

Rulemaking Comments

August 10, 2009 (2:05pm)

From: lewiscuthbert@comcast.net
Sent: Monday, August 10, 2009 12:29 PM
To: Rulemaking Comments
Subject: Comments - Emergency Planning for Nuclear Plants
Attachments: NRC - Emergency Preparedness Comments - ACE - 8-09.docx; NRC - Emergency Planning - ACE Executive Summary 8-09.docx

OFFICE OF SECRETARY
RULEMAKINGS AND
ADJUDICATIONS STAFF

The Alliance For A Clean Environment (ACE)

1189 Foxview Road Pottstown, PA 19465

Executive Summary – August 2009

ACE is urging the Nuclear Regulatory Commission (NRC) to plan far more precautionary and protective requirements in emergency planning, in order to minimize harmful health impacts from radioactive poisoning, resulting from a nuclear power plant accident or terrorist attack

- A nuclear power plant accident or terrorist attack would clearly bring unprecedented harms to public health, the environment, and our already severely stressed economy.

Based on evidence from ACE's 8-year investigation of independent research, it is clear we cannot afford a nuclear plant accident or terrorist attack, yet the nuclear industry and NRC deceptively continue to minimize threats, instead of providing the safest precautions related to prevention of radiation exposure.

If major concerns related to radiation exposure (identified in our detailed comments), were acknowledged, considered, and fully addressed, by those at NRC who have the integrity to face reality and the courage to speak out, we believe the degree of radioactive poisoning from a nuclear power plant accident or terrorist attack and the resulting costs to the public could be significantly minimized. Based on what is at stake, NRC must begin to protect the public's interests with up-front preparedness, instead of continuing the back-end approach that protects only the bottom line of the nuclear industry. The public can't afford to let a disaster happen and only plan to deal with the devastating consequences after the fact.

ACE believes within our detailed comments we have identified the reality of the threats and made the case for why it is imperative for the nuclear industry to be required to provide far more preventive and protective actions. Identified below are precautionary and preventive actions which, if followed, would clearly lead to reduced public health risks from radiation poisoning and related public costs.

ACE Urges NRC To Require All Nuclear Power Plant Operators To:

1. Immediately notify the public of any radiation release due to an accident or attack.
2. Pay substantial fines for failure to provide immediate notification of any accident or attack, regardless of the levels or amounts of each radionuclide released.
3. Provide funding for independent public education in regions around nuclear plants on:
 - ✓ Radiation health impacts related to all types of radionuclides released from nuclear power plants, with full and accurate disclosure to promote immediate evacuation, with special classes on impacts to fetuses and children.
 - ✓ Educate the public in self-treatment for radiation poisoning since there would not be enough hospitals or other places to get treatment.
 - ✓ Provide well advertised full disclosure programming at least once a year focusing on detailed evacuation emergency plans (including why, where, and how), on all TV and radio stations within 50 miles of each nuclear plant.
 - ✓ Teach the most protective sheltering in place procedures to guard against all radionuclides potentially released.
 - ✓ Provide comprehensive checklists to all residents in the region, including all supplies essential to prepare for evacuation and/or sheltering
4. Guard against air strikes, missile attacks, and a larger number of terrorists.

5. Require back-up batteries for emergency sirens at all nuclear plants.
6. Remove all on-line aerial views of nuclear power plants.
7. Conduct a detailed virtual evacuation exercise annually using the most current population counts and traffic studies for the region around each nuclear plant. The exercise and NRC's evaluation should be made available to the public on the NRC and FEMA websites.
8. Pay the cost for evacuation plans for pre-school and day-care centers.
9. Pay for additional vehicles and drivers to complete immediate transport of all students from every school district in the EPZ at one time.
10. Expand the evacuation zone to at least 50 miles, a more realistic number of miles affected by a radiation release, particularly in the predominant wind direction.
11. Account for the wind direction at the time of the radiation release to avoid having masses of people evacuating with the plume. People should be told they may be asked to shelter in place or go a different direction.
12. Pay to build shelters at least 50 miles away in each direction from the nuclear plant. Shelters should be built like bomb shelters, since people would be facing the same kind of radiation poisoning as with a bomb.
 - ✓ Expand the number of public shelters to more realistically accommodate the population around each nuclear plant, including food and water supplies.
 - ✓ A section in each shelter should accommodate pets.

ACE Requests A Response From NRC As Soon As Possible:

- A. We request that our executive summary and entire detailed comments be posted on the NRC website.
- B. We request that NRC give careful consideration to the reality of the serious threats from a nuclear power plant accident or attack, identified with evidence in our detailed comments.
- C. ACE requests that NRC improve prevention, precaution, and the emergency plan related to nuclear power plant accidents and terrorists attacks by complying with the list of 12 requests above, made by residents in our region. If NRC does not comply with requests, please provide justification.

Detailed Comments Follow

Date: August, 2009

To: NRC Rulemakings and Adjudications Staff
Secretary, U.S. NRC
Washington, D.C. 20555-0001

From: The Alliance For A Clean Environment (ACE)
1189 Foxview Road Pottstown, PA 19465

**Re: Response To Agencies Seeking Input
On Rules and Plans For Emergencies
Related To Nuclear Power Plants**

ACE Comments Include Requests That NRC Take Action To Reduce Radiation Exposures In NRC's Proposed Rule Amending For Emergency Preparedness Requirements For Licensed Nuclear Facilities.

ACE appreciates the opportunity to comment on these important issues. It is our hope that NRC employees who review our comments will do so with an open mind and have the courage to speak up in support of our requests in an attempt to minimize the degree of radiation poisoning to protect public health and safety in the event of a nuclear power plant accident or attack.

Emergency preparedness requirements have major implications for our region, which is the home of Limerick Nuclear Power Plant. Residents have long expressed many serious concerns to ACE, related to emergency planning requirements. We welcome this opportunity to now bring all their most serious concerns to NRC's attention.

Based on our 8-year investigation, we do not believe the proposed emergency plan deals realistically or comprehensively with all harmful health impacts to the public from radiation poisoning due to a nuclear power plant accident or terrorist attack. We believe harmful health impacts could be minimized with improved up-front realistic emergency planning and stricter enforcement of regulations that already exist.

Clearly, of utmost importance is precaution and prevention. A nuclear power plant accident or terrorist attack would be a costly unthinkable disaster and must be prevented with the utmost precaution, regardless of the potential costs to the nuclear industry. It appears that currently NRC is valuing costs to the nuclear industry over the realistic need to protect public health and safety.

A nuclear power plant accident or terrorist attack would clearly bring unprecedented, long lasting harms to public health, the environment, and our already severely stressed economy. Statistics below show why we are concerned and why it is imperative for NRC to take this threat seriously enough to require the nuclear industry to provide the most precautionary measures.

Limerick Nuclear Plant Accident Calculations Based On 1980 Data (CRAC Report To Congress 1982)

- ✓ 74,000 Early Fatalities
- ✓ 610,000 Early Injuries
- ✓ 34,000 Cancer Deaths

Fatalities, Injuries, Cancer Deaths Would Be Far Higher Today

Limerick Area Population Growth (2000 Census)

- ✓ 1980'S 26 % INCREASE
- ✓ 1990'S 102 % INCREASE

Estimated Costs (2004 Dollars) – TAXPAYERS PAY All Costs Over \$10 Billion

- ✓ \$417 Billion Limerick 1
- ✓ \$386 Billion Limerick 2

Evidence suggests we cannot afford a nuclear plant accident or terrorist attack, yet the nuclear industry and NRC deceptively minimize threats instead of providing the safest precautions. They also fail to follow and enforce some safety regulations that are in place.

ACE's 8-year investigation related to Limerick Nuclear Power Plant's threats to our region due to accidents and terrorist attacks started after 9/11. Evidence is clear, to best protect the public's health and financial interests, NRC must start to require far more preventive and protective actions from the nuclear industry and strictly enforced all regulations that are in place, related to the actual potential for devastating accidents and terrorists attacks at nuclear plants.

ACE repeatedly shared results of our findings related to emergency planning through our local cable weekly TV shows that go out to 65,000 homes. From the region's residents who contacted us after our TV shows, it became clear that vast numbers of people did not understand the radiation health threats and impacts from a nuclear power plant accident or attack. Therefore, they were not taking personal emergency planning seriously. Most were totally unprepared and had no idea what to do to protect their families, including which roads they were to take during evacuation or where they should go. Others shared the concerns and suggestions we have identified in this document.

After reviewing NRC's Federal Register Document 10 CFR Parts 50 and 52, Enhancements to Emergency Preparedness Regulations; Proposed Rule, published on line May 18, 2009, we believe the emergency plan and recommended enhancements do not adequately address precaution and prevention or the reality of public impacts from all aspects of radiation exposure due to a nuclear disaster. Many concerns we are raising still remain unaddressed in NRC's proposed changes. The complicated procedures listed in NRC's requirements provide the illusion of protection. However, we believe they fall far short of requiring the most precautionary measures to avoid an accident or attack, and fail to plan to adequately prevent prolonged unnecessary radiation exposures. Most nuclear industry positions in the current document being reviewed are clearly not in the public's best interests.

First and foremost, people within 50 miles of nuclear plants need better access to education about radiation exposure risks, with full and accurate disclosure about the harmful health impacts from all the types of radiation that would be released in a nuclear plant disaster. Only then will most people take meaningful action in preparing to protect their families.

- **Based on what is at stake for the public, ACE believes if major concerns we will identify in these comments on emergency planning would be acknowledged, considered, and fully addressed by NRC, the public's interests would be far better served and the degree of some harms from a potential nuclear disaster could be minimized.**

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Detailed Information Follows That Supports Our Requests

1. Immediate Notification Of A Nuclear Power Plant Accident Or Terrorist Attack Is Imperative

Full and accurate disclosure on the health harm from radiation exposure due to nuclear power plant emissions is imperative. To make the most protective decisions and take precautionary action for their families, people need to be told the truth about radiation's harmful health impacts and they must be notified immediately after a nuclear power plant accident or attack - not days, hours, or even 15 minutes later.

Many reputable scientists (based on their research) believe there is no safe dose of radiation exposure - that there is no threshold for radiation damage to humans – no dose which is harmless. Every minute the nuclear industry waits to notify the public is time lost in attempting to prevent unnecessary radiation poisoning.

At public meetings it became clear to us NRC fails to take radiation exposure seriously and has no intention of immediate notification for radiation released during accidents.

NRC officials stated publically (confirmed with video) that:

- ✓ Public notification could be in hours or days;
- ✓ Notification would only take place if levels were high enough;
- ✓ Radiation released may not escape off-site.

