BACKGROUND

[BASES AND RATIONALE]

FOR

GUIDANCE FOR AN ACCELERATOR FACILITY SAFETY PROGRAM

OCTOBER 1994

This document provides the rationale and bases for the "DOE 5480.25 GUIDANCE (September 1, 1993) jointly issued by the Offices of Energy Research and Defense Programs on September 16, 1994. It does not provide the rationale and bases for the Guidance Clarifications #01 and #02 issued December 21, 1993, and Clarification #03 issued April 19, 1994, which were provided in the clarifications.

Background (Bases and Rationale) for the document
"Guidance for an Accelerator Facility Safety Program"
dated September 1, 1993
October, 1994

Guidance Document Organization and Content

When it was decided to develop a DOE Directive specific to accelerators in order to preclude these devices being treated as nuclear facilities for lack of any other ready-made framework for them, a panel of accelerator experts was assembled from representative laboratories. The areas of safety concern to these experts were identified in a series of panel meetings, and a statement addressing acceptable handling of each concern was prepared and subjected to critical review by the Panel and interested DOE Headquarters and field organizations. Some of these issues were woven into the requirements in DOE Order 5480.25 "Safety of Accelerator Facilities", while others were not felt to be appropriate as requirements. These other issues, as well as some of the specifics from those included in the Order, were judged to be valuable guidance and have served as the cornerstone for the content of the document "Guidance for an Accelerator Facility Safety Program" which is often referred to as the Guidance or the Guidance document. This background document is intended to identify some of the deliberations associated with material in the Guidance document and explain some positions taken in the Guidance document.

Guidance on the content of the Implementation Plans for DOE 5480.25 required by DOE 5480.25, paragraph 14, was issued separately from the other guidance on the Order because the Plan was a one-time requirement for accelerator facilities in existence when the Order was issued, and thus the relevance of guidance on the Plan was relatively short-lived.

Several arrangements were considered for organizing the Guidance document to present the information. The arrangement finally selected organizes the subject matter into two sections dealing broadly with (1) safety analysis and risk acceptance and (2) facility operations. Within this structure, the parts were ordered somewhat following the sequence of a developing project. The objective in doing this was to bring similar topics together, reduce repetition, and thus improve the document's usefulness. An alternative that was seriously considered was to arrange the material so that it sequentially followed the order. However, that approach is complicated by the inclusion of material that provides guidance to the application of other DOE Orders that are not explicitly mentioned in DOE 5480.25. [See, for example, Parts I.G (Fire Protection) and II.G (Occurrence Reporting).]

One reviewer of the draft Guidance Document felt that while providing guidance to safety requirements existing in Orders other than DOE 5480.25 was commendable, it could easily be overlooked by someone addressing those Orders. The suggestion was made that every effort should be made to also include this guidance for accelerators in the guidance issued for those other Orders. Unfortunately, most Orders do not have companion guidance documents, and those that do often present the guidance in such a form that it becomes for all intents a set of more prescriptive requirements. The only practical solution to avoid the accelerator guidance being overlooked is for accelerator facility personnel to be vigilant to what is being done to implement safety requirements at their facilities.

Graded Approach

One of the criticisms of the Accelerator Safety Order, DOE 5480.25, was that it did not go far enough in implementing a graded approach to accelerator safety. The primary application of the graded approach concept in the Order was to peg minimum action levels to the assigned hazard class of the facility or segment thereof. The authors of the Order felt it was not possible to meaningfully specify how specific requirements should be applied to various types of accelerators. The uniqueness of each facility dictates that the only reasonable way to utilize the graded approach concept is on a case-by-case basis weighing the applicability of each requirement to the facility under consideration.

Introduction Section

Consideration was given to expanding the Disposition column of **Table 1** to indicate that for those items for which the disposition is indicated as "Review by..." it is also expected that that organization would document those reviews with a short memo-to-file. Since this is a "good work practice", it was decided not to include this additional disposition, even as a footnote. Should experience indicate this documentation of reviews is not taking place, the Table can be modified in a revision to the Guidance Document.

Part I.A Hazard Classification System

Introduction: Prompted by the importance that a facility's hazard classification has in applying a graded approach to DOE's regulation of the facility (see the Graded Approach section above), the guidance in this Part went through a number of iterations in attempting to provide criteria for determining the hazard class that would be as definitive as possible and consistent with DOE 5481.1B.

