stage 2 LV accuracies met the requisite threshold levels.

2.21 CE YEDL failed to meet the Stage 2 LV accuracy, whereupon the Stage 3 LV sample was audited and the required level of accuracy was met.

2.22 The audit process took the following factors into account:

- The number of customers affected by each restoration stage of each incident as reported to Ofgem;
- How this number related to both the audit trail (information generated at the time of the incident recorded in field records, switching logs or other measurement systems) and the number of customers shown on the DNO's connectivity model;
- The reported duration of each stage of each incident and how this compared with the audit trail for the incident that occurred (e.g. the time of the first customer call registered in the call logs and restoration times recorded in field records, switching logs or other measurement systems);
- Whether each incident had been captured by the measurement systems by comparing customer and incident reports and whether logged network events related to relevant incident reports; and
- Comparing the location of each incident within the distribution networks with the representation in the measurement systems.

2.23 The audit team determined an "audited" value for the number and duration of interruptions for each restoration stage for each incident. This value was then compared against the original reported results to measure the level of accuracy/inaccuracy. The audit team recorded the source of any inaccuracies for later analysis.

2.24 Throughout the process the visiting auditors took care to ensure that any lack of information did not lead to bias in the audit results.

2.25 The Consortium auditor worked on the higher voltage incident sample and the Ofgem auditor on the LV sample. Whilst the visiting auditors worked in parallel this did not prevent discussions between them where questions of understanding or interpretation arose.

2.26 The audit of incidents examined the consistency and accuracy of the following processes:

- Data capture by telephone operators;
- Network control room data capture;
- Capture of field data within DNOs' measurement systems; and
- Data links to the fault reporting system (e.g. PC-NaFIRS).

2.27 Each sample incident was checked for consistency and accuracy of the following information from relevant DNO measurement systems:

- Identification of restoration stages within the incident;
- Time stamping of the start and finish of each restoration stage within the incident;

- Location of the incident; and
- Identification of the number of customers affected by each restoration stage within the incident.

2.28 Information was extracted through live online access to current DNO systems or through examination and verification of time stamped system printouts taken at the time of the incident together with time stamped reports from field staff.

2.29 In the event of particular incidents being too complex or impossible to audit, spare incidents were substituted in a pre-determined sequence provided by Ofgem.

2.30 DNOs also had the opportunity to record their views in the DNO figure columns and the comments columns of the incident-auditing workbook but no DNO opted to use this facility.

Audit Process Stage 4

2.31 The Stage 4 Overall and LV reporting accuracies were calculated in the automated incident-auditing workbook. Relevant details of the calculation procedure and output from the workbook are set out in Appendix A.

2.32 Each audit visit concluded with a review session where the main points arising from the visit were discussed with the DNO team and any learning points relevant to the conduct of future audit visits were shared. Both the visiting auditors and the DNO audit team retained the following audit visit documentation:

- A date stamped and signed hard copy of the consolidated questionnaire, issues list and sign-off document;
- A date stamped and signed hard copy of the audit visit report and interim results;
- An electronic copy of the completed audit questionnaire; and
- An electronic copy of the completed incident-auditing workbook that would be subject to a QA check before the interim results could be confirmed.

3 Audit Results

Overview

3.1 The QoS Incentive Scheme audit visits to DNOs for reporting year 2007/08 took place between April and June 2008. A summary of the visit programme is set out in Table 1.

Table 1 Audit Visit Programme

Licensed Area	Dates	Location
WPD – Sth Wales and Sth West	16 and 17 April	Cardiff
EDFE – EPN, LPN and SPN	12 to 14 May	Ipswich
SSE – SEPD and SHEPD	19 and 20 May	Perth
CE – NEDL and YEDL	21 and 22 May	Penshaw and Leeds
SPD and SPM	28 and 29 May	Prenton
ENW	02 June	Manchester
CN - West	03 June	Tipton
CN – East	04 June	Castle Donington

3.2 The visiting auditors were well supported by the DNO audit teams and the pre-visit preparation by each DNO team was of a high standard. It was the visiting auditors' responsibility to retain the master consolidated incident-auditing workbook at the end of each day's work.

MPAN Accuracy

Summary of Findings

3.3 Table 2 summarises the results of the incident-auditing workbook calculation used to determine the Overall MPAN accuracy from the higher voltage and LV MPAN accuracy results. This is the average of the higher voltage MPAN accuracy and LV MPAN accuracy weighted by their annual respective contributions to total CI.

Table 2 Higher voltage, LV and Overall MPAN Accuracies

Licensed Area	Higher voltage MPAN Accuracy	LV MPAN Accuracy	Higher voltage Weighting	LV Weighting	Overall MPAN Accuracy
CE – NEDL	100.50%	100.47%	78.05%	21.95%	100.49%
CE – YEDL	99.93%	99.95%	79.17%	20.83%	99.93%
CN – East	99.70%	99.72%	88.91%	11.09%	99.70%
CN – West	99.33%	99.34%	88.90%	11.10%	99.34%
EDFE – EPN	99.89%	99.89%	87.42%	12.58%	99.89%
EDFE – LPN	99.71%	99.71%	64.25%	35.75%	99.71%
EDFE – SPN	99.67%	99.67%	92.41%	7.59%	99.67%
ENW	99.29%	99.35%	80.48%	19.52%	99.30%
SPD	99.26%	99.26%	86.33%	13.67%	99.26%
SPM	99.27%	99.27%	85.35%	14.65%	99.27%
SSE – SEPD	99.93%	99.92%	81.43%	18.57%	99.92%
SSE – SHEPD	100.00%	100.00%	88.92%	11.08%	100.00%
WPD – Sth Wales	99.99%	99.99%	90.20%	9.80%	99.99%
WPD – Sth West	99.98%	99.98%	84.30%	15.70%	99.98%

DNO Changes since the audit of reporting year 2006/07

3.4 The key points on DNO's measurement systems and reporting procedure changes since the audit of reporting year 2006/07 are set out in Table 3. Full details for each licensed area are set out in Appendices B to O of this report.

Table 3 Changes to DNO Systems and Procedures

Change Area	Comment
Interpretation of rigs version 5	Rigs version 5 came into effect on 01 April 2005 and no DNO has changed its interpretation of them since that time.
MPAN accuracy	DNOs generally have not made changes to the processes they use for new connections and disconnections of MPANs. Links between MPRS and connectivity models have not generally changed. All DNOs consider they have reached the stage at which the accuracy of MPAN count is very near to 100%, and in view of the daily processing of MPANs connected and disconnected they believe it is not practicable to achieve further improvements. DNOs generally have well-developed data quality processes and they have used these throughout the reporting year to maintain the high standards of accuracy achieved, with on-going data cleansing taking place on a routine basis. CN has established a specialist team to fully identify the MPANs that hitherto had insufficient information for them to be accurately located within the connectivity models of its licensed areas. YEDL has completed the data cleansing exercise to remove phantom MPANs from its connectivity model.
Connectivity model	The calculation required to complete the "Connectivity Model" accuracy is the same as that used during the audits of previous reporting years' QoS Incentive Scheme information and therefore provides for consistency across successive audit visits. Most DNOs have not made significant changes to their connectivity models but in many cases have made incremental improvements to accuracy by moving MPANs to the correct feeder where new information is collected from customer no-supply calls, fault restoration work, planned interruptions and construction and maintenance work. The visiting auditors are pleased to note that DNOs have processes in place to update and refine connectivity models and that these processes generally appear to be working well.
Control System	CE - YEDL replaced its Network Management System during November 2007, subsequently automating the link to its troublecall system during February 2008. EDFE – SPN commissioned a replacement control system, incorporating automated troublecall and incident reporting during reporting year 2007/08.
Processes	Both SEPD and SHEPD introduced a revised internal audit process during March 2007. WPD increased the number of personnel involved in internal auditing by including its control room clerical support people in the process.

Change Area	Comment
Potential sources of error remaining	Most DNOs still consider that the remaining sources of error in measurement systems are minor and from known sources, such as the difficulty of attaching MPANs to the correct feeder in urban areas and near feeder boundaries, and a combination of inaccurate supplier information, unrecorded disconnected MPANs and address errors. DNOs adopt various day-to-day incremental improvement strategies to refine accuracy and some consider that they have reached the trade-off balance between accuracy and cost in measurement systems.
Future changes planned	Several DNOs are intending to strengthen their internal audit regimes during reporting year 2008/09 EDFE - EPN is working towards the auto-population of its incident reports. SPD has started to introduce a replacement GIS system that will have an LV feeder tracing system similar to that already available in its higher voltage measurement systems.

Accuracy of Incident Reporting

Summary of Findings

3.5 Table 4 summarises the findings across the licensed areas on Overall and LV reporting accuracies.

3.6 All fourteen licensed areas passed the levels of accuracy required of either the reduced sample or the full sample of incidents and the results in Table 4 are therefore the combination of Stage 1, 2 and 3 of the audit process as appropriate.

Table 4 Incident Reporting Accuracies

Licensed Area	Overall CI	Overall CML	LV CI	LV CML
CE – NEDL	99.81%	98.10%	96.34%	96.60%
CE – YEDL[3]	99.90%	99.91%	98.73%	94.06%
CN – East	99.71%	99.74%	99.82%	99.28%
CN – West	99.33%	99.29%	98.57%	99.64%
EDFE – EPN	99.85%	99.31%	95.43%	93.25%
EDFE – LPN	99.70%	99.68%	97.84%	97.24%
EDFE – SPN	99.69%	99.67%	94.65%	97.48%
ENW	99.31%	99.31%	99.81%	99.44%
SPD	99.24%	100.00%	98.00%	97.39%
SPM	99.26%	98.29%	96.73%	96.00%
SSE – SEPD	99.94%	99.96%	98.79%	98.91%
SSE – SHEPD	100.00%	99.89%	99.75%	99.88%
WPD – Sth Wales	99.99%	99.99%	99.99%	99.75%
WPD – Sth West	99.98%	99.98%	99.83%	99.95%

[3] LV CI and CML results are those obtained following Stage 3 audit.

3.7 It is the Consortium's opinion that all reporting under the QoS Incentive Scheme for the reporting year 2007/08 meets the required level of accuracy at either Stage 2 or Stage 3 of the audit process.

Sources of Reporting Variances

3.8 Details of the audit of incident reporting for each licensed area are set out in the relevant Appendix to this report. Comments on the common issues are set out in Table 5.

Table 5 Sources of Reporting Variances

Source	Comment
Manual transcription errors	In general DNOs that had fewer measurement system stages requiring manual intervention to transfer information to fault reporting systems continue to experience fewer transcription errors. In licensed areas where progress on the reduction of transcription errors had been made, visiting auditors noted that this was achieved by continuing to put on-going effort into: • Staff understanding the importance of capturing information accurately to meet regulatory reporting obligations; • Staff training in the use and capability of measurement systems and the overall fault reporting process; and • Robust internal auditing of incident reporting to reduce problems and to identify and introduce changes to minimise common types of error.
Network reconfiguration	Network reconfiguration can introduce variances when comparing reported numbers of customers interrupted with current system values. These are normally due to a new section of network being added since the date of the incident or abnormal running conditions at the time of the incident. Certain DNOs have systems more capable of producing evidence of the running arrangement at the time of the incident than others. However, in most cases it was possible to get back to the network configuration at the time of the incident. Visiting auditors again noted a continuing improvement in the audit trails associated with this aspect of the DNOs' operations.
Customer number changes since the incident	Changes in customer numbers since the incident can be caused by: • Network reconfiguration; • MPAN commissioning/decommissioning; and • Data cleansing. Differences were again noted between the DNOs on the ability to track MPAN changes and the associated network connectivities. DNOs that can accurately track MPANs are better able to explain variances. DNOs generally have no need to determine the erstwhile connectivity of decommissioned MPANs and most have no measurement systems in place to do so. Consequently, there were fewer corresponding variances recorded in the incident-auditing workbooks of those DNOs that were able to provide robust auditable evidence of the number of customers affected at the time of an incident.