Based on independent radiation exposure research that concludes there is “no safe dose”, these NRC statements and positions not only defy logic, they indicate the failure of NRC to adequately protect public health and safety. This has major implications related to emergency requirements for notification of a nuclear power plant accident or attack and emergency preparedness.

We ask why NRC is unwilling to recognize and respond to independent scientific research related to radiation exposure. How can the public have confidence in NRC's will or ability to protect public health? Many of our region's residents have questioned whether NRC has been deceived by nuclear industry funded science for sale, or co-opted.

As expected, the nuclear industry continues to deceptively claim doses are too small to cause harm. They dismiss concern using illogical industry funded spin. Inexplicably, NRC repeatedly defends and supports the nuclear industry, instead of using independent research to revise radiation standards to be more protective, taking actual measurements for all kinds of radiation released from the nuclear plants, and requiring all the most protective safeguards.

The facts are clear. A broad range of radionuclides are routinely and accidentally released from nuclear power plants. That same broad range of radionuclides would be released in a disaster situation. No one can accurately determine the harmful impacts to individuals, especially fetuses, children and those already suffering from cancer and other serious illnesses. Synergistic, additive, and cumulative harmful health impacts from radiation releases are unknown. When preparing for emergencies after a nuclear disaster, the reality of the potential for harmful health impacts from radiation exposure should be the driving force in all emergency preparedness decisions.

It is better to be informed immediately than to be unnecessarily, unknowingly poisoned. To best protect public health NRC needs to deal with the reality of radiation exposure and demand immediate notification by the nuclear industry.

- People must be given immediate notification of any radiation accident or terrorist attack to have the opportunity to take immediate action to avoid exposure to the degree possible.
- NRC's dismissive attitude about harmful impacts of radiation exposure allows the nuclear industry to have far too much time to inform the public after a radiation accident.

It is unacceptable to fail to provide immediate, full and accurate disclosure.

- ✓ Each minute, hour, or day the public remains unaware, is precious time families could be taking action to minimize harmful health impacts by immediate evacuation or sheltering in place.
- ✓ Those responsible appear more concerned about hiding the truth to 'avoid panic' than preventing unnecessary radiation exposure to the public. Potential panic is no excuse to avoid full and accurate disclosure. It's better to be panicked than poisoned. Panic can be minimized with better education on radiation exposures and emergency preparedness.
- ✓ Radiation amounts released should not determine whether or not to immediately notify the public, especially since it is impossible to determine accurate levels of all radionuclides released or what the synergistic harmful impacts will be to any fetus, child, or individual.
- ✓ We should not have to wait for notification until the nuclear industry's public relations spin machine gets a whitewash prepared.
- ✓ It is inexcusable to wait until the nuclear industry attempts to correct the problem(s) causing the radiation releases. All the while people are being exposed and uninformed.
- ✓ The nuclear industry had leaks which went unreported and/or were only reported after the leak was corrected.
- ✓ At Limerick for example, we identified accidents or releases of radiation above their routine releases, when Exelon waited far too long to inform the newspaper. It was far too late for parents or pregnant women to attempt to avoid exposure.
- ✓ The big mistake at TMI. It was days before the public was notified. People were unnecessarily exposed to increased amounts of radiation for days when they could have made a decision to leave the area to better protect their families..

2. **Potassium Iodide (KI) pills – A deceptive illusion that could lead to a false sense of protection and unprotective decisions** A broad range of radionuclides would be released during a nuclear power plant accident or attack. The public needs to be told the whole truth and advised about how to best protect their families from all types of radionuclides that could be released during a nuclear power plant accident or attack. Handing out KI pills leads people to believe they are protected, when in reality KI pills protect against only one type of radiation. A false sense of protection can lead to decisions that could unnecessarily further jeopardize people.
 - To best protect the public, they need to be better educated about how to best protect their families from all types of radionuclides that could be released in a nuclear disaster. It should be clearly explained that KI pills protect people from just one of the radionuclides that would be released during a nuclear power plant accident or attack.
3. **The evacuation plan fails to account for the wind direction of the radiation plume after the accident or attack.** Instead of traveling away from radiation releases in evacuation, large numbers of people would be traveling with the radiation released, increasing their exposure risk. Gridlock due to accidents, breakdowns, or just from heavy traffic would further extend exposure time in the plume. This is a serious oversight and flaw in the evacuation plan.
 - The evacuation plan needs to redirect people in the predominant wind direction away from the plume of a nuclear disaster, to take another route to avoid prolonged radiation exposure or advise them to shelter in place until the safest route of evacuation can be determined.
4. **10-Mile Evacuation Protection Zone (EPZ) is inadequate.** Evidence suggests people hundreds of miles away could be impacted. Chernobyl taught us radiation released during an accident can travel great distances. 50 miles was first discussed in official documents during Limerick planning. So why is the EPZ only 10 miles, especially in the predominant wind direction? There is no magic radiation shield at 10 miles. Vast numbers of people would never even be warned to protect their families. For example in our region, Philadelphia is only 21 miles in the predominant wind direction from Limerick Nuclear Power Plant.
 - The Emergency Preparedness Plan needs to extend the EPZ much farther to be more protective of public health.
5. **Back-up power for warning sirens is not required at Limerick and many other nuclear power plants.** It is ludicrous to believe in densely populated areas around nuclear plants that it is practical or acceptable to rely on bull horns and door knocking to alert hundreds of thousands of people. Even if emergency personnel would not abandon the mission to avoid their own radiation exposure, their time would be far better spent dealing with emergencies that would result from a nuclear disaster. August, 2006 it was reported that out of the 63 nuclear power stations across the U.S., only 17 had sirens that could be heard during a power failure.

During an August, 2006 power outage around Limerick Nuclear Plant, 48 of 165 off-site sirens were off-line for 5 days. Instead of providing back-up power for sirens in black-outs, Exelon illogically still plans to warn potentially hundreds of thousands of people of a radiological emergency with emergency workers driving through the vast numbers of crowded streets making announcements with bull horns or knocking on doors, all while people are attempting to evacuate.

- For NRC to allow Exelon or other wealthy corporations to refuse to provide back-up power for warning sirens in a blackout is an inexplicable and unacceptable risk to public safety. All nuclear plants owners must be required to provide back-up power for sirens during a blackout to avoid unnecessary radiation exposures. Reliable back-up power for warning sirens at all nuclear plants would insure far more timely notification of an accident or attack. Emergency workers' time would not be spent helping needy people to evacuate or with people suffering from radiation poisoning.

6. The Emergency Evacuation Plan is unrealistic and unworkable in heavily populated regions such as the region around Limerick Nuclear Power Plant.

For example, the region around Limerick Nuclear Plant is too heavily populated for a timely or safe evacuation.

- The 2000 Census showed well over ¼ million people live within 10 miles of Limerick.
- Vast numbers of people would attempt to use Route 422 during an evacuation.
- January 18, 2009 the Philadelphia Inquirer article "*Sprawl to Crawl on Route 422*" said the Route 422 corridor is home to an estimated 296,000 residents. Population is expected to increase 12% by 2030. Route 422 was called the spine of one of the fastest growing corridors in Southeast PA.
- Daily backups surface in several spots on Route 422 during rush hour. The Inquirer reported average daily traffic now reaches 102,000 vehicles in spots.
- October, 2005 the Mercury pictured massive gridlock on 422 caused by an accident and suggested an emergency evacuation of the area could produce similar traffic congestion. In fact, evacuation gridlock could be even far worse: Restricting lanes to 1 direction of travel would not be applicable to Route 422 if residents in the 10 mile zone were ordered to leave.

Hurricane Katrina and the 2007 snow emergency in PA demonstrated that we are ill equipped to evacuate large populations in the event of a radiological emergency.

- If we can't get people off a highway for more than 24 hours due to snow and ice, how are we going to safely evacuate an entire enormous population around Limerick or another nuclear plant from a radiological emergency where immediate escape is crucial to avoid unnecessary cancers and other serious health threats?
- Katrina led to motorists reporting traveling 20 miles in 9 hours. What could gridlock for that amount of time mean when people could continuously be exposed to radiation released during a nuclear disaster?

7. Better education is essential, on how to shelter in place to best protect people from all the kinds of radiation that would be released in a nuclear power plant accident or attack. Starting with the truth about the actual risk from radiation exposure, we believe NRC has a responsibility to do far more comprehensive education in how to shelter in place to protect families from all the kinds of radiation that would be released during a disaster.

Information below suggests why people around Limerick need to better understand what would be required to prepare to shelter in place after a nuclear power plant accident or attack at Limerick.

- Limerick area's population growth is staggering – 102% in the 1990s, and 26% growth in the 1980s (according to the 2000 Census). From 2000 to 2009 major population growth continued. Vast numbers of new businesses attract out of region residents, including many very close to the nuclear plant. When you couple tens of thousands of vehicles which would be frantically scrambling to attempt to escape with an infrastructure that can barely handle normal day-to-day traffic and congestion, it is easy to understand why safe evacuation is unlikely, if not impossible. Anyone who has driven Route 422 and other major area roads during normal, non-emergency rush hour situations understands the problems and perils of traffic backups. So what would happen if the region tried to flee a radiation emitting catastrophe at Limerick Nuclear Plant?
- Limerick officials in 2001 expressed concern that the emergency plan relies too heavily on volunteers to evacuate the elderly or disabled, to direct traffic, etc. They stated it's not that volunteers are unable to perform the duties required in the plan, but who's to say that these volunteers will "stick around" and "not high tail it out of here with the rest of the population". In Louisiana during the flood some responsible to

take care of others did escape instead. We can only imagine what would happen when there would be threats of radiation poisoning from an accident or attack.

- There are 22 schools and day-care centers just within 3 miles from Limerick Nuclear Plant, most in the predominant wind direction.
 - ✓ Large school districts do not have enough buses or drivers to evacuate all children at one time. School bus drivers have admitted to ACE members that they will make the first run, but are unlikely to return for the second. Some questioned their ability to get their school children out during the first run due to traffic congestion.
 - ✓ Allowing the nuclear industry to ignore preschool and day care children in emergency planning around nuclear plants is shameful. As of 2007 day care centers and nursery schools had still been left out of emergency planning even though there has already been a nuclear accident in PA and a 1984 federal law required their inclusion. NRC inexplicably refused to enforce its own law. Was that because the nuclear industry argued that it is not their responsibility to help these kids get out of harm's way? GM EV-2's protective measures still do not appear to be enforced for preschoolers in PA.

