HLWYM HEmails

From: McCartin, Timothy
Sent: Wednesday, November 09, 2005 8:59 AM
To: Asadul Chowdhury; Biswajit Dasgupta; Budhi Sagar; Chandrika Manepally; dfarrell@cnwra.swri.edu; David Pickett; David Turner; English Pearcy; Gordon Wittmeyer; jlrussell@cnwra.swri.edu; Jude Mcmurry; James Myers; John Stamatkos; James Winterle; Ken Chiang; Lane Howard; Luis Ibarra; H. Mckague; Lietai Yang; Osvaldo Pensado; Paul Bertetti; Patrick Laplante; Patrick Mackin; Roland Benke; Robert Brient; Roberto Pabalan; Sitakanta Mohanty; Scott Painter; vjain@cnwra.swri.edu; Wesley Patrick; Xihua He; Yi-Ming Pan; dhooper@cnwri.swri.edu; Csontos, Aladar; Campbell, Andy; Adrienne Lester King; Fetter, Allen; Abou-Bakr Ibrahim; Sapountzis, Alexander; Persinko, Andrew; Wong, Albert; Abu-Eid, Boby; Hill, Brittain; Jagannath, Banad; Leslie, Bret; Reamer, C.W. (Bill); Grossman, Christopher; Hoxie, Chris; Pineda, Christine; Connie Spagnoli; Ryder, Christopher; David Cummings; DeMarco, Deborah; Spitzberg, Blair; Brooks, David; Galvin, Dennis; David Dancer; Dan Rom; Collins, Elmo; Peters, Eugene; Brown, Frederick; Morell, Gregory; Stirewalt, Gerry; Harry Wedewer; Jeffrey Borowitz; Ciocco, Jeff; Pohle, Jeffrey; Parrott, Jack; Janice Moore; Kotra, Janet; John Trapp; Everett, Vincent; Bradbury, John; Guttmann, Jack; Gwo, Jin-Ping; Rubenstone, James; Chang, Kien; Compton, Keith; Kokajko, Lawrence; Hamdan, Latif; Young, Mitzi; Melanie Wong; Waters, Michael; Schwartz, Maria; Bailey, Marissa; Mahendra Shah; Zobler, Marian; Lee, Mike; Schmit, Matthew; Nataraja, Mysore; Stablein, King; Coleman, Neil; Morgan, Nadiyah; Paul Kelley; Justus, Philip; Codell, Richard; Reeves, Rosemary; Cady, Ralph; Johnson, Robert; Latta, Robert; Richard Savio; Fedors, Randall; Stephen Kamas; Shelly Cole; Rohrer, Shirley; Baggett, Steven; Ghosh, Tina; Kobetz, Timothy; Nicholson, Thomas; Ahn, Tae; Matula, Thomas; Mehrhoff, Vivian; Ford, William; Smith, Wilkins; Kim, Yong; BSagar@swri.edu; nkvanhecke@SWRI.org
Cc: Stang, Annette; Malinowski, Christina
Subject: Talking Points for YM Team Mtg Presentation on EPA Std.
Attachments: TA_Brief_Nov4_2005_Ver5.wpd

All:

Attached are the talking points I will use for my presentation at the Team Meeting.

Tim

Hearing Identifier: HLW_YuccaMountain_Hold_EX
Email Number: 1892

Mail Envelope Properties (s371ba65.045)

Subject: Talking Points for YM Team Mtg Presentation on EPA Std.
Sent Date: 11/9/2005 8:58:52 AM
Received Date: 11/9/2005 9:00:03 AM
From: McCartin, Timothy