Section 2.a.: The determination of hazard classification per DOE 5481.1B was complicated by issuance of DOE 5480.23, "Nuclear Safety Analysis Reports" (Ref. 1), which changed the previous definition of a nuclear facility by removing the subjective adjective "significant." The definition previously read (in part): ". . . a facility whose operations involve radioactive materials in such form and quantity that a <u>significant</u> nuclear hazard potentially exists . . ." (underlining added). The impact of this change was that a facility with <u>any</u> radioactive material could be classified as a nuclear facility because arguing that there is no nuclear hazard of any magnitude is difficult to do. The development of DOE-STD-1027-92 (Ref. 2), with its definitive criteria for radioactive inventories associated with nuclear facility hazard categories 1, 2, 3, and below 3, provided the means for resolving this problem. **Section 2.a.** uses this Standard to identify any segments of the accelerator facility that <u>are candidates</u> for categorization as a nuclear facility and thus potentially subject to nuclear facility safety requirements rather than DOE 5480.25 and its Guidance.

The wording of **Section 2.a.** was carefully chosen to avoid different interpretations of how to apply DOE-STD-1027-92. The Guidance indicates that only the quantity of material is to be considered in determining whether the facility is a candidate for classification as a nuclear facility. The Guidance deals briefly with three outcomes: 1) the quantities of material are not sufficient for the accelerator facility to be a candidate nuclear facility: 2) the quantity is sufficient, but when other factors such as material form and dispersibility (as well as the other factors identified in the Standard: location and interaction with available energy sources, but not engineered safety features) are addressed in the hazard analysis, the results can justify that a nuclear facility classification is not required; and 3) the hazard analysis results justify a nuclear facility classification. The Guidance in **Section 2.a.** intends that this determination be presented to the Program Secretarial Officer (PSO)[1] along with a proposed hazard class for the facility derived from an expanded hazard analysis that addresses the non-radiological hazards as well. The approach taken by the Guidance is intended to lead contractors to fully address the nuclear facility issue rather than approaching the hazard class determination with the pre-determined assumption that their accelerator could not possibly be a nuclear facility.

The action taken by the PSO in the second case is not intended to have the appearance of the granting an exemption from a Category 3 nuclear hazard class per the authority of DOE 5480.23, par. 7b(4)(a), but rather just applying the Standard in a cautious manner. A fourth case, which was not felt to be necessary to address in **Section 2.a.**, can occur when the third case results in a determination that the accelerator facility is a Category 3 nuclear facility. It is then possible for the PSO to exempt the facility from treatment as a Category 3 nuclear facility when the conditions in DOE 5480.23, par. 7b(4)(a), can be met.

Section 2.c.: The safety analysis order DOE 5481.1B uses subjective adjectives ("minor," "major," "negligible," "considerable," "large numbers," "routinely accepted") to determine the hazard class. These are subject to various interpretations. Some operations offices generated more explicit interpretive guidance. Several attempts, by Lucas (Ref. 3) at PNL and others, were made to quantify the adjectives. Besides criteria for injuries, **Section 2.c.** provides numerical guidance for interpreting the qualitative definitions of DOE 5481.1B for any maximal-credible event involving ionizing radiation, but with prompt radiation particularly in mind. This is discussed further below.

The radiation exposure that is unacceptable in that it is considered to be a "major" or "considerable" hazard, and is the dividing line between "minor offsite impacts" and "impacts to large numbers of people" (DOE 5481.1B) are both addressed in **Section 2.c.** The value of 25 rem was selected in both cases for a number of reasons. First, 25 rem is the dose value above which DOE would request volunteers (fully aware of the risks involved) for "lifesaving or protection of large populations" (Ref. 4). Second, this value corresponds to the off-site radiological siting requirements and guidelines in DOE 6430.1A (Ref. 5) (Paragraphs 0200-1.2, <u>Radiological Siting Requirements</u>, and 0200-1.3, <u>Radiological Siting Guidelines</u>)

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[1] Subsequent to publication of DOE 5480.25 and the Guidance document, the terminology for the Program Secretarial Officer (PSO) has been replaced by the Cognizant Secretarial Officer (CSO).

applicable to facilities that incorporate radiation producing machines. Third, this dose is the same as the siting criteria of 10 CFR 100 for reactors (Ref. 6). Although 25 rem is hardly a credible value in terms of significant health impact, it does present precedent and comparability to existing regulatory requirements. For the atomic bomb survivors, the relative risk is not statistically significant for any cancer site where the dose is less than 20 rad (Ref. 7).

