



Joint Briefing: Proposed regulations for the measurement and reporting of water takes – Options for exempting consents based on take thresholds

Date:	11 February 2010	MfE Priority:	URGENT
Security Level:	CLASSIFICATION	Number of Attachments:	Nil
		MfE Ref No:	10-B-00231
		MAF Ref No:	B09-522

Action Sought

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Minister for the Environment Hon Dr Nick Smith Minister of Agriculture and Forestry Hon David Carter	<p>Note that officials have investigated options to set a volume threshold where the proposed regulations for the measurement and reporting of water takes would not apply.</p> <p>Note the further information on the costs and benefits of the proposed regulations on the measurement of water takes.</p> <p>And:</p> <p>Identify your preferred options to be included in the Cabinet paper on the use of section 360(1)(d) regulations for the measurement of water takes, which is to be discussed by EGI Committee.</p> <p>Or:</p> <p>Agree to meet with officials to confirm the details of the proposal to Cabinet.</p>	No deadline

Ministry for the Environment Contacts

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Executive Summary

Officials have investigated options to set a threshold volume where the proposed regulations for the measurement and reporting of water takes would not apply, including 5 litres per second, 10 litres per second and 20 litres per second.

Overall there is still a strong case for including all consents in the scope of the regulations. Updated information indicates that the quantifiable benefits are higher than previously estimated, especially in constrained catchments where allocative efficiency gains are expected, and the intangible benefits would be most realised by measuring all of the water taken.

However, on a national level, there is some merit in only applying the regulations to consents which take water above 5 litres per second. If this threshold is used it has the least impacts on overall benefit, and provides the greatest gains in terms of cost savings, reducing implementation costs from \$55.8 million to \$35.5 million respectively.



Recommended Action

We recommend that you:

- (a) **Note** that officials have investigated options to set a volume threshold where the proposed regulations for the measurement and reporting of water takes would not apply, including:
- 5 litres per second
 - 10 litres per second
 - 20 litres per second
- (b) **Note** that the estimated costs of the proposed regulations on the measurement of water takes to consent holders has been updated

And either:

- (c) **Direct** officials to prepare a paper to Cabinet seeking approval to use regulations made under section 360(1)(d) of the RMA to achieve the policy instead of the proposed national environment standard, and: **Yes / No**

Either:

- i. Include all rates of take in the scope of the proposed regulations **Yes / No**

Or:

- ii. Exclude takes below 5 litres per second from the scope of the proposed regulations **Yes / No**

Or:

- iii. Exclude takes below 10 litres per second from the scope of the proposed regulations **Yes / No**

Or:

- iv. Exclude takes below 20 litres per second from the scope of the proposed regulations **Yes / No**

Or:



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- (d) **Agree** to meet with officials to confirm the details of the proposal to **Yes / No**
be put to Cabinet.

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Hon Dr Nick Smith
Minister for the Environment

/ /

Hon David Carter
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Purpose of Report

1. Previous briefings to you have described the content, costs / benefits and application of the proposed regulations for the measurement and reporting of water takes (MFE Refs 09-B-1529, 09-B-2456, 09-B-2847; MAF Ref B09-158, B09-243 refers).
2. You have asked for information on options to set a threshold volume where the proposed regulations for the measurement and reporting of water takes would not apply.

Previous proposal

3. Officials are preparing papers seeking policy approval from Cabinet to draft and use alternative regulations (made under section 360(1)(d) of the RMA) which set the same minimum requirements that were previously approved for a *National Environmental Standard on Measurement of Water Takes*.
4. These minimum requirements are for measuring and reporting water taken under resource consents and for the installation and verification of systems to collect these records. Like the proposed NES, the proposed regulations will allow regional councils to set higher standards as necessary.
5. The benefit of the proposed approach (using section 360(1)(d)) is that it negates the need for reviews of consents, which would be required under an NES, and so avoids imposing unnecessary transaction costs for regional councils and end-users.
6. We have previously discussed with you the proposal for regulations which apply to all water takes requiring consent under the RMA (with certain minor exemptions as agreed by the previous Cabinet). This proposal was developed in consultation with the Implementation Taskforce Group. Requiring all consents to be measured was considered necessary to get accurate data on an even playing field.

Updated costs and benefits – no exemptions

7. As part of this current investigation of options, the raw data was further updated. As a result, the modelled costs and benefits associated with the proposal to include all consents in the scope of the regulations have been updated as follows:
 - Total costs are now estimated as \$55.8 million (previous assessment \$53.6 million)
 - The benefits have been assessed as higher, with net benefits associated with a 5% gain in allocative efficiency of \$22.5 million (previous assessment was -\$3.8 million).
8. Therefore, although the costs of the current proposal (including no exemptions) remains over \$50 million, the case for that proposal has improved in terms of benefits, especially to constrained catchments where allocative efficiency gains are expected.



