

CANCER

AND LIMERICK NUCLEAR PLANT'S ROUTINE RADIATION RELEASES

A BODY OF EVIDENCE COLLECTED BY ACE SINCE 2000, AND SUMMARIZED IN THIS REPORT SHOWS WHY LIMERICK NUCLEAR PLANT IS A MAJOR FACTOR IN SKYROCKETING CANCER INCREASES IN COMMUNITIES AROUND IT, FAR ABOVE THE NATIONAL AVERAGE, ESPECIALLY IN CHILDREN.

TO PROTECT THE NUCLEAR INDUSTRY NRC, THE REGULATORY BODY, HAS BEEN ENGAGED IN BASELESS DENIAL, AND NOW A CANCER STUDY, THAT WE BELIEVE WILL CLAIM THERE IS NO LINK. BUT INDEPENDENT RESEARCH ON RADIATION AND CANCER DATA IN THIS REPORT ARE IRREFUTABLE!

THE LINK IS CLEAR!

- Limerick Nuclear Plant Routinely Releases Radiation Into Our Air and Water.
- Limerick's Radiation In Our Air, Water, Soil, Vegetation, Food, and Milk, Gets Into Our Bodies.
- Radiation Can Cause Cancer At Any Level. We Face Many Routes Of Exposure.
- After Limerick Nuclear Plant Started Operating, Our Cancer Rates Skyrocketed, A Fact Documented By PA Cancer Statistics and CDC Website. **Closing Limerick Is Imperative For PREVENTION!**

RADIATION - "NO SAFE DOSE"

- Radiation exposure can cause cancer and other serious disease and disability, at any level of exposure according to the National Academy of Sciences and Physicians for Social Responsibility.
- Permissible radiation levels does not mean they are safe.
- Fetuses, infants, and children are the most impacted.
- Infant mortality has been linked to radiation from nuclear plants. State data documents that Infant and neonatal mortality are far higher in communities around Limerick Nuclear Plant than the state average, as well as far higher than Philadelphia or Reading.

CANCER - DOCUMENTED INCREASES

- When there is NO SAFE DOSE, Limerick Nuclear Plant's routine radiation releases are clearly a major factor in skyrocketing cancers rates in communities near Limerick, climbing far above the state and national averages after Limerick started operating. Since 1985, Limerick Nuclear Plant routinely released radiation into the region's air and water. Limerick's radiation contaminated water, soil, sediment, food, fish, pets, and people.
- Alarming cancer data reports, based on the PA Cancer Registry and CDC website are irrefutable. Four cancer studies show elevated cancer rates near Limerick Nuclear Plant.
- **The following cancer data represents actual documented skyrocketing cancer increases, far higher than the national average after Limerick Nuclear Plant started operating in 1985 to 1999.**

CHILDHOOD CANCER

92.5 % Higher Than The National Average

In Six Communities Close To Limerick Nuclear Plant

Pottstown , West Pottsgrove, Lower Pottsgrove, Upper Pottsgove, North Coventry, Douglass Berks Township

(Ages 0-19) All Cancers Diagnosed from 1995-1999
Rate per 100,000

<u>Type of Cancer</u>	<u>Cases 0-19</u>	<u>Gr. Pottstown</u>	<u>U.S.</u>	<u>%AboveU.S.</u>	<u>Significance</u>
All Cancers	40	28.33	16.04	+ 76.6	p<.02
Leukemia	13	9.21	3.89	+136.8	p<.055
Brain/Central Nervous Sys.	7	4.96	2.98	+ 66.4	
Kidney/Renal Pelvis	5	3.54	0.73	+384.9	p<.09
Non-Hodgkin's Lymphoma	4	2.83	1.04	+172.1	
All other	11				

(Source: PA Cancer Registry)

Note: Rates calculated using 1990-99 annual Greater Pottstown population 0-19 of 14,120.

For example, leukemia rate = 13 cases/10 years/14,120 x 100,000 = 9.21.

Joseph Mangano, MPH, MBA Radiation and Public Health Project New York, NY June 25, 2003

- Rates are **MUCH HIGHER** for **FOUR** of the **CANCERS** most common in children.
- Rates are **SIGNIFICANTLY HIGHER** for **ALL CANCERS** and **LEUKEMIA**
- Rates are **BORDERLINE SIGNIFICANT** for **KIDNEY/RENAL PELVIS**.

*Half Of Childhood Cancers Above Are Leukemia and Brain/Central Nervous System Cancers
Both have been associated with radiation exposure.*

UPWARD TREND SHOWS A LINK TO LIMERICK

Limerick Started Operating In 1985

By Late 1980's Rates Were About - 30 % HIGHER than the NATIONAL AVERAGE

By Early 1990's Rates Were About - 60 % HIGHER than the NATIONAL AVERAGE

By Late 1990's Rates Climbed To - 92.5 % HIGHER than the NATIONAL AVERAGE

Late 1990's Rates Were Almost 100 % HIGHER than the STATE and TRI COUNTY

Nationwide, cancer is the #1 disease-related death in children. All children are exposed to similar environmental pollutants, including pesticides and herbicides, cleaning chemicals, mold, second hand smoke, vehicle emissions, and even genetic factors. Logic suggests that when major cancer causing pollution sources are added factors to overall common causes for cancer in children, rates will be far higher.

- Limerick Nuclear Power Plant Routinely Releases Radiation Into The Air, Water, and Soil. Additive, Cumulative, and Synergistic Radiation Exposure Is Logically A Major Factor In The Dramatic Upward Trend Of Childhood Cancer Rates In Communities Close To Limerick.
- Research In the U.S. and Europe Shows Links Between Nuclear Plants and Childhood Cancer Increases.

It's Not Surprising That Childhood Cancer Rates Near Limerick Skyrocketed Above National, State, and Tri-County Averages.

1. A CDC report confirmed vast numbers of chemicals in the bodies of people.
2. The Radiation and Public Health Project confirmed that children in this region have high levels of Strontium-90 radiation in their teeth. This study, while only looking for one kind of radiation in our children, Strontium-90, confirms that the radiation released at Limerick Nuclear Power plant is getting into the bodies of children in the area. Strontium-90 is not a naturally occurring radiation.
3. March, 2003, EPA reported that fetuses and children under two are the most vulnerable to certain cancer causing and mutagenic chemicals (10 times more vulnerable). Children 3 to 15 are 3 times more vulnerable. The youngest in society are most susceptible to the effects of radiation.
4. Developing fetuses, infants, and children are most susceptible to the harmful effects of radiation. Childhood cancer is a key indicator of impacts. Pregnant women in this region and then their newborn babies are exposed to the routine and accidental radiation releases from Limerick Nuclear Power Plant.
5. When babies are born with toxic chemicals in their bodies, then exposed daily through their lungs, skin, and eyes to additive, cumulative, and synergistic combinations of toxic chemicals, including the most damaging, radiation, the harmful impacts we have uncovered should not be surprising.
6. Skyrocketing childhood cancer rates are not the only sign that Limerick Nuclear Power Plant's routine and accidental radiation emissions may have had harmful impacts on our region's fetuses and children, as evidenced by:

Other Documented Harmful Impacts On Children In Our Region

- ✓ Elevated infant and neonatal mortality at rates far higher than the state average, and even higher than Philadelphia and Reading.
- ✓ Learning disability increases at rates twice the state average (1990 to 2000):

Links to Limerick Nuclear Plant Are Obvious:

Unnecessary suffering of our region's children and their families, plus astronomical financial costs - (For just one child with cancer \$2.2 Million Tracked and Still Climbing) and environmentally linked disease and disability in our children can and must be prevented with the political will to take precautionary measures to CLOSE LIMERICK NUCLEAR PLANT NOW. Childhood cancer was a major factor in Germany closing their nuclear plants.

➤ Limerick Nuclear Plant's Routine and Accidental Releases Will Only Stop When Limerick Closes. Every Day Limerick Operates, Our Region's Children Are At Risk.

Childhood Cancer

71% INCREASE

In Montgomery County

Home of Limerick Nuclear Power Plant

1981-89 vs. 1990-98
Deaths from Neoplasms in Children Ages 1 to 14 Source: CDC Website

**Childhood Cancer Deaths Are Up In Montgomery County,
While Down In Neighboring Counties, PA, and the US**

Chester County 29.0% Decrease

**Note: Anecdotal Reports Suggest Chester County Communities Bordering Limerick
North Coventry, East Coventry, Parkerford, Spring City, East Vincent, East Pikeland, Phoenixville
Appear To Have High Rates Of Childhood Cancers**

Berks County 30.6% Decrease

Pennsylvania 17.1% Decrease

U.S. 21. 2% Decrease

- Limerick Nuclear Plant, located in Montgomery County, started to operate in the mid 1980's, routinely releasing radiation into the air, water, and soil.
- Limerick Nuclear Plant's radiation emissions are likely a major factor in increased childhood cancer deaths in the county.
- The American Academy of Pediatrics states that children are extra sensitive to the DNA-damaging effects of radioactive energy.
- The Chernobyl experience confirmed that children are by far the most vulnerable to radiation exposure, even in relatively small doses.

Children Are The Barometers Of Our Society
Childhood Cancer Death Rate Comparisons Should Serve As A Warning To
Close Limerick To Protect Children

STRONTIUM-90 - THE SMOKING GUN

Limerick Nuclear Plant Released Strontium-90 Into Our Air and Water Since 1985

**SR-90 Serves As A Marker Showing Radionuclides Released From Limerick
Get Into Our Environment And Our Children**

Exelon's 2009 Radioactive Monitoring Report Confirms:

Strontium-90 Is In Our:

- ✓ **Water**
- ✓ **Soil**
- ✓ **Milk**
- ✓ **Vegetation**

RPHP Tooth Study On Baby Teeth Around Limerick Nuclear Plant Confirms:

Strontium-90 Is In Our Children

SR-90 in baby teeth of children living near Limerick Nuclear Plant show some of the highest levels of Strontium-90 of any area around other U.S. nuclear plants studied.

SR-90 in our children's teeth is obviously from decades of Limerick Nuclear Plant's SR-90 releases.

