

1995

Converging Theories: An Analysis of the Future of Medical Monitoring as a Remedy for the Victims of Powerline Radiation Torts

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Shannin, Nicholas (1995) "Converging Theories: An Analysis of the Future of Medical Monitoring as a Remedy for the Victims of Powerline Radiation Torts," *University of Florida Journal of Law & Public Policy*. Vol. 7: Iss. 1, Article 5.

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NOTES

CONVERGING THEORIES: AN ANALYSIS OF THE FUTURE OF MEDICAL MONITORING AS A REMEDY FOR THE VICTIMS OF POWERLINE RADIATION TORTS* **

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I. INTRODUCTION

In 1993 in England, the Studholme family filed suit against Norweb, the local utility company, after the death of their 13-year-old son from leukemia.¹ According to a report in the *Sun Telegraph LTD.*, the electrical sub-

* This note was selected as the Alice Irish Williams Award winner for best seminar note in the spring of 1994.

** I would like to dedicate this note to Professor Flournoy for her advice, to Shelley Mizell for her assistance and to my wife Carol for her love and support.

1. See David Allsop, *Something Nasty in the Air*, *SUN. TELEGRAPH LTD.* (London), Aug. 29, 1993, at 16.

station adjacent to their house emitted high-level electromagnetic fields (EMFs) at a rate ten times higher than the threshold for an elevated risk of cancer, and studies have indicated that the same risk extends to leukemia, especially in young children.²

Imagine that you are the Studholme's neighbor and your normally quiet neighborhood is abuzz with reporters hovering outside the Studholme's house. Curious, you walk to the house. A reporter tells you that your neighbors have filed a suit against Norweb, the local utility company. You have stopped listening to the reporter, your mind instead thinking about your own children. Could they get leukemia too? Are there tests they can take to find out? If there are, who is going to pay for them? You or the company that put you and your family at this unexpected risk?

Unfortunately, it is all too possible that this could happen to you. The tragedy that befell the Studholme family is not a singular one.³ Every time a suit of this type is filed, people living near the claimant also may fear that they have been harmed by the same EMFs. This note addresses a remedy available to people who have not yet been harmed by EMFs, but reasonably fear that they may. The remedy is called medical monitoring or medical surveillance.⁴ Medical monitoring is a judicially-created innovation, allowing damages for plaintiffs who must get early, and often progressive, diagnoses of their condition because of *potential* harm to them from a toxic substance.⁵ Part II gives a brief overview of two theories: (1) EMFs are dangerous and can cause a judicially-recognized harm; and (2) medical monitoring is an acceptable remedy for plaintiffs who have not yet suffered an "injury-in-fact." Part III attempts to determine if the dangers of EMFs satisfy the legally-recognized factors needed for a medical-monitoring claim. Part IV focuses on special problems that may arise for the plaintiff alleging that exposure to EMFs caused a need for the early detection of leukemia or other forms of cancer. Part V argues that medical-monitoring damages are necessary to ensure that innocent EMF plaintiffs remain unharmed in the future.

2. *Id.*

3. See generally PAUL BRODEUR, THE GREAT POWER-LINE COVER-UP: HOW THE UTILITIES AND THE GOVERNMENT ARE TRYING TO HIDE THE CANCER HAZARD POSED BY ELECTROMAGNETIC FIELDS 3-19, 105-110 (1993). Brodeur cites multiple examples of Americans who have taken their belief that they or their families have been harmed by EMFs either to the press or the courts. *Id.*

4. The phrases "medical monitoring" and "medical surveillance" are used interchangeably by most courts. While the phrase medical monitoring will be predominately used in this note, the phrase medical surveillance will be used if in connection with a court opinion which uses that phrase.

5. John J. Kalas, *Medical Surveillance Damages in Toxic Tort Litigation: A Half-Hearted Embrace*, 2 U. BALT. J. ENV'T'L L. 126 (1992). The author describes how damages have been sought in a variety of toxic arenas. *Id.*

II. A TALE OF TWO THEORIES

A. Theory #1: Electromagnetic Fields May Cause Cancer

1. The Scientific Basis

The link between EMFs and disease is not new.⁶ As early as 1979, a study in the United States indicated that a possible correlation existed between childhood leukemia and electrical power configurations.⁷ These results were later duplicated, both inside⁸ and outside⁹ the United States. Similar studies have shown an increased risk of cancer in both children and adults.¹⁰ These studies indicate a positive correlation between EMFs and cancer, but have not yet proven causation between the two. First, the studies cited above are not exhaustive; an equal number of studies indicate that no significant correlation exists between EMF exposure and disease.¹¹ Second, the studies do not take into account the origin of the EMFs.¹² Despite these causation problems, it appears probable that some connection between EMFs and cancer exists.¹³ Professor Sherry Young examined the studies and found that "the scientific evidence . . . of adverse biological effects . . . is inconclusive."¹⁴ However, she also states that "[t]he volume of positive findings precludes any categorical denial of a relationship between cancer and exposure [to EMFs]."¹⁵

2. Legislative Reaction

The growing evidence of a connection between powerlines and cancer has not gone unnoticed by state and federal legislators.¹⁶ Congress has held

6. See generally Sherry Young, *Regulatory and Judicial Responses to the Possibility of Biological Hazards from Electromagnetic Fields Generated by Power Lines*, 36 VILL. L. REV. 129 (1991).