Options to set rate of take thresholds for exemptions

9. In addition to the previously discussed proposal, we have investigated three additional thresholds for applying the proposed regulations:
- 5 litres per second
 - 10 litres per second
 - 20 litres per second
10. The results of this investigation are attached to this note and summarised as follows:

Nature of thresholds investigated

11. Regional plans (and water take consents granted under them) express the level of water takes permitted as either a volume (cubic meters per day) or a rate of take (litres per second), or both. Which of these forms of measurement used varies widely between regions.
12. For the purposes of this investigation, we have used thresholds expressed as peak rates of take. This is because the most consistent set of allocation and consent data available on both a regional and national level¹ uses this form of measurement. There are risks and implications with this approach, because of variability between regions, which are discussed below. However these risks and implications could equally be expected if volume-based thresholds were used.

Proportion of consents and volumes exempted under the four scenarios

13. On a national level:
- The number of consents with a take rate of less than 5 litres per second is 39% of the total number of consents in New Zealand, but they only make up 2% of the national volume of water taken.
 - These proportions rise incrementally with each threshold (refer to Table 1 in the attached assessment).
14. However, the proportions of consents and volumes under these thresholds vary by region. For example, in Canterbury, exempting consents with a take rate of less than 5 litres per second would only relate to 18% of takes or <1% of the volume taken, whereas this scenario would relate to 74% consents/ 9% volume of the regional totals in Northland.
15. Therefore the implications of applying the regulations above particular rates of take would vary considerably between regions. This is discussed further in the overall assessment below.

Costs and benefits

16. As previously advised, the regulations are expected to produce costs and benefits, some of which are able to be quantified (and balanced), while other benefits are only able to be assessed qualitatively ('intangible benefits').

¹ Data reported by Aqualinc (2006) and updated in the recent cost benefit assessment by Harris Consulting (2009)



17. Costs and benefits have been assessed on a national level.
18. Considering only those costs and benefits which are able to be quantified, (and on a national scale), the following table summarises the costs and benefits associated with each threshold, assuming a 5% gain in allocative efficiency².

Threshold	Cost PV	Benefit PV	Benefit NPV
No exemptions (base case)	\$55.8	\$78.1	\$22.3
5 litres per second	\$35.3	\$78.1	\$42.9
10 litres per second	\$29.5	\$78.1	\$48.6
20 litres per second	\$23.3	\$78.1	\$54.8

19. Of the scenarios assessed, exempting all consents with a rate of take less than 20 litres per second produces the highest net benefit.
20. The greatest incremental change in costs (with no change in benefits) lies between the scenario exempting no consents (the current proposal) and the scenario exempting consents with a take rate of less than 5 litres per second. This reflects the large number of consents in the 0-5 litres per second rate of take range.
21. As previously advised, there are a number of 'intangible benefits' provided by measuring water taken which are only able to be assessed qualitatively, including:
- Measuring water use to a consistent accuracy across the country
 - Ease of reporting at catchment, regional and national scale
 - Improvements in compliance monitoring and enforcement
 - Improvements in technical efficiency
 - Improved confidence in water resource management that is informed by actual water take data
 - Having accurate water usage data underpins several policy objectives under the New Start for Fresh Water Programme including the determination of environmental flows, integrated catchment management and more effective allocation mechanisms
22. In general terms, these intangible benefits would be most realised by measuring all of the water taken from a resource. As regulations can only apply to consented takes, the base case of exempting no consents would be associated with the highest intangible benefits.

Overall assessment

23. Overall there is still a strong case for including all consents in the scope of the regulations. Updated information indicates that the quantifiable benefits are higher than previously estimated and the intangible benefits would be most realised by measuring all of the water taken.
24. However, we note that several councils either;
- i. already require metering of all consents by rules in plans or consent conditions,
- or

² Aqualinc (2006) report expected 5-10% increase in allocative efficiency due to water measuring in constrained catchments in Canterbury, Otago, Waikato, Tasman, Marlborough