- ✓ Strontium-90 was routinely released into our air and water from Limerick Nuclear Plant since 1985.
- ✓ SR-90 was detected in testing around Limerick in water, milk, soil, and vegetation (2009 Exelon Report).

Childhood Cancer Rates Skyrocketed To 92.5% Higher Than The National Average By 1999.

Children living near Limerick Nuclear Plant have some of the highest cancer rates in the U.S. The upward trend in childhood cancer stated after Limerick started operating in 1985. Childhood cancer rates rose from 30% higher than the national average in the late 1980s to 92.5% higher in the late 1990s.

Strontium-90 (Sr-90) Research

Links SR-90 To Bone Damage and Cancer:

Strontium-90 (Sr-90) Links to Limerick and Research

- The Radiation and Public Health Project's "Tooth Fairy Study" showed SR-90 in baby teeth of children living near Limerick Nuclear Plant have some of the highest levels of Strontium-90 of any area around nuclear plants or other areas studied in the U.S.
- Children living near Limerick have suffered some of the highest cancer rates in the U.S., skyrocketing after Limerick opened in 1985 to the late 1990s.
 - Childhood cancer rates rose from 30% higher than the national average in the late 1980s to 92.5% higher in the late 1990s. Limerick started operating and releasing SR-90 in 1985.
- Exelon's 2009 Radiological Monitoring Report for Limerick confirms SR-90 is in our water, soil, vegetation, and milk.
- Signature cancers of Sr-90 are cancers of the bone, including Ewing's Sarcoma.
- Sr-90 closely resembles calcium and is readily taken up into the bones and teeth - considered the most hazardous bone-seeking element of nuclear fission because it so closely resembles calcium.
- Sr-90 lodges near the bone marrow, where stem cells form blood and immune system cells, increasing risk of many forms of cancer, especially in newborn infants.
- Sr-90 is considered very hazardous because of its long half-life of 28 years. Low dose exposure to Sr-90 is so serious because of protracted exposure over periods of days, months or years.
- Research confirms that low dose exposures over months or years can be hundreds to thousands of times more damaging than the same dose received in short diagnostic medical exposures or flashes from a nuclear bomb explosion. (Petkau)
- Damage is known to involve the developing immune, hormonal, and central nervous systems of infants and children.

For the most reliable information on links between Strontium-90 in baby teeth and nuclear plants, the best source is the well researched and informative book: *Radioactive Baby Teeth: The Cancer Link* by Joseph Mangano, Radiation and Public Health Project.

NRC's Illogical, Unsubstantiated Denial Of SR-90 Source Is Not Credible.

5-18-11, NRC's Branch Chief, Paul Krohn blamed 50-year old bomb testing stating, "*Bomb testing didn't stop that long ago – from a scientific perspective SR-90 in teeth is from bomb testing.*"

It is not credible for NRC to claim SR-90 found in the early 2000s, found in our region's water, soil, vegetation, and milk, and the baby teeth of our children is from decades old bomb testing far distances from us, when Limerick Nuclear Plant has been releasing SR-90 into our air and water since 1985.

Radioactive Baby Teeth: The Cancer Link



Joseph J. Mangano

Radioactive Baby Teeth by Joseph J Mangano

\$20.00 Online price **\$18.00** Member price [Join Now](#)

Publisher: Radiation and Public Health Project

Pub. Date: March 2008 ISBN-13: 9780615168753 164pp

Synopsis

In 2001, college administrators entered a remote, musty storage room near St. Louis. Not knowing what was in the room, the group was puzzled to find a large wall with hundreds of long boxes stacked against it. They pulled out one of the boxes, took off the cover, and found --- baby teeth.

Quite by accident, the group had unearthed 85,000 baby teeth left over from a study done decades before. The study had found how much radiation from atomic bomb tests had entered human bodies, by testing teeth.

News of the discovery spread like wildfire in newspapers across the country. Coverage focused on the fact that the teeth could answer a critical question - how much cancer was caused by radiation exposure?

In this book, read about the mystery faced by scientists of how much radiation from nuclear weapons and reactors actually infiltrated people's bodies - and how much cancer it really caused. Learn about the furious opposition researchers faced from government and industry. Discover how the research helped end above-ground nuclear testing, how it challenged the claim that nuclear reactors are safe, and how it exposed an undeniable link with cancer.

Joseph Mangano draws on his direct experience and his involvement with scientists and citizens to create a lively, intriguing story - a story that continues today. Mangano is a health researcher, and is Executive Director of the Radiation and Public Health Project, based in New York.

Baby Teeth Studied From Around Limerick Nuclear Plant Had Some Of The Highest Levels Of SR-90

CANCER

ALARMING INCREASES

After Limerick Nuclear Power Plant Started Operating

**In Montgomery County, PA
Home of Limerick Nuclear Power Plant**

Montgomery County - From 1985-86 To 1996-97

• Prostate	INCREASED	132%
• Thyroid	INCREASED	128%
• Kidney	INCREASED	96%
• Multiple Myeloma	INCREASED	91%
• Hodgkin's Disease	INCREASED	67%
• Non-Hodgkin's Lymphoma	INCREASED	61%
• Breast	INCREASED	61%
• Pancreas	INCREASED	54%
• Leukemia	INCREASED	48%

Source: Pennsylvania State Cancer Registry

CANCER RATES

FAR HIGHER

Than U.S. and Tri County Averages

In 8 Of 11 Most Common In U.S.

PA Cancer Registry Statistics 1995 - 1999

In 6 Communities Close To Limerick Nuclear Power Plant

Lower Pottsgrove, Upper Pottsgrove, West Pottsgrove, Pottstown, North Coventry, Douglass Berks

Compared To U.S. and Tri County

<u>Type of Cancer</u>	<u>Above U. S.</u>	<u>Above Tri County</u>
Kidney/Renal Pelvis	+ 60 %	+ 42.7 %
Rectum	+ 44 %	+ 13.5 %
Uterine	+ 44 %	+ 38.7 %
Breast (female)	+ 39 %	+ 24.5 %
Brain/Cent. Nervous Sys.	+ 38 %	+ 32.5 %
Urinary Bladder	+ 35.5 %	+ 17.9 %
Colon	+ 21 %	+ 3.3 %
Lung	+ 11.8 %	+ 18.4 %
Leukemia	+ 11.5 %	+ 14.9 %

THYROID CANCER

And

Limerick Nuclear Plant

**Since 1985, When Limerick Nuclear Plant Started Operating,
Thyroid Cancer Rates Soared In Montgomery County,
Home Of Limerick Nuclear Plant**

1985-86 to 1996-97

128% Increase

Source: PA Cancer Registry

1998,1999, 2000

75% Higher Than U.S. Rate Also Rising

Source: CDC Website

LINKS ARE CLEAR BETWEEN Limerick Nuclear Plant's Routine Radiation Emissions And Horrific Thyroid Cancer Rates Around It

- Nuclear plants, including Limerick, routinely release Radioactive Iodine-131.
- Thyroid cancer is one of the most radiation-sensitive cancers.
- Limerick Nuclear Plant's routine Iodine-131 radiation releases into our air and water impact the thyroid. Radioactive iodine-131 seeks out the thyroid gland and destroys its cells.
- Distribution of potassium Iodide pills issued to residents within 10 miles of a nuclear plant to protect the thyroid in case of an accident or terrorist attack is proof.
- But when Radioactive Iodine-131 is also routinely released by Limerick Nuclear Plant it is easy to understand why thyroid cancer rates are so far higher around Limerick Nuclear Plant .
- Thyroid cancer increases around Limerick are shocking.
- Residents Closest and Downwind Have The Highest Thyroid Cancer Rates.

Counties Closest To And Downwind From Limerick Nuclear Plant Are Shown To Be Most Impacted By Limerick's Radioactive Emissions

Thyroid Cancer Rates Are Far Higher Than National Average

Montgomery County 56.2 % Higher THAN U.S.

Chester County 53.9 % Higher THAN U.S.

Berks County 14.6 % Higher THAN U.S.

Berks County, While Upwind From Limerick's Radioactive Emissions, is still higher than the U.S. Average

Source: U.S. Centers for Disease Control and Prevention, <http://statecancerprofiles.cancer.gov>.
Rates adjusted to 2000 U.S. standard population.

Considering the U.S. average (1980 – 2006) increased 154.7 % and PA (2001- 2005) had the highest thyroid cancer rates in U.S. - makes thyroid cancer rates so much higher than the national average in counties impacted by Limerick even more alarming.

THYROID CANCER "Epidemic" Around Nuclear Plants

Research Links Thyroid Cancer and Radiation Emissions From Nuclear Plants.

A 2009 study published by The Radiation and Public Health (RPHP) Project Director, Joseph Mangano, shows a thyroid cancer epidemic in a small 90-mile radius encompassing eastern PA, central New Jersey, and southern New York, where 16 reactors are located, including Limerick Nuclear Plant. A map is included. To review details of the RPHP study: www.radiation.org

January 21, 2009 ACE took part in a press event at City Hall in Philadelphia to report on an RPHP study on thyroid cancer links with nuclear plants.

Dr. Lewis Cuthbert, ACE President expressed The Alliance For A Clean Environment's extreme concerns about the shocking thyroid cancer increases and rates above the national average in the region around Limerick Nuclear Plant, since Limerick started operating in 1985.

He said, "This is about the health of all families around nuclear plants and the health of future generations. To protect public health, we must have a higher level of understanding, disclosure, accountability, and precaution from our regulatory and health agencies. Citizens from Philadelphia and the entire region must demand higher levels of accountability and protection from all agency and elected officials."

ACE called on regulatory, health, and elected officials, to use the RPHP study to take the most precautionary approach to all decisions involving nuclear power plants and radiation exposures from them.

January 21, 2010

Contact Joseph Mangano 484-948-7965

THYROID CANCER EPIDEMIC FOUND IN EASTERN PENN. RADIATION FROM NUCLEAR PLANTS LINKED WITH DISEASE

Philadelphia, January 21, 2010 - Pennsylvania has the highest thyroid cancer rate of any U.S. state, and rates are especially high in the eastern part of the state, which has a large concentration of nuclear reactors, according to a new study released today.

