May 18, 2007

Juan J. Reyes, Director
Office of Radiation and Indoor Air
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Mail Code 6601J
Washington, DC 20460

Dear Mr. Reyes:

Enclosed please find Nuclear Regulatory Commission (NRC) staff comments on the draft Environmental Protection Agency (EPA) Protective Action Guidelines (PAG) Manual (Review Draft, April 2007).

The draft guidelines provide a good discussion of protective actions for radiological and nuclear emergency planning for fixed nuclear facilities, radiological dispersion devices, and improvised nuclear devices.

In your email of April 12, 2007, you requested that the NRC staff provide "show stopper" comments from this review in addition to an endorsement for publication of the draft PAG Manual in the *Federal Register* for a public comment period. The NRC staff has carefully reviewed the draft guidelines and has several significant comments. Those comments identified as "show stoppers" are included in the enclosed table. The staff has additional comments that will be provided during the public comment period.

The NRC endorses publication of the draft PAG Manual in the *Federal Register* for comment upon resolution of the enclosed comments. The NRC requests that the EPA ask stakeholders to comment on the NRC suggestion to restructure the PAG manual into two volumes - a simple "user" manual and a technical basis manual.

Thank you for the opportunity to comment on these important guidelines. If you have any questions or would like to discuss our comments, please do not hesitate to contact Patricia A. Milligan, Senior Advisor, Division of Preparedness and Response, Office of Nuclear Security and Incident Response, at 301-415-2223.

Sincerely,

/RA/ W. Dean for

Roy P. Zimmerman, Director
Office of Nuclear Security and Incident Response

Enclosure: As stated

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Enclosure: As stated ML071150250 (Package)
ML071150268 (CA Note) ML071150297 (Letter) ML071150316 (Enclosure)

OFFICE	NSIR/DPR	NSIR/DPR	NSIR/DPR	OGC	NRR
NAME	PMilligan	NMamish	NMamish for Leach	FCameron	JDyer
DATE	4/25/07	4/26/07	4/30/07	5/7/07	5/04/07
OFFICE	FSME	NMSS	NSIR/OD		
NAME	CMiller	MWeber	RZimmerman		
DATE	5/8/07	5/01/07	5/18/07		

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Point of Contact (name/phone number/email):Patricia A. Milligan , USNRC, 301-415-2223, pxm@nrc.gov

Page #	Line #	Comment
1-4	55	Abbreviates the actual statement in NUREG-0654 regarding emergency planning zone (EPZ) protection. The 10-mile EPZ avoids early fatalities for the most serious accidents, not the low consequence core melt incidents referred to in the sentence. There are no early fatalities expected from such accidents. See page 12 of N-0654.
2-8	5	We recommend adding a discussion of situations where shelter in place (SIP) may be superior to evacuation.
2-8	23	Improvised nuclear devices (INDs) will likely release large amounts of radio-iodine unlike radiation dispersal devices (RDDs) which would be unlikely to utilize radioactive iodine as source material to.
2-14	15	The introduction of as low as reasonably achievable (ALARA) is not appropriate in this context. Simply rotating workers to lower dose is not ALARA. ALARA is a philosophy that looks to lowering total dose not just individual dose. It bespeaks a well thought-out and planned method of accomplishing work. Precautions taken for emergency workers are not the same as ALARA. For lifesaving and release reduction type of work, overly detailed planning may be counterproductive.
2-15	Table 2-3	The language of "all reasonably achievable precautions have been taken to minimize dose" is not appropriate. Language should indicate that practical actions have been taken and emergency management (or the responders) has balanced the risk to the responders with the benefit to the public. The guidance for emergency workers is overly conservative, perhaps unintentionally. It states "exceeding 5 rem unavoidable and all appropriate actions taken to reduce dose…." Emergency worker dose is always avoidable by simply not allowing the operation to proceed, at whatever cost in lives and population dose due to not mitigating the accident. Further, the statement about "all appropriate actions" infers an absolute accomplishment. To complete "all appropriate actions" could take an inordinate amount of time. Perhaps the statement should read that emergency management "should balance risk versus benefit, and to determine that allowed exposures to some value (i.e.,10 rem) is appropriate, having taken appropriate actions to reduce exposure."
2-12	44	Section 2.5 replaces the previous Section 2.4.4, however there are some areas in the new text that need to be reviewed to avoid possible confusion. The new Section 2.4.4 discusses first responder without defining the scope of "first responder" as compared to the old Section 2.5 which discusses "emergency worker." Current use and understanding of "first responder" implies a much narrower scope that the original text that referred to "emergency worker." The text supports this conclusion. The plain language definition of "First Responder" would include firefighters responding to a fire, police responding to a crime, EMS responding to an accident, etc. It is not at all clear how an evacuee bus driver is to be treated; or a traffic control point during early phase evacuation; or employees of the source facility. These workers are typically categorized and understood to be "emergency workers," but not "first responders."

