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To: <docket@energy.state.ca.us>
CC: "Lyn Harris Hicks" <lynharrishicks@cox.net>
Date: 10/2/2008 4:28 PM
Subject: CEC comments due today (October 2nd, 2008) -- re: CEC-100-2008-005-D

Re: AB 1632 ASSESSMENT OF CALIFORNIA'S OPERATING NUCLEAR PLANTS
(A Draft Report Prepared for the California Energy Commission)

October 2nd, 2008

To The Commissioners:

DOCKET	
07-AB-1632	
DATE	Oct. 2 2008
RECD.	Oct. 2 2008

The report prepared for you by MRW & Associates, Inc. is just another biased report you've commissioned. What little it says to warn you of the coming catastrophe, you will ignore, because you wish to continue to poison our world with invisible, undetectable (by human sense organs), extremely hazardous (by any reasonable standard) radioactive particles, and in order to do so, you apparently feel you need another report saying it's safe.

So you commissioned this piece of trash. Terrorism, let alone its roots, is not addressed, yet it's the primary concern -- for citizens. For the C.E.C., the primary concern seems to be protecting yourselves from prosecution, as revealed by the statement on page 3 of the report, saying that everyone connected with the report in any way assumes "no legal liability for the information" in the report. Yep, that's sure taking responsibility for your actions! NOT!

I'm sure MRW & Associates were carefully picked to produce this waste of bandwidth. Their web site is sparse on reassuring information, but shows that their founder and head was formerly a director of the Policy and Program Evaluation Office of the California Energy Commission. In that capacity, he undoubtedly helped establish and allow California's nuclear power plants.

MRW & Associates' clients include energy "generation owners and operators" which may well include SCE and / or PG&E among their western United States customers, where they focus their business. Another co-owner, prior to joining MRW in 1989, was an Energy Economist with PG&E. He's used to proving nuclear power plants are cost-effective, which he does by ignoring indirect costs such as the costs of cancer in the community after an accident or from routine operations. And the third owner? He's described as a "veteran of the California Energy Commission and the Transmission Agency of Northern California."

Their findings appear as biased as one would expect from their backgrounds. The C.E.C. couldn't have known precisely what they would say when MRW & Associates was commissioned to write their report, but they knew they'd carry on the trashy work of the previous decades, enabling San Onofre Nuclear Waste Generating Station (referred to as "SONGS" in the document) and Diablo Canyon to continue to operate as before, but older and more prone to failure, and more likely to melt down than ever.

I don't know where they get the rest of their staff, who wrote the nearly 500-page report (including 150 pages of appendices, but not including "public comments" (which do not include my own previous comments, which are mentioned in a footnote in the document (on page 33), and which are shown again below). In 500 pages, nowhere are the real issues discussed -- nowhere are there realistic descriptions of the health effects of accidents (or of operating plants). There is a picture of the ground rippled near Kashiwazaki-Kariwa Nuclear Power Station, but the wrong assumption is made -- that those plants didn't suffer "Genpatsu-Shinsai" somehow shows that ALL nuclear power plants -- and ours in particular -- are safe from catastrophic earthquake damage. It's a dream -- and no wonder the disclaimer at the front has very specific wording regarding seismic assessments.

Of the other three principles listed at the web site for MRW & Associates, none have degrees in the biological effects of radiation - it's all energy-related degrees and experience. Not a humanitarian in

sight.

Consequently, their report is highly biased and utterly unsubstantive. But we're expected to "bet the farm" on it. If we get this wrong, millions of Californians will die an insufferable, drawn-out, humiliating death. If it turns out nukes are totally safe despite the risks, we all might save a little money now, to be paid later, by someone else -- our children. Because they'll still have the waste problem to deal with.

The MRW & Associates report is biased because it ASSUMES the nuclear spent fuel problem is just a federal issue that the feds simply haven't solved yet (see page 23). It assumes they'll solve it eventually, somehow. The report's writers don't grasp that the reason it's unsolved at the federal level is that it's UNSOLVABLE and we need to stop making more waste. After 60 years, you'd think someone would have figured out that unstoppable forces inevitably break down all possible containments.

