ALL AGREEMENT AND NON-AGREEMENT STATES

TRANSMITTAL OF STATE AGREEMENTS PROGRAM INFORMATION (SP-94-030)

Your attention is invited to the attached correspondence which contains:

INCIDENT AND EVENT INFORMATION.....

PROGRAM MANAGEMENT INFORMATION.....

TRAINING COURSE INFORMATION.....XX

Teleconference Training on Implementation by EPA of the Clean Air Act Requirements for Radionuclides

TECHNICAL INFORMATION....

Supplementary Information: We have enclosed a brief description of the teleconference training that is being conducted by EPA on implementation of the Clean Air Act requirements for radionuclides and the list of downlink locations that have been established by EPA (Enclosure 1). The transmission technology is in a digital format and is not available unless the specific receiver is available. We have also enclosed a summary prepared by EPA which further discusses 40 CFR Part 61, Subpart I which includes a copy of the Federal Register Notice (59 FR 4228, January 28, 1994) which confirms the effectiveness of the 40 CFR Part 61, Subpart I requirements on NRC and Agreement State licensees (Enclosure 2).

If you have further questions regarding this correspondence, please contact the individual named below.

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9406070043 940225 PDR STPRG ESGGEN

Paul H/ Lohaus

Office of State Programs

Enclosures:

As stated

cc: C. Hardin, CRCPD

Distribution:

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UNITED STATES NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

February 25, 1994

ALL AGREEMENT AND NON-AGREEMENT STATES

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(301) 504-2819 (301) 504-3502

Office of State Programs

Enclosures: As stated

cc: C. Hardin, CRCPD

Subject: EPA CAA & NRC TRAINING

NRC continues to have ongoing discussions with EPA on the issue of dual regulation in the area of radionuclide emissions. As part of these discussions, EPA has set a date of March 17, 1994 for a satellite downlink training session for both EPA, NRC, and Agreement State staff which includes a review of EPA regulations and requirements of the Clean Air Act (CAA). In addition, the NRC staff will also be speaking (about 15-30 minutes) on the new IP 87102, "Maintaining Effluents from Materials Effluents ALARA" during this session. (IP 87102 is enclosed.)

This 5-hour training session will be transmitted simultaneously via satellite to various downlink locations. (See enclosed list.) With the exception of NRC Region V, who would need to travel to Sacramento to view the training, all NRC regions have a nearby access point from which to view the training session. States should review the downlink sites, and call the contact for the specific site with the number of individuals that would like to attend the training session on March 17, 1994. The site contact may not be able to accommodate all the requests so please work with them.

This training session is highly recommended for all your licensing and inspection staff, as it will assist them in learning about using EPA's COMPLY code, as well as the CAA regulation itself. Although NRC and the Agreement State staff have not committed to inspect against the CAA standards, it is useful information for both the licensing and inspection staff.

For those staff not able to attend, we are hopeful that the training will be videotaped, so that those NRC and Agreement State staff that are not available to attend the training could review the tape at a later date. The following items should have been sent to you by EPA through their Regional Offices. If you have not received this information, please call the regional EPA office listed in the attachment.

- "A Guide for Determining Compliance with the Clean Air Act Standards for Radionuclide Emissions for NRC-Licensed and Non-DOE Federal Facilities."
- 2. "The User's Guide to the COMPLY Code" (EPA 520/1-89-003)
- A disk containing the COMPLY Code.

If you have not contacted the EPA as requested in SP-94-006, please do so as soon as possible so that they can complete their printing and distribution of the guidance documents.

We are still reviewing and working on a form that would become an enclosure to IP 87102 which would assist the NRC inspectors in providing effluent information to EPA (i.e. greater than 10 mrem emissions, etc).



NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

NRC INSPECTION MANUAL

NMSS

INSPECTION PROCEDURE 87102

MAINTAINING EFFLUENTS FROM MATERIALS FACILITIES AS LOW AS IS REASONABLY ACHIEVABLE (ALARA)

PROGRAM APPLICABILITY: 2800

87102-01 OBJECTIVES

O1.01 This inspection procedure is applicable to all materials licensees who are engaged in activities that may result in the release of radioactive materials to the environment. This includes all licensees other than those using sealed sources. However, depending on the type and quantity of licensed material handled and the magnitude of the effluents, some licensees using other than sealed sources may be exempted from this inspection. A numerical guide that may be used in determining the need for As Low As Is Reasonably Achievable (ALARA) inspections is to exempt those licensees whose effluents are not expected to result in an effective dose equivalent to the highest exposed member of the public of more than 10 uSv/yr (one mrem/year) from all radionuclides, and more than 3 uSv/yr (0.3 mrem/year) from iodine. These are the criteria used by the Environmental Protection Agency (EPA) in 40 CFR Part 61, Subpart I, to exempt licensees from the reporting requirements of that subpart. Licensees with higher levels of effluents should be considered for inspection. Note that this assessment of exemption must be reviewed periodically, to determine if a change in status has occurred.

01.02 The objective of this procedure is to determine whether the licensee effectively maintains effluents within applicable limits and ALARA, as is required by 10 CFR 20.1101(b). Effluents include both air and water effluents, but do not include releases to public sanitary sewers. Sanitary sewers do not include sewage treatment facilities, septic tanks, and leach fields owned or operated by the licensee (see definition in 10 CFR 20.1003).

87102-02 INSPECTION REQUIREMENTS

02.01 Management Commitment. Review management's written policy statements on ALARA, and the authority of managers and line personnel to implement this policy. Review the methods used by management to supervise implementation of the program. Determine if management and technical personnel are informed of industry developments in the area of ALARA.

02.02 <u>Audits and Appraisals</u>. Review the results of audits and appraisals of the ALARA program since the last inspection. Determine if effluent ALARA was explicitly considered during these audits and appraisals. Review the adequacy of the licensee's responses to findings.

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- 02.03 <u>Procedures, Engineering Controls, and Process Luitrols.</u> Determine the quality of the relevant procedures and the degree to which ALARA techniques are incorporated into them. Determine the extent to which process and engineering controls are used to minimize effluents.
- 02.04 <u>Instrumentation</u>. Determine whether effluent monitoring systems and the associated analytical equipment are adequate to detect and quantify effluents with sufficient sensitivity, and whether they are maintained, calibrated, and operated in accordance with manufacturer's recommendations and good practices.
- 02.05 <u>Surveys and Effluent Monitoring</u>. Determine if all significant release pathways are monitored, all unmonitored pathways have been characterized, and all surveillance procedures for effluents are being implemented.
- 02.06 Worker Training. Determine if the ALARA concept, including its application to effluents, is included in worker training and periodic retraining. Determine if the workers understand their roles and responsibilities in the ALARA program.
- 02.07 <u>Changes</u>. Review changes in equipment, processes, personnel and procedures that may have had an effect on effluents, and determine the licensee's understanding of the impact of these changes on effluent ALARA.

87102-03 INSPECTION GUIDANCE

General Guidance

No general guidance is provided.

Specific Guidance

03.01 Management Commitment

- a. Determine whether the licensee has established an ALARA program supported by a policy statement issued by the highest levels of management. The policy statement should make clear that all personnel are responsible for ensuring that the work they supervise or perform is in accordance with ALARA procedures and practices.
- b. Review the licensee's ALARA goals, and determine if they are sufficiently challenging yet realistic. Past experience from NRC licensing and inspection activities, effluent information reported to the NRC staff, and data provided by the Environmental Protection Agency (EPA) from field studies, all indicate that release goals within a range of 10 percent to 20 percent of Appendix B values or less can be achieved by almost all material facility licensees. Determine if the licensee understands and implements these goals. Licensees who do not achieve these goals should provide reasons for not doing so. Ensure that the reasons provided justify deviation from regulatory guidance. Determine if the licensee has calculated annual doses resulting from air effluents and if the dose is: (i) greater than 10 mr/year, (ii) less than 10 mr/year, or (iii) there is insufficient information or basis for determination. Review the licensee's history in meeting ALARA goals, and their corrective actions when the goals were not met.
- c. Determine if investigation levels for releases are established and used, and the rationale for selecting these levels. The levels chosen to

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initiate corrective actions are usually those that represent normal and expected releases. Review the investigations initiated when such levels are exceeded, and also review the corrective actions taken.

03.02 Audits and Appraisals

- a. Review reports of audits conducted since the last inspection. Assess the quality of the reports and the depth of the audits. Determine whether the auditors who performed these audits were qualified for the task.
- b. Determine whether the licensee's radiation safety committee (RSC), or radiation safety officer (RSO) if no RSC exists, has conducted periodic or at least annual ALARA effluent reviews as part of the required overall review of the radiation protection program. If a consultant performs the reviews, determine whether they are reviewed and approved by the RSC/RSO. The purpose of the ALARA review is to compare operating experience against ALARA goals, and to adjust these goals or operating procedures or equipment, if necessary, to improve performance. Determine if the results of these reviews are sent to senior management with recommendations for changes, and review the responses to these reviews and recommendations. Determine whether the ALARA effluent reviews are considered within the context of the overall site ALARA program and the radiation protection program.

03.03 Procedures, Engineering Controls, and Process Controls

- Identify the methods used by the licensee to control and minimize a. effluents to the environment and whether additional or alternative options were considered. Common control practices for effluents include filtration, encapsulation, adsorption, containment, and the storage of materials for decay. Practices for large, diffuse sources such as contaminated soils or surfaces include covers, wetting during operations, and the application of stabilizers. Verify that, when practicable, unmonitored releases do not exceed 30 percent of the total estimated effluent releases, as suggested in Regulatory Guide 8.37. Verify that, whenever effluent levels were high compared with the desired goals, the licensee considered additional ALARA measures such as recycling process fluids, leakage reduction, and modifications to facilities, operations and procedures. Verify that the licensee considered collective exposures, that is, both occupational and general public exposures, and not just effluent levels, when selecting effluent reduction techniques.
- b. If the licensee rejected a control practice as unreasonable, review the licensee's analysis of the practice. Quantitative or qualitative analyses may be used to justify such practices. For quantitative cost/benefit analyses, \$1,000 per person-cSv (man-rem) may be used as a guide to determine whether a change is reasonable. A qualitative analysis is used in situations where assigning monetary values to the various factors involved in the analysis would be very difficult or not meaningful.

03.04 Instrumentation

a. If continuous effluent monitors are used, ensure that the licensee performs calibrations at least annually, or more frequently, if bound by license condition, or if the manufacturer suggests more frequent calibration. Calibrations should be performed according to manufacturer suggested protocols or other written procedures that

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implement accepted industry good practices. If low meters are used, ensure that they are calibrated at least annually or according to the manufacturer's recommendations. Ensure that counting efficiencies are appropriate for the samples being counted, and that corrections are applied for the various factors that may distort the results, such as absorption of alpha and beta radiations, filter efficiency, sampling errors, and any other factors that may affect the accuracy of sampling and measurement. Review the licensee's techniques to quantify the releases and verify some of the calculations.

- b. Ensure that samples are collected using proper media. Liquid samples should be transferred to a container for counting with the same geometry as the calibration standard. Air samples should be collected using methods appropriate for the type of activity being sampled. If, for any reason, a collection medium's efficiency falls below about 95 percent for the material to be collected, a correction factor should be applied. Charcoal cartridge collection efficiency tables/graphs (i.e. sample flow rate versus collection efficiency) should be available on site. In the case of charcoal cartridges, if the collection efficiency drops below 85 percent, the counting geometry of the cartridge (face loaded or homogeneous) should be investigated.
- c. Ensure that laboratory equipment has been properly calibrated and that the sources and standards used in these calibrations are appropriate for the types of radiations and geometries used at the site. Calibrations should be conducted at least annually, or more frequently if required by a license condition. Calibrations should also be performed following repairs or modifications. Review the licensee's laboratory quality assurance/quality control program.
- d. Ensure that laboratory equipment have sufficient sensitivity for the radionuclides being measured. Check that the counting efficiencies, background counts, sample volumes, sample count times, etc. for each measurement protocol permit achievement of the desired or required lower limit of detection (LLD). If LLD values are not clearly specified in the licensee's procedures or clearly displayed in the laboratory, investigate the reasons and verify that the licensee's methods are capable of attaining these limits. Verify that the measurement procedures provide methods to check attainment of the LLDs. Verify that LLD values are routinely checked and recorded. Determine whether the licensee participates in outside programs to periodically verify the accuracy of their methods. These programs usually consist of measuring unknown samples sent to the licensee by an accredited organization, such as the National Institute of Standards and Technology (NIST). Review the results of participation in such programs, and enquire as to the reasons for nonparticipation, if that is the case.

