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Title TOP-001-02 PROGRAM ARCHITECTURE RELATIONAL DATABASE
WORK INSTRUCTION

EFFECTIVITY AND APPROVAL

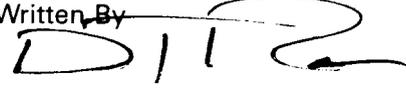
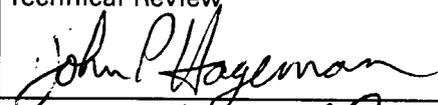
Revision 0 of this procedure became effective on August 15, 1988. This procedure consists of the pages and changes listed below.

<u>Page No.</u>	<u>Change</u>	<u>Date Effective</u>
1-34	0	8/15/88

SUPERSEDED

Supersedes Procedure No. None

Approvals

Written By 	Date <u>8/15/88</u>	Technical Review 	Date <u>8/15/88</u>
Quality Assurance 	Date <u>8/15/88</u>	Cognizant Director 	Date <u>8/15/88</u>

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WORK INSTRUCTION

1. PURPOSE AND SCOPE

The purpose of this procedure is to provide instructions concerning the content of the Program Architecture Support System (PASS) Relational Database. This is one of a series of procedures prepared by the WSE&I Subelement to provide the necessary controls for development and maintenance of the PA. This instruction is provided in accordance with the provisions of Technical Operating Procedure (TOP) 001, "Program Architecture Development and Maintenance".

The overall process for PA development is depicted in TOP-001, Figure 1, "Process Diagram for Developing and Maintaining the Program Architecture" (commonly referred to as the Program Architecture Process Diagram [PAPD]). Supporting the PA is a Relational Database that will contain the information developed during the conduct of that process plus information necessary for the management of that process and the effective utilization of the database.

This procedure is directed to the analysts who will provide input to the PA Relational Database. It is designed to ensure complete and consistent input through provision of the following specific instructions for each field of the database:

- Definition of the field title where necessary
- Content description in terms of, as applicable, the type, breadth and depth of input; string lengths and delimiters; etc.
- Format; i.e., field size. [Field size will be developed following final approval of PA Database fields and their content.]

Examples of the required content of each field will be developed prior to and during the first iterations of the database. These examples will be provided by the WSE&I Subelement in the form of memoranda to the Elements/Subelements.

This procedure is effective upon completion of the review and revision of Milestone No. 12 data (modification Milestone I7, Step 1) by the Program Architecture Review Committee in accordance with TOP-001-01. That

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corresponds to (1) the completion of step 1 of the PAPD and (2) the development of information for fields 1, 2 and 3 of the PA Database.

2. DEFINITIONS

2.1 PROGRAM ARCHITECTURE

Program Architecture (PA) is the overall system description for the Nuclear Regulatory Commission High-Level Waste (NRC-HLW) repository licensing system.

2.2 PROGRAM ARCHITECTURE SUPPORT SYSTEM

The Program Architecture Support System (PASS) is a computer-based system comprised of (1) the PA Relational Database, (2) the computer hardware and software necessary to construct, protect, interrogate and manage that database, and (3) the network hardware and software that allows controlled remote interrogation of the PA Database and provides the interfaces with the Open Item Management System, the Licensing Support System and other remote databases. The PASS is the management tool for use in developing, prioritizing, executing, and monitoring the numerous activities that comprise the NRC-HLW repository licensing program. PASS is also used to integrate and manage the documents, databases, and activity schedules developed by the Center in support of the Program Architecture. The PASS will be used to process, analyze, display, and report PA information in various formats for resource plans, Gantt charts, and CPM networks.

2.3 PROGRAM ARCHITECTURE RELATIONAL DATABASE

The PA Relational Database is the repository for the principal information necessary to (1) provide guidance and consultation for Department of Energy (DOE) preclicensing plans and activities and (2) develop and execute the overall NRC regulatory program for NWPA waste management activities. It is made up of several data and text fields whose number and, in some cases, content may change as the needs of the overall program dictate. Among the fields are the complete texts of the applicable statutes and regulations; individual regulatory requirements; Elements of Proof for such requirements; Uncertainties; Information Requirements; schedules and costs; and summaries of Compliance Demonstration Methods planned by DOE, NRC Compliance Determination Methods, and Uncertainty Reduction Methods.

