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Legal Aspects of Towards National Guidelines for Managing the Effects of Radiofrequency Transmitters: Discussion Document

Contents

1.	Overview and Introduction	2
(a)	Consideration of Subthermal Effects.....	2
(b)	Treatment of the <i>Shirley</i> case and other decisions.....	2
(c)	The issue of radiofrequency emissions as a discharge of contaminants to air.....	3
2.	Consideration of Subthermal Effects and the NZ Standard.....	3
2.1.	Subthermal Effects	3
2.2.	Limitations of the NZ Standard.....	5
1.1.	Relevance of the New Zealand Standard.....	6
2.3.	Minimizing Exposures Under the New Zealand Standard and Otherwise	7
	2.3.1. Voluntary Methods	8
	2.3.2. Other Methods	9
1.2.	The Precautionary Principle	10
1.3.	Consideration of Alternative Sites and Transmission Methods.....	11
2.	Are Radiofrequency Emissions Discharges to be Controlled by Regional Councils?	12
2.1.	Are Radio Emissions Controlled By Section 15?.....	14
2.2.	The Position Absent a Rule in a Regional Plan: the Clean Air Act.....	14
2.3.	Conclusion.....	15
3.	The Role of the Respective Central, Regional and Territorial Authorities	15
3.1.	The Role of the Central Government	15
	2.3.3. National Policy Statement	15
3.2.	The Role of a Regional Council	16
3.3.	The Role of a District Council.....	16

1. OVERVIEW AND INTRODUCTION

This memorandum addresses legal questions arising from the Ministries of Health and Environment document “Towards National Guidelines for Managing the Effects of Radiofrequency Transmitters: Discussion Document.”¹ Three principal issues are discussed: consideration of subthermal effects, treatment of relevant caselaw including the *Shirley* decision and other decisions and radiofrequency as a contaminant.

(a) Consideration of Subthermal Effects

There is research suggesting the possibility of potential subthermal effects, or effects at levels below the level at which effects due to heating of body tissue are known to occur, from radiofrequency emissions.² This gives rise to implications under the Resource Management Act (the “Act”) that in my view have not been adequately resolved in the Ministries’ document, where subthermal effects have been effectively ignored on the basis that there is no proven scientific evidence for these effects.

A related issue is the absence of recognition that the NZ Standard and ICNIRP³ do not address subthermal levels of radiofrequency emissions and that other measures are therefore necessary under law. This includes the necessity to avoid, remedy or mitigate adverse effects and, in dealing with scientific uncertainty, to apply the precautionary principle in order to protect populations and the environment from subthermal effects of radiofrequency emissions. These issues are considered below in a separate section. The Ministries’ specific suggestions of incorporating numeric limits in the NZ Standard, and of voluntary measures are discussed.⁴

(b) Treatment of the *Shirley* case and other decisions

There is considerable emphasis on the *Shirley* decision. This is explained on the basis that “[b]ecause it has considered more evidence on health effects than have any other cases, the *Shirley* case is currently the lead decision (i.e. the most influential case law).” With respect, this conclusion does not follow, particularly with respect to legal issues. Principal Judge Sheppard in particular gives reasoned decisions in *McIntyre* as well as other decisions which have been followed in other cases and are relevant to a consideration of radiofrequency emissions under the Act. The differing approaches between the *Shirley* and other cases with respect to the precautionary principle are discussed below.

Nor does it necessarily follow that evidence and findings on cellphone emissions on the school and nearby residents in the *Shirley* case are conclusive with respect to all radiofrequency emissions, such as AM and FM radio transmissions, television transmissions and radar. As was stated in the *McIntyre* case, “a decision on a particular resource consent application is not an appropriate occasion for setting a general standard. The Resource Management Act contemplates other ways in which that

¹ Ministries of Health and Environment, “Towards National Guidelines for Managing the Effects of Radiofrequency Transmitters:[sic] Discussion Document,” (hereafter “Ministries’ Document”).

² See for instance research cited in the Woodward Report 1996 as well as the caselaw. The NZ Standard NZS 2772.1:1999 explains that the biological effect detected at the benchmark level of 4 W/kg is the reduced endurance to perform tasks in experimental animals, when their temperature was raised by about 1 degree C as a result of the RF field exposure. Then a safety factor of 10 was incorporated for occupational limits and a further safety factor of 5 for the general public: See Foreword, page 5.

³ International Commission on Non-Ionizing Radiation Protection.

⁴ See page 9 below

might be done, such as by national policy statement and in regional policy statements or district plans.”⁵

The prediction that “[i]t is therefore likely that a if communities continue to appeal decisions on the basis of health effects that they will lose”⁶ is speculative and ignores differing factual scenarios, such as different frequencies and powers of transmissions and needs of transmitters, and discounts any future research findings on health issues. The suggestion that “in effect communities are unlikely to be partaking in the RMA process on issues of health effects in the future” is also speculative, and is wrong as is evidenced by the fact that the Environment Court has recently issued a determination following consent of all parties, including concerned residents, in a resource consent matter involving a FM tower.⁷

It is claimed that the *Shirley* case “explicitly stated that it is not appropriate for territorial authorities to require industry to minimise emissions below those [NZ Standard] levels through the imposition of consent conditions.”⁸ As a restatement of the *Shirley* findings this is inaccurate, and as a statement of the law, it is not acknowledged that Courts before⁹ and after *Shirley* have imposed such conditions.¹⁰

(c) **The issue of radiofrequency emissions as a discharge of contaminants to air**

The Ministries document only briefly discusses the possibility that radiofrequency emissions may be a contaminant under the Act and in that discussion suggests that changes to the air should be ignored under the *de minimus* principle.¹¹ This issue is addressed later in this paper.¹² The document does not therefore discuss whether they should be provided for in regional plans, and if so, how.

2. CONSIDERATION OF SUBTHERMAL EFFECTS AND THE NZ STANDARD

2.1. Subthermal Effects

There is the possibility of a potential subthermal effect, which has given rise to the cases cited, and this gives rise to implications under the Act that in my view have not been adequately addressed in the document. Sub-thermal effects may be relevant under the Act as potential effects under section 104(1)(a) and section 3(f) as potential effects of low probability which has a high potential impact.¹³

Judge Sheppard in *McIntyre* examined evidence of subthermal effects and found that

⁵*McIntyre v Christchurch City Council* [1996] NZRMA 289, 317

⁶ Ministries’ Document page 57

⁷ *J Blackett and Others and the Radio Network of New Zealand Ltd v Christchurch City Council* C154/99. See discussion on page 8 below.