The value of 100 rem also was considered. At the 100 rem level, permanent effects, although not life-threatening, begin to be credible. The EPA provides the following information on whole-body acute exposures (Ref. 8): The dose that would cause 50% mortality in 60 days is taken as 300 ± 30 (standard deviation) rad midline absorbed dose; the value for 15% mortality is taken as 200 rad; values for lower doses are not available because of the sparse mortality data on humans; prodromal effects are estimated to occur at approximately half the dose causing fatality or 15% affected at 100 rad. Wald has noted that with supportive treatment the $LD_{50/50}$ will probably increase to 450 to 500 rad (Ref. 9).

The dividing line between negligible impacts and minor impacts is established by the Guidance as 1 rem because at this value there is little if any detectable effects to biological entities (e.g., authors of ICRP 41 (Ref. 10) recognize 15 rad as the threshold for temporary sterility; the threshold for detection of chromosome aberrations is about 10 rad). The 1 rem dose corresponds to that received from typical background levels, including radon, over about a three-year period (Ref. 11). The 1 rem value corresponds to the lower end of the EPA Protective Action Guide (Ref. 12) for whole-body exposure. Thus an emergency response such as seeking shelter or evacuating would not be required if a 1 rem accident should occur. Also DOE requires that interlocks be used to prevent free access to radiation fields above 1 rem in an hour (Ref. 13).

While prompt radiation is an important concern for accelerator facilities, all other potential hazards also must be considered. An approach for dealing quantatively with chemical hazards was considered for inclusion in the guidance through the definitions of major, minor, and negligible. That approach gave specific ranges of chemical hazards by utilizing the Threshold Criteria of the OSHA Process Safety Management Rules listed in Appendix A of 29 CFR 1910.119 (Ref. 14), and other relevant criteria. However, because this approach had not received a thorough and broad review within DOE, and because the issue is equally important to operations other than accelerators, it was decided to not pursue the promotion of such guidance for accelerator facilities at this time, but to wait for guidance having broad applicability within DOE.

Section 2.d.: In developing the guidance for this section, the upper limit of "routinely accepted" (routinely encountered and accepted by the general public) and the threshold level for a "Low Hazard" classification is taken as being able to generate a "High Radiation Area" (i.e., > 0.1 rem/hr) as defined by the DOE Radiological Control Manual (Ref. 15) anywhere within the facility. At this level the area should have access control. The requisite controls are mandated by the generic requirements for all safety programs in accordance with the RADCON Manual. The 100 mrem threshold provides a desirable gradation between being subject to DOE 5480.25 at 5 mrem in an hour, being required to have a SAD at 100 mrem in an hour, and being required to have interlocks (see Guidance, Part I.F.1) at 1 rem in an hour.

Section 2.e.: An important issue for interpretation of DOE 5481.1B for accelerators is whether (1) the prompt radiation levels inside a secured area of the facility or (2) only those prompt radiation levels outside a secured area should be considered in determining the hazard classification. It was decided that the hazard classification for accelerators should be approached from the perspective of whether someone who is acting within normal permitted behavior can be exposed unknowingly to a hazard of a given seriousness. Thus the location of radiation levels of concern on-site are those locations outside areas secured by walls/fences and the interlock system at that time. If an area like an experimental area is only secured sometimes, then the accident levels when that area is not secured during operation is intended to be one of the bases for the hazard classification. The location of interest for off-site impact is off the geographically owned/leased site as opposed to areas on site or roads passing through the site to which the public may have access. A visitor being at a critical location on such a road for 1 hour is very unlikely and thus dismissed.

Section 2.f.: In developing the guidance of this section, the position adopted was that credit could be taken for existing shielding with configuration control in combination with interlock systems which preclude that the machine won't operate with persons unknowingly being in vulnerable locations.

