



Department of Consumer  
and Employment Protection  
Government of Western Australia  
**Energy Safety**

Our Ref: GIR/0142  
Enquiries: Geoff Wood  
Telephone: 9422-5294

Ms A Watkins  
Economic Regulation Authority  
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Dear Ms Watkins

**Proposed Revisions To The Access Arrangement For The Dampier To Bunbury  
Natural Gas Pipeline**

In response to your email dated 13 April 2005 requesting advice on the broadening of the gas quality specification for the Dampier to Bunbury Natural Gas Pipeline (DBNGP) I provide the following response.

**Background**

To assist with the advice I feel it is appropriate to provide some background on the development of the gas quality specification for the DBNGP.

In November 1995 the Office of Energy on behalf of the Standing Committee on Gas Quality submitted a report to the Hon Minister for Energy (which was later made available for public release) titled "Review of the Gas Quality Specification for the Dampier to Bunbury Natural Gas Pipeline Western Australia".

The report contained a number of recommendations of which the following are of particular relevance:

**Emergency Gas and New Contracts**

*It is recommended that Schedule 4 of the Gas Transmission Regulations 1994 be amended to include:*

1. *an "emergency" gas quality specification that gives the pipeline operator the authority to allow gas with a wider specification (as indicated in column 4 of the Revised Schedule 4 below) both into and out of the DBNGP when there is a disruption to the supply of specification gas; and*

2. *a provision that will allow for the future widening of the gas quality specification. It is recommended that where new contracts specify gas quality limits tighter than those given in column 5 of the Revised schedule 4, those contracts will not restrict the future widening of the DBNGP specification up to the limits given in column 5 of the Revised Schedule 4. The adoption of tighter limits in contracts than those shown in Column 5 will be at the risk of those entering into the contracts. Any future actual widening of gas quality limits would need to be approved in accordance with the provisions of the Gas Transmission Regulations 1994.*

*It is recommended that both of the above changes to the structure of Schedule 4 be implemented immediately. Where pre-existing contracts impose limits more restrictive than the emergency limits, special arrangements will need to be agreed with parties to pre-existing contracts so that the emergency gas quality limits can be implemented when necessary.*

### **Old Appliances**

*In order to provide for the widening of the gas quality specification, it is recommended that a program to identify, modify or replace old appliances, which preceded the AGA approval scheme, commence as soon as possible.*

*Various options for funding this work are available and a recommendation on this should be developed in conjunction with Treasury.*

The recommendation relating to the future widening of the gas quality specification resulted in a number of the values contained in the table of page 15 of the report titled "Revised Schedule 4 - Proposed Gas Quality Specification" (refer Attachment 1) being included in Schedule 1 – Broadest Specifications of the Dampier to Bunbury Pipeline Regulations (refer Attachment 2), which were gazetted on 10 March 1998. Reference to the broadest specification is also made in regulation 24 (1)(2) of these Regulations.

Following the sale of the DBNGP to Epic Energy the DBNGP Regulations were revoked.

Although the Regulations were revoked, AlintaGas included in the section of their Access Arrangement dealing with gas quality a requirement to comply with the most stringent requirements of either the broadest specification contained in Schedule 1 of the Regulations or the provisions for gas quality contained in the *Gas Standards (Gas Supply and System Safety) Regulations 2000*. These requirements were approved as part of the Access Arrangement.

In regard to the recommendation on Old Appliances the Office of Energy's Technical and Safety Division (now Energy Safety Division of the Department of Consumer and Employment Protection) commissioned in 1998 the Technical Services Branch of Alinta Gas to undertake a study on the effect of lean natural gas (gas with a higher heating value at the low end of the specification) on old converted gas appliances. In this context "converted," means making changes to the appliance to enable it to operate on natural gas instead of the towns gas supplied at that time. The conversions took place around 1970 when natural gas was first introduced in Perth. This category of appliance was chosen as it was considered to be the most likely to be effected from a substantial change in gas quality.

The study resulted in a report No. GV 98/09 titled "The Effect Of Lean Gas On Old Converted Appliances." The report indicated that the appliances tested in general could operate safely on the lean gas although concern was expressed over the condition of a number of the appliances and the lack of what are now standard safety features (eg. flame failure devices and oxygen depletion devices).

### **Conclusion**

The broadening of the gas quality specification based on the results of the testing carried out by AlintaGas is not expected to have an adverse effect on the performance of domestic gas appliances provided they are regularly serviced/maintained. However, it is understood that the safety of old gas appliances could be improved by the fitting of safety devices.

