AUDIT REPORT

Asset Management Systems Review for Gas Distribution Licence GDL 1:

Goldfields – Esperance Supply Area for ALINTA GAS NETWORKS

APPENDICES

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AUDIT FINDINGS BY OSD



KEY PROCESS #1: ASSET PLANNING

Asset planning strategies are focused on meeting customer needs in the most effective and efficient manner (delivering the right service at the right price)

Audit Objective

Demonstration of integration of asset strategies into operational or business plans to establish a framework for existing and new assets to be effectively utilized and their service potential optimized

Effectiveness Criteria

Do the planning processes and objectives reflect the needs of all stakeholders and are integrated with business planning?

Are service levels defined?

Are lifecycle costs assessed?

Are funding options evaluated?

Are costs justified?

Are cost drivers identified?

Are likelihood and consequences of asset failure predicted?

Do the resulting projects reflect sound engineering and business decisions?

Are the asset management plans are regularly reviewed and updated?

OSD FINDINGS

Do the planning processes and objectives reflect the needs of all stakeholders and are integrated with business planning? AGN has identified Asset Planning as:

- Identification of asset requirements based on security of supply and customer load growth; and
- An option study involving preliminary design and assessment as well as return on investment analysis for some projects

AGN has in place a number of mature, robust (and recently reviewed) management and engineering processes to deliver the necessary objectives to all stakeholders involved in the gas distribution network in the Kalgoorlie-Esperance supply area. These processes are managed by AAM for AGN.



AGN document AAM-S-09001 outlines the required system strategy for the asset management system in AGN's gas distribution business in WA. This document was recently reviewed as the previous edition was issued in September 2004. This document is directly matched to the requirements stated in the Guidelines for the Preparation of an Asset Management System, pursuant to Section 11Y of the Energy Conservation Act 1994.

The strategy document is underpinned by a number of plans and other documents for asset management, maintenance, operations and risk assessment. The primary documents used by AGN include the following documents:

- □ Asset Management System
- Asset Maintenance Plan
- □ High Pressure Development Plans
- MP Development Plans
- Planning Strategy
- □ Asset Replacement Strategy
- Operating Plans
- Network Performance Reviews
- Seasonal Load Factor Reviews
- Domestic Diversified Load Study
- Various Engineering Standards
- □ Asset specific maintenance manuals
- □ Management Systems (quality, environmental and safety)

A full list of documents reviewed during the audit is included in Appendix 5.

The asset management system is also stated in, and forms a critical part of, the most current ANH Strategic Plan covering the 2006-2010 period.

Planning periods applied in the AGN asset management system planning, design and construction, operation and maintenance are as follows:

- □ Network development annual and 5 years
- Design specifications 2 years
- □ Asset management plan annually
- Operation and maintenance plans annually



All other documents related to the design and construction as well as operation and maintenance of the network, in line with AGN quality management system, are reviewed annually.

AGN maintain an asset register for the gas distribution networks. This is primarily achieved through the information obtained of the current management information systems maintained by AAM.

These systems are used for monitoring and facilitating network operation and maintenance activities include and are discussed under Key Process #7, Asset Management Information Systems.

Service Level Assessment

AGN has stated in the Asset Management Plan that the operation and development of AGN gas distribution network assets should be consistent with the objectives of the asset owners. Under the Operating Services Agreement (OSA) AAM is required to deliver the following agreed service standards in the delivery of services:

- □ In accordance with Good Industry Practice
- □ In a manner which delivers any Guaranteed Service Levels to Customers
- In accordance with an Environmental Management Plan, Business Management System and OH&S Plan
- □ In a manner which achieves the Key Performance Indicators (KPI)
- □ In a timely manner
- □ In a commercial, prudent and reasonable manner; and
- □ That uses staff for each task that have the requisite level of professional skill, customer service orientation, care and diligence which may reasonably be expected of a skilled, professional person suitably qualified and experienced in the performance of such tasks

In attempting to accomplish these service standards, AAM utilises a number of KPIs to ensure that the nominated levels of service to customers in the supply of gas are achieved.

These KPIs are an important part of the management of AGN operational activities. They ensure that reliable, high value and high quality construction as well as operation and maintenance solutions provided by AGN to its customers.

The KPIs related to customer service can be divided into the following areas:



- response times for connections, attendance at faults, as well as customer inquiries;
- reliability and safety of supply (related to faults at customer sites or in the network);
- security and efficiency of supply (related to planning of network);

The KPIs that are directly related to customer service standards are shown in the table in Section 9.1.3 of this report and cover the requirements of *AG755 (1998)*, all distribution licences, as well as AAM's own internal standards.

AAM have noted that the security and efficiency of supply is not characterised by specific KPI, but rather is evaluated on an annual basis in the document entitled "*Review of Distribution System Performance*".

The long term security and integrity of supply in the gas distribution networks is identified in the documents entitled "*High Pressure Gas Distribution"* and "*Medium Pressure Gas Distribution"* Network Development Plans. The most recent editions of both documents (refer Appendix 5) were reviewed during the audit.

In OSD's view, the documented service level standards and associated KPIs are typical of a prudent utility business, and any other business for that matter. The service standards are being met by AGN as noted in the comments under Key Process #5.

Forecasting Effectiveness

AGN undertake system performance forecasting to estimate any specific reinforcement requirements that may be required on the gas distribution networks. AGN conduct the forecasts on the basis that the gas distribution networks will be able to support a 1 in 10 year winter.

For new connections, AGN forecast using economic and historical information and are represented locally on the network models as predicted by the Urban Land Release Plan issued by the Western

Australian Planning Commission. The Urban Release Plan captures information sourced from approval submissions and the developer's intentions survey.

Further to the localised development in fringe high growth suburbs, an increase in peak load of 1.5% per annum is incorporated uniformly to the network model load. AGN has applied this increase based on factors such as infill of existing



suburbs, redevelopment of existing lots and increased peak load due to "organic" growth.

AGN evaluate any requirements for reinforcements the year prior to recommendation by installing a temporary pressure monitoring device (PMD) that monitors the system performance. Once the accuracy of the model at that location is confirmed, the project is justified and recommended to proceed. This ensures that projects are not initiated before they are required.

In OSD's view, this approach to forecasting is logical and prudent.

Lifecycle asset management

Life-cycle asset management requires that the full life-cycle costs of asset acquisition,

Operation, maintenance and disposal be taken into account in asset investment decision making.

The maintenance strategies and asset risk matrix are closely integrated to ensure

Least cost life-cycle alternatives can be identified. This ensures that proposed asset investments form part of a coherent and sustainable network development path.

All investment decisions whether associated with asset replacement, maintenance or new development are made on the basis of assessments of financial and economic return and risk over the long term.

AGN has documented its approach to life cycle management in Section 5 of the AMP and Section 4 of the AMS Strategy document, AAM-S-09001.

Where possible, AGN will integrate any renewal and demand capital programs to ensure that capital expenditure is optimized, based on the premise that AGN's approach to asset management is to provide a safe, reliable network, operated and maintained on a cost effective basis, which meets the service, safety and environmental expectations of consumers, regulators and the community. The previous 2006 - 2010 AMP and latest AMP documents are fundamental to AGN successfully achieving this objective.

AGN's approach to asset replacements and asset maintenance are discussed in the relevant Key Processes below.

Kalgoorlie-Boulder Gas Distribution Network



All planning activities on the Kalgoorlie-Boulder gas distribution network are managed by AAM staff based in Perth. The AAM field staff based in Kalgoorlie-Boulder provide the information for service level results and asset performance back to AAM staff in Jandakot. This information is then fed into the GNIS and SAP systems for reporting and/or analysis as required.

Specific projects are identified following the annual network performance views.

It was noted in the AGN's "Review of Distribution System Performance Winter 2005", Rev A, prepared on 7 December 2005, that the Kalgoorlie-Boulder network was not mentioned as having any issues relating to winter demand in 2005.

During the review period, asset planning strategies for the Kalgoorlie-Boulder gas distribution network were confined primarily to customer demand projects such as new residential estates. No other significant projects have been undertaken in Kalgoorlie-Boulder over the review period.

It should be noted that the Kalgoorlie-Boulder gas network was completed in 1998, so the network is less than10 years old.

AGN is aware the Kalgoorlie-Boulder gas distribution network has only one main feeder pipeline to the city from the gate station at Parkeston. Supply to the city would be lost if this pipeline was damaged or cut.

AGN has advised that to mitigate against the potential loss of supply due to damage to the feeder pipeline, AGN has in place a more rigorous patrolling regime similar to that for a high pressure steel pipeline.

OSD is of the view that re-establishing the gas supply would take some time given the limited gas fitting resources located in the area. AAM staff advised that AGN would only consider another line if the existing main did not meet capacity.

Looping the existing main while there is adequate capacity would not be economically justifiable. Additionally, it believes AAM is able to accommodate a repair in a timely manner should the pipeline be damaged or cut as resources can be utilised from other sections of the business. AAM staff have advised that AGN has a policy of spending capital prudently.