8. **There are not nearly enough shelters planned for heavily populated regions such as the one around Limerick and shelters aren't planned far enough away from the nuclear plant.**

A Red Cross meeting on Limerick's evacuation plans was held after 9/11. A Red Cross worker admitted to an ACE officer that there aren't nearly enough shelters planned for the enormous numbers of residents who would need to evacuate from the region around Limerick. We suspect this would be true around many other nuclear plants as well. We also suspect we could have a shelter situation almost as bad as New Orleans, with no place for so many people to try to find shelter and supplies.

- Many more shelters need to be planned to accommodate enormous population increases in the region around Limerick and other heavily populated plants and at much greater distances away than 10 miles, especially in the predominant wind direction.

9. **Facts suggest nuclear power plants are a clear and present danger - that each reactor is a potential Chernobyl.** It is illogical for the nuclear industry or NRC to continue to falsely claim that a meltdown is highly unlikely.

Facts below dispute nuclear industry deception claiming nuclear power plant accidents are unlikely.

- **Nearly 200 "near misses" to nuclear meltdowns (almost major accidents) at U.S. nuclear plants since 1986, were documented in a 2006 Greenpeace report using NRC documentation.**
 - Reported Facts About Limerick Highlight Our Concern In Emergency Planning
 - ✓ This report revealed 2 such incidents at Limerick Nuclear Plant (1995, Unit 1 and in 2001, Unit 2.)
 - ✓ Limerick is one of the plants which has substandard containment, meaning if an accident occurred, much more radioactivity would be released.
- **Fire is estimated to be 50% of meltdown risk. The General Accountability Office (GAO) said there were 125 fires reported at 54 power plants since 1995.**
 - ✓ Americans are only protected from meltdown risk as a result of a fire when all nuclear plants are in complete compliance with all fire safety laws. October 2008, it was reported that all U.S. plants are still in violation of fire safety rules put in place in 1976 and 1980.
 - ✓ Fire safety rules were put in place after the worst fire ever at an American nuclear plant at Browns Ferry plant in Alabama in 1975, which raged for seven hours. As of April, 2008 a "risk-based approach" was only adopted by 46 of 105 reactors according to the GAO.
 - ✓ To date, it is still not clear if Limerick is in full fire safety compliance. Limerick was not one of the 46 nuclear plants that adopted a risk based approach to fire safety in 2008.
- **Lack of water can result in a meltdown. Below are examples of just a few recent incidents where lack of water easily could have led to a disaster.**
 - ✓ June 11, 2009 it was reported that a disaster related to lack of water was narrowly avoided and only spotted by chance at Sizewell in England. Two years earlier a burst pipe inside the station led to a huge leak from the pond used to cool thousands of nuclear fuel rods. If the nuclear fuel rods had caught fire, the resulting radioactive plume could have caused a nuclear disaster.

- ✓ September, 2008, it was reported that the Oconee nuke plant had 2 reactor coolant pumps exceeding reactor cool-down limits, triggering a potentially disastrous loss-of-coolant accident. For 8 ½ hours personnel overlooked an alarm blinking in the control room indicating high levels of radiation inside the reactor containment building.
- ✓ April 24, 2007 the coolant level of Unit 2 went very low at Limerick Nuclear Plant and caused a shut down. Low coolant level can lead to disaster. Five days after refueling, April 9, 2007 there was a problem with a seal on the pump. 15 days later there was still no explanation.
- **Mechanical breakdown, corrosion, and human error** are all problems that could easily lead to another nuclear disaster requiring evacuation or sheltering in place.
 - ✓ Nuclear plants are being run harder and longer, increasing the chance for mechanical breakdowns. Just as with cars, the longer and harder they are run, the more chance for mechanical breakdowns. Exelon is running Limerick harder and harder as it ages, increasing the chances for mechanical failure. At Limerick the percent of time in operation has been increasing. From 1999 to 2005, Limerick's reactors were operational 96.7% and 96.3% of the time, according to NRC data through February 2005. It could be only a matter of time before mechanical failure causes a meltdown. Why would we be expected to assume that every back-up emergency system will continue to work every time?
 - ✓ Limerick and many other plants now store their deadly high-level radioactive wastes above ground in casks. NRC found problems with the corrosion rates of metals used to store this nuclear waste (January, 2006 report). Each day Limerick and likely others add hundreds of pounds of corrosive chemicals to the cooling tower waters. Impacts from corrosives in over 35 million gallons of steam released into the air every day from nuclear plants like Limerick are not yet fully understood, but it seems this could be setting up a recipe for future problems related to storage or removal related to corrosion or even fires.
 - ✓ Human error has been responsible for previous nuclear disasters. There is no guarantee that human errors won't happen again.
- **It only takes one missed mechanical failure to cause a meltdown disaster.** There were 18 "significant precursors" or equipment failures at U.S. nuclear plants and 337 that more modestly increased the risk of a meltdown. A sampling of nuclear safety problems since the TMI accident in 1979, that could have led to a meltdown is listed below (USA Today).

We list these examples below to remind NRC why the most precautionary emergency plans must be required by NRC, regardless of the cost to the nuclear industry.

- ✓ Corrosion damaged emergency pumps causing leaks - 2002
- ✓ Loss of power needed to run vital core cooling systems - 1996
- ✓ Misaligned valve prevented water from flowing into the reactor core - 1994
- ✓ A broken relief valve for emergency system that injects water into reactor core - 1991
- ✓ Emergency tank water got too low because the pump was set at too low a level - 2006
- ✓ Debris from water tank's rubber lining floated in water potentially causing failure of all emergency pumps that cool the reactor in case of overheating - 2002
- ✓ Electrical breakers to operate pumps to cool the core were faulty - 2002
- ✓ Cables to operate core-cooling systems were too close to sprinkler systems in case of fire - 2001

10. Nuclear Plants Are Still Vulnerable To Terrorist Attacks By Plane or Missile.

In spite of unprecedented threats to millions of people from an air strike or missile attack on nuclear plants (a known terrorist capability), NRC won't make decisions to hold the nuclear industry accountable for their extraordinary threat to society. They won't make decisions that cost the nuclear industry more money.

Investigations by the 9/11 Commission revealed terrorists' interest in attacking commercial nuclear power plants. NRC should assume that terrorists will someday use a plane or missile to attempt to attack a nuclear power plant and require the owners to guard against them. Yet the nuclear industry and NRC are refusing to provide protection against the kinds of terrorist attacks that already happened.

Facts suggest it's illogical and negligent for NRC to allow the nuclear industry to avoid the costs to prevent a terrorist attack by a plane or missile. Widespread devastation could result from just one terrorist plane or missile attack on a nuclear plant. Each nuclear reactor is a potential Chernobyl.

If someone by design or by insanity wants to do maximum damage to public health, the environment and to economically dislocate potentially large geographic areas for a long time, nuclear power plants become the target of choice. Curie for curie, nukes have hundreds of times more radioactivity than bombs.

Experts have concluded that a typical nuclear plant (core and waste pools) contain 4 to 5 times more radioactivity than released at Chernobyl and hundreds of times more radioactivity than that released at Hiroshima and Nagasaki.

We can't be expected to assume NRC's policies will prevent tomorrow's attack, when they would not have prevented yesterday's attack. The Union of Concerned Scientists stated that NRC's policy is questionable at best and regulatory malfeasance, at worst. It's the height of hypocrisy for NRC to support the nuclear industry's claim that nuclear plants are safe or that it is not necessary to guard them against planes or missiles.

- **Clearly, NRC should require nuclear plant owners to guard against air strikes, missiles, and large group terrorists' attacks.**
 - ✓ Nuclear plants like Limerick are especially vulnerable to air attacks like those which already occurred on 9/11.
 - ✓ Many years after the 9/11 Commission Report was released, nuclear plants, including Limerick, are still vulnerable and not protected against plane or missile attacks by terrorists.
 - ✓ In reality, the only protection against terrorists causing a devastating nuclear power plant disaster appears to be a handful of guards that would clearly be unable to stop an air strike, missile attack, or attack by a large number of terrorists.
- **There is no acceptable excuse for NRC to fail to require the nuclear industry to be responsible to provide the most precautionary protection against air strikes, missile attacks, and an attack by large numbers of terrorists.**
- **Nuclear power plants are making record profits while jeopardizing public health and safety to the maximum degree. Given what is at stake, NRC cannot allow the nuclear industry to avoid paying for the utmost precaution and prevention related to potential terrorists strikes on nuclear plants.**

Alarming Facts About Unique Vulnerabilities That Must Be Considered:

- **GE Mark II design reactors, such as Limerick 1 and 2, are extremely vulnerable to terrorists' attacks for several reasons that should result in required nuclear industry protection against air strikes and missiles.**
 - ✓ GE Mark II spent fuel pools are located over 60 feet above ground and outside the reinforced containment dome that houses the reactor.
 - ✓ October 2000 NRC stated on the record that "Mark I and II secondary containments generally do not appear to have any significant structures that might reduce the likelihood of aircraft penetration.
 - ✓ An aircraft crash would likely lead to a breach of the fuel pool and the loss of cooling water from the pool, potentially causing the zirconium cladding on the fuel rod assemblies to ignite, releasing up to 100% of the radiation contained therein.
 - ✓ Such a large release of radiation from a fuel pool fire would be devastating and deadly to the surrounding community and those hundreds of miles away.
 - ✓ This danger persists for as long as the fuel remains in the pool, whether the reactor was operational or not.
- **In reality, even small aircraft loaded with fuel could cause a significant radiation leak or a fire that could lead to a meltdown. Yet to date, NRC has failed to acknowledge or address threats from small airplanes.**

Terrorists could use small planes from airports too close to nuclear plants to cause great damage and risk.

