

**From:** "Ron Fraass" <rfraass@CRCPD.ORG>  
**To:** <gep@nrc.gov>  
**Date:** 11/27/02 2:16PM  
**Subject:** Comments Draft NUREG 1761

8/28/02  
67 FR 55280  
12

George,

I am attaching four files to this email. One is my letter to you. The second is the transmittal letter from Pete Myers, our E-23 Chair. The third contains the E-23 Committee's comments. The fourth contains comments from the E-5 and E-24 committees. If you have trouble opening them, I can fax them to you. I will also mail the originals.

Thanks,  
Ron

<<1761 ltr.doc>> <<112602 1761 Cmmts to CRCPD.doc>> <<Comments on 1761.doc>>  
<<nuregcomt.doc>>

Ronald G. Fraass, Executive Director  
Conference of Radiation Control Program Directors, Inc.  
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**CC:** "Pat Gorman" <PGorman@CRCPD.ORG>, "Terry Devine" <TDevine@CRCPD.ORG>,  
"Pete Myers (E-mail)" <pete.myers@tdh.state.tx.us>, "Dennis Zannoni (E-mail)"  
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11/27/02  
11:02 AM  
Doe &  
11/27/02

Template = ADM-013

E-RTDS = ADM-03  
Call - G. Powers (GEP)

George E. Powers  
Office of Nuclear Regulatory Research  
Mail Stop T-9F31  
USNRC  
Washington DC 20555-0001

November 26, 2002

Dear Sir;

The attached comments on NUREG 1761, "Radiological Surveys for Controlling Release of Solid Materials" are provided from three committees of the Conference of Radiation Control Program Directors, Inc.: E-23 Committee on Resource Recovery and Radioactivity, E-24 Committee on Decontamination and Decommissioning, and E-5 Committee on Radioactive Waste Management. These comments are in response to the 90-day notice for comment published in the Federal Register on August 28, 2002.

CRCPD appreciates the opportunity to comment on this important NUREG. If you have questions please contact me at 502 227-4543 extension 2222.

Sincerely;

Ronald G. Fraass, Executive Director  
Conference of Radiation Control Program Directors, Inc.

Attachments:

1. Ltr Pete Myers
2. Memo Terry Devine

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## CRCPD=s Committee on Resource Recovery & Radioactivity

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Conference of Radiation Control Program Directors, Inc. (CRCPD)  
**A Partnership Dedicated to Radiation Protection**

November 26, 2002

Conference of Radiation Control  
Program Directors  
Office of Executive Director  
Attn: Mr. Ron Fraass  
205 Capital Avenue  
Frankfort, KY 40601

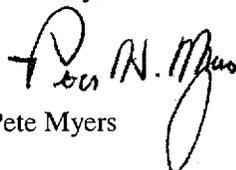
Dear Mr. Fraas:

As requested, please find attached the E-23 Committee's comments on the Nuclear Regulatory Commission's (NRC) draft NUREG 1761, Radiological Surveys for Controlling Release of Solid Materials. As indicated in previous correspondence, the NRC requested comments on draft NUREG 1761 be provided by November 29, 2002. Please transmit these comments to the person at NRC who requested the comments.

Thank you very much for providing the E-23 Committee an opportunity to review and comment on this important document.

Should you have any questions or need to discuss issues related to the attachment, please call me at (512) 834-6688 extension 2209 or e-mail me at [Pete.Myers@tdh.state.tx.us](mailto:Pete.Myers@tdh.state.tx.us)

Sincerely,

  
Pete Myers

1 Attachment

cc: Russ Takata, Chairperson, Environmental Nuclear Council  
E-23 Committee Members, Resource Individuals, and Advisors

**Office of the Committee Chairperson  
Pete Myers**

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## E-23 Comments on Draft NUREG 1761

General Comments:

1. Draft NUREG 1761 describes a very complex, complicated method for using a modified-MARSSIM approach in the clearance of solid material. Because much of the report is written without regard to its intended audience (i.e., regulators, licensees and the public), it will be very difficult for regulators to develop adequate assurance that licensees will be able to put together the necessary combination of experienced personnel, training, facilities, equipment and procedures in order for the licensees to clear material without case-by-case regulatory oversight [see Specific Comments, Line 205-206].