EFFECTIVENESS RATING: 4



KEY PROCESS #2: ASSET CREATION AND ACQUISITION

Asset creation/acquisition means the provision or improvement of an asset where the outlay can be expected to provide benefits beyond the year of outlay

AUDIT OBJECTIVE

Demonstration of a more economic, efficient and cost-effective asset acquisition framework which reduces demand for new assets, lower service costs and improved service delivery.

EFFECTIVENESS CRITERIA

Are construction/contract management processes and responsibilities clear and well documented?

Does the AGN asset management system provide for competent/effective design and material specifications conform to industry standards?

Are safeguards in AGN asset management system applied to construction, specifications and management of contracted works?

What selection process is used to pre-qualify suppliers and contractors?

What are the competencies of AGN approvers?

Are project evaluations undertaken for all new assets and do they include lifecycle costs?

Are commissioning tests documented and completed?

Does project documentation reflect sound engineering and business decisions?

Does the asset owner of AGN understand ongoing legal/safety/environmental obligations of the network assets?

Does AGN maintain an up-to-date asset register?

OSD FINDINGS

AGN's Asset Management Plans list all projects for new assets (or acquisition of assets) and any replacement of assets in the Appendices to the AMP.

AGN has extensive construction/contract management processes for all projects, including responsibilities (refer table in Section 9.1.2).



AGN's AMS Strategy document AAM-S-09001 and the Asset Management Plan for 2006-2010 specifically state the requirements for network development, design and construction, and testing for fitness for purpose.

Additional documentation covering the following activities was assessed by OSD during the review; all were sighted at Jandakot where the activities are primarily controlled.

- □ Engineering design (competency of design staff and processes)
- **L** Engineering evaluation and sign-offs (accountabilities and competencies)
- □ Specifications to suppliers and contractors
- **Qualification and assessment of suppliers and contractors**
- □ Contract establishment process and performance measures
- Materials inspection and audits
- Contract management, performance measurement and audits
- □ Financial audits of projects (comments in Key Process #11)

However, given that no significant new projects were carried out in Kalgoorlie-Boulder over the review period, OSD's effectiveness criteria assessment of AGN's Asset Management Systems is covered in more detail in OSD Audit Report 41202-REP-002 for the Coastal Supply Area.

Kalgoorlie-Boulder Gas Distribution Network

During the review period, no significant asset creation projects have been carried out on the Kalgoorlie-Boulder gas distribution network. Several small scale sub divisional projects have been completed or are in progress at the present time.

AAM utilize an independent civil contractor to assist AAM field staff to undertake capital works on the Kalgoorlie-Boulder network. This is confined to mains laying in new subdivisions and service connections to new consumers.

OSD did note in the GDW operations report for August 2006 the following comment:

Superintendent Maintenance: "After visiting the Kalgoorlie area this month it was highlighted that many of the new gas services being installed were requiring expensive rock saw equipment to be used due to the ground conditions. Much of this rock was located on the customer's property between the property boundary and the meter box location. It was decided to look at the possibility of insisting



on boundary connections where customers are required to install the meter box on the boundary of their property putting the cost of work inside the property back to the customer. Superintendent Maintenance will meet with Alinta Retail to move this forward".

OSD notes that under the GDL 1 licence, clause 8 "Obligation to Connect," there is a clear obligation for the licensee to install up to 20 meters of service pipe from the main as defined under the term "standard residential delivery facility" for the least connection cost.

Any proposal to install a gas meter at the customer's property boundary could be seen as a breach of this clause, unless AGN were to contribute towards the cost of the piped connection downstream of the gas meter, depending on the length of service pipe installed between the gas main and gas meter.

To avoid any potential conflict with clause 8, OSD considers that if AGN wishes to install gas meters at the boundary of a customer's property, then AGN needs to consult with, and seek the approval of, the Authority for a variation to the requirements of clause 8.

Several samples of work site inspections and audits were viewed and assessed by OSD during the visit to Kalgoorlie-Boulder, covering mains laying and service connections. No non-conformances were recorded on the samples viewed. Several samples of commissioning test documentation for mains and service connections viewed by OSD were also found to be complete. AGN has not carried out separate economic studies for these projects in Kalgoorlie-Boulder. No significant projects are planned for Kalgoorlie-Boulder through to 2011.

The Kalgoorlie-Boulder gas distribution network, being a relatively new network, has had the benefit of hindsight and experience in terms of developing the network, compared to the more mature gas distribution networks in the other AGN licenced supply areas.

AGN selected PE rather than PVC for the network, and as much as possible, the method of installation and construction involved trench less technology. The use of coiled pipes to reduce costs and the number of joints also benefits the network.

The network is also operated at the rated operating pressures for the PE pipes, that allows the use of small diameter pipes in the majority of the network that in turn has reduced construction costs.

Recommendation GDL1-1:



AGN should consult with, and seek the approval of, the Authority to satisfy the requirements of clause 8 for a variation to the installation of the standard residential delivery facility.

EFFECTIVENESS RATING: 4



KEY PROCESS #3: ASSET DISPOSAL

Effective asset disposal frameworks incorporate consideration of alternatives for the disposal of surplus, obsolete, under-performing

AUDIT OBJECTIVE

Demonstration of effective management of the disposal process to minimise holdings of surplus and under-performing assets and lowering of service costs.

EFFECTIVENESS CRITERIA

Are regular reviews conducted to identify under-utilised and under-performing assets?

Are the reasons for under-utilised or poor-performing assets assessed and corrective action or disposal undertaken?

Are management processes and responsibilities for asset disposal clear and well understood?

Are safeguards in AGN asset management system applied to asset disposals?

Does the AGN asset management system provide for competent/effective management of asset disposal?

Is there a replacement strategy in place for all network assets?

OSD FINDINGS

Asset Disposal

AGN's AMS Strategy document AAM-S-09001 and the Asset Management Plan for 2006-2010, Section 5.2, specifically state the requirements for asset redundancy, replacement strategy and asset obsolescence. Additional documents entitled "Asset Rationalisation Strategy" and "Asset Replacement Strategy" also provides the criteria for asset disposal or replacement.

AGN's asset replacement strategy provides a framework for capital investment decisions to ensure consistency in AGN's approach to network asset replacement in providing balanced, efficient and effective expenditure.

The strategy sets out the long term replacement guidelines for each major category of asset based on economic as well as safety considerations.

AGN has a policy, where economic to do so, of refurbishing and testing specific high value assets for future service.



AGN has advised that assets that can not be salvaged, ie buried pipes, are purged in accordance with AAM procedures and made safe. The assets are then recorded on the relevant network plans in GNIS as "abandoned", but ownership is retained by AGN.

AGN's forecast of renewals capital expenditure is based on this strategy and the outcome of the Reliability Centered Maintenance (RCM) analysis on maintenance data for the various asset categories.

AAM advised that historically to date, the cast iron replacement program and gas meter replacement were the only significant formal replacement programs undertaken by AGN.

Other less substantial, replacement programs have focused on specific items of concern such as spring retainers and nylon seats in Fisher 99 regulators, the brass bolts on compression couplings and replacement of various regulators with axial flow valves as part of standardisation process.

Design and Construction

AGN's AMS Strategy document AAM-S-09001 and the Asset Management Plan for 2006-2010 specifically state the requirements for design and construction, and testing for fitness for purpose.

Additional documentation covering the design and construction for asset replacement work activities was assessed by OSD during the review; all were sighted at Jandakot where the activities are primarily controlled.

Further discussion on OSD's effectiveness criteria assessment of AGN's Asset Management Systems is covered in more detail in OSD Audit Report 41202-REP-002 for the Coastal Supply Area.

Kalgoorlie-Boulder Gas Distribution Network

Given the low age of the assets in the gas distribution networks in Kalgoorlie-Boulder, the requirement for asset disposal is not relevant, so that the process is not fully tested compared to the mature networks elsewhere in WA. The number of replacement meter jobs in Kalgoorlie-Boulder is minimal on a per annum basis.

A number of meter replacement documents were sighted and assessed, predominantly the commercial meter units. No issues were found with the replacement process.

EFFECTIVENESS RATING: 3



KEY PROCESS #4: ENVIRONMENTAL ANALYSIS

Environmental analysis examines the asset system environment and assesses all external factors affecting the asset system

AUDIT OBJECTIVE

Demonstration that the asset management systems regularly assess external opportunities and threats and corrective actions are taken to maintain performance requirements.

EFFECTIVENESS CRITERIA

Is the asset management system assessed for external opportunities and threats?

Is compliance with statutory and regulatory requirements measured?

Is corrective action taken to maintain the required performance of the asset management system?

Do the performance criteria of the asset management system address stakeholder's needs?

Are asset management system KPIs being measured; being met or exceeded; being reported on to AGN's Board or Senior management appropriate and acted on?

OSD FINDINGS

Is the asset management system assessed for external opportunities and threats?

AGN assess all external opportunities and threats to the asset management system through a range of processes as described in other sections of the report.

