The Southern California Perspective on Offsite Emergency Planning

May 2, 2006

Mike Rose, Chairman
SONGS Interjurisdictional Planning Committee

Acronyms

- **SONGS**
  - **San Onofre Nuclear Generating Station**
- **IPC**
  - **Interjurisdictional Planning Committee**

IPC – Who We Are

- **Primary Members**
  - **Orange and San Diego Counties**
  - **Cities of San Clemente, Dana Point, San Juan Capistrano**
  - **California State Parks, Marine Corps Base, Camp Pendleton**
  - **Southern California Edison**

IPC – Who We Are

- **Associate Members**
  - **American Red Cross**
  - **California Highway Patrol**
  - **Capistrano Unified School District**
  - **Mission Hospital**
  - **Orange County Fire Authority**
  - **Oceanside Fire Department**

IPC – Who We Are

- **Associate Members (Con't)**
  - **California Governor's Office of Emergency Services**
  - **California Department of Health Services**
  - **Federal Emergency Management Agency (FEMA) / U.S. Department of Homeland Security (DHS)**
  - **NRC**

IPC – Concept of Operations

- **Mission**
  - **Promote nuclear power preparedness through agency coordination and integration of emergency plans**

IPC – Concept of Operations

- **Objectives**
  - **Correct outstanding Areas Requiring Corrective Action resulting from exercises**
  - **Coordinate Planning Efforts**
  - **Purchase Equipment**
  - **Conduct Training**
  - **Participate in Exercises and Drills**

IPC – Concept of Operations

- **Active Sub-Committees**
  - **Interjurisdictional Policies (IP's)**
  - **Emergency Alert System (EAS)**
  - **Evacuation**
  - **Private Schools & Childcare**
  - **Reception Center**
  - **Emergency News Center**
  - **Public Education**
  - **Offsite Dose Assessment**

IPC – At Work

- **Why Does IPC Work?**
  - **CA is "Home Rule" state**
  - **IPC allows for 7 independent entities, Offsite Response Organizations (OROs), to plan, coordinate, and respond in a unified fashion for the protection of the public's health and safety**
  - **Results in coordinated response and decision making**

IPC – Recent History

- Consolidated Reception Centers
- 2005 Biennial Exercise
- 2005 "Coordinated Law Enforcement Plan" put in place
- 2005 Comprehensive Review

Current Initiatives

- Update of Evacuation Time Estimate
- Re-evaluation of PARs
  - Break EPZ into "sub-areas"
  - Apply more effective decision-making

Challenges

- **Multiple Decision Makers**
- **Evacuation vs. Shelter-in-place**
- **EAS messages and effective public communication**

Remarks of Paul Gunter, Director
Reactor Watchdog Project
Nuclear Information and Resource Service
Before the
United States Nuclear Regulatory Commission
Commission Briefing on Emergency Planning
May 2, 2006

Thank you for the opportunity to address some of the public's concerns with emergency planning around commercial nuclear power plants.

Public confidence in emergency planning for catastrophic radiological events is historically problematic and fraught with public mistrust that cannot simply be dismissed as "anti-nuclear" sentiment.

Lack of public confidence in government emergency planning infrastructure and response capability is now particularly acute and perhaps an all time low.

As the Washington Post reported on April 27, 2006 on the conclusions of the 800-plus-page report to be released this week, "Hurricane Katrina: A Nation Still Unprepared," and stated "Hurricane Katrina exposed flaws in the Federal Emergency Management Agency and the Department of Homeland Security that are 'too substantial to mend,' and FEMA should be dismantled and rebuilt inside the troubled department, according to the final report by Senate investigators."

This is the current backdrop for public concerns with regard to radiological emergency planning, coordination and response capability between the United States Nuclear Regulatory Commission and FEMA/DHS. It appears that at least half the structure has already been identified by Congress as in shambles.

My remarks today primarily focus on the aspect of reasonably assuring timely public notification for emergency actions in the event of a radiological release affecting offsite populations.

The public confidence in prompt and effective emergency notification is significantly damaged.

Public Confidence and the Issue of Inoperable Sirens

All too frequent and recurring electrical grid disturbances as the result of adverse weather, earthquakes and mechanical failures result in both widespread and local power failures to emergency notification systems (sirens and siren support systems). It is also our understanding that Force-on-Force security evaluations typically assume at the beginning of an exercise that offsite power sources are among target sets for a terrorist attack on a nuclear power plant.

Per NUREG-0654 Appendix 3(B)(2) under Criteria Acceptance "minimum acceptable design objectives for coverage by the system" is designated as:

a) Capability for providing both an alert signal and an informational or instructional message to the population on an area wide basis through the 10 mile EPZ within 15 minutes.

b) Initial notification system will assure direct coverage of essentially 100% of the population within 5 miles of the site.

c) Special arrangements will be made to assure 100% coverage within 45 minutes of the population who may not have received the initial notification with in the entire plume exposure EPZ (emergency planning zone).