Source	Comment
Quality of incident reports	Whilst generally, the visiting auditors noted that there has been a continuing improvement in the quality of information captured in DNOs' measurement systems, the frequency of transcription errors during the transfer of source data into fault reports is still an area of weakness for some. As mentioned in previous years, the retention of more information to assist in establishing a clear audit trail (e.g. storing information about abnormal running conditions at the time of the incident) was particularly useful in several instances.
Incident start time	Several instances were found where DNOs are using the time of reports of damaged LV cables or the time of an HV neutral earth alarm as the incident start time, when no report has been received that one or more customers have lost supply. The Consortium confirms its previous recommendation that a DNO should not consider an interruption to have started until it receives a report that supplies have been lost. Similarly, DNOs should not wait until the time of the second call before starting the interruption.

Non-reported 'Incidents'

Summary of Findings

3.9 Generally, the visiting auditors found that DNOs' records supported the fact that the non-reported 'incidents' were correctly classified.

3.10 In the case of EDFE - EPN, one of the twenty-five non-reported higher voltage 'incidents' and five of the twenty-five non-reported LV 'incidents' were incorrectly classified and should have been reported as incidents.

3.11 In the case of EDFE - SPN, two of the thirty non-reported 'incidents' were incorrectly classified and should have been reported as incidents. Two other LV non-reported 'incidents' were found to have earlier start times than the reported incidents to which they were merged.

3.12 In the case of SPD, two of the forty-five non-reported LV 'incidents' were incorrectly classified and should have been reported as incidents.

3.13 Ofgem will discuss this matter with the DNOs concerned.

Quality of Telephone Response

Summary of Findings

3.14 Generally, the visiting auditors found that DNOs' records supported the information that had been submitted to Ofgem's consultants for follow-up in relation to the quality of telephone response survey.

3.15 In the case of ENW (UUES) the data that had been submitted to Ofgem was incomplete and it was therefore not possible to cross-refer the DNO records with the information submitted to Ofgem. Ofgem and ENW (UUES) will follow this up to reconcile the discrepancies.

3.16 For two of the three higher voltage incidents sampled, EDFE – LPN was unable to demonstrate that the details of every caller who spoke to an agent and did not

decline to take part in the survey were sent to Ofgem's consultants. Ofgem and EDFE will follow this up to reconcile the discrepancies.

3.17 Where details of callers had not been submitted, DNOs' records showed that this was due to one of the following reasons:

a. a customer not wishing to take part in the survey;

b. callers with ex-directory telephone numbers;

c. details of the telephone number being unconfirmed;

d. situations where a third party had called on behalf of someone and did not wish to take part in the survey; or

e. where the caller was one of the DNO's own personnel.

3.18 Some DNOs reported that they could provide the details of callers' telephone numbers where the call had been 'answered' by their automatic messaging systems.

3.19 The approach adopted this year was unanimously considered to be a better approach to that used previously.

4 Key Lessons Learnt

Comments on DNO Practice

4.1 Table 6 shows a summary of overall comments from the visiting auditors on DNO audit practice. Detailed comments on each Licensed Area are set out in the relevant Appendix to this report.

Table 6 Summary of Comments on DNO Practice

Subject	Comments
Pre-visit preparation	The visiting auditors again wish to acknowledge the high levels of pre-visit preparation work carried out by DNOs and for their collaborative approach to the audit process. It is essential for the DNO to ensure adequate audit trails are available with supporting documentation to hand from local office files and field logs where appropriate.
Visit logistics	All audit visits progressed very smoothly as DNOs generally provided a small number of experienced and well prepared experts with system operation skills to enable incidents to be re-created on the DNO's measurement system, explain the audit trail, and respond promptly to the visiting auditors' questions. The facilities provided by the DNOs for conduct of future audits should continue to meet the following requirements: • Quiet areas away from the general office environment for the higher voltage and LV audits with space to spread out drawings and other paperwork and close access to power points for laptop PCs; • Facilities to access DNO measurement systems; • Experienced operators fully briefed by managers with overall responsibility for QoS Incentive Scheme and empowered to make decisions on variations on behalf of DNOs; and • Appropriate facilities for a formal sign-off meeting.
Audit trail	Best practice audit trails regarding changes in customer numbers between the date of the incident and the date of the audit visit were again found to include: • Electronic records of those customers affected at the time of the incident as compared with current system values; • Time-stamped measurement system documentation and/or "frozen" information held on a computer database showing the number of customers affected at the time of the incident; and • Scripts showing MPAN creation and deletion dates; both post- and pre-incident.

Points for Ofgem

4.2 Table 7 summarises the points arising from the audit visits for consideration by Ofgem.

Table 7 Summary of Points for Ofgem's Consideration

Subject	Point
Sampling regime	The inclusion in the process of a number of unannounced incidents at both the LV and 11kV levels prior to the audit visit provided an added degree of audit rigour. The number of unannounced incidents could usefully be increased in future audit visits, subject to the time taken to extract the audit trail information from those licensed areas with partially manual systems.
Stage 2 and Stage 3 samples	The current process whereby Ofgem only issues the Stage 2 audit sample prior to the audit visit saved the DNOs a considerable amount of abortive pre-visit preparation work and should be repeated in future audits. Similarly, Ofgem may wish to consider not issuing the spares before the audit visit.
Non-reported incidents	The inclusion of a sample of non-reported incidents was found to be a valuable addition to the audit process and it is strongly recommended that this is continued in future audits.
Quality of telephone response	Continue to include a cross-check between DNO records and the returns submitted to Ofgem's quality of telephone response consultants.
Regulatory Instructions and Guidance version 5	There are still a number of areas in the current rigs where additional side guidance has been circulated and also further possible changes have been mooted to a number of the other reporting elements currently encompassed by the rigs (e.g. MTP, connections reporting). As has been discussed during previous years' audits, it is recommended that Ofgem works towards a rigs version 6, including a user-friendly index.
Visit sign-off	The adoption of the visit sign-off meeting with the streamlined pro-forma audit report and the inclusion of an Ofgem team member as part of the audit team were again found to be beneficial. This adds weight to the discussions and allows Ofgem to directly witness the discussion of the findings of the audit visits.

Issues Arising

4.3 Table 8 lists the key audit issues and their resolution arising from the audit visits.

Table 8 issues arising during the course of this year's audit visits

N°	Issue	Resolution
1	How to record the duration of an incident where a customer, such as a hospital, has an auto-start own generator and does not effectively experience an interruption in its energy usage.	The use of a Short Interruption is not appropriate. The Visiting Auditors suggest that the start of the interruption is from when the DNO's system fails and then use 'clock stopping' if the customer declines the DNO's offer to supply a generator else the end of the interruption is either when the DNO's supply is restored or when the DNO's generator is connected and begins supplying the customer. There must be a clear, time-stamped auditable trail within the DNO's measurement systems to show that a responsible and named person within the customer's organisation has declined the DNO's offer of providing a generator. Note: Wherever a DNO invokes 'clock-stopping' there must also be a clear, time-stamped auditable trail to show the time at which the customer has agreed the clock should be re-started.
2	The reporting of an incident where, at the request for an emergency shutdown of a customer for safety reasons (e.g. proximity working) at least one other customer has to be shutdown without giving the statutory pre-arranged notice.	An incident report should be raised with a restoration stage showing the number and duration of interruptions to the 'other' customers. The interruption to the customer requesting the shutdown should be shown as a separate restoration stage with the clock stopped for the entirety of the incident.
3	A question arose where an LV backfeed was used to supply customers during an interruption at HV	This was discussed at a previous wrap-up workshop when it was agreed that an LV backfeed which is a permanent feature of a DNO's distribution system should not be treated as a temporary restoration. The '18 hour' rule therefore does not apply.
4	Some of the non-reported incidents concerned an open circuit LV cables that the DNO's operatives found during routine maintenance activities and no customers supplies were affected (e.g. one side of a normally-open LV link box being 'dead').	The rigs call for this type of situation to be reported as an incident with no customers affected – see rig 2.15, second bullet point. The DNO considered this to be an onerous task, adding considerably to its reporting workload for no added benefit in reporting its performance.

N°	Issue	Resolution
5	Where an Auxiliary Supply Fail alarm has been received from an overhead tele-controlled switch without any corresponding SCADA switch trips, CE has taken the subsequent first customer no-supply call as the start time for an incident but this has been queried by some people within that DNO.	Generally speaking, the start of an incident should be taken as the time of a SCADA trip or the time the DNO receives the first "no-supply" call from a customer. In the case quoted here no supplies were lost at the time of the Auxiliary Supply Fail and the main conductors were still capable of carrying both load and fault current. Thus the DNO has reported the incident start time correctly as the first no-supply call for a subsequent interruption.
6	Where a customer's HV switchgear has been vandalised and the supply has been interrupted to that customer alone, should a DNO report this or not?	The visiting auditors suggest that this is a non-reportable incident because it only affects the HV customer as defined in the second bullet point of rig 2.32. Where a DNO has reported such an incident under its 'fail safe' processes as it is caused by vandalism, it will not be deemed to be mis-reported during an IIS audit.
7	"Low volts" is not "no volts" To ensure consistency of reporting previous advice has been that "customers are on supply until a DNO knows otherwise" (see resolution at item 5 above). Thus a call of 'low volts', being a subjective assessment, should not be taken as an incident start time.	However, two issues have arisen this year to modify the visiting auditors' previous advice. Where a DNO's records show that a customer calls with the following additional information: (a) - adding to the "low volts" statement that "the supply is unusable" - thus effectively becoming a "no-supply" call; and (b) - reporting "reverse polarity" and being advised by the DNO to "switch everything off".

Appendix A. Incident-Auditing Workbook Calculations

Once all the Stage 2 higher voltage and LV incidents had been audited the audit team used the results to estimate the accuracy / inaccuracy of the DNO's reported information. This involved four main steps (all the relevant calculations being embedded within the incident-auditing workbook supplied by Ofgem):

- Excluding any outlying incidents where the difference between audited and reported results is greater than the mean +/- 4 standard deviations;
- Expressing the total accuracy of the sample as a percentage of the total audited numbers;
- Combining the accuracy of reporting from Stage 2 of the audits with the accuracy of MPANs from Stage 1; and
- Summarising final accuracy/inaccuracy figures.

Stage 4 was re-run where either the Stage 3 overall sample or the Stage 3 LV sample was audited.

The following Table summarises the number of incidents substituted for each DNO, the voltages involved, and the key reasons for substitution:

Table 9 Number of Incidents Substituted

Licensed Area	Number of incidents substituted	Voltage levels and key reasons
CE – NEDL	3	3 LV – due to insufficient audit trail
CE – YEDL	1	1 LV – due to insufficient audit trail
CN – East	1	1 LV - insufficient audit trail to verify the correct interruption start time
CN – West	1	1 LV - insufficient audit trail to verify the correct interruption start time
EDFE – EPN	2	1 HV – unauditable in a reasonable time due to the complex multi-tripping of circuit breakers 1 LV - insufficient audit trail to verify the correct interruption start and end times
EDFE – LPN	0	N/A
EDFE – SPN	0	N/A
ENW	0	N/A
SPD	0	N/A
SPM	0	N/A
SSE – SEPD	2	1 LV – due to insufficient audit trail 1 LV pre-arranged - insufficient audit trail
SSE – SHEPD	0	N/A
WPD – Sth Wales	0	N/A
WPD – Sth West	0	N/A

The following Table summarises the number of outlying incidents for each DNO at the relevant voltage levels.

Table 10 Number of Outliers

Licensed Area	Number of outlying incidents	Sample	
		Overall	LV
CE – NEDL	3	1 on CI 1 on CML	1 on both CI and CML
CE – YEDL	6	1 on CI 2 on CML	1 on CI 1 on CML 1 on both CI and CML
CN – East	5	1 on CI 2 on CML	1 on CI 1 on CML
CN – West	3	1 on CI 1 on CML	1 on both CI and CML
EDFE – EPN	6	3 on CI 2 on CML	1 on CML
EDFE – LPN	2	1 on both CI and CML	1 on both CI and CML
EDFE – SPN	2	1 on both CI and CML	1 on both CI and CML
ENW	2	1 on both CI and CML	1 on CML
SPD	4	1 on CI 2 on CML	1 on both CI and CML
SPM	3	1 on CI 1 on CML	1 on both CI and CML
SSE – SEPD	2	1 on both CI and CML	1 on both CI and CML
SSE – SHEPD	3	1 on CI 1 on CML	1 on both CI and CML
WPD – Sth Wales	3	1 on CML 1 on both CI and CML	1 on both CI and CML
WPD – Sth West	3	1 on CI 1 on CML	1 on CI

The following Table sets out a summary breakdown from the incident-auditing workbooks of the numbers of audited incidents with audit variances. Please note that a variance in CI will generally result in an equivalent variance in CML, whereas the reverse is not the case. The CI and CML figures in the sample rows are therefore not additive.