As noted in Section 9.1.2, **t**he AAM teams have the ultimate responsibility for the implementation, monitoring and evaluation of the AGN asset management system. The various job functions within AAM that are responsible for the management of various aspects of AGN's Asset Management System are shown in the following table:



APPENDICES

Job Function	Responsibility					
General Manager Asset Services	Overall Responsibility for Asset Services					
General Manager Operations	Overall Responsibility for Operations					
Manager Asset Management Gas	Strategic, Opex, Capex and Asset Management Plans					
Manager Technical Compliance	Manage statutory and regulatory technical compliance requirement of operating the network.					
Asset Manager AGN WA	Asset management and performance. Network planning and integrity. Asset Management, Network Development and Maintenance Plans.					
Manager Gas Distribution West	Management of the Maintenance, Construction and Field Activities. Ensure emergency preparedness and response system of the network.					
Principal Engineer - Engineering Services	Project Management Plan. Construction and Facility Design					
Safety & Risk Engineer	Safety Case, QA system, DMS system, Safety Case system audits					
GNIS Coordinator	Asset Register in GNIS					
Field Auditor	QA and Safety Case Systems Audit					

Each of these positions has a responsibility to identify, assess and manage threats in their particular environments.

The Asset Management Strategy and the Asset Management Plan (AMP) are the primary documents that AGN has developed to address threats associated with the management of the gas distribution network assets. The AMP in particular identifies and addresses specific projects to mitigate any threats and these are also addressed in more detail in the specific network development plans.



The plans require AAM staff assigned to manage the projects to monitor and report on progress from establishment to completion.

These plans are also linked to the high-level corporate Strategic Plan in respect of opportunities and threat mitigation – Reference "*Alinta Network Holdings Strategic Plan 2006-2010".*

Further discussion on OSD's effectiveness criteria assessment of AGN's Asset Management Systems relating to Environmental Analysis is covered in more detail in OSD Audit Report 41202-REP-002 for the Coastal Supply Area.

Kalgoorlie-Boulder Gas Distribution Network

The AAM staff based in Kalgoorlie-Boulder have the first level of responsibility in assessing opportunities and threats as well as statutory/regulator compliance and network performance, on the basis that they are "on the ground" in reacting to any specific situations.

The staff provide the first response and report back to the Jandakot Base where the information received is assessed and analysed and incorporated in any action plans as required.

The OSD assessments relating to this first level of responsibility are also covered in other sections of this report.

EFFECTIVENESS RATING: 3



KEY PROCESS #5: ASSET OPERATIONS

Operations functions relate to the day-to-day running of the assets and directly affect service levels and costs

AUDIT OBJECTIVE

Demonstrate that operations plans adequately document the processes and knowledge of staff in the operation of assets to enable service levels to be consistently achieved.

EFFECTIVENESS CRITERIA

Is there management accountability for setting and reviewing appropriate operating and service level parameters? Do the operating parameters meet appropriate standards?

Is the network being operated in a reliable manner?

Is risk management applied to prioritise operations tasks?

Is the network being operated in an efficient manner and on a cost effective basis?

Is the Asset Register maintained and updated regularly?

Is there a training program appropriate for different levels of responsibility?

Ensure AGN has clear procedures to manage notification, investigation and reporting of incidents. For example, how does AGN investigate and report on notifiable incidents as required under the Gas Standards (Gas Supply and Systems Safety) Regulations 2000?



OSD FINDINGS

AGN Asset Management System

The asset management system that has been in place since 2002 complies with the Gas Standards (Gas Supply and System Safety) Regulations 2000.

This was stated in the 2005 review of the asset management system.

OSD notes that final approval of the Safety Case will underpin AGN's asset management system that AAM manages under the OSA.

Operation and Maintenance Plans

AGN's strategies and philosophies applied in the operation and maintenance of AGN gas distribution network are described in the documents entitled "*Distribution Network Asset Management Operating Plan"* and "*Distribution Network Asset Maintenance Plans"*.

AAM advised that the objectives of these plans are to provide a pro-active maintenance and operating strategy to facilitate the reliable and safe operation of the gas distribution network assets, in a cost effective manner.

The introduction to the current "*Distribution Network Asset Management Operating Plan" states the following:*

The purpose of this Operating Plan is to document how Alinta Network Services (ANS) manages AlintaGas Networks' (AGN) distribution assets in Western Australia to ensure the safe and reliable operation of the gas distribution networks through its principal contractor NPS (WA).

AG 606 - 1997 Code of Practice describes the fundamental elements to be addressed in the preparation of a Safety and Operating Plan (Safety Case) by a distribution network operator for the safe and reliable operation of new and/or existing gas distribution networks. Whilst the Safety Case provides the overall assurance of management of risk and the mitigation of hazards, this Operating Plan focuses on the operation of AGN distribution networks.

Further discussion on OSD's effectiveness criteria assessment of AGN's Asset Management Systems is covered in more detail in OSD Audit Report 41202-REP-002 for the Coastal Supply Area, specifically covering the following activities:

- Approval and review process of the operating envelope
- Key personnel in the process, responsibilities and accountabilities
- Performance monitoring



Work Permit System

• Operating staff resources within AGN and contractors

Kalgoorlie-Boulder Gas Distribution Network

Operational activities on the Kalgoorlie-Boulder gas distribution network are managed by two AAM field staff based in Kalgoorlie-Boulder.

These staff carry out scheduled operational and maintenance activities on the gas regulator set at the Kalgoorlie Gate Station and the network. The work on the network also includes construction work such as small mains extensions and new service connections.

A single civil contractor is available on contracted rates to assist the AAM field staff for operational tasks including emergency work in addition to construction works.

The AAM field staff based in Kalgoorlie-Boulder provide carry out random audits on the contractor's workmanship and general operations. The AAM staff also undertake self-audits of each other's work and from time to time, an AAM auditor will visit Kalgoorlie-Boulder to undertake planned audit work.

AAM field staff compile the information for service level results and asset performance and send these back to AAM staff in Jandakot. This information is then fed into the GNIS and SAP systems for reporting and/or analysis as required.

Specific projects are identified following the annual network performance views.

It was noted in the AGN's "Review of Distribution System Performance Winter 2005", Rev A, prepared on 7 December 2005, that the no pressure excursions had occurred in the winter of 2005. No other low pressure excursions were reported in Winter 2006.

Gas Quality

AAM has documented the gas quality requirements for the in the **Kalgoorlie-Boulder** network in Section 3.7.1, Natural Gas Systems, of the *Network Asset Management Operating Plan.*:

AAM staff interviewed by the Lead Auditor stated that no gas quality excursions have occurred during the review period. This was later confirmed by the gas supplier.

Odorant Levels



Section 7.1.1.2 of the *Network Asset Management Operating Plan* states the requirements for odorant content in the gas networks as noted in the excerpt below:

7.1.1.2 Odorant Content

The Director of Energy Safety has effectively endorsed the odorant levels maintained by AlintaGas' predecessor SECWA:

- For industrial consumers, where residence times are low and odorant degradation is less likely, a level of 5 mg/m3 of a TBM based odorant.
- For networks supplying residential consumers, where residence times are high and odorant degradation is more likely, a level of 15 mg/m3 of a TBM based odorant.

Odorant content is monitored by both Epic Energy and CMS at their Gate Stations and through sampling by NPS (WA) from within the Networks. NPS (WA) takes samples from designated locations nominated by ANS within the distribution system in accordance with procedure *DD-P-10201 Sampling of Natural Gas and LPG for Odorant Monitoring.*

AAM advised that a THT based, and very pungent, odorant called Sentinel TB is used in the gas distribution network. Records taken of odorant levels at three locations in the Kalgoorlie-Boulder network over the review period indicate that the levels do fluctuate, but the overall average for each calendar year is above the AGN threshold level of $8mg/m^3$, such that detection by the public is not an issue. (2005 = $8.43mg/m^3$; 2006 = $9.86mg/m^3$)

The threshold level picked by AGN for this network is based on the same odorant type used across the eastern states of Australia. The level established by AAM for odorant has been supported by odorimeter tests performed by an independent consultant in Kalgoorlie.

Kalgoorlie GGTD skid, Parkeston	25/01/2005	20	Kalgoorlie GGTD skid, Parkeston	11/01/2006	6
Kalgoorlie GGTD skid	23/02/2005	13	Kalgoorlie GGTD skid	10/02/2006	4
Kalgoorlie GGTD skid	30/03/2005	12	Kalgoorlie GGTD skid	10/03/2006	11
Kalgoorlie GGTD skid	19/04/2005	14	Kalgoorlie GGTD skid	7/04/2006	9
Kalgoorlie GGTD skid	12/05/2005	5	Kalgoorlie GGTD skid	8/05/2006	9
Kalgoorlie GGTD skid	9/06/2005	8	Kalgoorlie GGTD skid	12/06/2006	4
Kalgoorlie GGTD skid	18/07/2005	7	Kalgoorlie GGTD skid	19/09/2006	22
Kalgoorlie GGTD skid	8/08/2005	6	Kalgoorlie GGTD skid	26/10/2006	4