From 2001-2005, the Pennsylvania thyroid cancer incidence rate was 44% above the U.S., according to data from the U.S. Centers for Disease Control and Prevention. Of the 18 U.S. counties with the highest rates, six are located in eastern Pennsylvania. There are 9 nuclear reactors in this area, the largest concentration in the U.S.

"Epidemic levels of thyroid cancer in eastern Pennsylvania suggest that radiation emitted by reactors may be driving up rates among local residents," says Joseph Mangano MPH MBA "because exposure to radiation is the only known cause of the disease." Mangano is Executive Director of the Radiation and Public Health Project research group, and author of the article published in the current *International Journal of Health Services*.

The research found that in the mid-1980s, Pennsylvania's thyroid cancer rate was 40% below the U.S. "Something occurred to change Pennsylvania's rate from low to high," says Mangano "and one of these possible factors is radiation from reactors."

"This research is further evidence that nuclear energy is a biological hazard that we cannot afford," states Judith Johnsrud PhD. Dr. Johnsrud directs the Environmental Coalition on Nuclear Power in State College PA.

The thyroid is a butterfly-shaped gland around the throat that produces hormones essential to physical and mental growth. Thyroid cancer has no known cause, other than exposure to radiation, especially radioactive iodine produced only in atomic bombs and nuclear reactors. Iodine particles enter bodies from breathing and food, seek out the thyroid gland, and attack cells, leading to cancer and other disorders.

Thyroid cancer is the fastest-increasing cancer in the U.S. It's rate has nearly tripled since 1980, and is rising sharply for all races, ages, and genders. About 37,000 Americans will be diagnosed with the condition this year; over 70% are between age 20 and 60. In Pennsylvania, the number of new cases has soared from 401 in 1985 to 2220 in 2007.

The nine nuclear reactors in eastern Pennsylvania are at Susquehanna in Luzerne County (2); Three Mile Island in Dauphin County (2); Peach Bottom in York County (3); and Limerick in Montgomery County (2). Seven are still operating, while two have shut down (including the Three Mile Island 2 reactor that melted down in 1979).

Reactors routinely emit low doses of radioactive iodine into local air and water. For decades, health authorities contended low dose exposures to radiation did not harm humans. But a 1999 study by the National Academy of Sciences found that up to 212,000 Americans developed thyroid cancer from radioactive iodine from above-ground atomic bomb tests in Nevada, which added low doses to the U.S. diet in the 1950s and 1960s.

New Jersey has the 5th highest thyroid cancer rate of all U.S. states. The three counties with the highest rates in the state are all in central New Jersey (Camden, Burlington, and Ocean). Ocean County is the site of the Oyster Creek nuclear reactor, which has operated for over 40 years, making it the oldest of the 104 U.S. reactors. Oyster Creek recently received authorization from federal regulators to operate for 20 more years.

The Radiation and Public Health Project is a non-profit research and education group of scientists and health professionals specializing in cancer risk from radiation exposure. The medical journal article on thyroid cancer is the 25th published by the group. Mangano says more studies on thyroid cancer and other thyroid disorders are planned.

BREAST CANCER

Significantly Higher Than The National Average In Six Communities Close To Limerick Nuclear Plant

Includes Lower Pottsgrove, Upper Pottsgrove, West Pottsgrove, Pottstown, North Coventry, Douglass Berks

Breast Cancer By Age (diagnosed 1995-1999) Compared to the National Average
Source: Pa Cancer Registry

Age	% HIGHER than U.S.
0-29	+ 15.3 %
30-44	+ 51.4 %
45-64	+ 39.3 %
65+	+ 28.6 %

Breast Cancer Averages Are Higher Than U.S. and Tri-County Averages

1995-1999 Type of Cancer	Cases	Local Gr. Potts.	Rate per 100,000 U.S. Oth. 3 Co.	% Above U.S.	% Above Tri County__
Breast (female)	263	161.5	116.0 129.8	+39.2 %	+24.5 %

Breast Cancer Statistics So Far Higher Than The National Average In Every Age Group Are Alarming When Breast Cancer Is An Epidemic Nationwide.

61% INCREASE In Montgomery County

Home of Limerick Nuclear Plant - After Limerick Started Operating

Source: PA Cancer Registry 1985-86 to 1996-97

Research Links Breast Cancer With Radiation Exposure

- The Chernobyl experience confirmed that children exposed to radiation have a greater likelihood of developing breast cancer as adults. Source: Life Extension, 12/04 (60)
- John W. Gofman, M.D., Ph.D. "Our estimate is that about three-quarters of the current annual incidence of breast-cancer in the U.S. is being caused by earlier ionizing radiation..." Source: "Preventing Breast Cancer" 1995
- "Life's Delicate Balance" Causes and Prevention of Breast Cancer. Janette Sherman, M.D. Analyzes Links Between Cancer and Radiation and Other Toxics.
- Analysis of 350 Studies Finds Half Breast Cancers are Tied to Environment and Unrelated to Genetic Risk or Lifestyle Choices.

Janette Sherman, M.D.

Dr. Sherman is a well-respected toxicologist and doctor of internal medicine.

November, 2000, Dr. Sherman made two presentations in Pottstown, one for physicians and health care professionals and one for the public.

Dr. Sherman is the author of two books which answer the questions:

- 1. “WHY,” Why did I get sick?**
- 2. Why is the cancer rate so high?**
- 3. Why was this child born with birth defects?**

Life’s Delicate Balance

Focuses on Causes and Prevention of Cancer, Especially **Breast Cancer** in women and men.

- Analyses identify the links between toxic chemicals and ionizing radiation like that released into our air and water from the Limerick Nuclear Power Plant.
- Dispels “myths” of risk for cancer
- It provides insight into the economic and political factors fueling the cancer epidemic and what can be done to end this tragic disease.
- For more info: www.lifesdelicatebalance.com

Chemical Exposure and Disease

Provides investigative and diagnostic techniques with case-reports for all body systems: **Brain, Pulmonary, Reproductive, Gastrointestinal, etc.**

- It covers dangerous industries releasing hazardous chemicals and examples of chemicals causing endocrine-disruption, neurological damage, cancer, and birth defects.
- This book DISPELS the notion that “MORE STUDIES are needed” before we can take action to take action to prevent harm.

Dr. Sherman left us with no doubt that nuclear plants emit radiation that can enter our bodies and damage our health in many ways, in extremely tiny amounts. It became clear that radiation is released from Limerick Nuclear Power Plant’s routine operations into our air, water, and soil.

Dr. Sherman explained how synergistic combinations can cause great damage to human health, especially children. Even very small amounts of radiation, can create a dangerous and even deadly situation. Dr. Sherman’s presentation in Pottstown verified dangerous threats to health due to Limerick Nuclear Plant.

LEUKEMIA

**After Limerick Nuclear Power Plant
Started Operating In 1985**

**Leukemia Rate Climbed To Almost
Double State Average**

Source: PA Cancer Registry (1985 to 1994)

In Six Communities Close To Limerick Nuclear Plant

Pottstown , West Pottsgrove, Lower Pottsgrove, Upper Pottsgove, North Coventry, Douglass Berks Township

**Most Childhood Cancers
In These Communities Were Leukemia**

1985-86 to 1996-97 Leukemia Rate Showed A

48% INCREASE

In Montgomery County, PA - Home of Limerick Nuclear Power Plant

Source: PA Cancer Registry Statistics

Bordering Chester County Communities Obviously Impacted, But Not Tracked

**Limerick Nuclear Power Plant Routinely Released Radiation
Into The Air, Water, and Soil Since 1985**

Research Links Low-Level Radiation Exposure With Leukemia

LEUKEMIA OVERVIEW NEAR LIMERICK

August, 2003

PA Cancer Registry Statistics - 6-borough/township – Greater Pottstown Area
Near Limerick Nuclear Power Plant, Pottstown, PA.

Pottstown, West Pottsgrove, Lower Pottsgrove, Upper Pottsgrove, North Coventry, Douglass Berks Township
Statistics: Joseph Mangano, MPH MBA National Coordinator RPHP (609) 399-4343

Leukemia represented the largest number of childhood cancers among the 92.5% childhood cancers rates higher than the national average. Leukemia rates were significantly higher.

(Ages 0-19) All Cancers Diagnosed from 1995-1999
Rate per 100,000

Type of Cancer	Cases 0-19	Gr. Pottstown	U.S.	%AboveU.S.	Significance
All Cancers	40	28.33	16.04	+ 76.6	p<.02
Leukemia	13	9.21	3.89	+136.8	p<.055

(Source: PA Cancer Registry)

Note: Rates calculated using 1990-99 annual Greater Pottstown population 0-19 of 14,120.

For example, leukemia rate = 13 cases/10 years/14,120 x 100,000 = 9.21.

Joseph Mangano, MPH, MBA Radiation and Public Health Project New York, NY June 25, 2003

Note:

- A review of 17 medical journal articles by researchers from the Medical University of South Carolina showed that elevated child leukemia rates were elevated at all 17 reactors.
- Leukemia death rates in U.S. children near nuclear reactors rose sharply in the past two decades, according to a study published in the European Journal of Cancer Care in 2008.

The Leukemia Rate has been higher than the other parts of the three county area for at least 15 years with a total of 106 cases from 1985 when Limerick Nuclear Plant started operating to 1999. (see below)

Period	Greater Pottstown (cases)	Other 3-county	% Above/Below
1985-89	9.5 (27)	7.1	+33.8%
1990-94	16.6 (44)	8.7	+90.8%
1995-99	11.6 (35)	10.6	+9.1%

The 15 year leukemia rate is approximately about 40% above the other three county rate. This is a statistically significant difference (p<.01)

Source: Pennsylvania State Cancer Registry

For the period 1995-99, there were 35 newly-diagnosed cases in the area. The age-adjusted rate was 11.6 per 100,000, higher than the rest of the three counties, the state, and the nation (See Table below).

