



Government of **Western Australia**
Department of **Commerce**
EnergySafety

Technical Report

303 Sevenoaks Street Cannington Western Australia 6107

Telephone: (08) 9422 5297 Facsimile: (08) 9422 5244

EnergySafety Technical Comments on the WAGN Access Arrangement 2010-2014 for the ERA

Revision	Description	Date
A	Initial Report	08/06/10

CONTENTS PAGE

1	Introduction	- 1 -
2	Capital Expenditure 2005-2009	- 2 -
2.1	Table 27 Capital expenditure: Projects: 2005 – 2009	- 2 -
2.2	Table 28 Capital expenditure: Variable volume: 2005 – 2009	- 12 -
2.3	Table 29 Capital expenditure: Information technology: 2005 – 2009	- 13 -
3	Capital Expenditure 2010-2013/2014	- 14 -
3.1	Table 31 Capital expenditure: Projects: 2010(1) – 2013/2014	- 14 -
3.2	Table 32 Capital expenditure: Variable volume: 2010(1)–2013/2014	- 19 -
3.3	Table 33 Capital expenditure: Information technology: 2010(1)–2013/2014	- 22 -
3.4	Item 142 – Pipeline Slabbing	- 24 -

1 INTRODUCTION

This report includes the technical comments from an EnergySafety review of the 'Proposed Revisions to the Access Arrangement for the WA Gas Networks Gas Distribution System' (29 Jan 2010).

In performing the review, EnergySafety only considered the capital expenditure related to National Gas Rules 2009 Rule 79(1)(a), and Rule 79(2)(c). Rule 79(1)(a) sets out the criteria for conforming capital expenditure where "the capital expenditure must be such as would be incurred by a prudent service provider acting efficiently, in accordance with accepted good industry practice, to achieve the lowest sustainable cost of providing services". Rule 79(2)(c) sets out the criteria for justifiable capital expenditure if the capital expenditure is necessary "to maintain and improve the safety of services; or to maintain the integrity of services; or to comply with a regulatory obligation or requirement; or to maintain the service provider's capacity to meet levels of demand for services existing at the time the capital expenditure is incurred (as distinct from projected demand that is dependent on an expansion of pipeline capacity)".

Overall, the projects detailed and the costs associated appear to be reasonable for prudent service provider acting efficiently and in accordance with accepted good industry practice and so the capital expenditure appears to be conforming capital expenditure by satisfying Rule 79(1)(a)

The detailed projects are set out in the following tables indicating accordance with Rule 79(2)(c).

Some projects justified under 79(2)(c) have not been commented on as:

1. The project does not appear to be capital expenditure,
2. The project appears to be a business operational consideration,
3. The project name is repeated, often under different justification, or
4. The project requires further engineering and a more detailed design.

These projects without comment have been highlighted in red text.

2 CAPITAL EXPENDITURE 2005-2009

2.1 Table 27 Capital expenditure: Projects: 2005 – 2009

Item	Project	Westnet Justification	Frontier Comment	EnergySafety Justification	EnergySafety Comments
1	Extension of high pressure pipeline to reinforce Baldivis medium pressure system to allow increase in number of connections	Rule 79(2)(a), (b)		N/C	N/C
2	Glenfield-Sunset Beach Estate (Geraldton) main extension: 5 km extension 225 PE main to allow additional connections	Rule 79(2)(a), (b)		N/C	N/C
3	Upgrade corrosion protection on high pressure pipeline (Pipeline 9)	Rule 79(2)(a), (b)	Rule 79(2)(c)	Rule 79(2)(c)(ii)	Necessary to maintain integrity Costs appear reasonable
4	Corrosion protection upgrade: investigate interference issues, and restore corrosion protection system on High Pressure Pipeline 63/64 (O'Connor)	Rule 79(2)(a), (b)	Rule 79(2)(c)		Repeat of Items 32 and 82 Necessary to maintain integrity Costs appear reasonable
5	Direct current voltage gradient surveys of steel pipelines	Rule 79(2)(a), (b)	Rule 79(2)(c)	Rule 79(2)(c)(ii)	Necessary to maintain integrity Costs appear reasonable
6	Contract rate variations not allocated to specific high pressure pipeline projects	Rule 79(2)(a), (b)		N/C	N/C
7	Main extension: extension of 160 PE main along Abernethy Road and Glassford Street, Kewdale, and installation of high pressure regulator set to allow increase in number of connections	Rule 79(2)(a), (b)		N/C	N/C
8	Upgrade of medium pressure pipeline, Madora Road, Mandurah, to allow increase in number of connections (adjustment only)	Rule 79(2)(a), (b)		N/C	N/C
9	Main extension: extension of high pressure main along Armadale Road to Tapper Road, Atwell, Tapper Road to Bartram Road, Atwell, to reinforce medium pressure system	Rule 79(2)(a), (b)		N/C	N/C
10	Network modifications to allow higher pressure operation of class 600 pipeline downstream of Clifton Road gate station allowing increase in number of connections in Bunbury-Busselton area	Rule 79(2)(a), (b)		N/C	N/C
11	Main extension: high pressure main extensions and associated facilities, Timperley Road, South Bunbury to allow increase in number of connections	Rule 79(2)(a), (b)		N/C	N/C
12	Main extension: looping of high pressure pipeline (Wellard Road, Kwinana Beach to Gilmore Avenue, Calista) to reinforce medium pressure system to allow increased number of connections	Rule 79(2)(a), (b)		N/C	N/C