03.05 Surveys and Effluent Monitoring

- a. Review effluent release reports for obvious mistakes, anomalous measurements, omissions, and trends. Identify any occasions where the licensee exceeded internal investigation levels. Determine if the licensee identified these events and review the corrective actions.
- b. Ensure that the licensee has identified the significant sources of radioactive materials that contribute to effluent releases, and also identified the pathways from these sources to the points of release.

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Also ensure that significant release pathways are appropriately monitored.

- Determine whether the licensee's sampling procedures are adequate. Ensure that all samples taken are representative. Stack and vent samples should be taken isokinetically, if necessary. Non-isokinetic sampling will not introduce significant sampling errors if the effluents contain particulates smaller than 5 um aerodynamic diameter or noble gases. In the case of batch liquid releases, holdup tanks should be thoroughly mixed before samples are taken. Identify dilution volumes to be used. Ensure that the licensee knows or has measured the efficiencies of filters or adsorbers that effluents are passed through. Note effluent release frequencies, and check whether the licensee has considered possible leakage pathways.
- d. For liquid releases, note that releases to a public sanitary sewer system, in accordance with 10 CFR Part 20 requirements, are not considered liquid effluents.
- e. Verify that the licensee has considered all possible release pathways and identified any potential unmonitored release pathways. Potential pathways include doors on exterior walls, open windows, exhaust vents and unfinished corrugated metal construction. Inquire as to any releases to storm sewers or runoff from contaminated soil.
- 03.06 Worker Training. Verify that ALARA is included in the annual employee radiation protection training. Verify that employees have a thorough understanding of the ALARA program's principles and goals. Determine if they understand the role of engineering controls, and their role in the ALARA effort. Do this by conducting interviews with selected employees. Review training lesson plans and some examination questions and answers.
- 03.07 <u>Changes</u>. Tour the facilities and discuss changes in equipment and procedures with cognizant management. Determine whether changes have been made which will affect the types of effluents produced, effluent monitoring, sample collection, or laboratory analyses. Verify that the licensee understands the effects of these changes on effluents and the ALARA program.

87102-04 REFERENCES

- U.S. Code of Federal Regulations, Title 10, Part 20
- U.S. Code of Federal Regulations, Title 40, Part 61
- U.S. Nuclear Regulatory Commission Regulatory Guide 1.109, "Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Compliance with 10 CFR Part 50, Appendix I."
- U.S. Nuclear Regulatory Commission Regulatory Guide 3.51, "Calculational Models for Estimating Radiation Doses to Man from Uranium Milling Operations."
- U.S. Nuclear Regulatory Commission Regulatory Guide 8.25, "Air Sampling in the Workplace."
- U.S. Nuclear Regulatory Commission Regulatory Guide 8.37, "ALARA Levels for Effluents From Materials Facilities."

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- U.S. Environmental protection Agency, "Background information Document: Procedures Approved for Demonstrating Compliance with 40 CFR Part 61, Subpart I," EPA 520/1-89-001, Office of Radiation Protection Programs, Washington DC, October 1989.
- U.S. Environmental Protection Agency, "EPA Guidance Document for Facilities Subject to 40 CFR Part 61, Subpart I: Procedures for Determining Compliance with the Standard and Qualification for Exemption from Reporting," EPA 520/1-89-002, Office of Radiation Protection Programs, Washington DC, October 1989.
- U.S. Environmental Protection Agency, "User's Guide for COMPLY," EPA 520/1-89-003, Office of Radiation Protection Programs, Washington DC, October 1989.

International Commission on Radiological Protection, "Limits for Intakes of Radionuclides by Workers," ICRP No. 30, 1978.

END

DOWNLINK SITES INSTALLED AS OF JANUARY 4, 1993

JEFFERSON COUNTY DEPT OF HLTH JOHN LAMBERT (205)930-1212 1400 SIXTH AVE SOUTH BIRMINGHAM, AL 35233 FAX: 205-939-3019

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EPA Region 4 345 Courtland Street, NE Atlanta, GA 30365	AL, FL, GA, KY, MS, NC, SC, TN
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40 CFR SUBPART I SUMMARY

A Federal Register notice was published January 28, 1994, (59 FR 4228), confirming that 40 CFR part 61, subpart I, National Emissions Standards for Radionuclide Emissions from Facilities Licensed by the Nuclear Regulatory Commission and Federal Facilities Not Operated by the Department of Energy, is presently in effect for two categories: (1) facilities licensed by the Nuclear Regulatory Commission (NRC) or NRC Agreement States amount for commercial nuclear power reactors and (2) all federal facilities not operated by the Department of Energy (DOE). Facilities that handle only sealed sources are exempt. The effectiveness of Subpart I is presently stayed for commercial nuclear power reactors. The previous stay of Subpart I for NRC and Agreement State licensees other than nuclear power reactors expired on November 15, 1992, and has not been extended or renewed.

Those facilities which are not exempt from reporting requirements must submit an annual report concerning emissions for calendar year 1993 to EPA by March 31, 1994. Facilities that are subject to reporting requirements but are unable to gather the necessary information and report to EPA by March 31, 1994 should request an extension from the appropriate EPA regional office. EPA will consider extensions of up to 60 days. A list of the Radiation Program Managers and the NESHAPs representatives is attached.

In order to assist licensees in determining compliance with Subpart I, EPA used mailing labels supplied by NRC to send copies of "A Guide for Determining Compliance with the Clean Air Act Standards for Radionuclide Emissions from NRC-Licensed and Non-DOE Federal Facilities." The NRC Agreement State Program asked the Agreement States to either send EPA a set of mailing labels, or to ask for a bulk shipment of the guide for distribution to their licensees. These documents are going out in February.

Information on Subpart I also is available on the EPA Office of Air Quality Planning and Standards Technology Transfer Network bulletin board system. Currently, the bulletin board named "COMPLI" contains the COMPLY computer code, the COMPLY User's Guide, the Guide for Determining Compliance and Windrose files for several locations.

To access the bulletin board, set the following parameters on your communications software: Data bits: 8; Parity: N; Stop Bits: 1; Emulate VT-100. Call the network on (919) 541-5742 for a 1200, 2400, or 9600 bps modem. Log on to the system and answer the questions that appear on the screen. The service is free except for the cost of using the phone. If you need help, call the systems operator at (919) 541-5384 in Research Triangle Park, NC, during normal business hours, EST.

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3	Radiation Program Manager Radiation Representative NESHAP contact 841 Chestnut Street / 3AT12 Philadelphia, PA 19107	Lewis Felleisen William Belanger Alice Chow	215-597-8326 215-597-4084 215-597-6550 215-597-3156
4	Radiation Program Manager NESHAP contact 345 Courtland Street, NE Atlanta, GA 30365	Paul Wagner John Richards Brian Beals Alan Drake Fax	404-347-2408 404-347-3907 404-347-5014 404-347-5056
5	Radiation Program Manager NESHAP contact 77 West Jackson Blvd. /AT18J Chicago, IL 60604-3507	Jack Barnett Mike Murphy Gene Jablonowski Fax	
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9	Radiation Program Manager NESHAP contact 75 Hawthorne Street (A-1-1) San Francisco, CA 94105	Michael Bandrowski Shelly Rosenblum Fax	
10		Rick Poeton	206-553-7660 206-553-8633 206-553-0110

TRAINING FOR 40 CFR, SUBPART I

The Distance Learning Network is a nation-wide telecommunications system dedicated to air pollution training, policy updates and technology transfer. It is a combined effort between North Carolina State University and the United States Environmental Protection Agency. This is the system that will be broadcasting the EPA training for Subpart I on March 17 (course number 019). All personnel that intend to participate should register as soon as possible. We need this so we can make sure that the necessary arrangements are made at the facilities that are receiving the downlink.

Attached is a list of the downlink sites. Some of you may know that past presentations were available at additional sites. The system recently changed to digital transmission to enhance the quality of the signal. Unfortunately, this eliminated some of the downlink sites which previously were available.

For information on registration and the downlink sites:

Federal EPA Employees and State & Local Air Agencies (Includes NRC and Agreement State personnel):

Contact:

Jennifer Nunn, Registrar
USEPA, Air Pollution Training Institute
MD-17
RTP, NC 27711
(919) 541-2497; (automated registration and course information on (919) 541-4000)

Private Sector and Non-Air Government Personnel, and to purchase copies of the tapes of the training session:

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Fact Sheet -- 40 CFR Part 61, Subpart I for NRC Licensees

Subpart I In Effect for NRC Licensees Other Than Nuclear Power Reactors

Subpart I is presently in effect for NRC licensees other than nuclear power plants. The rule requires these licensees to report on March 31, 1994 for calendar year 1993. Those facilities which are not exempt from reporting requirements under 40 CFR § 61.104(b) must submit the annual report concerning emissions for calendar year 1993 required by 40 CFR § 61.104(a) to EPA by March 31, 1994. Facilities that are unable to gather the necessary information and report to EPA by March 31, 1994 should request an extension from the appropriate EPA regional office. EPA will consider extensions of up to 60 days.

Background

On October 31, 1989 EPA promulgated radionuclide air emission standards for a number of source categories including NRC licensees (Subpart I). NRC licensees include about 6,000 nuclear material licensees, such as radiopharmaceutical manufacturers, radiolabeled compound manufacturers, hospitals and medical research facilities, sealed source manufacturers, source materials processors, research reactors, and 140 uranium fuel cycle facilities engaged in the generation of commercial nuclear power or their support facilities.

Subpart I limits radionuclide emissions to the ambient air from NRC-licensed facilities to that amount which would cause any member of the public to receive in any year an effective dose equivalent (ede) of 10 millirem, of which no more than 3 millirem ede may be from radioiodines. The standard protects public health to a lifetime maximum individual risk of about 1/10,000.

At the time of promulgation, NRC and NIH objected, citing duplication of effort and reporting burdens. EPA treated these comments as a petition for reconsideration of Subpart I, which was granted, and EPA stayed the rule.

Simpson Amendment

Section 112(d)(9) of the Clean Air Act of 1990 gives EPA the authority to decline to regulate NRC licensees if EPA makes a determination, by rule and in consultation with the NRC, that the NRC's regulatory program achieves the goal of the Clean Air Act.

Status of Subpart I

Based on new authority of Section 112(d)(9), EPA proposed to rescind Subpart I for nuclear power reactors in August, 1991. Since neither NRC nor EPA had

adequate data regarding emissions from the remaining NRC licensees, EPA conducted a study of these facilities.

The study indicated that the public is currently adequately protected from radionuclide air emissions from all, or virtually all NRC licensed facilities. However, EPA identified certain weaknesses in the NRC program that precluded immediate rescission of Subpart I. EPA and NRC then entered into an Memorandum of Understanding (MOU) (Attachment 1) intended to strengthen the NRC program to satisfy the requirements of Section 112(d)(9) which would enable EPA to rescind Subpart I. On December 1, 1992, EPA published a proposal to rescind Subpart I for NRC licensees not engaged in nuclear power generation based on the study and the MOU.

Problems With the NRC Program

Although EPA acknowledges NRC's efforts to strengthen its regulatory program pursuant to the MOU, EPA's Office of General Counsel has concluded that there are weaknesses in the NRC program that would pose significant legal risk if EPA rescinded Subpart I for NRC licensees other than nuclear power reactors based on the current record. These are:

- EPA has a 10 mrem/y standard under the Clean Air Act. NRC's standard under the Atomic Energy Act will soon be reduced to 100 mrem/y (50 mrem/y for the air pathway). Although the NRC requires licensees to implement a program to keep emissions "as low as reasonably achievable" (ALARA) and NRC published a guide recommending adoption of a 10 mrem/y goal, these elements of the NRC program do not assure that emissions will be consistently and predictably below 10 mrem/y, and that NRC will be able to require reductions when they are not.
- A 1993 study by the General Accounting Office (released after the EPA study described above) found that over half of the NRC Agreement State programs were deficient and that NRC had no mechanism to revoke the Agreement State status of states having inadequate or incompatible programs. The NRC Commissioners acknowledged these problems with the NRC Agreement State program in testim ny before the House of Representatives Committee on Environment, Energy and Natural Resources.