According to the report, "dry cask ISFSIs are considered by many experts to be safe and environmentally sound." Yeah, okay, I suppose they can find lots of well-paid "experts" who think so. I wouldn't want to actually BE one of those experts, standing next to that dry cask when a terrorist proves they aren't so safe! And worse, the next sentence after the one just quoted points out that there haven't been any serious dry cask accidents so far. Well, how many STATES would we need to lose before these jokers find another criteria than "it hasn't failed catastrophically anywhere YET so it must be safe!"? That's just not good enough -- this so-called 20-year safety record (which has had a number of problems, including fraud in the dry cask industry, lax security, etc. etc..) is utterly insufficient as proof that California should build hundreds -- and then thousands -- of dry casks. The statement by so-called "experts" that these things are safe sound just like the "experts" who thought the twin towers couldn't fall down. All it took was some terrorists with airplanes. Airplanes are STILL easy to get, and always will be. The threat will NEVER go away. Every dry cask is a hazard, a threat, a danger, and a costly mistake.

The draft report admits that the dry casks "may need to be repackaged" within just 40 to 50 years! This seems to be seen mainly as an employment opportunity, and financial consideration, but not a severe and UNNECESSARY additional risk all citizens of California will be forced to take, unless we turn away from nuclear power NOW (and then, still, somehow solve the waste problem). Each cask is an additional risk. The report's author's don't seem to understand that. Once they've said dry casks have some risk, they're done, without considering the multiplication of dangers. When there are hundreds of casks, even the extremely dangerous steps of "repackaging" (whatever that turns out to be; it's a sure thing MRW & Associates doesn't have a clue) will be repeated so often that those who are doing the work might become complacent. It happens all the time, but seldom with such dire consequences -- consequences which are IGNORED by this draft report. Such willful ignorance IS criminally negligent.

The report does admit that the waste "ultimately must be transported off-site" but doesn't BOTHER to recognize that the lack of solutions means it MUST be assumed that spent-fuel accidents WILL HAPPEN. And meanwhile, if the C.E.C. has its way, California's four aging nuclear plants will still be making more waste even as the older dry casks are crumbling or being hit by airplanes, earthquakes, tsunamis, and other "unforeseen" (by the C.E.C.) accidents or sabotage.

Nowhere is a spent fuel accident examined in great detail. In fact, the report admits (p. 24) that "current academic research into this issue is very limited." The report notes (p. 17) "a loss-of-coolant event in a re-racked spent fuel pool could result in extensive radiation release and contamination" but is not specific in any way -- a trillion dollar accident is not the same as a million-dollar accident which some trucking firm moving some typical hazardous substance might have -- a spent fuel accident could waste SoCal. Mentioning stuff is NOT the same as going into graphic detail about the pain of radiation-induced death by cell breakdown, for example. There is no sense of scale in the report -- a Chernobyl, a Bhopal, a bridge collapse -- does anyone at MRW know the differences?

A full-blown spent fuel accident -- dry cask OR pool, let alone both together -- would cost at least a trillion dollars, a million lives, and ruin California, turning it from the richest state in the nation into the poorest. Nowhere is that discussed in this propagandistic report. This report excludes the truth.

The "draft" report assumes that the proper way to judge nuclear power's environmental impact is to count the CO2 emissions of fossil fuel alternatives when "replacement power" is needed for an outage -- and it does this without even bothering to account for the nuclear fuel cycle's total costs, such as cancers among uranium mine workers, let alone the costs of cancers in the local community around the plant. And let alone all the other illnesses besides cancer which radiation causes -- heart disease, leukemia., birth defects, and about a thousand other things. Radiation creates "free radicals" throughout your body, leading to inflammation, DNA damage, and many other problems.

I'm sure if I dig far enough, I'll find that the document assumes nukes don't poison us (much) on a daily basis, don't cause cancer, don't destroy the environment, or I'll find it tells us it's not in their or the C.E.C.'s jurisdiction to think about that aspect of "daily releases" (or of accidents) including of noble gasses, which are unmonitored and unrestricted, and such contaminants cannot be filtered out of the daily waste stream.

This is their comment on the safety of dry casks during earthquakes (p. 18):

"The spent fuel pools and dry cask storage facilities at Diablo Canyon and SONGS have been designed to sustain a design basis ("safe shutdown") earthquake at the plants, and they are unlikely to fail due to an earthquake."

What proof do they have that these facilities will survive their "design basis," or that the "design basis" is good enough? There is every reason to suspect they can't even survive their "design basis" and it is well known that San Onofre's "design basis" earthquake is only a 7.0 on the Richter scale -- not nearly enough.

The MRW & Associates report quotes a notorious study by Robert Alvarez, which makes the mistake of claiming that, because spent fuel pools could be relieved of overcrowding, dry cask storage is therefore safe enough for use -- for hundreds, maybe thousands, of dry casks to be built.

