

Gas Downstream Reconciliation Performance Audit Draft Report

For

Contact Energy Limited



Prepared by Steve Woods – Veritek Ltd

Date of Audit: 19/04/10 & 20/04/10

Date Audit Report Complete: 27/09/10

Executive Summary

This Performance Audit was conducted at the request of the Gas Industry Company (GIC) in accordance with Rule 65 of the Gas (Downstream Reconciliation) Rules 2008.

The purpose of this audit is to assess the systems, processes and performance of Contact Energy (Contact) in terms of compliance with these rules.

The audit was conducted in accordance with terms of reference prepared by the GIC, and in accordance with the "Guideline note for rules 65 to 75 and 80: the commissioning and carrying out of performance audits and event audits, V1.0" which was published by the GIC in March 2009.

The summary of report findings in the table below shows that Contact's control environment is "effective" for approximately half of the areas evaluated and "adequate" for the other half. There were no areas that were considered "not adequate".

14 of the 17 areas evaluated were found to be compliant. Three breach allegations are made in relation to the remaining areas. They are summarised as follows:

- Estimated TOU consumption information has been submitted to the allocation agent on a number of occasions from May 2009 to April 2010. Contact's processes achieve compliance with the requirement to provide its "best estimate of consumption information"; however, the existence of estimated information is considered a matter of non-compliance.
- Consumption information is not systematically submitted to the allocation agent for ICPs which are vacant but still active, and where volume is measured. When these ICPs switch to another retailer or a consumer is identified, then the consumption will be included in the allocation process. In some cases, the time delay is greater than the due date for the final allocation, which will mean that some consumption information may not be included in the allocation process. As part of the resolution of this matter, it is recommended that Contact measures and reports on the effect on the accuracy of consumption information submitted to the allocation agent.
- Contact's initial submission accuracy did not meet the 15% requirement for all gas gates for the period October 2008 to June 2009.

At the November 2009 Retailer's Forum the issue of "consistency of application of gas billing factors" was discussed. It was agreed that this forum would draft a guideline to assist with addressing this issue. Contact has produced a draft guideline, which was reviewed during this audit, and some of the content is included in this report.

It is recommended that this draft guideline be further developed into a "Guideline note" to assist participants with compliance with the rules, and to ensure the consistent application of the relevant factors.

Summary of Report Findings

Issue	Section	Control Rating (Refer to Appendix 1 for definitions)	Compliance Rating	Comments
ICP set up information	2.1	Adequate	Compliant	Some time delays exist with the registry update systems and processes. The proposed changes to the management of altitude information are reasonable and will lead to improvements in the accuracy of this data.
Metering set up information	2.2	Adequate	Compliant	Some pressure factor and meter dial discrepancies exist between Contact's and meter owners' records. It is recommended that validation occurs on a monthly basis with meter owners to address this matter.
Billing factors	2.3	Effective	Compliant	Robust controls are in place for the management of billing factors.
Archiving of reading data	3.1	Effective	Compliant	Robust controls are in place for the security of meter reading data.
Meter interrogation requirements	3.2	Effective	Compliant	Monitoring of consumption greater than 250GJ occurs on a monthly basis and any meter reading frequency or TOU upgrades are addressed accordingly.
Meter reading targets	3.3	Adequate	Compliant	It is recommended that the reporting is changed to only include active ICPs.

Non TOU validation	3.4	Adequate	Compliant	Improvements have been made in this area since the November 2009 internal audit. Automation of the “instant bills” validation would be required for the controls to be rated as “effective”.
Non TOU error correction	3.5	Effective	Compliant	Experienced staff conduct correction activities, and a “sign off” process is in place.
TOU validation	3.6	Effective	Compliant	Experienced staff conduct this activity manually. Process documentation is currently being improved.
Energy consumption calculation	4	Effective	Compliant	There is no manual intervention in this process, and it was “proved” from end to end using a spreadsheet based calculation tool developed by Contact.
TOU estimation and correction	5.1	Effective	Not compliant	A “sign off” process is in place for any estimations or corrections, and the process used is robust. The existence of any estimated TOU consumption information is considered a matter of non-compliance. This issue is addressed on a monthly basis and breach allegations are in existence in all cases.
Provision of retailer consumption information	5.2	Adequate	Not compliant	The management of “vacant consumption” requires improvement to minimise its occurrence and to ensure consumption information is submitted to the allocation agent.
Initial submission accuracy	5.3	Adequate	Not compliant	Considerable improvement has been made in this area and the level of accuracy and compliance has improved in recent months.

Forward estimates	5.4	Adequate	Compliant	The rules don't stipulate a process for forward estimate calculation. Improvements have been made in this area that will lead to an improvement in accuracy.
Historic estimates	5.5	Effective	Compliant	Compliance was achieved for all of the scenarios provided during the audit.
Proportion of HE	5.6	Effective	Compliant	Reporting has been provided as required.
Billed vs consumption comparison	5.7	Effective	Compliant	On a long-term basis, Contact's billed information is slightly less than consumption information. Although these figures cannot be directly compared, they provide a useful indicator to ensure that under reporting of consumption information is not occurring.

Persons Involved in This Audit

Auditor:

Steve Woods
Veritek Limited

Contact personnel assisting in this audit were.