It is our concern that "reasonable assurance" can not be provided that the public will have adequate notification of an accident or act of sabotage with potential offsite release without addressing the lack of emergency backup power for public notification systems.

NRC currently does not require of every commercial power licensee that emergency notification systems with their emergency planning zones be made operable independent of electrical grid power. Instead, NRC allows operators to alternately rely upon "mobile route alerting" which requires first responders (fire, police, etc) to go into neighborhoods within the EPZ with loud speakers and bullhorns to alert the population to the emergency. In such instances as a fast breaking accident or act of terrorism, adverse weather, or instances where first responder networks might be challenged with other duties or role conflicts or abandonment such as evacuating their own families first, mobile route alerting presents significant uncertainty and does not provide reasonable assurance that populations will be promptly notified per regulatory requirement.

In our view, these are significant uncertainties and every reason to require prescriptive action for backup power to all outdoor public notification systems.

In fact, federal legislation within the Energy Bill now sets requirements for emergency backup power for emergency notification systems for nuclear power plants with a population of 15 million people within 50 miles of a reactor site.

As a result this legislation, a precedent setting Commission Order now requires emergency backup power to be supplied to the emergency notification sirens by January 2007 around the only legislatively affected site in the country at the Indian Point nuclear power station in Westchester County, New York.

It remains our concern, however, that for the majority of nuclear power stations in the United States, backup power systems are not available to all sirens within the 10-mile planning zone and a significant proportion of sites have no backup power throughout the entire emergency planning zone. Under these conditions there is no way to reasonably assure that in the simultaneous event of an electrical grid failure leading to a Station

Blackout Event or in conjunction with another accident or an act of sabotage that the public will be promptly notified.

NRC has jurisdiction to broaden its enforcement actions of the existing Order affecting Indian Point siren systems to the entire industry and every emergency planning zone. It is unreasonable and irrational that some sites have back up power to all sirens while the majority won't have fully operable notification systems under certain adverse circumstances.

NRC issued the initial license to power reactor operators.

Per 10 CFR 50 Appendix E (D)(3) states that, it is the responsibility of each nuclear power station operator to maintain a radiological emergency plan and "demonstrate that administrative and *physical means have been established for alerting* and providing *prompt* instructions to the public within the plume exposure pathway (EPZ) for transient and permanent populations."

Per NUREG-0654 Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness In Support of Nuclear Power Plants," E. entitled Notification Methods and Procedures, "*It shall be the licensee's responsibility to demonstrate that such means exist,* regardless of who implements this requirement. It shall be the responsibility of the State and local governments to activate such a system." (p. 45)

We have continually run up against the claim of a NRC versus FEMA jurisdiction issue over whose emergency planning responsibility it is to address recurring inoperability of emergency notification systems.

According to 10 CFR 50.54(s)(3) "The NRC will base its finding on a review of the FEMA findings and determinations as to whether State and local emergency plans are adequate and capable of being implemented, and on the NRC assessment as to whether the licensee's emergency plans are adequate and capable of being implemented. *Nothing in this paragraph shall be construed as limiting the authority of the Commission to take action* under any other regulation or authority of the Commission or at any time other than that specified in this paragraph."

After years of waiting on FEMA's glacial pace, the fact that DHS/FEMA's current viability has collapsed is reason enough to prompt NRC into quicker action to expand its current Order to require emergency backup power to all siren systems around all commercial nuclear power plants.

Public Confidence and the Lack of Notification of Unplanned and Unmonitored Radioactive Releases from Nuclear Power Plants to Groundwater

Just as there is justifiable pubic concern with being notified about releases of a radioactivity plume into the air from nuclear power station, there is growing public concerning for adequate notification of unplanned and unmonitored releases of underground radioactivity plumes into groundwater systems.

The Commission is familiar with the broad public and political concern that is created by these unplanned and unmonitored radioactive releases, namely of tritium contaminated water from nuclear power stations. In the example of the Braidwood nuclear power station, it is now documented that the site recorded in the site Corrective Action Database 22 circulating water blowdown line leaks since 1996 occurring along the 5-mile long discharge pipe to the Kankakee.[1]

It remains our concern, as initially raised at the NRC/DHS Public Meeting on the Review of Emergency Planning Regulations and Guidance on August 31. 2005, that unplanned and unmonitored spills be held accountable through enforcement of reporting requirements. This concern has been significantly amplified since that public meeting. The tritium spills at least at the Braidwood nuclear were station were reportable events under the station's Reportability Manual SAF 1.9, News Release or Notification of Other Government Agencies per 10 CFR 50.73.[2] The State of Illinois has taken action. Yet we have yet to see NRC enforcement action.