Item	Project	Westnet Justification	Frontier Comment	EnergySafety Justification	EnergySafety Comments
13	Upgrade corrosion protection system remediation on Pipeline 76	Rule 79(2)(a), (b)	Rule 79(2)(c)	Rule 79(2)(c)(ii)	Necessary to maintain integrity Costs appear reasonable
14	Network modifications to allow higher pressure operation of class 600 pipeline downstream of Clifton Road gate station allowing increase in number of connections in Bunbury-Busselton area	Rule 79(2)(a), (b)		N/C	N/C
15	High pressure gas supply to northern suburbs and [REDACTED]	Rule 79(2)(a), (b), (c)(i)		Rule 79(2)(a), (b)	Not a safety issue, rule (c)(i) not applicable
16	High pressure gas supply [REDACTED]	Rule 79(2)(a), (b)		N/C	N/C
17	High pressure gas supply [REDACTED]	Rule 79(2)(a), (b)		N/C	N/C
18	Installation of high pressure pipeline to supply Lakelands subdivison	Rule 79(2)(a), (b)		N/C	N/C
19	Main extension: extension of 160 PE main along Abernethy Road and Glassford Street, Kewdale, and installation of high pressure regulator set to allow increase in number of connections	Rule 79(2)(a), (b)		N/C	N/C
20	Modifications to high pressure regulator to allow supply to new commercial end-user in Fremantle	Rule 79(2)(a), (b)		N/C	N/C
21	Upgrade corrosion protection: replacement of impressed current transformer units of inadequate capacity	Rule 79(2)(a), (b)	Rule 79(2)(c)	Rule 79(2)(c)(ii)	Necessary to maintain integrity Costs appear reasonable
22	Modifications to (steel) Pipeline 4, Mounts Bay Road and Kings Park	Rule 79(2)(a), (b)	Rule 79(2)(c)		Repeat of item 28
23	Transformer/rectifier unit for cathodic protection on steel pipeline (Pipeline 5) East Perth	Rule 79(2)(a), (b)	Rule 79(2)(c)	Rule 79(2)(c)(ii)	Necessary to maintain integrity Costs appear reasonable
24	Installation of pressure monitoring devices: installation of additional pressure monitoring devices within expanding network to provide the data for system modelling which identifies over-pressure (safety) and under-pressure (capacity maintenance) problems	Rule 79(2)(a), (b)	Rule 79(2)(c)	Rule 79(2)(c)(iv)	Required for capacity modelling Costs appear reasonable
25	Improvements in the earthing of steel pipelines, identified in annual corrosion protection system reviews, to reduce induced AC voltages to acceptable levels	Rule 79(2)(a), (b)	Rule 79(2)(c)		Repeat of items 34 and 86
26	Meter sets supplied to commercial end-users	Rule 79(2)(a), (b)		N/C	N/C
27	Modifications to high pressure pipeline: Warnbro Sound Roundabout	Rule 79(2)(a), (b)	Rule 79(2)(c)	N/C	N/C

Item	Project	Westnet Justification	Frontier Comment	EnergySafety Justification	EnergySafety Comments
28	Modifications to (steel) Pipeline 4, Mounts Bay Road and Kings Park	Rule 79(2)(c)(iv)		Rule 79(2)(c)(ii)	Repeat of item 22 Costs appear reasonable
29	Replacement of corroded high pressure valves 2V9, 12V3, 16V2, 18V1, 18V2, 37V1, 46V1, 52V1 (valves required for emergency isolation of parts of the high pressure system)	Rule 79(2)(c)(i), (ii)		Rule 79(2)(c)(ii)	Necessary to maintain integrity Costs appear reasonable
30	Corrosion protection: sacrificial anode replacements to maintain the integrity of high pressure steel pipelines	Rule 79(2)(c)(ii)		Rule 79(2)(c)(ii)	Necessary to maintain integrity Costs appear reasonable
31	Replacement of pipeline markers: replacement of marker signs on high pressure pipelines to comply with changed standard of AS 4645	Rule 79(2)(c)(iii)		Rule 79(2)(c)(iii)	Repeat of Item 83 Necessary for regulatory compliance Costs appear reasonable
32	Corrosion protection upgrade: investigate and mitigate interference issues, and restore corrosion protection system on High Pressure Pipeline 63/64 (O'Connor)	Rule 79(2)(c)(i), (ii)		Rule 79(2)(c)(ii)	Necessary to maintain integrity Costs appear reasonable
33	Upgrade corrosion protection: replacement of impressed current transformer units of inadequate capacity	Rule 79(2)(c)(i), (ii)		Rule 79(2)(c)(ii)	Repeat of Items 4 and 82 Necessary to maintain integrity Costs appear reasonable
34	Improvements in the earthing of steel pipelines, identified in annual corrosion protection system reviews, to reduce induced AC voltages to acceptable levels	Rule 79(2)(c)(i), (ii)		Rule 79(2)(c)(i)	Repeat of items 25 and 86 Necessary to maintain safety Costs appear reasonable
35	Modifications to high pressure gas supply XXXXXXXXXX	Rule 79(2)(c)(i), (ii)		Rule 79(2)(c)(ii)	Necessary to maintain integrity Costs appear reasonable
36	Condition assessments of high pressure Pipelines 20 and 63	Rule 79(2)(c)(i), (ii)		Rule 79(2)(c)(ii)	Necessary to maintain integrity Costs appear reasonable
37	Mandurah lateral: 16.9 km x 200 mm Class 600 HP steel pipeline to reinforce Rockingham-Mandurah subnetwork and allow increase in number of connections	Rule 79(2)(a), (b), (c)(i), c(iv)		Rule 79(2)(a), (b), (c)(iv)	Required for capacity to Mandurah Costs appear reasonable
38	The Vines: medium and low pressure mains added to the WAGN GDS following conversion of The Vines from an LPG to natural gas	Rule 79(2)(a), (b)		N/C	N/C

Item	Project	Westnet Justification	Frontier Comment	EnergySafety Justification	EnergySafety Comments
39	Main extension: extension of high pressure PE main, Ellenbrook, to allow increase in number of connections (adjustment only)	Rule 79(2)(a), (b)		N/C	N/C
40	Main extension: extension of high pressure main along Armadale Road to Tapper Road, Atwell, Tapper Road to Bartram Road, Atwell, to reinforce medium pressure system and allow increase in number of connections	Rule 79(2)(a), (b)		N/C	N/C
41	Main extension : main extension Maida Vale and Hawtin Roads, High Wycombe, to allow increase in number of connections	Rule 79(2)(a), (b)		N/C	N/C
42	Main extension: 2500 m x 160 PE medium pressure main, Southern River and Holmes Roads, Southern River to allow increase in number of connections	Rule 79(2)(a), (b)		N/C	N/C
43	Main extension: reinforcement of medium pressure system in Calista to accommodate growth in number of connections	Rule 79(2)(a), (b)		N/C	N/C
44	Contract rate variations not allocated to specific medium pressure pipeline projects	Rule 79(2)(a), (b)		N/C	N/C
45	Main extension: extension of medium pressure main Amherst Street, Canning Vale, to allow increase in number of connections	Rule 79(2)(a), (b)		N/C	N/C
46	Upgrade of medium pressure pipeline, Madora Road, Mandurah, to allow increase in number of connections	Rule 79(2)(a), (b)		N/C	N/C
47	Main relocation: Southern River	Rule 79(2)(a), (b)	Rule 79(2)(c)	Rule 79(2)(c)(ii)	Required to maintain integrity Costs appear reasonable
48	Main extension: extension of high pressure PE main, Ellenbrook, to allow increase in number of connections	Rule 79(2)(a), (b)		N/C	N/C
49	Main extension: extension of 160 mm PE main, Lambert Lane, Brookdale, to supply new subdivision	Rule 79(2)(a), (b)		N/C	N/C
50	Main extension: 370 m x 110 mm PE pipeline connecting Recreation Drive to Murdoch Court, Eaton, to allow increase in number of connections	Rule 79(2)(a), (b)		N/C	N/C
51	Installation of isolation valves, Lambeth Circuit, Wellard	Rule 79(2)(a), (b)	Rule 79(2)(c)	N/C	N/C
52	Main extension: Maida Vale Road and Hawtin Road High Wycombe	Rule 79(2)(a), (b)		N/C	N/C
53	Ridgewood reinforcement: reinforcement of medium pressure system to accommodate increase in number of connections	Rule 79(2)(a), (b)		N/C	N/C
54	Hammond Park medium pressure rationalisation: reinforcement of medium pressure system to accommodate increase in number of connections	Rule 79(2)(a), (b)		N/C	N/C