7. Nancy Wertheimer & Ed Leeper, *Electrical Wiring Configurations and Childhood Cancer*, 109 AM. J. EPIDEMIOLOGY 273 (1979).

8. See DAVID SAVITZ, CASE-CONTROL STUDY OF CHILDHOOD CANCER AND EXPOSURE TO ELECTROMAGNETIC FIELDS (New York State Power Lines Project, 1987).

9. Lennart Tomenius, *50-Hz Electromagnetic Environments and the Incidence of Childhood Tumors in Stockholm County*, 7 BIOELECTROMAGNETICS 191 (1986).

10. Young, *supra* note 6, at 147.

11. *Id.* at 148.

12. *Id.* at 149.

13. *Id.*

14. *Id.* at 150.

15. *Id.* at 148.

16. Kristopher D. Brown, *Electromagnetic Field Injury Claims: Judicial Reaction to an Emerging Public-Health Issue*, 72 B.U. L. REV. 325, 328 (1992) (citing *Electric Power Lines: Health and Public Policy Implications: Hearing Before the Subcomm. on General Oversight*

hearings to determine whether federal standards need to be set to control the amount of allowable electric or magnetic exposure.¹⁷ In 1993, Representative George Miller from California introduced legislation that would prohibit the location of new public schools and child-care centers on property where EMF fields exceed two milligauss a day.¹⁸ Despite the hearings and the proposals, however, Congress has not taken any official action to control the amount of EMF exposure to which workers, residents or students may be subjected.

3. Judicial Reaction

Although some consider EMF litigation likely to "become the biggest tort area of the 90s,"¹⁹ no court has ever held that EMFs cause cancer.²⁰ Potential EMF plaintiffs suffered a setback in 1993 in the first personal-injury powerline radiation case, *Zuidema v. San Diego Gas & Electric Co.*,²¹ when a defense verdict was returned. The plaintiffs lived in a house located directly beneath a set of powerlines.²² The plaintiff's daughter was diagnosed with a rare kidney abnormality called Wilm's Tumor, a form of cancer, nine months after her birth.²³ After learning of the possible connection between powerline exposure and cancer, the Zuidemas filed suit against their local utility company.²⁴ In their suit, they claimed that: (1) the utility company failed to warn consumers of the potential hazard, (2) the overhead powerline constituted a nuisance, and (3) the emotional distress caused by the nuisance was compensable under traditional tort remedies.²⁵ The Zuidemas lost their case because they could not establish the existence of a sufficient scientific link between EMFs and cancer in order to give rise to a duty to warn or to show that a nuisance existed.²⁶

Currently, lack of causation appears to be the main hindrance of bringing

and *Investigations of the Comm. on Interior and Insular Affairs*, 101st Cong., 2d Sess. (1990)).

17. *Id.* at 327.

18. H.R. 1494, 103d Cong., 1st Sess. (1993). A gauss is a basic unit that measures magnetic induction. WEBSTER'S NEW WORLD DICTIONARY OF AMERICAN ENGLISH 579 (3d ed. 1988).

19. Joe Wayne, *Power Struggles*, 13 DAILY J. CORP. ST. BAR CALIF. 20 (June 1993).

20. Young, *supra* note 6, at 150.

21. *Zuidema v. San Diego Gas & Elec. Co.*, No. 63822 (San Diego County Super. Ct. Apr. 30, 1993).

22. *Credibility of Experts Proves Key Factor for Defense in Power Lines Trial*, 7 INSIDE LITIG. 4 (June 1993) [hereinafter *Credibility of Experts*].

23. *Id.*

24. *Id.* at 3.

25. *Id.* at 4-5.

26. *Id.* at 4.

