

May 21, 1994

Comments by John W. Gofman

REGULATORY RULE PRM 20-23 Page 1

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Secretary, U.S. Nuclear Regulatory Commission
Attn: Docketing and Service Branch
Washington DC 20555

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Comments on the Steve Gannis Petition for Rulemaking, your Docket No. PRM-20-23, per notice in the Federal Register, April 14, 1994, p.17746

OFFICE OF SECRETARY
DOCKETING

From:

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Date: May 21, 1994

I support the goal of zero millirems per year as the "permissible" public, involuntary exposure to ionizing radiation from human activities regulated by the NRC. I do not single out nuclear pollution. I apply the same 3-point ethical premise (below) to ALL pollutants.

Part 1 - A Three-Point Ethical Premise

1 * If you pollute when you DO NOT KNOW if there is any safe dose (threshold), you are performing improper experimentation on people without their informed consent. Every individual has an inalienable right not to be so used, and this right cannot be negated by majority approval.

2 * If you pollute when you DO KNOW that there is NO safe dose with respect to causing extra cases of deadly cancers or heritable effects, then you are committing premeditated random murder.

3 * If you pollute when you CLAIM the agent is safe at the "permissible levels," then you should be required to DEMONSTRATE your confidence in such safety by exposing yourself and your own children and grandchildren to the full "permissible levels" which you wish to impose on other members of the public. Public protests against exposing the polluters' helpless CHILDREN would become remarkably educational with respect to human rights and the alleged safety of the "permissible doses."

In elaboration of the objection even to SMALL levels of pollution, I submit as in integral part of this commentary a copy of "Concentrated Benefit over Diffuse Injury," an essay by myself and Egan O'Connor jointly, dated November 1993.

Part 2 * Quantitative Estimates of Cancer-Deaths Inflicted by "Permissible Radiation Doses" of 100, or 10, or 1 Extra Milli-Rem Whole-Body Dose per Year

With respect to fatal, radiation induced cancer from chronic, low-dose exposure of the USA population at the rate of an extra 100 milli-rems per year (1 milli-sievert per year), I wish to contrast my own estimates from my 1990 book (Table 16-C) with those of the National Academy of Sciences' BEIR-5 Committee's 1990 report (Table 4-2). We shall cut the BEIR-5 values in half.

DS10

Even though the BEIR-5 Committee admits (p.174) that the human evidence shows a DREF of unity for all cancers combined, that Committee nonetheless recommends using a reduction factor of at least 2 when dose is received slowly. By contrast, I use the existing human evidence, and apply no DREF to my own risk estimate. Both estimates which follow exclude leukemia.

BEIR-5 in 1990 (Table 4-2, non-leukemia columns, middle section for "lifetime exposure to 0.1 rem/year"): 495 extra fatal radiation-induced cancers per 100,000 people without a dose-rate reduction factor, if we assume equal numbers of males and females. This becomes 248 extra fatal cancers per 100,000 persons after a DREF of 2, equivalent to 25 per 10,000 persons.

• - THIS IS THE SAME AS CAUSING ONE EXTRA FATAL CANCER PER 400 PEOPLE. If the extra whole-body dose were 10 extra milli-rems average per year instead of 100 milli-rems, the killings would be 1 out of every 4,000 persons. At 1 extra milli-rem per year: 1 out of every 40,000 persons.

GOFMAN in 1990 (Table 16-C): 27 extra fatal radiation-induced cancers per 10,000 people of mixed ages, each receiving one extra rem of whole-body dose at any dose-rate. An extra 100 milli-rems/year for 70 years = 7 extra rems. Such exposure would cause (27 extra fatal cancers x 7) / 10,000 persons = 189 extra fatal cancers per 10,000 persons.

• - THIS IS THE SAME AS CAUSING ONE EXTRA FATAL CANCER PER 53 PEOPLE. If the extra whole-body dose were 10 extra milli-rems average per year instead of 100 milli-rems, the killings would be one out of every 530 persons. At 1 extra milli-rem per year: 1 out of every 5,300 persons.