Name	Title
Bernie Cross	Energy Reconciliation Manager
KP Chiew	Senior Reconciliation Analyst
Michael Grace	Energy Reconciliation Analyst
Joel Kisteria	Reconciliation Process Analyst
Campbell Wilson	Registry Analyst

Service providers assisting with processes within the audit scope:

Company	Processes
Wells Instrument and Electrical	Non TOU meter reading
PowerCo	TOU manual data collection (PowerCo meters)
Siemens (Palmerston North, Hawkes Bay & Wellington)	TOU manual data collection (Contact meters)
Electrix (Auckland)	TOU manual data collection (Contact meters)

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1. Pre-Audit and Operational Infrastructure Information

1.1 Scope of Audit

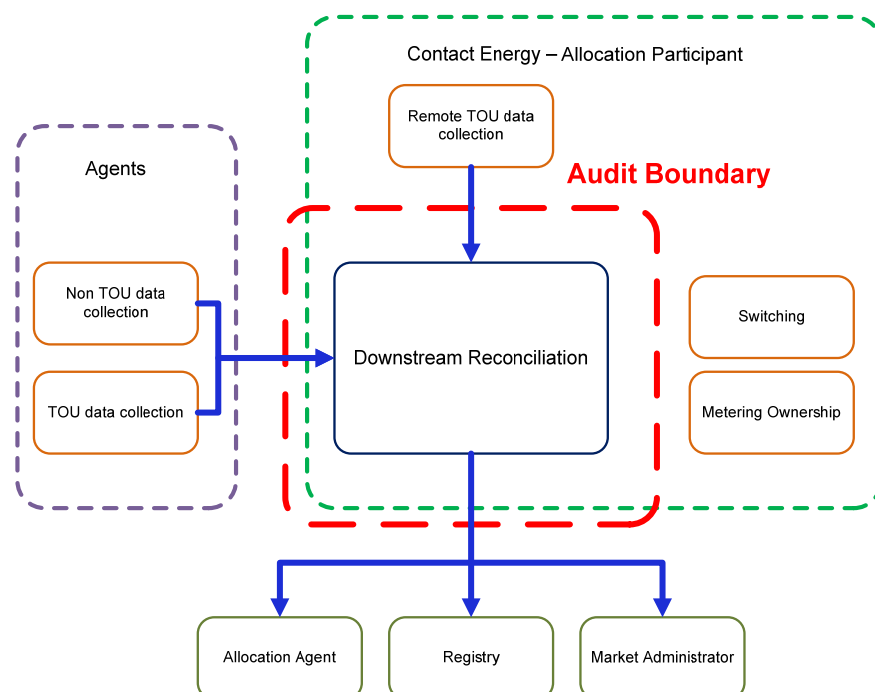
This Performance Audit was conducted at the request of the GIC in accordance with Rule 65 of the Gas (Downstream Reconciliation) Rules 2008. Rule 65 is inserted below:

65. Industry body to commission performance audits
- 65.1 The industry body must arrange at regular intervals performance audits of the allocation agent and allocation participants.
- 65.2 The purpose of a performance audit under this rule is to assess in relation to the allocation agent or an allocation participant, as the case may be, -
- 65.2.1 The performance of the allocation agent or that allocation participant in terms of compliance with these rules; and
- 65.2.2 The systems and processes of the allocation agent or that allocation participant that have been put in place to enable compliance with these rules.

The audit was conducted in accordance with terms of reference prepared by the Gas Industry Company.

The audit was carried out on April 19th and 20th at Contact's offices in Wellington.

The scope of the audit includes "downstream reconciliation" only, as shown in the diagram below. Switching, metering ownership and data collection functions are not within the audit scope.



1.2 Audit Approach

As mentioned in Section 1.1 the purpose of this audit is to assess the performance of Contact in terms of compliance with the rules, and the systems and processes that have been put in place to enable compliance with the rules.

This audit has examined the effectiveness of the controls Contact has in place to achieve compliance, and where it has been considered appropriate sampling has been undertaken to determine compliance.

Where sampling has occurred, this has been conducted using the Auditing Standard 506 (AS-506) which was published by the Institute of Chartered Accountants of New Zealand. I have used my professional judgement to determine the audit method and to select sample sizes, with an objective of ensuring that the results are statistically significant.¹

Where calculations are performed by Contact's systems, the algorithm has been checked by using one or two examples as a "sample". Multiple examples are not required because they will not introduce any different variables.

Where compliance is reliant on manual processes, manual data entry for example, the sample size has been increased to a magnitude that, in my judgement, ensures the result has statistical significance.

Where errors have been found or processes found not to be compliant the materiality of the error or non-compliance has been evaluated.

¹ In statistics, a result is called statistically significant if it is unlikely to have occurred by chance. (Wikipedia)

1.3 General Compliance

This is Contact's first performance audit under Rule 65; therefore, there is not a previous audit report for review.

An event audit was conducted in 2009 for the Greater Auckland and Tawa A gas gates. The relevant findings of these audits, which have been further examined during this performance audit, are:

- For May 2009 and June 2009 Contact's consumption information for the initial allocation was lower than that submitted for the interim allocation, by 18.6% and 12.3% respectively. This matter is discussed further in Section 5.3
- One ICP was identified with incorrect zero consumption.

Contact has 34 alleged breaches recorded by the Market Administrator since October 2008. These are summarised as follows:

Nature of Breach	Rule	Quantity	Section in this Report
Switching Breaches		13	Not within audit scope
Submission of estimated TOU data	30	11	5.1
Initial vs final allocation variances more than 15 %	37.2	5	5.3
Late submission	31	1	5.2
Incorrect submission information	26.2.1	2	
Zero consumption for one ICP	28.2	1	3.4
Late trading notification	39.2.3	1	

As noted in the Summary of Report Findings, this audit has found three areas of non-compliance. The following breach allegations are made in relation to these matters.

Breach Allegation	Rule	Section in this report
<p>Estimated TOU consumption information has been provided on a number of occasions from May 2009 to April 2010. Contact's processes achieve compliance with the requirement to provide its "best estimate of consumption information"; however, the existence of estimated information is considered a matter of non-compliance. This issue is addressed on a monthly basis and historic breach allegations are listed in Section 5.1.</p>	30.3	5.1
<p>Consumption information is not systematically submitted to the allocation agent for ICPs that are vacant but still active, and where volume is measured. When these ICPs switch to another retailer, or a consumer is identified, then the consumption will be included in the allocation process.</p> <p>In some cases the time delay is greater than the due date for the final allocation, which will mean that not all of the consumption information will be included in the allocation process.</p>	30, 31, 32 & 33	5.2
<p>Contact's initial submission accuracy did not meet the 15% requirement for all gas gates for the period October 2008 to June 2009.</p>	37.2	5.3

1.4 Provision of Information to the Auditor (Rule 69)

In conducting this audit, the auditor may request any information from Contact, the allocation agent and any allocation participant.