EMF personal injury claims.²⁷ The *Zuidema* plaintiffs called three expert witnesses to testify to the existence of an EMF-cancer link, yet were unable to get the jury to even consider the issue of causation.²⁸ Since the jury found that the defendant owed no duty to the plaintiffs, they did not even address the issue of causation.²⁹ As studies correlating EMFs to cancer become more prevalent and more precise, the task of proving causation may become less daunting. Current plaintiffs are not universally dissuaded by the *Zuidema* decision.³⁰ There are cases pending in Connecticut and in Washington involving personal injury against utility companies for powerline radiation.³¹

Plaintiffs have successfully sued utility companies under other theories.³² In *Houston Lighting & Power v. Klein Independent School District*, a local school board appealed an administrative decision that allowed an easement for powerlines over school board property.³³ The school board argued that locating the transmission line near a school constituted a callous disregard for the safety, health and well-being of the children.³⁴ To support their argument, the school board presented two experts who testified that the proximity of the powerlines to the school increased the risk to the children of developing cancer.³⁵ The *Houston Lighting* jury concluded that the powerlines represented a danger and found for the school board.³⁶

Future EMF personal-injury plaintiffs will want to use *Houston Lighting* to show that a jury can be convinced that powerlines are potentially hazardous. Nonetheless, until better studies are available, the causation element will continue to plague EMF personal-injury plaintiffs.³⁷ The difficulty of proving causation is one of the key reasons for raising a medical-monitoring claim. As discussed below,³⁸ the medical-monitoring claim deemphasizes the causation element. While it might not be as lucrative

27. *Id.* at 2-3.

28. Victoria Slind-Flor, *Fertile Fields of Litigation; Did Power-line Radiation Cause Cancer?*, NAT'L L.J., April 26, 1993, at 1.

29. *Id.*

30. See *Bullock v. Northeast Util.*, No. CV-92-0326697-S (Conn. Super. Ct., New Haven Dist.) (alleging EMFs caused a 19-year-old woman to develop astrocytoma, a form of brain cancer); *In re Pilisuk*, No. 92-2051 (Bd. of Indus. Ins. App., Wash.) (alleging that workplace exposure to magnetic fields had caused decedent employee of local utility company to develop leukemia).

31. *Bullock*, No. CV-92-0326697-S; *In re Pilisuk*, No. 92-2051.

32. *Houston Lighting & Power v. Klein Indep. Sch. Dist.*, 739 S.W.2d 508, 511 (Tex. Ct. App. 1987).

33. *Id.*

34. *Id.*

35. *Id.* at 516.

36. *Id.* at 518.

37. See *Credibility of Experts*, *supra* note 22.

38. See generally *infra* part II.B.

as a "failure to warn" claim, a medical-monitoring claim can be a valuable remedy for a plaintiff with a difficult causation case.³⁹

B. *Theory #2: Toxic Tort Victims Are Entitled to Medical-Monitoring Damages*

The traditional rule of torts provides that "[t]he threat of future harm, not yet realized, is not enough" to claim damages.⁴⁰ Many courts have interpreted this rule to mean that no present remedy can be awarded unless there is a present injury.⁴¹ The impact of toxic torts,⁴² however, changed this analysis. The unique complexities of toxic tort litigation render traditional tort remedies inadequate to justly compensate victims of toxic exposure.⁴³

Courts have awarded medical-monitoring damages using existing tort theory "to afford compensation for injuries sustained by one person as a result of the conduct of another."⁴⁴ Because of the medical advisability of early diagnosis and monitoring, and because the diseases resulting from toxic exposure are often latent and irreversible, the judiciary has allowed toxic tort litigants the benefit of medical testing costs necessary for the early detection of disease caused by exposure to toxic substances.⁴⁵ The connection between medical monitoring and traditional tort policy has been described as "[p]ermitting recovery for medical surveillance damages satisf[ying] the tort system's compensation objective by providing toxic tort victims with a remedy for their injuries. Medical surveillance damages also fulfill the tort system's deterrence function by compelling toxic substance manufacturers . . . to internalize the costs of their actions."⁴⁶

In the watershed case of *Ayers v. Township of Jackson*, the New Jersey Supreme Court emphasized the willingness of the judiciary to adopt an ex-

39. *Id.*

40. W. PAGE KEETON ET AL., PROSSER AND KEETON ON THE LAW OF TORTS § 30, at 165 (5th ed. 1984).

41. See Kalas, *supra* note 5, at 131-34.

42. A toxic tort is defined as

an alleged personal injury and related harm resulting from exposure to a toxic substance — usually a chemical, but *perhaps a biological or radiological agent*.

Generally, in toxic torts: (1) the injury . . . results in genetic or biochemical disruption; (2) exposure is typically, though not necessarily, chronic and repeated; and (3) the injury manifests itself after a latency period.

Steve Gold, Note, *Causation in Toxic Torts: Burdens of Proof, Standards of Persuasion, and Statistical Evidence*, 96 YALE L.J. 376, 376 n.1 (1986) (emphasis added).

43. See Amy B. Blumenberg, *Medical Monitoring Funds: The Periodic Payment of Future Medical Surveillance Expenses in Toxic Exposure Litigation*, 43 HASTINGS L.J. 661 (1992).