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Kalgoorlie GGTD skid	7/09/2005	10	Kalgoorlie GGTD skid	27/11/2006	12
Kalgoorlie GGTD skid	6/10/2005	8	Kalgoorlie GGTD skid	19/12/2006	11
Kalgoorlie GGTD skid	9/11/2005	9	Burt Street laundry, Kalgoorlie	11/01/2006	7
Kalgoorlie GGTD skid	14/12/2005	7	Burt Street laundry	10/02/2006	6
Burt Street laundry, Kalgoorlie	25/01/2005	19	Burt Street laundry	10/03/2006	11
Burt Street laundry	23/02/2005	14	Burt Street laundry	7/04/2006	9
Burt Street laundry	30/03/2005	13	Burt Street laundry	8/05/2006	9
Burt Street laundry	19/04/2005	13	Burt Street laundry	10/08/2006	8
Burt Street laundry	12/05/2005	5	Burt Street laundry	19/09/2006	8
Burt Street laundry	9/06/2005	7	Burt Street laundry	26/10/2006	5
Burt Street laundry	18/07/2005	7	Burt Street laundry	27/11/2006	11
Burt Street laundry	8/08/2005	8	Burt Street laundry	12/12/2006	14
			Kalgoorlie Riverina		
Burt Street laundry	7/09/2005	10	Way, Hannans	11/01/2006	5
Burt Street laundry	6/10/2005	9	Kalgoorlie Riverina	10/02/2006	4
Burt Street laundry	9/11/2005	10	Kalgoorlie Riverina	10/03/2006	5
Burt Street laundry	14/12/2005	10	Kalgoorlie Riverina	7/04/2006	6
Burt Street laundry	21/12/2005	8	Kalgoorlie Riverina	8/05/2006	6
Kalgoorlie Riverina Way, Hannans	25/01/2005	16	Kalgoorlie Riverina	12/06/2006	5
Kalgoorlie Riverina	23/02/2005	16	Kalgoorlie Riverina	10/08/2006	2
Kalgoorlie Riverina	30/03/2005	13	Kalgoorlie Riverina	19/09/2006	15
Kalgoorlie Riverina	19/04/2005	13	Kalgoorlie Riverina	26/10/2006	11
Kalgoorlie Riverina	12/05/2005	7	Kalgoorlie Riverina	27/11/2006	14
Kalgoorlie Riverina	9/06/2005	6			



Kalgoorlie Riverina	18/07/2005	6
Kalgoorlie Riverina	8/08/2005	6
Kalgoorlie Riverina	7/09/2005	8
Kalgoorlie Riverina	6/10/2005	7
Kalgoorlie Riverina	9/11/2005	8
Kalgoorlie Riverina	14/12/2005	7

Training of AAM Staff and Contractors

Both AAM field staff based in Kalgoorlie-Boulder have undergone a range of training during the review period. The sole contractor engaged in this location has also undergone training under the AAA CCF program.

AAM supplied evidence of training for both the AAM field staff and the contractor over the review period. The first aid training for both AAM staff are current.

It should be noted that the Kalgoorlie-Boulder Supervisor, **Example**, has also received training as an incident investigator.

Whilst there are only two AAM staff based to cover the operational duties in Kalgoorlie-Boulder, additional resources from the other AAM WA bases can be brought in at short notice if required to cover sickness and any emergency situations.

Operational Base and Vehicles

The AAM operational base is situated around 1.0km from the Kalgoorlie-Boulder CBD. The base is shared with Alinta's electricity operation and houses office facilities and has capacity for storage of plant and materials as shown in the photos below. AAM vehicles used by the staff in Kalgoorlie-Boulder are in excellent condition and fully equipped for the operational tasks they are required to cover.



Emergency Response and Incidents

No major incidents have occurred on the Kalgoorlie-Boulder gas distribution network over the period. Most of the incidents have resulted from damage to mains and services as discussed in Key Process #6.

Operational Information

AAM issue on a daily basis, and consolidate into a weekly report, all operational activities including incidents that have occurred over the week. This information is then consolidated into the monthly Operations Report that is provided to the AAM and Alinta Executives. An example of a weekly report is shown below for reference.



APPENDICES



Weekly Network Operations Bulletin Week ending 8 AM Saturday 11th June 2005

Major Events and Incidents

There were three broken mains during the week. Two mains above 100mm were involved:

1. Broken 100mm MLP main. Lintott Way, Spearwood. Notification 300545451. Broken by Water Corporation. No customers affected

2. Broken 100mm PVC MP main. Place Road, Wonthella. Notification 300546124. Broken by Water Corp with an excavator while working on water main. Road closure, Police attended site, media also on site, Alinta External Affairs advised. No customers affected.

There was one Notifiable Incidents for the week:

1. Advisable Incident: 286 Bagot Road, Subiaco. Gas entering property – needed fire brigade to attend to gain access to check where gas was coming from. This property was vacant – renovations taking place, hot plate had been left on. Category E. #300546471

System Performance

- There was no low-pressure alarm received from the system.
- There was no "operating outside the expected range" report from the system.

Supply Interruptions & Faults

- Eighty-eight customers experienced unplanned interruption for a total of 3085 CMOS.
- On an annual basis, the level of unplanned interruptions experienced this week translates to 11 interruptions per 1000 customers and an interruption time of 24 seconds.
- On a rolling 52-week basis, the level of unplanned interruptions experienced this week translates to 5.9 interruptions per 1000 customers and an interruption time of 25.1 seconds.
- There was 141 reported smell of gas at meters, a decrease of 19%.

Supply Interruptions & Faults Cause * Type & Impact *	3 rd Party Damage	Vandals	Forces of Nature	Beyond Capacity	Equipment Failure	Operator Error	Caused by Customer	Nuisance Compliant
Broken Mains	3	0	0	0	0	0	0	0
Broken Services	17	0	0	0	0	0	5	0
No Gas Commercial	0	0	0	0	4	0	0	0
No Gas Domestic	0	0	0	0	10	1	0	1
SOG at Meter	0	0	0	0	141	0	0	0
SOG in Public area	0	0	0	0	5	0	0	1
Other Faults	0	0	0	0	67	0	0	0
Customers affected	13	0	0	0	10	60	5	0
Time lost (CMOS) ¹	1785	0	0	0	900	60	340	0



Appendices

PHOTOS OF VARIOUS SITES VISITED



Supply piping for the gas network in the foreground





Appendices



Typical domestic meter set (new connection)

Note as-built information for service connection in property





New commercial meter set



Small commercial meter set



Appendices



Large commercial meter set

AGN's Kalgoorlie-Boulder Base





Appendices



Polyethylene pipe with manufacturer's markings



KEY PROCESS #6: ASSET MAINTENANCE

Maintenance functions relate to the upkeep of assets and directly affect service levels and costs

AUDIT OBJECTIVE

Demonstrate that maintenance plans cover the scheduling and resourcing of the maintenance tasks to enable work to be done on time and on cost.

EFFECTIVENESS CRITERIA

Is there management accountability for setting and reviewing appropriate asset maintenance and service level parameters? Do the asset maintenance parameters meet appropriate standards?

Is the network being maintained in a reliable manner?

Is the network being maintained in an efficient manner and on a cost effective basis?

Are maintenance policies and procedures documented and linked to required service levels?

Are regular inspections undertaken of asset performance and condition?

Are failures analysed and appropriate adjustments made to operational/maintenance plans?

Is risk management applied to prioritise tasks?

OSD FINDINGS

Maintenance Philosophy

AGN has adopted a risk and reliability based maintenance philosophy and maintenance frequency(s) for all individual network assets. The references to the relevant codes, regulations and operational history. an optimal preventative maintenance program for assets that balances risk and maintenance expenditure is then established.

Maintenance Plan

The Introduction and Objectives stated in the 2006 Asset Maintenance Plan states the following:



APPENDICES

1.0 SCOPE

This Network Asset Maintenance Plan provides the basis for the scheduled and planned maintenance of all major components of the AlintaGas Networks (AGN) gas distribution system. The Plan also set the fault criteria of various assets before any reactive maintenance is carried out. The Plan applies to all assets extending from the "physical gate point" of each gate station on the respective transmission pipelines to each customer meter set and gas plant facilities.

The Plan outlines the overall maintenance philosophy adopted, the maintenance frequencies and the required maintenance activities for individual network assets based on risk and reliability centred maintenance (RCM) principles and references to the relevant codes, regulations and operational history.

The Plan also requires that the performance of the various network assets be monitored against identified Key Performance Indices (KPI's). The subsequent assessment of these KPI's ensures the continuous improvement of this plan.

The Plan includes a scope of work required for the maintenance of the individual asset detailing the extent and in some cases, the acceptable criteria of these activities. The scope of work were historically identified with the development of specified annual quantities (SAQ) carried out by AAM Operations, Gas Distribution West.

For the purpose of this Plan, high pressure pipelines include those sections of the Gas Distribution System (GDS) of steel construction designed with a maximum allowable operating pressure of between 300 kPa and 6900 kPa and operated at any pressure below 6900 kPa. Medium pressure pipelines are those that are operated below 300 kPa.

2.0 OBJECTIVE

The objective of this Plan is to provide a pro-active maintenance strategy that reduces asset life cycle costs, while maintaining a high level of security of supply and ensuring the safe, efficient and reliable operation of the GDS and associated network assets.

This plan also includes the management of gas meters through statistical sampling programme for the field life extension of the domestic and the AL12 commercial gas meters.