Table 11 Number of Incidents with Variances

Licensed Area	Number of incidents with variances			
	Overall Sample		LV Sample	
	CI	CML[1]	CI	CML[1]
CE – NEDL	10	17	7	9
CE – YEDL[2]	8	14	11	18
CN – East	5	8	5	5
CN – West	2	4	2	2
EDFE – EPN	19	25	13	15
EDFE – LPN	6	11	6	10
EDFE – SPN	20	22	18	18
ENW	8	15	6	9
SPD	11	17	11	13
SPM	8	11	8	7
SSE – SEPD	6	8	6	7
SSE – SHEPD	2	5	2	3
WPD – Sth Wales	3	4	3	4
WPD – Sth West	2	6	2	5

***Notes:**

1. Figures relate to the total number of incidents with CML variances as a result of either CI or time variances or both.
2. CE – YEDL also includes the stage 3 result, therefore the figures in the LV sample are higher than those in the overall sample.

Appendix B. Audit Report for the CE - NEDL Licensed Area

Introduction

Visit Details	
Date of audit visit:	21 May 2008
Location of audit visit:	CE Electric's Control Centre at Penshaw
Visiting Auditors:	James Hope (Ofgem) and Geoff Stott (BPI)
DNO Auditing Team:	Tony Ingham, Simon Keightley, Wayne Nelson, Brian Nichol, Geoff Petrie, Ian Pushon and Brian Walton

Audit of Measurement Systems

Measurement Area	Significant changes since last year
Interpretation of rigs v5	No changes have been made since last year's audit
MPAN systems	No changes have been made since last year's audit
Connectivity model	No changes have been made since last year's audit

Measurement Area	Planned future changes
MPAN systems	No future changes are currently planned
Connectivity model	No future changes are currently planned
Processes	No future changes are currently planned

Audit of Incident Reporting

Reporting Area	Audit Point	Main Findings
Ofgem's Template	Non reported incidents	None of the non-reported incidents sampled should have been reported in Ofgem's Template
	Issues identified	None
Higher Voltage Incidents	Number of unauditable incidents and spares used	No incidents were unauditable and no spares were used
	Main sources of reporting error	Manual transcription errors, including mis-read handwriting. One incident had a missing restoration stage and another incident contained an incorrect 'clock-stop'
	Issues identified	As above
LV Incidents	Number of unauditable incidents and spares used	Three incidents were unauditable due to insufficient audit trail. Spares were used instead
	Main sources of reporting error	In one incident, four circuits were made dead - these should have all been reported on the one incident report. One incident contained an incorrect 'clock-stop'. Insufficient audit information is available for pre-arranged interruptions for part feeder situations
	Issues identified	As above
Misclassified Voltage Level	Number of cases of misclassification of voltage level and spares used	None

Audit Results

These results were copy/pasted from the agreed final version of the auditing workbook at the end of the audit visit and have subsequently been confirmed after QA checking by the Consortium.

Restricted incident sample	Audit	MPAN accuracy	Combined accuracy	Threshold	Pass/fail
Overall CI Accuracy	99.70%	100.49%	99.81%	97%	Pass
Overall CML Accuracy	97.62%	100.49%	98.10%	97%	Pass
LV CI Accuracy	95.89%	100.47%	96.34%	92%	Pass
LV CML Accuracy	96.15%	100.47%	96.60%	92%	Pass

CE Electric - NEDL passed the CI and CML overall and LV Stage 2 thresholds; therefore neither of the Stage 3 incident samples was required.

Audit of telephony details returned to Ofgem

The visiting auditors examined NEDL's records of customer calls made as part of three separate incidents at the higher voltage level and two low voltage incidents. In all cases, NEDL demonstrated that the details of every caller who spoke to an agent were forwarded to Ofgem's consultants for potential follow-up as part of the survey of the DNOs' telephone response.

Audit of non-reportable incidents

Category	Number in sample	Number deemed non-reportable	Number deemed reportable
Higher Voltages	25	25	0
Low Voltage	30	30	0
Pre-arranged	25	25	0
Short Interruptions	20	20	0

Recommendations for Reporting Improvements

Recommendations from last year's audit	DNO action taken	Audit opinion
To ensure that the performance improvement initiative covers all voltages at all locations where CE Electric has people working on entering data into its measurement and reporting systems	NEDL has provided refresher training to its data inputters as an important element of its initiative	The visiting auditors are pleased to note NEDL's action but input errors are still apparent in the audit of this year's sample
To consider enhancing and reinforcing the role of its internal audit processes to ensure that its incident reports are free from obvious errors and are as accurate as possible	NEDL has reinforced its existing system whereby records are scrutinised before being reported to Ofgem's template. NEDL has also introduced an enhanced internal audit of a sample of incidents on a quarterly basis	The visiting auditors are pleased to note that NEDL has reinforced its internal audit regime during the reporting year but are disappointed to note that input errors are still apparent

Recommendations from last year's audit	DNO action taken	Audit opinion
Consider reviewing all instances where zero customers are associated with a distribution transformer to ensure that the connectivity model is accurate	NEDL has completed an exercise for all transformers that had zero connected customers and amended its connectivity model as appropriate. NEDL still has transformers with zero MPANs, e.g. un-metered supplies	The visiting auditors are pleased to note that NEDL has carried out this review and that no instances of zero MPAN transformers have been observed in this year's audit

To:	Recommendation from this year's audit
DNO	The visiting auditors strongly recommend that YEDL's initiative to deploy dedicated IRIS specialists is introduced into NEDL without delay
	The visiting auditors are pleased to note that the move to the new NMS has progressed smoothly with no apparent reduction in reporting accuracy
Ofgem	This year's audit for CE Electric was conducted on a two centre basis and it is recommended that this continues for future years

Appendix C. Audit Report for the CE - YEDL Licensed Area

Introduction

Visit Details	
Dates of audit visit:	21 and 22 May 2008
Location of audit visit:	CE Electric's Control Centres at Penshaw and at Leeds
Visiting Auditors:	James Hope (Ofgem) and Geoff Stott (BPI)
DNO Auditing Team:	Tony Ingham, Simon Keightley, Brian Nichol, Ian Ogilby, Ian Pushon, and Mike Smith

Audit of Measurement Systems

Measurement Area	Significant changes since last year
Interpretation of rigs v5	No changes have been made since last year's audit
MPAN systems	No changes have been made since last year's audit
Connectivity model	YEDL has completed the data cleansing exercise that removed phantom MPANS from its connectivity model
Measurement systems	CE Electric successfully commissioned a new NMS in place of its DMS during November 2007, subsequently introducing the automated NMS to TMS / IRIS during February 2008
Interpretation of rigs v5	No changes have been made since last year's audit

Measurement Area	Planned future changes
MPAN systems	No future changes are currently planned
Connectivity model	No future changes are currently planned
Measurement systems	No future changes are currently planned

Audit of Incident Reporting

Reporting Area	Audit Point	Main Findings
Ofgem's Template	Non reported incidents	None of the non-reported incidents sampled should have been reported in Ofgem's Template
	Issues identified	None
Higher Voltage Incidents	Number of unauditable incidents and spares used	None
	Main sources of reporting error	Manual transcription errors, including mis-read handwriting. One incident had a missing restoration stage
	Issues identified	As above

Reporting Area	Audit Point	Main Findings
LV Incidents	Number of unauditable incidents and spares used	One incident was unauditable due to insufficient audit trail. A spare was used instead
	Main sources of reporting error	Error in translating good notes into reportable stages. Discrepancies in interruption times and incorrect count of customers affected. Insufficient audit information is available for pre-arranged interruptions for part feeder situations
	Issues identified	As above
Misclassified Voltage Level	Number of cases of misclassification of voltage level and spares used	None

Audit Results

These results were copy/pasted from the agreed final version of the auditing workbook at the end of the audit visit and have subsequently been confirmed after QA checking by the Consortium.

Restricted incident sample	Audit	MPAN accuracy	Combined accuracy	Threshold	Pass/fail
Overall CI Accuracy	99.96%	99.93%	99.90%	97%	Pass
Overall CML Accuracy	99.98%	99.93%	99.91%	97%	Pass
LV CI Accuracy	97.31%	99.95%	97.26%	92%	Pass
LV CML Accuracy	83.17%	99.95%	83.13%	92%	Fail

CE Electric - YEDL passed the CI and CML overall Stage 2 thresholds but did not pass the Stage 2 LV threshold for CML. Therefore the audit proceeded to the Stage 3 LV incident sample which YEDL passed.

Stage 3 LV incident sample	Audit	MPAN accuracy	Combined accuracy	Threshold	Pass/fail
LV CI Accuracy	98.78%	99.95%	98.73%	90%	Pass
LV CML Accuracy	105.99%	99.95%	94.06%	90%	Pass

Audit of telephony details returned to Ofgem

The visiting auditors examined YEDL's records of customer calls made as part of three separate incidents at the higher voltage level and two low voltage incidents. In the case of two of the higher voltage incidents and both of the low voltage incidents, YEDL demonstrated that the details of every caller who spoke to an agent were forwarded to Ofgem's consultants for potential follow-up as part of the survey of the DNOs' telephone response. In the case of one higher voltage incident YEDL showed that two callers refused the survey, three persons called on behalf of others and one call had an incomplete 'phone number.

Audit of non-reportable incidents

Category	Number in sample	Number deemed non-reportable	Number deemed reportable
Higher Voltages	25	25	0
Low Voltage	30	30	0
Pre-arranged	25	25	0
Short Interruptions	20	20	0

Recommendations for Reporting Improvements

Recommendations from last year's audit	DNO action taken	Audit opinion
To ensure that the performance improvement initiative covers all voltages at all locations where CE Electric has people working on entering data into its measurement ands reporting systems	A pilot exercise has been introduced at one of YEDL's repair zones, the results from which are most encouraging. It is envisaged that this initiative will be rolled out across the remained of YEDL.	The visiting auditors are pleased to note that the positive results stemming from YEDL's initiative.
To consider enhancing and reinforcing the role of its internal audit processes to ensure that its incident reports are free from obvious errors and are as accurate as possible	YEDL has reinforced its existing system whereby records are scrutinised before being report to Ofgem's template. YEDL has also introduced an enhanced internal audit of a sample of incidents on a quarterly basis	The visiting auditors are pleased to note that YEDL has reinforced its internal audit regime but are disappointed to note the errors found in this year's audit sample
Further consider reviewing all instances where zero customers are associated with a distribution transformer to ensure that the connectivity model is accurate	YEDL has completed an exercise for all transformers that had zero connected customers and amended its connectivity model as appropriate. YEDL still has transformers with zero MPANs, e.g. un-metered supplies	The visiting auditors are pleased to note that YEDL has carried out this review and that no instances of zero MPAN transformers have been observed in this year's audit

To:	Recommendation from this year's audit
DNO	The visiting auditors strongly recommend that YEDL's initiative to deploy dedicated IRIS specialists is rolled out without delay as basic errors are still apparent in YEDL's reporting
	The visiting auditors are pleased to note that the move to the new NMS has progressed smoothly with no apparent reduction in reporting accuracy
	The visiting auditors suggest that YEDL enhances its internal audit regime during the introduction of its NMS to TMS link
Ofgem	This year's audit for CE Electric was conducted on a two centre basis and it is recommended that this continues for future years

Appendix D. Audit Report for the CN - East Licensed Area

Introduction

Visit Details	
Date of audit visit:	04 June 2008
Location of audit visit:	CN East's offices at Castle Donington
Visiting Auditors:	Laura Nell (Ofgem) and Geoff Stott (BPI)
DNO Auditing Team:	Jim Driscoll, Stephen Hayward, Nigel Hoult, Ian Jacob, Amanda Moore, Manjit Kandola and Sarah Thorpe

Audit of Measurement Systems

Measurement Area	Significant changes since last year
Interpretation of rigs v5	No changes have been made since last year's audit
MPAN systems	No changes have been made since last year's audit
Connectivity model	No changes have been made since last year's audit

Measurement Area	Planned future changes
MPAN systems	No future changes are planned
Connectivity model	No future changes are planned

Audit of Incident Reporting

Reporting Area	Audit Point	Main Findings
Ofgem's Template	Non reported incidents	None of the non-reported incidents sampled should have been reported in Ofgem's Template
	Issues identified	None
Higher Voltage Incidents	Number of unauditable incidents and spares used	No incidents were unauditable and no spares were used
	Main sources of reporting error	One incident did not have its interruption start time aligned to the first no-supply call
	Issues identified	As above
LV Incidents	Number of unauditable incidents and spares used	One incident was replaced with a spare as there was insufficient audit trail to verify the correct interruption start time
	Main sources of reporting error	One incident was found to contain the wrong start time – a 'low-volts' call had been used instead of a 'no-supply' call
	Issues identified	As above
Misclassified Voltage Level	Number of cases of misclassification of voltage level and spares used	None

Audit Results

The majority of these results were copy/pasted from the agreed final version of the auditing workbook at the end of the audit visit. However, subsequent to a QA check of the workbook by the Consortium; a minor anomaly was discovered resulting in very small adjustments to some of the figures. The results after the QA check are shown below.