⁸ *Idem.*

⁹ The Court in *McIntyre* set a limit of 2 microwatts per square centimeter: see page 7 below. The Court in *Telecom v Christchurch City Council* W165/96, 37 contemplated that lower conditions may be set in stating that “[w]e agree...that it is wrong in principle for the Court to set arbitrary limits on RF emissions from cell sites which are below those set by the relevant New Zealand Standard 6609:1990, unless there is compelling evidence given in individual cases that the public interest requires such a course.”

¹⁰ See page 8 below.

¹¹ Document, page 41

¹² See page 13 below.

¹³ Any potential effect of low probability which has a high potential impact. Also possibly relevant to chronic effects could be s 3(d) any cumulative effect which arises over time or in combination with other effects regardless of the scale, intensity, duration, or frequency of the effect.

“There is no basis in the evidence before us for finding that exposure to radiofrequency radiation at the predicted intensity of about 1.2 microwatts per square centimetre would have a potential effect on people, not even an effect of low probability but of high potential impact. Although there are some scientists who maintain that there is a serious hypothesis that exposure even to low densities of radiofrequency radiation may be harmful, there is not general acceptance of that in the scientific community. On the totality of the evidence, our finding is that there would not be an actual or potential effect (including any potential effect of low probability which has a high potential impact) on the environment (as defined) from the radiofrequency radiation that would be emitted by the proposed transmitter.”¹⁴

It should be noted that the finding was limited to the stated intensity of about 1.2 microwatts per square centimetre and that the resource consent was issued subject to limitations of 2 microwatts per square centimetre measured at any dwellinghouse.

Judge Jackson in the *Shirley* case at a hearing some two years later heard evidence for and against the possibility of cancer including leukaemia and sleep disorders and learning disabilities at subthermal levels and held that

“(a) the risk of the schoolchildren or teachers at the school incurring leukaemia or other cancer from RFR emitted by the cellsite is extremely low;

(b) the risk to the pupils of exposure to RFR causing sleep disorders or learning disabilities is higher but still very small.¹⁵”

He emphasised that that was not a scientific assessment of risk, which was impossible in the present state of knowledge and agreed with ICNIRP that

“Overall, the literature on athermal effects ... is so complex, the validity of reported effects so poorly established, and the relevance of the effects to human health so uncertain, that it is impossible to use this body of information as a basis for setting limits on human exposure to these fields.”¹⁶

Thus subthermal levels were assessed and found to constitute no effect and two years later to constitute an ‘extremely low’ to ‘very small’ (alternatively described as ‘very low and are acceptable’¹⁷) risk to health.

In this context it is noted that it is difficult to understand the basis for the statement in the Executive Summary to the Ministries document that “[e]ven if future research does eventually show that health

¹⁴ *McIntyre*, page 315

¹⁵ *Shirley Primary School and Telecom Mobile Communications Ltd* [1999] 66,121. In a footnote to the finding Judge Jackson stated that “Taking a relatively arbitrary figure, just to give an idea of what we mean: very small = 1 in a million (i.e. $\times 10^{-6}$). He held there is very tenuous epidemiological evidence of some possible adverse health effects (effects on learning and sleep), that in the Court’s subjective assessment these effects are of very low probability and that the effects may be of relatively high potential impact, and thus adverse effects within the meaning of s 3(f), but only in a very weak sense. *Ibid.*”

¹⁶ *Shirley*, page 122, citing ICNIRP Guidelines p. 507

¹⁷ *Shirley*, page 124

effects exist, the risk from exposures to radiofrequency fields is likely to be very small or negligible.” This statement appears to be speculative and it is difficult to find foundation for it.¹⁸

2.2. Limitations of the NZ Standard

Numeric limits in the ICNIRP Guidelines and the New Zealand Standard¹⁹ are based on known effects. In practice this largely means what are commonly referred to as thermal effects, or effects consequent upon the heating of body tissue. The ICNIRP Guidelines set out the basis for limiting exposure and expressly stated that only established effects were used as the basis for the proposed exposure restrictions.²⁰ Its own explanation is worth noting:

“Induction of cancer from long-term EMF exposure was not considered to be established, and so these guidelines are based on short-term, immediate health effects such as stimulation of peripheral nerves and muscles, shocks and burns caused by touching conducting objects, and elevated temperatures resulting from absorption of energy during exposure to EMF. In the case of potential long-term effects of exposure, such as increased risk of cancer, ICNIRP concluded that available data are insufficient to provide a basis for setting exposure restrictions, although epidemiological research has provided suggestive, but unconvincing, evidence of an association between possible carcinogenic effects and exposure at levels of 50/60 Hz magnetic flux densities substantially lower than those recommended in these guidelines.”²¹

Thus the New Zealand Standard, which is based on the ICNIRP Guidelines,²² is set by reference to established or proven adverse effects rather than possible nor even probable effects, and on short-term acute exposures rather than long-term low level exposures. The Standard acknowledges that “data regarding biological effects, at levels below those determined in this Standard, are incomplete. However, as these data are neither clear nor consistent, these have not been used in setting the levels for basic restrictions in the ICNIRP Guidelines or this Standard.”²³

Its limitation in terms of the Act is thus patent: section 3(d) includes under the definition of ‘effect’ ‘any cumulative effect which arises over time or in combination with other effects--- regardless of the scale, intensity, duration, or frequency of the effect’, and section 3(f) includes ‘any potential effect of low probability which has a high potential impact.’ To the extent that the Standard does not take into account these effects it cannot be used as the sole basis for setting local authority rules or for hearing resource consent applications under the Act.

Judge Sheppard made a similar point in *McIntyre* when he noted that the foreword to the Standard as it was then stated that “because the effects of exposures to electromagnetic fields are only imperfectly understood, it is recommended that the levels of all electromagnetic fields to which people are non-occupationally exposed, should be kept as low as reasonably achievable”.