Section 7 of the Asset Maintenance Plan sets the KPI requirements as follows:

7.1 Key Performance Indicators

Table 12 contains a comprehensive list of key performance indicators (KPI's) to be reported on by AAM Operations personnel. The Asset Management System (AMS) has set some of the KPI targets, which also requires that they be monitored on a regular basis.

Other KPI's have been set by this plan to enable an informative system analysis during the annual review of the Asset Maintenance Plan.



KPI	Parameters	Targ	Freq	Reporting			
Pipelines / Laterals							
Damage to a HP pipeline	Instances per 100km of main	1	3 m	SAP Report			
Damage to a PEHP pipeline	Instances per 100km of main	1	3 m	SAP Report Asset Management			
Damage to a MP/LP Pipeline	Instances per 100km of main	3	3 m	SAP Report Asset Management			
Defects (Leaks) per km of main	Defects per 100km of mains	20	3 m	SAP Report Asset Management			
Damaged Warning Signs	% of signs damaged	5%	3 m	SAP Report Asset Management			
CP Test Points Voltage Potential	% of test point voltage potential's higher than –0.85V potential	5%	3 m	SAP Report Asset Management			
Regulator Sets / PRS							
PRS Failures	% of PRS failures	2 %	3 m	SAP Report Asset Management			
HP Regulator Set Failures	% of HP regulator set failures	2 %	3 m	SAP Report Asset Management			
MP Regulator Set Failures	% of MP regulator set failures	5%	3 m	SAP Report Asset Management			
Meter Sets (M30AI an	d above)						
Meter Set Failures	% of meter set failures	2 %	3 m	SAP Report Asset Management			

Table 12 Key Performance Indicators

KPI	Parameters	Targ	Freq	Reporting			
Domestic & Commercial Meter Installations (M12AL and below)							
Domestic Meter Defects	% of defects reported on domestic meter installations	2 %	3 m	SAP Report Asset Management			
Small Commercial Meter Defects	% of defects reported on small commercial meter installations	8 %	3 m	SAP Report Asset Management			
Meter Installations Damaged	% of meter installations damaged	1%	3 m	SAP Report Asset Management			
Business Development							
Odorant Level Compliance	% of samples with odorant levels below the allowable limits	5 %	3 m	Reported by Business Development			
Composition Level Compliance	% of samples with composition levels outside the allowable limits	5%	3 m	Reported by Business Development			



Further discussion on OSD's effectiveness criteria assessment of AGN's Asset Management Systems is covered in more detail in OSD Audit Report 41202-REP-002 for the Coastal Supply Area.

Kalgoorlie-Boulder Gas Distribution Network

All maintenance activities on the Kalgoorlie-Boulder gas distribution network are scheduled through SAP and coordinated by AAM staff based in Perth. The AAM field staff based in Kalgoorlie-Boulder carry out the scheduled maintenance and complete the relevant maintenance check sheets and return these to Jandakot for processing. This information is then fed into the SAP and GNIS (if required) systems for reporting and/or analysis as required.

The relevant information in SAP is then incorporated in any specific projects that may be required or identified following the annual network performance views. Apart from the Gate Station at Parkeston, 4 meter installations were also inspected during the visit. In general, most of the sites were in reasonably good condition, although minor corrosion on the pipework was visible at several sites. The maintenance inspection records for 3 of the 5 sites were reviewed.

The gas distribution plant in the Gate Station was inspected on 10 January 2007; prior to that the last maintenance inspection was completed on 1 November 2006. No maintenance issues requiring action were noted on the reports.

During the site visit, a number of post-mounted warning signs were found to be in a damaged state and a number of signs were no longer legible, following prolonged exposure to ultra-violet light.

Given the importance of these warning signs as the first line of defense against unauthorized third-party works, it is essential that the warning signs are maintained in good condition.

Breaks on Mains and Service Connections

The number of breaks recorded on the Kalgoorlie-Boulder gas distribution network over the review period is shown in the graph below.





In 2005, the total number of mains breaks was zero. In 2006 the total number of mains breaks at 1 registered as 0.6/100 km of main. These totals are well below the AGN's internal maximum KPI target of 3/100 km main.

As noted in the chart above, all of the total breaks that occurred over the review period were predominantly services (12). AMM staff advised that the One Call Dial-before-U-Dig is widely promoted by all utilities (gas, water, electricity and telcos). AGN believes the promotion is very effective, which if evident from the fact that there was only one incident of damage to mains.

AAM contends that it is not practical to promote One Call Dial-before-U-Dig to customers to reduce the number of breaks on service connections within private properties.

OSD's view is that the total service breaks over the period are relatively small, and as such is significantly below the KPI threshold set by AGN.

However, OSD believes that the ongoing situation should continue to be monitored by local AAM staff. AGN staff should consider additional education measures for customers in conjunction with the current gas retailer, should the level of service breaks increase in the future.



Leakage Surveys

Leakage surveys have been completed on the Kalgoorlie-Boulder gas distribution network over the period. No significant leaks were recorded during the last survey in 2006.

Recommendation GDL1-2:

AGN should ensure that warning signage (post-mounted or otherwise) is legible at all times – many signs have been damaged and also many have faded from ultra-violet exposure.

EFFECTIVENESS RATING: 3



KEY PROCESS #7: ASSET MANAGEMENT INFORMATION SYSTEMS (MIS)

An asset management system is a combination of processes, data and software that support the asset management functions

AUDIT OBJECTIVE

Demonstrate that the asset management information system provides authorized, complete and accurate information for the day to day running of the asset management system.

EFFECTIVENESS CRITERIA

Are all MIS documentation is available and suitable for users and IT operators?

Are security controls (logical and physical) adequate and in place?

Are data backup procedures in place and fully understood by all staff and contractors?

Are management reports adequate to monitor against license obligations?

OSD FINDINGS

Alinta manages all Information Technology applications for its subsidiary companies including AGN and AAM from its Mt Waverley office in Victoria.

AAM advised that the information management systems used for monitoring and facilitating network operation and maintenance activities include:

- GNIS for identifying an asset's geographical location as well as basic asset details;
- □ SAP Computerised Maintenance Management System for asset technical data sheets, maintenance plans, and for creating and capturing fault work conducted in the network;
- SynerGee network flow and pressure modelling information system;
- Pressure Monitoring Devices (PMD), High Pressure Regulator (HPR) logging data and slam shut activation alarm (at selected locations in the network);
- Quality Manual outlining work procedures for maintenance activities in the network;
- Process Flow Diagrams for major activity types in the network

GNIS and SAP Asset Register



GNIS is a system for displaying network assets such as pipelines, regulator and meter sets and meters overlayed on a cadastral base. In this system only essential data is recorded against each asset such as equipment identification number, asset distribution level (high or low pressure), as well as address and installation date.

All assets on this graphical system are directly linked to AAM's SAP database. In the SAP database a more detailed description of the asset's technical details are given as well as any maintenance plans, if applicable.

The GNIS controls, at the top level, the removal and addition of assets from AGN's gas distribution network. Business process scripts, master asset lists as well as policies (*Regulator Set Numbering and Relocation Policy*) have been developed for managing the GNIS and SAP asset register.

All "as-built" information for construction activities such as new main extensions in sub-divisions, new pipelines etc. is forwarded by Operations and this information is then entered into GNIS.

Details of service work conducted on an asset are recorded in the SAP database by selecting the appropriate asset in the GNIS and drilling down to SAP to create a work order. The information that can be recorded in the work order includes the address, fault type (damage or corrective work), and the cause of the fault and object part that needs to be repaired.

Through SAP all operational and maintenance activities conducted by AAM operations staff are recorded. Accordingly SAP is used to audit the level of compliance in achieving the operational and maintenance strategies and plans. Through the closure of notification, SAP is also used to identify the completion of activities for payment purposes.

The GNIS system is maintained by the *GIS Drafting Team Leader WA* who is responsible for any requested system changes as well as managing the maintenance of the system and the periodic updating of the GNIS cadastral base from the Department of Land and Administration (DOLA). Annual reviews of GNIS are also conducted to ensure that the network details used for modelling purposes (SynerGee linked to GNIS for network information) are accurate.

The as constructed details for assets in the network (pipelines, regulator and meter sets, etc.) are also recorded in GNIS within 10 days from their commissioning date.

AAM Asset Services manages the SAP database technical records while SAP system changes and performance (improvements in work flow processes,



accuracy and effectiveness of data captured etc.) are managed through the Business Systems section. The accuracy of technical data stored in SAP for assets on maintenance plans, are continuously reviewed based on work sheet updates (current technical details in SAP are outlined on this sheet) provided by field personnel. Annual reviews are conducted to ensure all asset types identified in the *Distribution Network Asset Management Maintenance Plan* are on maintenance plans in SAP.

The Information Services (IS) group at Mt Waverley has advised that GNIS is currently being upgraded at present, as it was implemented in Alinta in 1998. Go live is scheduled on the current release for May 2007.

IS group has advised that SAP 4.0B was implemented around 1998 as well, and is currently slated for an upgrade around May – Nov 2008.

System Monitoring Systems and SynerGee

The operational performance of the network is primarily monitored through Pressure Monitoring Devices (PMD) and HPR sites.