Restricted incident sample	Audit	MPAN accuracy	Combined accuracy	Threshold	Pass/fail
Overall CI Accuracy	100.01%	99.70%	99.71%	97%	Pass
Overall CML Accuracy	100.04%	99.70%	99.74%	97%	Pass
LV CI Accuracy	100.47%	99.72%	99.82%	92%	Pass
LV CML Accuracy	101.01%	99.72%	99.28%	92%	Pass

CN East passed the CI and CML overall and LV Stage 2 thresholds; therefore neither of the Stage 3 incident samples was required.

Audit of non-reportable incidents

Category	Number in sample	Number deemed non-reportable	Number deemed reportable
Higher Voltages	30	30	0
Low Voltage	35	35	0
Single Premises	20	20	0
Short Interruptions	15	15	0

Audit of telephony details returned to Ofgem

The visiting auditors examined CN East's records of customer calls made as part of three separate incidents at the higher voltage level and two low voltage incidents. In the case of two of the higher voltage incidents and both of the low voltage incidents, CN East demonstrated that the details of every caller who spoke to an agent were forwarded to Ofgem's consultants for potential follow-up as part of the survey of the DNOs' telephone response. In the case of one higher voltage incident CN East showed that one caller refused the survey.

Recommendations for Reporting Improvements

Recommendations from last year's audit	DNO action taken	Audit opinion
Build upon the excellent start made with the new incident management system, the benefits of which can be seen in the audit of the sample of higher voltage incidents	CN has reinforced this message as part of its ongoing training programme	The visiting auditors are pleased that CN has included this aspect of its performance reporting in its training programme and note that no errors of this kind were found during this year's audit

Recommendations from last year's audit	DNO action taken	Audit opinion
Continue with the internal audit regime and the annotation of measurement system documentation with audit trail information, e.g. continue with the practice of inserting the first no supply call within the fault switching log	CN has continued with its internal audit regime, including the appointment of a further member of its team at CN East to act as specialist for performance reporting. Another member of CN's team has been appointed at CN West to work in parallel	The visiting auditors are pleased to note that CN has reinforced its internal auditing regime and look forward to seeing the results in future reporting years
Ensure that the progress seen in including more information in the incident notes is continued as this considerably assists the audit process	CN has also included this aspect of performance reporting in its ongoing training programme	The visiting auditors are pleased that CN has included this aspect of its performance reporting in its training programme and further notes of this kind are plentiful in this year's audit sample

To:	Recommendation from this year's audit
DNO	Once the two new team members have gained experience, CN may wish to consider widening the scope of its internal audit regime
	Continue with the comprehensive telephone notes as these were found to be particularly helpful
	Complete the excellent work now underway to eliminate zero-customer transformers
Ofgem	The approach to this year's telephone enquiries was an improvement on the initial approach as used in last year's audit
	Ofgem should consider increasing the number of un-announced incidents at both LV (to 10) and HV (to 15) in future years, providing the incidents were relatively straight-forward to audit

Appendix E. Audit Report for the CN - West Licensed Area

Introduction

Visit Details	
Date of audit visit:	03 June 2008
Location of audit visit:	CN West's offices at Tipton
Visiting Auditors:	Laura Nell (Ofgem) and Geoff Stott (BPI)
DNO Auditing Team:	Richard Ellam, Nigel Hoult, Ian Jacob and Sarah Thorpe and Scott Walters

Audit of Measurement Systems

Measurement Area	Significant changes since last year
Interpretation of rigs v5	No changes have been made since last year's audit
MPAN systems	No changes have been made since last year's audit
Connectivity model	No changes have been made since last year's audit

Measurement Area	Planned future changes
MPAN systems	No future changes are planned
Connectivity model	No future changes are planned
Control System	CN's Control Systems Consolidation project, which is well underway, will implement ENMAC / TCS in CN's West region. This is building on the successful implementation in CN's East region, thereby introducing common control and fault reporting systems / processes from the first quarter of 2010

Audit of Incident Reporting

Reporting Area	Audit Point	Main Findings
Ofgem's Template	Non reported incidents	None of the non-reported incidents sampled should have been reported in Ofgem's Template
	Issues identified	None
Higher Voltage Incidents	Number of unauditable incidents and spares used	No incidents were unauditable and no spares were used
	Main sources of reporting error	Only two minor input errors
	Issues identified	As above
LV Incidents	Number of unauditable incidents and spares used	One incident was replaced with a spare as there was insufficient audit trail to verify the correct interruption start time
	Main sources of reporting error	One incident had an error in customer count
	Issues identified	As above
Misclassified Voltage Level	Number of cases of misclassification of voltage level and spares used	None

Audit Results

These results were copy/pasted from the agreed final version of the auditing workbook at the end of the audit visit and have subsequently been confirmed after QA checking by the Consortium.

Restricted incident sample	Audit	MPAN accuracy	Combined accuracy	Threshold	Pass/fail
Overall CI Accuracy	100.00%	99.34%	99.33%	97%	Pass
Overall CML Accuracy	99.96%	99.34%	99.29%	97%	Pass
LV CI Accuracy	99.22%	99.34%	98.57%	92%	Pass
LV CML Accuracy	101.02%	99.34%	99.64%	92%	Pass

CN West passed the CI and CML overall and LV Stage 2 thresholds; therefore neither of the Stage 3 incident samples was required.

Audit of non-reportable incidents

Category	Number in sample	Number deemed non-reportable	Number deemed reportable
Mixed	85	85	0
Short Interruptions	15	15	0

Audit of telephony details returned to Ofgem

The visiting auditors examined CN West's records of customer calls made as part of three separate incidents at the higher voltage level and two low voltage incidents. With the exception of those callers with ex-directory 'phone numbers and unconfirmed details, CN West demonstrated that the details of every caller who spoke to an agent were forwarded to Ofgem's consultants for potential follow-up as part of the survey of the DNOs' telephone response.

Recommendations for Reporting Improvements

Recommendations from last year's audit	DNO action taken	Audit opinion
Further reinforce the message that an incident does not start until the company becomes aware of a 'no-supply' situation, by whatever means	CN has reinforced this message as part of its ongoing training programme	The visiting auditors are pleased that CN has included this aspect of its performance reporting in its training programme and note that no errors of this kind were found during this year's audit
Continue with the internal audit regime and the annotation of measurement system documentation with audit trail information, e.g. continue with the practice of inserting the first no supply call within the fault switching log	CN has continued with its internal audit regime, including the appointment of a further member of its team at CN West to act as specialist for performance reporting. Another member of CN's team has been appointed at CN East to work in parallel	The visiting auditors are pleased to note that CN has reinforced its internal auditing regime and look forward to seeing the results in future reporting years

Recommendations from last year's audit	DNO action taken	Audit opinion
Ensure that the progress seen in including more information in the incident notes is continued as this considerably assists the audit process	CN has also included this aspect of performance reporting in its ongoing training programme	The visiting auditors are pleased that CN has included this aspect of its performance reporting in its training programme and further notes of this kind are plentiful in this year's audit sample

To:	Recommendation from this year's audit
DNO	Once the two new team members have gained experience, CN may wish to consider widening the scope of its internal audit regime
	Continue with the comprehensive telephone notes as these were found to be particularly helpful
	Complete the excellent work now underway to eliminate zero-customer transformers
Ofgem	The approach to this year's telephone enquiries was an improvement on the initial approach as used in last year's audit

Appendix F. Audit Report for the EDFE - EPN Licensed Area

Introduction

Visit Details	
Dates of audit visit:	12 to 14 May 2008
Location of audit visit:	EDF Energy's Control Centre at Fore Hamlet, Ipswich
Visiting Auditors:	James Hope (Ofgem), Paul Burnaby (Ofgem) and Geoff Stott (BPI)
DNO Auditing Team:	Bill d'Albertanson, Chris Barker, Ken Tew, Martyn Woodhouse and Dave Young

Audit of Measurement Systems

Measurement Area	Significant changes since last year
Interpretation of rigs v5	No changes have been made since last year's audit
MPAN systems	No changes have been made since last year's audit
Connectivity model	No changes have been made since last year's audit

Measurement Area	Planned future changes
MPAN systems	No future changes are planned
Connectivity model	No future changes are planned
Control System	Introduce ENMAC automated fault report generation during the 2008/09 reporting year to put EPN in line with EDF Energy's strategy to run a common control platform

Audit of Incident Reporting

Reporting Area	Audit Point	Main Findings
Ofgem's Template	Non reported incidents	Of the 25 higher voltage non-reported 'incidents, 1 should have been reported. Of the 25 non-reported LV incidents, 5 should have been reported. Non of the 25 Single Premise and none of the 25 Short Interruptions should have been reported
	Issues identified	Open circuit cables with no customers affected should be reported under rig 2.15
Higher Voltage Incidents	Number of unauditable incidents and spares used	One incident was unauditable in a reasonable time due to the complex multi-tripping of circuit breakers. A spare was used in its place
	Main sources of reporting error	Several incidents contained input errors that could not be explained from an examination of the audit trail documentation
	Issues identified	As above

Reporting Area	Audit Point	Main Findings
LV Incidents	Number of unauditable incidents and spares used	One of the LV incidents was unauditable due to insufficient audit trail to verify the correct start and end times of the interruption. A spare was used in its place
	Main sources of reporting error	Several incidents contained transcription errors and there were two instances of inaccurate customer connections to the LV connectivity model
	Issues identified	As above
Misclassified Voltage Level	Number of cases of misclassification of voltage level and spares used	None

Audit Results

The majority of these results were copy/pasted from the agreed final version of the auditing workbook at the end of the audit visit. However, subsequent to a QA check of the workbook by the Consortium; a minor anomaly was discovered resulting in very small adjustments to some of the figures. The results after the QA check are shown below.

Restricted incident sample	Audit	MPAN accuracy	Combined accuracy	Threshold	Pass/fail
Overall CI Accuracy	100.26%	99.89%	99.85%	97%	Pass
Overall CML Accuracy	100.80%	99.89%	99.31%	97%	Pass
LV CI Accuracy	95.53%	99.89%	95.43%	92%	Pass
LV CML Accuracy	93.35%	99.89%	93.25%	92%	Pass

EPN passed the CI and CML overall and LV Stage 2 thresholds; therefore neither of the Stage 3 incident samples was required.