Created By: Timothy.McCartin@nrc.gov

Recipients:
"Stang, Annette" <Annette.Stang@nrc.gov>
Tracking Status: None
"Malinowski, Christina" <Christina.Malinowski@nrc.gov>
Tracking Status: None
"Asadul Chowdhury" <achowdhury@cnwra.swri.edu>
Tracking Status: None
"Biswajit Dasgupta" <bdasgupta@cnwra.swri.edu>
Tracking Status: None
"Budhi Sagar" <bsagar@cnwra.swri.edu>
Tracking Status: None
"Chandrika Manepally" <cmanepally@cnwra.swri.edu>
Tracking Status: None
"dfarrell@cnwra.swri.edu" <dfarrell@cnwra.swri.edu>
Tracking Status: None
"David Pickett" <dpickett@cnwra.swri.edu>
Tracking Status: None
"David Turner" <dturner@cnwra.swri.edu>
Tracking Status: None
"English Pearcy" <epearcy@cnwra.swri.edu>
Tracking Status: None
"Gordon Wittmeyer" <gwitt@cnwra.swri.edu>
Tracking Status: None
"jlrussell@cnwra.swri.edu" <jlrussell@cnwra.swri.edu>
Tracking Status: None
"Jude Mcmurry" <jmcmurry@cnwra.swri.edu>
Tracking Status: None
"James Myers" <jmyers@cnwra.swri.edu>
Tracking Status: None
"John Stamatkos" <jstam@cnwra.swri.edu>
Tracking Status: None
"James Winterle" <jwinterle@cnwra.swri.edu>
Tracking Status: None
"Ken Chiang" <kchiang@cnwra.swri.edu>
Tracking Status: None
"Lane Howard" <lhoward@cnwra.swri.edu>
Tracking Status: None
"Luis Ibarra" <libarra@cnwra.swri.edu>
Tracking Status: None
"H. Mckague" <lmckague@cnwra.swri.edu>
Tracking Status: None
"Lietai Yang" <ltyang@cnwra.swri.edu>

Tracking Status: None
"Osvaldo Pensado" <opensado@cnwra.swri.edu>
Tracking Status: None
"Paul Bertetti" <pbertetti@cnwra.swri.edu>
Tracking Status: None
"Patrick Laplante" <plaplante@cnwra.swri.edu>
Tracking Status: None
"Patrick Mackin" <pmackin@cnwra.swri.edu>
Tracking Status: None
"Roland Benke" <rbenke@cnwra.swri.edu>
Tracking Status: None
"Robert Brient" <rbrient@cnwra.swri.edu>
Tracking Status: None
"Roberto Pabalan" <rpabalan@cnwra.swri.edu>
Tracking Status: None
"Sitakanta Mohanty" <smohanty@cnwra.swri.edu>
Tracking Status: None
"Scott Painter" <spainter@cnwra.swri.edu>
Tracking Status: None
"vjain@cnwra.swri.edu" <vjain@cnwra.swri.edu>
Tracking Status: None
"Wesley Patrick" <wpatrick@cnwra.swri.edu>
Tracking Status: None
"Xihua He" <xhe@cnwra.swri.edu>
Tracking Status: None
"Yi-Ming Pan" <ypan@cnwra.swri.edu>
Tracking Status: None
"dhooper@cnwri.swri.edu" <dhooper@cnwri.swri.edu>
Tracking Status: None
"Csontos, Aladar" <Aladar.Csontos@nrc.gov>
Tracking Status: None
"Campbell, Andy" <Andy.Campbell@nrc.gov>
Tracking Status: None
"Adrienne Lester King" <ACL1@nrc.gov>
Tracking Status: None
"Fetter, Allen" <Allen.Fetter@nrc.gov>
Tracking Status: None
"Abou-Bakr Ibrahim" <AKI@nrc.gov>
Tracking Status: None
"Sapountzis, Alexander" <Alexander.Sapountzis@nrc.gov>
Tracking Status: None
"Persinko, Andrew" <Andrew.Persinko@nrc.gov>
Tracking Status: None
"Wong, Albert" <Albert.Wong@nrc.gov>
Tracking Status: None
"Abu-Eid, Boby" <Boby.Abu-Eid@nrc.gov>
Tracking Status: None
"Hill, Brittain" <Brittain.Hill@nrc.gov>
Tracking Status: None
"Jagannath, Banad" <Banad.Jagannath@nrc.gov>
Tracking Status: None
"Leslie, Bret" <Bret.Leslie@nrc.gov>
Tracking Status: None
"Reamer, C.W. (Bill)" <C.W.Bill.Reamer@nrc.gov>
Tracking Status: None
"Grossman, Christopher" <Christopher.Grossman@nrc.gov>