A PMD site is typically installed on domestic meter installations that are located at the extremities of the gas distribution network. PMDs consist of a single data logger, pressure transmitter, electrical barriers, modem and power supply and are used for monitoring pressures in the system. Low pressure alarms are set for each PMD site depending on its location in the network, refer table 6.

HPR sites are installed at high-pressure regulator sets with the equipment at these locations consisting typically of a single data logger, barriers, transmitters, modem and power supply. At HPR sites both pressures and flow measurements are recorded. At HPR sites with slam shut activation, the inlet pressure is also alarmed.

Flow and pressure data that is recorded at PMD and HPR sites is then used to refine AGN network flow and pressure model managed in the SynerGee software package.

MIS policies and procedures

MIS policies are documented in a range of documents. A list of these documents was provided by the Information Services group at Mt Waverley.

IT service and license documents were provided for inspection during the visit to the Mt Waverley office on 14 March. No IT license failures or corrective actions have arisen over the review period.



IT service failures and corrective actions are recorded in spreadsheet form. No significant issues were recorded against the AMS MIS systems described above.

Back-up processes for all MIS systems used by Alinta are in place. Any failures and remedial actions are recorded.

Alinta has tight security processes in place on all MIS systems. No reports of significant breaches were recorded during the review period.

OSD's assessment is that the management information systems as described above are fully integrated and well suited to the current AGN's asset management system requirements. Planned upgrades to the GNIS and SAP systems will enhance the overall management and quality of the data captured by these systems.

EFFECTIVENESS RATING: 5



KEY PROCESS #8: RISK MANAGEMENT

Risk management involves the identification of risks and their management within an acceptable level of risk

AUDIT OBJECTIVE

Demonstrate that an effective risk management framework is applied to manage risks related to the maintenance of service standards.

EFFECTIVENESS CRITERIA

Are all operations carried out within framework of effective risk management?

Are there adequate plans/procedures in the event of an incident?

Is a risk assessment database maintained for all network assets?

Does the risk database include treatment plans, including action items and monitoring of completion of actions?

Are the risk management policies and procedures applied to both internal and external risks?

Are the probability and consequences of asset failure regularly assessed and recorded?

OSD FINDINGS

Risk Management

AGN's Asset management Plan for 2006-2010 has established the criteria and basis on which risk is managed in the gas distribution business in WA.

An excerpt from Section 8 of the AMP is reproduced below for reference.



8.0 RISK MANAGEMENT

8.1 Introduction

Alinta adopted the AS 4360:1999 as a benchmark and guidance to establish its risk management framework. The aim of an effective organisational risk management is to build a risk environment that exhibits the following features:

- the key stakeholders and senior management are in a position to confidently make informed decisions relating to the trade off between risk and consequence. Daily business decisions at the operating level are made within the context of the organisation's risk management philosophy.
- the risks relating to the value of assets (eg, an organisation's customer base, its supply chain, its intellectual and knowledge capital, its processes and systems) are acknowledged and optimised as fully as its physical and financial assets.
- the need for operational control is balanced with entrepreneurial empowerment.
- risks are systematically identified and managed on an aggregated basis by a senior management that is accountable for its decisions.
- new and existing investments are evaluated on both a stand alone and a portfolio basis.
- the organisation understands its risk management capabilities thoroughly, its processes are well aligned, and it can move quickly on opportunities that would cause consternation or failure in less sophisticated organisations.

Alinta recognises risk management as an integral part of its business operation and strategic planning and adopt a common approach to the management of risks. The foundation of the risk management policy is the obligation and desire to protect:

- Alinta's people and its customers;
- The environment in which Alinta operates; and
- Alinta's position as provider of the highest quality products and related services.

Alinta's policy in respect of these foundation attributes is that physical, financial and human resources will be applied to ensure Alinta's standards of product and services achieve and exceed expectations.

To achieve the economic expectation of Alinta' shareholders, the organisation must pursue opportunities involving some degree of risk. Alinta's policy is to give full and due consideration to the balance of risk and reward, as far as practicable, to optimise the rewards gained from its business activities.

Given Alinta's dynamics business operations, the risk management framework and risk identification is reviewed as necessary.

Risk assessments are also carried out when there are significant changes to processes, equipment or materials, as a part of change management. All significant projects also undergo a risk assessment phase. Risk management concepts

influence all decision-making processes within AGN, including contractor management. The contractors' field based activities are monitored through targeted, risk-based audits.

The concept of risk greatly influences the development of AGN Asset management strategies.



In addition, AGN has issued a document entitled "RCM and Risk Analysis for Distribution Assets – 2005/06, Doc No ANS 06/08, Rev C, 11 August 2006."

AAM has prepared this document to allow a review of the performance history of all network assets that will assist AGN in developing new cost-effective maintenance strategies, and addressing issues where assets have been undermaintained or over-maintained.

AGN is now focusing on the RCM principle of asset maintenance, which most utility operators are now adopting to varying degrees to optimise the asset's performance and reduce operating costs over the life of the asset.

OSD also notes that final approval of the Safety Case will underpin AGN's asset management system that AAM manages under the OSA with AGN, specifically in operational risks covered by the aforementioned AGN documents.

Overall, OSD's assessment is that AGN's risk management processes are sound, and with ongoing performance assessment of the gas distribution networks, the degree of risk will be more manageable.

Kalgoorlie-Boulder Gas Distribution Network

The level of risk from the Gate Station at Parkeston is minimal, as entry to the site is strictly controlled by AAM and the site is located in a heavy industrial area remote from any populated areas.

The level of risk from the piped network are relatively low, given that all of the piping is buried with no aboveground piping, except for gas meter sets.

The risk associated with security of supply is commented on in Key Process #1 above.

EFFECTIVENESS RATING: 4



KEY PROCESS #9: CONTINGENCY PLANNING

Contingency plans document the steps to deal with the unexpected failure of an asset

AUDIT OBJECTIVE

Demonstrate that contingency plans have been developed and tested to minimize any significant disruptions to service standards.

EFFECTIVENESS CRITERIA

Are the protections built into the AGN asset management system being monitored and reviewed?

Are contingency plans documented, understood and tested and operable?

Are contingency plans capable of covering significant risks?

OSD FINDINGS

Emergency Management Review

Alinta currently has a range of emergency procedures covering preparedness, response and recovery, depending on the scale of the emergency. Most cover the network assets, but also include corporate requirements in the face of a significant crisis facing the company. Currently all Alinta emergency and crisis management documentation has been under review to take account of changes in the company structure and recent acquisitions. This review is scheduled for completion in October 2007. The outcome from this review will be a common suite of emergency and crisis management processes and documents across the Alinta businesses, including AAM in WA, which provides asset management services for AGN.

The proposed emergency management structures for notification and escalation as required will be as shown in the charts below.



APPENDICES



Crisis management chart removed by Alinta



Further discussion on OSD's effectiveness criteria assessment of AGN's Asset Management Systems is covered in more detail in OSD Audit Report 41202-REP-002 for the Coastal Supply Area, specifically covering the following activities:

Emergency Response Plan

Crisis Management Plan

One Call System

Kalgoorlie-Boulder Distribution Network

No notifiable incidents were recorded on the Kalgoorlie-Boulder gas distribution network during the review period.

OSD noted that no emergency exercises had been conducted during the review period, particularly in the areas with high concentrations of people such as the CBD in Kalgoorlie-Boulder.

OSD considers that an annual emergency exercise on the Kalgoorlie-Boulder gas distribution network should be held to ensure that all parties likely to be involved in such emergencies are familiar with the procedures and protocols to achieve a satisfactory outcome for all concerned.

However, OSD suggests that this is a matter for AGN to resolve with Energy Safety Division. Therefore, OSD recommends that AGN should initiate discussions with Energy Safety Division to ascertain an acceptable frequency of emergency exercises in Kalgoorlie-Boulder.

Recommendation GDL1-3:

AGN should initiate discussions with Energy Safety Division to ascertain an acceptable frequency of emergency exercises in Kalgoorlie-Boulder.

EFFECTIVENESS RATING: 3



KEY PROCESS #10: FINANCIAL PLANNING

The financial planning component of the asset management plan brings together the financial elements of the service delivery to ensure its financial viability over the long term

AUDIT OBJECTIVE

Demonstrate that a financial plan is reliable and provides for the long term financial viability of the services.

EFFECTIVENESS CRITERIA

Does the asset management system enable AGN to operate the network on a commercially sustainable basis?

Is the financial performance of the network cost effective and efficient?

Who is accountable for the financial planning process?

Are the reasonableness of the Opex and Capex programs such to maintain and enhance the network?

Does the financial plan states:

- Objectives
- strategies
- □ actions to achieve the objectives
- projections of operating statements
- □ statement of financial position
- Predictions of income for next 5 yrs?

Does the financial plan identify the source of funds for capital expenditure and recurrent costs?

Are significant variances in actual/budget income and expenses identifies and corrective action taken where necessary?

OSD FINDINGS

Access Arrangement

The spending levels for operating and capital expenditure on the AGN networks are submitted to and approved by the Economic Regulation Authority (ERA).



The current Access Arrangements were originally approved by the ERA on 18 July 2000. A revision to the Access Arrangements was submitted to the ERA on 31 March 2004.

The revision was approved on 29 July 2005.