Section 2.g.: The values provided are based on a "maximal" accident which involves loss of beam at a point for an assumed hour unless the accelerator is rendered inoperable by system damage in a shorter time. Beam intensity necessarily must be assumed to be at full power (i.e., maximum energy and particle intensity) which is possible at that location in the facility. The locations of interest are the weakest points in the shielding. No credit may be taken for active devices such as radiation monitor interlocks that may exist to reduce the radiation level because of their credible failure modes. The one-hour period for an errant condition assumes that the operators and experimenters are oblivious to the condition and no automatic protective systems are functional. Such unlikely disconnects from reality are similar to engineered safety systems for which no credit is taken in the evaluation of nuclear facilities, and represent reasons why the actual risks are much lower than the unmitigated hazards.

Part I.C. Contents of Safety Assessment Documents

Nuclear facility safety analysis documents often contain detailed discussions of training, emergency response, and procedures. These are not listed in the contents of accelerator Safety Analysis Documents (SADs). Not explicitly listing them in the suggested contents of a SAD does not imply that the topic is unimportant. It allows accelerator facility management the flexibility to address these subjects in the most effective forum, and thus is intended to enhance compliance by reducing the number of documents in which this material is covered in detail. It was not intended that the SAD be entirely silent on these topics; they should be introduced as needed to make the case that a safe environment is being provided by the operating contractor.

Procedures, information on training, and the emergency plan would be expected to be available for review at the laboratory, particularly at the time of the Accelerator Readiness Review.

Implementation of these areas can be expected to be consistent with the applicable orders and Conduct of Operations processes.

Section 3, Chapter 3, b. states that the SAD should include a comparison of current design conformance to applicable guides, codes and standards. The comparison is expected to be against current guides, codes and standards, not those that were in effect when the facility was designed. This was not intended to imply that upgrading would be expected wherever a non-compliance was found, except perhaps where a significant increase in safety or health protection could be expected at reasonable cost.

Part I.F. Beam Interlock Safety System

Section 2.d.(1) states a test frequency of at least semiannually. This frequency was chosen based on several precedents.

ANSI N43.1-1978 (Ref. 16), a DOE mandatory standard, states in paragraph 3.6.1 "All safety and warning devices including interlocks shall be serviced and checked for proper functioning at intervals not to exceed 6 months."

SLAC-327 (Ref. 17) states on p 27 that:

> "Interlocks should be tested periodically, according to written procedures, and the results of the tests should be carefully recorded. Two types of testing are appropriate. Detailed, rigorous testing of the entire system should be done at the start of each running cycle. If the machine is operating continuously, a detailed test should take place at least every six months. These test should demonstrate correct operation of all devices at entrances, all emergency-off switches, the interlock logic itself, and all redundant paths to the shutdown mechanisms.
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> "In addition to the rigorous testing, overall operation of the system should be tested more frequently--once a week to once a month may be appropriate. Tests might typically involve violating security at a different entrance point each time and checking that the beam is shut off."

Some standards to not require tests as frequently. NCRP 88 (Ref. 18) states on p 49 that "The system should be tested periodically; the frequency of testing should be related to the complexity and demonstrated reliability of the access control or alarm system, but it should be done no less frequently than once per year."

The issue is not addressed by DOE 5480.11. The Order CH 5480.1A,Chapter 11, of 4/26/82 (Ref. 19) prescribed deliberate testing but did not specify a period, although the safety manuals of both BNL and Fermi use the 6 month value.

Based on the above standards and guidance, the six month value seemed appropriate. If it is a severe hardship, a facility could propose in their SAD submittal an alternate protocol for their operation. In many cases, the testing can be performed in modules and done over a longer time period. Many facilities shut down occasionally for preventative maintenance during a running cycle, providing an opportunity for tests of the interlock system.

In its resolution of comments received during the concurrence process for the Order, ER had committed to provide guidance regarding the balancing of fail-safe design vs. redundancy. The statement in the background for the Order that prompt this particular comment was modified and the fail-safe concept is no longer mentioned. Thus, in the development of the guidance, the balance between fail-safe design and redundancy was not addressed. Redundancy is discussed in **Section 2.a.(2)(c)**.

Part I. G.   Fire Protection and Life Safety

Section 2.a. NFPA Standard 101, the "Life Safety Code" (Ref. 20), identifies egress distances which are unacceptably short for long accelerators tunnels, and in these cases **Section 2.a.** suggests that a hazard analysis could be one way of balancing the need for egress with the sometimes incompatible need for shielding integrity.