44. Cecil A. Wright, *Introduction to the Law of Torts*, 8 CAMBRIDGE L.J. 238 (1944).

45. Kalas, *supra* note 5, at 127-29.

46. *Id.* at 127.

panded interpretation of the remedies available to toxic tort plaintiffs.⁴⁷ In *Ayers*, the defendant's negligence contaminated the plaintiffs' well water with toxic pollutants.⁴⁸ Using expert testimony, the plaintiffs established that varying concentrations of twelve different chemical substances had infiltrated the wells used as their drinking source.⁴⁹ Four of these chemicals were known carcinogens.⁵⁰ The plaintiffs' experts testified that these chemicals had the potential to cause liver, kidney and neurological damage as well as mutations and alterations in genetic material.⁵¹ A medical diagnostic expert testified that the plaintiffs required annual medical examinations to obtain early diagnosis of potentially developing diseases.⁵² The medical expert also testified that regular monitoring of the plaintiffs' medical health would improve their prospects for cure and treatment and likewise, minimize their pain and disabilities.⁵³

The issue in *Ayers* was whether the plaintiffs would be allowed to recover for medical-monitoring expenses when expert testimony could not quantify the increased risk to the plaintiffs because of their exposure.⁵⁴ The trial court held that the plaintiffs could collect \$8,204,500 in medical surveillance damages to be divided among the 339 plaintiffs.⁵⁵ The appellate court overturned the ruling, "concluding that claims for medical surveillance expenses . . . were too speculative to warrant recognition under the Tort Claims Act."⁵⁶ The New Jersey Supreme Court reinstated this part of the original jury verdict, holding that "medical science may necessarily and properly intervene where there is a significant but unquantified risk of serious disease."⁵⁷

In its decision, the *Ayers* court set out a five-factor test to determine whether medical surveillance damages are reasonable and necessary:

- (1) the significance and extent of the plaintiff's exposure;
- (2) the relative toxicity of the chemicals;
- (3) the seriousness of the diseases for which the plaintiff is at an increased risk;
- (4) the relative increase in the plaintiff's chances of developing the

47. 525 A.2d 287 (N.J. 1987).

48. *Id.*

49. *Id.* at 291-92.

50. *Id.* at 292.

51. *Id.*

52. *Id.*

53. *Id.*

54. *Id.* at 297-98.

55. *Id.* at 291.

56. *Id.* at 297.

57. *Id.* at 309.

disease, when compared to

- (a) had he or she not been exposed; and
- (b) the chances of members of the public at large of developing the disease; and

(5) the value of early detection and diagnosis.⁵⁸

The court emphasized that the likelihood of developing disease is only one element in determining the reasonableness of medical intervention.⁵⁹ It explained that “[e]ven if the likelihood that the plaintiffs would contract cancer was only *slightly higher* than the national average, medical intervention may be completely appropriate”⁶⁰ The *Ayers* court, balancing the risk of developing disease with compensation, concluded that “the public health interest may justify judicial intervention even when the risk of disease is problematic.”⁶¹

Many courts have followed *Ayers* and allowed plaintiffs to recover medical-monitoring damages despite being unable to ascertain the amount of risk due to their exposure.⁶² Moreover, most scholars have supported medical monitoring as a remedy,⁶³ exposing the availability of the remedy to jurisdictions which previously have not considered this option. Thus, while the medical-monitoring remedy has not gained acceptance in some jurisdictions,⁶⁴ it may become part of the accepted spectrum of remedies available to toxic torts victims in most jurisdictions.

III. JUXTAPOSITION

A. *Medical-Monitoring Theory Applied to Powerline Radiation*

In part II, two novel tort theories that are slowly gaining acceptance were

58. *Id.* at 312.

59. *Id.* at 312-13.

60. *Id.* at 312 (emphasis added).

61. *Id.*

62. See George W.C. McCarter, *Medical Sue-Veillance: A History and Critique of the Medical Monitoring Remedy in Toxic Tort Litigation*, 45 RUTGERS L. REV. 227, 230 n.6 (1993) (citing cases from Alabama, Colorado, Delaware, New Jersey, New York, North Dakota and Pennsylvania that held in favor of allowing a claim for medical monitoring).

63. *Id.* at 230 n.7 (citing numerous law review articles that support claims of medical monitoring).

64. See Kalas, *supra* note 5, at 143-44 (citing *Davidson v. Miller*, 344 A.2d 422 (Md. 1975)). Kalas concludes that “it seems unlikely that the remedy of medical surveillance damages will be welcome in [Maryland] in the near future.” *Id.*

discussed: (1) EMFs from powerlines may be responsible for causing cancer,⁶⁵ and (2) medical-monitoring damages should be available to toxic tort victims.⁶⁶ The remaining focus of this essay is to determine whether the remedy of medical monitoring is available to the victims of powerline radiation torts.