Tracking Status: None
"Hoxie, Chris" <Chris.Hoxie@nrc.gov>
Tracking Status: None
"Pineda, Christine" <Christine.Pineda@nrc.gov>
Tracking Status: None
"Connie Spagnoli" <CMS@nrc.gov>
Tracking Status: None
"Ryder, Christopher" <Christopher.Ryder@nrc.gov>
Tracking Status: None
"David Cummings" <DAC3@nrc.gov>
Tracking Status: None
"DeMarco, Deborah" <Deborah.DeMarco@nrc.gov>
Tracking Status: None
"Spitzberg, Blair" <Blair.Spitzberg@nrc.gov>
Tracking Status: None
"Brooks, David" <David.Brooks@nrc.gov>
Tracking Status: None
"Galvin, Dennis" <Dennis.Galvin@nrc.gov>
Tracking Status: None
"David Dancer" <DMD@nrc.gov>
Tracking Status: None
"Dan Rom" <DSR@nrc.gov>
Tracking Status: None
"Collins, Elmo" <Elmo.Collins@nrc.gov>
Tracking Status: None
"Peters, Eugene" <Eugene.Peters@nrc.gov>
Tracking Status: None
"Brown, Frederick" <Frederick.Brown@nrc.gov>
Tracking Status: None
"Morell, Gregory" <Gregory.Morell@nrc.gov>
Tracking Status: None
"Stirewalt, Gerry" <Gerry.Stirewalt@nrc.gov>
Tracking Status: None
"Harry Wedewer" <HEW@nrc.gov>
Tracking Status: None
"Jeffrey Borowitz" <JAB1@nrc.gov>
Tracking Status: None
"Ciocco, Jeff" <Jeff.Ciocco@nrc.gov>
Tracking Status: None
"Pohle, Jeffrey" <Jeffrey.Pohle@nrc.gov>
Tracking Status: None
"Parrott, Jack" <Jack.Parrott@nrc.gov>
Tracking Status: None
"Janice Moore" <JEM@nrc.gov>
Tracking Status: None
"Kotra, Janet" <Janet.Kotra@nrc.gov>
Tracking Status: None
"John Trapp" <JST@nrc.gov>
Tracking Status: None
"Everett, Vincent" <Vincent.Everett@nrc.gov>
Tracking Status: None
"Bradbury, John" <John.Bradbury@nrc.gov>
Tracking Status: None
"Guttmann, Jack" <Jack.Guttmann@nrc.gov>
Tracking Status: None
"Gwo, Jin-Ping" <Jin-Ping.Gwo@nrc.gov>

Tracking Status: None
"Rubenstone, James" <James.Rubenstone@nrc.gov>
Tracking Status: None
"Chang, Kien" <Kien.Chang@nrc.gov>
Tracking Status: None
"Compton, Keith" <Keith.Compton@nrc.gov>
Tracking Status: None
"Kokajko, Lawrence" <Lawrence.Kokajko@nrc.gov>
Tracking Status: None
"Hamdan, Latif" <Latif.Hamdan@nrc.gov>
Tracking Status: None
"Young, Mitzi" <Mitzi.Young@nrc.gov>
Tracking Status: None
"Melanie Wong" <MCW@nrc.gov>
Tracking Status: None
"Waters, Michael" <Michael.Waters@nrc.gov>
Tracking Status: None
"Schwartz, Maria" <Maria.Schwartz@nrc.gov>
Tracking Status: None
"Bailey, Marissa" <Marissa.Bailey@nrc.gov>
Tracking Status: None
"Mahendra Shah" <MJS3@nrc.gov>
Tracking Status: None
"Zobler, Marian" <Marian.Zobler@nrc.gov>
Tracking Status: None
"Lee, Mike" <Mike.Lee@nrc.gov>
Tracking Status: None
"Schmit, Matthew" <Matthew.Schmit@nrc.gov>
Tracking Status: None
"Nataraja, Mysore" <Mysore.Nataraja@nrc.gov>
Tracking Status: None
"Stablein, King" <King.Stablein@nrc.gov>
Tracking Status: None
"Coleman, Neil" <Neil.Coleman@nrc.gov>
Tracking Status: None
"Morgan, Nadiyah" <Nadiyah.Morgan@nrc.gov>
Tracking Status: None
"Paul Kelley" <PJK1@nrc.gov>
Tracking Status: None
"Justus, Philip" <Philip.Justus@nrc.gov>
Tracking Status: None
"Codell, Richard" <Richard.Codell@nrc.gov>
Tracking Status: None
"Reeves, Rosemary" <Rosemary.Reeves@nrc.gov>
Tracking Status: None
"Cady, Ralph" <Ralph.Cady@nrc.gov>
Tracking Status: None
"Johnson, Robert" <Robert.Johnson@nrc.gov>
Tracking Status: None
"Latta, Robert" <Robert.Latta@nrc.gov>
Tracking Status: None
"Richard Savio" <RPS1@nrc.gov>
Tracking Status: None
"Fedors, Randall" <Randall.Fedors@nrc.gov>
Tracking Status: None
"Stephen Kamas" <SAK2@nrc.gov>