Some concepts in the NUREG need to be simplified. Transparency, simplicity and clarity of language are critical to maintaining forward momentum and improving upon current methods of releasing solid materials. More than any other project, documents written to support improvements in the clearance of solid materials need to reach and maintain a standard of technical excellence balanced by clear descriptions and comprehensible criteria understood by a wide range of readers. This will serve to enhance the trust and acceptance needed to move this important project forward.

2. It is not obvious that clearance of bulk, large distinct items [e.g., in B-25 boxes or railroad cars] using an *in toto* survey technique can be done with an adequate degree of assurance that only items contaminated with an acceptable amount of radioactive material are being released for unrestricted use. As mentioned in the previous paragraph, licensees must combine experienced personnel, appropriate procedures and an adequately sensitive radiation detection system in order to use the Draft NUREG 1761 method. First, licensees may not select an adequately sensitive radiation detection system. In fact, information on the difficulty in selecting an adequately sensitive radiation detection system is provided in the final report of the "Illicit Trafficking Radiation Detection Assessment Program" conducted in Austria from November 1997 to June 2000 in cooperation with the International Atomic Energy Agency (IAEA), the World Customs Organization (WCO) and the International Criminal Police Organization (INTERPOL). The first results of the ITRAP lab test showed that more than 70% of the fix-installed gamma monitoring systems did not fulfill the requirements of the testing protocol [<http://www.polimaster.com/en/support/docs/itrapfinreport.pdf>]. Second, there exists anecdotal information indicating that accurate, reliable survey results can be difficult to obtain, at least some *in toto* survey systems, even in the hands of relatively capable professionals. Finally, the existing, approved national standard on clearance [ANSI/HPS N13.12-1999] specifically states that "Surface screening levels **shall** be used when the item's size or shape reasonably allows direct radiological surveys for surface radioactive contamination." Although not an official E-23 Committee position, some on the E-23 Committee strongly believe that *in toto* surveys of bulk, large distinct items should only be allowed on a case-by-case basis, approved by the

## E-23 Comments on Draft NUREG 1761

regulatory authority with jurisdiction over the licensee requesting to use such clearance surveys.

More generally, there are numerous parameters in the DQO (Chapter 3), Survey Design (Chapter 4), and Clearance Survey Approaches (Chapter 5) that are fraught with possible errors, and thus, need to be considered and accepted by the governing regulatory agency. The report, therefore, should be more explicit in the need of licensees to include regulators, and in some instances the public, when developing exposure pathway modeling, DCGLs, calibration of detectors, MDCs DCGLs, etcetera. Failure to do so could result in releases in excess of the dose criterion, loss of public trust, and violation citations.

3. The classification of impacted items (classes 1, 2, & 3) and unimpacted items, and the approaches toward processing each class are reasonable and useful.
4. The guidance for developing DCGLs is both inadequate when summing or combining DCGLs and non-existent in guidance for dealing with multiple releases of solid material.
5. The abstract mentions that the report includes guidance for designing, performing and documenting radiological surveys of solid materials to address the need for consistency in the surveys. However, it does not adequately discuss documenting the surveys. Instead, it leaves the reader with an impression that far more documentation will be involved than may be reasonably necessary under day-to-day routine circumstances. This should be clarified, and emphasis placed upon the value of maintaining records that clearly document process history.
6. The report seems to be a "forced fit" of successful approaches used to perform final status surveys for decontamination and decommissioning of existing land and structures in support of license termination. Instead, it should be a stand-alone report of clearly defined and technically defensible survey pathways specific to the every day clearance of the wide range of solid materials currently being released. Overall, the report inadvertently perpetuates the notion of a close association between the two processes of license termination and clearance of solids, and this unnecessarily and avoidably exaggerates the complexity, confusion and misunderstanding of complex issues that need to be addressed for improving the control of solids.