Consultations with NRC

EPA and NRC staff have been involved in ongoing discussions concerning specific actions that would strengthen the basis for rescission. However, it is unlikely that any agreement between EPA and NRC concerning additional measures could be implemented quickly, and the EPA Administrator has decided not to rescind

Subpart I for NRC licensees other than nuclear power reactors until after the NRC program is strengthened in order to minimize the legal risk.

Although Subpart I will remain in effect in the interim, EPA and NRC will attempt to conserve government resources. During NRC inspections, NRC and Agreement States inspectors are being requested to review determinations of facility compliance with Clean Air Act requirements, and forward a report to the appropriate EPA reigonal office.

Questions and Answers on Implementation of Subpart I

- Q: What facilities are covered by Subpart I?
- A: Subpart I applies to all facilities licensed by the NRC or an NRC Agreement State, pursuant to the Atomic Energy Act of 1954, as amended, except:
 - nuclear power reactors (Subpart I is currently stayed for NRC-licensed nuclear power reactors pending EPA's rulemaking to rescind Subpart I for these facilities);
 - facilities licensed only to possess or use sealed sources;
 - 3. facilities regulated under 40 CFR Part 191, Subpart B; and
 - uranium mill tailings disposed of under 40 CFR Part 192.

Federal facilities not operated by the Department of Energy (DOE) are also covered by Subpart I.

- Q: What activities are NRC or NRC Agreement State licensees engaged in?
- A: NRC-licensed facilities include facilities involved in the uranium fuel cycle (those engaged in the conversion of uranium ore to produce electric power such as uranium mills, fuel fabrication plants and commercial nuclear power reactors), as well as other types of facilities licensed to use or possess nuclear materials such as hospitals, medical research facilities, radiopharmaceutical manufacturers, laboratories, and industrial facilities. EPA estimates that there are over 6000 NRC-licensed facilities that handle or use radionuclides in the United States in unsealed form. Note that Department of Defense facilities licensed by the NRC are included.
- Q: What non-DOE Federal facilities under Subpart I are not licensed by the NRC?

- A: There are two Army reactors in Aberdeen, MD and White Sands, NM not licensed by the NRC. Facilities engaged in the repair and maintenance of Navy nuclear propulsion units are also excluded from NRC licensure.
- Q: Why are licensees subject to Subpart I since EPA proposed to rescind and EPA's own study found that there is no health problem?
- A: Section 112(d)(9) of the Clean Air Act of 1990 gives EPA the authority to decline to regulate NRC licensees if EPA makes a determination, by rule and in consultation with the NRC, that the NRC's regulatory program achieves the goal of the Clean Air Act. Since issuing its proposed rescission, several problems with the NRC regulatory program have come to light that make a favorable determination questionable, and would pose high legal risks with rescission. EPA and NRC have been discussing changes to the NRC program that would allow EPA to rescind. In the meantime, the regulation will remain in effect and licensees are subject to its requirements.
- Q: What is the standard in Subpart I?
- A: The facility is limited to radioactive air emissions that would cause an effective dose equivalent of 10 mrem/yr from any radionuclide, of which no more than 3 mrem/yr may be from radioiodines.
- Q: What if measured emission data is not available?
- A: Emissions can be estimated according to the rule. The first approach should be to step through the procedures in the guidance document described below. If a compliance determination with the emission limits in the guide cannot be made, contact the EPA regional office to discuss the problem.
- Q: What record keeping and reporting requirements are required for the facilities for calendar 1993?
- A: Actions are divided into two categories:
 - 1) All facilities must demonstrate compliance with 1993 annual emissions in accordance with the provisions of Subpart I and maintain a record of the calculations at the site, for a period of five years.
 - Pacilities that have emissions in excess of 10% of the standard are required to submit a report in accordance with the reporting requirements in the rule, by March 31, 1994. Facilities that are unable to gather the necessary information and report to EPA by March 31, 1994 should request an extension from the appropriate EPA regional office. EPA will consider extensions of up to 60 days.

- Q: What are facilities required to do to demonstrate compliance with the emission standard in Section 61.102?
- A: All facilities must demonstrate that their annual emissions of radionuclides to the air do not cause any member of the public to receive a dose greater that 10 mrem/yr, of which no more than 3 mrem/yr may be caused by radioiodines. That can be done by using the computer code COMPLY or the alternative requirements in Appendix E. The procedures for demonstrating compliance are detailed, with worksheets, in an EPA document, "A Guide to Determining Compliance with the Clean air Act Standards for Radionuclide Emissions from NRC-Licensed and Non-DOE Federal Facilities", EPA 520/1-89-002. The worksheets are designed so that facilities with minimal amounts of radionuclides can use possession tables or concentration tables to determine compliance quickly and simply.

Facilities with larger amounts of radionuclides, or facilities that cannot show compliance with the simple procedures will want to use the computer code to determine compliance. The source terms used for input to the COMPLY computer code must be determined through the use of measurement procedures listed in Section 61.107 or the emission factors given in Appendix D. Alternative means of calculating the annual emissions or demonstrating compliance can only be used with the prior approval of EPA.

The EPA guide is being sent to all NRC licensees subject to the rule. In addition, NRC agreement states have been given the opportunity to have EPA mail the guide to their licensees, or request a bulk shipment for their distribution. EPA headquarters and regions will have additional copies.

- Q: Which facilities must file a report with EPA demonstrating compliance with the emission standard?
- A: Any facility that determines, using any of the compliance procedures in Section 61.103(a), that its emissions result in doses less than 10 percent of the standard, is exempt from the reporting requirements in Section 61.104(a). Facilities in compliance with the standard, but with emission that cause doses greater than 10 percent of the standard or any facility that uses alternative methods to determine their emissions and/or an alternative compliance model must file an annual report with EPA.

Any facility that determines that its emission result in doses exceeding the standard must file an annual report with EPA and monthly reports covering the previous month's emissions until the Administrator determines that such increased reporting is no longer necessary. Monthly reports are due within 30 days following the last day of the month.

- Q: For licensees over 1 mrem/yr but below 10 mrem/yr for 1993, what must be included in the report to EPA?
- A: Paragraph 61.104 includes a list of items that must be included in your report. Note that there is a requirement for a certification by a corporate officer or public official in charge of the facility that the information is correct.
- Q: Is there any information available on the EPA bulletin board, and how do I access it?
- A: Information on Subpart I is available on the EPA Office of Air Quality Planning and Standards Technology Transfer Network bulletin board system. Currently, the bulletin board named "COMPLI" contains the COMPLY computer code, the COMPLY User's Guide, the Guide for Determining Compliance and Windrose files for several locations.

To access the bulletin board, set the following parameters on your communications software: Data bits: 8; Parity: N; Stop Bits: 1; Emulate VT-100. Call the network on (919) 541-5742 for a 1200, 2400, or 9600 bps modem. Log on to the system and answer the questions that appear on the screen. The service is free except for the cost of using the phone. If you need help, call the systems operator at (919) 541-5384 in Research Triangle Park, NC, during normal business hours, EST.

- Q: Can I get a copy of the COMPLY code directly from EPA?
- A: Facility operators and owners will be receiving mailings from EPA or NRC. Additional copies of any of the documents, or copies of the COMPLY code are available from Eleanor Thornton, Air Standards and Economic Branch, Criteria and Standards Division (6602J), Office of Radiation and Indoor Air, Environmental Protection Agency, Washington, D.C. 20460 (202) 233-9773. Copies of EPA's Guide for Determining Compliance with the Clean Air Act Standards for Radionuclide Emissions from NRC-Licensed and Non-DOE Federal Facilities, the COMPLY computer code, and the User's Guide for the COMPLY Computer Code are available. The code, user's manual, and guide are also available from a bulletin board, as described above.
- Q: What records must a facility maintain, and for how long?
- A: Facilities must keep records documenting the source of all input parameters used to determine compliance with the standard for 5 years.

- Q: Who will inspect 'or compliance and enforce for Subpart !?
- A: EPA and NRC are working out details of inspection and enforcement in the near term. It appears that NRC and Agreement States, during the course of their own inspections of facilities, will review compliance determinations (or lack thereof) and report this information to EPA. EPA will retain authority to inspect and enforce.
- Q: I'm still confused. Where can I get help?
- A: The "Guide for Determining Compliance..." is a very straight-forward document with a series of worksheets that should clear up any questions. If after going through the worksheets you still need assistance, or you need to verify your results, call your EPA regional office.

July 12/11/93

Clean Air Act Requirements for NRC and Agreement State Licensees Under 40 CFR 61, Subpart I applicable security and classification regulations and requirements.

(Approved by the Office of Management and Budget under Control Number 2000-019).)

\$6 195 Recordkeeping requirements

All facilities must maintain records documenting the source of input parameters including the results of all measurements upon which they are based the calculations and/or an sytical methods used to derive values for input parameters, and the procedure used to determine effective dose equivalent. This documentation should be sufficient to allow an independent auditor to verify the accuracy of the determination made concerning the facility's compliance with the standard. These records must be kept at the site of the facility for at least five years and upon request, be made available for inspection by the Administrator, or his authorized representative.

\$ 81.96 Applications to construct or smoothy.

In addition to any activity that is defined as construction under 60 CFR part 61, subpart A. any fabrication, erection or installation of a new building or structure within a facility that emits radionuclides is also defined as new construction for purposes of 60 CFR part 61, subpart A.

(b) An application for approval under \$ 61.07 or notification of startup under \$ 61.09 does not need to be filed for any new construction of or modification within an existing facility if the effective dose equivalent, caused by all emissions from the new construction or mod fication is less than 1% of the standard prescribed in \$61.92 For purposes of this paragraph the effective dose equivalent shall be calculated using the source term derived using Appendix D as input to the dispersion and other computer models described in § 61.93. DOE may, with prior approval from EPA, use another procedure for estimating the source term for use in this paragraph. A facility is eligible for this exemption only if, based on its last annual report the facility is in compliance with this subpart.

(c) Conditions to approvals granted under § 81.08 will not contain requirements for post approval reporting on operating conditions beyond those specified in § 81.94.

\$ 91.97 Exemption from the reporting and testing requirements of 60 CFR \$1.90.

All facilities designated under this subpart are exempt from the reporting requirements of 40 CFR \$1.10.

Subpart I—National Emission Standards for Radionucide Emissions From Facilities Licensed by the Nuclear Regulatory Commission and Federal Facilities Not Covered by Subpart M

Sec. 81.200 Applicability. 81.101 Definitions. 81.102 Standard.

61.103 Determining compliance.
81.104 Reporting requirements.
61.105 Recordkeeping requirements.
61.106 Applications to construct or modify.

81.107 Emission determination. 81.108 Exemption from the reporting and testing requirements of 60 CFR 81.10.

\$ 61.100 Applicability.

The provisions of this subpart apply to Nuclear Regulatory Commission-licensed facilities and to facilities owned or operated by any Federal agency other than the Department of Energy, except that this subpart does not apply to disposal at facilities regulated under 40 CFR part 191, subpart B, or to any uranium mill tailings pile after it has been disposed of under 40 CFR part 192, or to low energy accelerators, or to any NRC-licensee that possesses and uses radionuclides only in the form of sealed sources.

§ \$1.101 Definitions.

As used in this subpart, all terms not defined here have the meaning given them in the Clean Air Act or subpart A of part 61. The following terms shall have the following specific meanings:

have the following specific meanings:

(a) Agreement State means a State with which the Atomic Energy Commission or the Nuclear Regulatory Commission has entered into an effective agreement under subsection 274(b) of the Atomic Energy Act of 1954, as amended.

(b) Effective dose equivalent means the sum of the products of absorbed dose and appropriate factors to account for differences in biological effectiveness due to the quality of redistion and its distribution in the body of reference man. The unit of the effective dose equivalent is the rem. For purposes of this subpart doses caused by radon-222 and its decay products formed after the radon is released from the facility are not included. The method for calculating effective dose equivalent and the definition of reference man are outlined in the International Commission on Radiological Protection's Publication No. 26.

(c) Focility means all buildings, structures and operations on one contiguous site.

(d) Federal facility means any facility owned or operated by any department, commission, agency, office, bureau or other unit of the government of the United States of America except for facilities owned or operated by the Department of Energy.

(e) NRC-licensed focility means any facility licensed by the Nuclear Regulatory Commission or any Agreement State to receive title to, receive, possess, use, transfer, or deliver any source, by-product, or special nuclear material.