Damage From Small Planes Must Be Prevented – Limerick Example:

- ✓ In a 1992 Emergency Preparedness Document for Health Care Facilities, the following statement validates our concern: "*Major damage to plant safety systems is likely to occur or has occurred due to an ...aircraft crash. explosion*"
- ✓ Limerick Airport is about 1 Mile From Limerick Nuclear Power Plant – that airport should have been closed immediately after 9/11. There is an airport in Pottstown only 5 miles away, and another close by.
- ✓ Limerick Airport still gives pilots lessons

- ✓ We recently learned that a drunken pilot who flew into the Limerick Airport could not have been shot down if he would have been a terrorist. The attack could not have been prevented.
 - ✓ A small plane crash too close to Limerick Nuclear Plant involving a training pilot caused much fear among residents.
 - ✓ Helicopters frequently fly in and out of Limerick Airport. One day missiles could easily be launched from a helicopter.
- **“Nuke Plants Not Responsible For Airliner Attacks”** 1/31/07 Mercury Article by Evan Brandt reveals NRC’s failed policies in holding the nuclear industry accountable to protect the public against air attacks on nukes .
 - ✓ NRC is not requiring the nuclear industry to provide the protection against 9/11 style terrorists attacks with airplanes or rocket-propelled grenades.
 - ✓ Instead NRC is protecting the financial interests of the nuclear industry at the public’s expense.
 - ✓ NRC has allowed the nuclear industry to avoid the protection that is clearly needed in today’s world.
 - ✓ NRC is relying on post-crash measures and evacuation plans instead of prevention.
 - ✓ Exelon will not be required to protect our region against a plane or missile attack at Limerick Nuclear Power Plant, regardless of the reality of the risks.
 - ✓ The nuclear industry irresponsibly argued that protecting nuclear plants against planes, missiles, or a large ground attack force should be the responsibility of the government.
 - ✓ NRC’s new plan assumes that a terrorist attack force would be relatively small and its weapons limited.
 - ✓ Instead of sizing the design basis threat on an actual air or missile strike, NRC bases security standards on what the nuclear industry believes a private guard force can be expected to handle.
 - ✓ Senator Barbara Boxer, with jurisdiction over NRC wrote a letter that was ignored, stating “NRC’s defense requirement should ensure that ... the plants are prepared to defend against large attacking forces and commercial aircraft.”

This must change to protect the public’s interests. After 9/11 the public paid the National Guard to protect Limerick Nuclear Power Plant. Clearly, the public can’t afford to continue to guard all the nation’s nuclear power plants 24 hours a day. And we shouldn’t. The nuclear industry is making record profits and taking the public’s money to deal with their deadly high-level radioactive wastes, liability, and loan guarantees for new nukes. It is time for this industry to be held accountable for what is their cost of doing business.

- **Nuke Plants Have Been Turned Into High-Level Radioactive Waste Dumps Which Provide Large, Hard To Miss, Devastating Targets For Terrorists.** For terrorists who want to do maximum damage to public health, high-level radioactive wastes stored at nuclear plants provide large hard to miss targets

NRC should require the nuclear industry to protect their on-site defacto high-level radioactive waste dumps from air strikes and missiles.

- ✓ The Union of Concerned Scientists stated the primary concerns are radioactive fuel within the reactor and spent fuel stored onsite after removal that must continuously be cooled to prevent fire and the disaster that can follow.
- ✓ The nuclear industry has turned nuclear plants like Limerick into defacto high-level radioactive waste dumps, now storing their deadly high-level radioactive wastes above ground on-site in very large casks, in addition to those stored in the fuel pools.
- ✓ In addition to overflowing high-level radioactive waste fuel pools at nuclear power plants, that if hit by a plane or missile, could cause the devastation of several Hiroshimas, terrorists also have very large inviting targets of the high-level radioactive wastes being moved and stored above ground in large rows of hard to miss casks.
- ✓ Army testing shows casks can be penetrated by missiles. A Canadian study shows that 10 years after removal from fuel pools the high-level radioactive wastes contain over 211 radioactive chemicals. Some are easily airborne.
- ✓ It is time for NRC to give more weight to independent army testing and logic rather than biased information produced by the National Energy Institute (NEI), the biased lobbying arm of the nuclear industry. Case in point - the misleading and illogical report by the NEI after 9/11, claimed that nuclear power plant structures would protect against a release of radiation even if struck by a large commercial jetliner.

NRC should also insure the safety of high-level radioactive wastes stored above ground at nuclear plants from tornados, aircraft crashes, and explosions.

- ✓ Even small aircraft loaded with fuel can cause explosions, which could lead to dangerous fires in the above ground high-level radioactive wastes or in releasing the water cooling the deadly wastes in fuel pools.
 - ✓ Tornadoes could also play a part in such a nuclear disaster.
 - ✓ At Limerick there is also a fault line which was never fully investigated to our knowledge, related to potential impacts on the deadly wastes.
- **Virtual Reconnaissance increases security threats from US Nuclear Power Plants. Terrorists and saboteurs can see far too much detail, providing advantages to attacking forces. NRC should ban the opportunity for virtual reconnaissance on all nuclear plants and radioactive waste sites. High resolution mapping Websites should be required to remove this information immediately.**
 - ✓ An enemy sitting thousands of miles away can determine where all guard towers are located, know where and when all plant shift changes occur, and determine locations of nearby highways and staging areas that could be involved in an evolving attack plan.
 - ✓ Terrorists can have a "bird's eye view" of the on-site nuclear waste storage casks.
 - ✓ Some defensive positions of nuclear plant guards are revealed due to the elevated level of clarity and resolution.
 - ✓ These images reveal pathways, stairways and potential staging areas giving terrorists the ability to plan the quickest or best route to specific targeted buildings.
- **Lax Security - Nuclear power plants still remain vulnerable to terrorist attacks due to NRC's reluctance to immediately detect and/or address lax security.** Using Limerick Nuclear Power Plant as an example, we believe NRC must start to take the threat seriously and take immediate action, regardless of costs to the nuclear industry.
 - ✓ Sleeping Guards - In 2006 ACE members were contacted by insiders about sleeping guards at Limerick Nuclear Plant and guards involved in romantic episodes on duty. ACE reported the reported dangerous lax security allegations at the yearly NRC meeting in 2006 and in writing following the meeting. We also identified numerous security problems documented at multiple U.S. nuclear facilities guarded by Wackenhut Corporation (the same company guarding Limerick). We identified a report titled, "Homeland Insecurity: How the Wackenhut Corporation is Compromising American's Nuclear Security."
 - Exelon and NRC both defended security by Wackenhut and claimed no problems or knowledge of what we reported.
 - Exelon and NRC refused to take action until forced into dealing with lax security issues by Wackenhut when a whistle blower caught a guard sleeping on camera at another nuclear power plant,
 - While Wackenhut was finally replaced, in reality NRC and Exelon were either unaware about lax security or were covering up lax security instead. Even though Wackenhut was replaced, the same kinds of things could still be happening undetected or unaddressed. NRC has ignored serious safety problems because NRC isn't adequately enforcing its standards and has cut back on inspections. This can lead to unacceptably high safety and security risks.
 - ✓ Security Guards Claim They Were Overworked and Underpaid. This needs independent investigation and action to make changes that insure the best security. Plant operators found it more profitable to push existing security forces to the limit, rather than hire new guards. Security guards may have been sleeping because they have been pushed to the limit. A national survey found security guards around the country complained about:
 - Frequent 60-hour work weeks - some even had 72-hour workweeks
 - Guards complained about:
 - exhaustion from overtime
 - poor compensation – below janitorial staff
 - ✓ Nuclear Power Plant Security Guards are not highly trained paramilitary forces as was suggested by the lobbying arm of the nuclear industry, the National Energy Institute (NEI) in ads in 2002.
 - Security guards themselves have complained about poor training
 - Some admit they wouldn't be willing to put their lives on the line given the pay and treatment they receive from some in management.
 - ✓ We Believe Inadequate Numbers of Guards Are Required To Stop A Large Terrorist Attack Force.

Using Limerick for an example - While no one will tell us how many security guards work at Limerick Nuclear Power Plant on each shift, we suspect it's only a handful. If that is accurate, it is imperative for NRC to provide an independent evaluation of the process and require the hiring of more security guards to fully protect the site.

- It is unreasonable to assume a handful of guards can fully protect the 449 acre Limerick Nuclear Power Plant site.
- How could only a few guards eliminate access by boat when the Schuylkill River is a very large border of the site?
- Could a few guards detect terrorists that get onto the site hiding in the industrial rail cars that travel right through the site?

- ✓ Security Guards are not highly trained, according to an investigation on Security Guards. They have been over worked and underpaid in the past. This should be investigated by NRC. It could explain all the on duty sleeping guards, and why we question their readiness in the event of an attack.

Evidence identified in these comments from ACE's 8-year investigation suggests that to truly protect the public's health and financial interests to the degree possible, NRC must start to require far more preventive and protective actions from the nuclear industry related to the very real potential for deadly accidents and terrorists attacks at their nuclear plants.

ACE is hopeful that in the interest of preventing an unthinkable disaster at a nuclear power plant, the NRC employees who review our comments will have a strong commitment to public health and safety. We urge them to speak up now in support of our requests, in order to best prevent a nuclear power plant disaster and to prevent unnecessary risks to public health and safety in the event a nuclear power plant disaster is not prevented.

Please Inform Us Of Your Response To Our Requests As Soon As Possible:

- 1) ACE requests that our comments be posted on the NRC website.**
- 2) ACE requests that NRC give careful consideration to the reality of the threats contained in these comments.**
- 3) ACE requests that NRC improve prevention, precaution, and the emergency plan related to nuclear power plant accidents and terrorists attacks by complying with the list of 12 requests made by residents in our region from page 2. If NRC does not comply with requests, please provide justification.**

Copies of ACE comments were made available to:

President Obama
U.S. Senator Casey
U.S. Senator Specter
U.S. Senator Barbara Boxer
Congressman Gerlach
Congressman Dent
Congressman Sestak
FEMA
Governor Rendell
PA Senator Rafferty
PA Senator Dinniman
PA Representative Quigley
PA Representative Hennessey
PA Representative Vereb
PA DEP Secretary Hanger

Montgomery County Commissioners, Planning Commission, and Health Department
Chester County Commissioners and Health Department
All Local Governing Municipalities Surrounding Limerick Nuclear Plant
Pottstown Mercury
Philadelphia Inquirer

Date: August, 2009

To: NRC Rulemakings and Adjudications Staff

Secretary, U.S. NRC
Washington, D.C. 20555-0001

From: The Alliance For A Clean Environment (ACE)

1189 Foxview Road Pottstown, PA 19465

**Re: Response To Agencies Seeking Input
On Rules and Plans For Emergencies
Related To Nuclear Power Plants**

ACE Comments Include Requests That NRC Take Action To Reduce Radiation Exposures In NRC's Proposed Rule Amending For Emergency Preparedness Requirements For Licensed Nuclear Facilities.

ACE appreciates the opportunity to comment on these important issues. It is our hope that NRC employees who review our comments will do so with an open mind and have the courage to speak up in support of our requests in an attempt to minimize the degree of radiation poisoning to protect public health and safety in the event of a nuclear power plant accident or attack.

Emergency preparedness requirements have major implications for our region, which is the home of Limerick Nuclear Power Plant. Residents have long expressed many serious concerns to ACE, related to emergency planning requirements. We welcome this opportunity to now bring all their most serious concerns to NRC's attention.