Item	Project	Westnet Justification	Frontier Comment	EnergySafety Justification	EnergySafety Comments
55	Collie River: replacement Collie River crossing with PE DN16 pipeline	Rule 79(2)(a), (b)	Rule 79(2)(c)		Necessary to maintain integrity Costs appear reasonable Repeat of item 79
56	Relocation of pressure regulating station PRS011 to facilitate East Perth development	Rule 79(2)(a), (b)			Repeat of item 75
57	Main extension: Great Eastern Highway to allow increase in number of connections	Rule 79(2)(a), (b)		N/C	N/C
58	Main extension, Wandu: extension of medium pressure pipelines to supply new subdivision	Rule 79(2)(a), (b)		N/C	N/C
59	Main extension: Bay Road Claremont	Rule 79(2)(a), (b)		N/C	N/C
60	Main extension: [REDACTED]	Rule 79(2)(a), (b)		N/C	N/C
61	Relocation of 120 mm X 80 mm PVC main to allow work by City of Gosnells	Rule 79(2)(a), (b)	Rule 79(2)(c)	Rule 79(2)(c)(ii)	Necessary to maintain integrity Costs appear reasonable
62	Main extension: extension of medium pressure main to supply [REDACTED]	Rule 79(2)(a), (b)		N/C	N/C
63	Main extension: extension of medium pressure main Amherst Street, Canning Vale, to allow increase in number of connections	Rule 79(2)(a), (b)		N/C	N/C
64	Upgrade of medium pressure pipeline, Madora Road, Mandurah, to allow increase in number of connections	Rule 79(2)(a), (b)		N/C	N/C
65	Main extension: extension of medium pressure main to facilitate supply through regulator set MN025 (Wanneroo and Dundobar Roads, Wanneroo) to allow increase in number of connections	Rule 79(2)(a), (b)		N/C	N/C
66	Main relocation: Foreshore Drive, Geraldton	Rule 79(2)(a), (b)	Rule 79(2)(c)	Rule 79(2)(c)(ii)	Necessary to maintain integrity Costs appear reasonable
67	Modifications to corrosion protection system, Flynn Drive Neerabup, affected by induced currents from new Western Power lines	Rule 79(2)(a), (b)	Rule 79(2)(c)	Rule 79(2)(c)(ii)	Necessary to maintain integrity Costs appear reasonable
68	Jandakot Airport: supply to new commercial, industrial connections in airport precinct	Rule 79(2)(a), (b)		N/C	N/C

Item	Project	Westnet Justification	Frontier Comment	EnergySafety Justification	EnergySafety Comments
69	Cast iron pipeline replacement: replacement of cast iron pipelines in the Fremantle area which are being operated at higher than industry standard pressures to maintain capacity, but with increased safety risk because of the age of these pipelines	Rule 79(2)(c)(i), (iv)		Rule 79(2)(c)(ii)	Necessary to maintain integrity and supply Costs appear reasonable
70	Condition assessment and repair of steel pipeline, Thomas Street, Nedlands	Rule 79(2)(c)(i), (iv)		Rule 79(2)(c)(ii)	Necessary to maintain integrity Costs appear reasonable
71	Replacement of pressure monitoring devices and telemetry systems which have reached ends of technical lives	Rule 79(2)(c)(iv)		Rule 79(2)(c)(iv)	Required for capacity modelling Costs appear reasonable
72	Main relocation: St Ives Stage 6	Rule 79(2)(c)(iv)		Rule 79(2)(c)(ii)	Necessary to maintain integrity Costs appear reasonable
73	Pipeline 65 (Fremantle) condition assessment	Rule 79(2)(c)(i), (iv)			Condition assessment not normally considered capital.
74	Condition assessment and repair of steel pipeline, Maylands	Rule 79(2)(c)(i), (iv)		Rule 79(2)(c)(ii)	Necessary to maintain integrity Costs appear reasonable
75	Relocation of pressure regulating station PRS011 to facilitate East Perth development	Rule 79(2)(c)(iv)	Rule 79(2)(b)	Rule 79(2)(b)	Repeat of Item 56
76	Cast iron pipeline replacement: replacement of cast iron pipelines currently being operated at higher than industry standard pressures to maintain capacity, but with increased safety risk because of the age of these pipelines	Rule 79(2)(c)(i), (iv)		Rule 79(2)(c)(ii)	Necessary to maintain integrity and supply Costs appear reasonable
77	Replacement of odd-sized unprotected steel pipelines in South Perth: replacement of older coated steel mains the coatings on which have now decayed allowing corrosion of the pipe itself, and replacement of pipes of unusual diameters for which fittings are no longer available, and which cannot now be worked on using standard equipment	Rule 79(2)(c)(iv)		Rule 79(2)(c)(ii)	Necessary to maintain integrity Costs appear reasonable
78	Replacement of 380 mm diameter unprotected and corroded steel pipelines in Victoria Park	Rule 79(2)(c)(iv)		Rule 79(2)(c)(ii)	Necessary to maintain integrity Costs appear reasonable
79	Collie River: replacement Collie River crossing with PE DN16 pipeline	Rule 79(2)(c)(iv)		Rule 79(2)(c)(ii)	Necessary to maintain integrity Costs appear reasonable Repeat of item 55