(f) Rodionuclide means a type of atom which spontaneously undergoes radioactive decay.

\$\$1.102 Standard

(a) Emissions of radionuclides, including lodine, to the ambient air from a facility regulated under this subpart shall not exceed those amounts that would cause any member of the public to receive in any year an effective dose equivalent of 10 mrem/yr.

(b) Emissions of iodine to the ambient air from a facility regulated under this subpart shall not exceed those amounts that would cause any member of the public to receive in any year an effective dose equivalent of 3 mrem/yr.

\$ 61.103 Determining compliance.

(a) Compliance with the emission standard in this subpart shall be determined through the use of either the EPA computer code COMPLY or the alternative requirements of Appendix E. Facilities emitting radionuclides not listed in COMPLY of Appendix E shall contact EPA to receive the information needed to determine dose. The source terms to be used for input into COMPLY shall be determined through the use of the measurement procedures listed in \$ 61.107 or the emission factors in Appendix D or through alternative procedures for which EPA has granted prior approval or,

(b) Facilities may demonstrate compliance with the emission standard in this subpart through the use of computer models that are equivalent to COMPLY, provided that the model has received prior approval from EPA beadquarters. Any facility using a model other than COMPLY must file an annual report. EPA may approve an alternative model in whole or in part and may limit its use to specific circumstances.

\$81.104 Reporting requirements.

(a) The owner or operator of a facility subject to this subpart must submit an annual report to the EPA covering the emissions of a calendar year by March \$1 of the following year.

(1) The report or application for approval to construct or modify as

required by 40 CFR part 61, subpart A and § 61.106, must provide the following information:

(i) The name of the facility.
(ii) The name of the person
responsible for the operation of the
facility and the name of the person
preparing the report if different?

preparing the report (if different).

(iii) The location of the facility, including suite and/or building number, street, city, county, state, and zip code.

(iv) The mailing address of the facility, if different from item (iii).

(v) A list of the radioactive materials used at the facility.

(vi) A description of the handling and processing that the radioactive materials

andergo at the facility.

(vii) A list of the stacks or vents or

other points where radioactive materials are released to the atmosphere.

(viii) A description of the effluent controls that are used on each stack.

vent, or other release point and an estimate of the efficiency of each device.

(ix) Distances from the point of release to the nearest residence, school.

business or office and the nearest farms
producing vegetables, milk, and meat
(x) The effective dose equivalent

(x) The effective dose equivalent calculated using the compliance procedures in § 61.103.

(xi) The physical form and quantity of each radionuclide emitted from each stack, vent or other release point, and the method(s) by which these quantities were determined.

(xii) The volumetric flow, diameter, effluent temperature, and release height for each stack, vent or other release point where radioactive materials are emitted, the method(s) by which these were determined.

(xiii) The height and width of each building from which radionuclides are emitted.

(xiv) The values used for all other user-supplied input parameters (e.g., meteorological data) and the source of these data.

(xv) A brief description of all construction and modifications which were completed in the calendar year for which the report is prepared, but for which the requirement to apply for approval to construct or modify was waived under section 61.106, and associated documentation developed by the licensee to support the waiver EPA reserves the right to require that the licensee send to EPA all the information that normally would be required in an application to construct or modify, following receipt of the description and supporting documentation.

(xvi) Each report shall be signed and dated by a corporate officer or public official in charge of the facility and contain the following declaration immediately above the signature line: "I certify under penalty of law that I have personally examined and am familiar with the information submitted herein and based on my inquiry of those individuals immediately responsible for obtaining the information. I believe that the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment. See, 18 U.S.C. 1001."

(b) Facilities emitting radionuclides in an amount that would cause less than 10% of the dose standard in § 81.102, as determined by the compliance procedures from § 61.103(s), are exempt from the reporting requirements of § 61.104(s). Facilities shall annually make a new determination whether they are exempt from reporting.

(c) If the facility is not in compliance with the emission limits of \$ 61.102 in the calendar year covered by the report. the facility must report to the Administrator on a monthly basis the information listed in paragraph (a) of this section, for the preceding month. These reports will start the month immediately following the submittal of the annual report for the year in noncompliance and will be due 30 days following the end of each month. This increased level of reporting will continue until the Administrator has determined that the monthly reports are no longer necessary. In addition to all the information required in paragraph (a) of this section, monthly reports shall also include the following information:

 All controls or other changes in operation of the facility that will be or are being installed to bring the facility into compliance.

(2) If the facility is under a judicial or administrative enforcement decree the report will describe the facilities performance under the terms of the decree.

(d) The first report will cover the emissions of calendar year 1990.

§ 61.105 Recordkeeping requirements.

The owner or operator of any facility must maintain records documenting the source of input parameters including the results of all measurements upon which they are based, the calculations and/or analytical methods used to derive values for input parameters, and the procedure used to determine compliance. This documentation should be sufficient to allow an independent auditor to verify the accuracy of the determination made concerning the facility's compliance with the standard, and, if claimed, qualification for exemption from reporting. These records

must be kept at the site of the facility for at least five years and upon request be made available for inspection by the Administrator, or his authorized representative.

§ 61.106 Applications to construct or modify.

(c) In addition to any activity that is defined as construction under 40 CFR part 61, subpart A, any fabrication, erection or installation of a new building or structure within a facility is also defined as new construction for purposes of 40 CFR part 61, subpart A.

(b) An application under § 61.07 does not need to be filed for any new construction of or modification within an existing facility if one of the following conditions is met:

(1) The effective dose equivalent calculated by using methods described in § 61.103, that is caused by all emissions from the facility including those potentially emitted by the proposed new construction or modification, is less than 10% of the standard prescribed in § 61.102.

(2) The effective dose equivalent calculated by using methods described in § 61.103, that is caused by all emissions from the new construction or modification, is less than 1% of the limit prescribed in § 61.102. A facility is eligible for this exemption only if the facility, based on its last annual report, is in compliance with this subpart.

\$ 61.107 Emission determination.

(e) Facility owners or operators may, in lieu of monitoring, estimate radionuclide emissions in accordance with Appendix D, or other procedure for which EPA has granted prior approval.

(b) Radionuclide emission rates from point sources (e.g. stacks or vents) shall be measured in accordance with the following requirements:

(1) Effluent flow rate measurements shall be made using the following methods:

(i) Reference Method 2 of Appendix A to part 80 shall be used to determine velocity and volumetric flow rates for stacks and large vents.

(ii) Reference Method 2A of Appendix A to part 60 shall be used to measure flow rates through pipes and small vents.

(iii) The frequency of the flow rate measurements shall depend upon the variability of the effluent flow rate. Frevariable flow rates, continuous or frequent flow rate measurements shall be made. For relatively constant flow rates only periodic measurements ar necessary.

(2) Radionuclides shall be directly monitored or extracted, collected, and measured using the following methods:

(i) Reference Method 1 of Appendix A part 60 shall be used to select monitoring or sampling sites.

(ii) The effluent stream shall be directly monitored continuously using an in-line detector or representative samples of the effluent stream shall be withdrawn continuously from the sampling site following the guidance presented in ANSIN13.1-1969 "Guide to Sampling Airborne Radioactive Materials in Nuclear Facilities" (including the guidance presented in Appendix A of ANSIN13.1) (incorporated by reference-see \$ 81.18). The requirements for continuous sampling are applicable to batch processes when the unit is in operation. Periodic sampling (grab samples) may be used only with EPA's prior approval. Such approval may be granted in cases where continuous sampling is not practical and radionuclide emission rates are relatively constant. In such cases, grab samples shall be collected with sufficient frequency so as to provide a representative sample of the emissions

(iii) Redionuclides shall be collected and measured using procedures based on the principles of measurement described in Appendix B. Method 114. Use of methods based on principles of measurement different from those described in Appendix B. Method 114 must have prior approval from the Administrator. EPA reserves the right to approve alternative measurement procedures in whole or in part.

(iv) A quality assurance program shall be conducted that meets the performance requirements described in Appendix B. Method 114.

(3) When it is impractical to measure the effluent flow rate at an existing source in accordance with the requirements of paragraph (b)(1) of this section or to monitor or sample an effluent stream at an existing source in accordance with the site selection and sample extraction requirements of paregraph (b)(2) of this section, the facility owner or operator may use alternative effluent flow rate measurement procedures or site selection and sample extraction procedures provided that

(i) It can be shown that the requirements of paragraphs (b) (1) and (2) of this section are impractical for the

effluent stream.

(ii) The alternative procedure will not significantly underestimate the emissions.

(iii) The alternative procedure is fully documented

(iv) The owner or operator has received prior approval from EPA.

(4)(i) Radionuclide emission measurements in conformance with the requirements of paragraph (b) of this section shall be made at all release points which have a potential to discharge redionuclides into the air in quantities which could cause an effective dose equivalent in excess of 1% of the standard. All radionuclides which could contribute greater than 10% of the potential effective dose equivalent for a release point shall be measured. For other release points which have a potential to release radionuclides into the air, periodic confirmatory measurements should be made to varify the low emissions.

(ii) To determine whether a release point is subject to the emission measurement requirements of paragraph (b) of this section, it is necessary to evaluate the potential for radionuclide emissions for that release point in evaluating the potential of a release point to discharge radionuclides into the air, the estimated redionuclide release rates shall be based on the discharge of the uncontrolled effluent stream into the

(5) Environmental measurements of radionuclide air concentrations at critical receptor locations may be used as an alternative to air dispersion calculations in demonstrating compliance with the standards if the owner or operator meets the following

(i) The air at the point of measurement shall be continuously sampled for collection of radionuclides.

(ii) Those radionuclides released from the facility, which are the major contributors to the effective dose equivalent must be collected and measured as part of the environmental messurements program.

(iii) Radionuclide concentrations which would cause an effective dose equivalent greater than or equal to 10% of the standard shall be readily detectable and distinguishable from

background.

(iv) Net measured radionuclide concentrations shall be compared to the concentration levels in Table 2 of Appendix E to determine compliance with the standard. In the case of multiple radiopuclides being released from a facility, compliance shall be demonstrated if the value for all radionuclides is less than the concentration level in Table 2 and the sum of the fractions that result when each measured concentration value is divided by the value in Table 2 for each radionuclide is less than 1.

(v) A quality assurance program shall be conducted that meets the performance requirements described in Appendix B. Method 114.

(vi) Use of environmental messurements to demonstrate compliance with the standard is subject to prior approval of EPA. Applications for approval shall include a detailed description of the sampling and analytical methodology and show how the above criteria will be met.

(c) The following facilities may use either the methodologies and quality assurance programs described in paragraph (b) of this section or may use

the following:

(1) Nuclear power reactors may determine their redionuclide emissions in conformance with the Effluent Technical Specifications contained in their Operating License issued by the Nuclear Regulatory Commission In addition, they may conduct a quality assurance program as described in the Nuclear Regulatory Commission's Regulatory Guide 6.15 dated February

(2) Fuel processing and fabrication plants and uranium hexafluoride plants may determine their emissions in conformance with the Nuclear Regulatory Commission's Regulatory Guide 4.16 dated December 1985. In addition, they may conduct a quality asswance program as described in the Nuclear Regulatory Commission's Regulatory Guide 4.15 dated February

(3) Uranium mills may determine their emissions in conformance with the Nuclear Regulatory Commission's Regulatory Guide 4.14 dated April 1980. In addition, they may conduct a quality assurance program as described in the Nuclear Regulatory Commission's Regulatory Guide 4.15 dated February 1979

61.108 Exemption from the reporting and testing requirements of 40 CFR 81.10.

All facilities designated under this subpart are exempt from the reporting requirements of 40 CFR 81.10.

Support K-National Emission Standards for Radionuciide Emissions From Elemental Phosphorus Plants

Applicability Definitions \$1.120

Ø7.121

Emissign etandard. \$1.122 61.123 Emission testing

81.124 Records espira esquirements. 61.125

Test methods and procedures. 81.126 Monitoring of operations. \$2.127 Exemption from the reporting and sesting requirements of 60 CFR \$1.10

samples spiked with known quantities of radium-226.

E Data Precision, Accuracy, and

Completeness

The precision accuracy, and completeness of measurements and analyses shall be within the following limits for samples measuring greater than 1.0 pCl/m²—a.