Leukemia incidence per 100,000, age adjusted to 1970 standard, 1995-99 Area Rate (cases) % Above/Below Gr. Pottstown

Greater Pottstown	11.6	(35) ----
Other 3-county	10.6	+9.1%
Pennsylvania	9.7	+19.6%
United States	10.4	+11.5%

Source: Pennsylvania State Cancer Registry

CHILD LEUKEMIA DEATH RATES INCREASE NEAR U.S. NUCLEAR PLANTS

RISES GREATEST NEAR OLDEST PLANTS, DECLINES NEAR CLOSED PLANTS

New York, Nov. 11, 2008. Leukemia death rates in U.S. children near nuclear reactors rose sharply (vs. the national trend) in the past two decades, according to a recent study.

The greatest mortality increases occurred near the oldest nuclear plants, while declines were observed near plants that closed permanently in the 1980s and 1990s. The study was published in the most recent issue of the *European Journal of Cancer Care*.

The study updates an analysis conducted in the late 1980s by the National Cancer Institute (NCI). That analysis, mandated by Senator Edward M. Kennedy (D-MA), is the only attempt federal officials have made to examine cancer rates near U.S. nuclear plants.

U.S. Rep. Edward J. Markey (D-MA), a senior member of the House Energy and Commerce Committee, said, "Nothing is more important to American families than the health of their children. It is critical that we continue to improve our understanding of the causes of child leukemia and learn how this heartbreaking disease be prevented, therefore this study deserves critical consideration."

Actor and advocate Alec Baldwin said "exposure to ambient levels of radiation near nuclear reactors used by public utilities has long been suspected as a significant contributor to various cancers and other diseases." Baldwin, who has a long-standing interest in radiation health issues, adds "nuclear power is not the clean, efficient energy panacea to which we are presently being reintroduced. It is dirty, poses serious security threats to our country, and is ridiculously expensive. Nukes are still a military technology forced on the American public with a dressed up civilian application."

Study authors were epidemiologist Joseph Mangano MPH MBA, Director of the Radiation and Public Health Project and toxicologist Janette Sherman MD of the Environmental Institute at Western Michigan University. They analyzed leukemia deaths in children age 0-19 in the 67 counties near 51 nuclear power plants starting 1957-1981 (the same counties in the NCI study).

About 25 million people live in these 67 counties, and the 51 plants represent nearly half of the U.S. total).

Using mortality statistics from the U.S. Centers for Disease Control and Prevention, Mangano and Sherman found that in 1985-2004, the change in local child leukemia mortality (vs. the U.S.) compared to the earliest years of reactor operations were:

- An increase of 13.9% near nuclear plants started 1957-1970 (oldest plants)
- An increase of 9.4% near nuclear plants started 1971-1981 (newer plants)
- A decrease of 5.5% near nuclear plants started 1957-1981 and later shut down

The 13.9% rise near the older plants suggests a potential effect of greater radioactive contamination near aging reactors, while the 5.5% decline near closed reactors suggests a link between less contamination and lower leukemia rates. The large number of child leukemia deaths in the study (1292) makes many of the results statistically significant.

The Mangano/Sherman report follows a 2007 meta-analysis also published in the *European Journal of Cancer Care* by researchers from the Medical University of South Carolina. That report reviewed 17 medical journal articles on child leukemia rates near reactors, and found that all 17 detected elevated rates. A January 2008 *European Journal of Cancer* article that found high rates of child leukemia near German reactors from 1980-2003 is believed to be the largest study on the topic (1592 leukemia cases).

The carcinogenic effects of radiation exposure are most severe among infants and children. Leukemia is the type of childhood cancer most closely associated with exposures to toxic agents such as radiation, and has been most frequently studied by scientists. In the U.S., childhood leukemia incidence has risen 28.7% from 1975-2004 according to CDC data, suggesting that more detailed studies on causes are warranted.

The Radiation and Public Health Project is a non-profit group of health professionals and scientists based in New York that studies health risks from radioactive exposures to nuclear reactors and weapons tests. RPHP members have published 23 medical journal articles on the topic. A copy of the child leukemia article (PDF or faxed) is available upon request from Mangano. Contact Joseph Mangano, 609-399-4343

LUNG CANCER

**A Study Reported In 1997 (1985 to 1994)
Found Lung Cancer**

**33% Higher
Than The Tri County Average**

Source: PA Cancer Registry

**In Six Communities Close To Limerick Nuclear Power Plant vs. U.S. and Tri County
1995 to 1999**

Includes Lower Pottsgrove, Upper Pottsgrove, West Pottsgrove, Pottstown, North Coventry, Douglass Berks

Tri County refers to Berks, Chester, and Montgomery Counties

<u>Type of Cancer</u>	<u>Local</u>	<u>Rate per 100,00</u>			<u>% Above</u>	<u>% Above</u>
		<u>Cases</u>	<u>Gr. Potts.</u>	<u>U.S.</u>		
Lung	197	62.3	55.7	52.6	+11.8 %	+18.4 %

Sources: Pennsylvania State Cancer Registry, National Cancer Institute (cancer cases) 1995-1999.
U.S. Census Bureau (population data)

Statistics: Joseph Mangano, MPH MBA National Coordinator RPHP (718) 857-9825

**Limerick Nuclear Plant Is A Major Air Polluter
Under Health Based Standards Of The Clean Air Act.**

**Limerick Continuously Emits Unprecedented Amounts Of PM-10
From The Cooling Towers Plus Other Sources.**

**PM-10 Gets Deep Into The Lungs. It Can Cause Serious Damage
To The Lungs. ACE Believes Limerick Is A Likely Major Factor In
Elevated Lung Cancers Close To It. Many Young People Who
Never Smoked Are Getting Lung Cancer and Dying In This Region.**

BRAIN CANCER

Source: Penn State - Graduate Student Research

Statistics: PA Department of health, Bureau of Health Statistics (2001, August)
Analysis of cancer incidence in PA counties 1994-1998 <http://www.health.sate.pa.us/stats>
Professor - Dr. Steven Couch – (717) 948-6036

IN POTTSTOWN - The Address of Limerick Nuclear Power Plant

1999 Brain Cancer Statistics - Rate per 100,000 in Pottstown 9.25

BRAIN CANCER CLIMBED SIGNIFICANTLY HIGHER

- ✓ Than state and national averages
- ✓ Than municipalities in a 12 mile radius

Municipality-level statistics cannot account for the high numbers of brain cancers in Pottstown.

BRAIN/CENTRAL NERVOUS SYSTEM CANCERS

In the six communities studied close to Limerick Nuclear Power Plant.

Pottstown , West Pottsgrove, Lower Pottsgrove, Upper Pottsgove, North Coventry, Douglass Berks Township

- ✓ COMPARED TO NATIONAL AVERAGE 38.3 HIGHER
- ✓ COMPARED TO TRI COUNTY 32.5 HIGHER

UPWARD TREND - Brain/Central Nervous System Cancer Since Limerick Nuclear Plant started operating in 1985.

- ✓ 1985-89 15 cases
- ✓ 1990-94 19 cases
- ✓ 1995-99 23 cases

According to PA Cancer Registry (1995-1999)

CHILDREN

BRAIN / CENTRAL NERVOUS SYSTEM CANCERS ARE AMONG THE HIGHEST CHILDHOOD CANCERS

In six communities studied that are close to Limerick Nuclear Power Plant -Pottstown , West Pottsgrove, Lower Pottsgrove, Upper Pottsgove, North Coventry, Douglass Berks Township

The Nuclear Regulatory Commission (NRC) Is Involved In A Cover-Up To Protect The Nuclear Industry

Why? MONEY! The Nuclear Industry Controls NRC, Its Regulator. To increase profits, the nuclear industry wants license extensions for all its old nuclear plants like Limerick, and wants to build new nuclear plants. If the public realized that radiation from nuclear plants increases cancer, they would strongly oppose nuclear power plant extensions and new plants. In addition, NRC has a conflict of interest. NRC is not needed if nuclear plants close and no new plants are built.

NRC Dismissed and/or Distorted Facts. NRC Lost All Credibility Related To Routine Radiation Releases From Limerick Nuclear Plant And Cancer.

It is NOT credible for the nuclear industry or NRC to make baseless claims that Limerick's routine radiation emissions are not a major factor in the documented highly elevated cancers around it, especially in children.

5-18-11 In Limerick, NRC Made Inaccurate, Unsubstantiated, Deceptive Claims, Discounting Independent Scientists and Research.

Paul Krohn, NRC's Branch Chief for Limerick claimed *"There is no research to show health problems. NRC cannot specifically tie cancer studies...around nuclear power plants to them."*

9-22-11 At NRC's Environmental Impact Public Hearing For Limerick Nuclear Plant In Pottstown, Lisa Regner, NRC's official in charge at the time, made the uninformed and inaccurate claims that Limerick's radiation discharges were too small to cause harm and dismissed cancer data charts for our region as anecdotal, when they were all based on actual data from the PA Cancer Registry and the CDC website.

A Body Of Evidence Disputes NRC's Unsubstantiated Inaccurate Claims.

Many Studies In The U.S. and Europe Show Links Between Nuclear Plants and Elevated Cancer, Especially In Children. Some Are Listed Below.

- Four Cancer Studies On Communities Around Limerick Nuclear Plant All Show Elevated Cancers, Far Higher Than The National and State Averages, Especially in Children. All based on PA Cancer Registry data.

**- Radiation and Public Health Project (RPHP) www.radiation.org
Compelling Independent Research Linking Nuclear Plant Radiation and Cancer**

- **Thyroid Cancer Epidemic - Published Study**

- **The Baby Tooth Study**

- **Radioactive Baby Teeth: The Cancer Link**

by Joseph J Mangano March 2008 Radiation and Public Health Project

Outstanding Well Researched Book On Links Between Cancer and Nukes

- Cancer Near German Reactors: A Powerful Link

Implications of a Recent Authoritative Study of

Childhood Cancers near Sixteen German Nuclear Power Plants

<http://www.oeconline.org/our-work/kidshealth/healthprofessionals/first-annual-nw-health-conference-pdfs/day-1/Nussbaum%202.6.09.pdf>

- Child Cancer Risk Higher Near Nuclear Plants: Study

REUTERS Sat Dec 8, 2007 8:48am EST

BERLIN (Reuters) - 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," Sueddeutsche 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)

- Increased Cancers Near Nuclear Plants

[Rachel's introduction: "New evidence of an association between increased cancers and proximity to nuclear facilities raises difficult questions. Should pregnant women and young children be advised to move away from them? Should local residents eat vegetables from their gardens? And, crucially, shouldn't those governments around the world who are planning to build more reactors think again?"]