Based on our 8-year investigation, we do not believe the proposed emergency plan deals realistically or comprehensively with all harmful health impacts to the public from radiation poisoning due to a nuclear power plant accident or terrorist attack. We believe harmful health impacts could be minimized with improved up-front realistic emergency planning and stricter enforcement of regulations that already exist..

Clearly, of utmost importance is precaution and prevention. A nuclear power plant accident or terrorist attack would be a costly unthinkable disaster and must be prevented with the utmost precaution, regardless of the potential costs to the nuclear industry. It appears that currently NRC is valuing costs to the nuclear industry over the realistic need to protect public health and safety.

A nuclear power plant accident or terrorist attack would clearly bring unprecedented, long lasting harms to public health, the environment, and our already severely stressed economy. Statistics below show why we are concerned and why it is imperative for NRC to take this threat seriously enough to require the nuclear industry to provide the most precautionary measures.

Limerick Nuclear Plant Accident Calculations Based On 1980 Data (CRAC Report To Congress 1982)

- ✓ 74,000 Early Fatalities
- ✓ 610,000 Early Injuries
- ✓ 34,000 Cancer Deaths

Fatalities, Injuries, Cancer Deaths Would Be Far Higher Today

- Limerick Area Population Growth (2000 Census)
- ✓ 1980'S 26 % INCREASE
- ✓ 1990'S 102 % INCREASE

Estimated Costs (2004 Dollars) – TAXPAYERS PAY All Costs Over \$10 Billion

- ✓ \$417 Billion Limerick 1
- ✓ \$386 Billion Limerick 2

Evidence suggests we cannot afford a nuclear plant accident or terrorist attack, yet the nuclear industry and NRC deceptively minimize threats instead of providing the safest precautions. They also fail to follow and enforce some safety regulations that are in place..

ACE's 8-year investigation related to Limerick Nuclear Power Plant's threats to our region due to accidents and terrorist attacks started after 9/11. Evidence is clear, to best protect the public's health and financial interests, NRC must start to require far more preventive and protective actions from the nuclear industry and strictly enforced all regulations that are in place, related to the actual potential for devastating accidents and terrorists attacks at nuclear plants.

ACE repeatedly shared results of our findings related to emergency planning through our local cable weekly TV shows that go out to 65,000 homes. From the region's residents who contacted us after our TV shows, it became clear that vast numbers of people did not understand the radiation health threats and impacts from a nuclear power plant accident or attack. Therefore, they were not taking personal emergency planning seriously. Most were totally unprepared and had no idea what to do to protect their families, including which roads they were to take during evacuation or where they should go. Others shared the concerns and suggestions we have identified in this document.

After reviewing NRC's Federal Register Document 10 CFR Parts 50 and 52, Enhancements to Emergency Preparedness Regulations; Proposed Rule, published on line May 18, 2009, we believe the emergency plan and recommended enhancements do not adequately address precaution and prevention or the reality of public impacts from all aspects of radiation exposure due to a nuclear disaster. Many concerns we are raising still remain unaddressed in NRC's proposed changes. The complicated procedures listed in NRC's requirements provide the illusion of protection. However, we believe they fall far short of requiring the most precautionary measures to avoid an accident or attack, and fail to plan to adequately prevent prolonged unnecessary radiation exposures. Most nuclear industry positions in the current document being reviewed are clearly not in the public's best interests.

First and foremost, people within 50 miles of nuclear plants need better access to education about radiation exposure risks, with full and accurate disclosure about the harmful health impacts from all the types of radiation that would be released in a nuclear plant disaster. Only then will most people take meaningful action in preparing to protect their families.

- **Based on what is at stake for the public, ACE believes if major concerns we will identify in these comments on emergency planning would be acknowledged, considered, and fully addressed by NRC, the public's interests would be far better served and the degree of some harms from a potential nuclear disaster could be minimized.**

ACE Urges NRC To Require All Nuclear Power Plant Operators To:

1. Immediately notify the public of any radiation release due to an accident or attack.
2. Pay substantial fines for failure to provide immediate notification of any accident or attack, regardless of the levels or amounts of each radionuclide released.
3. Provide funding for independent public education in regions around nuclear plants on:
 - ✓ Radiation health impacts related to all types of radionclides released from nuclear power plants, with full and accurate disclosure to promote immediate evacuation, with special classes on impacts to fetuses and children.
 - ✓ Educate the public in self-treatment for radiation poisoning since there would not be enough hospitals or other places to get treatment.
 - ✓ Provide well advertised full disclosure programming at least once a year focusing on detailed evacuation emergency plans (including why, where, and how), on all TV and radio stations within 50 miles of each nuclear plant.
 - ✓ Teach the most protective sheltering in place procedures to guard against all radionuclides potentially released.

- ✓ Provide comprehensive checklists to all residents in the region, including all supplies essential to prepare for evacuation and/or sheltering
4. Guard against air strikes, missile attacks, and a larger number of terrorists.
 5. Require back-up batteries for emergency sirens at all nuclear plants.
 6. Remove all on-line aerial views of nuclear power plants.
 7. Conduct a detailed virtual evacuation exercise annually using the most current population counts and traffic studies for the region around each nuclear plant. The exercise and NRC's evaluation should be made available to the public on the NRC and FEMA websites.
 8. Pay the cost for evacuation plans for pre-school and day-care centers.
 9. Pay for additional vehicles and drivers to complete immediate transport of all students from every school district in the EPZ at one time.
 10. Expand the evacuation zone to at least 50 miles, a more realistic number of miles affected by a radiation release, particularly in the predominant wind direction.
 11. Account for the wind direction at the time of the radiation release to avoid having masses of people evacuating with the plume. People should be told they may be asked to shelter in place or go a different direction.
 12. Pay to build shelters at least 50 miles away in each direction from the nuclear plant. Shelters should be built like bomb shelters, since people would be facing the same kind of radiation poisoning as with a bomb.
 - ✓ Expand the number of public shelters to more realistically accommodate the population around each nuclear plant, including food and water supplies.
 - ✓ A section in each shelter should accommodate pets.

ACE Requests A Response From NRC As Soon As Possible:

- A. We request that our executive summary and entire detailed comments be posted on the NRC website.
- B. We request that NRC give careful consideration to the reality of the serious threats from a nuclear power plant accident or attack, identified with evidence in our detailed comments.
- C. ACE requests that NRC improve prevention, precaution, and the emergency plan related to nuclear power plant accidents and terrorists attacks by complying with the list of 12 requests above, made by residents in our region. If NRC does not comply with requests, please provide justification.

Detailed Information Follows That Supports Our Requests

1. Immediate Notification Of A Nuclear Power Plant Accident Or Terrorist Attack Is Imperative

Full and accurate disclosure on the health harm from radiation exposure due to nuclear power plant emissions is imperative. To make the most protective decisions and take precautionary action for their families, people need to be told the truth about radiation's harmful health impacts and they must be notified immediately after a nuclear power plant accident or attack - not days, hours, or even 15 minutes later.

Many reputable scientists (based on their research) believe there is no safe dose of radiation exposure - that there is no threshold for radiation damage to humans – no dose which is

harmless. Every minute the nuclear industry waits to notify the public is time lost in attempting to prevent unnecessary radiation poisoning.

At public meetings it became clear to us NRC fails to take radiation exposure seriously and has no intention of immediate notification for radiation released during accidents.

NRC officials stated publically (confirmed with video) that:

- ✓ Public notification could be in hours or days;
- ✓ Notification would only take place if levels were high enough;
- ✓ Radiation released may not escape off-site.

Based on independent radiation exposure research that concludes there is "no safe dose", these NRC statements and positions not only defy logic, they indicate the failure of NRC to adequately protect public health and safety. This has major implications related to emergency requirements for notification of a nuclear power plant accident or attack and emergency preparedness.

We ask why NRC is unwilling to recognize and respond to independent scientific research related to radiation exposure. How can the public have confidence in NRC's will or ability to protect public health? Many of our region's residents have questioned whether NRC has been deceived by nuclear industry funded science for sale, or co-opted.

As expected, the nuclear industry continues to deceptively claim doses are too small to cause harm. They dismiss concern using illogical industry funded spin. Inexplicably, NRC repeatedly defends and supports the nuclear industry, instead of using independent research to revise radiation standards to be more protective, taking actual measurements for all kinds of radiation released from the nuclear plants, and requiring all the most protective safeguards.

The facts are clear. A broad range of radionuclides are routinely and accidentally released from nuclear power plants. That same broad range of radionuclides would be released in a disaster situation. No one can accurately determine the harmful impacts to individuals, especially fetuses, children and those already suffering from cancer and other serious illnesses. Synergistic, additive, and cumulative harmful health impacts from radiation releases are unknown. When preparing for emergencies after a nuclear disaster, the reality of the potential for harmful health impacts from radiation exposure should be the driving force in all emergency preparedness decisions.

It is better to be informed immediately than to be unnecessarily, unknowingly poisoned. To best protect public health NRC needs to deal with the reality of radiation exposure and demand immediate notification by the nuclear industry.

- People must be given immediate notification of any radiation accident or terrorist attack to have the opportunity to take immediate action to avoid exposure to the degree possible.
- NRC's dismissive attitude about harmful impacts of radiation exposure allows the nuclear industry to have far too much time to inform the public after a radiation accident.

It is unacceptable to fail to provide immediate, full and accurate disclosure.

- ✓ Each minute, hour, or day the public remains unaware, is precious time families could be taking action to minimize harmful health impacts by immediate evacuation or sheltering in place.
- ✓ Those responsible appear more concerned about hiding the truth to 'avoid panic' than preventing unnecessary radiation exposure to the public. Potential panic is no excuse to avoid full and accurate disclosure. It's better to be panicked than poisoned. Panic can be minimized with better education on radiation exposures and emergency preparedness.
- ✓ Radiation amounts released should not determine whether or not to immediately notify the public, especially since it is impossible to determine accurate levels of

all radionuclides released or what the synergistic harmful impacts will be to any fetus, child, or individual.

- ✓ We should not have to wait for notification until the nuclear industry's public relations spin machine gets a whitewash prepared.
- ✓ It is inexcusable to wait until the nuclear industry attempts to correct the problem(s) causing the radiation releases. All the while people are being exposed and uninformed.
- ✓ The nuclear industry had leaks which went unreported and/or were only reported after the leak was corrected.
- ✓ At Limerick for example, we identified accidents or releases of radiation above their routine releases, when Exelon waited far too long to inform the newspaper. It was far too late for parents or pregnant women to attempt to avoid exposure.
- ✓ The big mistake at TMI. It was days before the public was notified. People were unnecessarily exposed to increased amounts of radiation for days when they could have made a decision to leave the area to better protect their families..