¹⁸ Reference is made in the Ministries’ Document to Section 4 of the document and Appendix G. However apart from a restatement of the claim in page 33 it is difficult to find rationale for this statement, which after all purports to draw a conclusion based on future and therefore unknowable findings.

¹⁹ The latest standard is NZS 2772.1:1999

²⁰ See NZ Standard, Appendix A, Rationale for the Development of the Maximum Exposure Levels for RF Fields, including the whole text of the 1998 ICNIRP Guidelines, “ICNIRP Guidelines for Limiting Exposure to Time-Varying Electric, Magnetic, and Electromagnetic Fields (up to 300 GHz),” (“ICNIRP Guidelines”), page 3.

²¹ ICNIRP Guidelines, page 3

²² The Standard is based on the ICNIRP Guidelines, April 1998. See Standard Preface to the Standard.

²³ NZ Standard, Foreword, page 5.

“So even on its own terms, those responsible for the standard do not claim absolute reliability for it; and on adoption of the Australian standard for this country an urgent need for revision, particularly in the area of measurement and interpretation, was acknowledged.”²⁴

Thus the new Standard does not even attempt to provide standards for long term low level exposure to EMF. The Ministries document recognises this in stating that “ICNIRP acknowledges that knowledge in some areas is incomplete and further work is required to gain a more complete understanding. The requirement to minimise exposures should not be seen as undermining the ICNIRP recommendations, nor as justification for setting numerical lower limits than those proposed by ICNIRP. Rather, it is a recognition of the assumptions inherent in the formal risk assessment undertaken by ICNIRP and the residual uncertainties in the scientific database.”²⁵ The Ministries document includes a comment that “[h]owever, this should not be done by arbitrarily imposing exposure limits lower than those recommended by the voluntary NZ Standard”. This statement apparently relies upon the *Shirley* decision which states that any limit such as 6 microwatts per square centimetre is arbitrary and arbitrary figures serve no purpose. However this rationale only applies where the figure is arbitrary. Where it is based on evidence, as in *McIntyre*, or on actual necessary emission figures, such a decision may be appropriate. Equally importantly, this recognition mandates the analysis of other measures aimed at reducing exposure.

It is submitted that the proper approach under the Act is that the NZ Standard and ICNIRP Guidelines do not adequately address chronic or subthermal levels of radiofrequency emissions and that other considerations are therefore necessary. These include the necessity to avoid, remedy or mitigate adverse effects and, in dealing with scientific uncertainty, to apply the precautionary principle in order to protect populations and the environment from chronic or subthermal effects of radiofrequency emissions.

1.1. Relevance of the New Zealand Standard

In making decisions under the Act, New Zealand Standards are not binding, and compliance with a relevant standard is not decisive; but they are commonly used and are generally accorded respect.²⁶ They are undoubtedly relevant under section 104 (i) in the context of a resource consent hearing. Judge Sheppard followed this approach in *McIntyre* when he concluded that

“We cannot avoid our duty to decide the resource consent application on the evidence by simply accepting the New Zealand Standard as decisive of the issue. The law does not give the standard that status. It is the Tribunal's duty to consider all the evidence and find whether or not there would be actual or potential effects on the environment of allowing the activity. We hold that compliance with the New Zealand Standard is not decisive of that question; and any challenge to the adequacy of the levels set in the standard is collateral to it.”²⁷

In summary, ICNIRP has chosen not to use any effects other than proven effects in its exercise to set numeric limits. It would be a logical fallacy as well as legal error to conclude that only those effects ICNIRP chose to take into account in setting numeric limits are relevant in making decisions in plans and on resource consent applications. The Court in *Shirley* considered evidence of subthermal effects. ICNIRP itself acknowledged its own limitations in setting numeric limits. Moreover, the Act

²⁴ *McIntyre*, page 295

²⁵ Ministries' Document page 36

²⁶ See *Body Corporates 164980 & 107678 v Auckland C.C.* A087/96 1 NZED 643

²⁷ *McIntyre*, page 295

is wider in its ambit, taking into account potential effects²⁸ in attaining its objective of sustainable management.²⁹ The procedures and considerations required by the Act cannot be avoided by a simple adoption in isolation of the ICNIRP numeric limits, which must be seen as relevant but not decisive.³⁰

2.3. Minimizing Exposures Under the New Zealand Standard and Otherwise

It must be borne in mind the Court in *McIntyre*, notwithstanding its finding on effects, stated that

“It is accepted that the greatest protection should be given to people's homes. They may be occupied by people, such as children and the elderly, who may be more vulnerable to radiation effects. They are occupied for longer periods than other premises, and people do not have the same choice as they do about where they work or shop or take recreation. We therefore consider effects of the proposed radiation on homes in the vicinity, on the understanding that if there are not adverse effects on residents, there will not in general be adverse effects on other people.”³¹

The Court then proceeded to add a condition “[t]hat the incident power flux density of radiofrequency radiation emitted by the facility, measured at any dwellinghouse, is not to exceed 2 microwatts per square centimetre,”³² in part as it “[i]t would respond to the recommendations in the New Zealand Standard NZS 6609 to keep exposure as low as reasonably achievable.” In doing so the Court effectively implemented the ALARA principle in order to best avoid any adverse effects which may be the result of higher emissions.

While the so-called ‘ALARA’ principle has not been adopted in the current standard, the new Standard provides for minimizing unnecessary or incidental exposures in Clause 10(d), which is consistent with the precautionary principle and the Act. Section 5(2)(c) of the Act requires “avoiding, remedying, or mitigating any adverse effects”, as does section 17.

Clause 10(d) provides that

“Measures for the protection of members of the general public who may be exposed to RF fields due to their proximity to antennas or other RF sources shall include the following:

“(d) Minimizing, as appropriate, RF exposure which is unnecessary or incidental to achievement of service objectives or process requirements, provided that this can be readily achieved at modest expense.”³³

Specifically, the Ministries document noted that if alternative sites are available, then the option giving the lowest exposures could be selected.³⁴ This would be consistent with Clause 10(d) of the

²⁸ RMA sections 104(1)(a) and 3(f)

²⁹ RMA section 5

³⁰ Even the Standard recognises that the Standard does not operate in isolation from the legal framework within New Zealand. Forward, page 5.