(a) Precision: 10% (b) Accuracy: ±10%

(c) Completeness: at least 85% of the measurements must yield useable results.

8.0 References

(1) Hartley, J.N. and Freeman, H.D., "Radon Flux Measurements on Cardinler and Royster Phosphogypsum Piles Near Tamps and Mulberry, Florida," U.S. Environmental Protection Agency Report, EPA \$20/5-85-029, January 1986.

(2) Environmental Protection Agency.

"Indoor Radon and Radon Decay Product

Messurement Protocols", EPA 820/1-80-008, U.S. Environmental Protection Agency, Washington, DC. (1989).

9. By adding Appendix D to part 61 to read as follows:

Appendix D to Fart 81—Methods for Estimating Radiopuclide Emissions

1. Purpose and Bookground

Facility owners or operators may estimate radionuclide emissions to the atmosphere for fose calculations instead of measuring emissions. Particulate emissions from millitailings piles should be estimated using the procedures listed in reference. \$2. All other emissions may be estimated by using the "Procedures" listed below, or using the method described in reference \$2.

2. Procedure

To estimate emissions to the atmosphere:

(a) Determine the amount (to curies) meed at facilities for the period under consideration. Redioactive materials in sealed packages that remain unopened, and have not leaked during the assessment period should not be included in the calculation.

(b) Multiply the amount used by the following factors which depend on the physical state of the redionuclide. They are:

(i) 1 for gases; (ii) 10° for liquids or particulate solids; and (iii) 10° for solids.

tii) 10-2 fer solids.

If any nuclide is bested to a temperature of 200 degrees Celsius or more, boils at a temperature of 100 degrees Celsius or less, or is intentionally dispersed into the environment, it must be considered to be a gas.

(c) If a control device is installed between the place of use and the point of release, multiply emissions from (b) by an adjustment factor. These are presented in Table 1.

TABLE 1 .- ADJUSTMENT TO EMISSION FACTORS FOR EFFLUENT CONTROLS

Controls	Types of radionuclides pontrolled	Adjustment fector to armesions	Comments and conditions
HEPA Streets	Particulation	0.01	Not applicable to geseous radionuclides, periodic testing is pruden
Fabric Wer	Particularise		to ensure high removal efficiency.
Skntared metal		0.1	Monitoring would be prudent to guard against teams in litter.
Activated carbon Mana	lockine pas	A A	Insufficient data to make recommendation.
Douglas bags. Held one week or longer for decay	Xenon Xenon Parboulates	0.6/wk 1 0.05	Although wenturis may remove cases vanability in passeus removes
Packed bed sorubbers	USAPI	1	efficiency dictates adjustment factor for particulates andy.
Electrosiatic precipitators	Batton (alan	0.1	
Xanon trape		0 06	
Fume hoods	AJ .	1	Efficiency is time dependent, monitoring is necessary to ensure effectiveness. Provides no reduction to general public exposures. Generally provides no reduction of exposure to general public.

References

[1] Environmental Protection Agency, "A Goide for Determining Compliance with the Clean Air Act Standards for Radionuclides Emissions from NRC-Licensed and Non-DOE Federal Facilities", EPA \$20/1-89-002.

January 1989.

(2) Nuclear Regulatory Commission,
"Methods for Estimating Radioactive and
Toxic Airborne Source Terms for Uranium
Milling Operations", U.S. Nuclear Regulatory
Commission Regulatory Guide 3.59, March
1987.

10. By adding Appendix E part 61 to read as follows:

Appendix E to Part 81—Compliance Procedures Methods for Determining Compliance With Subpart 2

1. Purpose and Background

This Appendix provides simplified procedures to reduce the burden on Nuclear Regulatory Commission (NRC) licensees, and non-Department of Energy Federal facilities in determining compliance with 60 CFR part

\$1. subpart I. The procedures consist of a series of increasingly more stringent steps, depending on the facility's potential to exceed the standard.

First a facility can be found in compliance if the quantity of redioactive material possessed during the year is less than that listed in a table of annual possession quantities. A facility will also be to compliance if the average annual radionuclide emission concentration is less than that listed in a table of air concentration levels. If the facility is not in compliance by these tables, it can establish compliance by estimating a dose using acreening procedure developed by the National Council on Radiation Protection and Measurements with a radiological source term derived using EPA approved emission factors. These procedures are described in a "Guide for Determining Compliance with the Clean Atr Act Standards for Radionuclide Emissions Prom NRC-Licenced and Non-DOE Federal Facilities."

A user-friendly computer program called COMPLY has been developed to reduce the burden on the regulated community. The Agency has also prepared a "User's Guide for

the COMPLY Code" to assist the regulated community in using the code, and in handling more complex situations such as multiple release points. The basis for these compliance procedures are provided in "Background Information Document Procedures Approved for Demonstrating Compliance with 40 CFR part \$1. subpart I". The compliance model is the highest level in the COMPLY computer code and provides for the most realistic assessment of dose by allowing the use of site-specific information.

2 Toble of Annual Possessian Quantity

(a) Table 1 may be used for determining if facilities are in compliance with the standard. The possession table can only be used if the following conditions are met:

(I) No person lives within 10 meters of any release point and

(ii) No milk mest, or vegetables are produced within 100 meters of any release moint.

(b) Procedures described in Reference (1) shall be used to determine compliance of exemption from reporting by use of Table 2.

TABLE 1 .- ANNUAL POSSESSICH QUANTH TIES FOR ENVIRONMENTAL COMPLIANCE

(Annual Possession Quantities (CL/yr))

Redionuclide	Gase- oue form*	Liquid/ powder forms	Solid form*
Ac-225	9 SE - 05	9 6E - 02	9.6E+0
Ac-227		1.6E - 04	1.8E-0
Ac-228	3 4F - 03	3.4E + 00	
Ag-106	1 6F + 00	1.6E+03	1.8E+0
Ag-106m	2 AF - 03	2.8E +00	2.6E+0
Ag-106m	ASE - OS	6.5E - 03	6.5E+0
Ag-110m	9.4E - 05	9.4E - 02	
Ag-111	# 7E 00	6.7E+01	8.4E+0
Al-26	4 DE DE		6.7E+04
Am-241	2 36 06	4.0E - 03 2.3E - 03	4.0E + 00
Arn-242	1 85 00		2.3E + 00
Arn-242m	1.0E - 02	1.8E+01	1.8E + 04
Am-243	2.35 -06	2.5E - 03	2.5E + 00
Am-244	2.5E -00	2.3E 03	2.3E + 00
Am-245	4 DE - 05	4 6E + 01	4.8E+04
Arn-248		7.0E+03	7.0E+06
Ar-37	9 8E - 01	9.8E + 02	9.8E+08
As A4	1.42 + 06		
A-41			
As-72	29E-02	2.9E+01	29E+04
As-73	0 0€ - 03	8.0E+01	8.0E+04
As-74		4 3E + 00	4.3E+03
As-76		8.8E+01	8.8E+04
As-77	7.9E - 01	7.9E+02	7.9E+05
Al-211	1.0E - 02	1 0E + 01	1.0E + 04
Au-193	4.2E - 01	4.2E + 02	4.2E + 05
Au-194	3.5E - 02	3 5E + 01	3 5E + 04
Au-195	3.3E - 03	3.3E + 00	3.3E + 03
Au-198	4.6E - 02	4 5E +01	4.6E+04
Au-199	1.5E 01	1 5E + 02	1.5E+Q5
Be-131	1.0E - 02	1.0E+01	1.0E+04
Be-133	4.9E 05	4 98 - 02	4.9E+01
Be-133m	9.3E - 02	9 3E + 01	9.3E+04
Be-135m	5.8E-01	5 BE + 02	5.8E+05
Ba-139	4 7E + 00	4.7E+03	4.7E+06
Ba-140	2.1E-03	2 1E+00	2.1E+03
Be-141	1.3E + 00	1.3E + 03	1.3E+06
Ba-142	1.1E+00	1.1E+03	1.1E+08
86-7	2.3E-02	2.3E+01	2.3E+04
Be-10	3 DE - 03	3.0E+00	3.0€+03
3-206	3.1E - 03	3 1E+00	3.1E+03
3-207	8 4E - 06	8.4E-03	8 4E + 00
3-210	4 2F _ 02	4 2E +00	4.2E + 03
3-212	4 7F - 02	4.7E+01	4.7E+04
3-213	6 0F - 02	E DE + 01	6 DE + 04
S-214	1 4E - 01	1.4E+02	
3x-249	7 OF - 04		1.4E + 05
3k-250	1.0E - 04	7.0E -01	7.0E + 02
y.77	7.5E - 02	1.0E + 02	1.0E + 05
k-80	1.3E - 02	7.5E + 01 1.2E + 04	7.5E+04
k-80m	1.55 - 00	The second second	1.2E+07
y-82	1.68 - 02	1.5E+03	1.5E+08
V-83		1.6E + 01	1.6E +04
V-84	9 9E +00	EC+38.8	9.9E ÷ 06
-11	5 6E - 01	5.6E + 02	5.6E+05
11	1.3E + 00	1.3E + 03	1.3E+06
-14	2.9E 01	2.0€+02	2.9E+05
4-41	2.7E - 02	27E+01	2.7E+04
a-45	9.85 - 05	5 8E + 01	5 8E + 04
4-47	1.1E - 02	1.1E+01	1.1E+04
d-109	5 0€ - D3	5.0E+00	5.06 + 03
25-113	3.3E - 04	3.3E -01	3.3E + 02
d-113m	4.4E 04	4 4E - 01	4.4E+02
d-115		5 4E + 01	3.4E+04
	1.0E - 02	1.0E+01	1.0E+04
d-117	5.6E-02	5 BE + 01	5.6E+04
d-117m	1.3E - 01	1.36 + 02	1.3E+05
e-139	2.8E - 03	2.6E+00	2.6E+03
e-141		1.8E+01	1.8E+04
4-143	1.0E - 01	1.0E+02	1.0E + 05
4-144	1.7E - 03	1.7E+00	1.7E+03
1-248	2 DE - D6	2.0E - 02	20E+01
3-249	1.7E - OB	1.7E - 03	1.7E + 00
7-250	4 DE - DR		4.0E+00
1-251	1.7E 06	1.7E - 03	1.7E+00
1-252	8 4E - 06		8.4E+00