B. *Is EMF Radiation a Toxic Tort?*

The predicate question in deciding whether EMF victims are eligible for medical-monitoring damages is whether EMFs can be classified as toxic in order to include EMF radiation as a toxic tort. The court in *Ayers* permitted the recovery of medical-monitoring damages because the compensable injuries were toxic torts.⁶⁷ The damages were allowed because of the inherent difficulty in proving medical causation of toxic torts.⁶⁸ The court held that "[i]t is inequitable for an individual, wrongfully exposed to dangerous toxic chemicals but unable to prove that disease is likely, to have to pay his own expenses when medical intervention is clearly reasonable and necessary."⁶⁹

To determine whether EMF radiation is the equivalent of a dangerous toxic chemical, the term toxic must first be fully understood. Toxic has been defined as referring to a substance causing some observable detriment to a living entity.⁷⁰ Multiple studies exist indicating that EMF radiation may be detrimental to humans.⁷¹ As referred to earlier,⁷² toxic torts may be defined as

an alleged personal injury and related harm resulting from exposure to a toxic substance — usually a chemical, but perhaps also a biological or radiological agent. Generally, in toxic torts: (1) the injury . . . results in genetic or biochemical disruption; (2) exposure is typically, though not necessarily, chronic and repeated; and (3) the injury manifests itself after a latency period.

Torts occurring as a result of EMFs may deserve to be classified as toxic torts. Although EMFs are not chemicals, an electromagnetic field *is* a form

65. See *supra* part II.A.

66. See *supra* part II.B.

67. *Ayers*, 525 A.2d at 312-13.

68. *Id.* at 311.

69. *Id.* at 312.

70. HUGH D. CRONE, CHEMICALS AND SOCIETY 28 (1986).

71. See Young, *supra* note 6, at 129; Wertheimer & Leeper, *supra* note 7, at 273; SAVITZ, *supra* note 8; Tomenius, *supra* note 9, at 191. See *supra* text accompanying notes 6-9 for a brief discussion of the studies.

72. Gold, *supra* note 42, at 376 n.1.

of radiation,⁷³ and therefore, could be considered a toxic substance.⁷⁴ EMFs also satisfy all of the factors listed in the definition. First, EMFs can cause genetic or biochemical disruption.⁷⁵ While the effect of these biological alterations is disputed, it is clear that "even very weak [EMF] fields can, under some circumstances, produce substantial changes at the cellular level."⁷⁶ Second, exposure to EMFs from powerlines is typically chronic and repeated since EMFs generally surround powerlines continuously.⁷⁷ Third, the disease alleged, whether leukemia or other forms of cancer, is latent, and therefore, would not manifest itself immediately upon initial exposure.⁷⁸

The only remaining element of the definition that could preclude EMF radiation from being considered a toxic tort is the first requirement, that is, an alleged personal injury and related harm *resulting from* exposure to a toxic substance.⁷⁹ While the problem of causation may be deemphasized in a toxic tort situation, it is not eliminated. In toxic tort, there must be proof that the harm (cancer) *could* result directly from exposure to the toxic substance.⁸⁰ If not, the substance (EMFs) will not be considered toxic. It is important to note, however, that the level of causation needed for toxic torts is far less than the level of proof required of the Zuidemas in their lawsuit.⁸¹ In *Zuidema*, the plaintiffs had to prove that powerlines caused the specific injury suffered, Mallory Zuidema's rare form of kidney cancer.⁸² Here the requirement is more general: proving that EMFs *can* cause a type of injury that the plaintiff may contract at some time in the future.⁸³

EMF litigants may still be unable to meet the easier burden of proof in toxic tort. The scientific consensus remains that the EMF studies are

73. *Webster's Dictionary* defines "radiation" as "energy emitted as electromagnetic waves, as gamma or X-rays, or as nuclear particles . . ." WEBSTER'S NEW WORLD DICTIONARY OF AMERICAN ENGLISH 1107 (3d ed. 1988).

74. Radiation (generally) may be defined as a toxic substance. *See, e.g., In re Three Mile Island Litig.*, 577 F. Supp. 96 (M.D. Pa 1982) (multiple plaintiffs sued for toxic tort damages for radiation exposure).

75. Gold, *supra* note 42, at 376 n.1; *see also* Young, *supra* note 6, at 140-41.

76. Young, *supra* note 6, at 140-41 (citing studies that show EMFs can enhance cell growth and proliferation process, including the growth and proliferation of cancer carrying cells).

77. Robert Pool, *Is There an EMF-Cancer Connection?*, 249 SCI. 1096, 1096-97 (1990).

78. TABER'S CYCLOPEDIA MEDICAL DICTIONARY 258-60, 946 (15th ed. 1986).

79. Gold, *supra* note 42, at 376 n.1.

80. *See generally* William R. Ginsburg & Lois Weiss, *Common Law Liability for Toxic Torts: A Phantom Remedy*, 9 HOFSTRA L. REV. 859 (1981).