³¹ *McIntyre*, page 315

³² *McIntyre*, page 319

³³ A NOTE explains that “Notwithstanding that ICNIRP considers that the basic restrictions and reference levels in this Standard provide adequate protection, it is recognized that community concerns over RF exposure may be able to be addressed by further minimization of exposure in accordance with the requirements of Clause 10(d).” It should be noted that Clause 10(e) requires “Demonstration that installations are planned and operated in accordance with appropriate industry best contemporary practice.” This then is the Clause which would govern installation and operation once the site is chosen.

Standard and with the Act. However this consideration, which can be important in many if not all resource consent applications, is not clearly stated in the Executive Summary of the report.

The Ministries document notes that “[n]onetheless, in view of the residual scientific uncertainty and the impossibility of proving any agent completely safe, the Ministry considers that where possible, low-cost or no-cost interventions should be voluntarily applied in order to avoid or reduce exposures.”³⁵ Three suggestions are given repeatedly in the paper:

- minimising transmitter power to that required to achieve coverage objectives
- select or design antennas which minimise emissions in directions not required for coverage
- if alternative sites are available (or there are different options for mounting antennas on a single site), select the option giving the lowest exposures.³⁶

2.3.1. VOLUNTARY METHODS

There is no explanation of why the Ministries’ recommendation on minimising exposures is limited to voluntary methods. If the methods are appropriate and proper under the Act then they should be applied in order to avoid, remedy or mitigate effects, even if the applicant does not voluntarily do so. There is further discussion of this in section 6 of the Ministries document,³⁷ where it is stated that “requiring the above-mentioned measures through rules in a plan could prove expensive. Also, a territorial authority attempting to impose such measures through consent conditions (e.g. a condition requiring a level lower than the level in the NZS is likely to have its decision overturned by the Environment Court.” The first reason is not elaborated. The Ministries may be implying that rules would be subject to challenge by way of reference to the Environment Court. Such a threat should not itself be a reason to avoid responsibilities under the Act. The second reason is, with respect, without legal foundation. There is no legal basis stated for the implied suggestion that an authority imposing methods such as minimising transmitter power to that required to achieve coverage objectives, requiring antennas which minimise emissions in directions not required for coverage, or requiring applicants to provide further information under section 92, for instance, on alternative sites, would be ‘likely to have its decision overturned by the Environment Court’.³⁸

Even with respect to numeric levels the assertion is not borne out by caselaw. The *McIntyre* Court similarly imposed restrictions of 2 microwatts per square centimetre measured at a dwellinghouse.³⁹ As recently as this month the Environment Court has issued a determination following consent by all parties which imposed conditions *inter alia* limiting exposure levels from combined AM and FM transmissions to 50 microwatts per square centimetre, limiting the transmitter power and the number of FM frequencies and providing for monitoring and reporting of FM transmissions at levels of 2 microwatts per square centimetre and below, with the Court describing the conditions as being those

³⁴ Ministries’ Document page 35

³⁵ Ministries’ Document page 35

³⁶ These are suggested on pages 35, 43 and 48

³⁷ Ministries’ Document page 43

³⁸ The specific reference to a condition requiring a level lower than the level in the NZS is itself incomplete in that it omits the word ‘arbitrary’ which was used by Judge Jackson in the *Shirley* case, on which the Ministries are presumably relying.

³⁹ See page 7 above.

which “we are satisfied will provide all the necessary protection from any adverse effects of such exposure.”⁴⁰

The suggestion of voluntary interventions is somewhat at odds with the later statement that “[t]he Ministry for the Environment considers that territorial authorities are justified in using rules to implement non-regulatory standards (e.g. the voluntary NZ Standard) as a method for managing the effects of radiofrequency transmission facilities. Rules in a plan provide certainty for the community that the health and safety aspects of radiofrequency transmission facilities will be considered by the territorial authority.”⁴¹

2.3.2. OTHER METHODS

The question of voluntary minimisation measures aside, the suggestion that these measures be used to minimise exposure is consistent with the precautionary principle. In particular, the reason stated is that “[s]ome studies have produced findings which some scientists have interpreted as suggesting the possibility of health effects at levels below those permitted for the public in ICNIRP Guidelines. Although there is not widespread acceptance of this viewpoint in the scientific community, the existence of such reports suggests that no- or low-cost action is justified in order to minimise any potential effects, until a better understanding can be obtained.”⁴² This is consistent with the precautionary principle, as is the statement that “because of the residual scientific uncertainty, a consideration of alternative solutions is recommended to minimise unnecessary exposures, all other things being equal.”⁴³

However the Ministries’ suggestion that the NZ Standard numeric limits be implemented in territorial plans, either at 100% (Option A) or at 25% (Option B)⁴⁴ does not implement these suggestions for minimising exposures and would, it seems, provide no method for so minimising exposures or for implementing the precautionary principle. The suggestion commits the logical fallacy of in effect adopting the ICNIRP Guidelines take into account only established thermal effects, without adopting the ICNIRP cautions on its limitations and the exclusion of other possible subthermal effects. Nor does it implement the NZ Standard in its entirety, including in particular paragraphs 10(c) and (d).

Its suggestion of making such activities controlled activities could preclude any method for ensuring that an alternative site or method is used if appropriate, since a consent applied for must be granted.⁴⁵ Finally the suggestion does not address the wider issues of the objectives of sustainable management, potential effects under section 3(f) of the Act or the question of whether radiofrequency emissions should be regulated by regional councils as discharges. Judge Sheppard’s caution that the law does not make the NZ Standard decisive and that it is the Tribunal’s duty to consider all the evidence and find whether or not there would be actual or potential effects on the environment of allowing the activity states this concern concisely.⁴⁶ Additionally it may be necessary to review plans across the country should the Standard change.

⁴⁰ *J Blackett and Others and the Radio Network of New Zealand Ltd v Christchurch City Council* C154/99. The writer was counsel to the appellants Blackett and others in that case.

⁴¹ Ministries’ Document page 46

⁴² Ministries’ Document page 35

⁴³ Ministries’ Document page 35

⁴⁴ Ministries’ Document page 47

⁴⁵ RMA s 105(1)(a)

⁴⁶ *McIntyre*, page 295. See discussion on page 6.