It is also our understanding that any change in the quality of gas delivered into the AlintaGas distribution system is likely to occur over an extended period and therefore provide adequate time for the market to adjust to the change and resolve any impact on gas appliance performance particularly in the industrial sector.

Yours sincerely



Geoff Wood  
**DIRECTOR GAS & EMERGENCY MANAGEMENT**

19 April 2005

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## Revised Schedule 4 Proposed Gas Quality Specification

Column	1	2	3	4	5
Gas Component	Cat. A Gas	Cat. B Gas	Cat. C Gas	Emergency Cat. A, B & C Gas	New Contracts Cat. B & C Gas
Max. Carbon Dioxide (mol %)	3.6	4.0	4.0	4.0	4.0
Max N <sub>2</sub> Eqv. Inert Gases (mol %)	6.4	7.0	7.0	n/a	n/a
Max Total Inert Gases (mol %)	n/a	n/a	n/a	8.0	7.0
Min HHV (MJ/m <sup>3</sup> )	36.0	36.0	36.0	35.1	35.1
Max HHV (MJ/m <sup>3</sup> )	42.3	42.3	42.3	44.0	42.3
Min Wobbe Index	47.3	47.3	47.3	46.0	46.0
Max Wobbe Index	51.5	51.5	51.5	51.5	51.5
Max Total Sulphur (mg/m <sup>3</sup> )					
- unodourised gas	10	10	10	50	10
- odourised gas	n/a	20	20	60	20
Max Hydrogen Sulphide (mg/m <sup>3</sup> )	2	2	2	2	2
Max Oxygen (mol %)	0.2	0.2	0.2	0.2	0.2
Max Water (mg/m <sup>3</sup> )	48	48	48	100	48
Hydrocarbon dewpoint over the pressure range 2.5 to 8.72 Mpa absolute.	Below 0 deg C	Below 0 deg C	Below 0 deg C	Below 0 deg C	Below 0 deg C
Max radioactive comp. (Bq/m <sup>3</sup> )	600	600	600	600	600
Min extractable LPGs (t/TJ)	n/a	n/a	n/a	n/a	n/a

n/a: not applicable

\* A trade-off between CO<sub>2</sub> and N<sub>2</sub> would be allowable for Cat (A) according to the formulae:

- $\%N_2 \leq \%N_2(\text{Equivalent}) = 6.4 - 1.25 \times \%CO_2$  (for gas with max Total Inerts of 5.5 mol%).

This would permit the level of inlet N<sub>2</sub> to be increased up to 6.4 mol% if there is no CO<sub>2</sub> present in the gas.

The above "New" specification would apply on date of issue of amendment to Regulations, but where pre-scheme contracts exist such as in the case of the 1.45 t/TJ extractible LPG requirement, amendment to the Regulations will depend on the expiry or renegotiation of such contracts.

# Attachment 2 Extract from DBNGP Regulations

10 March 1998]

GOVERNMENT GAZETTE, WA

1347

## *Dampier to Bunbury Pipeline Regulations 1998*

### SCHEDULE 1 — BROADEST SPECIFICATIONS

[r. 24(8)]

For the purposes of the definition of "broadest specification" in regulation 24(8), the gas quality specifications are as follows:

Component	Category A Gas	Category B Gas	Category C Gas
Maximum carbon dioxide (mol %)	3.6	4	4
Maximum inert gases (mol %)	6.5	7.0	7.0
Minimum higher heating value (MJ/m <sup>3</sup> )	35.1	35.1	35.1
Maximum higher heating value (MJ/m <sup>3</sup> )	42.3	42.3	42.3
Minimum Wobbe Index	46.0	46.0	46.0
Maximum Wobbe Index	51.5	51.5	51.5
Maximum total sulphur (mg/m <sup>3</sup> ) — unodorized gas — odorized gas	10 20	10 20	10 20
Maximum Hydrogen Sulphide (mg/m <sup>3</sup> )	2	2	2
Maximum Oxygen (mol %)	0.2	0.2	0.2
Maximum Water (mg/m <sup>3</sup> )	48	48	48
Hydrocarbon dewpoint over the pressure range 2.5 to 8.72 MPa absolute	Below 0°C	Below 0°C	Below 0°C
Maximum radioactive components (Bq/m <sup>3</sup> )	600	600	600
Minimum extractable LPGs (t/TJ)	Until 08:00 hours on 1 July 2005: 1.45 From 08:00 hours on 1 July 2005: 0:00	n/a	n/a

By Command of the Governor,

M. C. WAUCHOPE, Clerk of the Executive Council.