2. **Potassium Iodide (KI) pills – A deceptive illusion that could lead to a false sense of protection and unprotective decisions** A broad range of radionuclides would be released during a nuclear power plant accident or attack. The public needs to be told the whole truth and advised about how to best protect their families from all types of radionuclides that could be released during a nuclear power plant accident or attack. Handing out KI pills leads people to believe they are protected, when in reality KI pills protect against only one type of radiation. A false sense of protection can lead to decisions that could unnecessarily further jeopardize people.

- To best protect the public, they need to be better educated about how to best protect their families from all types of radionuclides that could be released in a nuclear disaster. It should be clearly explained that KI pills protect people from just one of the radionuclides that would be released during a nuclear power plant accident or attack.

3. **The evacuation plan fails to account for the wind direction of the radiation plume after the accident or attack.** Instead of traveling away from radiation releases in evacuation, large numbers of people would be traveling with the radiation released, increasing their exposure risk. Gridlock due to accidents, breakdowns, or just from heavy traffic would further extend exposure time in the plume. This is a serious oversight and flaw in the evacuation plan..

- The evacuation plan needs to redirect people in the predominant wind direction away from the plume of a nuclear disaster, to take another route to avoid prolonged radiation exposure or advise them to shelter in place until the safest route of evacuation can be determined.

4. **10-Mile Evacuation Protection Zone (EPZ) is inadequate.** Evidence suggests people hundreds of miles away could be impacted. Chernobyl taught us radiation released during an accident can travel great distances. 50 miles was first discussed in official documents during Limerick planning. So why is the EPZ only 10 miles, especially in the predominant wind direction? There is no magic radiation shield at 10 miles. Vast numbers of people would never even be warned to protect their families. For example in our region, Philadelphia is only 21 miles in the predominant wind direction from Limerick Nuclear Power Plant.

- The Emergency Preparedness Plan needs to extend the EPZ much farther to be more protective of public health.

5. **Back-up power for warning sirens is not required at Limerick and many other nuclear power plants.** It is ludicrous to believe in densely populated areas around nuclear plants that it is practical or acceptable to rely on bull horns and door knocking to alert hundreds of thousands of people. Even if emergency personnel would not abandon the mission to avoid their own radiation exposure, their time would be far better spent dealing with emergencies that would

result from a nuclear disaster. August, 2006 it was reported that out of the 63 nuclear power stations across the U.S., only 17 had sirens that could be heard during a power failure.

During an August, 2006 power outage around Limerick Nuclear Plant, 48 of 165 off-site sirens were off-line for 5 days. Instead of providing back-up power for sirens in black-outs, Exelon illogically still plans to warn potentially hundreds of thousands of people of a radiological emergency with emergency workers driving through the vast numbers of crowded streets making announcements with bull horns or knocking on doors, all while people are attempting to evacuate.

- For NRC to allow Exelon or other wealthy corporations to refuse to provide back-up power for warning sirens in a blackout is an inexplicable and unacceptable risk to public safety. All nuclear plants owners must be required to provide back-up power for sirens during a blackout to avoid unnecessary radiation exposures. Reliable back-up power for warning sirens at all nuclear plants would insure far more timely notification of an accident or attack. Emergency workers' time would not be spent helping needy people to evacuate or with people suffering from radiation poisoning.

6. The Emergency Evacuation Plan is unrealistic and unworkable in heavily populated regions such as the region around Limerick Nuclear Power Plant.

For example, the region around Limerick Nuclear Plant is too heavily populated for a timely or safe evacuation.

- The 2000 Census showed well over ¼ million people live within 10 miles of Limerick.
- Vast numbers of people would attempt to use Route 422 during an evacuation.
- January 18, 2009 the Philadelphia Inquirer article "*Sprawl to Crawl on Route 422*" said the Route 422 corridor is home to an estimated 296,000 residents. Population is expected to increase 12% by 2030. Route 422 was called the spine of one of the fastest growing corridors in Southeast PA.
- Daily backups surface in several spots on Route 422 during rush hour. The Inquirer reported average daily traffic now reaches 102,000 vehicles in spots.
- October, 2005 the Mercury pictured massive gridlock on 422 caused by an accident and suggested an emergency evacuation of the area could produce similar traffic congestion. In fact, evacuation gridlock could be even far worse. Restricting lanes to 1 direction of travel would not be applicable to Route 422 if residents in the 10 mile zone were ordered to leave.

Hurricane Katrina and the 2007 snow emergency in PA demonstrated that we are ill equipped to evacuate large populations in the event of a radiological emergency.

- If we can't get people off a highway for more than 24 hours due to snow and ice, how are we going to safely evacuate an entire enormous population around Limerick or another nuclear plant from a radiological emergency where immediate escape is crucial to avoid unnecessary cancers and other serious health threats?
- Katrina led to motorists reporting traveling 20 miles in 9 hours. What could gridlock for that amount of time mean when people could continuously be exposed to radiation released during a nuclear disaster?

7. Better education is essential, on how to shelter in place to best protect people from all the kinds of radiation that would be released in a nuclear power plant accident or attack.

Starting with the truth about the actual risk from radiation exposure, we believe NRC has a responsibility to do far more comprehensive education in how to shelter in place to protect families from all the kinds of radiation that would be released during a disaster.

Information below suggests why people around Limerick need to better understand what would be required to prepare to shelter in place after a nuclear power plant accident or attack at Limerick.

- Limerick area's population growth is staggering – 102% in the 1990s, and 26% growth in the 1980s (according to the 2000 Census). From 2000 to 2009 major population growth continued. Vast numbers of new businesses attract out of region residents, including many very close to the nuclear plant. When you couple tens of thousands of vehicles which would be frantically scrambling to attempt to escape with an infrastructure that can barely handle normal day-to-day traffic and congestion, it is easy to understand why safe evacuation is unlikely, if not impossible. Anyone who has driven Route 422 and other major area roads during normal, non-emergency rush hour situations understands the problems and perils of traffic backups. So what would happen if the region tried to flee a radiation emitting catastrophe at Limerick Nuclear Plant?
- Limerick officials in 2001 expressed concern that the emergency plan relies too heavily on volunteers to evacuate the elderly or disabled, to direct traffic, etc. They stated it's not that volunteers are unable to perform the duties required in the plan, but who's to say that these volunteers will "stick around" and "not high tail it out of here with the rest of the population". In Louisiana during the flood some responsible to take care of others did escape instead. We can only imagine what would happen when there would be threats of radiation poisoning from an accident or attack.
- There are 22 schools and day-care centers just within 3 miles from Limerick Nuclear Plant, most in the predominant wind direction.
 - ✓ Large school districts do not have enough buses or drivers to evacuate all children at one time. School bus drivers have admitted to ACE members that they will make the first run, but are unlikely to return for the second. Some questioned their ability to get their school children out during the first run due to traffic congestion.
 - ✓ Allowing the nuclear industry to ignore preschool and day care children in emergency planning around nuclear plants is shameful. As of 2007 day care centers and nursery schools had still been left out of emergency planning even though there has already been a nuclear accident in PA and a 1984 federal law required their inclusion. NRC inexplicably refused to enforce its own law. Was that because the nuclear industry argued that it is not their responsibility to help these kids get out of harm's way? GM EV-2's protective measures still do not appear to be enforced for preschoolers in PA.

8. **There are not nearly enough shelters planned for heavily populated regions such as the one around Limerick and shelters aren't planned far enough away from the nuclear plant.**

A Red Cross meeting on Limerick's evacuation plans was held after 9/11. A Red Cross worker admitted to an ACE officer that there aren't nearly enough shelters planned for the enormous numbers of residents who would need to evacuate from the region around Limerick. We suspect this would be true around many other nuclear plants as well. We also suspect we could have a shelter situation almost as bad as New Orleans, with no place for so many people to try to find shelter and supplies.

- Many more shelters need to be planned to accommodate enormous population increases in the region around Limerick and other heavily populated plants and at much greater distances away than 10 miles, especially in the predominant wind direction.

9. **Facts suggest nuclear power plants are a clear and present danger - that each reactor is a potential Chernobyl.** It is illogical for the nuclear industry or NRC to continue to falsely claim that a meltdown is highly unlikely.

Facts below dispute nuclear industry deception claiming nuclear power plant accidents are unlikely.

- **Nearly 200 “near misses” to nuclear meltdowns (almost major accidents) at U.S. nuclear plants since 1986, were documented in a 2006 Greenpeace report using NRC documentation.**
 - Reported Facts About Limerick Highlight Our Concern In Emergency Planning
 - ✓ This report revealed 2 such incidents at Limerick Nuclear Plant (1995, Unit 1 and in 2001, Unit 2.)
 - ✓ Limerick is one of the plants which has substandard containment, meaning if an accident occurred, much more radioactivity would be released.

- **Fire is estimated to be 50% of meltdown risk. The General Accountability Office (GAO) said there were 125 fires reported at 54 power plants since 1995.**
 - ✓ Americans are only protected from meltdown risk as a result of a fire when all nuclear plants are in complete compliance with all fire safety laws. October 2008, it was reported that all U.S. plants are still in violation of fire safety rules put in place in 1976 and 1980.
 - ✓ Fire safety rules were put in place after the worst fire ever at an American nuclear plant at Browns Ferry plant in Alabama in 1975, which raged for seven hours. As of April, 2008 a “risk-based approach” was only adopted by 46 of 105 reactors according to the GAO.
 - ✓ To date, it is still not clear if Limerick is in full fire safety compliance. Limerick was not one of the 46 nuclear plants that adopted a risk based approach to fire safety in 2008.

- **Lack of water can result in a meltdown. Below are examples of just a few recent incidents where lack of water easily could have led to a disaster.**
 - ✓ June 11, 2009 it was reported that a disaster related to lack of water was narrowly avoided and only spotted by chance at Sizewell in England. Two years earlier a burst pipe inside the station led to a huge leak from the pond used to cool thousands of nuclear fuel rods. If the nuclear fuel rods had caught fire, the resulting radioactive plume could have caused a nuclear disaster.
 - ✓ September, 2008, it was reported that the Oconee nuke plant had 2 reactor coolant pumps exceeding reactor cool-down limits, triggering a potentially disastrous loss-of-coolant accident. For 8 ½ hours personnel overlooked an alarm blinking in the control room indicating high levels of radiation inside the reactor containment building.
 - ✓ April 24, 2007 the coolant level of Unit 2 went very low at Limerick Nuclear Plant and caused a shut down. Low coolant level can lead to disaster. Five days after refueling, April 9, 2007 there was a problem with a seal on the pump. 15 days later there was still no explanation.