Alvarez's report has, once again, been used to suggest that dry casks increase safety at nuclear facilities when what it really says is "dry casks are very dangerous, and spent fuel pools are, too." People who support nuclear power misunderstand the meaning of Alvarez's report regularly. (The Alvarez quote, as it appeared in the MRW & Associates report, is shown below).

It's time to shut San Onofre and Diablo Canyon. The longer we wait, the more we risk.

Sincerely,

Ace Hoffman
Carlsbad, CA

Additional comment on the Byron report:

Barbara Byron writes:

"Long-term, on-site dry cask storage should not prevent the transition of decommissioned plant sites to alternative uses."

This is a fantasy. No one should be anywhere near a dry cask.

See:

http://www.energy.ca.gov/2008_energypolicy/documents/index.html#100108

<http://www.energy.ca.gov/2008publications/CEC-100-2008-005/CEC-100-2008-005-D.PDF>

<http://www.energy.ca.gov/2008publications/CEC-100-2008-005/CEC-100-2008-005-D-AP.PDF>

Quotes from the report:

(from page 22 of the preliminary report:)

"In general, a dry cask storage facility is considered to have a lower degree of overall risk than a spent fuel pool. Over the last 20 years, there have been no radiation releases from a dry cask storage facility that have affected the public, no radioactive contamination, and no known or suspected attempts of sabotage. A major study on the risks of dry cask storage by Robert Alvarez, a Senior Scholar of Nuclear Policy at the Institute for Policy Studies, suggested that the use of dry cask storage at a nuclear power plant has the potential to reduce the overall risk associated with at-reactor storage of spent fuel, including the risk of seismic and terrorist events, since dry cask storage would allow the spent fuel pools to be returned to their original configuration and design loading."

(also from page 22 of the preliminary report:)

An outage would also pose environmental consequences, since the replacement power would be largely natural gas-fired. The simulations found that an outage at either nuclear plant would increase in-state greenhouse gas emissions from power generation by seven to eight percent, or roughly 4.3 to 4.7 million tons of CO₂. Out-of-state replacement generation would add an additional 2.2 to 2.8 million tons of CO₂, for a total greenhouse gas impact of approximately 7 million tons of CO₂.

(from page 24 of the preliminary report:)

The experiences of several communities in other parts of the U.S. suggest that a dry cask storage facility at a plant site should not prevent the full decommissioning of the remainder of the plant site and the conversion of most of the site to alternative, productive uses. More study is required to assess the impact of a dry cask storage facility on local property values, business, and tourism, as current academic research into this issue is very limited.

(from page 25-26 of the preliminary report:)

Nuclear Waste Accumulation at Diablo Canyon and SONGS

Diablo Canyon and SONGS produce significant quantities of radioactive waste in the form of spent fuel and other radioactively contaminated materials. These wastes must be carefully handled, stored, transported, and disposed of in order to protect humans and the environment from exposure to radioactive materials. Spent nuclear fuel, which is extremely radioactive, must be stored in a water-filled pool for a minimum of five years following removal from the reactor core to shield against high levels of radiation.

As previously discussed, Diablo Canyon and SONGS lack sufficient spent fuel pool capacity to store the quantity of spent fuel produced over the period of their operating licenses, which extend into the 2020s. As a result, PG&E and SCE have been forced to increase the on-site storage capacity for spent fuel by constructing dry cask storage facilities.

PG&E and SCE have taken different approaches for the design and use of on-site dry cask storage facilities at Diablo Canyon and SONGS. PG&E has designed and permitted a dry cask storage facility for Diablo Canyon that will allow the utility to transfer and store 100 percent of the spent fuel produced during the current operating license. This would allow PG&E to decommission Diablo Canyon's spent fuel pool at the end of the current license if needed. SCE has designed a dry cask storage facility for SONGS with a capacity to store 36 percent of the spent fuel generated during the current license period and intends to rely on its spent fuel pool

to store the remaining spent fuel. Additional storage space would be required if SONGS were to continue operating past its current license or if SCE wanted to decommission the SONGS spent fuel pools before off-site spent fuel storage is available. Moreover, the total planned combined storage capacity at SONGS will be sufficient to store just 98 percent of the spent fuel expected to be produced during the plant's current operating license. In order to accommodate the remaining spent fuel, SCE will need to secure offsite storage or develop additional capacity. SCE has not yet determined how it will manage the extra spent fuel.