- ii. currently exempt small takes (less than 5 litres per second) from metering unless catchments are constrained.
25. Therefore, on a national level, there is some merit in only applying the regulations to consents which take water above 5 litres per second. This threshold has the least impacts on overall benefits for the greatest gains in terms of cost savings.
26. Regions which require metering of small takes under rules in plans or consent conditions would generally be provided for by the regulations allowing more stringent rules and consents conditions where councils require.
27. This approach may present risks for a handful of regions which currently have no rules in plans or conditions on existing consents requiring the measurement of small takes:
 - There are risks in the approach if these regions contain constrained catchments with the majority of takes less than 5 litres per second (eg, Marlborough). These regions require the regulations to impose metering on small take consents. Without the regulations, these regions would typically have to review their plans or the consents of concern – either process would be timely and costly.
 - Another example of where the regulations are required to apply to small takes is for mining permits in Otago. Relevant regional rules are not applicable to these permits, and these permits are not able to be reviewed until they expire in 2021.
28. These risks could be mitigated by using the Minister for the Environment’s powers under section 360(2) to apply the regulations to those specified catchments or areas by Gazette notice. You are able to make decisions on which catchments the regulations should or should not apply to as you see fit. However, we recommend that certain criteria are identified to assist you in making such decisions as they are suggested / applied for. This is the approach used for the NES for air quality. We suggest that appropriate criteria could be developed with key stakeholders, through the Implementation Taskforce Group.
29. Another potentially adverse implication of using a rate of take threshold relates to the variability between regions in their approaches to setting consent requirements. We expect that some councils may not be able to easily determine which consents fall above and which consents fall below the threshold. However as noted above, this risk would be expected if volume-based thresholds are used.
30. One option to address this risk would be to require all consents to be measured unless the consent holder can prove that they are taking less than the threshold. We seek your approval to discuss this with the regional councils to more accurately assess the scale of this issue, if any, and what level of costs may be involved.



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APPENDIX – ASSESSMENT OF OPTIONS TO SET RATE OF TAKE THRESHOLDS FOR EXEMPTIONS

Information on consent numbers, costs and benefits was provided in the Cost Benefit report by Simon Harris (November 2009)



A: NUMBERS OF CONSENTS AND VOLUMES AFFECTED

Table 1: Effect by region of three exemption scenarios

Threshold	Consents exempted (% of total)			Volume exempted (% of total regional volume)			Volume exempted (% of total national volume)		
	0-5L/s	0-10L/s	0-20L/s	0-5L/s	0-10L/s	0-20L/s	0-5L/s	0-10L/s	0-20L/s
	39%	51%	65%	2%	4%	8%			
Regional Council									
Northland	74%	81%	86%	9%	13%	20%	0.10%	0.14%	0.22%
Auckland	88%	94%	97%	5%	7%	11%	0.11%	0.16%	0.26%
Bay of Plenty	66%	77%	84%	7%	10%	12%	0.30%	0.39%	0.49%
Waikato*	57%	67%	76%	2%	3%	6%	0.14%	0.26%	0.46%
Gisborne	41%	56%	72%	0.49%	0.84%	1.76%	0.02%	0.03%	0.05%
Taranaki	36%	47%	60%	3%	5%	9%	0.05%	0.07%	0.13%
Manawatu-Horowhenua (Horizons)	43%	57%	70%	3%	8%	18%	0.07%	0.17%	0.37%
Hawkes Bay	18%	35%	64%	3%	9%	23%	0.11%	0.34%	0.90%
Greater Wellington	30%	46%	68%	1%	2%	6%	0.07%	0.17%	0.51%
Marlborough District *	59%	72%	83%	7%	12%	23%	0.14%	0.25%	0.47%
Nelson City	77%	79%	86%	1%	1%	1%	0.00%	0.00%	0.00%
Tasman District *	63%	81%	93%	37%	59%	70%	0.55%	0.86%	1.04%
Canterbury*	15%	27%	42%	0.45%	1.31%	4%	0.18%	0.51%	1.46%
Otago*	23%	32%	43%	2%	3%	5%	0.31%	0.48%	0.88%
Southland	82%	86%	90%	9%	12%	16%	0.20%	0.25%	0.34%
West Coast	53%	62%	76%	3%	6%	16%	0.08%	0.17%	0.43%

Note: * regions/districts identified by Aqualinc (2006) as where allocative efficiency gains of 5-10% are expected in constrained catchments.



B: QUANTIFIABLE COSTS AND BENEFITS

Table 2: Base case scenario (for proposed regulations with no exemptions)

Allocative efficiency gain	Cost PV	Benefit PV	Benefit NPV
2.5%	\$55.8	\$39.1	-\$16.7
5%	\$55.8	\$78.1	\$22.3
7.5%	\$55.8	\$117.2	\$61.4
10%	\$55.8	\$156.3	\$100.5

Table 3: Regulations applying to all takes above 5 litres per second

Consents exempted (%)	Volume exempted (%)		
39%	2%		
Allocative efficiency gain	Cost PV	Benefit PV	Benefit NPV
2.5%	\$35.3	\$39.1	\$3.8
5%	\$35.3	\$78.1	\$42.9
7.5%	\$35.3	\$117.2	\$81.9
10%	\$35.3	\$156.3	\$121.0




Table 4: Regulations applying to all takes above 10 litres per second

Consents exempted (%)	Volume exempted (%)		
51%	4%		
Allocative efficiency gain	Cost PV	Benefit PV	Benefit NPV
2.5%	\$29.5	\$39.1	\$9.6
5%	\$29.5	\$78.1	\$48.6
7.5%	\$29.5	\$117.2	\$87.7
10%	\$29.5	\$156.3	\$126.8