Instead, it took a "good neighbor" more than once to notify the operator that water from the plant site was flooding offsite before the operator investigated the spills. Of further concern, a Root Cause Report Review of the Braidwood spills determined that Exelon had a "General Action Plan for Response to Unmonitored Releases and Very Low Radioactivity Spills (draft October 1990 procedure CSG-001). The procedure has instructions for mitigating intrusion of low level radioactive waste spills into groundwater. The review concluded that "This procedure was never implemented."[3]

No radiological mitigation of spills years old to the groundwater and no public notification do not build public confidence. While such spills may not be fast breaking events with the potential of low dose exposures, they none the less prove to raise concern about the lack of operator warning and the downplaying of risk from chronic low dose radiation exposures through groundwater contamination.

As a result of the revelations of the Braidwood, Dresden and Byron tritium spills, Senator Barack Obama has introduced legislation to require prompt notification of not only NRC, but State officials along with public notification through the media.

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[1] Exelon Root Cause Report (RCR) #428868 entitled "Inadequate Response to Unplanned Environmental Tritium Releases from Braidwood Station Due To Lack of Integrated Procedural Guidance" dated January 13, 2005. NRC FOIA 2006-0115 Appendix E-90 p. 3

[2] Ibid. p.3

[3] Ibid p. 5

Conclusion

In closing, I recall the opening line to a recent story that appeared in the Harrisburg, Pennsylvania newspaper The Patriot-News.

It read: "The federal agency that licenses commercial nuclear reactors can't say for sure if pre-school children in day-care centers and nursery schools will be evacuated if another nuclear emergency occurs in Pennsylvania."[4]

This is a particularly ironic statement given that the only advisory for a US evacuation following the Three Mile Island nuclear accident in 1979 was issued solely for the special needs and concerns of pregnant women and pre-school children.

A broader public is recognizing a number of "low levee" areas around nuclear power stations in context of emergency planning. Public trust and confidence is continuing to erode. We call upon the agency to take action to assure that emergency planning is more than just ink on the paper granting an operating license.

Thank you, again.

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[4] "NRC says it can't investigate day-care concerns," The Patriot-News, April 25, 2006

WILL THE RADIATION EMERGENCY PLAN WORK?

By
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The answer to the question somewhat depends upon who is answering the question, when are they answering the question and what level of response is expected. The State and local governments have been conducting annual or bi-annual exercises of Nuclear Power Plant off-site radiation emergency response plans since the late 1970's. NRC evaluates these exercises at the plant, on-site and by FEMA evaluates the off-site activities. In addition, and often forgotten by the public, these same agencies conduct real emergency response to a variety of hazards each year. Further, every jurisdiction conducts at least one, non-radiation exercise each year.

The emergency response agencies have an opportunity to be proficient in taking the necessary protective actions. Yet reports of response actions related to Hurricane Katrina raise concerns by both the public and government officials causing a major loss of confidence. While this report is not discussing the situation related to Katrina, it will point out opportunities for the responses to appear to have failed, yet they will have protected the public to the extent expected in the planning. We should recognize that several circumstances might arise which will negatively affect the public's confidence and still be considered an response is adequate. A few examples follow.

A. Slow opening of the Reception Centers. Each state and local plans directs the public to a reception center when an evacuation is ordered. At this center, the public will be registered into the care system, provided shelter if needed, and checked for contamination if appropriate. In most cases, the centers will not be able to open for 2 to 6 hours after the request is made to open the centers. Notification, response time and facility set up all contribute to the total activation time for a center. These time constraints are consistent with every evacuation and are why the centers are activated before the evacuation order is given. This problem occurs for any situation involving evacuation. Fortunately, the most likely scenarios for a nuclear power plant will give ample time for the activation of the staff to the centers. Yet, we should be prepared for the fast developing event, which may have the public arriving before the centers are open.

The situation where the public arrives first is really not of much consequence, in that, the total dose will not dramatically increase as a result. Yet, it will be of significant concern to the public if they have not been told to expect the possibility of an unmanned reception center. Delays in the activation of the reception centers may cause personal comfort problems, such as thirst, heat, cold, sunburn, etc. The reason it is not of concern is the planning basis to survey for contamination is over a 12 hour period as described in NUREG 0654 items J.9., J.10.h., and J12. For most emergency planning zones, this can be accomplished despite delays in staffing the centers and therefore not of significant concern to emergency planners. Also the levels that most Nuclear Power Plant plans decontaminate to is around 300 counts per minute on a GM probe. Compare this value to what is being considered as contamination from a weapon of mass destruction which is around 12,000 counts per minute, National Council on Radiation Protection and Measurements, Commentary #19.