Information was provided by Contact in a timely manner in accordance with this rule.

Information was requested from metering equipment owners and was provided within the four business day timeframe by Gas Net, NGC and Nova. Powerco was unable to provide the information within this required timeframe and their information was provided within nine business days. The requested timeframe was particularly short, and nine business days is not considered unreasonable. I consider that all parties have complied with the requirements of this rule.

1.5 Draft Audit Report Comments

A draft audit report was provided to the industry body (GIC), the allocation agent, and allocation participants that I considered had an interest in the report. In accordance with rule 70.3 of the Gas (Downstream Reconciliation) Rules 2008, those parties were given an opportunity to comment on the draft audit report and indicate whether they would like their comments attached as an appendix to the final audit report. The following parties responded.

Party	Response	Comments provided	Attached as appendix
Contact Energy	Yes	Yes	Yes
Advanced Metering Services	Yes	No	No
Gas Net	Yes	Yes	Yes

The comments received were considered in accordance with rule 71.1, prior to preparing the final audit report. As a result, I have made some changes to the audit report.

1.6 Transmission Methodology and Audit Trails (Rule 28.4.1)

A complete audit trail was viewed for all data gathering, validation and processing functions. Compliance is confirmed with this rule.

2. Set-up and Maintenance of Information in Systems (Rule 28.2)

Every retailer must ensure the conversion of measured volume to volume at standard conditions and the conversion of volume at standard conditions to energy complies with NZS 5259:2004, for metering equipment installed at each consumer installation, for which the retailer is the responsible retailer.

At the November 2009 Retailer's Forum the issue of "consistency of application of gas billing factors" was discussed. It was agreed that this forum would draft a guideline to assist with addressing this issue. Contact has produced a draft guideline, which was reviewed during this audit, and some of the content is included in this report.

It is recommended that this draft guideline be further developed into a "Guideline note" to assist participants with compliance with the rules, and to ensure the consistent application of the relevant factors.

Compliance with this rule has been examined in relation to the set-up of ICP, metering and billing information.

2.1 ICP Set Up Information

2.1.1 New Connections Process

The process was examined for the connection and activation of new ICPs. Contact has a robust set of validation processes and reports to identify and resolve discrepancies; which was demonstrated during the audit. The validation compares Gentrack data to registry data, and includes:

- Missing ICPs
- Retailer
- ICP status
- Responsible distributor
- Gas gate
- ICP type code
- Network price category code
- Various metering fields

The event detail report was checked and it was found that 432 ICPs had their status changed to ACTC during the period March 9th to March 19th. The registry was updated more than five business days after the actual event date for 399 of the 432 ICPs, and for 164 of these the registry was updated more than 20 business days after the actual event date. The average days from the actual event date to until the registry was updated was 26 days. Consumption information will not be provided to the Allocation Agent until the registry is updated, which means that for a large proportion of ICPs where the status has change to ACTC, consumption information will not be provided to the Allocation Agent for the initial allocation.

416 ICPs were changed to ACTV during the same period, and 80 of these had registry update dates of more than 20 business days. Forward estimates would have been calculated for these until the registry was updated.

One of the main issues with the new connections process is that the physical connection is made at the property when the ICP is still at the "Ready" status, and at this point the consumer hasn't necessarily registered with a retailer. A number of customers do not sign into ICP's until a "vacant disconnection" letter is sent.

Contact has also identified a system issue that has resulted in the registry not being updated to ACTC despite the fact that Gentrack has all of the necessary information for this to occur. A report has been prepared to identify these ICPs, and the registry is updated manually. This is not ideal and can cause additional delays. Contact intends to address this issue from a system enhancement perspective.

2.1.2 Altitude Information

It is a distributor responsibility to populate the registry with altitude information; however, there is no requirement for retailers to use this information.

Historically Contact has obtained and used data from Terralink, and has recorded this in Gentrack in 20m bands. Altitudes within a 20m band are recorded as the top of the band, for example, altitudes between 100m and 120m are recorded as 120m. Altitudes below 100m have been recorded as 0m.

NZS 5259:2004 Amendment No1, which was published in November 2009, contains two changes, which affect the way that altitude information is managed.

1. The maximum permissible error has been reduced from $\pm 1.5\%$ to $\pm 1.0\%$ where the meter pressure is below 100kPa and $\pm 0.5\%$ where the meter pressure is greater than 100kPa.
2. The following note is also included "To minimise uncertainty due to altitude factor the aim should be to determine the altitude to within 10m where practicable."

Contact now intends to change their policy in relation to the management of altitude factors and will adopt the following principles:

- A midpoint between 20m bands will be adopted, so where the altitude is between 0m and 20m the altitude used will be 10m. Where the altitude is between 20.1m and 40m the altitude used will be 30m, etc.

- Updated altitude information will be sourced from Terralink and Contact's database will be refreshed with this data.
- This data will then be provided to distributors who will be encouraged to update the registry.

This approach by Contact is reasonable and responsible and will improve the overall accuracy of altitude information. The implementation date for the new data was late August 2010.

Contact provided a table with all current altitude information, registry altitude information and Terralink altitude information. A random sample of 20 ICPs was checked against "google earth" data. This is not considered a scientific method of evaluation; however it did show similar data to the Terralink data, and is considered an appropriate test for "reasonableness".

2.2 Metering Set-up Information

The data in Gentrack was compared to that of meter owners for all Contact ICPs, to check the accuracy of meter pressure, dials and multipliers. The following discrepancies were found:

Meter Owner	Total ICPs	Meter Pressure Discrepancies	Meter Dial Discrepancies
NGC	5,496	353	13
Powerco	5,149	230	18
Gas Net	627	84	1
Nova	197	12	4
Total Discrepancies		679	36

Contact checked a sample of 66 discrepancies (approximately 10%). Contact's records were correct in 45 instances, and it appears that the meter owner had not updated their records accurately. Further investigation is required for 21 discrepancies. The following recommendations are made in relation to these discrepancies:

- That meter owners are required to undergo performance audits to ensure the processes for recording and reporting metering set-up information are robust.
- That Contact completes the investigation into all of the discrepancies recorded in the table above.