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3. RESPONSIBILITY

3.1 The WSE&I Subelement Manager is delegated responsibility for PA Database development and maintenance activities described in this work instruction.

3.2 Other responsibilities are as described in TOP-001, Section 3.

4. CRITERIA

The fields to be contained in the PA Database and the criteria for their contents are presented in Attachment A to this procedure entitled, "PA Relational Database Field Definitions and Contents". The order in which the fields are developed is shown in the PAPD. The order in which the fields are listed in Attachment A of this procedure reflects, instead, the order in which the fields are displayed.

5. PROCEDURE

5.1 The development and maintenance of the PA Database shall be conducted in accordance with the requirements of TOP-001, Sections 4.A.4.2 through 4.A.4.8, and Attachment A to this procedure.

5.2 The WSE&I Subelement Manager may elect to select a subset (portion) of the PA Database fields and/or applicable regulations for development and/or review. This approach may be required because of such considerations as prescribed priorities, schedule demands, or limitations on resources. If this approach is taken, the WSE&I Subelement Manager shall ensure the documentation of the subset selected, the rationale for choosing the subset, the approval of the Director of SE&I and the Technical Director, and the concurrence of the NRC CNWRA Program Manager.

5.3 The identification, integration and review of the information to be included in the PA Database shall be accomplished in accordance with the process, including the order, displayed in the PAPD. Step 1 of the PAPD having been completed and verified, this procedure shall begin with Step 2, the analysis (and identification) of Regulatory Requirements. Step 2 will produce the information for Fields 4 through 12 of the PA Database. Several of the steps depicted in the PAPD will produce information for two or more fields of the PA Database. These are identified in Attachment A by a reference after each applicable field title to the PAPD step that will produce the information for that field.

5.4 The first action of PAPD Step 3 shall be the development of an Element of Proof (EOP) Hierarchy to define and display the logical

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relationships of the Elements of Proof, and to provide a structured basis for the development of proofs. An example of an EOP Hierarchy is shown in Attachment B.

5.4.1 Where the Regulatory Requirement is clear and complete, causing no Regulatory and/or Institutional Uncertainties to arise, the Elements of Proof can be posed directly from the Regulatory Requirement. In such cases, the EOP Hierarchy and EOPs shall be entered into this field of the Database. The development of inputs shall then continue with the PAPD logic stream defined by Steps 3, 5, 6, etc.

5.4.2 Where the Regulatory Requirement gives rise to Regulatory or Institutional Uncertainty, the logic stream progresses from PAPD Step 2 directly to Steps 4a and 4b. In such cases, the EOPs shall not be developed in accordance with paragraph 5.4.1 above. Uncertainties and Uncertainty Questions, Uncertainty Reduction Methods, and Information Requirements needed to address the Uncertainty shall be developed in accordance with Attachment A. An EOP Hierarchy shall be developed and EOPs shall be postulated as part of the Uncertainty Reduction Method. The Elements of Proof field is to remain blank until such time as the Regulatory and/or Institutional Uncertainty is resolved.

5.5 Following verification and acceptance of the information in accordance with the applicable Quality Assurance program (see Section 8), the information shall be entered in the Database. At that point the information shall come under change control.

5.6 The WSE&I Subelement Manager will oversee the development and maintenance of the PA Database. The NRC CNWRA Program Manager may assign one or more members of his staff to observe the development of Database inputs from time-to-time.