TABLE 1 .- ANNUAL POSSESSION QUANTI- | TABLE 1 .- ANNUAL POSSESSION QUANTI-TIES FOR ENVIRONMENTAL COMPLI-ANCE-Continued

Radionudade	Gase- ous sorm*	Liquid/ powder forms	Slottid form*
~ ~ .	- Arministration	1	1
CI-254	3.6E - 06	3.6E - 03	
C1-36		1.9E -01	1.9E+02
		6.5E+02	A CONTRACTOR OF THE PARTY OF TH
Cm-242		6.0E - 03	6.0E+01
Cm-243		3.3E - 03	3.3E+00
DYT-244		4.2E - 03	4.2E+00
2m-245		2.3E -03	2.3E+00
2m-248	2.3E-06	2.3E - 03	2.3E+00
2m-247		2.3E - 03	2.3E+00
Xn-248		6.4E - 04	8.4E-01
Zm-249		4.6E+03	4.6E+08
m-250	. 1.1E - 07	1.1E-04	1.1E-01
0-56	2.4E-04	2.4E - 01	2.4E+02
Q-57		1.6E+00	1.8E+03
0-58		9.0E - 01	8.0E+02
io-58m		1.7E+02	1.7E+05
ic-80		1.6E 02	1.6E+01
20-80m		4.0E+03	4.0E+06
20-61	13.8E+00	3.8E+03	3.8E+08
7-49	9.0E - 01	9 DE + 02	9.0E + 05
7-51	6.3E - 02	8.3E+01	8.3E + 04
a-129	1.5E 01	1.5E+02	1.5E+05
a-131	2 8F - D1	2.8E + 02	2.8E+05
4-132 ·	1.3E - 02	1.3E+01	1.3E + 04
a-134	5.2E - 05	5.2E - 02	5.2E+01
4-134m	3 2F - D1	3.2E + 02	3.2E + 05
a-135	2.4F - 02	24E+01	2.4E+04
e-136	2.1E-03	2.1E+00	2.1E+03
a-137	2 3F - 06	2.3E - 02	2.3E + 01
6-138	AAE OI	4.4E + 02	Branch (1997)
v-61	4.0E 01	4.0E + 02	4.4E+05
v-64			4.0E+05
U-67	1 EF 64	5.2E + 02	5.2E + 05
Y-157	1.52 01	1.5E + 02	1.5€+05
7-197 management	4.45-01	4.4E+02	4.4E+05
y-165	5.58 + 00	5.6E + 03	5.5E+06
y-186	8.1E-02	8.1E+01	B.1E+04
1-169	4.0E - 01	4.DE + 02	4.0E+05
-171	3.6E 01	3.6E + 02	3.68+05
9-253	2.6E - 04	2.6E 01	2.6E + 02
B-254	2.3E - 05	2.3E - 02	2.3E + 01
+254m	1.8E - 03	1.8E+00	1.8E+03
J-152	1.6E - 05	1.8E-02	1.6E+01
u-152m	3.5E - 01	25E+02	3.5E + 05
U-154	2.0E - 05	2.0E - 02	2.0E+01
⊁155	5.2E - D4	5.2E -01	5.2E+02
J- 156	3.2E - 03	3.2E + 00	3.2E + 03
18	5.8E 01	5.6E + 02	5.6E+05
P-52	4 9E 02	4.9E+01	4.9E+04
-55	1.4E 01	1.4E + 02	1.4E+05
-59	1.3E - 03	1.3E + 00	1.3E+03
7-254	1 85 00	1.8E+01	1.8E+04
m-255	4 DE -03	4.0E + 00	4.0E+03
-223	1.4F 01	1.4E+02	1.4E+05
a-66	5.6E - 02	5.6E+01	5.6E+04
0-67	1.1E - 01	1.1E+02	1.1E+05
0-68 88-1	7.5F - 01	7 EE + 0.2	
p-72	1 65 00		7.8E + 05
5-152	4 4E OR	3.EE+01	3.6E + 04
d-153	9 06 00	2 OE +00	4 4E+00
d-159	6 DE D4		2.0E+03
-68	2.25 04	6.8E+02	8.8E+05
0.71	2.55 - 94	2.3E - 01	2.3E+02
-71	100 + 30.3	2.68 + 03	2.66 +06
-77	1.0E -01	1.0E + 0.2	1.0E + 05
3	1.5E+01	1.5E + 04	1.5E+07
-181	2.5E - 03	2.5E + 00	2.5E+03
-183m	9.5E - 02	9.5E+01	9.5E+04
3-197	2.4E - 01	2 4E + 02	2.4E+05
p-197m	2.5E-01	2.5E + 02	2.5E+05
-203	5.2E - 03	5.2E+00	5.2E+03
> 166	2.8F 01	2.8E+02	2.8E+05
	4.05 00		8.0E+00
2-16G/R	The Later about the		
23	4.9F - 01	4 DE + 00	
2324	4.9E - 01	4.9E + 02 9.3E + 00	4.9E+05 9.3E+03

TIES FOR ENVIRONMENTAL COMPLI-ANCE-Continued

EAnnual Possession Quantities (CL/yr)]

F126 F120 F129 F130 F131		forms	form*
F128 F129 F130 F131			
F130	8.3E + 00	3.7E + 00	3.7E + 00
F131		9.3E+03	9.3E + 06
F131		2.6E-01	2.6E + 02
		4.6E + 01 6.7E + 00	4.6E + 04 8.7E + 03
1132		2.0E+02	2.0E+05
¥133	6.7E-02	6.7E+01	6.7E+04
1-134		3.2E + 02	3.2E + 05
1135		1.2E + 02	1.2E + 05
tn-111		4.9E+01 2.1E+03	4.9E+04
In-114m		4.9E+00	4.9E + 03
In-115	2.7E - 04	2.7E-01	2.7E+02
In-115m		1.4E + 03	1.4E + 06
In-116m		3.5E+02 1.3E+03	3.5E + 06
in-117m		7.6E + 01	7.68 + 04
	3.5E - 03	3.5E + 00	
W-192		9.7E-01	9.7E + 02
k-194 k-194m		2.5E+02 1.5E-01	2.5E + 05
K-40		6.8E - 02	I comment to the
K-42	2.9E-01	2 9E + 02	2.9E + 05
K-43		6.0E+01	
K-44		4.9E+02	4.9E + 05
KI-81			
Kr-83m		Parameter of the Parame	
Kr-85	8.4E+02		
Ki-85m			
Kr-88		A CONTRACTOR OF THE PARTY OF TH	
La-140		1.6E + 01	1.6E+04
L4-141		1.1E+03	1.1E+06
La-142	2.3E 01		2.3E + 05
Lu-177	1.4E - 01	1.4E+02	1.4E+05 3.5E+02
Mg-28	21E-02	2.1E+01	2.1E+04
Mn-52	3.5E - 03	3.5E + 00	3 SE + 03
Mn-52m	5.2E 01	5.2E + 02	5 2E + 05
Mr 54	255-04	5.7E+01	5.7E + 04 2.5E + 02
WITH 30	Z.5t - U1	2.5E+02	2.5E+05
Mo-93	1 BF - 03	1.5E+00	1.5E+03
Mo-99°*		5.7E+01	5.7E+04
Na-22	3.2E - 05	8.4E + 02 3.2E - 02	8 4E + 05 3.2E + 01
Na-24	2.6E - 02	2.6E+01	2.6E+04
Vb-90	2 5E - 02	2.5E+C1	2 5E + 04
Nb-93m	1.2E - 02 8.0E - 06	1.2E + 01 6.0E - 03	1.2E + 04
Vb-95	2.3E - 03		8 DE + 00
Nb-95m	2.0E - 02		2.0E+04
Vb-98	25E-02	2.5E+01	2.5E + 04
40-147	1.02 + 00	1.0€ + 03	1.0E + 06 3.0E + 04
4d-149	1.1E+00	1.1E+03	1.1E+06
4-56	2 OF - 03	2.0E+00	2 DE + 03
4-57	2.1E - 02	2 1E+01	21E+04
4-63	4F - 01	2.2E+01 1.4E+02	2.2E + 04 1.4E + 05
4-65	7.0E - 01	7.0E + 02	7.0E + 05
tp-235	3.0E - 02	3.0E+01	3.0E + 04
10-237	8E - 06	1.8E - 03	1.8E + 00
ip-238	DE 01	1.9E + 01	1.9E + 04 1.0E + 05
P-240	5E-01	6.5E + 02	6.5E+05
45-240m	1.7E+00	4.7E+03	4.7E+06
06-185	2E - 04	9.2E - 01	9.2E+02
0-191m6 0-1915	BE - 02	9.0E + 02 3.8E + 01	9 DE + 05 3 BE + 04
N-1932	2.9E 01	2.8E + 02	2 9E + 05
-32 1	7E - 02	1.7E+01	1.7E + 04
-831	2E-01	1.2E + 02	1.2E+05

TABLE 1 .- ANNUAL POSSESSION QUANTI-TIES FOR ENVIRONMENTAL COMPLE ANCE-Continued

Bb-122

80-194

86-125

80-126

80-126m

3.9E - 03 3.9E + 01

6 DE - D4 6 DE - 01

1.4E -- 01

1.8E + 00

7.8E -01 7.8E +02 7.8E +05

1.4E - D4

1.8E - 03

3.9E + 04

8.DE + 02

1.4E+02

1.8E + 00

71-202.

T1-204.