The costs for constructing and loading the dry cask storage facilities are substantial. On a present value basis, the total cost is \$160 million for Diablo Canyon and \$300 million for SONGS. Since the dry cask storage facility at SONGS is just 40 percent the size of the Diablo Canyon facility and nearly twice as expensive, the SONGS facility is three to four times as expensive per fuel assembly.

In June 2008 the U.S. Department of Energy (DOE) filed a license application for a permanent geologic repository for spent fuel at Yucca Mountain, Nevada. If the license is granted, Yucca Mountain will begin operations most likely after 2020, over 20 years after the January 1998 statutory and contractual deadline for beginning to accept spent fuel from utilities. PG&E and SCE have sued DOE for reimbursement of their ISFSI costs, claiming that this delay represents a breach of contract. PG&E received a favorable judgment that provides for reimbursement of certain dry cask storage costs while denying other claims. PG&E is currently appealing the decision. A trial date to hear SCE's claim has not been set.

Utility dry cask storage is an interim solution for waste disposal. PG&E's facility is designed for a lifetime of 50 years, and the canisters used in SCE's facility are designed for a lifetime of 40 years. If the spent fuel is not transported off-site within the design lives of the dry cask storage facility components, the spent fuel may need to be repackaged on-site and transferred into new storage canisters, or the current canisters or other cask storage facility components may need to be bolstered. At this time there are no estimates as to how long the spent fuel will remain in interim dry-cask storage, and no additional off-site or on-site interim fuel storage facilities are being considered by either PG&E or SCE.

If a federal repository is established, spent fuel will need to be packaged for transport, aging, and disposal (TAD). DOE has not yet established federal TAD packaging requirements, forcing PG&E and SCE to move forward with dry cask storage cask designs that may not be compatible with the TAD requirements. The costs for transport of spent fuel to off-site storage or disposal facilities will be substantial, including costs for security, accident prevention, and emergency preparedness. Policies are being developed to federally fund state and county emergency response preparation; however, California has claimed that the proposed federal program may be insufficient, both in the planned timing of the grant program and the amount of the proposed grants for state planning and for training emergency response personnel to respond to potential accidents involving California's spent fuel shipments.

Original comments:

Date: December 13th, 2007
To: docket@energy.state.ca.us
Re: Submission for California Energy Commission Docket No. 07-AB-1632, "AB 1632 Assessment"

To The Committee,

Attached in pdf form is my submission for Docket No. 07-AB-1632. I have also included the statement in

text form below. I would hope that you will consider my views very carefully and seriously, but I know better -- you won't.

Sincerely,

Ace Hoffman
POB 1936
Carlsbad, CA 92018

Date: December 13th, 2007
To: docket@energy.state.ca.us
Re: Submission for California Energy Commission Docket No. 07-AB-1632, "AB 1632 Assessment"

To The Committee,

On average, every working American spends about TWO DAYS A WEEK building, using, or paying for America's weaponry, and the means to convey that weaponry to where it will be used. At least a quarter of all fuel -- including nuclear fuel -- used by this country goes to war-related activities.

It is impossible to be a productive nation when so many raw materials and so much talent and time is spent on destruction.

But the most insidious thing about modern warfare is that it kills civilians -- lots of civilians. People like you and me.

The United States military operates, day or night, war or peace, under dozens of special exemptions to environmental regulations. Regulations which everyone else on the planet MUST adhere to. The result is radioactive and chemical pollution on a global scale -- not just where the wars occur, but also at training areas and manufacturing facilities.

The tools of modern war include Uranium-238 munitions (aka "DU"), now infamous for causing "flaming pee" (a terrible burning sensation when you urinate) and other ailments in our own veterans, and for causing grossly deformed children in Iraq, Afghanistan, and Kosovo.

The tools also include U-235 / Pu-239 munitions (aka "nuclear weapons" or "atomic bombs"). Although these "tools" have only been used twice in war so far, in Hiroshima (primarily a U-235 weapon) and Nagasaki (primarily a Pu-239 weapon of slightly greater sophistication), those uses were demonstration projects for the world to see what was to come.

Total destruction. Not just your soldiers killed, but your records destroyed, your buildings burned, your history obliterated, your museums, schools, factories, sewage systems, water systems -- everything, blasted, burned, and worst of all -- irradiated.

Thousands, even millions of people in desperate need of medical care which is utterly unavailable. Suffering beyond words. A holocaust. A war crime.