New Scientist, April 24, 2008 By Ian Fairlie

Among the many environmental concerns surrounding nuclear power plants, there is one that provokes public anxiety like no other: the fear that children living near nuclear facilities face an increased risk of cancer. Though a link has long been suspected, it has never been proven. Now that seems likely to change.

Studies in the 1980s revealed increased incidences of childhood leukaemia near nuclear installations at Windscale (now Sellafield), Burghfield and Dounreay in the UK. Later studies near German nuclear facilities found a similar effect. The official response was that the radiation doses from the nearby plants were too low to explain the increased leukaemia. The Committee on Medical Aspects of Radiation in the Environment, which is responsible for advising the UK government, finally concluded that the explanation remained unknown but was not likely to be radiation.

There the issue rested, until a recent flurry of epidemiological studies appeared. Last year, researchers at the Medical University of South Carolina in Charleston carried out a meta-analysis of 17 research papers covering 136 nuclear sites in the UK, Canada, France, the US, Germany, Japan and Spain. The incidence of leukaemia in children under 9 living close to the sites showed an increase of 14 to 21 per cent, while death rates from the disease were raised by 5 to 24 per cent, depending on their proximity to the nuclear facilities (European Journal of Cancer Care, vol 16, p 355).

This was followed by a German study which found 14 cases of leukaemia compared to an expected four cases between 1990 and 2005 in children living within 5 kilometres of the Krummel nuclear plant near Hamburg, making it the largest leukaemia cluster near a nuclear power plant anywhere in the world (Environmental Health Perspectives, vol 115, p 941).

This was upstaged by the yet more surprising KiKK studies (a German acronym for Childhood Cancer in the Vicinity of Nuclear Power Plants), whose results were published this year in the International Journal of Cancer (vol 122, p 721) and the European Journal of Cancer (vol 44, p 275). These found higher incidences of cancers and a stronger association with nuclear installations than all previous reports. The main findings were a 60 per cent increase in solid cancers and a 117 per cent increase in leukaemia among young children living near all 16 large German nuclear facilities between 1980 and 2003. The most striking finding was that those who developed cancer lived closer to nuclear power plants than randomly selected controls. Children living within 5 kilometres of the plants were more than twice as likely to contract cancer as those living further away, a finding that has been accepted by the German government.

Though the KiKK studies received scant attention elsewhere, there was a public outcry and vocal media debate in Germany. No one is sure of the cause (or causes) of the extra cancers. Coincidence has been ruled out, as has the "Kinlen hypothesis", which theorises that childhood leukaemia is caused by an unknown infectious agent introduced as a result of an influx of new people to the area concerned. Surprisingly, the most obvious explanation for this increased risk -- radioactive discharges from the nearby nuclear installations -- was also ruled out by the KiKK researchers, who asserted that the radiation doses from such sources were too low, although the evidence they base this on is not clear.

Anyone who followed the argument in the 1980s and 1990s concerning the UK leukaemia clusters will have a sense of déjà vu. A report in 2004 by the Committee Examining Radiation Risks of Internal Emitters (2 Mbyte PDF), set up by the UK government (and for which I was a member of the secretariat) points out that the models used to estimate radiation doses from sources emitted from nuclear facilities are riddled with uncertainty. For example, assumptions about how radioactive material is transported through the environment or taken up and retained by local residents may be faulty.

If radiation is indeed the cause of the cancers, how might local residents have been exposed? Most of the reactors in the KiKK study were pressurised water designs notable for their high emissions of tritium, the radioactive isotope of hydrogen. Last year, the UK government published a report on tritium which concluded that its hazard risk should be doubled. Tritium is most commonly found incorporated into water molecules, a factor not fully taken into account in the report, so this could make it even more hazardous.

As we begin to pin down the likely causes, the new evidence of an association between increased cancers and proximity to nuclear facilities raises difficult questions. Should pregnant women and young children be advised to move away from them? Should local residents eat vegetables from their gardens? And, crucially, shouldn't those governments around the world who are planning to build more reactors think again?

Ian Fairlie is a London-based consultant on radiation in the environment

No Dose Too Low To Increase Risk Of Cancer

Every Radiation Exposure Can Cause Cancer

~ A NUKEWATCH FACT SHEET ~

Nukewatch, 740A Round Lake Road, Luck, WI 54853,

(715) 472-4185 <<http://www.nukewatch.com/>><mailto:nukewatch1@lakeland.ws>

Quotes Below From Government Agencies Dispute NRC Denials About Radiation From Nuclear Plants And Confirm That There Is No Safe Level Of Exposure To Radiation, Even Legally “Allowable” Doses.

Every Federal Agency That Regulates Industrial Radiation Releases Warns That Any External or Internal Exposure To Radiation, No Matter How Small, Increases One’s Risk Of Cancer.

Following are the official U.S. government regulatory agency assessments:

U.S. Environmental Protection Agency

“Based on current scientific evidence, any exposure to radiation can be harmful (or can increase the risk of cancer). In other words, it is assumed that no radiation exposure is completely risk free.”³

“[T]here is no level below which we can say an exposure poses no risk. ... Radiation is a carcinogen. It may also cause other adverse health effects, including genetic defects in the children of exposed parents or mental retardation in the children of mothers exposed during pregnancy.”⁴

“Current evidence suggests that any exposure to radiation poses some risk, i.e. there is no level below which we can say an exposure poses no risk.”⁵

U.S. Department of Energy

“[T]he effects of low levels of radiation are more difficult to determine because the major effect is a very slight increase in cancer risk. However, U.S. Government regulations assume that the effects of all radiation exposures are cumulative and should be limited as much as reasonably possible.”⁶

U.S. Nuclear Regulatory Commission

“[T]he radiation protection community conservatively assumes that any amount of radiation may pose some risk for causing cancer and hereditary effect, and that the risk is higher for higher radiation exposures. A linear no-threshold dose-response relationship is used to describe the relationship between radiation dose and the occurrence of cancer. ... any increase in dose, no matter how small, results in an incremental increase in risk.”⁷

U.S. Department of Health and Human Services

“Ionizing radiation is invisible, high-frequency radiation that can damage the DNA or genes inside the body.

“Some patients who receive radiation to treat cancer or other conditions may be at increased cancer risk. ... it is possible that there is a small risk associated with this exposure.

“... children whose mothers received diagnostic X-rays during pregnancy. ... were found to have increased risks of childhood leukemia and other types of cancer, which led to the current ban on diagnostic X-rays in pregnant women.”⁸

National Academy of Sciences

The National Academy of Sciences’ 7th study on the effects of radiation exposure declared that any exposure, regardless of how small, may cause the induction of cancer. BEIR-VII also dismissed as baseless the industry-sponsored sham “hormesis” theory that some radiation exposure is good for you.⁹ Committee Chair Richard Monson of Harvard’s School of Public Health said, “The scientific research base shows that there is no threshold of exposure below which low levels of ionized radiation can be demonstrated to be harmless or beneficial.”¹⁰

National Council on Radiation Protection

“... every increment of radiation exposure produces an incremental increase in the risk of cancer.”¹¹

1. Philip Hiltz, “Higher Cancer Risk Found in Low-Level Radiation,” *New York Times*, Dec. 20, 1989.
2. Ian Fairlie & Marvin Resnikoff, “No dose too low,” *The Bulletin of the Atomic Scientists*, Nov/Dec 1997, p. 54
3. U.S. EPA, “Ionizing Radiation Series,” No.2, Air & Radiation, 6601J, EPA 402-F-98-010, May 1998.
4. U.S. EPA, “Radiation: Risks & Realities,” Air & Radiation, 6602J, E PA 402-K-92-004, Aug. 1993.
5. *Ibid.*
6. U.S. Dept. of Energy, DOE/NE-0074, “Understanding Radiation,” p. 8 & 9.

<http://www.ne.doe.gov/pdfFiles/UNDERRAD.PDF>.

7. U.S. NRC, "How Does Radiation Affect the Public?" www.nrc.gov/what-we-do/radiation/affect.html.

8. U.S. Dept. of Health & Human Services, "Cancer and the Environment: Ionizing radiation," p. 10.

www.cancer.gov/images/Documents/5d17e03e-b39f-4b40-a214-e9e9099c4220/Cancer%20and%20the%20Environment.pdf.

9. National Academy of Sciences, "Health Risks from Exposure to Low Levels of Ionizing Radiation: BEIR VII, Phase 2," Committee to Assess Health Risks from Exposure to Low Levels of Ionizing Radiation, National Research Council, June 29, 2005.

10. Associated Press, "Study: No Radiation Level Safe," June 29, 2005.

11. National Council on Radiation Protection, "Evaluation of the Linear-Non-threshold Dose-Response Model for Ionizing Radiation," NCRP report 136, Bethesda, MD, June 4, 2001, cited in *Science for Democratic Action*, IEER, June 2005.

NRC officials must start to consider the vast body of independent research showing links between nuclear plant radiation releases and cancer.

- NRC must stop remaining in denial of a body of documented independent research.
- NRC must stop using industry biased unsubstantiated conclusions, to protect nuclear industry interests.
- NRC should stop making bogus comparisons between continuous nuclear plant radiation releases and exposure to gamma rays from x-rays and planes. That is deceptive for so many reasons.

EXAMPLE OF AGGREGIOUS NRC DECEPTION THAT MUST STOP.