One commenter on this section of the Guidance felt that egress paths are unnecessary because occupancy is normally nonexistent. However, when the facility is being constructed, the accelerator assembled, commissioned, and maintained during operation; persons will at times occupy the accelerator tunnels. Thus, this subject was felt to be relevant. The situation is analogous to a sports arena, which is unoccupied the vast majority of the time, but certainly requires provision for adequate egress.

Consideration was given to referencing other methodologies in **Section 2.c.**, such as the Life Safety Code's Special Purpose Industrial Occupancy section. To reference this one additional approach could convey the endorsement of this over other approaches, so it was decided instead to rely on the included acknowledgment that "there are many others which could be employed".

Part II.A. Operations

Consideration was given to referencing in **Section 2.g.** the lock and tag practices called for by 29 CFR 1910.147, CONTROL OF HAZARDOUS ENERGY (Ref. 21). However, the reference in that Section to DOE 5480.19 (Ref. 22), Chapter IX, mentions the CFR reference so it was felt to be unnecessary for this guidance to also give the reference.

Part II.E. Training and Qualification

This Part contains considerably more detail than might at first be expected by some users of the Guidance, given the guidance that already exists in the RadCon Manual and DOE 5480.19, CONDUCT OF OPERATIONS REQUIREMENTS FOR DOE OPERATIONS. The guidance provided covers a broader spectrum of persons, and also addresses all specific knowledge required for individuals to perform their duties in a safe and environmentally sound manner. Some redundance with other guidance was felt to be acceptable for this important area.

Consideration was given to including in this Part guidance on how to determine the success of the training provided to individuals through a combination of written examinations and on-the-job or other appropriate performance measures. This was felt to be unbeneficial because of the large range of acceptable methods possible, and the scrutiny that any method used would naturally receive from the contractor's self assessment program and DOE oversight activities.

Part II.F. Radiation Safety

A few reviewers of this Part did not feel that its contents added anything of significance, even though it was accelerator-oriented. With radiation in its various forms being one of the major concerns identified by the panel of experts assembled to discuss appropriate content for an accelerator safety directive, accelerator-specific guidance was felt by the document's developers to have sufficient merit to be included.

Section 1.b.(2)(c) specifies at least annual calibration of instruments as specified by ANSI N323-1978, RADIATION PROTECTION INSTRUMENTATION TEST AND CALIBRATION (Ref. 23) (and its 1983 and 1991 revisions). This frequency is not consistent with the more restrictive requirement of ANSI N43.1-1978, RADIOLOGICAL SAFETY IN THE DESIGN AND OPERATION OF PARTICLE ACCELERATORS (Ref. 16). However, the ANSI N323 standard is more directly related to the issue of radiation detection instrument calibration, and so has been given preference over ANSI N43.1 in the Guidance. Furthermore, ANSI N43.1 has been withdrawn by ANSI, but is still listed as a mandatory standard for radiation protection in DOE 5480.4.

A good practice, NCRP Report No. 112, CALIBRATION OF SURVEY INSTRUMENTS USED IN RADIATION PROTECTION FOR THE ASSESSMENT OF IONIZING RADIATION FIELDS AND RADIOACTIVE SURFACE CONTAMINATION (Ref. 24), was considered for mention in **Section 1.b.**, but it was decided not to include this document because it contained some "shalls" that might not always be necessary to incorporate to provide an ample safety environment.

The reference in **Section 1.c.(2)(b)** to a British standard was included mainly as a reminder that at least one nation has been able to find an acceptable solution to a problem which continues to appear intractable in our country.

Earlier versions of the Guidance contained another item under **Section 1.d.** which addressed making appropriate corrections for actual occupancy in estimating radiation doses received by a member of the public. However, when a reviewer pointed out that those dose calculations are prescriptive in 40 CFR 61, Subpart H (Ref. 25), and that EPA must give prior approval for any shielding corrections in the dose calculation since such corrections are not explicitly described in the regulation, it was decided that the proposed guidance item would result in more effort than it would save. The item was deleted.

There was some concern that **Section 1.d.** did not mention some of the more subtle pathways to the public, such as the sale of surplus materials to the public at auction, and in doing so gave the impression that there were no other pathways applicable to accelerator facilities. Since these other pathways are covered in the Code of Federal Regulations and no supplemental guidance for accelerators was felt to be needed, they were not mentioned. While an exception could have been made in this instance, the guidance has not attempted to identify all ES&H regulations that are applicable to accelerators.