The physical set up information for ten AG4 metering installations was examined where these had recently been checked as part of a scheduled maintenance program. There were not any issues identified in relation to the existing set-up data.

2.3 Billing Factors

2.3.1 Temperature Information

For ICPs where the actual temperature is not measured NZS 5259: 2004 states that temperature may be estimated and four methodologies are provided. These are listed below in order of decreasing preference, and with Contact's comments on the practicability of each option:

- (a) Temperature records of the station under flowing conditions. Historical records can be used if similarity is preserved.

Comment: Would only be appropriate where a corrector with a live temperature feed had been installed at the site for some time but had subsequently been removed and the usage remained reasonably similar to the historic usage.

- (b) Records of actual gas temperature in similar installations over similar periods at similar locations may serve to estimate the value of gas temperature in the installation.

Comment: Unlikely to be a practical option.

- (c) For compact installations directly connected to short risers and well shaded from direct sunlight, where the temperature of the gas is in the vicinity of ground temperature, the temperature may be estimated from the average ground temperature at 300mm depth. NOTE – Reliable and relevant climatic temperature data may be used as a basis for estimating average 300mm ground temperatures. This may include published data. For installations with seasonal use only, the data for the relevant season or seasons should be used.

Comment: Reflective of the configuration at the majority of GMS installations as the riser pipe is generally quite short, and a practical option given NIWA has many stations recording such information in areas where gas is supplied.

- (d) For installations where the inlet pipes are exposed to ambient air conditions the temperature may be estimated from the mean temperature obtained at reliable and relevant weather recording stations. For installations with seasonal use only, the data for the relevant season or season should be used. The installation should be shielded from direct sunlight.

Comment: Not reflective of the configuration at the majority of GMS installations as the riser pipe is generally quite short.

Contact has chosen option (c) and intends to take the following steps:

- Have NIWA identify weather stations with at least 5 years historic temperature data at 300mm depth.
- Select one station most relevant to the area supplied by each gas gate; use the historic average monthly temperature data provided by NIWA.
- A possible option would be to select all stations relevant to the area supplied by each gas gate, and use the average of the stations for each month. It is considered this option would be more complicated and analysis shows it would not make a material difference, hence should be discarded.
- Refresh the monthly temperature data periodically (say every 5 years).
- Billing/reconciliation systems to apply the daily weighted average temperature for the billing/read-read period.
- Establish a list that identifies an appropriate station for each gas gate; make this available to participants so participants can adopt a consistent reference point.

Option (c) seems to be the most logical choice because, as mentioned above, it matches the majority of GMS installations. The proposed implementation steps appear to be well considered and logical.

Contact does not apply the Joule Thompson effect adjustment because network pressure information on the registry is not accurate. NZS 5259:2004 states "...correction may be made for the temperature drop due to pressure reduction if this reduction is made in the same installation and immediately upstream of the GMS. The temperature drop is about 0.5° per 100kPa of pressure drop. For large pressure drops or high flow rates it is recommended that the actual temperature drop be measured." This indicates that adjustment for the Joule Thompson effect is desirable. It is recommended that distributors be required to populate this information accurately on the registry for use by retailers.

2.3.2 Calorific Values

Gas composition data is sourced from the Open Access Transmission Information System (OATIS) and is loaded into Gentrack. The accuracy of the Gentrack information was checked by comparing an OATIS file with the contents of Gentrack for May 2010 for the following gas types:

- X – Rotowaro mixed
- E – McKee + Treated Kapuni
- R – Maui/McKee/Treated Kapuni

In all cases the information in Gentrack was correct.

3. Meter Reading and Validation

3.1 Archiving of Register Reading Data (Rule 28.4.2)

Retailers are required to keep register reading data for a period of 30 months. Data was examined during the audit and it is confirmed that Contact securely archives data for a period in excess of 30 months.

Some data provided by Contact's meter reading contractor was checked and it was found that the readings matched the data in Gentrack. This proves the end-to-end process. This data is transmitted via FTP, which ensures its security and integrity.

3.2 Retailer to Ensure Certain Metering Interrogation Requirements are Met (Rule 29)

This rule requires that for consumer installations where the actual or expected consumption is greater than 10TJ, a TOU meter will be installed and the installation will be assigned to allocation group 1 or 2. For consumer installations where the actual or expected consumption is between 250GJ and 10TJ a non-TOU meter will be installed and the installation will be assigned to allocation group 4.

Contact conducts analysis of consumption on a monthly basis to ensure ICPs are in the correct allocation groups. A report was reviewed from October 2009 that resulted in 147 ICPs having their allocation group changed from 6 to 4. This reporting is monitored on a monthly basis, and reports were provided for April and May 2010 as evidence of this. When annual consumption in excess of 10TJ is detected, an evaluation is conducted to determine whether the consumption is likely to remain at this level. If this is confirmed, then TOU metering is installed.

A review was conducted in October 2009 to address issues related to the need to ensure monthly allocation group 4 reads are provided, validated and available for submission purposes by the third business day. This review identified 579 ICPs where the read date was within the last three business days of the month and at risk of missing the submission deadline if any delays to the reading or validation process were to occur. These ICPs are being monitored on a monthly basis and if readings are not validated and made available for submission purposes, their sequence is changed to ensure they are read between five and eight business days before the end of the month. This initiative will support the initial submission accuracy and compliance with Rule 37.2.

3.3 Meter Reading Targets (Rules 29.4.3, 29.5 & 40.2)

All consumer installations with non-TOU meters must have register readings recorded at least once every 12 months unless exceptional circumstances prevent such an interrogation.