5-18-11, NRC's Branch Chief, Paul Krohn

Absurdly blamed 50-year old bomb testing stating, "*Bomb testing didn't stop that long ago – from a scientific perspective SR-90 in teeth is from bomb testing.*"

- It is NOT credible to blame decades old bomb testing far distances from Limerick for SR-90 found in baby teeth in the region around Limerick, when Limerick routinely released SR-90 since 1985.

Strontium 90 (SR-90) in Baby Teeth Studied Proved Otherwise

The Radiation and Public Health Project's "Tooth Fairy Study" verified Strontium-90 radiation in the baby teeth collected from children around Limerick Nuclear Plant. (Reported 2003).

- Limerick Nuclear Plant's role in SR-90 in baby teeth around Limerick is clear.
- Strontium-90 was routinely released into our air and water from Limerick Nuclear Plant since 1985.
- SR-90 was detected around Limerick in water, milk, soil, and vegetation (2009 Exelon Report).
- SR-90 was detected in the teeth of children living in the region around Limerick, at some of the highest levels around nuclear plants studied in the U.S.
- Limerick Nuclear Plant's 26 years of SR-90 releases were obviously the major factor.

NRC Minimizes Harms and Deaths From Chernobyl and TMI

- Chernobyl - Almost a million people worldwide died from radioactivity discharged after the 1986 Chernobyl accident, yet NRC continues to use inaccurate low numbers. Research confirms many terrible diseases and disabilities are tied to Chernobyl.
- TMI – That 1979 accident in PA may be responsible for thousands of deaths. "Deadly Deceit: Low Level Radiation - High Level Cover-up" suggests between 50,000 to 100,000 EXCESS DEATHS occurred after the TMI accident.

NRC'S CANCER STUDY - ACE ANTICIPATES A COVER-UP

ACE Predicts The Nuclear Industry Biased Cancer Study Will Manipulate Data To Either Absurdly Claim Cancers Are Not Elevated Around Nuclear Plants, Or That Cancers Found Elevated Can't Be Linked To Nuclear Plant Radiation.

It Will Almost Certainly Be INCLUSIVE BY DESIGN To Protect Nuclear Industry Profits. We Will Be Expected To Lose Our Common Sense And Ignore All The Cancer Studies In Our Region, The U.S., and Europe, Already Showing Cancers Are Elevated Around Nuclear Plants.

NRC's Biased Denial Of Harm Defends Their Nuclear Plant License Extensions And Licensing Of New Nuclear Plants.

A 4-21-10 Letter From ACE To The NRC Chairman, Identified Documented Cancer Increases Around Limerick Nuclear Plant, Far Above The National Average, Expressed Our Concerns About NRC's Objectivity, And Asked NRC To Step Away From The Cancer Study.

The Cover Letter Below Was Sent To All Elected Officials and Residents.

The Alliance For A Clean Environment (ACE) copied you on our letter to NRC so that you understand our concerns and objections about NRC's involvement in a cancer study related to nuclear power plants.

In brief, The Nuclear Regulatory Commission is clearly biased. NRC fails to protect the public's interests and instead protects the profits of the nuclear industry, jeopardizing the public with unprotective and irresponsible positions and decisions.

- Many top NRC officials came from the nuclear industry and are completely biased toward the self-serving industry point of view.
- To admit higher rates of cancer around nuclear plants, NRC would have to discredit and dispute their own unsubstantiated claims that repeatedly dismiss harmful health impacts from nuclear power's routine radiation releases. NRC should have taken a more precautionary approach after the BEIR VII National Academy of Sciences Report stating there is no safe radiation exposure, but instead, NRC sought to weaken radiation standards, not strengthen them to protect the most vulnerable in our population, fetuses and children.

ACE believe NRC's cancer study is being proposed to refute all the other cancer studies already showing elevated cancers around nuclear plants. Many cancer studies in our nation and Europe already show elevated cancers related to nuclear power plants, especially in children. In fact, based on a study in Germany they planned to close their nuclear plants by the early 2020s to protect their children. Childhood cancer in our communities close to Limerick Nuclear Plant skyrocketed to 92.5% higher than the national average from the time Limerick started operating in 1985 to the late 1990s. We cannot understand why NRC would even consider relicensing here (yet there is little doubt in our minds they will), or why our government is considering making risky taxpayer loans for new U.S. nuclear power plants.

Our letter explains why we believe NRC's decision to do another cancer study in the U.S. related to nuclear plants is politically charged. We predict that if NRC is involved in a cancer study it will be used as a tool to support NRC's approval for new nuclear plants and re-licensing.

In this letter we outline what is needed to draw accurate and reliable conclusions in a study related to nuclear power's harmful health impacts. With incomplete information, we believe this study will likely lead to more unsubstantiated claims that will further jeopardize communities across our nation and ultimately further drive up health care costs. No other community should experience such shocking cancer increases and other serious health problems that we have since Limerick Nuclear Power Plant started operating in 1985. We can't afford re-licensing for another 20 years. Other communities shouldn't be subjected to such unnecessary health threats as those posed by new nuclear plants.

The kind of study that would get the truth completely disclosed would be extremely costly, but unless a study is designed to get the whole truth told, we shouldn't waste taxpayer money doing it at all. It is long past time for the U.S. to take a practical approach like countries such as Sweden.

They use the precautionary principle and common sense to conclude if an activity threatens harm, don't do it. They prevent a great deal of unnecessary suffering and wasted money that way.

- Before an NRC study begins, we can predict the outcome. Comprehensive and independent data and evidence needed to reveal the link between nuclear plants and elevated cancers will not be collected, and/or the data will be manipulated in such a way as to suggest cancers are not elevated. It will be another "inconclusive by design" study wasting valuable resources.
- ACE strenuously objects to spending any taxpayer money on a study by any agency, unless the protocol is designed by a completely unbiased trustworthy agency and is comprehensive, including year-long independent testing on all routes of exposure, including air testing from all nuclear plant sources and in-body testing.

Please review this letter and do whatever you can to stop taxpayer dollars from being wasted on an NRC cancer study that can be predicted to increase risks instead of preventing harm.

Below Is The Detailed Letter ACE Sent NRC

The Alliance For A Clean Environment

1189 Foxview Road
Pottstown, PA 19465

April 21, 2010

Gregory B. Jaczko, Chairman
U.S. Nuclear Regulatory Commission

Mail Stop O-16G4
Washington , DC 20555-0001
Fax: (301) 415-3504
Email: cmriaczko(anrc.-ov

RE: **Cancer Study Around U.S. Nuclear Power Plants**

Dear Chairman Jaczko,

The Alliance For A Clean Environment is a tri-county grassroots environmental group focused on links between radiation released from Limerick Nuclear Plant since it started operating in 1985 and the alarmingly high rates of cancer in our community, especially in children, (already documented with four cancer studies). Highly elevated infant and neonatal mortality, and other environmentally related diseases and disabilities are also documented with state data.

There is no doubt in our minds that Limerick Nuclear Power Plant's routine radiation emissions are a major factor in all of this. For 25 years Limerick Nuclear Power Plant has routinely released a broad range of radionuclides into our air and water. These radionuclides make their way into the soil, food, and people. The long-term synergistic, additive, and cumulative harmful health impacts from all routes of exposure are unknown, but obviously significant.

If the protocol for this proposed cancer study is not designed to identify and disclose the whole truth, we believe the potential outcome can result in increasing cancers and a broad range of other environmentally related diseases and disabilities in future generations in our region and around other nuclear plants trying to get their licenses extended and approval for uprates. It could also insure increased cancers where new nuclear plants are being proposed.

We are extremely concerned that NRC's involvement in a cancer study around nuclear plants will not lead to full and unbiased disclosure, due to NRC's undeniable preconceived bias. During our 10-year investigation on Limerick Nuclear Plant's links to our health crisis, NRC officials repeatedly and publically made unsubstantiated, indefensible, and illogical public claims that radiation emissions from nuclear plants are too small to cause harm. These unsubstantiated and irresponsible NRC comments (confirmed with video) show NRC's predetermined industry bias in such a study. NRC blindly defends the nuclear industry and their own policies with nothing more than calculations, estimations, and partial monitoring on radiation releases from nuclear plants, which are all reported and controlled by the nuclear industry that has a vested interest in the outcome.

How can NRC be considered objective in a cancer study around nuclear plants? NRC is the agency condoning and defending unknown amounts of routine and accidental radionuclide emissions into the air from the nation's 104 nuclear reactors. The radiation released doesn't magically disappear. Those radionuclides get into the soil, food, and people yet NRC illogically claims there is no harm. With minimal oversight, NRC allows the nuclear industry to monitor and report on only a fraction of the radionuclides that could be in nuclear plant discharges into rivers and other waterways. Without independent data and documentation from all routes of exposures, ranking NRC officials dismiss harms from nuclear plant radiation exposure. NRC never had comprehensive, reliable or defensible data to make any credible conclusion on actual harms from nuclear plant radiation, yet NRC irresponsibly continues to deny harm to this day.

NRC's conflict of interest in this cancer study and motives to deny harm are obvious to many of us.

1. NRC is complicit in the harm, promulgating and overseeing regulations for "permissible" radiation exposures to the public.
2. Many top NRC officials have an industry bias and mentality, since they come from the nuclear industry.
3. 90% of NRC funding comes from nuclear power reactor licensing fees. NRC stands to gain from reactor license extensions and new reactor construction.

We have no confidence in NRC's objectivity and therefore strongly OPPOSE having NRC fund and oversee a health study, which would clearly be a direct conflict of interest. It is not credible for NRC to assess how well its own regulations and oversight are performing. A reliable cancer study protocol must be comprehensively designed, thoroughly conducted, and fully funded by a completely independent agency and that is clearly not NRC.

- **NRC should not be directly involved in defining or conducting a health study related to nuclear plants for reasons listed above and many others. Why would anyone believe NRC would sign off on a study conclusion that reveals they have been negligent in their unsubstantiated conclusions about radiation from nuclear plants after all these years?**

The nation cannot afford another "inconclusive by design" study, especially one about the harmful impacts of radiation emissions from nuclear power plants. If NRC controls or remains involved in this study in any way, that will hurt, rather than help, communities already impacted by nuclear plant radiation emissions as well as those where new nuclear plants are proposed. We, and likely many other communities, will consider the study to be industry biased and can have no confidence that it will provide full and accurate disclosure of harms. We believe a study involving NRC will attempt to refute all the previous cancer studies already suggesting obvious links between radiation released from nuclear power plants and cancer.