Instead of a "one-size-fits-all" approach, the report might be enhanced with establishment of "break-out" sections devoted to surveys appropriate to the types and nature of contamination found at particular facility types, such as power reactors, fuel fabrication facilities, sealed source facilities, broad R&D facilities, TRU facilities, gaseous diffusion plants, uranium mill facilities and

## E-23 Comments on Draft NUREG 1761

rare earth facilities insofar as each facility has its own complexities specific to the types of materials possessed and used. For example, the broad R&D facility would need to be concerned about H-3 detection methods, while those with mixed fission and activation contamination would need to be concerned about survey measurements, that will not underestimate the contribution from TRU radioisotopes. Also, a potential exists for piping and tools exposed to activation and corrosion products at some facilities to "leach out" contamination months after successful decontamination efforts and wipe surveys indicated there was no loose surface contamination remaining. This factor should be taken into consideration more for facilities that have potential for it to occur. The challenges to establishing the adequacy of survey methods and procedure needs are not equivalent at these facilities, and it would simplify as well as clarify what needs to be done with regard to methods and procedures to distinguish between them from the start. Keep it simple when possible, and as complex as needed when necessary.

7. As written, the report seems to place more overall attention and emphasis on measuring concentrations of radioisotopes such as H-3 and Ni-63 than on measuring difficult to detect TRU radioisotopes. There is also insufficient discussion on the uses of decay correction methods to establish the length of time decay has occurred for more easily detected surrogate radioisotopes, such as Co-60, or from any TRU radioisotopes likely to be present. Specifically, in some situations, low levels of Co-60 measured to be slightly above a clearance level at one time years earlier might have decayed to below it when later measured, with unmeasured TRU remaining above the DCGL.

Specific Comments:

NOTE: In some sections of the draft NUREG, the line numbering in the published hard copy is different than the line numbering in the electronic version available on NRC's website [e.g., Line 1354 in the published hard copy contains the end of one sentence and the beginning of another; in the electronic version available on NRC's website Line number 1354 is the equation for  $DCGL_{meas,mod}$ ].

## Line 205-206 [published hard copy]

The Executive Summary [page xi, lines 205-206] says that licensees have released solid materials on a case-by-case basis, without a consistent approach to designing and conducting clearance surveys ... more accurately, it might say that Reg Guide 1.86 has been used but (a) the 1.86 numbers are to some degree arbitrary and (b) industry considers surveys of discrete objects to be unnecessarily time consuming and expensive. But, is it being implied that regulatory agencies should not clear material on a case-by-case basis? Should licensees be able to clear their own material without regulatory involvement? Licensees and waste processors/disposal facilities whose interest is in clearing material with a minimum of effort (and cost),

## E-23 Comments on Draft NUREG 1761

might apply liberal interpretations to clearance criteria and/or survey methods and results. Theoretically, regulatory agencies might discover such practices during inspections, but once material is cleared it is out in the unrestricted domain.

Line 211-213 and 527-528 [published hard copy]

The Executive Summary [page xi, lines 211-213] states that "... before beginning to plan for the survey, the licensee must decide whether to dispose of the solid material as radioactive waste or to perform surveys to determine whether the material can be released."

- a. Paragraph 2.c. [page 5, lines 527-528] says, however, "Based on process knowledge of the material, determine whether the solid material is impacted. If not, the solid material can be considered for release." and Figure 2.1 indicates that if it is determined that the material is not impacted it can be released ... paragraph 2.c. and Figure 2.1 should make it more obvious that confirmation surveys appropriate to the class of the material (1, 2 or 3) are required (or are they required?).
- b. It is implied [page 5, lines 527-528] that if the material being considered for clearance or disposal is likely to be considered LLRW from process knowledge and, hence, should be processed for disposal, surveys would not be required because they are costly. Surveys may be costly but they will still be required. Surveys must be conducted to sufficiently characterize the material [e.g., waste disposal sites require characterization of the material they accept for disposal; decontamination & disposal/recycling may be less expensive than llrw disposal].