Audit of non-reportable incidents

Category	Number in sample	Number deemed non-reportable	Number deemed reportable
Higher Voltages	25	24	1
Low Voltage	25	20	5
Single Premises	25	25	0
Short Interruptions	25	25	0

Audit of telephony details returned to Ofgem

The visiting auditors examined EPN's records of customer calls made as part of three separate incidents at the higher voltage level and two low voltage incidents. In all cases, EPN demonstrated that the details of every caller who spoke to an agent and did not decline to have their details forwarded were sent to Ofgem's consultants for potential follow-up as part of the survey of the DNOs' telephone response. As part of their own filtering policy EPN only provided the caller's details once for each week, regardless of the number of calls that customer may have made in that week. EPN also reported that it

could not provide the details to Ofgem for those customer calls that were 'answered' by its automatic messaging system.

Recommendations for Reporting Improvements

Recommendations from last year's audit	DNO action taken	Audit opinion
The visiting auditors consider that EPN should re-emphasise the importance of accuracy amongst the people who are responsible for inputting data into its measurement and reporting systems	EPN has reinforced the need for accuracy of reporting at all voltage levels.	The visiting auditors are pleased to note that EPN has reinforced this aspect of its reporting. However, the audit of incidents indicates that more work is needed.
To further emphasise the above, the visiting auditors suggest that EPN considers reinforcing its internal audit regime, sharing the learning points amongst its team	EPN has increased the amount of internal auditing it carries out. A specialist team is to be established to further enhance this aspect of its reporting	The visiting auditors are pleased to note that EPN is to establish this specialist team
The visiting auditors consider that EPN should ensure that a robust audit trail exists within its measurement and reporting documentation. For example, actual times where Field Control has been employed and variations from system generated customer numbers	EPN has reinforced this aspect of its reporting. Personnel undertaking field control leave a voice message for EPN's central control team indicating interruption start times. Central Control then records this information on ENMAC	The visiting auditors are pleased to note that EPN has reinforced this aspect of its reporting. No instances of this type of mis-reporting were noted in the audit of this reporting year
The visiting auditors noted that there were several instances where re-interruptions had been reported contrary to the rigs version 5 and confused with Short Interruptions. EPN may wish to consider re-issuing its guidance on reporting	EPN has reinforced the 'rules' for reporting SI's and re-interruptions with a view to improving its performance in this area	The visiting auditors are pleased to note that EPN has reinforced this aspect of its reporting. Only two instances were noted where a restoration stage should have been flagged as a re-interruption
The visiting auditors recommend that EPN ensures that the number of customers interrupted, re-interruption stages and actual start times are part of their internal audit checks of LV incidents	A specialist team is to be established to further enhance this aspect of its reporting	The visiting auditors are pleased to note that EPN has reinforced this aspect of its reporting. However, the audit of incidents indicates that more work is needed.

To:	Recommendation from this year's audit
DNO	The visiting auditors are pleased to note EPN's move to improving its internal auditing regime and consequently recommend that any lessons learned are shared amongst the relevant people
	EPN may wish to reduce the amount of pre-audit preparation and printing of incident reports as it was found to be straightforward to audit the majority of incidents directly from the electronic records on screen
	Whilst the complexity of some interrelated non-reported incidents does not lend itself to auditing a completely unannounced sample of them, this does not preclude a small number of unannounced non-reported incidents in future audit visits
	At the low voltage level it would be possible to increase the number of unannounced incidents as these were found to not take much longer to audit than those pre-announced

Appendix G. Audit Report for the EDFE - LPN Licensed Area

Introduction

Visit Details	
Dates of audit visit:	12 to 14 May 2008
Location of audit visit:	EDF Energy's Control Centre at Fore Hamlet, Ipswich
Visiting Auditors:	James Hope (Ofgem), Paul Burnaby (Ofgem) and Geoff Stott (BPI)
DNO Auditing Team:	Bill d'Albertanson, Chris Barker, Ken Tew, Dave Walter and Dave Young

Audit of Measurement Systems

Measurement Area	Significant changes since last year
Interpretation of rigs v5	No changes have been made since last year's audit
MPAN systems	No changes have been made since last year's audit
Connectivity model	No changes have been made since last year's audit

Measurement Area	Planned future changes
MPAN systems	No future changes are planned
Connectivity model	No future changes are planned
Control System	Introduce ENMAC / Troublecall and automated fault reporting by 2010 to put LPN in line with EDF Energy's strategy to run a common control platform

Audit of Incident Reporting

Reporting Area	Audit Point	Main Findings
Ofgem's Template	Non reported incidents	None of the non-reported incidents sampled should have been reported in Ofgem's Template
	Issues identified	None
Higher Voltage Incidents	Number of unauditable incidents and spares used	No incidents were unauditable and no spares were used
	Main sources of reporting error	Only one incident contained a transcription error due to mis-reading of handwriting
	Issues identified	As above
LV Incidents	Number of unauditable incidents and spares used	No incidents were unauditable and no spares were used
	Main sources of reporting error	Only minor, mainly rounding errors were found in the audit of LPN's LV incidents
	Issues identified	As above
Misclassified Voltage Level	Number of cases of misclassification of voltage level and spares used	None

Audit Results

These results were copy/pasted from the agreed final version of the auditing workbook at the end of the audit visit and have subsequently been confirmed after QA checking by the Consortium.

Restricted incident sample	Audit	MPAN accuracy	Combined accuracy	Threshold	Pass/fail
Overall CI Accuracy	99.99%	99.71%	99.70%	97%	Pass
Overall CML Accuracy	99.97%	99.71%	99.68%	97%	Pass
LV CI Accuracy	98.12%	99.71%	97.84%	92%	Pass
LV CML Accuracy	97.52%	99.71%	97.24%	92%	Pass

LPN passed the CI and CML overall and LV Stage 2 thresholds; therefore neither of the Stage 3 incident samples was required.

Audit of non-reportable incidents

Category	Number in sample	Number deemed non-reportable	Number deemed reportable
Higher Voltages	30	30	0
Low Voltage	40	40	0
Single Premises	30	30	0

Audit of telephony details returned to Ofgem

The visiting auditors examined LPN's records of customer calls made as part of three separate incidents at the higher voltage level and two low voltage incidents. For two of the higher voltage incidents LPN was unable to demonstrate that the details of every caller who spoke to an agent and did not decline to have their details forwarded were sent to Ofgem's consultants for potential follow-up as part of the survey of the DNOs' telephone response. As part of their own filtering policy LPN only provided the caller's details once for each week, regardless of the number of calls that customer may have made in that week. LPN also reported that it could not provide the details to Ofgem for those customer calls that were 'answered' by its automatic messaging system

Recommendations for Reporting Improvements

Recommendations from last year's audit	DNO action taken	Audit opinion
The visiting auditors consider that LPN should re-emphasise the importance of accuracy amongst the people who are responsible for inputting data into its measurement and reporting systems	LPN has reinforced the need for accuracy of reporting at all voltage levels	The visiting auditors are pleased to note that LPN has reinforced this aspect of its reporting

Recommendations from last year's audit	DNO action taken	Audit opinion
To further emphasise the above, the visiting auditors suggest that LPN considers reinforcing its internal audit regime, sharing the learning points amongst its team	LPN has further increased the depth of its in-house expertise in internal monthly self-audits at both HV and LV during reporting year 2007/08. It also continues with the audits that are carried out by its independent in-house audit team	The visiting auditors consider that the single error seen in the sample of higher voltage incident reports and the minor errors seen in the LV incidents is testament to the rigour with which LPN carries out its extended internal audit regime
The visiting auditors noted that there were several instances where re-interruptions had been reported contrary to the rigs version 5 and confused with Short Interruptions. LPN may wish to consider re-issuing its guidance on reporting	LPN has provided refresher training on these aspects of IIS reporting	The visiting auditors are pleased to note that LPN has provided this refresher training and that these errors were not apparent in the audit of this year's incidents
The visiting auditors recommend that LPN ensures that the number of customers interrupted, re-interruption stages and actual start times are part of their internal audit checks of LV incidents	LPN has provided refresher training on these aspects of IIS reporting	The visiting auditors are pleased to note that LPN has provided this refresher training and that these errors were not apparent in the audit of this year's incidents

To:	Recommendation from this year's audit
DNO	The visiting auditors are pleased to note LPN's increased emphasis on its internal audit regime and recommend that this continues
	LPN may wish to reduce the amount of pre-audit preparation and printing of incident reports as it was found to be straightforward to audit the majority of incidents directly from the electronic records on screen
Ofgem	The nature of LPN's document recording system does not currently lend itself to increasing the number of unannounced higher voltage incidents and it is felt that the time is not right to increase the number. At the low voltage level it would be possible to increase the number of unannounced incidents as these were found to not take much longer to audit than those pre-announced
	Whilst the complexity of some interrelated non-reported incidents does not lend itself to auditing a completely unannounced sample of them, this does not preclude a small number of unannounced non-reported incidents in future audit visits

Appendix H. Audit Report for the EDFE - SPN Licensed Area

Introduction

Visit Details	
Dates of audit visit:	12 to 14 May 2008
Location of audit visit:	EDF Energy's Control Centre at Fore Hamlet, Ipswich
Visiting Auditors:	James Hope (Ofgem), Paul Burnaby (Ofgem) and Geoff Stott (BPI)
DNO Auditing Team:	Bill d'Albertanson, Simon Mulcahy, Nigel Harding, Jackie Samways, Ken Tew and Dave Young

Audit of Measurement Systems

Measurement Area	Significant changes since last year
Interpretation of rigs v5	No changes have been made since last year's audit
MPAN systems	No changes have been made since last year's audit
Connectivity model	No changes have been made since last year's audit

Measurement Area	Planned future changes
MPAN systems	No future changes are planned
Connectivity model	No future changes are planned
Control System	ENMAC / Troublecall and automated fault reporting were commissioned during reporting year 2007/08 to put SPN in line with EDF Energy's strategy to run a common control platform

Audit of Incident Reporting

Reporting Area	Audit Point	Main Findings
Control System	Examine SPN's new control system	The visiting auditors were pleased to note that SPN's newly introduced control system was found to be equally as robust as that which it replaced
Fault reporting system	Examine SPN's new fault reporting system	The visiting auditors examined SPN's new incident reporting system and were pleased that the new system is more user friendly and succeeds in un-cluttering the information presented to SPN's personnel whilst retaining a robust audit trail 'in the background'. It is considered that this will lend itself to a completely unannounced audit in future years
Ofgem's Template	Non reported incidents	2 of the 30 LV non-reported incidents should have been reported and a further 2 had earlier start times than the incidents to which they were merged – this is something which the new ENMAC system is designed to preclude
	Issues identified	As above

Reporting Area	Audit Point	Main Findings
Higher Voltage Incidents	Number of unauditable incidents and spares used	No incidents were unauditable and no spares were used
	Main sources of reporting error	Only on instance of a transcription error was noted in the audit of the incidents
	Issues identified	As above
LV Incidents	Number of unauditable incidents and spares used	None of the LV incidents was unauditable and no spares were used
	Main sources of reporting error	A number of incidents contained errors in customer numbers, compounded by some where SPN had apparently carried out an internal audit
	Issues identified	As above
Misclassified Voltage Level	Number of cases of misclassification of voltage level and spares used	None

Audit Results

These results were copy/pasted from the agreed final version of the auditing workbook at the end of the audit visit and have subsequently been confirmed after QA checking by the Consortium.

Restricted incident sample	Audit	MPAN accuracy	Combined accuracy	Threshold	Pass/fail
Overall CI Accuracy	100.02%	99.67%	99.69%	97%	Pass
Overall CML Accuracy	99.99%	99.67%	99.67%	97%	Pass
LV CI Accuracy	105.70%	99.67%	94.65%	92%	Pass
LV CML Accuracy	97.81%	99.67%	97.48%	92%	Pass

SPN passed the CI and CML overall and LV Stage 2 thresholds; therefore neither of the Stage 3 incident samples was required.