The current Access Arrangements cover the period 2005 through 2009.

Further discussion on OSD's effectiveness criteria assessment of AGN's financial planning is covered in more detail in OSD Audit Report 41202-REP-002 for the Coastal Supply Area

Kalgoorlie-Boulder Gas Distribution Network

No significant operating and capital expenditure is planned for the Kalgoorlie-Boulder gas distribution network through to 2009 except for demand capital on small subdivisions and service connections. See Key Process #11.

EFFECTIVENESS RATING: 5



KEY PROCESS #11: CAPITAL EXPENDITURE PLANNING

The capital expenditure plan provides a schedule of new works, rehabilitation and replacement works, together with estimated annual expenditure on each over the next five or more years.

Since capital investments tend to be large and lumpy, projections would normally be expected to cover at least 10 years, preferably longer. Projections over the next five years would usually be based on firm estimates

AUDIT OBJECTIVE

Demonstrate that a capital expenditure plan provides reliable forward estimates of capital expenditure and asset disposal income, supported by documentation of the reasons for the decisions and evaluation of alternatives and options.

EFFECTIVENESS CRITERIA

Is there a capital expenditure plan that details issues to be addressed, proposed actions, responsibilities and dates?

Does the capital expenditure plan provide reasons for capital expenditure and timing?

Is the capital expenditure plan consistent with the asset life and condition as per the asset management plan?

Is there an adequate process to ensure that the capital expenditure plan is regularly updated and actioned?

OSD FINDINGS

The ANH Financial group advised the OSD Lead Auditor that the level of capital expenditure within AGN is a critical issue for the business in regards the growth of the WA economy, the maintenance of existing infrastructure, and the level of funding required to complete various works programs.

At present, the following process occurs in terms of the AGN capital expenditure budget:

Under the Operating Services Agreement, AAM Program Management prepare forecasts of Capex projects, programs, and requirements, based primarily on the Asset Management Plan, which is linked back to the Access Arrangement agreed to for the period



- □ These are presented to "ANH" Energy Investments staff, initially, for review, comment, etc
- Once these staff have confidence in the numbers, they are presented to the "Asset Owners" – GM Energy Investments on behalf of the Alinta equity stakeholder, and senior financial staff representing the DUET equity stakeholders
- Approval of the annual program is the subject of AGN Board submission

The information gathered is then modelled in the ANH/AGN Business Model, where requirements for funding, and the impact of the forecasts are reviewed, initially by the Financial Controller and representatives of Alinta Treasury and Alinta Investment Analysis.

The final recommendation on any funding issues and the financial forecasts of the business are then submitted through to the representatives of the Asset equity stakeholders prior to submission to the Board for approval.

From the available information provided, and the discussions with the ANH Management Accountant, OSD's assessment is that AGN's approach to capital expenditure planning is robust and sustainable, and in line with the limits set by the current Access Arrangements.

Further discussion on OSD's effectiveness criteria assessment of AGN's capital expenditure planning is covered in more detail in OSD Audit Report 41202-REP-002 for the Coastal Supply Area.

Kalgoorlie-Boulder Gas Distribution Network

Capital expenditure on the Kalgoorlie-Boulder gas distribution network is primarily focused on customer demand works such as small sub divisional developments and service connections to commercial and residential properties. One additional pressure regulator station was installed in Kalgoorlie in 2006.

No significant expenditure is planned through to 2009.

EFFECTIVENESS CRITERIA: 5



KEY PROCESS #12: REVIEW OF ASSET MANAGEMENT SYSTEM

The asset management system is regularly reviewed and updated

AUDIT OBJECTIVE

Demonstration of the review of the asset management system to ensure the effectiveness of the integration of its components and their currency.

EFFECTIVENESS CRITERIA

Is the asset management system well implemented within AGN and its major contractors?

Are the information systems supporting the asset management system in place and secure?

Are the documents referenced in the asset management system current?

Does the document review and approval process include review/comment by major contractors (critical and relevant documents)?

Is the "critical mass buy-in" process effective?

Are asset management system records current, comprehensive and complete?

OSD FINDINGS

Based on the foregoing comments for each respective key process, OSD considers that AGN's asset management system in the GDL 1 supply area is effective and satisfies the GDL 1 license requirements.

The systems and processes in place for the GDL 1 supply area are well established, and fully documented, and are subject to ongoing review; particularly more so in the current period following the integration of the former AGL/Agility gas business into the existing Alinta businesses in WA and elsewhere in Australia.

Interviews conducted with key field-based staff in Kalgoorlie-Boulder (and elsewhere in Alinta) provide a reasonable degree of confidence in the effectiveness of AGN's asset management system.

EFFECTIVENESS RATING: 4

Our Ref: G1241

6 March 2007

Mr Siva Moorthy Network Regulations Manager AlintaGas Networks Pty Ltd GPO Box W2030 PERTH WA 6846

Dear Mr Moorthy

APPROVAL OF THE AUDIT PLANS FOR THE 2007 ASSET MANAGEMENT SYSTEM REVIEWS OF LICENCES GDL1, GDL2 AND GDL3

I am pleased to advise that the Authority has approved the audit plan for the 2007 asset management system reviews provided to the Authority on 5 March 2007.

As discussed with Peter Rixson at the meeting of 27 February 2007, the audit report, including a post-audit implementation plan, is now due to be provided to the Authority by 30 April 2007.

If you have any queries with regard to the audit please contact Peter Rixson on 9213 1968 or Paul Reid on 9213 1976.

Yours Sincerely

LYNDON ROWE





APPENDICES

Economic Regulation Authority

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Our Ref: G1241

6 March 2007

Mr Siva Moorthy Network Regulations Manager AlintaGas Networks Pty Ltd GPO Box W2030 PERTH WA 6846

Dear Mr Moorthy

APPROVAL OF THE AUDIT PLANS FOR THE 2007 ASSET MANAGEMENT SYSTEM REVIEWS OF LICENCES GDL1, GDL2 AND GDL3

I am pleased to advise that the Authority has approved the audit plan for the 2007 asset management system reviews provided to the Authority on 5 March 2007.

As discussed with Peter Rixson at the meeting of 27 February 2007, the audit report, including a post-audit implementation plan, is now due to be provided to the Authority by 30 April 2007.

If you have any queries with regard to the audit please contact Peter Rixson on 9213 1968 or Paul Reid on 9213 1976.

Yours Sincerely

LYNDON ROWE



Appendices

APPENDIX 3

ALINTA ORGANISATION STRUCTURES





Alinta Corporate Structure



Appendices



Alinta Asset Management Structure, Western Australia





Alinta Gas Networks and Alinta Asset Management, Western Australia

Financial Support to AGN and AAM

AGN is a business that is managed through an Operating Services Agreement (OSA) with AAM, a fully owned Alinta Subsidiary. There are no employees in AGN. All staff provide services through the OSA, and whilst most reside in AAM, some corporate activities are undertaken by Alinta Limited staff on behalf of AAM.

General Manager, Energy Investments: is responsible for the Operations of AGN and is a Director. His support staff include:

- Manager, Asset Owner Interface
- Manager Energy Investments

These support staff are responsible for the ongoing performance of the entities, and negotiate with AAM regarding the OSA, preparation of Business Plans, etc



Financial Controller: is responsible for all Finance requirements of AGN.

This includes staff preparing Tariff Management plans, Financial Accounts, Licence Accounts, Management Accounts and Business Reporting. His support staff include:

- Finance Manager
- Financial Accountant
- Management Accountant

Support Staff in Alinta Treasury, Alinta Tax, Alinta Investment Analysis, and Alinta Financial Control provide specialist services to the entities through the Financial Controller.





Appendices





Appendices

APPENDIX 4

ALINTA PERSONNEL INTERVIEWED OR WHO PROVIDED ASSISTANCE DURING AMS REVIEW



APPENDIX 4 - ALINTA PERSONNEL INTERVIEWED OR WHO PROVIDED ASSISTANCE DURING AMS REVIEW

LOCATION	TITLE
Perth, WA	Asset Manager AGN WA
Perth, WA	Technical Compliance Manager West
Perth, WA	Senior Performance Engineer
Perth, WA	Senior Advisor, Heritage & Environmental
Perth, WA	Management Accountant, AGN & ANH
Perth, WA	Financial Controller UEDH/MGH/ANH
Jandakot, WA	Manager Gas Distribution West
Jandakot, WA	Principal Engineer, Engineering Services
Jandakot, WA	Superintendent Maintenance
Jandakot, WA	Superintendent Construction
Jandakot, WA	Superintendent Planning
Jandakot, WA	Project Officer
Jandakot, WA	Contracts Administrator
Jandakot, WA	Team Leader Control Room
Jandakot, WA	HSE Adviser - Gas Distribution West
Jandakot, WA	Auditor
Jandakot, WA	Business Support Officer
Jandakot, WA	Supervisor, Gas Distribution West



Appendices

LOCATION	TITLE
Kalgoorlie, WA	Supervisor, Kalgoorlie/Esperance
Mt Waverley, VIC	Network Regulations Manager
Mt Waverley, VIC	Manager Emergency Management
Mt Waverley, VIC	Manager – Asset Management Applications
Mt Waverley, VIC	Manager – Enterprise Applications