Nuclear war has been threatened a thousand times since its invention and early use. Our current president has threatened it frequently, which constitutes cruel and unusual punishment in and of itself -- the threat is distressing to those threatened.

Which is all of us. Every nuclear threat has a counterthreat somewhere. Every escalation of a war has a counterinsurgency to match. Every time George Bush gets us into another war, America becomes more vulnerable to retaliation.

The military has long pushed the idea that our mighty armies are the only thing that keeps us free, safe, secure, and comfortable at home.

But I'll wager we were safe because we were the shining city on the hill for so long. The place everyone wanted to be. The place that people wanted to honor with tributes such as the Statue of Liberty -- THAT place was safe! People came here NOT to terrorize us, but to BE us! But we've become greedy, cloistered, cold-hearted, and ignorant.

In addition to bombing two cities in Japan during World War II, the U.S. alone has conducted more than a thousand nuclear "tests." We've irradiated dozens of islands in the Pacific, and parts of Nevada, New Mexico, Alaska, Colorado, and Mississippi, with atomic bomb debris. And that's not counting the "downwind" effect on Utah, Wyoming, and every other state (and every nation).

Additionally, we've piled up nuclear reactor cores -- spent fuel -- at nuclear power plants in dozens of states -- all with an unkept promise that the waste would be quickly removed. For 60 years the nuclear weapons and power industries have looked for a solution, but they keep coming back to: "Drive it 50 miles into Indian territory and dump it" which is all Yucca Mountain really amounts to.

While in transit, the waste is vulnerable to bridge collapses, train derailments and tunnel fires, sabotage, and a thousand other things. The government claims their transport containers are "safe" but they define "safe" very narrowly -- for example, as being able to probably survive a 30 foot drop onto a 6 inch post. Such testing does not reflect the real-world hazards. In their carefully-contrived theoretical "worst case" scenarios, almost no fuel is ever actually released, which means they don't have to calculate what happens if just one hour's worth of one reactor's spent fuel -- about 10 pounds's worth -- ever got out into the environment. The size of the catastrophe from that 10 pounds would depend on the precise location and weather conditions at the time. But one hour's worth of spent fuel could kill MILLIONS if released to the environment. And yet, we keep making more.

We're waiting for a solution to the physically unsolvable -- that is to say, impossible -- problem of storing something that destroys its container by irradiating it (and thus breaking down the molecular and atomic structure of the steel, concrete, glass, or what-have-you). In the meantime, the deformity-causing, cancer-causing, disease-causing, boiling-hot (thermally) concentrations of "hot" (radioactive) isotopes are each glowing, growing targets for retaliatory strikes against America, along with the operating reactors.

As little-known expert Bennett Ramberg put it in a UPI Op-Ed from May 2005: "Nuclear power plants are naked against a Sept. 11, 2001-like air attack." Twenty years earlier Ramberg wrote a whole book on the subject of nuclear terrorism, which was ignored by government and the nuclear industry, and was called: "Nuclear Power Plants as Weapons for the Enemy: An Unrecognized Military Peril." We still ignore him, at our own risk.

In the drive to create a nuclear-powered, nuclear-weaponized society, profits were made all along the way. Lying to ourselves about how corporations make profits on other people's misery does not stop evil from happening. Rather, it enables it.

Uranium-238 munitions, the shells and bombs used by the thousands every day in Iraq, leave a poisonous legacy. America, right now, is poisoning the area known as the cradle of civilization. We grew up calling it Mesopotamia. The name Iraq doesn't convey its 10,000+ year history of human settlement.

An interesting side-effect of our use of Depleted Uranium weapons is that, because of their extraordinarily-long half-life of four and a half billion years, the evidence of our assault on civilians who have not even been born yet, will be detectable (with sophisticated equipment) for about 50 to 100 billion years. The earth is only about 5 billion years old, according to the geological record!

Two, or ten, or a hundred generations from now, or a thousand, anyone will be able to find clear evidence of our use of uranium weaponry. Uranium fragments. Deformities among the local population. All these

things will be discernable. Future generations of Americans will probably have to pay reparations for today's use of radioactive tools of war.

Tools which are already illegal by numerous international conventions.

Tools which also sicken and endanger the lives of our own soldiers and their families.