1.2. The Precautionary Principle

The Guidelines embrace the *Shirley* approach in an assumption that the *Shirley* decision being the last decision is binding. In fact the *McIntyre* decision has been applied by other courts specifically with respect to the precautionary principle, which is a significant area where the decisions differ.

Judge Sheppard concluded in *McIntyre* that

“On the general precautionary principle, we note that a consent authority is entitled to have regard to any other matter not listed in section 104(1) which it considers relevant and reasonably necessary to determine the application; and that the definition in section 2(1) of the term ‘environment’ extends to include people. The purpose of the Act is to promote the sustainable management of natural and physical resources. The term "sustainable management" is described by reference among other things to enabling people to provide for their health and safety.”⁴⁷

Judge Sheppard specifically held that the Court can apply the precautionary principle in specifically in the context of health in order to achieve the purposes of sustainable management:

“In the context of the Resource Management Act the principle can apply to people and their health as well as for the rest of the natural and physical environment. So a consent authority may allow its discretionary judgment to grant or refuse consent to be influenced by the precautionary principle to the extent consistent with the statutory purpose of promoting the sustainable management of natural and physical resources and with judicial exercise of that discretion.”⁴⁸

Whilst Judge Jackson in the *Shirley*⁴⁹ case considered that the precautionary principle involved an element of ‘double counting’ and doubted the *McIntyre* approach, the *McIntyre* approach has been followed in other Environment Court decisions and is with respect correct. None of the three concluding reasons given in the *Shirley* case,⁵⁰ being that a precautionary approach is already implicit in the Act, is an unnecessary complication and involves double counting of the need for caution, addresses or purports to overrule the application of the precautionary principle as a method of addressing scientific uncertainty, as opposed to a general principle of caution.

The *McIntyre* approach was followed in *Crooks J and Sons Limited v Invercargill City Council* C081/97 in concluding that:

“In this decision the Tribunal referred to the discretionary judgment whether to grant or refuse resource consent that is provided for by section 105(1) of the Act which is to be exercised after considering the application in the light of the relevant matters in section 104, and we add, informed by the relevant matters in Part II of the Act.

It concluded that the general precautionary principle which has been adopted in some overseas jurisdictions would be applicable and influential as a matter of discretion on such an evaluation and ultimate judgment. It is not a matter of threshold. Like all elements that contribute to the ultimate judgment the weight to

⁴⁷ *McIntyre*, page 307. Judge Sheppard also noted the relevance of the precautionary principle to s 104 in stating that “[o]n the general precautionary principle, we note that a consent authority is entitled to have regard to any other matter not listed in section 104(1) which it considers relevant and reasonably necessary to determine the application; and that the definition in section 2(1) of the term "environment" extends to include people.” *Idem*.

⁴⁸ *McIntyre*, page 307

⁴⁹ *Shirley* page 135

⁵⁰ *Ibid*.

be given to the precautionary principle would depend on the circumstances. These would include the extent of present scientific knowledge and the impacts on otherwise permitted activities. In an appropriate case they could also include the gravity of the effects if, despite present uncertainty, those effects were to occur.”

For the purposes of determining this case we respectfully adopt that approach to the so-called ‘precautionary principle’.”

The Court in *Telecom*⁵¹ likewise applied the *McIntyre* formulation.

Judge Sheppard had foreshadowed the *McIntyre* formulation in *Trans Power*⁵² where he noted there that

“Yet although we can accept that scientific knowledge about the potential health effects of the fields may be incomplete, it is our duty to make a decision now, on the present state of knowledge. It would be an abdication of that duty if we were to allow opponents of proposals to prevent them proceeding on the basis that science might in future discover effects that had not yet been established. That is not to reject the precautionary approach, but there needs to be some plausible basis, not mere suspicion or innuendo, for adopting that approach.”⁵³

Judge Kenderdine in *Wratten v Tasman District Council W008/98* examined the precautionary principle in a planning context. She succinctly stated that that

“The precautionary principle applies where there is a threat of serious or irreversible damage, and that lack of knowledge should not be used as an excuse to delay preventative action.”⁵⁴

She held that the precautionary principle should not be applied where the risk is insignificant or the issues are evenly balanced but that it may be applied where there is a need to prevent serious or irreversible harm to the environment in situations of scientific certainty.⁵⁵ Additionally the Shirley Court stated that that position was encouraged by the ‘ALARA’ or ‘as low as reasonably achievable’ principle in the then NZ Standard.⁵⁶

1.3. Consideration of Alternative Sites and Transmission Methods

The consideration of alternative sites and transmission methods is one method of minimising exposures examined in the Ministries document. Judge Jackson in the *Shirley* case considered alternative sites. He cited counsel for Telecom’s submissions that there was no onus on Telecom to give evidence or provide information regarding alternative sites unless a matter of national importance was at issue with regard to the selected site,⁵⁷ there is a likelihood of significant adverse

⁵¹ *Telecom v Christchurch City Council* W165/96, 11.

⁵² *Trans Power NZ Ltd v Rodney District Council* A085/94,

⁵³ *Trans Power*, 21

⁵⁴ *Wratten v Tasman District Council W008/98*, 17

⁵⁵ *Wratten*, page 19. In that case the Court was not convinced that serious or irreversible harm to the environment will occur on what is currently known. There the uncertainties were over permanent damage to the aquifer itself: the potential impact on the aquifer is relatively well understood and uncertainties concerned the likelihood of events which would have an impact on the aquifer.

⁵⁶ *Shirley*, page 135. Although it appears that the Court later disregarded the ALARA approach: *Shirley* page 143.

⁵⁷ *TV3 Network Services Ltd v Waikato District Council* [1997] NZRMA 539,551

effects, citing clause 1(b) of the Fourth Schedule,⁵⁸ or the activity is a non complying activity and granting consent for the activity within the zone would reduce public confidence in the administration of the district plan.⁵⁹ In *Browning v Marlborough District Council*, Judge Kenderdine considered other sites and held that “[b]ut it is the quality of the surrounding landscape/seascape which makes its location on this site inappropriate.”⁶⁰ Judge Whiting in *Mason-Riseborough*, a cellsite case, found the matter of availability of alternative sites to be relevant in terms of the assessment under section 104(1)(a) and (i) but noted that the existence of alternatives is not definitive⁶¹ and was not persuaded that other suitable sites could not be found. The question has largely been settled by a High Court decision which recently held that the question of whether there are other viable alternative sites for the prospective activity is of relevance.⁶²

2. ARE RADIOFREQUENCY EMISSIONS DISCHARGES TO BE CONTROLLED BY REGIONAL COUNCILS?

The principal question is whether radiofrequency emissions are a ‘contaminant’ under section 2 of the Act. To this end it is useful to look at the similar definitions of ‘contaminant’ in the Environment Act 1986 and the Resource Management Act 1991.