- **Mechanical breakdown, corrosion, and human error** are all problems that could easily lead to another nuclear disaster requiring evacuation or sheltering in place.
 - ✓ Nuclear plants are being run harder and longer, increasing the chance for mechanical breakdowns. Just as with cars, the longer and harder they are run, the more chance for mechanical breakdowns. Exelon is running Limerick harder and harder as it ages, increasing the chances for mechanical failure. At Limerick the percent of time in operation has been increasing. From 1999 to 2005, Limerick’s reactors were operational 96.7% and 96.3% of the time, according to NRC data through February 2005. It could be only a matter of time before mechanical failure causes a meltdown. Why would we be expected to assume that every back-up emergency system will continue to work every time?
 - ✓ Limerick and many other plants now store their deadly high-level radioactive wastes above ground in casks. NRC found problems with the corrosion rates of metals used to store this nuclear waste (January, 2006 report). Each day

Limerick and likely others add hundreds of pounds of corrosive chemicals to the cooling tower waters. Impacts from corrosives in over 35 million gallons of steam released into the air every day from nuclear plants like Limerick are not yet fully understood, but it seems this could be setting up a recipe for future problems related to storage or removal related to corrosion or even fires.

- ✓ Human error has been responsible for previous nuclear disasters. There is no guarantee that human errors won't happen again.
- **It only takes one missed mechanical failure to cause a meltdown disaster.** There were 18 "significant precursors" or equipment failures at U.S. nuclear plants and 337 that more modestly increased the risk of a meltdown. A sampling of nuclear safety problems since the TMI accident in 1979, that could have led to a meltdown is listed below (USA Today).

We list these examples below to remind NRC why the most precautionary emergency plans must be required by NRC, regardless of the cost to the nuclear industry.

- ✓ Corrosion damaged emergency pumps causing leaks - 2002
- ✓ Loss of power needed to run vital core cooling systems – 1996
- ✓ Misaligned valve prevented water from flowing into the reactor core – 1994
- ✓ A broken relief valve for emergency system that injects water into reactor core – 1991
- ✓ Emergency tank water got too low because the pump was set at too low a level – 2006
- ✓ Debris from water tank's rubber lining floated in water potentially causing failure of all emergency pumps that cool the reactor in case of overheating – 2002
- ✓ Electrical breakers to operate pumps to cool the core were faulty – 2002
- ✓ Cables to operate core-cooling systems were too close to sprinkler systems in case of fire - 2001

10. Nuclear Plants Are Still Vulnerable To Terrorist Attacks By Plane or Missile.

In spite of unprecedented threats to millions of people from an air strike or missile attack on nuclear plants (a known terrorist capability), NRC won't make decisions to hold the nuclear industry accountable for their extraordinary threat to society. They won't make decisions that cost the nuclear industry more money.

Investigations by the 9/11 Commission revealed terrorists' interest in attacking commercial nuclear power plants. NRC should assume that terrorists will someday use a plane or missile to attempt to attack a nuclear power plant and require the owners to guard against them. Yet the nuclear industry and NRC are refusing to provide protection against the kinds of terrorist attacks that already happened.

Facts suggest it's illogical and negligent for NRC to allow the nuclear industry to avoid the costs to prevent a terrorist attack by a plane or missile. Widespread devastation could result from just one terrorist plane or missile attack on a nuclear plant. Each nuclear reactor is a potential Chernobyl.

If someone by design or by insanity wants to do maximum damage to public health, the environment and to economically dislocate potentially large geographic areas for a long time, nuclear power plants become the target of choice. Curie for curie, nukes have hundreds of times more radioactivity than bombs.

Experts have concluded that a typical nuclear plant (core and waste pools) contain 4 to 5 times more radioactivity than released at Chernobyl and hundreds of times more radioactivity than that released at Hiroshima and Nagasaki.

We can't be expected to assume NRC's policies will prevent tomorrow's attack, when they would not have prevented yesterday's attack. The Union of Concerned Scientists stated that NRC's policy is questionable at best and regulatory malfeasance, at worst. It's the height of hypocrisy for NRC to support the nuclear industry's claim that nuclear plants are safe or that it is not necessary to guard them against planes or missiles.

- **Clearly, NRC should require nuclear plant owners to guard against air strikes, missiles, and large group terrorists' attacks.**
 - ✓ Nuclear plants like Limerick are especially vulnerable to air attacks like those which already occurred on 9/11.
 - ✓ Many years after the 9/11 Commission Report was released, nuclear plants, including Limerick, are still vulnerable and not protected against plane or missile attacks by terrorists.
 - ✓ In reality, the only protection against terrorists causing a devastating nuclear power plant disaster appears to be a handful of guards that would clearly be unable to stop an air strike, missile attack, or attack by a large number of terrorists.
- **There is no acceptable excuse for NRC to fail to require the nuclear industry to be responsible to provide the most precautionary protection against air strikes, missile attacks, and an attack by large numbers of terrorists.**
- **Nuclear power plants are making record profits while jeopardizing public health and safety to the maximum degree. Given what is at stake, NRC cannot allow the nuclear industry to avoid paying for the utmost precaution and prevention related to potential terrorists strikes on nuclear plants.**

Alarming Facts About Unique Vulnerabilities That Must Be Considered:

- **GE Mark II design reactors, such as Limerick 1 and 2, are extremely vulnerable to terrorists' attacks for several reasons that should result in required nuclear industry protection against air strikes and missiles.**
 - ✓ GE Mark II spent fuel pools are located over 60 feet above ground and outside the reinforced containment dome that houses the reactor.
 - ✓ October 2000 NRC stated on the record that "Mark I and II secondary containments generally do not appear to have any significant structures that might reduce the likelihood of aircraft penetration.
 - ✓ An aircraft crash would likely lead to a breach of the fuel pool and the loss of cooling water from the pool, potentially causing the zirconium cladding on the fuel rod assemblies to ignite, releasing up to 100% of the radiation contained therein.
 - ✓ Such a large release of radiation from a fuel pool fire would be devastating and deadly to the surrounding community and those hundreds of miles away.
 - ✓ This danger persists for as long as the fuel remains in the pool, whether the reactor was operational or not.
- **In reality, even small aircraft loaded with fuel could cause a significant radiation leak or a fire that could lead to a meltdown. Yet to date, NRC has failed to acknowledge or address threats from small airplanes.**

Terrorists could use small planes from airports too close to nuclear plants to cause great damage and risk.

Damage From Small Planes Must Be Prevented – Limerick Example:

- ✓ In a 1992 Emergency Preparedness Document for Health Care Facilities, the following statement validates our concern: "*Major damage to plant safety*

systems is likely to occur or has occurred due to an ...aircraft crash. explosion"

- ✓ Limerick Airport is about 1 Mile From Limerick Nuclear Power Plant – that airport should have been closed immediately after 9/11. There is an airport in Pottstown only 5 miles away, and another close by.
- ✓ Limerick Airport still gives pilots lessons
- ✓ We recently learned that a drunken pilot who flew into the Limerick Airport could not have been shot down if he would have been a terrorist. The attack could not have been prevented.
- ✓ A small plane crash too close to Limerick Nuclear Plant involving a training pilot caused much fear among residents.
- ✓ Helicopters frequently fly in and out of Limerick Airport. One day missiles could easily be launched from a helicopter.

- **“Nuke Plants Not Responsible For Airliner Attacks”** 1/31/07 Mercury Article by Evan Brandt reveals NRC's failed policies in holding the nuclear industry accountable to protect the public against air attacks on nukes .
 - ✓ NRC is not requiring the nuclear industry to provide the protection against 9/11 style terrorists attacks with airplanes or rocket-propelled grenades.
 - ✓ Instead NRC is protecting the financial interests of the nuclear industry at the public's expense.
 - ✓ NRC has allowed the nuclear industry to avoid the protection that is clearly needed in today's world.
 - ✓ NRC is relying on post-crash measures and evacuation plans instead of prevention.
 - ✓ Exelon will not be required to protect our region against a plane or missile attack at Limerick Nuclear Power Plant, regardless of the reality of the risks.
 - ✓ The nuclear industry irresponsibly argued that protecting nuclear plants against planes, missiles, or a large ground attack force should be the responsibility of the government.
 - ✓ NRC's new plan assumes that a terrorist attack force would be relatively small and its weapons limited.
 - ✓ Instead of sizing the design basis threat on an actual air or missile strike, NRC bases security standards on what the nuclear industry believes a private guard force can be expected to handle.
 - ✓ Senator Barbara Boxer, with jurisdiction over NRC wrote a letter that was ignored, stating "NRC's defense requirement should ensure that ... the plants are prepared to defend against large attacking forces and commercial aircraft."

This must change to protect the public's interests. After 9/11 the public paid the National Guard to protect Limerick Nuclear Power Plant. Clearly, the public can't afford to continue to guard all the nation's nuclear power plants 24 hours a day. And we shouldn't. The nuclear industry is making record profits and taking the public's money to deal with their deadly high-level radioactive wastes, liability, and loan guarantees for new nukes. It is time for this industry to be held accountable for what is their cost of doing business.

- **Nuke Plants Have Been Turned Into High-Level Radioactive Waste Dumps Which Provide Large, Hard To Miss, Devastating Targets For Terrorists.** For terrorists who want to do maximum damage to public health, high-level radioactive wastes stored at nuclear plants provide large hard to miss targets

NRC should require the nuclear industry to protect their on-site defacto high-level radioactive waste dumps from air strikes and missiles.

- ✓ The Union of Concerned Scientists stated the primary concerns are radioactive fuel within the reactor and spent fuel stored onsite after removal that must continuously be cooled to prevent fire and the disaster that can follow.

- ✓ The nuclear industry has turned nuclear plants like Limerick into defacto high-level radioactive waste dumps, now storing their deadly high-level radioactive wastes above ground on-site in very large casks, in addition to those stored in the fuel pools.
- ✓ In addition to overflowing high-level radioactive waste fuel pools at nuclear power plants, that if hit by a plane or missile, could cause the devastation of several Hiroshimas, terrorists also have very large inviting targets of the high-level radioactive wastes being moved and stored above ground in large rows of hard to miss casks.
- ✓ Army testing shows casks can be penetrated by missiles. A Canadian study shows that 10 years after removal from fuel pools the high-level radioactive wastes contain over 211 radioactive chemicals. Some are easily airborne.
- ✓ It is time for NRC to give more weight to independent army testing and logic rather than biased information produced by the National Energy Institute (NEI), the biased lobbying arm of the nuclear industry. Case in point - the misleading and illogical report by the NEI after 9/11, claimed that nuclear power plant structures would protect against a release of radiation even if struck by a large commercial jetliner.