Line 225 [published hard copy]

The Executive Summary [page xi, line 225] states that this report does not provide release criteria but presumes that release criteria have been obtained, presumes that DCGL<sub>cs</sub> are available for use, and focuses on how the criteria can be applied.

- a. The concept and use of DCGL<sub>cs</sub> is valid for release of land and buildings because average acceptable contamination levels from a nuclide or a mix of nuclides can be back-calculated from the acceptable exposure rates within the defined area (e.g., 25 mrem/yr at 1 meter above a point centered within the defined area); and surveys can be conducted to determine if the contamination that exists within the defined area is equal to or less than the DCGL. The viability of the concept is less certain when applied to the release of solid materials, particularly bulk scrap metal loaded in a B-25 box or a railroad car:

- (1) There is a degree of uncertainty in the dose factors published in Draft NUREG 1640 [DCGLs for release of solid material are developed from the 1640 dose factors]. Even assuming the contamination is distributed relatively uniformly throughout the bulk scrap metal, how do you back-calculate the average acceptable contamination levels from the acceptable exposure rate (1 mrem/yr) because there is no uniform

## E-23 Comments on Draft NUREG 1761

geometry from which the radiation is emitted and there is no single point at which the exposure rate can be calculated (e.g., not 1 meter above a point centered within the defined area).

- (2) And if a DCGL were established, the irregular geometries of the scrap metal and non-uniform multiple layers of shielding within a container may produce wildly varying survey results from point to point outside the box.
- b. Development of DCGLs is complicated; if allowed for release of solids, each release of solids must be approved by the appropriate regulatory authority.

Line 268-271 [published hard copy]

The Forward [page xiii, lines 268-271] states that if the Commission were to develop a rule, rulemaking alternatives included: (1) permit release of material for unrestricted use if it meets certain dose levels [e.g., 1 mrem/yr]; (2) prohibit release of material that had been in an area where radioactive material was used/stored; and (3) restrict release to only certain authorized uses. Rulemaking should not proceed for either (2) prohibited releases or (3) restricted releases [e.g., release for reuse in nuclear industry, disposal, recycle]. That leaves only alternative (1). But, regarding releases, there is no discussion of surveys for removable contamination.

Line 346 (Abbreviations and Symbols) [electronic copy from NRC web page]

GP, DCGLw, DCGLemc, should all be in the abbreviation and symbols section.

Line 451 [electronic copy from NRC web page]

To be consistent with other sections, the report, should state "whenever the scan MDC **is at least 10-50%** less than the DCGLc

Line 456 [electronic copy from NRC web page]

This paragraph is not part of the scope - it belongs only in the Executive Summary.

Line 459 [electronic copy from NRC web page]

The paragraph starting here should refer to Appendix B as this is where it is found.

Line 444 & 486 [electronic copy from NRC web page]

Clearance survey approaches of paragraph 444 are different than those in paragraph 486, which is different than paragraph 537.

The survey approaches throughout the report are difficult to follow. Is there a difference between line 539 use of "static direct measurements" vs. line 454 use of "direct measurements." If there is a difference, it should be spelled out. If there is not a difference, then there should be consistency as

## E-23 Comments on Draft NUREG 1761

to which phrase to use because this type of inconsistency is found throughout the report.

Line 450-455 [electronic copy from NRC web page]

What about (static) direct measurements MDC are less than the DCGL? Is this not also stressed in the report?

Line 492-497 [published hard copy]

The Introduction [page 2, lines 492-497] discusses surficial contamination vs. volumetric contamination ... if surficial means the activity contained within the thickness of the surface material that is equal to the maximum range of the specified particulate radiation,

- a. Why only particulate radiation? Because within this thickness, contamination emitting particulate radiation can be measured by conventional scanning (i.e., fixed and removable)?
- b. This implies volumetric averaging can include the entire mass of a solid material being considered for release.

Line 567 [electronic copy from NRC web page]

The Roadmap does not explain why automatic document scanners must be used.