Environment Act 1986

S 2 of the Environment Act 1986 defines "Contaminant" to mean any substance (including gases, liquids, solids, and micro-organisms) or energy (*including radioactivity and electromagnetic radiation but excluding noise*) or heat, that either by itself or in combination with the same, similar, or other substances, energy, or heat- (b) Changes or has the potential, when discharged onto or into land or into air, to change the physical, chemical, or biological condition of the land or air onto or into which it is discharged:]

"Pollution" means any process, whether natural or artificial, resulting in the introduction of any contaminant into the environment; . . . and noise; and "pollutant" has a corresponding meaning

Resource Management Act 1991

Under section 2 ‘contaminant’ *includes* any substance (including gases, liquids, solids, and micro-organisms) or energy (*excluding noise*) or heat, that either by itself or in combination with the same, similar, or other substances, energy, or heat -

(b) When discharged onto or into land or into air, changes or is likely to change the physical, chemical, or biological condition of the land or air onto or into which it is discharged:

⁵⁸ *Dumbar v Gore District Council* W189/96 concerned a high tension power line and a dispute as to its route. It was alleged that the Council gave insufficient consideration to alternative routes; and did not sufficiently investigate, nor give adequate consideration to, putting the line underground. Judge Treadwell held at page 4 that the effect in that case was not considered a significant effect.

⁵⁹ *Stark and Auckland RC* [1994] NZRMA 126 and *Manos v Waitakere City Council* (1993) 2 NZRMA 226.

⁶⁰ *Browning v Marlborough District Council* W20/97. Emphasis in original. Judge Kenderdine noted at page 12 that “we do not consider that this is the last and only remaining site that may be available. Mr Browning referred to other sites where longline space is not utilised, some on the western side of the island. This was not refuted and there is no reason in our view why the Association cannot lease such space on the industry’s behalf.”

⁶¹ *Mason-Riseborough v Matamata-Piako District Council* A143/97, 23. The respondent’s decision was cancelled and the application refused, principally on cultural grounds.

⁶² *TV3 Network Services Ltd v Waikato District Council* [1997] NZRMA 539,551 per Hammond J. Authority cited by counsel were sections 5(2)(c) and 17 of the Act requiring the avoidance, remedy or mitigation of effects and *Aqua King (Anakoha Bay) v Marlborough District Council* W71/97, *Haddon v Auckland Regional Council* [1994] NZRMA 49 and *Te Runanga O Taumarere v Northland Regional Council* [1996] NZRMA 77.

This definition uses the word ‘includes’ whereas the Environment Act definition uses ‘means’. This could explain the omission in the RMA definition of the words ‘including radioactivity and electromagnetic radiation but’ which are included in the Environment Act: perhaps Parliament wished to have a tighter definition in the Environment Act (by using the word ‘means’). In any case the inclusion of electromagnetic radiation in the Environment Act definition clearly shows that electromagnetic radiation is capable of inclusion in the definition, including meeting the requirement of changing or having the potential to change the condition of the air. This interpretation would be consistent with section 5(j) of the Acts Interpretation Act 1924 to give the Act a “fair, large and liberal construction and interpretation as will best ensure the attainment of the object of the Act and of such provision or enactment according to its true intent, meaning, and spirit”.

Radiowaves emit energy as heat and as such change the condition of the air to that extent and to that extent meet the definition of a contaminant. Additionally they could be said to change the biological condition of the air to the extent that the radio waves affect biology; on the other hand it is not the condition of the air that is changed in a strict sense. In a sensible interpretation the condition of the air as changed in that may affect animals including humans. Thus I consider the better view in light of section 5(j) of the Acts Interpretation Act and the purpose of achieving sustainable management under the RMA⁶³ is that radiofrequency emissions are a contaminant under the Act.

There is some authority that radio waves may be a contaminant. Judge Treadwell in *World Services*, a case concerning a radio transmitter noted that an argument was addressed to the Court that radio signals were a contaminant and that a resource consent would be required to discharge that contaminant into air. He concluded that “[t]he applicant World Services has not requested such a consent but in any event we would consider that the grant of a resource consent for transmission of radio signals via the Radio Rhema aerial would of necessity carry with it a discharge consent whether or not expressed in the consent granted.”⁶⁴ This decision is an early one and the conclusion is problematic since it would be the regional rather than district council that would have the authority to issue a discharge consent under section 30(f).⁶⁵

Judge Sheppard in *McIntyre* did not decide the point: he stated that “[f]inally, there was some argument and evidence about whether radiofrequency radiation is a contaminant within the meaning of the Act. We have concluded that a finding on that question is not necessary to our reasoning for the outcome of this appeal. Furthermore, the question was not fully argued, and is one on which the Canterbury Regional Council would have an interest, but was not a party before us. For those reasons we decline to make a finding on that question in this decision.”⁶⁶

The Ministries Document acknowledges that that the section 2 definition is met but suggests that it should be ignored under the *de minimus* principle.⁶⁷ No authority for this proposition is cited. If the definition is met, then the rest of the Act are applicable, including section 15. Whilst the effect of heat on the air may be minor, it does not follow that the effect of the emissions on the environment are likewise minor. Any effect of the contaminant other than the immediate effect, for instance heat to the immediate air, are to be taken into account.⁶⁸ Whether a particular effect is *de minimus* and should be ignored would depend on the effect and on an application of statutory principles to the

⁶³ RMA section 5

⁶⁴ *World Services New Zealand Ltd and Telecom New Zealand v Wellington City Council* W90/93, 5.

⁶⁵ Section 30(f) addresses “the control of discharges of contaminants into or onto land, air, or water and discharges of water into water”.