Part 3 • The Issue of a Threshold

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Can the Nuclear Regulatory Commission assume that 1 extra milli-rem per year is below a threshold level where no cancer-induction occurs?

No. Combining mainstream human epidemiological evidence with primary track-analysis, I have proven by any reasonable standard of scientific proof that ionizing radiation has no threshold dose or dose-rate with respect to cancer-induction in my 1990 book (Chapters 18, 19, 20, 21, 32, 33).

Part 4 • The Issue of Public Approval

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Although an inalienable right (by definition) cannot be negated by majority rule, public approval is often invoked to justify "permissible" levels of pollution. We can briefly explore whether a "low" personal risk of 1 chance in 5,300 is approved by the public.

We can imagine, for instance, a stadium filled with 53,000 Americans. Then we can announce that 1 out of every 5,300 of today's happy crowd --- "only" ten people --- has been selected at random for summary execution by a firing squad on the field. No one will be let out until the executions have been achieved. Despite the low personal risk, there would be quite an uproar --- even though a firing squad is a merciful death compared with many cancer-deaths.

Part 5 • The Issue of Comparative Risks

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It is often argued that it is morally defensible to inflict fatal cancer on the population, provided the rate is small compared with the population's "natural" risk of cancer-death. Today, the "natural" rate is about 22 X, or 22 per 100. So, 1 out of every 4.5 Americans is dying of cancer "anyway." By comparison, even a death-rate of 1 per 100 from nuclear pollution would be low. But why limit the argument to cancer-deaths? Why not make the comparison with the TOTAL risk of death --- which is 100 deaths per 100 people "anyway"?

Both comparisons are inappropriate. Ethically, the REASON for dying matters.

Part 6 • The Issue of AGGREGATE Risks

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With respect to nuclear pollution and every other type of persistent pollution which lacks a safe dose, the following point deserves emphasis again and again:

What counts biologically is the SUM of all the injuries over time from ALL the combined sources and events which release persistent poisons (radioactive or other) into the biosphere. If the SUM matters biologically, then each contribution to the sum matters. Whoever consents to the small releases is consenting automatically to their worldwide SUM, whatever it turns out to be.

In other words, if we allow the NRC to license premeditated random murder at the rate of only 1 death per MILLION Americans (sometimes called a "negligible" risk), and we grant equal murder-permits for 999 other toxic agents, the aggregate murders authorized would be about 1,000 per million people, or 1 person out of every 1,000.

The duty to oppose release of toxic agents, even when each release by itself appears to be a negligible risk, is discussed more fully in the essay, "Concentrated Benefit over Diffuse Injury," which is an integral part of this submission.

Part 7 • The Issue of a "Risk-Free Life"

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No one can live in a risk-free world. That is obvious. But morally, there is a gaping chasm between the risks imposed by nature --- such as diseases we do not know how to prevent, or tornadoes, earthquakes, and hurricanes, versus risks (deaths) imposed by humans on each other by premeditated pollution.

The issue is not the particular number of deaths authorized by NRC regulations. Humans will never be able to know the number of fatal cancers (or heritable afflictions) per 10,000 person-years with exactitude anyway. The issue raised by Mr. Gannis's rule-making petition is whether the NRC (or any other government agency) is entitled to legalize ANY number of premeditated random murders.

In the court of public ethics, the burden is on the NRC to make a persuasive case in response to the Gannis Petition. If the NRC would take a firm, principled stand in opposition to premeditated random murder, then reasonable people could discuss how to get from here to there in the real world. But as long as government agencies like the NRC continue to defend morally indefensible policies and to ridicule the PRINCIPLE of no premeditated random murder, there can be no "conflict resolution." Conflict resolution requires a shared moral code with respect to the basics.

References cited:

National Academy of Sciences BEIR-5 Report, 1990, "Health Effects of Exposure to Low Levels of Ionizing Radiation." 421 pages. ISBN 0-309-03995-9. \$35.00. National Academy Press, Box 285, Washington DC 20055.