Line 572-574 [electronic copy from NRC web page]

Step p. should only include static measurements (paragraph 576) because:  
a) it is consistent with 549-550, and b) lines 572-574 are already stated in lines 567-571. Line 575 is the primary difference between the two lines.

Line 477 and 953 [electronic copy from NRC web page]

As stated in line 477, the survey unit size must be sufficiently evaluated to develop a technically defensible approach for area or volume averaging. This statement is repeated in line 953, indicating the importance of the licensing personnel to closely analyze the proposed techniques suggested for use by the licensee. Geometries often restrict the MDC for determining adherence to the DCGL. We do not want licensees to alter the geometry of a survey batch just to get the material to pass the survey by rearrangement.

In line with this thought, we must realize that substantial trust is given to the licensee to adhere to their proposed activities for surveying materials for release. Who's to say that if my survey unit is a B-25 box, and if I survey in toto with a HPGe system at predetermined positions, I will not detect a discrete source purposely placed within the material, appropriately shielded amongst the debris? An inspector will need to carefully review the uniform waste manifests to ensure that this type of activity does not occur. See paragraph, lines 768-772, which suggests an alternative approach based on total activity instead of the average concentration that the licensee may use.

## E-23 Comments on Draft NUREG 1761

## Chapter 3

The Data Quality Objectives (DQO) Process is appropriate and useful for projects involving clearance of large quantities of similar materials, such as would likely be encountered before final decommissioning and termination of a facility's license. However, it is not necessarily appropriate for efficiently designing, performing and documenting radiological surveys of solid materials for day-to-day releases occurring throughout the life span of the facility. Simpler, consistently applied technical bases for making decisions on performing appropriate surveys for these types of releases are inadequately addressed in the report.

## Line 620-622 [published hard copy]

The Data Quality Objectives [page 9, lines 620-622] indicate that the regulatory criteria for clearance must be established and that the criteria could be either activity-based or dose based. Aren't both of these criteria inter-related? So its not so much that there are two criteria, but more that there are two ways of stating the same criteria [e.g., 1 mrem/yr per pCi/g = a certain activity of a certain nuclide per mass of material being cleared (from NUREG 1640)].

- a. And, by the way, it seems as though there would need to be some minimum mass of contaminated material in order for the projected doses to have any validity ... for example, is it valid to project a 1 mrem/yr dose to a member of the critical population if only 1 gram of material is volumetrically contaminated with 5.2 pCi of cobalt-60? It just seems like there should be a lower bound to the masses and surfaces involved in these projections [e.g., The Executive Summary [page xii, lines 243-244] discusses adequacy of survey unit size].
- b. Furthermore, what portion of the contaminated material do you include within the calculation of the clearance criteria [activity per mass] provided in NUREG 1640? You wouldn't want to allow inclusion of the entire mass of a large distinct item to be considered in determining activity per mass. One approach I heard or saw was to allow consideration of 1 mm depth over the surface area of a large distinct item to be used in an activity per mass calculation.

## Line 929-934 [electronic copy from NRC web page]

The sentences starting here as "The standards were to be...." does not belong with the rest of the paragraph.

## Line 956-969 [published hard copy]

The Survey Design Considerations [page 20, lines 956-969] discuss survey units. Regarding "material survey units (batches)," multiple large pieces of equipment should not be included in a single survey unit where statistical sampling may result in one or more pieces of large equipment not being surveyed. Each distinct piece of equipment must be surveyed for release.

## E-23 Comments on Draft NUREG 1761

Line 1173 [electronic copy from NRC web page]

Survey types such as scoping and characteristic surveys (discussed on this line) as well as remedial, clearance, and confirmatory surveys should be discussed earlier in the report; be more in depth; and be discussed in comparison with the DCGLs (such as are found in section 5 of MARSSIM).

Section 4.5 [electronic copy from NRC web page]

Unlike MARSSIM, where there are only a few (two?) end point dose receptors, draft NUREG 1640 (and this proposed companion report) has numerous end point dose receptors (i.e. more scenarios resulting in multiple pathways), thus the development of modified and gross DCGLc in section 4.5 may be inappropriate because it assumes that the dose receptor end points are the same. This may not always be true. The proposed section 4.5 should be expanded to include discussion/guidance and appropriate modification of the DCGLc equations to account for situations where there are different end point dose receptors.