Item	Project	Westnet Justification	Frontier Comment	EnergySafety Justification	EnergySafety Comments
80	Minor mains replacement: Marshall Road	Rule 79(2)(c)(iv)		Rule 79(2)(c)(ii)	Necessary to maintain integrity No cost booked
81	Main upgrading: 1350 m x 225 mm PE from Rome Road, Melville, north across Canning Hwy to Attadale and Bicton	Rule 79(2)(c)(iv)		Rule 79(2)(c)(iv)	Necessary to maintain capacity Costs appear reasonable
82	Corrosion protection upgrade: investigate and mitigate interference issues, and restore corrosion protection system on High Pressure Pipeline 63/64 (O'Connor)	Rule 79(2)(c)(ii)		Rule 79(2)(c)(ii)	Repeat of Items 4 and 32 Necessary to maintain integrity No cost booked
83	Pipeline markers: marker signs on higher pressure pipelines to comply with changed standard of AS 4645	Rule 79(2)(c)(iii)		Rule 79(2)(c)(iii)	Repeat of Item 31 Necessary for regulatory compliance Costs appear reasonable
84	Replacement of obsolete impressed current transformer/rectifier units used for corrosion protection on high pressure steel pipelines	Rule 79(2)(c)(ii)		Rule 79(2)(c)(ii)	Necessary to maintain integrity Costs appear reasonable
85	Condition assessments of steel pipelines	Rule 79(2)(c)(ii)		Rule 79(2)(c)(ii)	Necessary to maintain integrity Costs appear reasonable
86	Improvements in the earthing of steel pipelines, identified in annual corrosion protection system reviews, to reduce induced AC voltages to acceptable levels	Rule 79(2)(c)(ii)			Repeat of items 25 and 34
87	TDW equipment overhaul: overhaul of special tool used for steel pipeline emergency isolation	Rule 79(2)(c)(ii)		Rule 79(2)(c)(iii)	Necessary for emergency response Costs appear reasonable
88	The Vines: meters and service pipes added to the WAGN GDS following conversion of The Vines from an LPG to natural gas	Rule 79(2)(a), (b)		N/C	N/C
89	Corrosion protection upgrade to maintain the integrity of steel pipelines in medium pressure parts of the network	Rule 79(2)(a), (b)	Rule 79(2)(c)	Rule 79(2)(c)(ii)	Necessary to maintain integrity Costs appear reasonable
90	Contract rate variations not allocated to specific meters and service pipes projects	Rule 79(2)(a), (b)		N/C	N/C

Item	Project	Westnet Justification	Frontier Comment	EnergySafety Justification	EnergySafety Comments
91	Service pipes: Rome Road, Melville	Rule 79(2)(a), (b)	Rule 79(2)(c)		Title appears incorrect, likely to be the relocation of HP regulator set. WAGN may have been reimbursed for the cost of this project.
92	Over length services	Rule 79(2)(a), (b)	Rule 79(2)(c)	Rule 79(2)(a)	Over length service connections required to connect customers
93	(Steel) Pipeline 84 condition assessment and upgrading of cathodic protection	Rule 79(2)(a), (b)	Rule 79(2)(c)	Rule 79(2)(c)(ii)	Necessary to maintain integrity Costs appear reasonable
94	Replacement of ME602 and M6EW meters which have now been, or which will have been at the time of replacement, in service for a period exceeding their regulated service lives	Rule 79(2)(c)(iv)		Rule 79(2)(c)(iii)	Regulatory requirement Costs appear reasonable
95	High pressure regulator sets: additional high pressure regulator sets required to accommodate growth in number of connections	Rule 79(2)(a), (b)		N/C	N/C
96	Upgrade regulator pit OS73	Rule 79(2)(a), (b)	Rule 79(2)(c)	N/C	N/C
97	Medium pressure regulators: Joshua Brook subdivision main extension project	Rule 79(2)(a), (b)		N/C	N/C
98	Medium pressure regulator sets: additional regulator sets required to accommodate growth in number of connections	Rule 79(2)(a), (b)		N/C	N/C
99	Contract rate variations not allocated to specific regulator projects	Rule 79(2)(a), (b)		N/C	N/C
100	Bussell Highway: regulator set for gas supply to new subdivision	Rule 79(2)(a), (b)		N/C	N/C
101	Medium pressure regulator set upgrades: upgrading of existing medium pressure regulator sets to accommodate increase in number of connections	Rule 79(2)(a), (b)		N/C	N/C
102	High pressure regulator sets: additional high pressure regulator sets required to accommodate growth in number of connections	Rule 79(2)(a), (b)		N/C	N/C
103	High pressure regulator set, Australind: new regulator set required to accommodate growth in number of connections	Rule 79(2)(a), (b)		N/C	N/C
104	Network modifications to allow higher pressure operation of class 600 pipeline downstream of Clifton Road gate station allowing increase in number of connections in Bunbury-Busselton area	Rule 79(2)(a), (b)		N/C	N/C
105	Medium pressure regulator sets: additional medium pressure regulator sets required to accommodate growth in number of connections	Rule 79(2)(a), (b)		N/C	N/C

Item	Project	Westnet Justification	Frontier Comment	EnergySafety Justification	EnergySafety Comments
106	Medium pressure regulator sets: additional medium pressure regulator sets required to accommodate growth in number of connections	Rule 79(2)(a), (b)		N/C	N/C
107	High pressure regulator sets: additional high pressure regulator sets required to accommodate growth in number of connections	Rule 79(2)(a), (b)		N/C	N/C
108	Tuart Lakes Lifestyle Development: regulator set for gas supply to new subdivision	Rule 79(2)(a), (b)		N/C	N/C
109	Medium pressure regulator set upgrades: upgrading of existing medium pressure regulator sets to accommodate increase in number of connections	Rule 79(2)(c)(iv)	Rule 79(2)(b)	Rule 79(2)(c)(iv)	Necessary to maintain capacity Costs appear reasonable
110	Replacement of regulators as part of replacement of odd-sized unprotected steel pipelines in South Perth	Rule 79(2)(c)(ii), (iv)		Rule 79(2)(c)(ii)	Necessary to maintain integrity Costs appear reasonable
111	Medium pressure regulator set upgrade: MN189 Bellevue Crescent, Dianella; MS036, Rivervale	Rule 79(2)(c)(ii), (iv)		Rule 79(2)(c)(iv)	Necessary to maintain capacity Costs appear reasonable
112	Replacement of lids on regulator pits: replacement of damaged or corroded pit lids to allow safe access and ensure integrity of equipment	Rule 79(2)(c)(i), (ii)		Rule 79(2)(c)(ii)	Necessary to maintain integrity Costs appear reasonable
113	Modifications to pressure regulator station PRS003, Geraldton	Rule 79(2)(c)(iv)		Rule 79(2)(c)(ii)	Necessary to maintain integrity Costs appear reasonable
114	Modifications to telephone service between Quadrant and WestNet Plaza, Perth CBD	Rule 79(2)(c)(ii)			Business operation – EnergySafety has no comment
115	End of life replacement of gate station equipment	Rule 79(2)(c)(iv)		Rule 79(2)(c)(ii)	Necessary to maintain integrity Costs appear reasonable
116	Mandurah gate station: gate station on Dampier to Bunbury Natural Gas Pipeline to allow gas delivery into the Mandurah lateral	Rule 79(2)(a), (b), (c)(i), c(iv)		Rule 79(2)(c)(iv)	Necessary to maintain capacity Costs appear reasonable
117	Modifications to pressure regulator station PRS003, Geraldton	Rule 79(2)(c)(ii)			No cost associated with project
118	Transducer relocation and false alarm mitigation: modifications to pressure monitoring devices and associated systems to allow alarming in under-pressure and over-pressure conditions, and to eliminate false alarms	Rule 79(2)(c)(ii)			Not typically capital expenditure Alarm mitigation is prudent and should improve operational efficiency