Tracking Status: None
"Shelly Cole" <SDC1@nrc.gov>
Tracking Status: None
"Rohrer, Shirley" <Shirley.Rohrer@nrc.gov>
Tracking Status: None
"Baggett, Steven" <Steven.Baggett@nrc.gov>
Tracking Status: None
"Ghosh, Tina" <Tina.Ghosh@nrc.gov>
Tracking Status: None
"Kobetz, Timothy" <Timothy.Kobetz@nrc.gov>
Tracking Status: None
"Nicholson, Thomas" <Thomas.Nicholson@nrc.gov>
Tracking Status: None
"Ahn, Tae" <Tae.Ahn@nrc.gov>
Tracking Status: None
"Matula, Thomas" <Thomas.Matula@nrc.gov>
Tracking Status: None
"Mehrhoff, Vivian" <Vivian.Mehrhoff@nrc.gov>
Tracking Status: None
"Ford, William" <William.Ford@nrc.gov>
Tracking Status: None
"Smith, Wilkins" <Wilkins.Smith@nrc.gov>
Tracking Status: None
"Kim, Yong" <Yong.Kim@nrc.gov>
Tracking Status: None
"BSagar@swri.edu" <BSagar@swri.edu>
Tracking Status: None
"nkvanhecke@SWRI.org" <nkvanhecke@SWRI.org>
Tracking Status: None

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Summary of Comments on EPA Standards

- To date, comments on the proposed revisions have been directed primarily at the dose limit. Key stakeholders (e.g., state of Nevada, affected units of local government, Department of Energy, NEI , etc.) have promised to submit written comments to the EPA in the future.

Comments submitted to EPA in Public Meetings or in Writing:

CONS

- Dose limit of 350 mrem will allow 1 in 35 people to die from cancer. This is well beyond EPA's stated risk goal of 10^{-4} to 10^{-6} lifetime risk and is an unethical risk to pass on to future generations.
- Dose limit of 350 mrem is not logical, given EPA is on record as stating 25 mrem is not protective and 100 mrem represents an unacceptable risk
- The 350 mrem standard is the least protective standard in the world.
- EPA's stated value for "natural" background radiation (350 mrem) is too high. EPA calculates 350 mrem based an estimate of 250 mrem from **indoor** radon. Measured "natural" background radiation in the Amargosa Valley would be around 100 mrem.
- Use of the "median" value for compliance provides no constraint for 50 percent of the calculations. Lethal doses half the time would comply with the standard.
- Ground water protection should be included as part of the million year standard.

PROS

- The idea of estimating doses for 1 million years does not make any sense. EPA should go back to Congress and get the law changed to allow a 10,000 year compliance period.
- The 350 mrem limit is reasonable given other examples of tolerable exposures (e.g., worker doses, medical diagnostic tests, background radiation).

EPA Responses in Public Meetings

- uncertainties involved in making dose estimates over 1 million years requires a different standard and a two-tiered standard is consistent with international approaches
- 350 mrem added to background radiation in the Yucca Mountain region is consistent with background radiation levels elsewhere (e.g., Colorado)

Written Comments on EPA Standard

1) Nevada Attorney General wrote letter to Attorney Generals from other states to alert them of the potential that EPA's proposed limit of 350 mrem could "destabilize" cleanup standards
   - Professor Peterson (UC Berkeley) provided a rebuttal of this letter and provided it to all the Attorney Generals - calling Attorney General Sandoval's letter "at best, misleading"

2) Early in the process (February 3, 2005) Bob Loux (Nevada Agency for Nuclear Projects) provided comments to EPA, recommending instead a 15 mrem dose limit and separate requirements for ground water protection over 1 million years