Gofman, John W., 1981, "Radiation and Human Health." 908 pages. ISBN 0-8156-275-8. \$29.95. Sierra Club Books, 730 Polk Street, San Francisco CA 94109.

Gofman, John W., 1990, "Radiation-Induced Cancer from Low-Dose Exposure: An Independent Analysis." 480 pages. ISBN 0-932682-89-8. \$29.95. Committee for Nuclear Responsibility, Inc., POB 421993, San Francisco CA 94142.

BEIR-5, 1990

TABLE 4-2 Excess Cancer Mortality Estimates and Their Statistical Uncertainty—Lifetime Risks per 100,000 Exposed Persons^a

	Male			Female		
	Total	Nonleukemia ^b	Leukemia ^c	Total	Nonleukemia	Leukemia
<i>Single exposure to 0.1 Sv (10 rem)</i>	770	660	110	810	730	80
90% confidence limits ^d	540-1,240	420-1,040	50-280	630-1,160	550-1,020	30-190
Normal expectation	20,510	19,750	760	16,150	15,540	610
% of normal	3.7	3.3	15	5	4.7	14
Total years of life lost	17,000			14,500		
Average years of life lost per excess death	16			18		
<i>Continuous lifetime exposure^e to 1 mSv/y (0.1 rem/y)</i>	520	450	70	600	540	60
90% confidence limits ^d	410-980	320-830	20-260	500-930	430-800	20-200
Normal expectation	20,560	19,760	790	17,520	16,850	660
% of normal	2.5	2.3	8.9	3.4	3.2	8.6
Total years of life lost	8,100			10,500		
Average years of life lost per excess death	16			17		
<i>1 Sv (1 rem/y) from age 18 until age 65</i>	2,880	2,480	400	3,070	2,760	310
90% confidence limits ^d	2,150-5,460	1,670-4,560	130-1,160	2,510-4,580	2,120-4,190	110-910
Normal expectation	20,910	20,140	780	17,710	17,050	650
% of normal	14	12	52	17	16	48
Total years of life lost	42,200			51,600		
Average years of life lost per excess death	15			17		

^a Based on an equal dose to all organs and the committee's preferred risk models—estimates rounded to nearest 10.

^b Sum of respiratory, breast, digestive, and other cancers.

^c Estimates for leukemia contain an implicit dose rate reduction factor.

^d Additional sources of uncertainty are discussed in Annex 4F.

^e A dose rate reduction factor has not been applied to the risk estimates for solid cancers.

Table 16-C

Estimation of Lifetime Fatal Cancer-Yield for the United States' Population.

By the Cancer-Rate Ratio Method, for Low-Dose Whole-Body Exposure per cSv, up to 5 cSv. Leukemia Excluded.

Col.A Age-Band (Years)	Col.B Sex	Col.C Persons	Col.D Remaining Lifespan: Fraction Dying of Cancer	Col.E Remaining Lifespan: Number of Spontaneous Ca-Deaths	T65DR Dosimetry		DS86 Dosimetry	
					Col.F K per cSv	Col.G Lifetime Rad'n-Induced Fatal Cancers per cSv	Col.H K per cSv	Col.I Lifetime Rad'n-Induced Fatal Cancers per cSv
0-9	Males	721.95	0.185	133.56	0.06851	9.15	0.06617	8.84
10-19	Males	896.45	0.185	165.84	0.01519	2.52	0.01484	2.46
20-34	Males	1238.98	0.188	232.93	0.00343	0.80	0.00334	0.78
35-49	Males	814.4	0.190	154.74	0.00494	0.76	0.00463	0.72
50+	Males	1206.59	0.183	220.81	0.00345	0.76	0.00311	0.69
0-9	Females	687.71	0.160	110.03	0.04615	5.08	0.04388	4.83
10-19	Females	863.27	0.160	138.12	0.02457	3.39	0.02470	3.41
20-34	Females	1233.53	0.161	198.60	0.01073	2.13	0.01000	1.99
35-49	Females	841.38	0.159	133.78	0.00615	0.82	0.00557	0.74
50+	Females	1495.75	0.137	204.92	0.00594	1.22	0.00543	1.11
Totals		10000		1693.33		26.64		25.56

LIFETIME FATAL CANCER-YIELD =

NUMBER OF FATAL RADIATION-INDUCED CANCERS AMONG 10,000 PERSONS PER cSv OF AVERAGE WHOLE-BODY ORGAN-DOSE.