2.2 Table 28 Capital expenditure: Variable volume: 2005 – 2009

Item	Variable volume	Westnet Justification	Frontier Comment	EnergySafety Justification	EnergySafety Comments
122	Medium and low pressure mains	Rule 79(2)(a), (b)		N/C	N/C
123	Medium and low pressure mains	Rule 79(2)(a), (b)		N/C	N/C
124	Meters and service pipes	Rule 79(2)(a), (b)		N/C	N/C
125	Meters and service pipes	Rule 79(2)(a), (b)		N/C	N/C

2.3 Table 29 Capital expenditure: Information technology: 2005 – 2009

Item	Information technology	Westnet Justification	Frontier Comment	EnergySafety Justification	EnergySafety Comments
126	Network Management Information System (NMIS) upgrading: enhancements to, and subsequent major upgrading of, principal system supporting full retail contestability in the Western Australian gas market	Rule 79(2)(c)(ii)			Business operation – EnergySafety has no comment
127	GNIS upgrade: major upgrade of Gas Network Information System, the geographic information system providing locational data on all network assets	Rule 79(2)(c)(ii)		Rule 79(2)(c)(ii)	Necessary to maintain integrity Unable to comment on cost
128	"Dial before you dig": system to provide advice to builders, homeowners and others digging in the vicinity of gas mains	Rule 79(2)(c)(i)		Rule 79(2)(c)(i), (iii)	Necessary for public safety Unable to comment on cost
129	Project Neon: migration of telemetry sites to Neon remote terminal technology to reduce time taken to download and process daily interval meter data for improved operational control, increased productivity and better leak detection	Rule 79(2)(c)(ii)		Rule 79(2)(c)(iv)	Necessary for capacity management Unable to comment on cost
130	Webmethods business integration software	Rule 79(2)(c)(ii)			Business operation – EnergySafety has no comment
131	Incident management system (Jasper)	Rule 79(2)(c)(i), (ii)			Business operation – EnergySafety has no comment

3 CAPITAL EXPENDITURE 2010-2013/2014

3.1 Table 31 Capital expenditure: Projects: 2010(1) – 2013/2014

Item	Project	Westnet Justification	Frontier Comment	EnergySafety Justification	EnergySafety Comments
132	Ellenbrook main extension: high pressure pipeline to reinforce Ellenbrook area and allow increase in number of connections	Rule 79(2)(a), (b)		N/C	N/C
133	Byford to Whitby main extension: extend DN150 mm Class 150 pipeline from George Street, Byford, along South Western Highway, to Whitby (6.2km) to allow increase in number of connections	Rule 79(2)(a), (b)		N/C	N/C
134	Busselton-Capel main extension: extend 5 km x Class 150 HP steel pipeline, and install pressure reduction facilities to allow increase in number of connections	Rule 79(2)(a), (b)		N/C	N/C
135	Baldivis main extension: extend 150 mm Class 150 steel pipeline from the intersection of Wellard Road and Gilmore Avenue to Baldivis to allow increase in number of connections	Rule 79(2)(a), (b)		N/C	N/C
136	Parklands-Furnissdale main extension: extend 150 mm Class 150 steel pipeline from proposed Mandurah lateral in Parklands to Furnissdale to allow increase in number of connections	Rule 79(2)(a), (b)		N/C	N/C
137	High pressure valve replacements: valves 2V9, 12V3, 16V2, 18V1, 18V2, 37V1, 46V1 and 52V1, which are required for isolation of parts of the high pressure system, are corroded and require replacement	Rule 79(2)(c)(i), (ii)		Rule 79(2)(c)(ii)	Necessary to maintain integrity Costs appear reasonable
138	Corrosion protection: sacrificial anode replacements to maintain the integrity of high pressure steel pipelines	Rule 79(2)(c)(ii)		Rule 79(2)(c)(ii)	Necessary to maintain integrity Costs appear reasonable
139	Remediation of high pressure isolation valves: remediation of older high pressure isolation valves which have become difficult to operate because of corrosion but which do not yet require replacement.	Rule 79(2)(c)(ii)		Rule 79(2)(c)(ii)	Necessary to maintain integrity Costs appear reasonable
140	Replacement of impressed current transformer/rectifier units used for corrosion protection on high pressure steel pipelines	Rule 79(2)(c)(ii)		Rule 79(2)(c)(ii)	Necessary to maintain integrity Costs appear reasonable
141	Replacement of pipeline markers: replacement of marker signs on high pressure pipelines to comply with changed standard of AS 4645	Rule 79(2)(c)(iii)		Rule 79(2)(c)(iii)	Regulatory requirement Costs appear reasonable
142	Slabbing to meet requirements of AS 2885: concrete covering of HP pipelines in residential and other areas as a safety measure	Rule 79(2)(c)(i), (iii)		Rule 79(2)(c)(iii)	Refer to section 3.4
143	Mandurah lateral: 16.9 km x 200 mm Class 600 HP steel pipeline to reinforce Rockingham-Mandurah subnetwork and allow increase in number of connections	Rule 79(2)(a), (b), (c)(i), c(iv)		Rule 79(2)(c)(iv)	Necessary for capacity Costs appear reasonable