5.7 If in the course of developing or entering PA Database information, a participant becomes aware that additional criteria or instructions, or modification to existing criteria or instructions are needed, he/she shall immediately notify the WSE&I Subelement Manager concerning the suggested change(s). Approval of changes to be incorporated will be at the same level as approval of this work instruction. Upon approval, the following actions shall be taken:

- (1) This work instruction shall be "red lined" and initialed to indicate the changes,
- (2) It shall be distributed to all affected parties with instructions for implementing the changes for all new work,

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- (3) The Director of SE&I and the Technical Director (under advisement from the WSE&I Subelement Manager) shall determine (a) whether the change requires reprocessing of information already developed and/or entered using the predecessor procedure, and if so, (b) the type and scope of reprocessing required, and (c) whether additional work instructions are required for the reprocessing,
- (4) As necessary, additional work instructions shall be prepared and reprocessing completed.

5.8 The WSE&I Subelement Manager and the Technical Director, with the assistance of the Director of Quality Assurance, shall conduct periodic checks of information development and entry against the criteria of Attachments A and B. Each check shall be documented using hardcopy, electronic media, or a combination of these. If the product is judged adequate, the development and/or entry activity will continue. In the event that the product is judged inadequate, further instruction, training, and/or examples shall be provided (1) for use in correcting the work that has already been completed and (2) to ensure that further work is adequate. A second cycle of checking shall then be conducted covering corrected work and new work of the same type.

5.9 One or more Program Architecture Review Committees (PARC) may be formed in accordance with TOP-001-01 to review and revise specified fields of the PA Database. Activities of such PARCs shall be controlled by work instruction(s).

6. FORMAT AND CONTENT GUIDE FOR INPUTS

6.1 The format and content of the information developed for, and input to, the PA Database shall be in accordance with Attachment A to this procedure.

6.2 Should the need for changes to format or content be identified in the process of development or review covered by this instruction, this need will be brought to the attention of the WSE&I Subelement Manager for disposition in accordance with Section 5.7.

7. RECORDS

Records shall be developed and maintained in accordance with Sections 4.A.4.3 through 4.A.4.6, and 4.A.4.8 of TOP-001. The electronic databases, "red-lined" procedures, and other evidences of modifications to the Database or this procedure described in Section 5 of this work instruction shall be developed as indicated and maintained in the Center

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files. Appropriate records shall be maintained of Quality Assurance surveillance, reviews and/or audits performed.

8. QUALITY ASSURANCE

A Quality Assurance program shall be implemented for this procedure in accordance with the provisions of Sections 4.A.4.7 and 4.A.4.8 of TOP-001. Either electronic or hardcopy objective evidence is acceptable for independent verification of the acceptability of work performed in accordance with this procedure.

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Attachment A to TOP-001-02

PA Relational Database Field Definitions and Contents

1. RECORD NUMBER

Content - An index number assigned from blocks of numbers provided by the Center to the developers of REGULATORY REQUIREMENTS. It serves as a means to identify, relate and retrieve REGULATORY REQUIREMENTS and associated Database fields.

Format - Field size: TBD characters.

2. STATUTE/REGULATION NUMBER [Program Architecture Process Diagram (PAPD) Step 1]

Content - The alphanumeric identifier of the applicable statute or regulation.

Format - Field size: TBD characters.

3. STATUTE/REGULATION TITLE (PAPD Step 1)

Content - The title of the above statute or regulation.

Format - Field size: TBD characters.

4. SUBPART NUMBER (PAPD Step 2)

Content - The alphanumeric identifier of the statute/regulation subpart that contains the REGULATORY REQUIREMENT.

Format - Field size: TBD characters.

5. SUBPART TITLE (PAPD Step 2)

Content - The title of the above statute/regulation subpart.

Format - Field size: TBD characters.

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6. SECTION (AND LOWER INDENTURE) NUMBERS (PAPD Step 2)

Content - The alphanumeric identifiers for the section, paragraph and, as applicable, lower indenture(s) that contains the REGULATORY TEXT (see Field 9, Regulatory Requirement).

Format - Field size: TBD characters.

7. SECTION (AND LOWER INDENTURE) TITLES (PAPD Step 2)

Content - All titles for the above section, paragraph and lower indentures that are given in the statute/regulation.

Format - Field size: TBD characters.

8. REGULATORY REQUIREMENT TOPIC (PAPD Step 2)

Content - This field contains the general subject and keywords of the REGULATORY REQUIREMENT in the next field. It is intended as a vehicle for consistent identification and consolidation of requirements related to a given topic.