⁶⁶ Passage omitted from NZRMA published report

⁶⁷ Ministries’ Document page 41

⁶⁸ RMA article 104(1)(a)

effect and its consequences. It would appear obvious from the extensive discussions and caselaw that the effects consequential to the discharge of radiofrequency emissions may be more than *de minimus*.

2.1. Are Radio Emissions Controlled By Section 15?

If the emission of radiofrequency signals constitutes the discharge of a contaminant under the Act, they are to be controlled by regional councils under section 15 and the use of land from which radiofrequency emissions are transmitted could require not only a land use consent, but also a discharge permit. If radiowaves are a contaminant under section 2 then they are *prima facie* prohibited discharges from industrial and trade premises under section 15(1)(c) of the RMA which provides that (1) no person may discharge any (c) contaminant from any industrial or trade premises into air. Further they can be controlled under section 15(2) in that no person may discharge any contaminant into the air from any place or any other source, whether moveable or not, in a manner that contravenes a rule in a regional plan or proposed regional plan unless the discharge is expressly allowed by a resource consent [or regulations].⁶⁹ However section 418(1) exempts certain discharges from industrial or trade premises so it is to that provision we now turn.

2.2. The Position Absent a Rule in a Regional Plan: the Clean Air Act

In the absence of a rule in a regional plan or a proposed regional plan, section 418(1) provides that “[f]or the purposes of this Act, section 15(1)(c) shall not apply in respect of any discharge from any industrial or trade premises which would not have required any licence or other authorisation under the Clean Air Act 1972, unless a regional plan provides otherwise.”

‘Air pollutant’ was defined in the Clean Air Act to mean “anything of harmful, odorous, or offensive character, in such a form that it can be carried in the atmosphere, and in particular, but without prejudice to the generality of the preceding words, includes smoke and other gases, fumes, mists, or dusts, containing any substance specified in the First Schedule to this Act.” Clearly radio waves can be of a harmful nature at some intensity. Are they in such a form that they can be carried in the atmosphere? This is not without difficulty as they are not ‘carried’ as for instance particles are. They however can be carried in the atmosphere in the sense that they are able to go through it. ‘Carry’ means in the Webster Dictionary “to convey or transport in any manner from one place to another; to bear; -- often with away or off.”

“Licence” means a licence to carry on a scheduled process issued under that Act. Scheduled processes were to be licensed under section 23. The First Schedule lists “radioactive, carcinogenic, teratogenic or mutagenic substances’. While radio waves are not normally a ‘substance’ they are said by some scientists be carcinogenic. This would seem to be the only applicable category that could apply to radio waves. ‘Carcinogenic’ is defined in the Webster’s dictionary as ‘causing or tending to cause cancer’. There is at least a possibility that this is so.

However, what is meant by ‘or other authorisation’? Section 7(1) provides for a general obligation of occupiers of premises to adopt the best practicable means to collect and contain any air pollutant and to minimise, by the selection of the most appropriate process equipment, process control equipment, methods of control or otherwise, the emission of air pollutants from those premises. It is an offense under section 7(2) to contravene section 7(1). Under section 9 the Director-General may require the occupier of the premises to restrict the emission of air pollutants or any specified class of air pollutants from the premises to a specified maximum concentration, or specified rate, or specified rate at a specified height, and so on. However there is a question what the term ‘would’ in ‘would not have required any licence or other authorisation’ means. Does it mean ‘did’? If the contaminant could have required a licence, does that suffice, or does the Act mean that it in fact would have

⁶⁹ Or allowed by section 20 (certain existing lawful activities allowed).

required a licence in the meaning that there was an actual control? I am inclined to the latter view, although one could argue that it would have required a licence if the authorities had known of the dangers, or if it had been thought to be carcinogenic then.

2.3. Conclusion

I conclude that the better view is that radiofrequency radiation is a contaminant and falls to be controlled by regional councils. If that is correct, then if they can be proved to be 'carcinogenic' then they may be controlled under section 15. However in the interests of certainty they would be better controlled in regional plans.

3. THE ROLE OF THE RESPECTIVE CENTRAL, REGIONAL AND TERRITORIAL AUTHORITIES

3.1. The Role of the Central Government

The Minister for the Environment has the functions under this Act of, *inter alia*,⁷⁰

(a) *the recommendation of the issue of national policy statements under section 52.*

National policy statements will be discussed in further detail below.

(b) *the recommendation of the making of national environmental standards, or regulations, under section 43.*

National environmental standards would be another approach but would lack the advantage of a board of enquiry under the national policy statements.

(c) *The call-in of projects for decision under section 140.*

Any significant projects could be called in but so far no single project has been called in under this provision.

(f) *The monitoring of the effect and implementation of the Act.*

(g) *The monitoring of the relationship between the functions, powers, and duties of central government and local government under Part IV of the Act*

[(ga) The monitoring and investigation, in such manner as the Minister thinks fit, of any matter of environmental significance:]

The current discussion paper could come under these headings

2.3.3. NATIONAL POLICY STATEMENT

The purpose of national policy statements is to state policies on matters of national significance that are relevant to achieving the purpose of this Act.⁷¹ Relevant criteria for deciding whether it is desirable to prepare a national policy statement to which the Minister may have regard include⁷² -

(d) Anything which affects or potentially affects more than one region:

(e) Anything concerning the actual or potential effects of the introduction or use of new technology or a process which may affect the environment:

(i) The need to identify practices (including the measures referred to in section 24(h), relating to economic instruments) to implement the purpose of this Act:

⁷⁰ RMA s 24(a)

⁷¹ RMA s 45(1)

⁷² RMA s 45(2)

- (j) Any other matter related to the purpose of a national policy statement.

The procedure is that the Minister gives public notice of his or her intention to prepare a proposed national policy statement, then publicly notifies it and appoints a board of inquiry to inquire into and report on the proposed national policy statement.⁷³ Local authorities are required to initiate necessary changes to policy statement or plan in where there is inconsistency or conflict⁷⁴ and take other necessary action such as initiate a change to any policy statement or plan under the First Schedule.⁷⁵ Regional policy statements⁷⁶ and regional plans⁷⁷ may need to be changed accordingly.

The advantage of a national policy statement would be that issues would be addressed at a hearing on a national level and implemented in a consistent manner throughout the country. This would allow one hearing to hear evidence and consider submissions, save costs throughout regions and ensure consistency.