Item	Project	Westnet Justification	Frontier Comment	EnergySafety Justification	EnergySafety Comments
144	Corrosion protection: upgrading of test points to maintain the integrity of high pressure steel pipelines	Rule 79(2)(c)(ii)		Rule 79(2)(c)(ii)	Necessary to maintain integrity Costs appear reasonable
145	Installation of surge protectors: installation of surge protectors at insulation joints to protect personnel from electric currents induced in steel pipelines as a result of proximity to high voltage power lines	Rule 79(2)(c)(i)		Rule 79(2)(c)(ii)	Necessary to maintain integrity Costs appear reasonable
146	Corrosion protection upgrading: replacement of impressed current transformer units of inadequate capacity or at ends of lives, and enclosure of test points to prevent vandalism, to maintain the integrity of high pressure steel pipelines	Rule 79(2)(c)(ii)		Rule 79(2)(c)(ii)	Necessary to maintain integrity Costs appear reasonable
147	Pinjarra extension: extend 7.2 km x 150 mm Class150 pipeline from Pinjarra Gate Station to regulator set HS017 to allow operating pressure to be increased from 600 kPa to 900 kPa, ensuring continuity of supply during winter conditions	Rule 79(2)(a), (b)	Rule 79(2)(c)	Rule 79(2)(c)(iv)	Necessary for capacity Costs appear reasonable
148	South Yunderup: extension of MLP system into new subdivision	Rule 79(2)(a), (b)		N/C	N/C
149	Alkimos pipeline reinforcement: extension of MLP system into new subdivision	Rule 79(2)(a), (b)		N/C	N/C
150	Canningvale main extension: extension of 135 m x 110PE along Amherst Road across Warton Road to Holmes Street: short main extension required to compensate for pressure drop identified in system modelling studies	Rule 79(2)(a), (b)	Rule 79(2)(c)	Rule 79(2)(c)(iv)	Necessary for capacity Costs appear reasonable
151	Beresford Main Extension: extend 300m x 110PE along Chapman Rd and 1660m x 160PE SDR17.6 PE80B along North West Coastal Hwy to connect to 160PE on Flores Rd short main extension required to compensate for pressure drop identified in system modelling studies	Rule 79(2)(a), (b)	Rule 79(2)(c)	Rule 79(2)(c)(iv)	Necessary for capacity Costs appear reasonable
152	Headworks upgrading: upgrading of MLP pipelines to facilitate expected growth in number of customer connections across network	Rule 79(2)(a), (b)		N/C	N/C
153	Brand Highway main extension: extend 1.5 km x 160 PE SDR17.6 PE80B along Brand Highway and connect into 100 PVC MP main along Columbus Boulevard	Rule 79(2)(a), (b)		N/C	N/C
154	Main extension: Extend 500m x 110PE along Box St to Anderson St, Webberton, to connect to 100PVC MP main.	Rule 79(2)(a), (b)		N/C	N/C
155	Glenfield (Geraldton) main extension: extend 3.2 km x 160 PE SDR17.6 PE80B medium pressure main to reinforce Glenfield area and allow increase in number of connections	Rule 79(2)(a), (b)		N/C	N/C
156	Cast iron pipeline replacement: replacement of cast iron pipelines currently being operated at higher than industry standard pressures to maintain capacity, but with increased safety risk because of the age of these pipelines	Rule 79(2)(c)(i), (iv)		Rule 79(2)(c)(ii)	Necessary to maintain integrity Costs appear reasonable

Item	Project	Westnet Justification	Frontier Comment	EnergySafety Justification	EnergySafety Comments
157	Replacement of unprotected and odd-sized steel pipelines: systematic replacement of coated steel mains installed 30 to 40 years ago, the coatings on which have now decayed allowing corrosion of the pipe itself, and replacement those pipelines (now) of unusual diameters and for which fittings are no longer available, and which cannot be worked on using standard equipment	Rule 79(2)(c)(iv)		Rule 79(2)(c)(ii)	Necessary to maintain integrity Costs appear reasonable
158	Floreat: replacement of older pipelines and remediation work	Rule 79(2)(c)(iv)		Rule 79(2)(c)(ii)	Necessary to maintain integrity Costs appear reasonable
159	Floreat: replacement of older pipelines and remediation work	Rule 79(2)(c)(iv)			Repeat of item 158
160	Wembley: condition assessment of older mains in the Wembley area and expected replacement and remediation work	Rule 79(2)(c)(iv)		Rule 79(2)(c)(ii)	Necessary to maintain integrity Costs appear reasonable
161	Osborne Park: condition assessment of older mains in the Osborne Park area and expected replacement and remediation work	Rule 79(2)(c)(iv)		Rule 79(2)(c)(ii)	Necessary to maintain integrity Costs appear reasonable
162	Preston River: replacement of corroded steel pipeline on Preston River bridge near Bunbury	Rule 79(2)(c)(iv)		Rule 79(2)(c)(ii)	Necessary to maintain integrity Costs appear reasonable
163	Shenton Park condition assessment of older pipelines and remediation work	Rule 79(2)(c)(iv)		Rule 79(2)(c)(ii)	Necessary to maintain integrity Costs appear reasonable
164	Shenton Park: condition assessment of older pipelines	Rule 79(2)(c)(iv)			Confirm this is considered capital Condition assessments are vital in ensuring integrity of the network Costs appear reasonable
165	Floreat: condition assessment of older pipelines	Rule 79(2)(c)(iv)			Confirm this is considered capital Condition assessments are vital in ensuring integrity of the network Costs appear reasonable
166	Wembley: condition assessment of older pipelines	Rule 79(2)(c)(iv)			Confirm this is considered capital Condition assessments are vital in ensuring integrity of the network Costs appear reasonable