81. *See Zuidema v. San Diego Gas & Elec. Co.*, No. 63822 (San Diego County Super. Ct. Apr. 30, 1993).

82. *Id.*

83. *See* Ginsburg & Weiss, *supra* note 80.

inconclusive.⁸⁴ *Houston Lighting* illustrates that it is possible for a jury to infer the causal relationship between EMFs and cancer.⁸⁵ Nonetheless, until more studies are conducted or until the Environmental Protection Agency (EPA) states that EMFs are carcinogenic,⁸⁶ satisfying the lower causation standard for medical-monitoring damages may prove elusive.

C. *The Ayers Test*

Assuming that an EMF plaintiff can convince a court that it is possible to get cancer from exposure to EMFs, the plaintiff will then have to demonstrate to the court that the five factors in *Ayers* have been satisfied.⁸⁷ Left open by *Ayers* and its progeny is whether each of the five elements must be established or whether they may be balanced together.⁸⁸ Thus, if one of the five factors is relatively weak for the EMF plaintiff, it is possible that by using a balancing construction the remaining, stronger factors will enable the plaintiff to prevail.⁸⁹

1. Significance and Extent of Exposure

The first *Ayers* factor encompasses essentially two separate inquiries: (1) Was the plaintiff exposed to the toxic agent? and (2) To how much of the toxic agent was the plaintiff exposed?⁹⁰ Each of these inquiries likely would support the position of the EMF plaintiff. Like the well-water contamination in *Ayers*, where the toxin is of a pervasive nature, exposure should reasonably be assumed for plaintiffs within its proximate area.⁹¹ Accordingly, in order to establish exposure, an EMF plaintiff would need merely to measure the electric and magnetic fields at the location where exposure is alleged and demonstrate those numbers in court along with evidence that the plaintiff was actually at the place in question.

84. Young, *supra* note 6, at 150 n.95; see also Philip S. McCune, *The Power Line Health Controversy: Legal Problems and Proposals for Reform*, 24 U. MICH. J. L. REF. 429, 431 (1991).

85. *Houston Lighting & Power v. Klein Indep. Sch. Dist.*, 739 S.W.2d 508 (Tex. Ct. App. 1987).

86. The EPA issued a draft report in 1989 indicating a possibility that EMFs caused by common electric currents could be linked to cancer. Julie Hanna, *Current Events: Electromagnetic Fields Spark Worries*, CHI. TRIB., Jan. 17, 1993, at 3. The EPA later withdrew this report, stating that the findings were inconclusive. *Id.* An EPA physicist was recently quoted as saying, "We're kind of on the horns of a dilemma now. We can't say yes, there is a problem, no there isn't." *Id.*

87. See *Ayers*, 525 A.2d at 312.

88. *Id.*; see also McCarter, *supra* note 62, at 265.

89. McCarter, *supra* note 62, at 264-65. "Since *Ayers* rejected precise quantification, some degree of balancing is unavoidable." *Id.*

90. See *Ayers*, 525 A.2d at 312.

91. McCarter, *supra* note 62, at 244.

One problem faced by EMF plaintiffs is the requirement that the plaintiff show that the level of exposure was greater than a background level present in the general population.⁹² While *Ayers* did not require such a finding, *Allen v. United States*,⁹³ cited by the *Ayers* court,⁹⁴ did. In *Allen*, the court stated that "radiation exposure higher than background dose is the first of the factual contentions . . . that [the] plaintiff must establish."⁹⁵ This background-dose inquiry, however, may not apply in an EMF case because exposure to weaker EMFs does not reduce the harms caused by exposure to stronger fields.⁹⁶ Even if the plaintiff is required to make a background showing, a simple illustration of proximity may be sufficient given the *Ayers* deemphasis on quantification.⁹⁷

2. Toxicity of the Substance

Toxicity appears in the *Ayers* test primarily to ensure that the plaintiff is alleging a toxic tort.⁹⁸ If the EPA designates EMFs as harmful, or if the state in which the suit is brought recognizes EMFs as harmful, then the inclusion of this factor will benefit the plaintiff significantly.⁹⁹ Otherwise, it will be a negative factor, but one which may be balanced by the remaining factors.¹⁰⁰

3. Seriousness of the Diseases

Seriousness of disease, the third *Ayers* factor, weighs in favor of the EMF plaintiff.¹⁰¹ In an EMF medical-monitoring case the disease to be monitored usually would be leukemia or another form of cancer.¹⁰² These diseases are protracted and often fatal.¹⁰³ Even if subsequent studies show that certain EMFs are linked to non-fatal diseases, a plaintiff who has been exposed to lower EMF levels might still raise a claim for medical monitoring

92. *Id.* at 245.

93. 588 F. Supp. 247 (D. Utah 1984).

94. *Ayers*, 525 A.2d at 301.