Table 5: Regulations applying to all takes above 20 litres per second

Consents exempted (%)	Volume exempted (%)		
65%	8%		
Allocative efficiency gain	Cost PV	Benefit PV	Benefit NPV
2.5%	\$23.3	\$39.1	\$15.7
5%	\$23.3	\$78.1	\$54.8
7.5%	\$23.3	\$117.2	\$93.9
10%	\$23.3	\$156.3	\$132.9

C: OVERALL ASSESSMENT OF COSTS AND BENEFITS FOR EACH SCENARIO – INCLUDING INTANGIBLE BENEFITS

Policy Objectives	Costs and benefits	Base case – section 360 regulations, all consented takes	All takes below 5L/s exempted	All takes below 10L/s exempted	All takes below 20L/s exempted
	COSTS:				
<i>Ensure the comprehensive uptake of water measuring devices in a cost effective and timely way</i>	Cost of scenario (above status quo)	\$55.8 million – Highest costs	\$35.5 million	\$29.5 million	\$23.3 million – Lowest costs
	Cost savings		 \$20.3 million	 \$6 million	 \$6.2 million
	BENEFITS:				
<i>Improve allocative efficiency through accurate measurement of water abstracted for consumptive uses</i>	<p>Improved efficiency of use at individual, industry, regional and national levels</p> <p><i>(Aqualinc (2006) report expected 5-10% increase in allocative efficiency due to water measuring in constrained catchments in Canterbury, Otago, Waikato, Tasman, Marlborough)</i></p>	Allocative efficiency gain of 5% would result in net benefit of \$22.3 million – Least benefits	Allocative efficiency gain of 5% would result in net benefit of \$42.9 million	Allocative efficiency gain of 5% would result in net benefit of \$48.6 million	Allocative efficiency gain of 5% would result in net benefit of \$54.8 million – Highest benefits
<i>Ensure consistency at national, regional and catchment levels for the measuring and reporting of actual water taken</i>	<p>Consistency in water measuring</p> <p>Ease of reporting at catchment, regional and national scale</p>	All consents measured by systems with same minimum requirements – Highest benefits	Risk that consent holders with low rate takes still get meters voluntarily but not to the regulations accuracy – Impacts on benefits	Risk that consent holders with low rate takes still get meters voluntarily but not to the regulations accuracy – Impacts on benefits	Risk that consent holders with low rate takes still get meters voluntarily but not to the regulations accuracy – Least benefits

Policy Objectives	Costs and benefits	Base case – section 360 regulations, all consented takes	All takes below 5L/s exempted	All takes below 10L/s exempted	All takes below 20L/s exempted
<i>Enable water users and regulators to easily determine compliance with water take consents</i>	Improvements in compliance monitoring and enforcement	All takes are measured – Highest benefits	Around 61% of takes are measured – Impacts on benefits	Around 49% of takes are measured – Impacts on benefits	Only around 35% of takes are measured – Least benefits
	Improvements in technical efficiency	All takes are measured – Highest benefits to users	Around 98% of national volume taken is measured – Minimal impacts on benefits on national scale. More significant impacts on benefits in regions such as Marlborough and Northland where % of volume measured would be lower	Around 96% of national volume taken is measured – Minimal impacts on benefits on national scale. More significant impacts on benefits in several regions where % of volume measured would be considerably lower	Around 92% of national volume taken is measured – Minimal impacts on benefits on national scale. More significant impacts on benefits in several regions where % of volume measured would be considerably lower
<i>Provide accurate information about actual water taken in any catchment to inform decisions on the management of water resources</i>	Improved confidence in water resource management that is informed by actual water take data	All takes are measured – Highest benefits	Around 98% of national volume taken is measured – Minimal impacts on benefits on national scale. More significant impacts on benefits in regions such as Marlborough and Northland where % of volume measured would be lower	Around 96% of national volume taken is measured – Minimal impacts on benefits on national scale. More significant impacts on benefits in several regions where % of volume measured would be considerably lower	Around 92% of national volume taken is measured – Minimal impacts on benefits on national scale. More significant impacts on benefits in several regions where % of volume measured would be considerably lower
	Determination of environmental flows				
	Integrated catchment management				
	Water users have accurate water usage data and consent trading / transfers facilitated	All takes are measured and records of consistent accuracy and minimum requirements – Highest benefits	Around 61% of takes are measured; risk of inconsistency if small rate uses assessed to lesser accuracy or specifications – impacts on benefits	Around 49% of takes are measured; risk of inconsistency if small rate uses assessed to lesser accuracy or specifications – impacts on benefits	Only around 35% of takes are measured; greater risk of inconsistency if small rate uses assessed to lesser accuracy or specifications – Least benefits