Tr. 170

Pm-171

U-230

1.0€ -- 02

2.5E - 02

2.4E - 02

5.0E - 02

5.0E - 06 | 8.0E - 02

1.0E+01

25E+01

2.4E+01

\$ 9E + 01

1.0E + 04

2.5E + 04

2 4E + 04

5.9E + 04

8.0E + 01

ANCE-Continued [Arrusi Possession Quantities (Clyst)] EArrual Possession Cuantities (CL/yr)3 Gase Llquid/ Stock Radionucilde Borra" powder forms Radionunlide SQUED" larm' Pa-230 6 3E - 04 8 3E - 01 6.3E + 02 動-199 2.0E - 02 2.0E + 01 8.DE + 04 Pa.231 8.3E - 07 8.3E - 04 8 3E - 01 \$6-120 1.8E-01 1.8E + 02 1.8E + 08 Pa-233 9.3E-03 9.3E+00 8 3E +03 Be-Ad 1.4E -- 01 1.4E + 02 1.4E + 06 Pp-234 9.3E+01 9 3E - 02 8 3E + 04 Sc.48 4.0E - 04 4.0E -01 4.0E + 02 Po-203 8.3E - 02 | 8.3E + 01 8 3E + 04 Bo-47 1.1E-01 1.1E + 02 1.1E+08 Pb-205 1.2E - 02 1.2E+01 1.2E + 04 Bc-48 1.1E + 01 1.1E-02 1.1E+04 Pb-209 1.1E+01 1.1E+04 1.1E+07 Bc-49 1.0E+01 1.0E + 04 1.0E + 07 Pb-210 8 SE - 06 8 5E+01 5.5E - 02 Ba-72 1.6E-01 1.8E + 02 1.8E+05 PD-211 1.2E-01 1.2E+06 1.2E+02 84-75 1.1E-03 1.1E + 00 1.1E+03 PD-212 6.DE - D3 8 DE + DO 6 DE + 03 Bo-79 6 9E - 03 8 9E + 00 6.9E+03 Pb-214 1.2E - 01 1.26 + 02 1.2E+06 B-31_ 4.7E+00 7.2E-04 4.7E+03 4.7E+08 Byl. 103 2.1E-01 21E+02 2 1E + 06 8-32 7.2E -01 7.2E+02 Pd-107 8.2E+01 8.2E - 02 8 2E + 04 Brn-147 1.4E - 05 1.4E - D2 1.4E+01 Pd-108 8 4E -01 9 4E + 02 9 4E+06 Brn-181 3.5E -- D2 3.5E + 01 3.5E + 04 Pm-143 7.6E - 04 7.8E+02 7.6E-01 Sm-153 24E-01 2 4E + 02 2.4E + 05 Pm-144 1.1E - 04 1.1E-01 1.1E+02 80-113 1.9E - 03 1.9E + 00 1.9E + 03 Pm-145 5.2E - 04 5.2E - 01 8.2E + 02 80-117m 2.3E+01 2.3E+04 2 3E - 02 Pm-148 4 4E - 05 4 4E+01 4.4E-02 Se-119m 2 BE - D2 2 8E + 04 2 8E + 01 Pr. 147 2.6E-02 2 8E + 61 2 8E + 04 80-129 1.8E - 02 1.8E + 01 1.8E + 04 Pm-148 1.7E - 02 1.78 + 01 1.7E+04 Bn-125 7.2E - 03 7.2E+00 7.2E + 03 Pro. 148 " 7.6E - 04 7.68-01 7.6E + 02 Sn-126 4.7E - 06 4.7E - 03 4.7E + 00 2 8E-01 Pm-149 2 8E + 02 2 8E + 05 81-02 1.9E - 03 1.9E + 00 1.9E + 03 Pm-151 9.2E .. 01 1.2E + 02 1.2E + 05 34.42 1.9E - 03 1.9E + 00 1.9E + 03 Po-210 9 3E - 05 9 3E - 02 9.3E+01 Br -85m 1.5E + 00 1.5E+03 1.5E + 06 Pr.142 28E-01 2 8E + 02 2 8E + 05 8r-87m 1.2E+00 1.2E+03 1.2E+08 Pr-143 1.0E - 01 1.0E + 02 1.0E + 05 8/-89 21E-02 21E+01 2.1E+04 84.144 1.5E+01 1.5E + 04 1.5E+07 \$1.90 5.2E - 04 8.2E - 01 5.2E + 02 \$4.191 6 4E - 02 8 4E+01 6 4E + 04 8-91 1.2E+05 1.2E - D1 1.2E+02 PL-183 21E-02 2 1E+01 2.1E+04 8--92 2.5E - D1 2.5E + 02 2.5E+06 SIL 183m 4 8E - 01 4 88 + 02 4 85 + 05 78-182 4 4E - 04 4.4E+02 4 4E -- 01 1.4E+02 PL 195m 1.4E-01 1.4E+05 TD-157 2.2E - 03 2.2E+00 2.2E + 03 P1-197 1.1E+00 1.1E+03 1.1E+06 Tb-160 8 4E - 04 8 4E - 01 8 4E + 02 Pg-127m 3 6E + 00 3 8E + 03 3 8E + 08 PC-95 9.0E - 02 9.0E+01 9.0E + 04 PU-238 7.0E - 06 7.0E - 03 7.0E + 00 70-05m 1.4E -- 03 1.4E+00 1.46 + 03 Pu-237 2 3E - D2 2 3E + 01 2 3E + 04 To-BE 5 6E - 03 8 8E + 00 8 6E + 03 PU-238 2.7E - 06 2 7E - 03 2 7E + 00 9c-96m 7.0E - 01 7.0E + 02 7.0E + 06 Pu 239 2 5E - 06 2 5E - 03 2 5E + 00 Tc-87 1.5E - 03 1.5E+00 1.5E+03 PU-240 2 5E - D6 2 5E + 00 2 5E - 03 Te-97m. 7.2E - 02 7.2E+01 7.2E+04 PU-241 1.3E - 04 1.3E - 01 1.3E + 02 Tc-98. 6 AF - DA 6 4E -- 03 6.4E+00 Pu-242 2.5E - 06 2 5F - 03 2.5E + 00 To-99. 8.0E+03 8 DE - 03 9.0E + 00 Pu-243 3 8E + 00 3 8E + 03 3 8E + 06 Tr. 997 1.48 + 00 1.42 - 03 FV-244 2 4E - 06 2 4E - 03 2 4E + 00 Te-101 3 85 + 00 3 8E + 03 3 6E + 06 Ph. 245 2.1E - 01 2 1E+02 2.12 + 06 Te-121 6.0E - 03 6 OF 4 00 # DE - DE 4 05 - 03 4.88 400 4 8E + U3 Ta-121m 5.3E - 04 5 3E - 01 8.3E + 02 Ra-223 1.3E - 04 1.3E - 01 1.3E + 02 Te-123 1.2E-03 1.25 + 00 1.2E + 03 Ra-224 3.28 -01 3.2E - 04 3.2E + 02 Te-123m 2.7E - 03 2 7E + 00 2.7E+03 Ra-225 1.3E - 04 1.3E - 01 1.35 + 02 Te-125m 1.5E - C2 1.58 + 04 1.5E + 01 Ra-226 5 5E - 06 5 5E - 03 5 5E + 00 Te-127 2.9E+00 2 9E + 03 2 9E + 06 Ra-228 1.3E - 06 1.3E - 02 1.3E + 01 Te-127m. 7.3E - 03 7.3E + 00 7.3E + 03 4.2E - 01 4.2E + 02 4.2E+08 Te-129_ 9.5E + 00 6.5E+06 8.5E+03 Rb-83 1.4E - 03 1.4E+00 1.4E + 03 Te-129m. 8 1E - 03 8.1E+00 6.1E+03 PE-BA 2.0E - 03 2 0E + 00 2 DE + CO Pe-131 -9.4E -- 01 8 4E + 02 8 4E + 05 Day Bell 1.7E - 02 1.7E + 01 1.7E + 04 94-131m 1.8E - 02 1.8E+01 1.8E + 04 Ptb-87 1.0E - 02 1.0E+01 1.05 + 04 Te-132 -6.2E - 03 6.2E+00 8.2E+03 1.7E+00 POE-AR 1.7E + 03 1.7E+06 Ta-183 1.2E + 00 1.2E + 03 1.2E + 06 P65-80 6 4E - 01 8.4E+02 8 4E + DS Ta-133m 2.9E - 01 2 9E + 02 2.9E + 06 Ro - 184 1.8E - 03 1.88+00 1.8E + 03 Ta-124 4 4E - 01 4 4E + 02 4.4E+06 Re-184m 3.6E - 04 3.6E-01 3 8E + 02 Th-228 3.DE - 02 3.0E + 01 3.0E+04 Na-186 1.9E-01 1.9E + 02 1.9E+05 77-227 6 4E - D6 6 48 - 02 8 4E + 01 Pa-187 9 3E + 06 9 3E + 00 8.3E+03 Th-220 2.9E - D6 296+00 2 BE -- 03 3.7E - 01 3.7E+02 3.7E+05 Th-229 4.9E - 07 4.9E - D4 4.9E - 01 PD-103 1.7E+02 1.7E + 05 1.7E+06 Th-230 3.2E - 06 3.2E - 03 3.2E + 00 Ph-108 3.4E - 01 3 4E + 02 8 4E - 01 3.4E+06 Th-231 8 4E + D2 8 4E+08 **PU-97** 8.3E - 02 8.3E + 01 8.3E + 04 Th-232 8.DE - 07 8.0E - 04 # DE -- 01 Mu-103 3 1E-03 3.1E+00 3.1E+03 Th-234 206-02 20E+01 2.0E+04 Pu- 105 2 9E + 02 2 PE - 01 2.9E + 06 Photo 8.2E - 06 \$ 2E + 00 5.2E - 03 Pu-108 8 RE - 04 5.9E -- 01 8.9E + 02 T-45 4.0E -- 01 4.0E + 02 4.0E + 05 8-35 _ 7.5E + 04 7.5E - 02 7.5E+01 TI-200 4 4E - 02 4.48+01 4.4E+04 Bb-117 2 0E + 08 2.0E+00 2 DE + 03 TL-201. 1.8E - 01 1.8E + 02 1.8E + 06

TABLE 1 .- ANNUAL POSSESSION QUANTI-TABLE 1 .- ANNUAL POSSESSION QUANTE TIES FOR ENVIRONMENTAL COMPLI-TIES FOR ENVIRONMENTAL COMPLI-ANCE-Continued

CArrual Possession Quantities (QL/vet)

Redonucide	Gase- ous form*	Liquid/ powder forms	Sold form*
U-891		1.4E+02	1.4E + 00
U-832		1.35 -03	1.98 + 60
U-833	_ 7.8E - C6	7.6E 03	7.8E + 00
U-234	7.8E - 00	7.6E-03	7.8E + 00
U-235		7.0E - 03	7.0E + 00
U-236		8 4E -00	8 4E + DO
U-237		4.7E+01	4.7E+04
U-230		8.8E - 00	8.6E+00
U-839	- 3E + DO	8.3E+03	8.3E + 06
U-940	1.8E-01	1.8E + 02	1.8E + 06
V-48	1.4E 03	1.4E+00	1.4E + 03
V-40		1.3E + 03	1.3E +98
W-101		1.1E+01	1.1E+04
W-185		1.88 + 02	1.8E + 06
W-187	1.1E-01	1.1E+02	1.1E+06
W-188		1.0E+01	1.0E + 04
Xe-122		7.8E + 01	7.8E + 04
Xe-123,	1.88 +00	1.66 +00	1.8E + 05
Xe-125			
Xe-127		-	
Xe-129m	7.86 + 01	-	Assessment of the Party of the
Xe-131m	1 2E + D2	-	
Xo-133	S.2E + 01		-
Ke-133m		-	-
Xo-135			-
Xe-135m			-
Ka-138	. 9.9E - 01	-	
Y-86		2.8E+01	2.8E + 04
Y-87	2.3E - 02	2.3E + 01	2.3E + 04
V-88		2.5E - 01	2.5E+03
Y-90		1.1E + 02	1.1E+06
Y-80m	4 3E - 01	4.3E+02	4.3E + 06
V-01	1.0E-03	1.8E+01	1.8E + DM
V-91m	1.6E + 00	1.8E+03	1.8E + 08
Y-02	7.0E-01	7.0€ + 02	7.0E + 06
Y-93	3 BE - 01	3 8E + 02	3 BE + 06
YD-189	5 SE - 03	5 5E + 00	8.5E + 03
70-178	21E-01	21E+02	2.1E+06
20-82	8 BE - 02	8 6E + 01	8 88 + 04
2m85	4 4E - 04	4 4E - D1	4 4E + 02
Zn-69		2.72+04	8.7E + 07
ZN-69M	2 DE - 91	2.0E+02	2.0E + 06
Pr.88 Lr.88	2 45 - 02	2 45 - 01	2 45 + 04
. 80	27E-04	27E-01	2.7E+02
U-90 minute annumenton	The second second		
U-89	1.6E - 02	1.6E + 01	1.8E + 04
t/-89	1.6E - 02 2.8E - 03	2.8E+00	1.8E + 04 2.8E + 03
2-89 2-83 2-95 2-95	1.6E - 02 2.8E - 03 6.4E - 04		

"Radionuclides boiling at 100 °C or term, or est-posed to a temperature of 100 °C, must be considered it gets. Capsules containing redionuclides in liquid or powder form can be considered to be

solids.

"Mo-99 contained in a generator to product
Technetum-96 can be assumed to be a solid

2. Table of Concentration Levels

(a) Table 2 may be used for determining if facilities are in compliance with the standard.

2. The concentration table as applied to emission estimates can only be used if all releases are from point sources and concentrations have been measured at the stack or vent using EPA-approved methods. and the distance between each stack or vent and the nearest resident is greater than \$ times the diameter of the stack or went. Procedures provided in Ref. (1) shall be used to determine compliance or exemption from reporting by use of Table 2

TABLE 2.-- CONCENTRATION LEVELS FOR | TABLE 2.-- CONCENTRATION LEVELS FOR ENVIRONMENTAL COMPLIANCE-CONTIN-

Med			DIRC.				
Radio- Purosos	Concen- tration (Cu. m²)	Radio- Pucide	Concentration (CL/ m²)	Radio	Concen- instan (CL/m²)	Radio- ruolide	Concentration (Ci/m²)
8/-90	146-14	T-45	4.86-10	Te-131_	8.1E 11	Xe-123_	1.8E - 09
Br-91	B.1E-91	TI-200	4.5E-11	To-	1.DE - 12	Xa-138_	1.1E-11
Br-92	28E-10	TI-201	1.0E 10	131m.			
Ta-182	4.5E - 13	11-203	8.0E - 12	Te-132	7.1E 13	Xe-127	8.3E 09
75-157_	8.1E-12	Th-204	1.2E 18	Te-133	8.1E - 90	Xa-	9.1E-08
TD-160	7.7E - 13	Trn-170	8.3E - 18			1.29m.	
Tc-95	1.0E - 10	7m-171		Te-	R.RE 10	Xa-	R.BE - 07
10-95m _	1.4E-12	U-230	1.8E - 14	133m		18150	
Yc 96	B. 8E - 12	U-231		To-134	8.3E - 10	Xe-133_	8.2E - 06
Tc-96m	8.7E - 10	W232		Th-226_	8.4E-11	Xa-	7.1E-08
70-87	_7.1E - 13	U-233				1.3:3m.	
Tc-97m	7.1E-12	U-234	7.7E - 18	Th-227_	8.8E-14	Xe-135	8 1E - 00
Tc-98	6.7E-15	U-235	7.1E - 18	Tn-228	8.1E-18	No-	8.05-08
TC-90	1.4E - 13	U-236			W-16-19	136m.	
Tc 99m _	1.7E - 09	U-237		Th-229	5.3E - 18	XA-139	1.2E - 08
To-101	4.58 - 09	U-238	8.3E - 15	Th-230	2 4E - 18	Y-86	3.0E - 11
Te-121	1.0E-12	U-239		17-231	2.9E - 10	Y-87	1.7E-11
To-	1.2E - 13	N-540	1.3E - 10	Y-88	2.7E - 13	21-85	8.1E-14
121m.		1	2.44 .22	Y-90	1.35 - 11	2:1-89	8.2E 08
Te-123_	1.4E - 13	V-48	1.DE 12	Y-BOTH	1.9E - 10	2n-80m	1.7E - 10
To-	2.0E - 13	V-49	1.88 - 10	Y-01	2.1E-12	21-88	8.4E - 11
123m	247 44	l 1		Y-91m_	1.3E - 00	2:48	2.1E-13
Te-	3.6E-13	W-181	8.7E - 12		8.3E - 10		1.3E - 11
125m.	1.05 - 00		*** **	Y-92	2.9E - 10	2/49	2.0E - 18
Te		W-185	2.8E - 12			2/-87	
127m	1.65 - 13	W-187	7.7E - 11	YD-189	9.7E - 12	2) 465	6.7E - 18
Te-129_	7.75 - 09	W		Yb-178_	4.3E - 11	21-87	\$.BE 11
Ye-		W-188	8.3E 13	21-62	8.1E-11	1	
1.29m	1.41-13	X4-122	B.1E-11	-	THE RESERVE OF PERSONS ASSESSED.		

ENVIRONMENTAL COMPLIANCE-CONTIN-Puper.