Contact provided a copy of the GAS080 report for March 2010, along with a list of all ICPs not read within the last 12 months. An examination of the list of ICPs not read in the last 12 months showed that Contact had reported installations of all statuses, not just active installations. This will be the same for the 4-month target. Of the 11,024 installations not read at 12 months, only 192 were active. The records in Gentrack were checked for a selection of ten of the 192 installations and it was found that “exceptional circumstances” did exist in all cases. Contact has largely rectified this reporting issue. The March 2010 GAS080 report was re-run to include only ACTC installations.

The table below shows the GAS080 results and the results for just ACTC installations.

Target	Reading Percentage All Statuses (GAS080)	Reading Percentage ACTC Only
Rolling 4 months (target 90%)	82.08%	99.39%
12 months (target 100%)	83.92%	99.77%

Contact sends a letter to customers when a reading has not been obtained for 300 days and at 330 days the installation is added to the “high priority read” process.

Contact achieved compliance with Rule 40.2, which is the requirement to report the number and percentage of validated register readings obtained in accordance with rule 29.4.3 and 29.5.

3.4 Non TOU Validation

Meter reading validation occurs at multiple levels.

At source, the handheld data input devices perform a localised validation, to ensure that the reading is within expected high-low parameters. These parameters are set as a “high/low” limit, based on an agreed setting with Contact. The settings are contained in Wells system (Mitre), as a plus or minus percentage, based on the previous read performed by Wells, and stored in Mitre.

Readings that fail this initial validation must be re-entered, and if the second reading is the same, it will be accepted; if it is different (indicating an error with the first reading) then it must be re-entered. Once the same reading has been entered twice consecutively, it will be accepted.

The second level of validation occurs when the data reaches Contact. This validation looks for obvious file errors or file corruption and invalid metering information.

The next level of validation occurs during the “billing validation” process. Each bill produced is subject to approximately 40 individual validation checks. Bills that fail validation end up on an “exceptions” list and any issues are investigated and resolved prior to sending the final bill.

Meter readings are not edited during this process. If a reading fails validation and an incorrect meter reading is suspected then a check reading will be performed.

The final level of validation occurs within the ENRIS system. This validation checks:

- Negative days
- Negative consumption
- High consumption
- Long read period

The non-TOU meter reading validation processes were examined, and in general terms these seem robust. Contact’s internal audit team conducted an internal audit of “consumption data” in November 2009. The scope of this audit included many of the data validation and correction processes. This audit and the audit report were evaluated in accordance with the NZICA Auditing Standard 604, and the findings have been accepted as part of this audit.

The internal audit executive summary contains the following overall opinion:

“Overall, the Consumption Data control environment is adequate. Appropriate controls are in place to ensure electricity and gas customers are scheduled for regular meter reads, and the review of key exception reporting is operating effectively.”

Since this audit was conducted, the following improvements have been made:

- Meter reading contractors have been given instruction in relation to the consistent use of notes fields and condition code fields.
- The process for meter reading contractors to receive and upload information changes has been strengthened.
- The “unread at 12 months” report has been changed to exclude ICPs where a special read was obtained. This report is now prioritised for the contractors to ensure that the longest outstanding ICPs are addressed first.
- The management of billing exceptions is now subject to a quality review to ensure that processes are consistently adhered to.
- Responsibilities and processes have been clarified for the management of stopped meters and zero consumption.
- The accuracy of consumption information for the initial allocation has been improved, as noted in Section 5.3.

The only outstanding issue, which has a risk rating of “Medium”, is that “instant bills” are not subject to validation. Instant bills are those that are manually generated. If these bills result in unusually high consumption, they are identified and reviewed. If the instant bill results in a credit to the customer, then these are not validated and “held”. This matter has been addressed through two initiatives:

- The provision of refresher training to staff to assist with the identification and management of “negative consumption” events.
- The introduction of a “quality assurance” system that involves the regular review of a selection of “instant bills” per staff member to ensure consistency and accuracy.

In general terms I share the view of the internal auditors that the consumption data control environment is adequate.

3.5 Non TOU Error Correction

The process for error correction was examined to ensure that consumption information for prior consumption periods is included in the revision process and provided to the Allocation Agent.

Sometimes errors can be corrected by “scaling” in situations where an incorrect multiplier or factor was used. In other cases the error correction involves estimation, for example if a meter is stopped.

Contact has a specialised team who perform error corrections, and a “sign off” is required from more senior staff to confirm that the estimation assumptions are correct.

Two examples were examined. Firstly, an ICP where the meter had stopped in December 2005, and was found in August 2008. Consumption for the period affected was estimated based on the average consumption for previous years. The second example was where a multiplier had not been applied

correctly from 2002. Consumption information was corrected by the application of a multiplier for the affected period.

For both of the examples mentioned above it was confirmed that the correct consumption information was provided to the Allocation Agent in the relevant revision file.

3.6 TOU Validation

Contact's ToU data is collected through GSM/CDMA communications units. Master Link is the software that is used to transfer this data into the Master Link database. Manual downloads are only conducted if there is an equipment failure and data cannot be obtained automatically. Clock synchronisation occurs in the field and is checked as part of the periodic accuracy checks. Event information is collected and reviewed to highlight any issues.

Once the data has been collected it is then validated in the GENRIS system prior to its use for submission to the allocation agent. This validation includes:

- Duplicate data
- Consecutive zeros above a certain threshold
- Corrector performance check against expected pressure factor
- Missing or incomplete data
- Calorific value validation
- Consecutive identical non-zero values

Contact is in the process of improving the documentation in relation to this activity.

4. Energy Consumption Calculation (Rule 28.2)

Contact prepared a spreadsheet which converts volume between meter readings to volume at standard conditions and then to energy consumption. The relevant information for a small number of ICPs was entered into the spreadsheet and the resulting energy value was compared to that calculated by Gentrack. This comparison confirmed the accuracy of the Gentrack calculation and confirmed compliance with NZS 5259.

The small sample size (2 ICPs) for this comparison is considered appropriate because the calculation being evaluated is conducted entirely within the Gentrack system, with no manual intervention. Therefore, the only opportunity for error is if the incorrect factors are present within the system.