U.S. POPULATION (1978 COMPOSITION): LIFETIME FATAL CANCER-YIELD BY THE CANCER-RATE RATIO METHOD	
Based on T65DR	Based on DS86
26.64	25.56

NOTES:

- Col.A has grouped the U.S. population into the same age-bands used by RERF for the A-Bomb Study.
- Col.C gives the age-sex distribution for 1978 in the U.S., for a sample of 10,000 persons (calculated from data in NRC85, p.1-78, Table A.6). When the distributions change in the future, so will the estimated Lifetime Fatal Cancer-Yield.
- Col.D gives the estimated fraction of persons in Col.C who will die of cancer spontaneously -- without extra radiation-exposure -- over the entire remaining lifespan of the cohort (from Go81, Tables 31 and 32); these fractions are higher than the fractions used for the A-bomb survivors (Table 28-D, Col.G).
- Col.E = (Col.C x Col.D).
- Col.F and Col.H are the low-dose K-values from Table 15-L for the two dosimetries.
- By K's definition, lifetime radiation-induced fatal cancers per cSv = (K-value) x (Lifetime Spontaneous Cancers). Therefore, Col.G = (Col.F x Col.E). Likewise, Col.I = (Col.H x Col.E).
- The estimate of 26-27 above is not an iteration or revision of my earlier estimate of 37.71 (Go81, p.314). The estimate above is a new entity. The 1981 estimate and this one come out of very different input in terms of approximations and data (for instance, the 1981 estimate used some 20 different studies, not just the A-Bomb Study).
- Cancer-hazard from X-rays may be underestimated by the A-Bomb Study. See Chapter 13, Part 4.

The Law of
CONCENTRATED BENEFIT over DIFFUSE INJURY

by John W. Gofman and Egan O'Connor, November 1993

The law of Concentrated Benefit over Diffuse Injury can be stated as follows:

A small, determined group, working energetically for its own narrow interests, can almost always impose an injustice upon a vastly larger group, provided that the larger group believes that the injury is "hypothetical," or distant-in-the-future, or real-but-small relative to the real-and-large cost of preventing it.

1 • The Surprising Aspect of This Law

Many scholars have written about this extremely important axiom before --- it is not original with us. The fact that narrow special interests are always at work for their own benefit AT THE EXPENSE OF OTHERS is not at all surprising, given human nature. And it is not surprising that the victims select what appears to be the strategy of least cost to themselves.

The surprising aspect is the failure of so many victims --- especially in peaceful democracies --- to appreciate the AGGREGATE consequences which inevitably accrue, when each small injustice has such a high chance of prevailing.

2 • The Real Scope of the Injury

We regard Concentrated Benefit as the most harmful law of all humanity. Is this correct?

The terrible feature of this law is that each incremental injustice has a very high chance of prevailing. So, even when new injuries or injustices truly are small, the aggregate abuse can accumulate to tragic proportions after the axiom of Concentrated Benefit has operated on behalf of various narrow interests again ... and again ... and again.

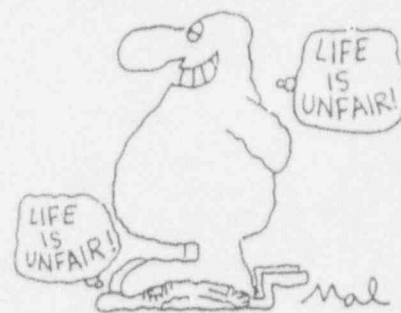
We often wonder at the vast abuse which the general public has failed to prevent: Tyrannies, wars, genocides, mass starvations, proliferation of nuclear weapons, intimidation by well-armed international and local thugs, corrupted democracies, corrupted markets, massive thefts via inflation, inadequate schools, unnecessary poverty, destruction of wildlife, and gross pollution, to name a few.