NRC's objectivity is not only in question. We question NRC's motive for requesting a cancer study at this time. Based on previous experience in this community, we suspect this could be another politically driven cancer study, this time with an objective of muddying the waters to assist efforts for a "nuclear renaissance" and to defend what we think is the obviously dangerous practice of re-licensing old nuclear plants.

The design of the cancer study protocol will determine the outcome. If those paying for the study and designing the protocol have a preconceived political and biased agenda, the study outcome can be

manipulated in many ways to reflect preconceived conclusions, in spite of the facts. A previous politically driven cancer study in our community has taught us a great deal about the politics of cancer studies. An elected state official attempted to defend her denial of harm to protect polluters, by wasting \$295,000 of taxpayer money on a 5th cancer study on our community, even though four previous studies already documented alarming elevated cancers. The PA Health Department's politically driven cancer study on behalf of a biased state official, violated ethical breaches toward this community under the International Guidelines for Ethical Review of Epidemiological Studies (IGERES). The PA Health Department manipulated data to hide results and made inaccurate and misleading conclusions.

Many studies already show elevated cancers around nuclear plants. We suspect NRC's request to do a cancer study is an attempt to refute cancer studies in Europe and the U.S. already showing high rates of cancer around nuclear plants, especially in children. Germany decided to close their nuclear plants by the early 2020s to protect their children as a result of a cancer study around German nuclear plants. Yet, despite so many cancer studies showing elevations of cancer around nuclear plants, U.S. politicians are attempting to build as many as 100 more. We believe NRC's cancer study could be a planned tactic to be used as a tool in the arsenal of the nuclear industry and politicians to deny harm and to achieve their agenda for public support on approval for new nuclear plants and re-licensing.

The only way to use limited funding wisely to credibly address the link between nuclear power plant radiation releases and elevated cancers is to delegate and award complete control of the study protocol and funding to a totally unbiased agency, with the agreement that there be a process totally open to the public with full and fair public participation. Our suggestion is the National Institute of Environmental Health Sciences (NIEHS), that we believe is capable of producing an independent peer reviewed study. We believe an independent study should be comprehensive and expanded to include all health effects associated with living near nuclear power plants. The mission should be "to reduce the burden of environmentally associated diseases and disabilities by defining how environmental exposures affect health, how individuals differ in their susceptibility to these exposures, and how these susceptibilities change over time. That would begin to assess nuclear plant radiation impacts on health.

The NCI 1990 study's methodology was broadly and professionally criticized as significantly flawed. We, like others, are opposed to the NRC study being replicated. A new health study should not incorporate the same NCI mistakes.

Without comprehensive, independent, continuous year-long monitoring data from routine air and water releases of all radionuclides, it is impossible to know how much health harm is done by the synergistic, additive, and cumulative radiation exposures resulting from the routine and accidental radiation releases from nuclear plants. Without this data routine and accidental spikes go unaddressed. This lead to inaccurate conclusions about risks. Risk cannot accurately be determined without including synergistic, additive, and cumulative harmful impacts from all routes of nuclear plant radiation exposures, including air, water, soil. and food. To accurately draw a conclusion about links, you first need to determine exactly how much of each radionuclide was released into the air and water over an extended period of time.

NRC has never required comprehensive, independent. continuous monitoring data for each of over 100 radionuclides from each source that nuclear plants can be releasing into the air around nuclear plants.

- To accurately assess related health risks, one year of continuous, comprehensive monitoring needs to be done for each radionuclide associated with nuclear power production from each source at the nuclear plant . Risks cannot be determined by calculations or estimations, especially when done by the nuclear industry, with a vested interest in the outcome.

There is no comprehensive, independent, continuous monitoring data for all radionuclides likely to be in the radioactive discharges to river or other waterways.

- Accurate risks cannot be accurately determined with all monitoring, testing, and reporting controlled by the nuclear industry, with a vested interest in the outcome. Monitoring results can easily be manipulated with use of arbitrary detection limits being set at high levels, then only reporting on radiionuclide levels above the high arbitrary limits. All monitoring data should be reported with limits starting at zero. Given the extreme threat from any level of radiation

exposure, all detection limits should be based on any level above zero, whether air or water monitoring.

We believe testing should be expanded on milk, fish, and food grown in fields for all released radionuclides and their decay products.

To accurately determine risk, we also urge in-body testing for all released radionuclides and their decay products. Testing should include the breast milk of mothers and the baby teeth for strontium-90.

There is a lot at stake with a politically charged study on nuclear power plants. If conclusions are to be made about nuclear power plants, they must be based on an unbiased scientific collection of all the evidence for the most complete and accurate picture. The nation needs and deserves full and accurate disclosure of the whole truth. It is not enough to collect cancer registry data. If money is to be spent on determining harms from radiation emissions from nuclear power plants, infant and neonatal mortality, birth defects, thyroid disease, and all other diseases and disabilities associated with nuclear plants need to be collected and evaluated. At nuclear plants like Limerick with cooling towers, the harmful impacts from the massive amounts of particulate matter, all respiratory diseases, heart attacks, and strokes should also be included.

Our community, and we suspect most others impacted by nuclear power's pollution, can't afford to have more baseless, manipulated, and biased conclusions which lead to making things worse. We remind NRC, that since Limerick started operating in 1985, childhood cancer rates soared from 30% higher than the national average in the late 1980s to 92.5% higher than the national average in the late 1990s. Thyroid cancer rates increased by 128% from the mid 1980s to the mid 1990s and are far higher than the national average. Anecdotal evidence suggests that thyroid diseases are widespread and alarming. Many other cancers are documented to have increased dramatically and skyrocketed to rates far higher than national and state averages. Infant and neonatal mortality rates are documented to be far higher than the state average and even higher than Philadelphia and Reading. Learning disabilities increased by 94% (1990 to 2000), double the state average increases. Autism rose in that same time period by 310%. Other health problems are also far higher than the state average or Philadelphia.

Cancer threats from Limerick Nuclear Plant's radiation emissions will keep increasing as long as Limerick continues to operate. We even face increased threats from Limerick Nuclear Power Plant's "uprates". We also face Limerick relicensing that would ensure radiation emissions into our air, water, soil, food, and people for another 20 years.

We are convinced, with good cause, that a biased and unsubstantiated cancer study conclusion that attempts to dismiss nuclear plant radiation emissions as a major factor in our already elevated cancer rates will ensure still higher rates of cancer and more suffering in future generations.

Unfortunately, through our ten-year investigation on Limerick Nuclear Plant's threats to our region, ACE has lost all confidence and trust in NRC's conclusions and objectivity. NRC's industry-biased comments, conclusions, and inaction on many issues were difficult for us to understand, until we realized that those making major NRC decisions had been long-time nuclear industry employees. Letters and videos document many examples of NRC's unsubstantiated claims, inconsistent and illogical conclusions, failure to take timely action on reported risks, failure to require compliance with regulations, and unprotective positions, such as NRC's failure to require protection against a 9/11 type terrorist attack even though terrorists have stated their intent to attack nuclear plants. NRC has shown repeatedly that they value the profits of the nuclear industry more than public health and safety.

Clearly, we believe there is good cause to ask NRC to step away from this study and to support the most independent, comprehensive health study possible. This community and the nation deserves nothing less. We are at a turning point both in this community and in the nation.

We request that this letter be entered as part of the official record for this planned study.

Respectfully,

Dr. Lewis Cuthbert
ACE President

CC: President Obama
Senator Casey
Senator Specter
Congressman Dent
Congressman Gerlach
Congressman Sestak
Energy Secretary Chu
Health and Human Services Secretary Sebelius

Radiation and Public Health Project
November 19, 2003
Press Release

RADIATION IN TEETH RISING, HIGHEST NEAR LIMERICK POTENTIAL LINK TO CHILDHOOD CANCER SEEN

Pottstown PA, November 19 - Radioactivity levels in Pennsylvania baby teeth rose during the 1990s, and are highest in Pottstown PA, closest to the Limerick nuclear power reactors, according to results of a study released today.

The study also found that the trends in average radioactivity levels and childhood cancer are similar, suggesting a link between the two. The study was presented in Pottstown by the Radiation and Public Health Project (RPHP), a New York City-based research group.

"We tested 95 baby teeth from children living in Berks, Chester, and Montgomery Counties, and found that average Strontium-90 levels rose 21% in the 1990s, and are 34% higher than in the rest of Pennsylvania," says Joseph Mangano, RPHP National Coordinator and study author. "In 34 teeth from Pottstown children, the excess is 62%." RPHP enlisted a laboratory to test teeth for Strontium-90 (Sr-90), a yellowish metal found only in atomic bomb explosions and nuclear reactor emissions. Sr-90 is radioactive and causes cancer.

Mangano explained that in the three-county area, increases in average Sr-90 levels were followed four years later by rises in cancer in children under age ten. High local rates of childhood cancer rates have recently been discussed in the Pottstown area; in the late 1990s, cancer incidence under age 20 in six local townships and boroughs was 94% above the state and national rate.

"It's important to collect this kind of clinical data in order to work toward prevention and solutions," says Dr. Lewis Cuthbert, President of The Alliance For A Clean Environment, who also spoke at the press conference. "By testing amounts of a specific toxic chemical in the body, the tooth study is producing useful information on one potential factor." Pottstown Mayor Anne Jones also spoke in support of the tooth project, saying that "this kind of research provides documented evidence of harm, which can and should be used to demand use of the Precautionary Principle in all government decisions. We must put an end to the alarming rates of childhood cancer plaguing our community."

RPHP is asking for donations of baby teeth from local children who have been diagnosed with cancer, so that comparisons could be made of Sr-90 averages in children with and without the disease. Based on 61 U.S. teeth, children with cancer have about a 50% higher average Sr-90 level, and more teeth would make this preliminary comparison more significant.