5. Estimation and Submission Information

5.1 TOU Estimation and Correction (Rule 30.3)

This rule requires that retailers must provide the best estimate of consumption information to the Allocation agent in situations where actual data is not available.

In these situations, Contact uses the consumption and profile from similar time periods to create estimates, which are appropriately identified.

Three examples were examined. Two where correctors were out of commission, and register readings were used, and one where the modem had failed and the data was estimated using a similar time period. The estimation process requires approval from the relevant account manager, who checks that the site was operating in the same manner as the period used as the basis for the estimation.

Contact's processes achieve compliance with the requirement to provide its "best estimate of consumption information".

The existence of any estimated TOU consumption information is considered a matter of non-compliance. This issue is addressed on a monthly basis and the historic breach allegations are shown in the table below.

Breach Identifier	Date Notified	Nature of Alleged Breach
2009-58	8/05/2009	Submission of estimated data for TOU sites at BMC17901 AND HEN74101 for Initial April 2009
2009-79	17/06/2009	Submission of estimated data for TOU sites at BMC17901, MMU08001 and WST03610 for Initial May 2009
2009-133	18/08/2009	Submission of estimated data for TOU sites at BMC17901 AND HEN74101 for Initial April 2009
2009-155	16/09/2009	Submission of estimated data for TOU sites at BMC17901, MMU08001 and WST03610 for Interim May 2009
2009-199	11/11/2009	Submission of estimated data for TOU sites at PAP06610 for Initial October 2009
2009-231	10/12/2009	Submission of estimated data for TOU sites at KAP12901 and PLN24201 for Initial November 2009
2010-011	18/01/2010	Submission of estimated data for TOU sites at KAP12901, NPL12101 and PAP06610 for Initial December 2009

2010-058	12/02/2010	Submission of estimated data for TOU sites at NPL12101 and PAP06610 for Initial January 2010
2010-060	19/02/2010	Submission of estimated data for TOU sites at NPL12101 and PAP06610 for Interim October 2009
2010-084	17/03/2010	Submission of estimated data for TOU sites at KAP12901 and NPL12101 for Interim November 2009
2010-114	14/04/2010	Submission of estimated data for TOU sites at EDG30701, HST05210, NPL12101 and PAP06610 for Initial February 2010

5.2 Provision of Retailer Consumption Information (Rules 30 to 33)

Contact's compliance with rules 30 to 33 was examined by a "walk through" of their processes and controls. In general compliance was confirmed, with the exception of the management and control of ICPs that are vacant.

It was found that when an ICP is vacant but still active (ACTV on the registry), and volume is detected through the meter reading process, this volume is not immediately converted into validated consumption and then included in the allocation process. When any of these ICPs switch to another retailer, the consumption is accounted for by Contact billing up until the switch date and the latest actual read. This consumption is subsequently included in the allocation process. If a consumer is identified then billing will commence from a date agreed, and the consumption information will then be included in the allocation process.

Contact provided a "vacant consumption" report which contains 1,008 ICPs where consumption is present at an ICP without a contracted customer. 272 of these ICPs have been vacant from a period prior to December 2008. The report contains consumption information; however, this has not been validated because billing has not occurred, therefore the consumption information is not considered accurate.

Two issues arise from the "vacant consumption" analysis. Firstly, the controls in relation to this area do not seem to be effective, and secondly the consumption information is not being submitted in some cases to the allocation agent as required by Rules 30, 31, 32 and 33.

5.3 Initial Submission Accuracy (Rule 37.2)

Final allocations are complete for the months October 2008 to June 2009. Rule 37.2 requires that the accuracy of consumption information, for allocation groups 3 to 6, for initial allocation must be within a certain percentage of error published by the industry body. The published percentage for the months analysed is 15%.

Contact did not meet this requirement for a number of gas gates during the 9 month period shown. The results are summarised in the table below.

Month	Total Gas Gates	Number Within 15%	% Compliant
October 2008	73	17	23%
November 2008	73	31	43%
December 2008	73	30	41%
January 2009	73	44	60%
February 2009	73	50	68%
March 2009	73	38	52%
April 2009	73	38	52%
May 2009	74	22	30%
June 2009	74	21	28%

The following table shows the difference between consumption information for initial and final submissions at an aggregated level for all gas gates.

Month	Initial Submission All Gas Gates (GJ)	Final Submission All Gas Gates (GJ)	Percentage Variation
October 2008	343,912	299,007	-15.0%
November 2008	272,871	243,841	-11.9%
December 2008	228,013	199,854	-14.1%
January 2009	201,639	189,476	-6.4%
February 2009	173,157	167,912	-3.1%
March	217,027	199,451	-8.8%
April 2009	221,188	216,975	-1.9%
May 2009	263,926	318,715	17.2%
June 2009	309,410	368,224	16.0%

The tables above show that the consumption information submitted to the allocation agent for the initial submission was over estimated from October 2008 to April 2009. The reasons for this were evaluated and it was simply a case that the estimation algorithm did not include any seasonal adjustment. Forward estimates were based on a “flat” estimate calculated from the previous meter readings, and therefore this did not account enough for consumption generally reducing from October to April. The opposite scenario exists for the months of May and June 2009, where the consumption information submitted to the allocation agent for the final allocation is considerably higher than that submitted for the initial allocation.

5.4 Forward Estimates (Rules 34 & 36)

The rules do not prescribe how forward estimates are to be calculated. Prior to October 2009 Contact’s forward estimates were based on a “flat” estimate calculated from the previous meter readings. Since October 2009, the forward estimate process has been based on the average of the seasonally adjusted daily average consumption for the relevant month for the previous three years. This change in methodology has already led to improvements in forward estimate accuracy.

5.5 Historic Estimates (Rules 34 & 35)

Prior to December 2009 historic estimates for the initial allocation were not seasonally adjusted, because the seasonal adjustment shape files were not available. Contact now uses average shape files based on the same month for previous year to seasonally adjust this volume. This is expected to materially reduce the issues experienced in May and June 2009. The other issue that affected these months was that, for a number of AG4 ICPs, the meter readings were not processed in time for inclusion in the initial submission file. Estimated data was therefore used which was lower than the actual consumption. This has been resolved by monitoring the performance of “reading availability” and where required re-scheduling the meter read to an earlier date.