3.2. The Role of a Regional Council

The role of a regional council includes the control of discharges of contaminants into or onto land, air, or water and discharges of water into water.⁷⁸ Moreover, a regional council's function extends to all natural and physical resources whereas the territorial function is focused on the effects of activities in relation to land and water surfaces.⁷⁹ In making a rule, the regional council is required to have regard to the actual or potential effect on the environment of activities, including, in particular, any adverse effect.⁸⁰

There is some scope indicated for control of radiofrequency emissions in the Canterbury Regional Policy Statement. Chapter 12 of the Regional Policy Statement includes as 'Issue 1' adverse effects of urban development, physical expansion of settlements and the use and provision of network utilities on the environment and Objective 1 is to "Enable urban development and the physical expansion of settlements and the use and provision of network utilities to occur while avoiding, remedying or mitigating adverse effects on the environment, including in particular effects on:...(c) air quality and (h) amenity values that meet the criteria of sub-chapter 20.4." An anticipated environmental result is "[i]mprovements in the efficiency in the use of all resources (particularly energy) including infrastructure and network utilities."⁸¹

3.3. The Role of a District Council

It should be noted that Rule 4.4.2 of the proposed Christchurch City Council Plan provides that:

Any utility is a discretionary activity where it involves any of the following:

- (a) Erecting any telecommunication or radio communication facility above ground level (including any mast, antenna, tower, or support structure) which is :

⁷³ RMA s 46

⁷⁴ RMA s 55(1)(a)

⁷⁵ RMA s 55(1)(b)

⁷⁶ RMA s 62(2)

⁷⁷ RMA s 65(3)(g) and s 67(2)(a)

⁷⁸ RMA s 30(1)(f)

⁷⁹ RMA s 30(1)(a)

⁸⁰ RMA s 68(3)

⁸¹ 'Network utility infrastructure' is defined in the glossary to include 'telecommunication/radio communication facilities'.

- (i) so designed and operated as to emit microwave or ultra high frequency emissions of any type within any living zone, or within 300 metres of the boundary of any living zone.
- (ii) so designed and operated to emit more than 50 microwatts per square centimetre at any time within any zone except a living zone, or within 300m of a living zone, on the basis of measurements undertaken in accordance with New Zealand Standards of microwave or ultra high frequency emissions which must be provided following installation at the commencement of operation and at the time of any change in repeater capacity.

All resource consents for radiofrequency emissions of which the writer is aware have been obtained from territorial authorities. The legislative framework for this therefore requires investigation.

The District Council has the function of the “control of any actual or potential effects of the use, development, or protection of land, including for the purpose of the avoidance or mitigation of natural hazards and the prevention or mitigation of any adverse effects of the storage, use, disposal, or transportation of hazardous substances”.⁸² This is the presumed basis for control of radio emissions as actual or potential effects of the use of land. If radio waves are ‘contaminants’ then their control should more properly be in the jurisdiction of the regional rather than the district council.

A territorial authority does not have the power to make rules for purposes falling within the functions of a regional authority except to the extent that they fall within its own functions and for the purpose of carrying out its own functions. To that extent they have overlapping rule making powers, but the powers of a territorial authority are also subject to s75(2) whereby they give way to those of a regional authority. Under section 75(2) a district plan must not be inconsistent with (i) the regional policy statement or (ii) any regional plan of its region in regard to any matter of regional significance or for which the regional council has primary responsibility under Part IV. This could include discharges of radiofrequency emissions under section 30(f) where they are controlled in a regional plan.

Regional authorities have a specific task of achieving integrated management of the natural and physical resources of the region and in order for it to exercise such functions to achieve integrated management of all natural and physical resources of the region it must be able to impose some measures of restraint on management decisions made in exercise of the territorial function.⁸³ As Judges Sheppard and Skelton observed,

“We do not understand how a regional council could in practice effectively establish and implement such objectives, policies and methods to achieve that goal if every territorial authority for a district within its region were free to make whatever decisions it chose in carrying out its functions. That would not be calculated to achieve integrated management of the resources at all. The very notion of integrated management implies that management decisions that might otherwise be made are constrained in the interests of integration. The regional council function is not limited to land and water surfaces, but extends to all natural and physical resources of the region, and the territorial authority function

⁸² RMA s 31(b)

⁸³ RMA s 30(1) (b) See *Application for Declaration by North Shore C.C., Waitakere C.C., Papakura D.C. & Rodney D.C.*, A087/94 4 NZPTD 90 [1995] NZRMA 74 (“*North Shore Application*”). The regional council's function in s30(1)(b) does not exclude territorial authorities, subject to s75(2), from controlling any actual or potential effects of the use, development or protection of land for the purpose of soil conservation, and the maintenance and enhancement of water quality and quantity in water bodies: See *An application by Canterbury R.C.* [1995] NZRMA 110 and *Canterbury R.C. v Banks Peninsula D.C. & Others* CA99/95, 4 NZPTD 62a, [1995] NZRMA 452 (CA).

is focused on the effects of activities in relation to land and water surfaces. For such a regime to be able to work effectively in practice, the exercise of the regional council function must be able to impose some measure of restraint on management decisions made in exercise of the territorial authority function. That is the very nature of the regional council function to achieve the integrated management of all the natural and physical resources of the region.”⁸⁴

The Court of Appeal⁸⁵ made it clear in *Canterbury Regional v Christchurch City Council* [1995] NZMRA 452, that neither a regional council nor a territorial authority has power to make rules for purposes falling within the functions of the other except to the extent that they fall within its own functions and for the purpose of carrying out its own functions.⁸⁶

Given the preceding argument, it may be asked whether Section 6 of the Ministries Document which gives guidance for territorial authorities is soundly based.

Duncan Currie

20 September, 1999

⁸⁴ North Shore Application

⁸⁵ *Canterbury Regional Council v Christchurch City Council* [1995] NZRMA 452

⁸⁶ The Court has however expressed reservations about the use of bylaws for resource management matters as the process for making bylaws does not allow for public participation, in contrast to plans, and changes prepared under the First Schedule RMA: *Telecom NZ Ltd v Mercury Energy Ltd* A080/96.