Advisory Board

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Research Associates

William Reid, MD
Susanne Saltzman, MD
Janette Sherman, MD
Agnes Reynolds, RN

**Below Is The RPHP Tooth Fairy Study Executive Summary
Linking Shocking Childhood Cancer Rates Around Limerick Nuclear Plant.**

RADIOACTIVE STRONTIUM-90 IN BABY TEETH
OF SOUTHEAST PENNSYLVANIA CHILDREN
AND THE LINK WITH CANCER: A SPECIAL REPORT

By

Joseph J. Mangano, National Coordinator
The Radiation and Public Health Project

Pottstown PA
November 19, 2003

EXECUTIVE SUMMARY

Since 1996, the **Radiation and Public Health Project (RPHP)** has conducted the **only known study of radiation levels in the bodies of persons living near nuclear reactors**. Specifically, it has measured Strontium-90 (Sr-90) concentrations in baby teeth. Strontium is chemically similar to calcium; after it enters the body by breathing, food, or water, it attaches to bone and teeth. Sr-90 has a slow decay rate, and remains in the body for many years.

One area that the study focused on is the Pottstown PA region, near the Limerick nuclear plant. Health and safety concerns about Limerick are reflected in the following data:

Major Meltdowns

- Limerick's two reactors began operations in 1984 and 1989, respectively. In recent years, the **Exelon Generation Company LLC has operated the reactors a high percentage of the time (96.7% in 2002 and 2003)**. The issue of whether aging parts are being pushed past their safe limits, raising the risk of a catastrophic mechanical failure and meltdown, is a serious consideration.
- The reactor lies about 30 miles northwest of downtown Philadelphia. The Al Qaeda terrorist network has considered an attack against U.S. reactors, raising the concern that reactors in heavily populated areas might be primary targets. **The federal estimate of 610,000 local cases of radiation poisoning if either Limerick reactor suffered a major meltdown is the highest in the U.S.**

Radioactivity Routinely Emitted

- Radioactivity from the Limerick reactors is routinely released into the environment. There are variations over time when reactors accidentally emit radioactivity or release it as part of routine maintenance.
- Including Limerick, there are 13 nuclear reactors, 11 of which are still operating, situated within 80 miles of Pottstown, the heaviest concentration in the U.S. (along with northern Illinois). Each reactor releases radioactivity into the environment on an ongoing basis.

High Cancer Rates Near Limerick

- **From 1995-1999, cancer incidence in children under age 20 living in Greater Pottstown was 94% higher than the national, state, and regional rates.** For the entire 1990s, the rate was 77% higher (total of 40 children diagnosed with cancer).
- Childhood cancer mortality in Montgomery County rose 30% from the 1980s to the 1990s, compared to a 22% reduction in the state and nation.
- From 1995-1999, cancer incidence for young adults (age 20-54) in Greater Pottstown was 18% above the national average. A total of 287 local residents in this age group were diagnosed with cancer during these five years.

- Local incidence of breast cancer in 1995-1999 exceeded the U.S. rate by 51% (age 30-44); by 39% (age 45-64); and by 29% (age 65 and over). In the five year period, 263 local women were diagnosed with breast cancer.

Tooth Study Results

The combination of personal appearances in Pottstown by RPHP's Janette Sherman and Joseph Mangano, plus interest from local residents, resulted in 146 baby teeth being donated to RPHP. These teeth were all tested for Sr-90, and principal results of the analysis are as follows:

1. **The average concentration of Sr-90 in 95 baby teeth from Montgomery, Berks, and Chester county children born after 1979 is 34% above the rest of Pennsylvania, while the average in Pottstown is 62% higher.**
2. **From 1986-89 to 1994-97, average Sr-90 levels in the tri-county area steadily rose 21%, reversing a decline that began in the early 1960s. This pattern is similar to that in five other states where the majority of teeth have been collected.**
3. **In the tri-county area, trends in Sr-90 are similar to trends in cancer deaths among children under age ten**

The above results suggest that current reactor emissions - not old fallout from Nevada bomb tests in the 1950s and 1960s - account for a substantial proportion of radioactivity in the bodies of local children. More importantly, there is a statistical link between Sr-90 and childhood cancer in Montgomery, Berks, and Chester counties.

Further studies, such as comparing Sr-90 in teeth of healthy children with teeth of children with cancer, are warranted. (RPHP has recently begun such a study). Moreover, **any policy discussions concerning Limerick should take into account the actual excess diseases and deaths caused by routinely-emitted low-dose radioactivity**, along with a (hypothetical) catastrophic accident.

ACE Comment:

We need NRC officials to follow their mission to protect public health. Getting the truth told is the best way to stop the unprecedented injustice of unnecessary radiation poisoning of our environment and us.

NRC officials must start to recognize and value independent research from RPHP.

NRC officials should have the courage and integrity to acknowledge obvious harms from nuclear plant routine and accidental radiation releases and speak up to protect public health instead of nuclear industry profits.

To Summarize:

Links between elevated cancers around nuclear plants are obvious.

- Nuclear plants like Limerick routinely release a broad range of radionuclides into the air and water around them.
- Radiation exposure can lead to cancer at any level.
- After a nuclear plant like Limerick starts operating and continuously releasing a broad range of radionuclides into the air and water, people in the region are continuously exposed to additive, cumulative, and synergistic doses of that radiation from all routes of exposure.
- Long-term exposure to the witches brew of radiation from nuclear plants like Limerick logically causes increases in cancers around it.
- Limerick Nuclear Plant is clearly a major factor in the shocking cancer increases around Limerick Nuclear Plant since it started operating.

Alarming Cancer Increases Documented By Actual PA Cancer Registry and CDC Statistics After Limerick Started Operating Cannot Be Dismissed.

**Skyrocketing Cancer Increases After Limerick Opened
In Montgomery County – Home of Limerick Nuclear Plant**

Increases Mid 80s to 90s

✓ Prostate	Increased	132%
✓ Thyroid	Increased	128%
✓ Kidney	Increased	96%
✓ Multiple Myeloma	Increased	91%
✓ Hodgkin’s Disease	Increased	67%
✓ Non-Hodgkin’s Lymphoma	Increased	61%
✓ Breast	Increased	61%
✓ Pancreas	Increased	54 %
✓ Leukemia	Increased	48%

Cancers In Communities Close to Limerick Nuclear Plant (1995 to 1999)

Lower Pottsgrove, Upper Pottsgrove, West Pottsgrove, Pottstown, North Coventry, Douglass Berks

8 of 11 Most Common Cancers Above National and State Averages -Compared to U.S. and TriCounty

Type of Cancer	Above U. S.	Above Tri County
✓ Kidney/Renal Pelvis	+ 60 %	+ 42.7 %
✓ Rectum	+ 44 %	+ 13.5 %
✓ Uterine	+ 44 %	+ 38.7 %
✓ Breast (female)	+ 39 %	+ 24.5 %
✓ Brain/Cent. Nervous System	+ 38 %	+ 32.5 %
✓ Urinary Bladder	+ 35.5 %	+ 17.9 %
✓ Colon	+ 21 %	+ 3.3 %
✓ Lung	+ 11.8 %	+ 18.4 %
✓ Leukemia	+ 11.5 %	+ 14.9 %

CHILDHOOD CANCER - 92.5 % Higher Than The National Average

In Six Communities Close To Limerick Nuclear Plant

Pottstown , West Pottsgrove, Lower Pottsgrove, Upper Pottsgove, North Coventry, Douglass Berks Township

UPWARD TREND AFTER LIMERICK STARTED OPERATING (Childhood Cancer)

Late 1980’s about 30 % HIGHER than the NATIONAL AVERAGE

Early 1990’s about 60 % HIGHER than the NATIONAL AVERAGE

Late 1990’s up to 92.5 % HIGHER than the NATIONAL AVERAGE

Late 1990’s almost 100 % HIGHER than the STATE and TRI COUNTY

71% Increase In Montgomery County, Home of Limerick Nuclear Plant

Deaths from Neoplasms in Children Ages 1 to 14 1981-89 vs. 1990-98

But Rates In Neighboring Counties, PA, and the U.S. Were Down:

✓ Chester County	29.0%	Decrease
✓ Berks County	30.6%	Decrease
✓ Pennsylvania	17.1%	Decrease
✓ U.S.	21.2%	Decrease

ACE Health Survey and Cancer Mapping

Government agencies and some elected officials were more interested in covering up alarming cancer statistics documented in four cancer studies using the PA Cancer Registry, rather than working to minimize cancer risks.

Therefore, ACE tracked and mapped cancers through health surveys completed by residents. Over four thousand were delivered on foot by ACE officers to over 4,000 residents people in Pottstown and the Pottsgroves. We had an overwhelming response, not only from those we delivered, but also by surveys completed on line, some from other communities, by those who learned of the ACE survey project through letters to the editor and our TV shows.

The results were shocking. So many cancers were reported we were unable to put all of them on a six foot map. Some streets were riddled with cancers. Over 500 of one type of cancer were unable to be mapped as the streets would not have been able to be identified. There was no room.

Limerick's Routine Radiation Releases Are Logically A Major Factor.

Nationwide, cancer is the #1 disease-related death in children.

**When Our Childhood Cancer Rates Are So Much Higher Than The State and National Averages,
Limerick's Role Cannot Be Denied.**

Children nationwide are all exposed to similar environmental pollutants, including pesticides and herbicides, cleaning chemicals, mold, second hand smoke, vehicle emissions, and even genetic factors.

- **But Children Nationwide Are Not All Exposed To Limerick Nuclear Plant's Continuous Radiation Releases. Limerick Is Clearly A Major Factor In The Upward Trends In Childhood Cancers After It Started Operating.**
- **The Same Is True For Shocking Increases Far Above The National Average In Adult Cancers After Limerick Started Operating.**

Closing Limerick Nuclear Plant

**Is The Only Way to Stop Routine Radiation Releases
To Reduce Cancer Rates.**

As long as Limerick operates, radiation will continue to be released into our air, increasing risk of cancer and other diseases and disabilities caused by radiation exposure.