To assist with determining compliance of the historic estimate processes, Contact was supplied with a list of scenarios. For each scenario, a manual calculation was performed using the relevant seasonal adjustment shape file, and this was compared to the calculation performed in Contact’s system. Compliance is confirmed for all scenarios. This test also proves that the correct shape file is used in each case.

Test	Scenario	Test Expectation	Result
A	ICPs become inactive part way through a month.	Consumption is only calculated for the Active portion of the month.	Compliant
B	ICPs become active then inactive within a month.	Consumption is only calculated for the Active portion of the month.	Has not occurred
C	ICPs become inactive, then active, then inactive again within a month.	Consumption is only calculated for the Active portion of the month.	Has not occurred
E	ICPs start on the 1 st day of a month.	Consumption is calculated to include the 1 st day of responsibility.	Compliant
F	ICPs end on the last day of the month.	Consumption is calculated to include the last day of responsibility.	Compliant
G	ICPs start part way through a month.	Consumption is calculated to include the 1 st day of responsibility.	Compliant
H	ICPs end part way through a month.	Consumption is calculated to include the last day of responsibility.	Compliant
I & J	ICP’s are lost and won back in a month.	Consumption is calculated for each day of responsibility.	Has not occurred
N	ICPs start on 1 st and end on last day of month.	Consumption is calculated for each day of responsibility.	Has not occurred
O	Rollover reads	Consumption is calculated correctly in the instance of meter rollovers.	Compliant

5.6 Proportion of Historic Estimates (Rule 40.1)

This rule requires retailers to report to the allocation agent the proportion of historic estimates contained within the consumption information for the previous initial, interim and final allocations.

A GAS040 file was examined and compared to the data in Contact's system at ICP level; the totals matched which confirms compliance. This also proves that Contact's consumption information provided to the Allocation agent is calculated at ICP level and then aggregated.

5.7 Billed vs Consumption Comparison (Rule 52)

The GAR080 return files were examined for the months October 2009 to February 2010. The content of the files was proved by selecting some gas gates and checking the bills in Gentrack for all ICPs at that gate, against the total in the GAR080 files. This confirmed the accuracy of the data.

A summary of the billed vs consumption information is contained in the table below.

(GJ)	September 2009	October 2009	November 2009	December 2009	January 2010
Billed	4,238,472	4,224,987	4,301,635	4,220,119	4,245,502
Consumption	4,383,086	4,299,033	4,258,725	4,249,425	4,222,042
% difference	3.41%	1.75%	-1.00%	0.69%	-0.55%

This table shows that Contact's consumption information that is submitted to the allocation agent is lower than the billed information by 0.55% for the 12-month period ending January 2010.

A further comparison was made between billed and consumption information for a longer period, from October 2008 to March 2009. The consumption information was 1.01% higher than the billed information.

6. Recommendations

As a result of this performance audit the following recommendations are made in relation to Contact:

- 679 meter pressure and dial discrepancies were found between Contact's and meter owners' records. It was found that Contact's records were correct in 45 cases when a sample of 66 discrepancies were checked. 21 records required further investigation. It is recommended that Contact completes checking all remaining discrepancies in the list of 679. It is also recommended that validation occurs on a monthly basis with meter owners to address this matter.
- Consumption information is not systematically submitted to the allocation agent for ICPs which are vacant but still active, and where volume is measured. When these ICPs switch to another retailer or a consumer is identified, then the consumption will be included in the allocation process. In some cases, the time delay is greater than the due date for the final allocation, which will mean that the consumption information will never be included in the allocation process. As part of the resolution of this matter, it is recommended that Contact measures and reports on the effect on the accuracy of consumption information submitted to the allocation agent.

An additional general recommendation is made in relation to billing factors. At the November 2009 Retailer's Forum the issue of "consistency of application of gas billing factors" was discussed. It was agreed that this forum would draft a guideline to assist with addressing this issue. Contact has produced a draft guideline, which was reviewed during this audit, and some of the content is included in this report.

It is recommended that this draft guideline be further developed into a "Guideline note" to assist participants with compliance with the rules, and to ensure the consistent application of the relevant factors.

Two additional recommendations are made in relation to meter pressure and meter dial information:

- That meter owners be required to undergo performance audits to ensure the processes for recording and reporting metering set-up information are robust.
- That the switching rules be amended to include meter pressure and meter dials as registry fields that are maintained by meter owners.

Appendix 1 – Control Rating Definitions

Control Rating	Definition
Control environment is not adequate	<p>Operating controls designed to mitigate key risks are not applied, or are ineffective, or do not exist.</p> <p>Controls designed to ensure compliance are not applied, or are ineffective, or do not exist.</p> <p>Efficiency/effectiveness of many key processes requires improvement.</p>
Control environment is adequate	<p>Operating controls designed to mitigate key risks are not consistently applied, or are not fully effective.</p> <p>Controls designed to ensure compliance are not consistently applied, or are not fully effective.</p> <p>Efficiency/effectiveness of some key processes requires improvement.</p>
Control environment is effective	<p>Isolated exceptions identified when testing the effectiveness of operating controls to mitigate key risks.</p> <p>Isolated exceptions identified when testing the effectiveness of controls to ensure compliance.</p> <p>Isolated exceptions where efficiency/effectiveness of key processes could be enhanced.</p>

Appendix 2 – GasNet Comments

The following comments have been made in the context of the audit findings influencing or becoming industry wide practise/standards. It is not the intention to criticise Contact's policies or performance.

2.1.2 Altitude Information

GasNet populated altitude for all of its ICP's in the registry when it was first established and continues to maintain it as new ICP's are added. The altitude for each ICP is within the 10m tolerance having been established from 20m altitude bands overlaid with the actual position of each GasNet GMS.