Item	Project	Westnet Justification	Frontier Comment	EnergySafety Justification	EnergySafety Comments
167	Osborne Park: condition assessment of older pipelines	Rule 79(2)(c)(iv)			Confirm this is considered capital Condition assessments are vital in ensuring integrity of the network Costs appear reasonable
168	Regulator sets: Australind main extension	Rule 79(2)(a), (b)		N/C	N/C
169	High pressure regulator set capacity upgrades: upgrading of high pressure regulator sets at network locations at which system modelling has identified a significant pressure reduction and a requirement for additional capacity	Rule 79(2)(a), (b)	Rule 79(2)(c)	Rule 79(2)(c)(iv)	Necessary for capacity Costs appear reasonable
170	Medium pressure regulator set capacity upgrades: upgrading of high pressure regulator sets at network locations at which system modelling has identified a significant pressure reduction and a requirement for additional capacity	Rule 79(2)(a), (b)	Rule 79(2)(c)	Rule 79(2)(c)(iv)	Necessary for capacity Costs appear reasonable
171	Vasse New Town new high pressure regulator set: installation of new high pressure regulator set for Vasse New Town, allowing 225PE pipeline to be pressurised, and increase in number of connections in Busselton area	Rule 79(2)(a), (b)		N/C	N/C
172	Medium pressure regulator pit replacements	Rule 79(2)(c)(iv)		Rule 79(2)(c)(ii)	Necessary to maintain integrity Costs appear reasonable
173	Medium pressure regulator pit remediation: remediation work to prevent further water ingress into medium pressure regulator pits and corrosion of equipment	Rule 79(2)(c)(iv)		Rule 79(2)(c)(ii)	Necessary to maintain integrity Costs appear reasonable
174	High pressure regulator pit remediation: remediation work to prevent further water ingress into high pressure regulator pits and corrosion of equipment	Rule 79(2)(c)(iv)		Rule 79(2)(c)(ii)	Necessary to maintain integrity Costs appear reasonable
175	Mandurah gate station: gate station on Dampier to Bunbury Natural Gas Pipeline to allow gas delivery into the Mandurah lateral	Rule 79(2)(a), (b), (c)(i), c(iv)		Rule 79(2)(c)(iv)	Necessary for capacity Costs appear reasonable
176	Replacement of ME602 and M6EW meters which have now been, or which will have been at the time of replacement, in service for a period exceeding their regulated service lives	Rule 79(2)(c)(iv)		Rule 79(2)(c)(iii)	Necessary for regulatory compliance Costs appear reasonable
177	WestNet group distribution system assets acquired by WAGN and now forming part of the WAGN GDS	Rule 79(2)(a), (b)		N/C	N/C
178	█ depot: depot facilities for servicing of faults in the northern part of the Perth metropolitan area (from the existing depot at Wangara, the time to respond to a pipeline break in the Yanchep area now exceeds the maximum of 1 hour set in WAGN's safety case)	Rule 79(2)(c)(i)			Business operation – EnergySafety has no comment

Item	Project	Westnet Justification	Frontier Comment	EnergySafety Justification	EnergySafety Comments
179	█ depot: depot facilities for servicing of faults in the southern part of the Perth metropolitan area, allowing response to pipeline breaks in less than 1 hour	Rule 79(2)(c)(i)			Business operation – EnergySafety has no comment
180	WestNet group distribution system assets acquired by WAGN and now forming part of the WAGN GDS	Rule 79(2)(a), (b)		N/C	N/C
181	Telemetry replacement: replacement of flow computers, transducers, data loggers and communications equipment which have reached the ends of their technical lives	Rule 79(2)(c)(ii)		Rule 79(2)(c)(ii)	Necessary to maintain integrity Costs appear reasonable
182	Pressure monitoring data visualisation: project to facilitate dynamic monitoring of pressure across the network for strategic asset management	Rule 79(2)(c)(ii)		Rule 79(2)(c)(iv)	Necessary for capacity management Costs appear reasonable
183	Corrosion protection upgrading: replacement of impressed current transformer units of inadequate capacity or at ends of lives, and enclosure of test points to prevent vandalism, to maintain the integrity of high pressure steel pipelines	Rule 79(2)(c)(ii)		Rule 79(2)(c)(ii)	Necessary to maintain integrity Costs appear reasonable
184	Installation of pressure monitoring devices: installation of additional pressure monitoring devices within expanding network to provide the data for system modelling which identifies over-pressure (safety) and under-pressure (capacity maintenance) problems	Rule 79(2)(c)(ii)		Rule 79(2)(c)(iv)	Necessary for capacity management Costs appear reasonable
185	Transducer relocation and false alarm mitigation: modifications to pressure monitoring devices and associated systems to allow alarming in under-pressure and over-pressure conditions, and to eliminate false alarms	Rule 79(2)(c)(ii)			Not typically capital expenditure Alarm mitigation is prudent and should improve operational efficiency
186	WestNet group distribution system assets acquired by WAGN and now forming part of the WAGN GDS	Rule 79(2)(a), (b)		N/C	N/C
187	█ depot upgrade: █	Rule 79(2)(c)(ii)			Business operation – EnergySafety has no comment

3.2 Table 32 Capital expenditure: Variable volume: 2010(1)–2013/2014

Item	Variable volume	Westnet Justification	Frontier Comment	EnergySafety Justification	EnergySafety Comments
188	SN8040 Gas Mains Extension 40mm	Rule 79(2)(a), (b)		N/C	N/C
189	SN8050 Gas Mains Extension 50mm	Rule 79(2)(a), (b)		N/C	N/C
190	SN8063 Gas Mains Extension 63mm	Rule 79(2)(a), (b)		N/C	N/C
191	SN8080 Gas Mains Extension 80mm	Rule 79(2)(a), (b)		N/C	N/C
192	SN8100 Gas Mains Extension 100mm	Rule 79(2)(a), (b)		N/C	N/C
193	SN8110 Gas Mains Extension 110mm	Rule 79(2)(a), (b)		N/C	N/C
194	SN8160 Gas Mains Extension 160mm	Rule 79(2)(a), (b)		N/C	N/C
195	SNC040 Gas Mains Open Trench 40mm	Rule 79(2)(a), (b)		N/C	N/C
196	SNC050 Gas Mains Open Trench 50mm	Rule 79(2)(a), (b)		N/C	N/C
197	SNC063 Gas Mains Open Trench 63mm	Rule 79(2)(a), (b)		N/C	N/C
198	SNC080 Gas Mains Open Trench 80mm	Rule 79(2)(a), (b)		N/C	N/C
199	SNC100 Gas Mains Open Trench 100mm	Rule 79(2)(a), (b)		N/C	N/C
200	SNC110 Gas Mains Open Trench 110mm	Rule 79(2)(a), (b)		N/C	N/C
201	SNC160 Gas Mains Open Trench 160mm	Rule 79(2)(a), (b)		N/C	N/C
202	SNF020 Gas Feeder 20mm	Rule 79(2)(a), (b)		N/C	N/C