Profitable? VERY! Depleted Uranium is free -- the nuclear fuel reprocessing centers are just DYING to give it away. And it cuts through buildings and enemy tanks (and bodies) like a hot knife through butter. AND THEN IT TURNS INTO POISON GAS! You can find radioactive fragments, and you can detect the uranium with a Geiger Counter, but the bombs and bullets will have mostly vaporized -- become poison gas -- and some of that will spread out globally before getting into crops, drinking water, babies, you and I.

Modern warfare is, more than anything else, an assault -- largely hidden -- on civilians, and on humanity at large. Just as with each breath, we each breathe some part of Caesar's last breath, so too the deadly DU dust from EACH war will poison ALL seven billion+ people on the planet, including more than a billion children.

The deadly dust will poison the rich and the poor alike, but the poor will have no access to health care.

We, the American Couch Potato, allow this in our name. Our government is currently the world's greatest terrorist, JUST on the basis of its use of U-238, and threatened use of U-235 and Pu-239 weapons. The shining hill now glows with radioactivity, and its citizens suffer with cancer.

Our inability to admit that radioactive weapons MUST be banned, and that large radioactive targets (aka "nuclear power plants") must ALSO be closed forever, makes us guilty of mass murder by complacency.

None of us are innocent anymore -- except the children of course, who are 10 to 100 times or more, MORE VULNERABLE than adults to nuclear radiation dangers, and who trust us to protect them from ALL the horrors of the real world, even the invisible and insidious ones.

Stop the radiation assault, and you go a long way towards stopping cancer, leukemia, birth defects and other ailments. Those who promote nuclear power promote death, destruction, undemocratic principles, and global suffering. But those who say nothing and simply let it happen are their single biggest and most powerful group of supporters.

When the tsunami occurred in 2004, many people died because they ran out to where fish were flapping, where the water used to be. A tidal wave of ignorance and apathy is occurring on this planet. New technologies COULD replace ALL the nuclear power in use on earth in a matter of MONTHS -- maybe even weeks -- if society put its global industrial strength to work building alternative energy systems with currently-available designs.

But instead, we continue to upgrade old nukes, and even build new nukes. Each one creates about 250 pounds per day of radioactive "spent" fuel. Enormous amounts of fossil fuels and chemicals are used to process the nuclear materials, and to keep the nuclear power plants in "working" order -- producing more waste. Nuclear power is not the solution to global warming or anything else.

There is NOTHING good about nuclear power. Those who run the plants, build the weapons, and process the fuel staunchly defend their "right" to pollute your body with odorless, colorless, tasteless, and extremely carcinogenic radioactive isotopes, and few of us even know it is happening.

Those who DO know can and MUST stop this madness. Cancer rates are soaring; every family suffers.

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The author, an educational software developer, has studied nuclear issues for more than 35 years, and writes frequently about nuclear weapons and nuclear power. He offers a large collection of free, informative nuclear animations at his web site. To receive his newsletters directly, please contact him at: rhoffman@animatedsoftware.com

To visit the author's web site:
www.animatedsoftware.com

Inclusion: Recent Reuters article about increased cancer risks around nuclear power plants. Note that past studies done on the subject which show NO significant effects are invariably grotesque examples of "how to lie with statistics," doing everything wrong, from not bothering to account for distance from the plant, to not adjusting for odd-shaped county districts, to not accounting for the prevailing wind directions, and so on.

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December 8, 2007: Child cancer risk higher near nuclear plants: study

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A German study has found that young children living near nuclear power plants have a significantly higher risk of developing leukemia and other forms of cancer, a German newspaper reported on Saturday.

"Our study confirmed that in Germany a connection has been observed between the distance of a domicile to the nearest nuclear power plant and the risk of developing cancer, such as leukemia, before the fifth birthday," Suddeutsche Zeitung newspaper quoted the report as saying.

The newspaper said the study was done by the University of Mainz for Germany's Federal Office for Radiation Protection (BFS). A copy of the report was not immediately available.

The researchers found that 37 children within a 5-kilometer (3-mile) radius of nuclear power plants had developed leukemia between 1980 and 2003, while the statistical average during this time period was 17, the paper said.

The newspaper cited an unnamed radiation protection expert familiar with the study who said its conclusions understated the problem. He said the data showed there was an increased cancer risk for children living within 50 kilometers of a reactor.

German Environment Minister Sigmar Gabriel said in a statement that he would examine the study. He said the BFS should also evaluate its findings.

Germany plans to prematurely shut down all of its nuclear power plants by the early 2020s.

(Reporting by Louis Charbonneau)

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