Audit of non-reportable incidents

Category	Number in sample	Number deemed non-reportable	Number deemed reportable
Higher Voltages	30	30	0
Low Voltage	40	38*	2
Short Interruptions	30	30	0

Note*: 2 of the 38 LV incidents deemed non-reportable had start times earlier than the incident reports to which they were merged

Audit of telephony details returned to Ofgem

The visiting auditors examined SPN's records of customer calls made as part of three separate incidents at the higher voltage level and two low voltage incidents. In all cases, SPN demonstrated that the details of every caller who spoke to an agent were forwarded to Ofgem's consultants for potential follow-up as part of the survey of the DNOs' telephone response. Those calls logged in SPN's trouble call system that were not passed to Ofgem's consultant were shown to be ones that had been dealt with by SPNs automated messaging system. SPN also reported that it could provide the details to Ofgem for those customer calls that were 'answered' by its automatic messaging system.

Recommendations for Reporting Improvements

Recommendations from last year's audit	DNO action taken	Audit opinion
To continue with the internal audit regime, especially given the impending change to the ENMAC / Troublecall system and the relative unfamiliarity its people will have with it	SPN has introduced the ENMAC / Troublecall system during reporting year 2007/08 and operating experience is still being gained in its use in conjunction with the supplier. A specialist team is to be established to further enhance this aspect of its reporting	The visiting auditors consider that the single error seen in the sample of higher voltage incident reports is testament to the rigour with which SPN carries out its extended internal audit regime at the higher voltage levels. However, the visiting auditors are disappointed to note the number of errors in the audit of SPN's LV incidents

To:	Recommendation from this year's audit
DNO	To continue with the internal audit regime, especially given the recent change to the ENMAC / Troublecall system and the teething troubles that may ensue
	The visiting auditors are disappointed to note the number of errors in the audit of SPN's LV incidents, where basic errors are being made. Consequently, the visiting auditors recommend that SPN considers providing refresher training in the reporting of its LV incidents
	The visiting auditors are further disappointed to note that some of the above errors existed in incident reports that had been subjected to SPN's internal LV audit and recommend that SPN reinforces this aspect of its reporting procedures
Ofgem	Whilst the complexity of some interrelated non-reported incidents does not lend itself to auditing a completely unannounced sample of them, this does not preclude a small number of unannounced non-reported incidents in future audit visits
	SPN's newly commissioned ENMAC system will lend itself to a completely unannounced higher voltage audit sample at an appropriate time in the future
	At the low voltage level it would be possible to increase the number of unannounced incidents as these were found to not take much longer to audit than those pre-announced

Appendix I. Audit Report for the ENW (UUES) Licensed Area

Introduction

Visit Details	
Date of audit visit:	02 June 2008
Location of audit visit:	UUES's Control Centre, Manchester
Visiting Auditors:	Laura Nell (Ofgem), Ronke Adenuga (Ofgem) and Geoff Stott (BPI)
DNO Auditing Team:	Denham Croden, Kate Quigley, Rob Snell and Paul Ward

Audit of Measurement Systems

Measurement Area	Significant changes since last year
Interpretation of rigs v5	No changes have been made since last year's audit
MPAN systems	No changes have been made since last year's audit
Connectivity model	No changes have been made since last year's audit

Measurement Area	Planned future changes
MPAN systems	No future changes are planned – data cleansing is ongoing
Connectivity model	No future changes are planned

Audit of Incident Reporting

Reporting Area	Audit Point	Main Findings
Ofgem's Template	Non reported incidents	None
	Issues identified	None
Higher Voltage Incidents	Number of unauditable incidents and spares used	No incidents were unauditable and no spares were used
	Main sources of reporting error	Instances of wrong start time being used. Several missing restoration stages
	Issues identified	As above
LV Incidents	Number of unauditable incidents and spares used	No incidents were unauditable and no spares were used
	Main sources of reporting error	Minor transcription errors
	Issues identified	As above
Misclassified Voltage Level	Number of cases of misclassification of voltage level and spares used	None

Audit Results

These results were copy/pasted from the agreed final version of the auditing workbook at the end of the audit visit and have subsequently been confirmed after QA checking by the Consortium.

Restricted incident sample	Audit	MPAN accuracy	Combined accuracy	Threshold	Pass/fail
Overall CI Accuracy	100.01%	99.30%	99.31%	97%	Pass
Overall CML Accuracy	100.00%	99.30%	99.31%	97%	Pass
LV CI Accuracy	100.85%	99.35%	99.81%	92%	Pass
LV CML Accuracy	100.09%	99.35%	99.44%	92%	Pass

ENW / UUES passed the CI and CML overall and LV Stage 2 thresholds; therefore neither of the Stage 3 incident samples was required.

Audit of non-reportable incidents

Category	Number in sample	Number deemed non-reportable	Number deemed reportable
Low Voltage	100	100	0

Audit of telephony details returned to Ofgem

The visiting auditors examined UUES's records of customer calls made as part of three separate incidents at the higher voltage level and two low voltage incidents. However the data submitted to Ofgem was incomplete and it was not possible to cross-refer the UUES data. UUES and Ofgem will review this situation following the audit visit.

Recommendations for Reporting Improvements

Recommendations from last year's audit	DNO action taken	Audit opinion
The visiting auditors suggest that UU continues with its internal audit process, sharing learning points with all its data inputters as appropriate, including using the time of first no-supply call as the start of the interruption	UU has continued with its existing internal audit regime whereby a number of reported incidents is sampled throughout the reporting year	The visiting auditors are pleased to note that UU has continued with its sampling regime but are disappointed to note the number of errors in this year's sample of incidents

Recommendations from last year's audit	DNO action taken	Audit opinion
The visiting auditors were pleased to see the number of instances where UU's control engineers had entered information regarding the numbers of customers restored as part of their control room switching log. UU is encouraged to spread this practice to al its control team as it greatly assists the audit process by providing prime data for the audit trail	UU has encouraged all the members of its control team to enter cross-references and other audit trail information on its control room documentation	The visiting auditors are pleased that UU has reinforced this aspect of its reporting practices and are pleased to note the number of occasions in which this was apparent in the audit of this year's incidents
Ensure that further system updates do not re-introduce errors which have been corrected, e.g. taking the time of the incident being upgraded to a mains fault as the start time rather than the time of the first no supply call	UU has reinforced this message to all its data inputters	The visiting auditors are pleased to note that no errors of this nature were found in this year's audit
Review the reporting of multiple phase LV interruptions on several stages where the start and end times are the same	UU has reinforced this message to all its data inputters	The visiting auditors are pleased to note that no errors of this nature were found in this year's audit

To:	Recommendation from this year's audit
DNO	The visiting auditors recommend that UUES reviews its internal auditing regime to ensure that more of its HV incidents are subjected to checking
	The visiting auditors recommend that UUES reviews the categories it uses to record the non-reported incidents to better reflect those used in the majority of DNOs
Ofgem	UUES's current system does not readily lend itself to increasing the number of unannounced HV incidents
	Given the results from this year's audit, Ofgem could consider increasing the number of unannounced LV incidents to 10 in future reporting years
	Ensure that a sample of non-reportable incidents are included as part of future audits

Appendix J. Audit Report for the SPD Licensed Area

Introduction

Visit Details	
Dates of audit visit:	28 and 29 May 2008
Location of audit visit:	ScottishPower's Control Centre at Prenton
Visiting Auditors:	Paul Burnaby (Ofgem), James Hope (Ofgem), Chris Watts (Ofgem) and Geoff Stott (BPI)
DNO Auditing Team:	Anne Baikie, Tommy Berry, Graham Laird, David McMenemy and Alyn Jones

Audit of Measurement Systems

Measurement Area	Significant changes since last year
Interpretation of rigs v5	No changes have been made since last year's audit
MPAN systems	No changes have been made since last year's audit
Connectivity model	No changes have been made since last year's audit

Measurement Area	Planned future changes
MPAN systems	No future changes are planned
Connectivity model	SPD has begun to introduce a replacement GIS system that will have an LV feeder tracing system similar to that already available in SPD's higher voltage measurement systems
Incident reporting	SPD is working towards the replacement of its current ICOND and Troublecall systems to provide for improved interfaces, one attribute of which will be to auto-populate its incident reports. An interim software release has been introduced, the benefits of which are aimed at improving the accuracy of reporting

Audit of Incident Reporting

Reporting Area	Audit Point	Main Findings
Ofgem's Template	Non reported incidents	Of the 45 non-reported LV incidents, 2 should have been reported. None of the 25 higher voltage, none of the 15 Single Premise and none of the 15 Short Interruptions should have been reported
	Issues identified	The two LV incidents involved customer interruptions
Higher Voltage Incidents	Number of unauditable incidents and spares used	No incidents were unauditable and no spares were used
	Main sources of reporting error	Two incidents contained errors in the count of 'two-thirds, one-third' customers affected
	Issues identified	As above

Reporting Area	Audit Point	Main Findings
LV Incidents	Number of unauditable incidents and spares used	No incidents were unauditable and no spares were used
	Main sources of reporting error	Several incidents contained errors in customer count
	Issues identified	As above
Misclassified Voltage Level	Number of cases of misclassification of voltage level and spares used	None

Audit Results

These results were copy/pasted from the agreed final version of the auditing workbook at the end of the audit visit and have subsequently been confirmed after QA checking by the Consortium.

Restricted incident sample	Audit	MPAN accuracy	Combined accuracy	Threshold	Pass/fail
Overall CI Accuracy	99.98%	99.26%	99.24%	97%	Pass
Overall CML Accuracy	100.75%	99.26%	100.00%	97%	Pass
LV CI Accuracy	98.73%	99.26%	98.00%	92%	Pass
LV CML Accuracy	103.37%	99.26%	97.39%	92%	Pass

SPD passed the CI and CML overall and LV Stage 2 thresholds; therefore neither of the Stage 3 incident samples was required.

Audit of non-reportable incidents

Category	Number in sample	Number deemed non-reportable	Number deemed reportable
Higher Voltages	25	25	0
Low Voltage	45	43	2
Single Premises	15	15	0
Short Interruptions	15	15	0

Audit of telephony details returned to Ofgem

The visiting auditors examined SPD's records of customer calls made as part of three separate incidents at the higher voltage level and two low voltage incidents. With the exception of those callers with unconfirmed details, SPD demonstrated that the details of every caller who spoke to an agent were forwarded to Ofgem's consultants for potential follow-up as part of the survey of the DNOs' telephone response. Those calls logged in SPD's trouble call system that were not passed to Ofgem's consultant were shown to be ones that had been dealt with by SPD's automated messaging system. SPD also reported that it could provide the details to Ofgem for those customer calls that were 'answered' by its automatic messaging system.