The "subject and keywords" are actually alphanumeric character strings. These strings are separated by back-to-back commas followed by a space; e.g., sorption,, potentially adverse conditions,, waste form leaching. Keywords should be identified for all subject matters which would reasonably be the object of a search in the next field. This might include specific areas of program or technical interest (e.g., geochemical processes), conditions, criteria, procedures, theory, type of model, instrumentation, test or analysis. IN ALL CASES, THE SUBJECT AND KEYWORDS ARE RESTRICTED TO ITEMS THAT RECEIVE MEANINGFUL TREATMENT IN THE TEXT OF THE NEXT FIELD.

IMPORTANT: For maximum usefulness, subjects and keywords need to be (1) brief and specific [preferably three words or less], (2) terms that database users are most likely to have in mind when undertaking a search for a particular topic, and (3) maintained in a controlled list.

Format - Field size: TBD characters.

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9. REGULATORY REQUIREMENT (PAPD Step 2)

Definition - A statement of a requirement pertaining to the NWPA high-level waste management system, as quoted from one or more statutes, regulations, or other sources which have the force of law. Each such quotation, called a Regulatory Text, is an element of a source at or above the lowest level to which an alphanumeric identifier has been assigned [e.g., 10CFR60.131(a)(1)]. Thus, a REGULATORY REQUIREMENT is composed of one or more closely related REGULATORY TEXTS.

Content - This field contains a verbatim extract of each individual requirement (i.e., each REGULATORY TEXT). If the source (statute, regulation or other) contains text defining, explaining or qualifying the requirement or the means of demonstrating compliance with it, that text shall also be reproduced in this field. All alphanumeric identifiers shall be included with the text.

The preferred order of listing sections of REGULATORY TEXT is (1) primary REGULATORY TEXT beginning with 10CFR60, (2) associated (modifying or more detailed) criteria from the primary source regulation, and (3) REGULATORY TEXT from regulations incorporated by reference. Related REGULATORY TEXT from other agencies that is applicable to NWPA high-level waste and analogous NRC regulations not directly applicable to NWPA high-level waste will be noted in Field 12, Related Regulations. Guidance regarding application for exceptions, procedural guidance, and definitions will not be included here.

In the process of constructing a REGULATORY REQUIREMENT, analysts should be especially alert for primary, associated and referenced REGULATORY TEXT whose intent or applicability seems unclear or contradictory. These items shall be incorporated in the REGULATORY REQUIREMENT if the process above and the best available judgement so dictate. If incorporated or noted in Field 12, an appropriate UNCERTAINTY shall be included in Field 30 and a reference to the Uncertainty made in this field. The objective is to expedite presentation of these items to the NRC for early confirmation of interpretation or applicability.

Format - Field size: Variable length up to 32K characters.

NOTE: Early in the development of the PA Database, additional note fields will be provided to briefly record the bases for decisions made during the course of developing the content of key fields. An

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example would be the reason for excluding a particular REGULATORY TEXT from a REGULATORY REQUIREMENT. A note field will be provided for each of the following: REGULATORY REQUIREMENTS, ELEMENTS OF PROOF, NRC COMPLIANCE DETERMINATION METHOD, NRC UNCERTAINTIES, NRC UNCERTAINTY REDUCTION METHOD, and INFORMATION REQUIREMENTS.

10. REGULATORY REQUIREMENT APPLICABLE PERIOD (PAPD Step 2)

Content - This field identifies the phase(s) of the High-level Waste Management Program during which the REGULATORY REQUIREMENT applies. For example, requirements for Preapplication Review (60.15 - 60.18), Content of Application (60.21), and Siting Criteria (60.122) apply only during site characterization. Design Criteria (60.130 - 60.135) and Performance Confirmation (Subpart F) apply during the site characterization and operations phases. Sections 60.112 and 60.113 apply during the postclosure phase.

Format - Field size: TBD characters.