Section 4.5 does not give any guidance for dealing with multiple releases of solid material. If a licensee will release 10,000 items, should each item be allowed to give the dose limit and allow the potential for an individual to receive a dose of 10,000 mrem in a year? Or should the DCGL be lowered to ensure that the dose limit (e.g., 1 mrem/r) is not received from all of the 10,000 items combined?

Section 4.5.2 [electronic copy from NRC web page]

Section 4.5.2 suggests that the *a priori* DCGLs can be adjusted by changing the assumptions made during the exposure pathway modeling. Modifications of the assumptions used, as well as the initial assumptions, in the exposure pathway modeling should be done in consultation with the governing regulatory agency (i.e. NRC or Agreement State) - this should be explicitly stated here. In fact, much of the report is written without regard to its intended audience (i.e. regulators, licensees, and the public).

Line 1354 & 1358 [electronic copy from NRC web page]

It is unclear what the difference is between the equation on Line 1354 and Line 1358. I believe the equation on Line 1354 is for a surrogate to account for a single radionuclide, while the equation on Line 1358 is applicable for more than one other radionuclide. The explanations regarding these 2 equations should be better spelled out.

Section 4.6 [electronic copy from NRC web page]

Section 4.6 should stress that MDC derivations/calculations must be acceptable to the governing regulatory agency. Nowhere is this more true than with the choice of the calibrating matrix/surface standard used to establish MDCs for volumetric releases. The importance of the selected calibration standard is not fully addressed until section 5.4.1.3 and 5.6.1.

## E-23 Comments on Draft NUREG 1761

The choice of establishing calibration and MDCs should be done in conjunction with the governing agency.

## Section 4.7 [electronic copy from NRC web page]

Inaccessible areas are mentioned in various parts of the NUREG, with Section 4.7 through Section 4.7.2 devoted to Inaccessible Areas, Inaccessible Material Scenarios and Making an Inaccessible Area Accessible, respectively. These sixty-one (61) lines of text, out of a document total of 5601 lines, do not include the discussion of porous materials such as wood, rubber gaskets, etc. It is also inadequate in limiting discussions of scenarios that include: operation in airborne contamination areas, spread of contamination by lubricating oil, and the transport of radioactive liquids or gases. It fails to mention that inaccessible areas on complex process equipment may become contaminated through buildup and concentration of slightly contaminated dust and grime generated from routine activities conducted over long periods of time. Lines 1609-10 say "The discussion throughout this report suggests a number of research opportunities for handling materials that have inaccessible areas." However, instead of specifying in more detail the range and scope of problems involving inaccessible areas; the brief discussions on dismantling, use of TLDs, and nondestructive assay (passive and active) oversimplify the complexities involved in quantifying potential contamination in inaccessible areas. These complexities exist for not only small pieces of equipment such as pumps, motors and tools, but also for larger pieces of equipment such as drill presses, lathes, large machinery, etc.

## Section 5.4.1.3 [electronic copy from NRC web page]

Section 5.4.1.3 should be expanded to assist the user. For example: a count time equation should be given to show the relationship between sensitivity and count time; geometry of the calibration source should be similar to that of the proposed source material.

## Line 1606 [electronic copy from NRC web page]

The sentence starting on line 1606 is redundant and/or not necessary.

## Line 3617 (Glossary) [electronic copy from NRC web page]

DCGLw, DCGL emc, and DCGLc should all be in the glossary.

## Line 3808 and 3808 [electronic copy from NRC web page]

Figure A-2 is inverted [i.e., if you hold up these figures upside down and in a mirror, it then can be viewed correctly].

## Line 3811 and 3812 [electronic copy from NRC web page]

Figure A-3 is inverted [i.e., if you hold up these figures upside down and in a mirror, it then can be viewed correctly].