Why do people tolerate this severe abuse, when they so vastly outnumber the few beneficiaries?

The main explanation, in our opinion, is the operation of Concentrated Benefit over Diffuse Injury, insidiously and incessantly. By the time people think, "We're just not going to take this anymore," the costs and personal dangers of reversing the abuse have usually grown too. Moreover, there is no inherent limit to the scope and number of attempted abuses, whereas citizens have inherently limited resources to resist.

3 • Pollution Fights: What Every Activist Soon Learns

Narrow, special interests can prevail via government force, via direct force, or via deceit. Direct force is used by gangs



and tyrants, but polluters achieve their aims "peacefully" by using both deceit and the force of government on their behalf.

This essay explores some strategies in the environmental movement toward the law of Concentrated Benefit --- with emphasis on the problem of pollution at LOW levels.

The axiom of Concentrated Benefit over Diffuse Injury accounts for the current promotion of a "de minimis" policy toward nuclear (and other) pollution. A de minimis policy asserts that society should not concern itself with trivia. (Latin: De minimis non curat lex. The law does not concern itself with trifles.) A de minimis policy toward POLLUTION asserts that poisonous discharges and human exposures below a certain level should be treated as non-existent --- because their consequences are allegedly trivial.

Trivial. That is the essence of the axiom. Triumph for each injustice is virtually assured if the advocates succeed in presenting it as trivial.

When polluters and their agents accuse citizens who oppose them ("activists") of being Chicken Littles and hysterics and ignorant extremists, the polluters are working for a public perception that the injury is trivial.

And because the general public can not afford to do battle against TRIVIAL injustices, citizen activists against pollution know that their chances of prevailing are improved if they can show that the pollution constitutes a calamity for the community. Anyone who has been an activist for a year has learned how the axiom of Concentrated Benefit over Diffuse Injury "demands" proof of a calamity.

4 • The Meaning of "No Safe Dose"

As a result of the axiom, we receive appeals again and again from citizen-groups who need an expert to swear that nuclear pollution in their locality is (or will be) a calamity. And since we are well known for stating that human evidence proves, "There is no safe dose of radiation," it is natural that we hear from these groups.

The word "safe" means free from risk of injury. Existing human studies combined with nuclear track-analysis show that every dose of ionizing radiation confers a risk of carcinogenic injury, even at the lowest possible total dose and dose-rate (Gofman 1981, Gofman 1990). Government statements are false when they say that it is impossible to know what happens at very low doses of ionizing radiation.

Our statement that there is no safe dose of ionizing radiation does not mean that every dose --- regardless of its size --- produces the SAME amount of hazard or qualifies as a calamity. Our books show again and again that the size of a radiation risk is tied to the amount of the accumulated dose and the number of people who receive it.

"Two billion people on the planet have no electricity. But they want it --- and how they get it is going to be one of the most critical environmental issues of the next century." • - Neville Williams, Solar Electric Light Fund (cited in 1993 by Sustainable Technologies International, Box 1115, Carbondale CO 81623).

Even after a nuclear accident as severe as Chernobyl, it is unrealistic for an irradiated population to feel, "We are all doomed," or "The children are all doomed." Although the aggregate number of Chernobyl-induced cancers will be very large --- at least a million over all time --- this will occur not because everyone in fallout areas has a HIGH personal risk of cancer from Chernobyl. It will occur because there is no safe dose, and therefore the accident creates a small extra risk of cancer for MANY people (over 500 million exposed individuals, inside and outside the ex-USSR).

The fact that the enormous health consequences of the Chernobyl accident are diffused among so many people is what allows powerful operation of the law of Concentrated Benefit over Diffuse Injury. Governments which sponsor nuclear power can say that personal cancer-risks even from Chernobyl are small. This assurance is supposed to inactivate public resistance to "routine" levels of nuclear pollution.