3) Mixed comments from knowledgeable individuals (e.g., Bob Bernero, Dave Kocher)
   - support cautious application of dose limit after 10,000 years
   - concern for use of median for compliance

- **One Comment has been submitted on NRC's proposed revisions to Part 63**
  - concern for not including variation in climate after 10,000 years (e.g., wet dry cycles could be detrimental to performance

- **NRC staff is considering providing formal comments to EPA in support of EPA standards**

  PROS:
  - provide further balance for negative comments on EPA standard
  - information to be considered in potential court action on standard
  - NRC commented on previous standard
  - public deserves to know where the independent regulator stands on EPA standard, which NRC has adopted

  CONS:
  - 350 mrem is controversial and NRC support may raise questions regarding NRC's public dose limit of 100 mrem (e.g., bias for approval of a Yucca Mountain repository)
  - NRC could be perceived as inappropriately arguing for a more lenient value on DOE's behalf
  - if EPA finalizes its proposal with a lower limit than 350 mrem, NRC support for the 350 mrem limit may raise further questions regarding an NRC bias for approval of a Yucca Mountain repository

- **Alternative to providing formal comments would be to provide public information to EPA supporting the standard**

Staff's views on EPA's proposed revisions:

1. NRC considered the previous standard protective of public health and safety of the environment. The revised standard, which provides an additional constraint for the period after 10,000 years, adds further protection to the standard.

   - Internationally there are countries that provide for an initial period for a strict quantitative limit and later a more qualitative approach (e.g., Finland sets a limit of 10 mrem for the first few thousand years and requires the impacts after this time period to be comparable to those arising from natural radioactive sources)

2. The selection of a two-tiered standard is an appropriate approach for a compliance period that extends to 1 million years.

   - EPA has stated specification of a regulatory standard for 1 million years is unprecedented in the United States. The NRC concurs with the EPA that such a long time period requires special consideration to ensure any potential decision regarding compliance is based on sound science.

   - Uncertainties in dose estimates at very long time periods (i.e., up to 1 million years) could result in variations in the dose estimates larger that the 10,000 year standard of 15 mrem. Determination of compliance with any standard is problematic if uncertainty in the estimated value can be larger than the dose limit.

   - EPA's proposal, which sets a separate limit for the period after 10,000 years, recognizes the potential for increased uncertainty in a 1 million year assessment and specifies a larger dose limit for the period after 10,000 years when it can be expected uncertainty in the dose estimate will increase.

   - EPA's approach allows for a review of the dose estimates in the period after 10,000 years that will not be unduly affected by small variations or "noise" in the dose estimates.

3. Specification of an individual dose limit of 350 mrem/yr for the period after 10,000 years is protective of public health and safety and the environment.

   - Although the dose limit for the initial 10,000 years differs from the dose limit proposed for the time period after 10,000 years, both of these dose limits are considered protective given the uncertainties in estimating radiation risk.

   - Lifetime risks can be calculated for radiation exposures, however, for regulatory purposes, so as not to underestimate risks, a linear, non-threshold model is assumed for estimating radiation risks. Radiation risks from a 350 mrem dose calculated in this manner should be considered a conservative measure of risk and it is possible that actual effects could be nonexistent.

4. Specification of specific features, events, and processes (FEPs) that need to be evaluated in the performance assessment is appropriate for limiting unwarranted speculation.

   - Speculation over FEPs that could occur over the next million years is appropriately limited to those FEPs that are included in the performance assessment for the initial 10,000 years.

   - Specification for the treatment of certain FEPs (i.e., seismicity, igneous activity, climate, and corrosion processes) in the performance assessment after 10,000 years limits unwarranted speculation regarding the evolution of these FEPs for the period after 10,000 years.

5. The use of the median of the distribution for determining compliance with the dose limit after 10,000 years provides an adequate statistical measure.

   - Use of the median of the distribution to determine compliance allows the NRC staff to review the entire distribution. If the upper end of the distribution contains doses significantly larger (e.g., more than an order of magnitude) than the median values, the NRC staff will critically review the basis for the large estimates of individual dose. This can be considered by the Commission when determining whether there is any unreasonable risk to the health and safety of the public (§ 63.31).

6. NRC supports the use of current dosimetry for estimating individual dose.

   - The use of current dosimetry makes use of recent scientific understanding for the effect of radiation on humans.