We assume that Contact is calculating altitude because some, or all, of the other distributors have not populated altitude? If distributors are responsible for populating the registry with altitude then this should either be enforced (within a reasonable time to allow the other distributors to meet their obligations) or the rules relaxed.

Contact, or any retailer, should not have to calculate what an ICP's altitude is nor should it satisfy, by providing the information to distributors, the distributors responsibilities.

In summary it is GasNet's view that there should be an approved defined method, or methods, for determining altitude and it should be the distributor's responsibility to populate and maintain the information on the registry.

2.2 Metering Set Up Information

GasNet has submitted previously in other forums that Meter Pressure should be on the registry and maintained by the GMS owner. Meter pressure is such a key attribute that the process is fundamentally flawed when it is determined from information passed between outgoing and incoming retailers from a variety of data sources, all of which is conducted to the exclusion of, and without the validation of, the GMS Owner.

As a consequence of the GMS Owners and Retailers systems operating in parallel, it now appears likely that there are a number of discrepancies between the GMS Owners data and the retailers. This is evidenced by your report and recent email communication from Contact who wish to validate the data held by them for GasNet GMS. If the Contact position is representative of the industry as a whole then this has the potential to become an expensive and time consuming exercise which will continue to be necessary until Meter Pressure is populated on the registry.

GasNet disagrees with your recommendation on Issue 2.2 Metering Set Up Information on Page 3 that validation occurs on a monthly basis; monthly validation will not address the fundamental issue that errors can still occur between retailers as they hand over in the switching process. The registry should be modified to include Meter Pressure, the responsibility of the GMS Owner, thereby requiring only one validation process when GMS Owners first populate this field.

GasNet also supports the inclusion of Number of Dials on the registry.

Finally I would like to take the opportunity to commend Contact on being the first retailer to be subject to the audit especially given that the findings have been circulated to a wide audience.

Appendix 3 – Contact Energy Comments

30 September, 2010

Steve Woods
Veritek Ltd
PO Box 8143
Cherrywood
Tauranga 3145

Dear Steve

Contact Energy offered to be the first retailer to undergo a performance audit to assist Gas Industry Co in developing performance audit terms of reference and in keeping with our focus on continuous improvement. We welcome the opportunity to learn from this audit and modify our processes as a result of its findings. As a result of this a number of changes have already been made and others are in progress that will further improve the accuracy of our processes and data. Contact has also taken the lead on making and suggesting industry changes to the source data and processes around gas billing factors to achieve improved accuracy and compliance within the industry.

Below are some comments on specific parts of the report.

2.1.2 Altitude Information

As noted in this section Contact is moving towards using the altitude information held in the registry, but only after a complete refresh of the altitude for Contact ICPs to ensure compliance with NZS 5259 going forward (given the November 2009 changes which reduced the maximum permissible error and introduced an expectation that altitude information be sourced to 10m accuracy). While Contact has adopted a new policy and implemented it through distributors via a complete refresh of the altitude information held in the registry for Contact ICPs, it is noted that much of the altitude information held in the registry for other retailer ICPs could benefit from a similar refresh. Contact welcomes the audit recommendation that Gas Industry Co further develop a draft industry guideline covering gas billing factors, and in particular altitude and temperature data, to improve accuracy and compliance across the industry.

2.2 Metering Set-up Information

Section 2.2 highlights an issue with determining the truth with respect to certain metering set-up information – meter pressure and number of dials. Contact was surprised that there are so many discrepancies with meter owner databases apart from where Contact is the meter owner. Since the audit draft report Contact has continued to investigate the discrepancies and notes that in all but one case the meter pressure in Contact's database matches that provided in the switch file from the losing retailer and/or that provided by the meter owner following meter changes. There is clearly a need to establish a single source of truth and accountability for the accuracy of this data which retailers can rely on to ensure accurate metering set-ups in their billing system, rather than allowing discrepancies

between participant databases to circulate in the industry. Contact suggests the following changes are necessary to improve the accuracy and reliability of this data:

- Switching rules be amended to add meter pressure and number of dials to the registry as ICP parameters maintained by meter owners.
- Reconciliation rules be amended to ensure distributors and meter owners are accountable for the accuracy and compliance of data held in the registry (where the data impacts retailer metering/billing set-ups and compliance with NZS 5259) and that meter owners be audited under rule 65 (given the switching rules have no equivalent audit requirements). In particular
 - Rule 27 “Meter owner obligations” should be amended to cover Maintenance of Registry Information - “Every meter owner must ensure that all ICP parameters maintainable by the meter owner in the registry are accurate and if used enable compliance by the responsible retailer with NZS 5259.” In this context the key parameters are meter pressure and number of dials.
 - New Rule 27A “Distributor obligations” be inserted to cover Maintenance of Registry Information - “Every distributor must ensure that all ICP parameters maintainable by the distributor in the registry are accurate and if used enable compliance by the responsible retailer with NZS 5259.” In this context the key parameters are network pressure, ICP altitude and gas gate.

This would improve the quality of data used in consumer billing and the reconciliation process, and enable improved compliance with NZS 5259. .

5.1 TOU Estimation and Correction

Contact considers that both the rules and audit focus on the wrong issue, the existence of estimated TOU data rather than the process used to estimate the data, and that the rules should be amended to change the emphasis to :

- ensuring transparency of the existence of estimated data in the TOU submission file (i.e. the retailer is compliant with rule 30.3.1 so long as the GAS050 file includes “E” whenever an ICP in the file includes estimated data); and
- ensure that where estimated data is included the process to replace missing or error TOU data is compliant with rule 44.5 (i.e. the retailer is compliant provided its estimation process complies with Schedule 1).

Both of the above can be audited, and if an audit shows the retailer and/or meter owner has a systemic problem with its management of TOU metering or data collection then this can be raised in the audit as something that needs to be addressed. It is noted to date that a significant amount of time has been wasted by the market administrator and participants due to the inclusion of rule 30.3.2. It is also noted that all breaches of this rule alleged against Contact to date (and we believe other retailers) have been determined as not material.

Yours sincerely



Matt Chivers
Energy Reconciliation Manager