Page #	Line #	Comment
		(2) The text in the new Section 2.5 is nearly exclusively orientated towards events involving RDD and IND. For example: "Response organizations need to develop plans and protocols that address radiation protection during an RDD or IND incident and that ensure appropriate training for responders and decision makers." This could be wrongly interpreted that planning and training is not necessary for responders to events involving other than RDDs and INDs. While it is entirely appropriate to address the needs of these specific events, it shouldn't be at the cost of generic planning or planning for other events.
		(3) The PAGs are expressed in terms of total effective dose equivalent (TEDE), with no guidance on how the internal component of TEDE can be monitored real-time in field situations.
2-17	1	This section ignores the role of 10 CFR Part 20 on private and state and local programs operating in connection with an NRC licensee, or under an agreement state program approved by the NRC. This section should include appropriate references to 10 CFR 20.
2-17	51	This discussion refers only to NRC-employees and ignores the far greater population of the employees of NRC licensees subject to 10 CFR Part 20. This section should include appropriate references to 10 CFR 20.
2-17	25-35	Citation of the Occupational Safety and Health Act (OSHA) rules leads one to believe that the 5 rem limit cannot be exceeded for emergency workers. This citation is not appropriate. Specifically, "The worker exposure limits are not PAGs, but instead are regulatory limits that cannot be exceeded except under certain circumstances." The paragraph goes on to discuss using these limits to reopen factories with the workers treated as rad-workers. However, the citation can be interpreted to require that emergency workers involved in life saving cannot exceed 5 rem. Further, if this is going to be cited, it negates the guidance previously provided and, at the least, the circumstance for exceeding the "requirement" should be provided. The text should be clarified that emergency responders are not limited by OSHA normal activity exposure standards.
Chapter 4	4.1.1	The EPA Derived Response Levels have different values than the Food and Drug Administration (FDA) Derived Intervention Levels for the same radionuclides. The explanation of the differences and methodologies are confusing as is the acknowledgement that the water PAGs do not consider exposure from bathing, washing, etc., and that this is covered under the intermediate phase PAGs.
4-4	38-51	Delete/modify Section 4.3. The cost-benefit discussion in this section is not included with the discussions for the other PAGs. Many of the statements appear unsupported, for example, what is the basis for this statement that "Any protective action taken in response to a radiological or nuclear incident should result in a net societal benefit when the cost of the intervention is compared to the health detriment averted?" What is the basis for assuming "the value of a life saved ranges less than $7,000,000 and the risk coefficient is $5x10^{-4}$ fatal cancers per person-rem? There is also no basis provided for the statement that "All aforementioned treatment technologies achieve this cost-benefit range [of less than $3,500 per person-rem averted]."

Page #	Line #	Comment
ES-2	4	The phrase “a transportation accident involving spent nuclear fuel” should be removed from the list or revised to indicate “a transportation accident involving a release of radioactive material.” The packages used to transport spent nuclear fuel are very robust. They are required to pass tests representing hypothetical accident conditions in order to be certified (as are all Type B packages). If it is felt that some statement referring to transportation must be in the list, then it should be more general and it should be located towards the end of the list. For example: Examples of radiological incidents that have potential for significant releases are: a fire in a major facility such as a fuel manufacturing plant, an accident at a Federal weapons complex facility, an accident at a commercial nuclear power plant, an act of radiological or nuclear terrorism, or a transportation accident involving a release of radioactive material.
1-1	7	The phrase “Among the more potentially serious radiological incidents are: a transportation accident...” Reword as suggested, below: Among the more potentially serious radiological incidents are: a fire in a major facility such as a fuel manufacturing plant; an accident at a Federal weapons complex facility; an accident at a commercial nuclear power plant; an act of radiological or nuclear terrorism, including the use of a radiological dispersion device (RDD) or the detonation of a yield-producing, improvised nuclear device (IND); or a transportation accident involving a release of radioactive material.
4-2	40-44	The language used here to describe the long term levels for drinking water are inconsistent with the language used in Chapter 6. This paragraph in Chapter 4 can be read as more stringent, such that the only acceptable long term outcome is the Safe Drinking Water Act (SDWA) levels, rather than an optimized level selected using the SDWA as one possible benchmark. This paragraph should be modified to be consistent with Chapter 6.

PROCEDURES FOR COMPLETING THE COMMENT FORM

1. In the Page #, and Line # columns, insert the relevant page and line number(s) pertaining to the comment.

Note: For general comments that do not correspond to a specific page number, place the word 'GEN' under the page # column.

2. Note that this is a SHOWSTOPPERS ONLY review. Please do not provide editorial or administrative comments as they will be ignored.

3. In the Comment column, place only one comment per row: and provide comment, recommendation (**specific language**) and rationale. Because of the short timeframe for incorporation of comments, only specific language suggestions (deletions, additions, or changes) will be considered.