NRC should also insure the safety of high-level radioactive wastes stored above ground at nuclear plants from tornados, aircraft crashes, and explosions.

- ✓ Even small aircraft loaded with fuel can cause explosions, which could lead to dangerous fires in the above ground high-level radioactive wastes or in releasing the water cooling the deadly wastes in fuel pools.
- ✓ Tornados could also play a part in such a nuclear disaster.
- ✓ At Limerick there is also a fault line which was never fully investigated to our knowledge, related to potential impacts on the deadly wastes.

- **Virtual Reconnaissance increases security threats from US Nuclear Power Plants. Terrorists and saboteurs can see far too much detail, providing advantages to attacking forces. NRC should ban the opportunity for virtual reconnaissance on all nuclear plants and radioactive waste sites. High resolution mapping Websites should be required to remove this information immediately.**

- ✓ An enemy sitting thousands of miles away can determine where all guard towers are located, know where and when all plant shift changes occur, and determine locations of nearby highways and staging areas that could be involved in an evolving attack plan.
- ✓ Terrorists can have a "bird's eye view" of the on-site nuclear waste storage casks.
- ✓ Some defensive positions of nuclear plant guards are revealed due to the elevated level of clarity and resolution.
- ✓ These images reveal pathways, stairways and potential staging areas giving terrorists the ability to plan the quickest or best route to specific targeted buildings.

- **Lax Security - Nuclear power plants still remain vulnerable to terrorist attacks due to NRC's reluctance to immediately detect and/or address lax security.** Using Limerick Nuclear Power Plant as an example, we believe NRC must start to take the threat seriously and take immediate action, regardless of costs to the nuclear industry.

- ✓ Sleeping Guards - In 2006 ACE members were contacted by insiders about sleeping guards at Limerick Nuclear Plant and guards involved in romantic episodes on duty. ACE reported the reported dangerous lax security allegations at the yearly NRC meeting in 2006 and in writing following the meeting. We also identified numerous security problems documented at multiple U.S. nuclear facilities guarded by Wackenhut Corporation (the same company guarding

Limerick). We identified a report titled, "Homeland Insecurity: How the Wackenhut Corporation is Compromising American's Nuclear Security."

- Exelon and NRC both defended security by Wackenhut and claimed no problems or knowledge of what we reported.
- Exelon and NRC refused to take action until forced into dealing with lax security issues by Wackenhut when a whistle blower caught a guard sleeping on camera at another nuclear power plant,
- While Wackenhut was finally replaced, in reality NRC and Exelon were either unaware about lax security or were covering up lax security instead. Even though Wackenhut was replaced, the same kinds of things could still be happening undetected or unaddressed.

NRC has ignored serious safety problems because NRC isn't adequately enforcing its standards and has cut back on inspections. This can lead to unacceptably high safety and security risks.

- ✓ Security Guards Claim They Were Overworked and Underpaid. This needs independent investigation and action to make changes that insure the best security. Plant operators found it more profitable to push existing security forces to the limit, rather than hire new guards. Security guards may have been sleeping because they have been pushed to the limit. A national survey found security guards around the country complained about:
 - Frequent 60-hour work weeks - some even had 72-hour workweeks
 - Guards complained about:
 - exhaustion from overtime
 - poor compensation – below janitorial staff .
- ✓ Nuclear Power Plant Security Guards are not highly trained paramilitary forces as was suggested by the lobbying arm of the nuclear industry, the National Energy Institute (NEI) in ads in 2002.
 - Security guards themselves have complained about poor training
 - Some admit they wouldn't be willing to put their lives on the line given the pay and treatment they receive from some in management.
- ✓ We Believe Inadequate Numbers of Guards Are Required To Stop A Large Terrorist Attack Force.

Using Limerick for an example - While no one will tell us how many security guards work at Limerick Nuclear Power Plant on each shift, we suspect it's only a handful. If that is accurate, it is imperative for NRC to provide an independent evaluation of the process and require the hiring of more security guards to fully protect the site.

 - It is unreasonable to assume a handful of guards can fully protect the 449 acre Limerick Nuclear Power Plant site.
 - How could only a few guards eliminate access by boat when the Schuylkill River is a very large border of the site?
 - Could a few guards detect terrorists that get onto the site hiding in the industrial rail cars that travel right through the site?
- ✓ Security Guards are not highly trained, according to an investigation on Security Guards. They have been over worked and underpaid in the past. This should be investigated by NRC. It could explain all the on duty sleeping guards, and why we question their readiness in the event of an attack.

Evidence identified in these comments from ACE's 8-year investigation suggests that to truly protect the public's health and financial interests to the degree possible, NRC must start to

require far more preventive and protective actions from the nuclear industry related to the very real potential for deadly accidents and terrorists attacks at their nuclear plants.

ACE is hopeful that in the interest of preventing an unthinkable disaster at a nuclear power plant, the NRC employees who review our comments will have a strong commitment to public health and safety. We urge them to speak up now in support of our requests, in order to best prevent a nuclear power plant disaster and to prevent unnecessary risks to public health and safety in the event a nuclear power plant disaster is not prevented.

Please Inform Us Of Your Response To Our Requests As Soon As Possible:

- 1) ACE requests that our comments be posted on the NRC website.**
- 2) ACE requests that NRC give careful consideration to the reality of the threats contained in these comments.**
- 3) ACE requests that NRC improve prevention, precaution, and the emergency plan related to nuclear power plant accidents and terrorists attacks by complying with the list of 12 requests made by residents in our region from page 2. If NRC does not comply with requests, please provide justification.**

Copies of ACE comments were made available to:

President Obama
U.S. Senator Casey
U.S. Senator Specter
U.S. Senator Barbara Boxer
Congressman Gerlach
Congressman Dent
Congressman Sestak
FEMA
Governor Rendell
PA Senator Rafferty
PA Senator Dinniman
PA Representative Quigley
PA Representative Hennessey
PA Representative Vereb
PA DEP Secretary Hanger
Montgomery County Commissioners, Planning Commission, and Health Department
Chester County Commissioners and Health Department
All Local Governing Municipalities Surrounding Limerick Nuclear Plant
Pottstown Mercury
Philadelphia Inquirer

The Alliance For A Clean Environment (ACE)

1189 Foxview Road Pottstown, PA 19465

Executive Summary – August 2009

ACE is urging the Nuclear Regulatory Commission (NRC) to plan far more precautionary and protective requirements in emergency planning, in order to minimize harmful health impacts from radioactive poisoning, resulting from a nuclear power plant accident or terrorist attack

- **A nuclear power plant accident or terrorist attack would clearly bring unprecedented harms to public health, the environment, and our already severely stressed economy.**

Based on evidence from ACE's 8-year investigation of independent research, it is clear we cannot afford a nuclear plant accident or terrorist attack, yet the nuclear industry and NRC deceptively continue to minimize threats, instead of providing the safest precautions related to prevention of radiation exposure.

If major concerns related to radiation exposure (identified in our detailed comments), were acknowledged, considered, and fully addressed, by those at NRC who have the integrity to face reality and the courage to speak out, we believe the degree of radioactive poisoning from a nuclear power plant accident or terrorist attack and the resulting costs to the public could be significantly minimized. Based on what is at stake, NRC must begin to protect the public's interests with up-front preparedness, instead of continuing the back-end approach that protects only the bottom line of the nuclear industry. The public can't afford to let a disaster happen and only plan to deal with the devastating consequences after the fact.

ACE believes within our detailed comments we have identified the reality of the threats and made the case for why it is imperative for the nuclear industry to be required to provide far more preventive and protective actions. Identified below are precautionary and preventive actions which, if followed, would clearly lead to reduced public health risks from radiation poisoning and related public costs.

ACE Urges NRC To Require All Nuclear Power Plant Operators To:

1. Immediately notify the public of any radiation release due to an accident or attack.
2. Pay substantial fines for failure to provide immediate notification of any accident or attack, regardless of the levels or amounts of each radionuclide released.
3. Provide funding for independent public education in regions around nuclear plants on:
 - ✓ Radiation health impacts related to all types of radionuclides released from nuclear power plants, with full and accurate disclosure to promote immediate evacuation, with special classes on impacts to fetuses and children.
 - ✓ Educate the public in self-treatment for radiation poisoning since there would not be enough hospitals or other places to get treatment.
 - ✓ Provide well advertised full disclosure programming at least once a year focusing on detailed evacuation emergency plans (including why, where, and how), on all TV and radio stations within 50 miles of each nuclear plant.
 - ✓ Teach the most protective sheltering in place procedures to guard against all radionuclides potentially released.
 - ✓ Provide comprehensive checklists to all residents in the region, including all supplies essential to prepare for evacuation and/or sheltering
4. Guard against air strikes, missile attacks, and a larger number of terrorists.
5. Require back-up batteries for emergency sirens at all nuclear plants.
6. Remove all on-line aerial views of nuclear power plants.

7. Conduct a detailed virtual evacuation exercise annually using the most current population counts and traffic studies for the region around each nuclear plant. The exercise and NRC's evaluation should be made available to the public on the NRC and FEMA websites.
8. Pay the cost for evacuation plans for pre-school and day-care centers.
9. Pay for additional vehicles and drivers to complete immediate transport of all students from every school district in the EPZ at one time.
10. Expand the evacuation zone to at least 50 miles, a more realistic number of miles affected by a radiation release, particularly in the predominant wind direction.
11. Account for the wind direction at the time of the radiation release to avoid having masses of people evacuating with the plume. People should be told they may be asked to shelter in place or go a different direction.
12. Pay to build shelters at least 50 miles away in each direction from the nuclear plant. Shelters should be built like bomb shelters, since people would be facing the same kind of radiation poisoning as with a bomb.
 - ✓ Expand the number of public shelters to more realistically accommodate the population around each nuclear plant, including food and water supplies.
 - ✓ A section in each shelter should accommodate pets.

ACE Requests A Response From NRC As Soon As Possible:

- A. We request that our executive summary and entire detailed comments be posted on the NRC website.
- B. We request that NRC give careful consideration to the reality of the serious threats from a nuclear power plant accident or attack, identified with evidence in our detailed comments.
- C. ACE requests that NRC improve prevention, precaution, and the emergency plan related to nuclear power plant accidents and terrorists attacks by complying with the list of 12 requests above, made by residents in our region. If NRC does not comply with requests, please provide justification.

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