5 • Kiev's Children: Their Fate Was "Blowing in the Wind"

It would be much harder for people to obscure the health consequences of nuclear pollution if the wind and weather during the Chernobyl accident had happened to concentrate most of Chernobyl's fallout on Kiev, an ancient city of about two million people only some 50 miles south of the reactor-site. This could easily have happened, with a different combination of weather and a somewhat less powerful explosion (giving less altitude to the radioactive plume).

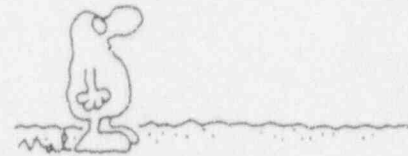
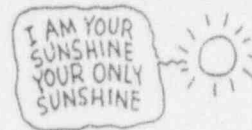
With very unlucky circumstances for Kiev, the whole-body doses from Chernobyl could have been high enough in that city to cause radiation-induced cancer sometime during the lifespan of one-third of all the young children exposed during the accident there. What sort of dose would do that? The answer is approximately 17.5 whole-body rems, average, per child (Chapter 5 in CNR's forthcoming book). Fortunately for Kiev (and for the nuclear power industry), the city was spared from such exposures, and the fallout was diffused over an enormous area inside and outside the ex-USSR.

6 • If the Sum Matters, Then Each Contribution Matters

Even when there is no safe dose of a pollutant, the individual risks and also the collective risks from a single local source of pollution or from a single release can be low --- but that does not necessarily mean that small releases of such pollutants are "born trivial."

With respect to nuclear pollution and every other type of persistent pollutant which lacks a safe dose, the following point deserves emphasis again and again:

What counts biologically is the SUM of all the injuries over time from ALL the combined sources and events which release persistent poisons (radioactive or other) into the biosphere. If the SUM matters biologically, then each contribution to the sum matters. Whoever consents to the small releases is consenting automatically to their worldwide SUM, whatever it turns out to be.



It follows that there should be no need for citizen-activists to argue that each small source of pollution by itself, in isolation, constitutes a calamity. Unless activists object to releases of "even one molecule," their opposition to small sources is both rational and morally imperative.

7 • De Minimis Policies on a Global Scale

Suppose that the United States adopts a de minimis policy toward pollution. Then every other nation is also entitled to such a policy. A likely result:

Polluters worldwide will actually release MORE (not less) of their total poisons by the simple technique of sub-dividing them in time and space, so that the consequence of each proposed release, by itself, can be convincingly presented as "too trivial to count at all."

We can expect the total poison produced by human activity to increase a great deal as living standards rise, at least for 2 billion very poor people. Moreover, as population expands from the current 5 billion toward 10 billion people, the total quantity of poisons produced by human activity is likely to increase by a very great deal.

Legalized and non-legalized releases of even a "trivial" fraction of a growing total could still be devastating.

8 • "But Humans Are Living Longer Than Ever!"

Devastating? With regard to poisonous emissions at very low levels, claims are made that diffuse injury to humans has never been proven and therefore is probably just imaginary. Suggestions that unproven means unreal are false. Dangerously false.

Pollutants which are mutagens, for example, injure the health of FUTURE generations. Genetic afflictions whose cause is not identified can build up gradually, over many generations of exposure. For this and other reasons, the cause-effect relationship between certain pollutants and human health problems can be real but NEVER provable.

Humans need some humility about unforeseen and unforeseeable consequences of messing with the ecosystem. In a system, by definition, everything is connected to everything else. It is said that toad populations are declining, worldwide. If true, then why? What else is occurring that we have not measured yet? What is next?

A familiar response of polluters and their defenders is that HUMANS are living longer than ever.

So? Increases in human lifespan might continue right up until the ecosystem which supports us collapses (if it ever does). There are many reasons for the increase in longevity, including sanitation, pharmaceuticals, and nutrition. Perhaps

we would be living even longer and in better health if it were not for pollution. Longevity and good health are not the same thing. (For example, many neurotoxins and genetic afflictions cause misery but not early death.)

With respect to debate over de minimis policies toward pollution, the song that "humans are living longer than ever" is a deceitful use of truth. Deceit is sometimes a sophisticated substitute for force used by people intending to PREVAIL.