Part II.G. Occurrence Reporting

After careful consideration, the Working Group[*] established to address the final content of the Guidance Document concluded that the definition of Class B Equipment in DOE 5000.3B should be expanded to include certain devices and systems that DOE 5000.3B did not include in its Class A Equipment. The Working Group felt that the definitions in DOE 5000.3B were weak, and that the expanded definition of Class B Equipment was the best alternative for achieving realistic implementation of that Order.

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* This Working Group was composed of representatives from DP, EH, two Operations Offices (OAK and CH), each ER program office, and chaired by ER's Office of ES&H Technical Support (ER-8.1).

References:

1. DOE 5480.23. "Nuclear Safety Analysis Reports" (4/10/92) Par. 5.k.

2. DOE-STD-1027-92, "Hazard Categorization and Accident Analysis Techniques for Compliance with DOE 5480.23, Nuclear Safety Analysis Reports" (December 1992).

3. D. E. Lucas, "A Practical Approach to Hazard Classification (Revision 1)." Battelle Pacific Northwest Laboratories (March 1991).

4. Code of Federal Regulations. Title 10, Part 835, Section 1302. "Emergency Exposure Situations."

5. DOE 6430.1A. "General Design Criteria" (4-6-89).

6. Code of Federal Regulations. Title 10, Part 100, Section 11. "Determination of exclusion area, low population zone, and population center distance." Sub-section (a)(1).

7. Y. Shimizu, H. Kato, and W. J. Schull. "Studies of the Mortality of A-Bomb Survivors; 9. Mortality, 1950-1985: Part 2. Cancer Mortality Based on the Recently Revised Doses (DS86)." Radiation Research 121 (1009) 120-141.

8. Appendix B of "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents." EPA 400-R-92-001, October 1991.

9. N. Wald. "Acute Radiation Injuries and Their Medical Management" Chapter 12 of "The Biological Basis of Radiation Protection Practice". Ed. K. L. Mossman and W. A. Mills. William & Wilkins (1992).

10. ICRP 41. "Nonstochastic Effects of Ionizing Radiation," Annals of the International Commission on Radiological Protection (1984).

11. NCRP 93. "Ionizing Radiation Exposure of the Population of the United States." National Council on Radiation Protection and Measurements (1987).

12. "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents." EPA 400-R-92-001, October 1991. Chapter 2.

13. Appendix 3B of "DOE Radiological Control Manual." DOE/EH-0256T (June 1992).

14. Code of Federal Regulations. Title 29, Part 1910, Section 119. "Process safety management of highly hazardous chemicals." Appendix A. "List of Highly Hazardous Chemicals, Toxics and Reactives."

15. Glossary of "DOE Radiological Control Manual." DOE/EH-0256T (June 1992).

16. ANSI N43.1-1978. "Radiological Safety in the Design and Operation of Particle Accelerators". American National Standards Institute. May 1979.

17. SLAC-327. "Health Physics Manual of Good Practices for Accelerator Facilities." April 1988.

18. NCRP 88. "Radiation Alarms and Access Control Systems". National Council on Radiation Protection and Measurements. 30 December 1986.

19. "Requirements for Radiation Protection". DOE Chicago Order CH 5480.1A, Chapter XI, of 4/26/82.

20. NFPA 101. "Code for Safety to Life from Fire in Buildings and Structures." 1991 Edition. National Fire Protection Association.

21. Code of Federal Regulations. Title 29, Part 1910, Section 147. "The control of hazardous energy (lockout/tagout)."

22. DOE 5480.19. "Conduct of Operations Requirements for DOE Operations." 5-18-92.

23. ANSI N323-1978. "Radiation Protection Instrumentation Test and Calibration." American National Standards Institute (1978).

24. NCRP 112. "Calibration of Survey Instruments Used in Radiation Protection for the Assessment of Ionizing Radiation Fields and Radioactive Surface Contamination". National Council on Radiation Protection and Measurements. December 31, 1991.

25. Code of Federal Regulations. Title 40, Part 61, Subpart H. "National Emissions Standards for Emissions of Radionuclides Other Than Radon From Department of Energy Facilities."