Item	Variable volume	Westnet Justification	Frontier Comment	EnergySafety Justification	EnergySafety Comments
203	SNF025 Gas Feeder 25mm	Rule 79(2)(a), (b)		N/C	N/C
204	SNF040 Gas Feeder 40mm	Rule 79(2)(a), (b)		N/C	N/C
205	SNF040 Gas Feeder 40mm	Rule 79(2)(a), (b)		N/C	N/C
206	SNF050 Gas Feeder 50mm	Rule 79(2)(a), (b)		N/C	N/C
207	SNF063 Gas Feeder 63mm	Rule 79(2)(a), (b)		N/C	N/C
208	SNF080 Gas Feeder 80mm	Rule 79(2)(a), (b)		N/C	N/C
209	SN2 New Service App.Inst. Estd. Dom	Rule 79(2)(a), (b)	Rule 79(2)(c)	Rule 79(2)(a), (b)	Westnet confirmed new service to an established residence.
210	SN3 New Service App.Inst. New Dom	Rule 79(2)(a), (b)		N/C	N/C
211	SN5 New Service App.Inst. Estd. Com	Rule 79(2)(a), (b)	Rule 79(2)(c)	Rule 79(2)(a), (b)	Westnet confirmed new service to an established residence.
212	SN6 New Service App.Inst. New Com	Rule 79(2)(a), (b)		N/C	N/C
213	SNG New Service App.Inst. Cluster New unit	Rule 79(2)(a), (b)		N/C	N/C
214	SNH New Service App.Inst. Cluster Estd unit	Rule 79(2)(a), (b)	Rule 79(2)(c)	Rule 79(2)(a), (b)	Business cost – EnergySafety has not comment
215	SND Gas Mains Relay	Rule 79(2)(a), (b)	Rule 79(2)(c)	Rule 79(2)(a), (b)	Business cost – EnergySafety has not comment
216	SNR Re-lay Service	Rule 79(2)(a), (b)	Rule 79(2)(c)	Rule 79(2)(a), (b)	Business cost – EnergySafety has not comment
217	SPS Upgrade Meter - Com/Ind (AG)	Rule 79(2)(a), (b)	Rule 79(2)(c)	Rule 79(2)(a), (b)	Business cost – EnergySafety has not comment
218	SPU Upgrade Meter - Dom (AG)	Rule 79(2)(a), (b)	Rule 79(2)(c)	Rule 79(2)(a), (b)	Business cost – EnergySafety has not comment

Item	Variable volume	Westnet Justification	Frontier Comment	EnergySafety Justification	EnergySafety Comments
219	SN7 Commission Meter App.Inst. Meter Only	Rule 79(2)(a), (b)	Rule 79(2)(c)	Rule 79(2)(a), (b)	Business cost – EnergySafety has not comment
220	SPP Upgrade Meter - Com/Ind (Retail)	Rule 79(2)(a), (b)	Rule 79(2)(c)	Rule 79(2)(a), (b)	Business cost – EnergySafety has not comment

3.3 Table 33 Capital expenditure: Information technology: 2010(1)–2013/2014

Item	Information technology	Westnet Justification	Frontier Comment	EnergySafety Justification	EnergySafety Comments
221	Network monitoring and control system: system for operational control of the WAGN GDS, allowing improved asset management, increased productivity, improved leak detection and leak remediation	Rule 79(2)(c)(ii)			Business operation – EnergySafety has no comment
222	GIS reporting (fix existing reports)	Rule 79(2)(c)(ii)			Business operation – EnergySafety has no comment
223	Modifications to Gas Network Information System (GNIS) to capture network pressures and other data from live system monitoring	Rule 79(2)(c)(ii)		Rule 79(2)(c)(ii), (iv)	Necessary to maintain integrity and capacity Unable to comment on costs
224	Centralised engineering drawing management system, integrating to replace existing fragmented systems for managing mapping and engineering documents, reducing the risk of error, increasing productivity, and improving safety, and facilitating compliance with obligations of distribution licence	Rule 79(2)(c)(i), (ii), (iii)			Business operation – EnergySafety has no comment
225	Expected technical upgrade of engineering drawing management system 2013/14	Rule 79(2)(c)(ii)			Business operation – EnergySafety has no comment
226	Redevelop previously internally developed - and now obsolete - Gas Inflow Management System	Rule 79(2)(c)(ii)			Business operation – EnergySafety has no comment
227	Automate manual download of 'Industrial Customer' in Assetview from GNIS	Rule 79(2)(c)(ii)			Business operation – EnergySafety has no comment
228	Automate manual download of 'Industrial Customer' in Assetview from GNIS	Rule 79(2)(c)(ii)			Business operation – EnergySafety has no comment
229	Upgrading of interval meter reading software to eliminate manual processes and improve timeliness of information provided to gas market participants	Rule 79(2)(c)(ii)			Business operation – EnergySafety has no comment
230	GDBDV/GMD review (implement in 2010)	Rule 79(2)(c)(ii)			Business operation – EnergySafety has no comment
231	Network Metering Information System (NMIS) upgrade: upgrade of principal system supporting full retail contestibility in the Western Australian gas market	Rule 79(2)(c)(ii)			Business operation – EnergySafety has no comment
232	Develop system (which will interface with NMIS and GIMS) for identifying potential gas leaks, and for closer monitoring of unaccounted for gas	Rule 79(2)(c)(ii)			Business operation – EnergySafety has no comment
233	Business Improvement Process - Short Term: field based hardware for utilisation with controlled documents (pilot)	Rule 79(2)(c)(i), (ii), (iii)			Business operation – EnergySafety has no comment

Item	Information technology	Westnet Justification	Frontier Comment	EnergySafety Justification	EnergySafety Comments
234	Business Improvement Process - Long Term: field based hardware compatible with SAP and documents control/PC hardware field deployment (ie Panasonic TuffBook) - to include GPS	Rule 79(2)(c)(i), (ii), (iii)			Business operation – EnergySafety has no comment
235	Work and asset management	Rule 79(2)(c)(ii)			Business operation – EnergySafety has no comment
236	[REDACTED] depot upgrade: [REDACTED]	Rule 79(2)(c)(ii)			Business operation – EnergySafety has no comment

3.4 Item 142 – Pipeline Slabbing

This project has been initiated due to a regulatory requirement to improve the safety of gas pipelines operating in sensitive, high consequence areas.

WAGN have included an estimated cost of approximately \$3 million dollars to install concrete slabs in the sensitive areas. This cost estimate was based on installing flat concrete slabs over four kilometres of sections of pipelines.

What has become clear is that further engineering work is required to specify:

1. The exact length and location of slabbing required,
2. The final required design of the slabbing system,
3. Where alternate designs may negate the requirement to slab.

The cost could increase significantly with an increase in distance, or with a different design to protect against side wall penetration.

The cost could also decrease significantly with the use of alternate risk mitigation measures such as reducing the maximum operating pressure or the installation of orifice plates.

EnergySafety is unable to comment on the project until the final design is complete and presented for comment.