B. Detection of radioactive material after individual has been monitored. All states have individual monitoring procedures, which are designed to detect the presence of radioactive materials

at levels well below those which could represent a health and safety problem to the public or an individual. This should not be confused with detecting all radioactive material on an individual. As a result it is quite likely that some individual will be monitored by a team at a reception and care center, declared clean, then subsequently monitored at another location only to find some radioactive material present. This may occur for a number of valid reasons including: a more efficient instrument that is able to detect the radioactive material better, the use of a slower, more effective monitoring technique or any number of other reasons. The bottom line is the individual in all likelihood does **not** have sufficient radioactive material on their person to represent a risk to their health. In fact it may well be less than the amount of radioactive material found on some wrist watches.

C. Sheltering is an admission plan does not work. We as emergency planners have not effectively explained to the public that there are several good reasons to use sheltering as a means of protective action. For example, if the release is known to be of short duration and the public cannot be fully evacuated prior to the release, then sheltering will be the protective action of choice and would result in a dose reduction to the public when compared to having the public in the radioactive cloud during an evacuation. In this circumstance the evacuation is likely to place the public in the plume as they evacuate, thus extending their time of exposure. Another condition for which sheltering is preferred occurs when roads are in a condition that the evacuation travel times are significantly increased, and a smaller exposure to the public would result if they remain within shelter.

Will the emergency plan work?

Radiation emergency planning remains a mystery to the public. While strides have been made toward informing the public that emergency plans do exist and what actions they may be asked to take for protection, the public is woefully unaware of why such actions are taken or how the decisions are made. Most decision-makers work very hard to understand the engineering and radiological conditions at the nuclear power plant site during an emergency. This is not to second guess the operator's assessment, but rather to be prepared to implement a decision at the earliest possible time to protect the public from protective action guide exposure. They do not understand that the Protective Action Guideline (PAG) value are the exposure prevented doses. The goal of decision-makers is to prevent the public from being exposed. This supports the concept that a prompt evacuation prior to the arrival of the plume is the best method of public protection. This is unlike the way the Russians implemented their emergency plan at Chernobyl, in which they waited until the public was exposed to the 25 rem then they tried to take action. I believe none of the other states will wait until the public has received a"minimum" exposure if they believe the exposure might exceed the PAG. To express this more clearly, I believe that decision-makers in this country will take a protective action as soon as it becomes clear that conditions at the site may result in radioactive material being released that may exceed the EPA PAGs whether a release has actually started or not. Lacking the understanding of how decisions are made makes the public uneasy. Most people are insecure if they do not feel they have a full knowledge of what is happening. Members of the public are likely to declare the plan a failure based only on their feelings of insecurity.

Additionally, every incident is uniquely different and poses different problems to be solved to make the emergency plan work. It is impossible for any single emergency plan to account for every

possible outcome or challenge that will arise during an event. That is why it is imperative that emergency plans be flexible enough to allow emergency response managers to react and respond according to the actual event. The plant and the accident do not read nor follow the emergency plan. The emergency plan must assemble sufficient government officials with appropriate authority who can and will follow the events of the incident and not blindly follow a plan. The key point of the emergency plan is to assure that these knowledgeable, trained and experienced officials are in place to make the necessary decisions.

Still the question is, "Will the emergency plan work?" The answer depends on what you expect in defining "work". If your definition is that each and every procedure in the emergency plan was followed exactly with no deviations, in most cases, very few or no emergency plans will :work" to that expectation. On the other hand, if the definition is were protective actions taken in a timely manner, then I expect virtually all emergency plans will "work". Confusing the issue will be the items described in A., B., and C. above. The public does not understand that these are known and expected variations on the emergency plan operations. They can and will occur for any emergency response event whether radiological or otherwise. A critical evaluation of the exercises presently conducted to assure that a viable emergency plan exits for each nuclear power plant site, will reveal that in each case they are capable of implementing public protective measures in a timely manner to reduce or prevent exposure of the public.

I believe this conclusion is supported by the fact that Agencies respond to emergencies at HAZMAT facilities everyday utilizing the same emergency plans that are utilized for radiation emergencies. These responses have generally protected the public health and safety quite well. There is no reason to think the radiation portion of the plan will not work equally as well. In addition, the International Atomic Energy Agency through its Safety Standards Series Number GS-R-2, indicates the following goals for emergency response to a nuclear or radiological emergency.

- To regain control of the situation;
- To prevent or mitigate consequences at the scene;
- To prevent the occurrence of deterministic health effects in workers and the public;
- To render first aid and to manage the treatment of radiation injuries;
- To prevent, to the extent practicable, the occurrence of stochastic health effects on individuals and among the population;
- To protect, to the extent practicable, property and the environment; and
- To prepare, to the extent practicable, for the resumption of normal social and economic activity.

I believe that the current radiation emergency response plans, when activated, will achieve most, if not all of these goals.