95. *Allen*, 588 F. Supp. at 428.

96. Brown, *supra* note 16, at 327 (citing studies showing that a weak EMF field may be more dangerous than a strong one).

97. If the plaintiff is the hypothetical neighbor to the Studholmes (*see* part I), indicating that the plaintiff lives adjacent to an electrical substation would likely be sufficient to illustrate to the court that the levels of EMFs received were "higher than background."

98. Gold, *supra* note 42; *Ayers*, 525 A.2d at 312.

99. Kalas, *supra* note 5, at 145-47.

100. *See* McCarter, *supra* note 62, at 264-65.

101. *Ayers*, 525 A.2d at 312.

102. *See generally* Brown, *supra* note 16, *passim*.

103. TABER'S CYCLOPEDIA MEDICAL DICTIONARY, *supra* note 78, at 258, 946.

for diseases such as leukemia and other forms of cancer.¹⁰⁴

4. Relative Increase in Risk

The fourth factor of the *Ayers* test, the relative increase in risk caused by the exposure, should also weigh in favor of EMF plaintiffs.¹⁰⁵ While it may be difficult to quantify the increased risk caused by the proximity to EMFs, this quantification of increase is not required. The court in *Ayers* distinguished the medical-monitoring claim from a claim for enhanced risk.¹⁰⁶ While quantification of the risk is necessary for an enhanced-risk claim,¹⁰⁷ a medical-monitoring claim requires only that "the likelihood that [the] plaintiffs contract cancer [be] only slightly higher than the national average."¹⁰⁸

Current scientific studies may not be sufficient to give the quantified data required for an enhanced-risk claim, but they may be enough to demonstrate that *slightly* higher risk exists for people near powerful EMF producers. Beginning in 1979, studies showed a heightened risk of cancer in children in areas of high-current EMFs.¹⁰⁹ A subsequent study found that people living in areas with the strongest magnetic fields were thirty percent more likely to develop cancer.¹¹⁰ While these studies may not prove causation in a personal-injury suit,¹¹¹ they should be sufficient to illustrate to the court the "slightly higher" risk required for medical-monitoring damages.

5. Value of Early Prognosis

The final factor in the *Ayers* test is the value of early prognosis.¹¹² This factor should not be difficult for an EMF plaintiff to satisfy. The *Ayers* court held that "the value of early diagnosis and treatment for cancer patients is well-documented."¹¹³ The *Ayers* court continued, stating:

104. See *Mauro v. Raymark Indus., Inc.*, 561 A.2d 257, 259 (N.J. 1989) (stating that medical-monitoring damages may be available to a personal-injury plaintiff based on the potential for future arthritis).

105. See *Ayers*, 525 A.2d at 312.

106. *Id.* at 308.

107. *Id.*

108. *Id.* at 312.

109. See *Wertheimer & Leeper*, *supra* note 7. This study showed that children in "high current configurations" were between 1.6 and 2.2 times as likely to die of cancer as children living in "low current configurations." *Id.*

110. See *SAVITZ*, *supra* note 8. This 1987 study reproduced the *Wertheimer & Leeper* tests but used more exacting methodological standards to help ensure accuracy. See also *Young*, *supra* note 6, at 144.

111. See *Zuidema v. San Diego Gas & Elec. Co.*, No. 63822 (San Diego County Super. Ct. Apr. 30, 1993).

112. *Ayers*, 525 A.2d at 312.

113. *Id.* at 311.

Harm in the form of increased risk of future cancer attributable to delay in diagnosis and treatment has become so widely accepted by the medical community that the existence of such harm could be reasonably inferred from this professional common knowledge. A survey of the medical literature indicates that it is universally agreed that a delay in cancer diagnosis . . . usually increases the risk of metastasis.¹¹⁴

These statements by the *Ayers* court could be decisive in convincing a court that early detection of cancer caused by EMFs would be beneficial to the plaintiff. Receiving an early prognosis benefits the plaintiff emotionally by removing the fear of developing cancer and physically by preventing the further spread of the disease.

Of the five factors in the *Ayers* test, only two appear troublesome for the EMF plaintiff seeking medical-monitoring damages: (1) the toxicity of EMFs and (2) the relative increase in risk of cancer due to EMFs.¹¹⁵ While these factors are cause for concern, they can be overcome. First, if the plaintiff can convince the court that EMFs are toxic,¹¹⁶ that proof will help satisfy each factor. Second, if the court applies the factors in a balancing test,¹¹⁷ then continuous exposure combined with the dire consequence of getting cancer considered with the high value of early testing may compensate for the two weaker factors. Third, many courts following *Ayers* in granting medical-monitoring damages to toxic tort plaintiffs have done so by citing the *Ayers* test and then holding that the plaintiffs have met the test "almost without discussion."¹¹⁸ Thus, the individual criterion for each element may not be as important as the overall concept of equitable distribution of costs.¹¹⁹ Finally, a future pronouncement by a governmental agency that EMFs may be harmful would ensure that each of these two remaining factors would weigh in favor of the EMF plaintiff.¹²⁰

114. *Id.* (quoting *Evers v. Dollinger*, 471 A.2d 405, 419 (N.J. 1984) (Handler, J., concurring)).