8. References

- (1) Environmental Protection Agency. "A Guide for Determining Compliance with the Clean Air Act Standards for Radionuclides Emissions from NRC-Licensed and Non-DOE Federal Facilities", EPA 520/1-89-002. October 1986.
- (2) Environmental Protection Agency. "User's Guide for the COMPLY Code", EPA \$20/1-89-003, October 1986.
- (3) Environmental Protection Agency. "Background Information Document Procedures Approved for Demonstrating Compliance with 40 CFR part 81, subpart I'. EPA 820/1-89-001. January 1966.
- (4) National Council on Radiation Protection and Messurement, "Screening Techniques for Determining Compliance with Environmental Standards" NCRP Commentary No. 2, Revision of January 1989 with addendum of October, 1986.
- [FR Doc. 89-28330 Filed 12-11-89: 11:12 am] BYLLING COOK \$540-88-86

ENVIRONMENTAL PROTECTION AGENCY

[FRL-4830-7]

FUN 2060-AE39

National Emissions Standards for Radionuclide Emissions From Facilities Licensed by the Nuclear Regulatory Commission and Federal Facilities Not Operated by the Department of Energy

AGENCY: Environmental Protection Agency

ACTION: Notice.

SUMMARY: This notice confirms that 40 CFR part 61, subpart I, is presently in effect for two categories: (1) Facilities licensed by the Nuclear Regulatory Commission (NRC) or NRC Agreement States except for commercial nuclear power reactors and (2) all federal facilities not operated by the Department of Energy (DOE). The effectiveness of Subpart I is presently staved for commercial nuclear power reactors. The previous stay of Subpart I for NRC and Agreement State licensees other than nuclear power reactors expired on November 15, 1992, and has not been extended or renewed. All NRC and Agreement State licensees other than nuclear power reactors, as well es federal facilities not operated by DOE. are now subject to all applicable provisions of subpart I. Each affected facility must demonstrate compliance for calendar year 1993 with the ennual emission standard set forth in 40 CFR 61.102, utilizing the procedures specified in 40 CFR 61.103. Those facilities which are not exempt from reporting requirements under 40 CFR 61.104(b) must submit the annual report concerning emissions for calendar year 1993 required by 40 CFR 61.104(a) to EPA by March 31, 1994. Facilities that are unable to gather the necessary information and report to EPA by March 31, 1994 should request an extension from the appropriate EPA regional office. EPA will consider extensions of up to 60 days.

DATES: 40 CFR part 61, subpart I became effective for NRC and Agreement State licensees other than commercial nuclear power reactors on November 16, 1992. Those facilities which are not exempt from reporting requirements under 40 CFR 61.104(b) must submit the annual report concerning emissions required by 40 CFR 61.104(a) for calendar year 1993 to EPA by March 31, 1994. Facilities that are unable to gather the necessary information and report to EPA by March 31, 1994 should request an extension from the appropriate EPA regional

office. EPA will consider extensions of up to 60 days.

FOR FURTHER INFORMATION CONTACT: David P. O'Very, Air Standards and Economic Branch, Criteria and Standards Division (66021), Office of Radiation and Indoor Air, Environmental Protection Agency, Washington, DC 20460, (202) 233-9762.

SUPPLEMENTARY INFORMATION:

I. Background

On October 31, 1989, EPA promulgated National Emission Standards for Hazardous Air Pollutants (NESHAPS) to control radionuclida emissions to the ambient air from several source categories. This rule was published in the Federal Register on December 15, 1989 (54 FR 51654).

Subpart I limits radionuclide emissions to the ambient air from NRClicensed facilities to that amount which would cause any member of the public to receive in any year an effective dose equivalent (ede) of 10 millirem, of which no more than 3 millirem ede may be from radioiodines. These limits involved application to radionuclide emissions of the Agency's policy for regulating section 112 pollutants which was first announced in the benzene NESHAP (54 FR 38044 September 14. 1989), and utilized the two-step process outlined in NRDC v. EPA, 824 F.2d at 1146 (1987) (the Vinyl Chloride decision).

At the time of promulgation of the redionuclide NESHAPS rule, EPA granted reconsideration of subpart I based on information received late in the rulemaking from the NRC and the National Institutes of Health (NIH). The NRC was concerned about duplicative regulation of its licensees by NRC and EPA, while the NIH was concerned with the potential negative effects of the standard on the use of nuclear medicine in patient treatment. EPA subsequently extended the stay of the effective date of subpart I on several occasions, pursuant to the authority provided by section '10(d) of the Administrative Procedure Act (APA), 5 U.S.C. 705, and section 301(a) of the Clean Air Act, 42 U.S.C. 7601(a). (55 FR 10455, March 21, 1990; 55 FR 29205, July 18, 1990; and 55 FR * 38057, September 17, 1990)

In 1990, Congress enacted legislation comprehensively amending the Clean Air Act, which included a section addressing the issue of regulatory duplication between EPA and NRC Section 112(d)(9) of the CAA provides, that no standard for radionuclide emissions from any category or subcategory of facilities licensed by the Nuclear Regulatory Commission (or an

Agreement State) is required to be promulgated under Section 112 if the Administrator determines, by rule, and after consultation with the Nuclear Regulatory Commission, that the regulatory program established by the Nuclear Regulatory Commission pursuant to the Atomic Energy Act for such category or subcategory provides an ample margin of safety to protect the public health. This provision enables EPA to eliminate duplication of effort between EPA and NRC so long as public health is protected with an ample

margin of safety. On April 24, 1991, EPA issued a final rule staying until November 15, 1992 the effectiveness of subpart I for all categories of facilities licensed by the NRC or NRC Agreement States except nuclear power reactors (56 FR 18735). The purpose of this stay was to avoid the costs and disruption associated with formal implementation of subpart I while EPA was collecting additional information necessary to make the substantive determination for these facilities contemplated by CAA Section 112(d)(9). NESHAPS Rulemaking on Nuclear Regulatory Commission and Agreement State Licensees Other Than Nuclear Power Reactors, EPA 430-R-92-011 (November 1992). (On August 5. 1991, EPA proposed to rescind subpart I for commercial nuclear power reactors (56 FR 37196) and issued a final rule staying the effectiveness of subpart I for nuclear power reactors during the pendency of the substantive rulemaking on rescission (56 FR 37158)).

The Natural Resources Defense Council (NRDC) petitioned for judicial review of the rule staying subpart I for NRC and Agreement State licensees other than nuclear power reactors. On September 25, 1992, the DC Circuit Court of Appeals issued a decision holding that EPA had exceeded its authority by staying subpart I while it was collecting the information required to make a finding under CAA section 112(d)(9). NRDC v. Reilly, 976 F.2d 36

(DC Cir. 1992). EPA completed its investigation of radionuclide amissions by NRC and Agreement State licensees other than nuclear power reactors while the litigation in the DC Circuit Court concerning the rule stoying subport I for these facilities was still pending. On September 18, 1992, EPA announced that it intended to propose rescission of subpart I for these facilities and proposed a rule which would further stay subpart I during the pendency of the substantive rulemaking on rescission (57 FR 43173). Although EPA did propose to rescind subpart I for NRC and Agreement State licensees other

than nuclear power reactors on December 1, 1992 (57 FR 56877), EPA did not adopt the proposed stay. EPA concluded that the Court's ruling in NRDC v. Reilly had left substantial doubt concerning the legality of any further stay of subpart I for those facilities and decided not to issue any further stay. As a result, the rule staying subpart I for NRC and Agreement State licensees other than nuclear power reactors expired by its own terms on November 15, 1992, and support I took effect for these facilities on November 16, 1992 (the official mandate implementing the DC Circuit Court's decision in NRDC v. Reilly was not transmitted until after the stay had already expired).

II. Implementation of Subpart I as Applied to NRC-Licensed Facilities Other Than Nuclear Power Reactors

Subpart I became effective on November 16, 1992 for all categories of facilities licensed by NRC or Agreement States except for commercial nuclear power reactors. Subpart I was already in effect prior to that time for federal facilities not operated by DOE.

At this time, EPA has not taken final administrative action concerning the rule to rescind subpart I for NRC and Agreement State licensees other than commercial nuclear power reactors which it proposed on December 1, 1992. EPA is recommending that NRC make certain changes in its regulatory program in order to fully support the substantive finding which is required by CAA Section 112(d)(9) before EPA may rescind subpart I for NRC licensees other than commercial nuclear power reactors. EPA and NRC are presently engaged in consultations concerning specific actions which would strengthen the basis for rescission of subpart I for this category, but it is unlikely that any agreement between EPA and NRC concerning additional measures could be implemented quickly. While the rulemaking concerning rescission is still pending. EPA advises all facilities not to presume that EPA will take any particular action in that rulemaking and

to proceed in the meantime with all

legally required compliance activities. Because subpart I first took effect for NRC and Agreement State licensees other than nuclear power reactors near the end of 1992, EPA has determined that affected facilities were not required to demonstrate compliance with subpart I for calendar year 1992. However, each NRC or Agreement State licensee, as well as each federal facility not operated by DOE, is now subject to all provisions of subpart I. Each affected facility must demonstrate compliance for colendar year 1993 with the annual emission standard set forth in 40 CFR 61.102. utilizing the procedures specified in 40 CFR 61.103. Those facilities which are not exempt from reporting requirements under 40 CFR 61.104(b) must submit the annual report concerning emissions for calendar year 1993 required by 40 CFR 61.104(a) to EPA by March 31, 1994 Facilities that are unable to gother the necessary information and report to EPA by March 31, 1994 should request an extension from the appropriate EPA regional office listed below. EPA will consider extensions of up to 60 days.

As required by 40 CFR 61.04, all requests, reports, applications, submittals, and other communications to EPA pursuant to the standards in subpart I should be submitted in duplicate to the appropriate Regional Office of the EPA to the attention of the Director of the Division indicated in the following list of EPA Regional Offices:

Region I (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont), Director, Air, Pesticides, and Toxics Management Division, U.S. Environmental Protection Agency, John F Kennedy Federal Building, Boston, MA 02203.

Region II (New Jersey, New York, Puerto Rico, Virgin Islands), Director, Air and Waste Management Division, U.S. Environmental Protection Agency, Federal Office Building, 26 Federal Plaza, New York, NY 10228.

Region III (Delaware, District of Columbia, Maryland, Pennsylvania, West Virginia). Director, Air, Toxics and Radiation Management Division, U.S. Environmental Protection Agency, 841 Chestnut St., Philadelphia, PA 19107.

Region IV (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee), Director, Air, Pesticides and Toxics Management Division, U.S. Environmental Protection Agency, 345 Caurtland Street NE, Atlanta, GA 30365

Region V (Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin), Director, Air and Radiation Division, U.S. Environmental Protection Agency, 77 West Jackson Blvd., Chicago, IL 60604-3590.

Region VI (Arkansas, Louisiana, New Mexico, Oklahoma, Texas), Director, Air. Pesticides, and Toxics Division, U.S. Environmental Protection Agency, 1443 Ross Avenue, Dallas, TX 75202.

Region VII (Iowa, Kansas, Missouri, Nebraska), Director, Air and Toxics Division, U.S. Environmental Protection Agency, 726 Mignesota Avenue, Kansas City, KS 66101

Region VIII (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming), Director, Air, Radiation, and Toxics Division. U.S. Environmental Protection Agency, 999 18th Street, Suite 500, Denver, CO 80202– 2460.

Region IX (American Samoa, Arizona, California, Guain, Hawaii, Nevada), Director, Air & Toxics Division, U.S. Environmental Protection Agency, 75 Hawthorne Street, San Francisco, CA 94105.

Region X (Alaska, Oregon, Idaho, Washington), Director, Air & Toxics Division U.S. Environmental Protection Agency, 1200 Sixth Avenue, Scattle, WA 98101.

Facility operators and owners desiring further information should write to Eleanor Thornton, Air Standards and Economic Branch, Criteria and Standards Division (6602]). Office of Radiation and Indoor Air, Environmental Protection Agency. Washington, DC 20460 to obtain a copy of EPA's Guide for Determining Compliance with the Clean Air Act Standards for Radionuclide Emissions from NRC-Licensed and Non-DOE Federal Facilities, the COMPLY computer code, and the User's Guide for the COMPLY Computer Code.

Dated: January 20, 1994.

Carol M. Browner,

Administrator.

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