## E-23 Comments on Draft NUREG 1761

Line 3842 and 3843 [electronic copy from NRC web page]

Figure A-4 is inverted [i.e., if you hold up these figures upside down and in a mirror, it then can be viewed correctly].

Line 3844 and 3845 [electronic copy from NRC web page]

Figure A-5 is inverted [i.e., if you hold up these figures upside down and in a mirror, it then can be viewed correctly].

Page B-23 [electronic copy from NRC web page]

Figure B-2 is inverted [i.e., if you hold up these figures upside down and in a mirror, it then can be viewed correctly].

Line 4085 [electronic copy from NRC web page]

Should be: GP - gas flow (to be consistent with 4086 ZnS - ....)

## MEMORANDUM

Date: 19 Nov. 2002  
To: CRCPD Directors  
Fr: Terry Devine  
Re: Draft NUREG-1761, Radiological Surveys for Controlling Release of Solid Materials

Comments from E-5, Radioactive Waste Management

Release of potentially radioactively contaminated material is an issue we are all grappling with. As state regulators, we are pleased that NRC took on the task of determining how such surveys would be done, even though the limit has not yet been established. For the most part, the draft document is well written and the approach taken is one we can back. We particularly appreciate the reference to and use of the guidelines in the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM). Using a MARSSIM-like approach is a welcome concept for states. MARSSIM was developed and agreed to by the major federal agencies dealing with cleanup of facilities and land. States are trained in the process and accept its use by their licensees. Using this approach for release of solid materials is, therefore, more easily understood and consistent with the way we release land and facilities. Please find below our specific comments regarding this draft NUREG.

- The road map outlined in chapter 2 and clearly depicted in Figures 2.1 and 3.1 is useful and should be retained in the document. The figures provide a good overview of the process and the questions that must be answered.
- Part of the MARSSIM guidelines is use of the Data Quality Objective (DQO) process. Chapter 3 of this NUREG describes how to apply DQO to release of materials. This chapter provides both insight into the issues that should be considered and a clear picture of the philosophy used to develop the surveys.
- Section 3.5 - Develop a Decision Rule. This section would benefit from clarification to making it easier to use. Much of it is probably clear to someone who performs surveys and regularly uses the MARSSIM process, however, this is not the case for state regulators. Many states have no decommissioning projects and when they occur the regulators only review licensee procedures; they do not perform the work.

Specifically a sentence should be added to line 742. After the sentence, "When the decision rule is based on a single measurement, it is essentially a detection decision, and the appropriate framework for considering such decision rules is in the MDC calculations," add a sentence, "When it is based on an average, the decision is based on statistical requirements." Further clarification is needed in the next two paragraphs as well.

- Since NRC chose to use "special units" in their regulations and, hence, the states do as well, NUREGs and particularly the tables in this NUREG should include these values. Licensees and state regulators should not have to use calculators and conversion factors.

- Line 932: This does not flow from the discussion of surface activity to dose-based. "The standards were to be dose-based; hence..." Clarify which standards this refers to, new, proposed, future?
- Appendix B on Instrumentation is a helpful and thorough summary and should be retained in the final document.

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#### Comments from E-24, D&D Committee

First and foremost, any document that has Abelquist and Gogolak involved gives us great confidence that it is a good document. Our past experience with MARSSIM drives this point home.

Next, it is always beneficial for agencies to get together on projects like this, especially in the area of cleanups. It is important that ORISE, Oak Ridge National Lab, DOE and the NRC are involved. Again, where is EPA? They should be at the table just as they were with MARSSIM. Also DOD should have been included. The states need them all on board if we (states) are to get behind any release policy.

The NRC should be congratulated for pursuing this work while the National Academies study possible alternatives for controlling the release of slightly contaminated materials.

As requested by the NRC Commissioners, this document does develop the technical information base to support a future policy decision in this area. Together with the National Academy study, it this should provide the grist for a good NRC policy discussion in this area at some future date.

It also avoids the cleanup standard controversy by assuming that the DCGL sub c has been determined.