9 • The Inherent Imbalance of Forces

The fundamental law of Concentrated Benefit over Diffuse Injury always operates in favor of specific polluters, not ever in favor of the general public.

This does not mean that citizens ALWAYS lose. For example, citizens have battled the Yucca Mountain nuclear waste repository to a current standstill. The odds against successful opposition were enormous at the outset, many years ago. But determined citizens, even without an immediate personal stake in the outcome, changed the odds little by little. We are in awe of their selfless and effective work.

On the other hand, all of us have an obligation not to let an occasional success blind us to reality. Citizens have inherently limited time and resources, whereas the number of abuses attempted upon them HAS NO INHERENT LIMIT. Thus, for every success, there are necessarily tens, or hundreds, or thousands of other abuses which are neglected. In addition, each success inspires well-funded campaigns by narrow, special interests to reverse the cumulative successes and --- in our field --- to cultivate the perception that people against nuclear (and other) pollution are fanatics who impose huge and unfair costs on society.

10 • A Win-Win Strategy --- with Limits

Correctly or not, polluters believe in a huge benefit for themselves from de minimis policies and lenient "permissible" releases. By polluters, we mean owners and employes from top to bottom in a polluting industry.

The polluters' belief in a huge benefit is the focus of action by many environmental organizations, which work to provide the polluters with an equally attractive benefit which can be achieved with less pollution. More efficient use of energy with equal or greater profits. Utility-owned solar energy instead of nuclear power. More efficient manufacturing with less waste-production and with equal or greater profits. Cost-effective recycling. No decrement in employment.

This strategy of coping with the axiom of Concentrated Benefit is sometimes truly a win-win affair. "Both sides" achieve what they want. Although CNR was a leader for some of these proposals in the early 1970s, we also must point out that an exclusive focus on the axiom's "benefit" side has limits.

"Emotional" Assertions about Human Rights

The win-win strategy tacitly assumes that the victims have the burden of creating a solution, and that the aggression (pollution) must continue if the victims can not think up and arrange an attractive substitute which pleases the aggressor. This strategy avoids "emotional" assertions about the RIGHT of ordinary people not to be dumped upon, not to be used in biological experimentation, and not to have the common heritage of ozone, aquifers, and remaining wildlife injured. But in the end, it may be impossible to avoid the issue of genuine human rights. An example:

"What's wrong with emotion? According to Webster's Dictionary, emotion simply means a strong feeling. Of course we feel strongly or emotional when we're engaged in struggles to protect the species and life-support systems of this planet ... To be called 'emotional' should not be something to run from ..."

• - Michael C. Colby (in 1993), editor, Safe Food News, RD 1, Box 30, Marshfield VT 05658.

When the need is to contain nearly 100 % of an activity's poison, the per-unit cost of containment is usually much higher for the last 10 % contained than the per-unit cost for the first 90 % contained. This makes better containment inherently unattractive to polluters. The chance of cost-effective recycling for the last 10 % of the poison is very low (and is non-existent for radioactive pollutants). The alternative of passing the extra containment cost along to customers is also unattractive. Why? Because (in general) the higher the price of something, the less people will buy of it.

In short, the hope of crafting a win-win solution on the crucial issue of ubiquitous, low-level emissions is often unrealistic. Without taking a stand on the human rights issue, what ground is there to stand on?

11 • Some Morally Dubious Strategies against Pollution

In contrast with the win-win strategy, some ways of coping with the law of Concentrated Benefit are morally dubious. We are shocked whenever a major environmental group appears to concede a right to POLLUTE. We quote an example from an influential group in 1991:

"The key to creating an environmentally sustainable global economy is partially to replace income taxes with environmental taxes --- taxing such environmentally destructive activities as burning fossil fuels, the use of pesticides, and the discharge of toxic wastes."