Appendices

APPENDIX 5

DOCUMENTS REVIEWED DURING THE AMS AUDIT



Appendix 5 – Documents reviewed during the AMS Audit

WA Legislation

GSR2000 Gas Standards (Gas Supply and System Safety) Regulations 2000

Gas Pipelines Access (Western Australia) Act 1998

Gas Distribution Licence – GDL1 Goldfields-Esperance Supply Area,

6 September 2001

Australian Standards

AG 606 – 1997: Code of Practice for the Preparation of a Safety and Operating Plan for Gas Networks

- AG 755 1998: Natural Gas Customer Service Code
- AS 1697 2005: Installation and maintenance of steel pipe systems for gas
- AS 2885.1 2001 Pipelines Gas and Liquid Petroleum Design & Construction
- AS 2885.3 2002 Pipelines Gas and Liquid Petroleum Operation & Maintenance
- AS 3723 2005 Installation & Maintenance of Plastics Pipe Systems for Gas
- AS/NZS 4360:2004 Risk Management
- AS 4645-2005: Gas Distribution Network Management

AS/NZS ISO 9001-1994 Quality Systems – Model for quality assurance in design, development, production, installation and servicing

AS/NZS ISO 14001-1996 Environmental Management Systems – Specifications with guidance for use

Miscellaneous Documents

Audit Guidelines, Electricity, Gas and Water Licences, Economic Regulation Authority, WA, September 2006

AMS Effectiveness Audit Report for Alinta Gas Networks Pty Ltd – MC² Pacific Pty Ltd - 24



February 2005

AMS Effectiveness Audit Report – Action Plan – MC² Pacific Pty Ltd

AARF/A&ASB: AUS 302 - Planning, October 1995

AARF/A&ASB: AUS 402 - Risk Assessment and Internal Controls, July 2002

AARF/A&ASB: AUS 502 - Audit Evidence, October 1995

AARF/A&ASB: AUS 806 – Performance Auditing, July 2002

AARF/A&ASB: AUS 808 – Planning Performance Audits, October 1995

AARF/A&ASB: AUS 810 – Special Purpose Reports on the Effectiveness of Control Procedures, July 2002

Alinta Network Services: Connections Forecast Analysis – July 2005

Economics Consulting Services

Metropolitan Development Program, Urban Land Release Plan 2003/2004 to 2007/08 - Western Australian Planning Commission, 2003.

Utility Providers Code of Practice for Western Australia, Utility providers Services Committee, Main Roads WA, 1 November 2002

Alinta Documents

Alinta Limited – Vision, Mission & Values Policy

Alinta Ltd– Health, Safety & Environmental Policy

Alinta Asset Management – Quality Policy

Alinta Ltd – 2006 Annual Report

Alinta Ltd – 2005 Concise Annual Report

Alinta Ltd - Consolidated Risk Management Charter, Issue 1, November 2004

Alinta Ltd – Integrated Risk Management Model, Issue 1, November 2004

Introduction to Alinta's Health, Safety & Environment Management System, October 2006

Alinta Network Holdings, Strategic Plan 2006-2010, November 2005

Alinta Network Services - Environmental Management System Manual, Doc No 4346,



Issue 4, 29 June 2004

Environmental Management System Manual, Document No 4346, Issue 4, 29 June 2004

Alinta Ltd – Management Procedures Manual

Alinta Gas Networks – Access Arrangement Information for the Mid-West and South-West Gas Distribution Systems

Amended AAI 29 July 2005 – Alinta Gas Networks Pty Ltd

Asset Management System Strategy: Doc No AAM-S-09001, Rev B, 19 January 2007

Asset Management System Strategy: Doc No ANS-S-09001, Rev A, 22 September 2004

Asset Rationalisation Strategy: Doc No DD-S-04004, Rev 0, 16 May 2002

Network Planning Strategy: Doc No DD-S-04002, Rev 0, 16 May 2002

Asset Replacement Strategy; Doc No ANS 04/06, Rev B, 15 March 2004

AGN Asset Management Plan 2007-2011, Doc No ANS 06/09, Rev B, 30 October 2006

AGN Asset Management Plan 2006-2010, Doc No ANS 05/12, Rev 0, 24 October 2005

RCM and Risk Analysis for Distribution Assets – 2005/06, Doc No ANS 06/08, Rev C, 11 August 2006

Description of the Gas Distribution Network - Report No. AGN 02/15, Rev 1, 14 February 2003.

Distribution Network Asset Management Operating Plan, Doc No ANS 04/08, Rev A, April 2004

Risk Management Policy for Supply Facilities, Report No. AGN 01/43, Rev 1, December 2001.

AGN Distribution Network Asset Maintenance Plan 2007, Doc No ANS 06/10, Rev B, 17 October 2006

AGN Distribution Network Asset Maintenance Plan 2006, Doc No ANS 05/13, Rev 0, 8 December 2005

AGN Audit Plan, 2006.V1 (Excel spreadsheet)

Schedule of Documentation – Status report as to revisions, reviews and replacements as of 19 March 2007

Alinta Network Services: Review of Distribution System Performance Winter 2005 -



Report No. ANS 05/11, Rev A, 7 December 2005

Winter 2001, Seasonal Load Factor Review, Report No. AGN 02/11, Rev 1, No final issue date.

High Pressure Gas Distribution Network Development Plan 2005 to 2009 – Report No. ANS 05/01, Rev 0, 19 May 2006.

Medium Pressure Gas Distribution Network Development Plan 2006 to 2010 – Report No. AAM 06/05, Rev 0, 19 May 2006.

Medium Pressure Gas Distribution Network Development Plan 2005 to 2009 – Report No. AGN 04/09, Rev 1, 2005.

2003 Peak Winter Models for the Gas Distribution System – Report No. ANS 03/04, October 2003.

Description of the Alinta Gas Networks Gas Distribution Network – Report No. ANS 03/02, February 2003.

Winter 2001 Domestic Diversified Unit Load Study – Report No. AGN01/09, April 2002.

Use of Under Pressure Shut Off (UPSO) Protection on Distribution Regulator Sets – Report No. GD 98/36, December 1998.

Domestic Meter Management Plan – Alinta Network Services, March 2004

Domestic Meter Replacement Management Plan – Alinta Network Services, November 2004

Commercial Meter Management Plan – Alinta Network Services, September 2004

Letter: Alinta to ERA, Status of Actions on Implementation of AMS Effectiveness Audit Report – Action Plan – MC^2 Pacific Pty Ltd, 22 June 2005

Emergency Management Manual review

Emergency Risk Management Framework, DRAFT, February 2007

Procedure – Operation of the ANS "One Call" System, Doc No ANS-PR-08300, Rev 1, 5 January 2005

Alinta – Civil Contractors Federation, Gas Pipe laying Accreditation Course, GDW MA 0020, Version 8, August 06

Listing of GDW Mains and Services Contractors (Excel spreadsheet)

Listing of GDW Common Trench Contractors (Excel spreadsheet)



NPS Laying of Mains and Services in Common Trenching Subdivision Developments, WAGAS-03-03, 1 March 2004

Procedure – Design Control & Project Management, Doc No ANS-PR-04000, Rev 0, 11 October 2005

Contractor Module Training Records (Excel spreadsheet)

Agility Site Instruction Pack – July 2006

Connection Process Handbook, March 2005

Work Training Matrix, MCM 3.2

Contractor ID Cards – Peter Jeffery, AGN Trained

Contractor ID Cards – Brant Ruul, AAM Trained

Contractor ID Cards – Standard template

Miscellaneous performance appraisal documents and training records

Gas Distribution West, AAM Operational Reports for July, August and November 2006

Asset Services: Monthly Operations Report, September 2006

UAFG Field Test Report – Report No. 02/16, May 2002.

2006 Cathodic Protection Annual Report, Rep No 2006-CP Rpt RO (AGN CP Maintenance)

2005 Cathodic Protection Annual Report, Rep No 2005-CP Rpt RO (NPS)

Leakage Survey Report: 4 year rolling average 2002-2006

Ultrasonic Inspection Report No 000003, Rev 1, HP13 Pipeline Extension, 9 June 2006

AGN – Environmental Performance Index, December 2006

AGN – Environmental Performance Index, September 2006

AGN – Environmental Performance Index, March 2006

Odorant Level Results – all networks 2006 (excel spreadsheet)

Odorant Level Results – all networks 2005 (excel spreadsheet)

Work Instruction: Decommissioning of Gas Pipes and Facilities, Doc No CS MCSC 09712, 27 May 2004

Work Instruction: Installation and Removal of Meter Sets, Doc No CS MCSC 09217, 20



June 2003

Work Instruction: Pipeline Patrols, Doc No CS MCSC 09823, 27 July 2004

GNIS Service Calls for 2006 (Excel spreadsheet)
IS Systems Access request
System Improvement Request
Alinta Information Services Organisation Chart, 13 February 2007
Alinta Annual Reports for 2005 and 2006
ANH Financial Reports for February 2005, July 2005, February 2006 and July 2006
ANH Financial KPI Reports for February 2005, July 2005, February 2006 and July 2006
ANH Financial KPI Reports for December 2005