Recommendations for Reporting Improvements

Recommendations from last year's audit	DNO action taken	Audit opinion
Further reinforce the message that an incident does not start until the company becomes aware of a 'no-supply' situation, by whatever means.	As part of its on-going staff training programme SPD has reinforced the message regarding incident start times	The visiting auditors are pleased to note that SPD has reinforced this message and that non of these errors were apparent in this year's audit sample
Continue with the internal audit regime and the annotation of measurement system documentation with audit trail information, e.g. continue with the practice of inserting the first no supply call within the fault switching log.	SPD has continued with its internal audit regime, sampling incidents on a regular basis	The visiting auditors are pleased to note that SPD has continued to enhance its internal auditing regime but are disappointed to note the number of input errors in this year's LV audit

To:	Recommendation from this year's audit
DNO	Further enhance the internal auditing regime to reduce the number of errors still apparent at the LV level
	The visiting auditors look forward to seeing the results of SPD's impending new software systems
Ofgem	At both the higher voltage and the low voltage levels it would be possible to increase the number of unannounced incidents as these were not found to take much longer to audit than those pre-announced
	Consider accepting as auditable evidence time stamped "confirmed/feeder numbers" of the number of customers on a feeder at the time of the incident.
	Consider issuing guidance to cover the situation where supplies are interrupted to a derelict property when the supply company has not requested the MPAN to become de-energised

Appendix K. Audit Report for the SPM Licensed Area

Introduction

Visit Details	
Dates of audit visit:	28 and 29 May 2008
Location of audit visit:	ScottishPower's Control Centre at Prenton
Visiting Auditors:	Paul Burnaby (Ofgem), James Hope (Ofgem), Chris Watts (Ofgem) and Geoff Stott (BPI)
DNO Auditing Team:	Diane Bellis, Alyn Jones, Gary Smith, Steve Sweeney and Val Ward

Audit of Measurement Systems

Measurement Area	Significant changes since last year
Interpretation of rigs v5	No changes have been made since last year's audit
MPAN systems	No changes have been made since last year's audit
Connectivity model	No changes have been made since last year's audit

Measurement Area	Planned future changes
MPAN systems	No future changes are planned
Connectivity model	SPM has begun to introduce a replacement GIS system that will have an LV feeder tracing system similar to that already available in SPM's higher voltage measurement systems
Incident reporting	SPM is working towards the replacement of its current ICOND and Troublecall systems to provide for improved interfaces, one attribute of which will be to auto-populate its incident reports. An interim software release has been introduced, the benefits of which are aimed at improving the accuracy of reporting

Audit of Incident Reporting

Reporting Area	Audit Point	Main Findings
Ofgem's Template	Non reported incidents	None of the non-reported incidents sampled should have been reported in Ofgem's Template
	Issues identified	None
Higher Voltage Incidents	Number of unauditable incidents and spares used	No incidents were unauditable and no spares were used
	Main sources of reporting error	Two incidents contained input errors in incident start times by not using the time of the first 'no-supply' call
	Issues identified	As above
LV Incidents	Number of unauditable incidents and spares used	No incidents were unauditable and no spares were used
	Main sources of reporting error	Several incidents contained errors in customer count
	Issues identified	As above

Reporting Area	Audit Point	Main Findings
Misclassified Voltage Level	Number of cases of misclassification of voltage level and spares used	None

Audit Results

The majority of these results were copy/pasted from the agreed final version of the auditing workbook at the end of the audit visit. However, subsequent to a QA check of the workbook by the Consortium; a minor anomaly was discovered resulting in very small adjustments to some of the figures. The results after the QA check are shown below..

Restricted incident sample	Audit	MPAN accuracy	Combined accuracy	Threshold	Pass/fail
Overall CI Accuracy	99.99%	99.27%	99.26%	97%	Pass
Overall CML Accuracy	99.02%	99.27%	98.29%	97%	Pass
LV CI Accuracy	97.44%	99.27%	96.73%	92%	Pass
LV CML Accuracy	96.71%	99.27%	96.00%	92%	Pass

SEPD passed the CI and CML overall and LV Stage 2 thresholds; therefore neither of the Stage 3 incident samples was required.

Audit of non-reportable incidents

Category	Number in sample	Number deemed non-reportable	Number deemed reportable
Higher Voltages	25	25	0
Low Voltage	45	45	0
Single Premises	15	15	0
Short Interruptions	15	15	0

Audit of telephony details returned to Ofgem

The visiting auditors examined SPM's records of customer calls made as part of three separate incidents at the higher voltage level and two low voltage incidents. With the exception of those callers with unconfirmed details, SPM demonstrated that the details of every caller who spoke to an agent were forwarded to Ofgem's consultants for potential follow-up as part of the survey of the DNOs' telephone response. Those calls logged in SPM's trouble call system that were not passed to Ofgem's consultant were shown to be ones that had been dealt with by SPM's automated messaging system. SPM also reported that it could provide the details to Ofgem for those customer calls that were 'answered' by its automatic messaging system.

Recommendations for Reporting Improvements

Recommendations from last year's audit	DNO action taken	Audit opinion
Further reinforce the message that an incident does not start until the company becomes aware of a 'no-supply' situation, by whatever means.	As part of its on-going staff training programme SPM has reinforced the message regarding incident start times	The visiting auditors are pleased to note that SPM has reinforced this message but are disappointed to note that this error was still apparent in this year's HV audit sample
Continue with the internal audit regime and the annotation of measurement system documentation with audit trail information, e.g. continue with the practice of inserting the first no supply call within the fault switching log.	SPM has continued with its internal audit regime, sampling incidents on a regular basis	The visiting auditors are pleased to note that SPM has continued to enhance its internal auditing regime but are disappointed to note the number of input errors in this year's LV audit

To:	Recommendation from this year's audit
DNO	Further enhance the internal auditing regime to reduce the number of errors still apparent at the LV level
	The visiting auditors look forward to seeing the results of SPM's impending new software systems
Ofgem	At both the higher voltage and the low voltage levels it would be possible to increase the number of unannounced incidents as these were not found to take much longer to audit than those pre-announced
	Consider accepting as auditable evidence time stamped "confirmed/feeder numbers" of the number of customers on a feeder at the time of the incident.
	Consider issuing guidance to cover the situation where supplies are interrupted to a derelict property when the supply company has not requested the MPAN to become de-energised

Appendix L. Audit Report for the SSE - SEPD Licensed Area

Introduction

Visit Details	
Date of audit visit:	19 and 20 May 2008
Location of audit visit:	SSE's Control Centre, Perth
Visiting Auditors:	James Hope (Ofgem), Paul Burnaby (Ofgem) and Geoff Stott (BPI)
DNO Auditing Team:	John Blyth, Mike Green and Chee Lee

Audit of Measurement Systems

Measurement Area	Significant changes since last year
Interpretation of rigs v5	No changes have been made since last year's audit
MPAN systems	No changes have been made since last year's audit
Connectivity model	No changes have been made since last year's audit

Measurement Area	Planned future changes
MPAN systems	No future changes are planned
Connectivity model	No future changes are planned
Processes	SEPD introduced a revised internal auditing regime during March 2007

Audit of Incident Reporting

Reporting Area	Audit Point	Main Findings
Ofgem's Template	Non reported incidents	None of the non-reported incidents sampled should have been reported in Ofgem's Template
	Issues identified	None
Higher Voltage Incidents	Number of unauditable incidents and spares used	None
	Main sources of reporting error	Only one transcription error in incident start time
	Issues identified	None
LV Incidents	Number of unauditable incidents and spares used	One incident had insufficient information and a spare was used instead There was no audit trail of carded times for one pre-arranged incident and no information for the spare either.
	Main sources of reporting error	One incident should have been reported as part of a previous incident as the customers had not been restored for at least 3 hours following the replacement. of a fuse
	Issues identified	As above.
Misclassified Voltage Level	Number of cases of misclassification of voltage level and spares used	None

Audit Results

These results have been copy/pasted from the agreed final version of the incident auditing workbook and have subsequently been confirmed after checking by the Consortium.

Restricted incident sample	Audit	MPAN accuracy	Combined accuracy	Threshold	Pass/fail
Overall CI Accuracy	100.02%	99.92%	99.94%	97%	Pass
Overall CML Accuracy	100.04%	99.92%	99.96%	97%	Pass
LV CI Accuracy	101.29%	99.92%	98.79%	92%	Pass
LV CML Accuracy	101.17%	99.92%	98.91%	92%	Pass

SEPD passed the CI and CML overall and LV Stage 2 thresholds; therefore neither of the Stage 3 incident samples was required.

Audit of non-reportable incidents

Category	Number in sample	Number deemed non-reportable	Number deemed reportable
Higher Voltages	40	40	0
Low Voltage	40	40	0
Short Interruptions	20	20	0

Audit of telephony details returned to Ofgem

The visiting auditors examined SEPD's records of customer calls made as part of three separate incidents at the higher voltage level and two low voltage incidents. With the exception of one caller who did not wish to be surveyed, SSE demonstrated that the details of every caller who spoke to an agent were forwarded to Ofgem's consultants for potential follow-up as part of the survey of the DNOs' telephone response.

Recommendations for Reporting Improvements

Recommendations from last year's audit	DNO action taken	Audit opinion
The visiting auditors suggest that SSE continues with its internal audit process, reinforced by the application of its revised internal auditing instruction.	SSE introduced a revised auditing regime during March 2007	The visiting auditors are pleased to note the effects of SSE's new internal auditing regime are evident in the reporting of SSE's incidents for reporting year 2007/08 where only minor errors were found in the audit sample

Recommendations from last year's audit	DNO action taken	Audit opinion
The visiting auditors suggest that where more calls are received for an incident than the number of customers identified as being interrupted, then a further check is made to ensure that the correct number of customers interrupted is reported.	SSE has further reinforced its procedures for reporting the number of customers identified as being interrupted	The visiting auditors are pleased to note that SSE has reinforced its reporting procedures and that these errors were not apparent in the audit of this year's incidents

To:	Recommendation from this year's audit
DNO	The visiting auditors were pleased to note the informative comments, cross-references and notes embedded in some of SSE's measurement systems and recommend that this is continued to further improve the incident audit trails
	The visiting auditors were pleased to note the further strengthening of SSE's internal audit regime and recommend that this is continued
Ofgem	Whilst the audit of the sample of 100 non-reported incidents has not revealed any anomalies, the inclusion of this element should be continued for future reporting years as it adds an extra dimension of rigour to the overall audit visit
	In the light of the ease with which the sample of un-announced higher-voltage incidents was audited, Ofgem should consider increasing the sample size during a future reporting year

Appendix M. Audit Report for the SSE - SHEPD Licensed Area

Introduction

Visit Details	
Dates of audit visit:	19 and 20 May 2008
Location of audit visit:	SSE's Control Centre, Perth
Visiting Auditors:	James Hope (Ofgem), Paul Burnaby (Ofgem) and Geoff Stott (BPI)
DNO Auditing Team:	David Colthart, Mike Green, Neil Sandison, Adrian Sims and David Telford

Audit of Measurement Systems

Measurement Area	Significant changes since last year
Interpretation of rigs v5	No changes have been made since last year's audit
MPAN systems	No changes have been made since last year's audit
Connectivity model	No changes have been made since last year's audit

Measurement Area	Planned future changes
MPAN systems	No future changes are planned
Connectivity model	No future changes are planned
Processes	SHEPD introduced a revised internal auditing regime during March 2007

Audit of Incident Reporting

Reporting Area	Audit Point	Main Findings
Ofgem's Template	Non reported incidents	None of the non-reported incidents sampled should have been reported in Ofgem's Template
	Issues identified	None
Higher Voltage Incidents	Number of unauditable incidents and spares used	No incidents were unauditable and no spares were used
	Main sources of reporting error	Only two incidents contained errors due to mis-reading of interruption times
	Issues identified	None
LV Incidents	Number of unauditable incidents and spares used	No incidents were unauditable and no spares were used
	Main sources of reporting error	There were no significant sources of reporting error
	Issues identified	None
Misclassified Voltage Level	Number of cases of misclassification of voltage level and spares used	None

Audit Results

These results were copy/pasted from the agreed final version of the auditing workbook at the end of the audit visit and have subsequently been confirmed after QA checking by the Consortium.

Restricted incident sample	Audit	MPAN accuracy	Combined accuracy	Threshold	Pass/fail
Overall CI Accuracy	100.01%	100.00%	100.00%	97%	Pass
Overall CML Accuracy	99.90%	100.00%	99.89%	97%	Pass
LV CI Accuracy	100.26%	100.00%	99.75%	92%	Pass
LV CML Accuracy	100.12%	100.00%	99.88%	92%	Pass

SHEPD passed the CI and CML overall and LV Stage 2 thresholds; therefore neither of the Stage 3 incident samples was required.

Audit of non-reportable incidents

Category	Number in sample	Number deemed non-reportable	Number deemed reportable
Higher Voltages	40	40	0
Low Voltage	40	40	0
Short Interruptions	20	20	0

Audit of telephony details returned to Ofgem

The visiting auditors examined SHEPD's records of customer calls made as part of three separate incidents at the higher voltage level and two low voltage incidents. With the exception of a call from one of SHEPD's own personnel, SSE demonstrated that the details of every caller who spoke to an agent were forwarded to Ofgem's consultants for potential follow-up as part of the survey of the DNOs' telephone response.