While it is true that sufficient taxation would reduce destructive activities, how does the proposal differ (in moral terms) from taxing homicide? "It's OK to commit premeditated random mayhem, provided you do less of it." Beside this, it would be difficult to create sufficient political support for punitive levels of taxation (not just lipservice). A difficult but morally better goal might be creating support for the position:

"Low-level pollution must stop because narrow special interests (polluters) have NO RIGHT to impose trespass, experimentation, or diffuse injury upon the general public and its common property."



"I've seen more people win what they wanted by informing themselves about the nature of the problem and the process that they're involved in, and then expressing their goals in terms of their feelings ... Our emotions were put into us by the evolutionary process for good reason ... I often hear government officials or corporate officials say this person is 'just an hysterical housewife.' I have high regard for hysterical housewives. I think they're a very good force in American society. And I think we need more of them."

• - Peter Montague, Ph.D., (in 1993), director of the Environmental Research Foundation, POB 5036, Annapolis MD 21403.

THE MEEK SHALL
INHERIT THE
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DESTROYED IT!



A Great Big Pitfall

The taxation approach is morally similar to the provision of the Clean Air Act which establishes "emissions allowances" for sulfur-dioxide from electric power plants. Utilities which bring emissions below the required levels obtain pollution credits (issued by government) to use for expansion or to sell to other utilities. The goal is to achieve a net reduction in total emissions, and to do it at plants where reduction is most cost-effective. Fine. Nonetheless, a market in government-issued pollution-credits is a statement that pollution at certain levels is not only legal but also morally legitimate.

If "environmental taxes" and "pollution-credits" succeed in reducing pollution, then it would appear that the policies help meet our moral obligation to future generations not to pollute and not to destroy the ecosystem. It can be argued that any strategy which moves society in the right direction must be morally right.

But when environmental taxes and pollution-credits legitimize pollution, they work in FAVOR of low-level pollution and de minimis policies. This is the WRONG direction. We repeat: If the SUM of individually small acts of pollution is what counts biologically, then no contribution to the sum is negligible.

12 • A Worthwhile Task for All of Us

The "iron law" of Concentrated Benefit over Diffuse Injury is so powerful in every aspect of life, and some of its consequences are so abominable, that victims are sometimes driven into strategies which they find morally distasteful. Such strategies are, themselves, a type of debasement and humiliation.

We have hope that humans can develop loftier strategies. A necessary requirement is that most people RECOGNIZE the nature of the universal law which favors injustice over justice --- even in peaceful democracies. Since this type of education so rarely comes "from the top," either grassroots activists will do it, or it will not occur. The ground for inventing good and effective strategies will be much more fertile when everyone is so aware of the axiom that it enters the folklore ... when just the two words, "Concentrated Benefit," can communicate the ages-old dilemma and the dynamics of it.

Successful solutions to the dilemma are far more likely to come from the grassroots than from prominent intellectuals who so often depend today, directly and indirectly, on approval from one special interest or another. We note that the

"founding fathers" of the United States were less beholden to special interests than today's professional intellectuals. The founding fathers actually addressed the law of Concentrated Benefit.

The preamble to the United States' Constitution speaks of a government which would promote the GENERAL welfare, meaning that laws would benefit the population at large, not benefit small sub-sets at the expense of the general public. In the text of the Constitution, its authors tried to LIMIT the areas of government activity --- limits which (if they had been honored) would have greatly reduced opportunities for narrow interests to "persuade" elected officials to operate on behalf of the narrow interests.

13 • A Central Goal, an Earth-Shaking Achievement

It is hard to imagine a more beneficial achievement in human history than the future development of GENERIC ways for the public to cope with the law of Concentrated Benefit over Diffuse Injury, and thus to prevent endless repetition of its many dreadful consequences (see Part 2).

Some years ago, an interviewer suggested to one of us (jwg) that it is too difficult for grassroots people to solve the BIG problems. He thought it was futile. I still answer now, as I answered then:

Of course it will be difficult to solve the big problems of humanity. But can you, or I, or anyone justify directing all our efforts toward solving trivial problems --- just because the ones we all really need to face are difficult?

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• - We encourage you to reprint this essay in whole or in part. Permission granted.

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