115. *Id.* at 312.

116. *See supra* part III.A.

117. *See McCarter, supra* note 62, at 264-65 (indicating a likelihood that a balancing test would be used).

118. *Id.* at 230 n.6. *See, e.g., Vacuum Indus. Pollution, Inc. v. Union Oil Co. of Cal.*, 764 F. Supp. 507 (N.D. III. 1991); *Cook v. Rockwell Int'l Corp.*, 755 F. Supp. 1468 (D. Colo. 1991); *Ball v. Joy Mfg. Co.*, 755 F. Supp. 1344 (S.D. W.Va. 1990); *Merry v. Westinghouse Elec. Corp.*, 684 F. Supp. 847 (M.D. Pa. 1988).

119. *See Blumenberg, supra* note 43, at 681.

120. *Kalas, supra* note 5, at 146.

IV. SPECIAL PROBLEMS

Even though medical monitoring should apply to claims of powerline radiation, courts may refuse to do so because of the administrative difficulties in applying this accessible remedy to something as potentially widespread as EMF radiation. Attorney John Kalas noted that "applying an *Ayers* approach to the products liability context, weakening traditional injury and causation requirements, threatens to stretch the seams of an already swollen docket."¹²¹ Further, courts have expressed concern that allowing medical-monitoring damages would "potentially devastate the court system as well as the defendant," noting that "defendant's pockets or bank accounts do not contain infinite resources."¹²²

These fears are particularly potent in powerline radiation torts. In his article regarding EMF injury claims, Kristopher D. Brown warns that the courts may forego making the important EMF decisions because of "the pervasive nature and generally recognized value of electricity in our society."¹²³ Instead, courts may elect to interpret legislative silence as a mandate for inaction until the legislature decides to intervene.¹²⁴ Finally, additional reluctance by the courts to deter utility companies from allowing high concentrations of EMFs to exist in residential or school areas may stem from the reality that taxpayers may ultimately bear the cost. As Michael Shames, director of the Utility Consumers Action Network, stated, "I'm on the fence about this issue. On one hand, the public should be protected from a legitimate health hazard. On the other, I don't want to see the [utility] rates go up."¹²⁵ While a legal claim may exist, getting it to, and through, the courts is far more complicated.¹²⁶

V. CONCLUSION

What success EMF plaintiffs will have in their lawsuits against utility companies is not yet clear. The difficulty of proving causation will continue to plague claimants until the federal government decides that EMFs are harmful.¹²⁷ The availability of a medical-monitoring remedy may help

121. *Id.* at 153.

122. *Id.* (citing *Ball*, 755 F. Supp. at 1372).

123. Brown, *supra* note 16, at 340.

124. *Id.*

125. Wayne, *supra* note 19, at 29.

126. *But see* *Houston Lighting & Power v. Klein Indep. Sch. Dist.*, 739 S.W.2d at 521 for an example of a court willing to uphold actual damages against a utility company in an EMF setting.

127. *See generally* J. Stratton Shartel, *Causation Leads Issues Shaping Strategy in EMF Litigation*, 7 *INSIDE LITIG.* 1 (Nov. 1993).

address the needs of EMF victims until better proof of causation is available. Amy Blumenberg stated that the benefits of compensating exposure victims are: "(1) [t]he provision of medical-monitoring services to those who would otherwise be unable to afford them; (2) the production of information regarding the health consequences of human exposure [to EMF]; and (3) the deterrence of future toxic exposure."¹²⁸

Neither the courts nor the legislatures are likely to attack the problem of EMF radiation in the immediate future. The economic realities surrounding the demand for cheap, accessible electricity mandate caution among groups having the power to curtail its use for public health reasons. Real action is not possible until people begin to believe that tragedies similar to those which befell the Zuidemas¹²⁹ and Studholmes¹³⁰ are occurring in their neighborhoods or schoolyards. When that action begins to occur, the medical-monitoring alternative should be at the forefront of available remedies for powerline radiation plaintiffs. If the eight million dollar medical-monitoring verdict for the small township of Jackson¹³¹ is an indication of the stakes involved, it is a remedy that litigators and utilities alike should take seriously.

Nicholas Shannin

128. Blumenberg, *supra* note 43, at 682.

129. *See Zuidema v. San Diego Gas & Elec. Co.*, No. 63822 (San Diego County Super. Ct. Apr. 30, 1993).

130. *See Allsop*, *supra* note 1.

131. *Ayers*, 525 A.2d at 297.