Recommendations for Reporting Improvements

Recommendations from last year's audit	DNO action taken	Audit opinion
The visiting auditors suggest that SSE continues with its internal audit process, reinforced by the application of its revised internal auditing instruction.	SSE introduced a revised auditing regime during March 2007	The visiting auditors are pleased to note the effects of SSE's new internal auditing regime are evident in the reporting of SSE's incidents for reporting year 2007/08 where only minor errors were found in the audit sample
The visiting auditors suggest that SSE incorporates into its procedures a check to ensure that "self-check cards" are removed from the count of customers involved in pre-arranged interruptions.	SSE has revised its procedures for reporting pre-arranged interruptions	The visiting auditors are pleased to note that SSE has changed its reporting procedures and that these anomalies were not apparent in the audit of this year's incidents

To:	Recommendation from this year's audit
DNO	The visiting auditors were pleased to note the informative comments, cross-references and notes embedded in some of SSE's measurement systems and recommend that this is continued to further improve the incident audit trails
	The visiting auditors were pleased to note the further strengthening of SSE's internal audit regime and recommend that this is continued
Ofgem	Whilst the audit of the sample of 100 non-reported incidents has not revealed any anomalies, the inclusion of this element should be continued for future reporting years as it adds an extra dimension of rigour to the overall audit visit
	In the light of the ease with which the sample of un-announced higher-voltage incidents was audited, Ofgem should consider increasing the sample size during a future reporting year

Additional comment from this year's audit
The visiting auditors were pleased to note that the training of people to take over from SHEPD's deputy Network Management Centre Manager had progressed well over the reporting year. Consequently, the visiting auditors considered that the imminent retirement of the current post holder should present no difficulties to SHEPD within its key processes, thus amply vindicating the company's initiative in its forward-looking initiative.

Appendix N. Audit Report for the WPD - South Wales Licensed Area

Introduction

Visit Details	
Dates of audit visit:	16 and 17 April 2008
Location of audit visit:	WPD's Control Centre, Lamby Way, Cardiff
Visiting Auditors:	James Hope (Ofgem), Paul Burnaby (Ofgem) and Geoff Stott (BPI)
DNO Auditing Team:	Lloyd Bridges, Carolyn Hinchey, Alison Sleightholm and Mark Taylor

Audit of Measurement Systems

Measurement Area	Significant changes since last year
Interpretation of rigs v5	No changes have been made since last year's audit
MPAN systems	No changes have been made since last year's audit
Connectivity model	No changes have been made since last year's audit

Measurement Area	Planned future changes
MPAN systems	No future changes are planned
Connectivity model	No future changes are planned

Audit of Incident Reporting

Reporting Area	Audit Point	Main Findings
Ofgem's Template	Non reported incidents	None of the non-reported incidents sampled should have been reported in Ofgem's Template
	Issues identified	None
Higher Voltage Incidents	Number of unauditable incidents and spares used	None
	Main sources of reporting error	None
	Issues identified	None
LV Incidents	Number of unauditable incidents and spares used	None
	Main sources of reporting error	Only minor errors were found during the audit
	Issues identified	None
Misclassified Voltage Level	Number of cases of misclassification of voltage level and spares used	None

Audit Results

These results were copy/pasted from the agreed final version of the auditing workbook at the end of the audit visit and have subsequently been confirmed after QA checking by the Consortium.

Restricted incident sample	Audit	MPAN accuracy	Combined accuracy	Threshold	Pass/fail
Overall CI Accuracy	100.00%	99.99%	99.99%	97%	Pass
Overall CML Accuracy	100.00%	99.99%	99.99%	97%	Pass
LV CI Accuracy	100.00%	99.99%	99.99%	92%	Pass
LV CML Accuracy	100.26%	99.99%	99.75%	92%	Pass

WPD South Wales passed the CI and CML overall and LV Stage 2 thresholds; therefore neither of the Stage 3 incident samples was required.

Audit of non-reportable incidents

Category	Number in sample	Number deemed non-reportable	Number deemed reportable
Higher Voltages	40	40	0
Low Voltage	40	40	0
Pre-arranged	40	40	0
Single Premises	40	40	0
Short Interruptions	40	40	0

Audit of telephony details returned to Ofgem

The visiting auditors examined WPD South Wales' records of customer calls made as part of three separate incidents at the higher voltage level and two low voltage incidents. In all cases, WPD demonstrated that the details of every caller who spoke to an agent were forwarded to Ofgem's consultants for potential follow-up as part of the survey of the DNOs' telephone response. Those calls logged in WPD's trouble call system that were not passed to Ofgem's consultant were shown to be ones that had been dealt with by WPD's automated messaging system. WPD also reported that it could provide the details to Ofgem for those customer calls that were 'answered' by its automatic messaging system.

Recommendations for Reporting Improvements

Recommendations from last year's audit	DNO action taken	Audit opinion
The visiting auditors suggest that WPD continues with its internal audit process, reinforced by the application of its revised internal auditing instruction.	WPD has increased the depth of its in-house expertise in internal monthly self-audits at both HV and LV during reporting year 2007/08. It also continues with the audits that are carried out by its independent in-house audit team.	The visiting auditors consider that minor errors seen in the sample of incident reports is testament to the rigour with which WPD carries out its extended internal audit regime.

Recommendations from last year's audit	DNO action taken	Audit opinion
The visiting auditors suggest that WPD considers the automatic population of the customer numbers in its PC-NaFIRS reports, thus removing the potential for transcription errors in its present manual process.	WPD's measurement systems do not lend themselves to the adoption of this approach but WPD will consider the inclusion of this recommendation in any future plans it may have.	The visiting auditors note WPD's comments
The visiting auditors recommend that WPD reviews its internal guidance on how to report customers re-interrupted as part of incomplete incidents and ensures that it is in line with rigs version 5 paragraph 2.49.	WPD has reinforced its internal guidance on the reporting of this type of incident	The visiting auditors are pleased that WPD has acted upon their recommendations and are pleased to note that there were no similar errors of reporting found during the 2008 audit visit
During the audit of the LV sample, the visiting auditors noticed a number of incidents that had been classified as "mains" that were in fact "services". Whilst not affecting the CI or CML counts, WPD may wish to consider how this has arisen and introduce corrective measures as appropriate.	WPD has reinforced its internal guidance on the reporting of this type of incident	The visiting auditors are pleased that WPD has issued further in-house guidance on this aspect of reporting – there was a reduced number of similar instances found during the 2008 audit visit

To:	Recommendation from this year's audit
DNO	The visiting auditors were pleased to note the detail of informative comments, cross-references and notes embedded in WPD's measurement systems and recommend that this is further reinforced to further improve the incident audit trails
	The visiting auditors were pleased to note the further strengthening of WPD's internal audit regime and recommend that this is given on-going emphasis
Ofgem	In the light of the results of the examination of the non-reported incidents, Ofgem should consider reducing the total sample size for reporting year 2008/09
DNO	In the light of non of the sample of incidents being known to WPD in advance of the audit visit, Ofgem should consider adopting this approach across all DNOs during a future reporting year
	The visiting auditors were pleased to note the detail of informative comments, cross-references and notes embedded in WPD's measurement systems and recommend that this is further reinforced to further improve the incident audit trails

Appendix O. Audit Report for the WPD - South West Licensed Area

Introduction

Visit Details	
Dates of audit visit:	16 and 17 April 2008
Location of audit visit:	WPD's Control Centre, Lamby Way, Cardiff
Visiting Auditors:	James Hope (Ofgem), Paul Burnaby (Ofgem) and Geoff Stott (BPI)
DNO Auditing Team:	Lloyd Bridges, Carolyn Hinchey, Alison Sleightholm and Mark Taylor

Audit of Measurement Systems

Measurement Area	Significant changes since last year
Interpretation of rigs v5	No changes have been made since last year's audit
MPAN systems	No changes have been made since last year's audit
Connectivity model	No changes have been made since last year's audit

Measurement Area	Planned future changes
MPAN systems	No future changes are planned
Connectivity model	No future changes are planned

Audit of Incident Reporting

Reporting Area	Audit Point	Main Findings
Ofgem's Template	Non reported incidents	None of the non-reported incidents sampled should have been reported in Ofgem's Template
	Issues identified	None
Higher Voltage Incidents	Number of unauditable incidents and spares used	None
	Main sources of reporting error	Only one transcription error in incident start time
	Issues identified	None
LV Incidents	Number of unauditable incidents and spares used	None
	Main sources of reporting error	Minor errors in incident start time and one missing re-interruption stage
	Issues identified	None
Misclassified Voltage Level	Number of cases of misclassification of voltage level and spares used	None

Audit Results

These results have been copy/pasted from the agreed final version of the incident auditing workbook and have subsequently been confirmed after checking by the Consortium.

Restricted incident sample	Audit	MPAN accuracy	Combined accuracy	Threshold	Pass/fail
Overall CI Accuracy	100.00%	99.98%	99.98%	97%	Pass
Overall CML Accuracy	100.00%	99.98%	99.98%	97%	Pass
LV CI Accuracy	100.19%	99.98%	99.83%	92%	Pass
LV CML Accuracy	100.07%	99.98%	99.95%	92%	Pass

WPD South West passed the CI and CML overall and LV Stage 2 thresholds; therefore neither of the Stage 3 incident samples was required.

Audit of non-reportable incidents

Category	Number in sample	Number deemed non-reportable	Number deemed reportable
Higher Voltages	40	40	0
Low Voltage	40	40	0
Pre-arranged	40	40	0
Single Premises	40	40	0
Short Interruptions	40	40	0

Audit of telephony details returned to Ofgem

The visiting auditors examined WPD South West's records of customer calls made as part of three separate incidents at the higher voltage level and two low voltage incidents. In all cases, WPD demonstrated that the details of every caller who spoke to an agent were forwarded to Ofgem's consultants for potential follow-up as part of the survey of the DNOs' telephone response. Those calls logged in WPD's trouble call system that were not passed to Ofgem's consultant were shown to be ones that had been dealt with by WPD's automated messaging system. WPD also reported that it could provide the details to Ofgem for those customer calls that were 'answered' by its automatic messaging system.

Recommendations for Reporting Improvements

Recommendations from last year's audit	DNO action taken	Audit opinion
The visiting auditors suggest that WPD continues with its internal audit process, reinforced by the application of its revised internal auditing instruction.	WPD has increased the depth of its in-house expertise in internal monthly self-audits at both HV and LV during reporting year 2007/08. It also continues with the audits that are carried out by its independent in-house audit team.	The visiting auditors consider that minor errors seen in the sample of incident reports is testament to the rigour with which WPD carries out its extended internal audit regime.

Recommendations from last year's audit	DNO action taken	Audit opinion
The visiting auditors suggest that WPD considers the automatic population of the customer numbers in its PC-NaFIRS reports, thus removing the potential for transcription errors in its present manual process.	WPD's measurement systems do not lend themselves to the adoption of this approach but WPD will consider the inclusion of this recommendation in any future plans it may have.	The visiting auditors note WPD's comments
The visiting auditors recommend that WPD reviews its internal guidance on how to report customers re-interrupted as part of incomplete incidents and ensures that it is in line with rigs version 5 paragraph 2.49.	WPD has reinforced its internal guidance on the reporting of this type of incident	The visiting auditors are pleased that WPD has acted upon their recommendations and are pleased to note that there were no similar errors of reporting found during the 2008 audit visit
During the audit of the LV sample, the visiting auditors noticed a number of incidents that had been classified as "mains" that were in fact "services". Whilst not affecting the CI or CML counts, WPD may wish to consider how this has arisen and introduce corrective measures as appropriate.	WPD has reinforced its internal guidance on the reporting of this type of incident	The visiting auditors are pleased that WPD has issued further in-house guidance on this aspect of reporting – there were no similar instances found during the 2008 audit visit

To:	Recommendation from this year's audit
DNO	The visiting auditors were pleased to note the detail of informative comments, cross-references and notes embedded in WPD's measurement systems and recommend that this is further reinforced to further improve the incident audit trails
	The visiting auditors were pleased to note the further strengthening of WPD's internal audit regime and recommend that this is given on-going emphasis
Ofgem	In the light of the results of the examination of the non-reported incidents, Ofgem should consider reducing the total sample size of non-reported incidents for reporting year 2008/09, possibly to 100 incidents in total
	In the light of non of the sample of incidents being known to WPD in advance of the audit visit, Ofgem should consider adopting this approach across all DNOs during a future reporting year