11. REGULATORY AGENCY (PAPD Step 2)

Content - This field identifies the agency with compliance determination authority for this regulatory requirement; e.g., NRC, DOT, EPA. When the regulatory agency is other than NRC, this identifies the agency with whom NRC will interact to assure satisfaction of mutual interests.

Format - Field size: TBD characters.

12. RELATED STATUTES AND REGULATIONS (PAPD Step 2)

Content - This field contains, in numerical order, the alphanumeric identifier or text description (paragraph, title, source and date) of other REGULATORY TEXT related to the subject of the REGULATORY REQUIREMENT (see Field 9) that are not appropriate for inclusion in the REGULATORY REQUIREMENT. RELATED STATUTES AND REGULATIONS are provided for information only.

The REGULATORY REQUIREMENT Notes will contain a summary of the rationale for selection of each RELATED STATUTE and REGULATION. The REGULATORY REQUIREMENT Notes will list the PA Database Identification Number(s) of the ELEMENTS OF PROOF that contain each 10 CFR 60 requirement cited as a RELATED REGULATION. Postulated ELEMENTS OF PROOF will not be so listed.

Format - Field size: TBD characters.

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13. RELATED ISSUES (Issues defined by agencies other than NRC) [Part of PAPD Steps 11 and 12]

Content - This field identifies "issues" related to this REGULATORY REQUIREMENT by source (e.g., DOE, State, Tribe) and by, as applicable, name and alphanumeric identifier of the issue. The full text of the issue(s) is included together with a document reference.

Format - Field size: TBD characters.

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14. ELEMENT OF PROOF TOPIC (PAPD Steps 3, 5 and 9)

Content - This field contains the principal subject and keywords of the ELEMENT OF PROOF in the next field. (One subject-keyword set for each ELEMENT OF PROOF.) It is intended as a vehicle for consistent identification and consolidation of required proofs that are of the same type and/or related to the same topic. (See Field 8 content description.)

Format - Field size: TBD characters.

15. ELEMENTS OF PROOF (PAPD Steps 3, 5 and 9)

Definition - ELEMENTS OF PROOF are what must be proven to support a conclusion that the REGULATORY REQUIREMENT has been met. All ELEMENTS OF PROOF must be embodied in the requirement itself. When REGULATORY and/or INSTITUTIONAL UNCERTAINTIES exist, ELEMENTS OF PROOF must be postulated. When this occurs, the postulated ELEMENTS OF PROOF are developed as a part of the UNCERTAINTY REDUCTION METHOD (PAPD Step 15, and Field 39).

ELEMENTS OF PROOF include those conditions, specifications, criteria, or procedures which will be the standard by which specific evidence will be compared to evaluate the degree to which the REGULATORY REQUIREMENT has been met.

Content - In general, DOE must prove (demonstrate):

- a. Compliance of the waste management system or specific facility, equipment, plan and/or procedure with the REGULATORY REQUIREMENT,
- b. Validity/applicability of the demonstration method (e.g., the theory, analytical method, model, test technique), and
- c. Acceptability of data used for demonstration (e.g., measurement techniques/instrumentation, data collection procedures, fidelity of environment simulation, sample size, areal distribution of measurements).

This field is to contain for each REGULATORY REQUIREMENT one or more statements that begin with "DOE shall demonstrate that", followed by a succinct definition of WHAT must be proven. HOW it is to be proven will be defined in Field 25, DOE COMPLIANCE DEMONSTRATION METHOD.

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Each such statement is an ELEMENT OF PROOF taken from the lowest level of a branch of the Element of Proof Hierarchy. Each of these ELEMENTS OF PROOF shall be augmented by ELEMENT(S) OF PROOF that provide explicit treatment of categories b and c above, where applicable.

A citation to the parent REGULATORY REQUIREMENT shall be included as part of each set of ELEMENTS OF PROOF (Hierarchy graphic and text). Each block of the Element of Proof Hierarchy shall also identify the principal REGULATORY TEXT upon which it is based and the associated REGULATORY TEXT(s) that act to modify or detail that principal text (see Attachment B).

These definitions are to include appropriate probability and/or confidence statements for proofs that involve spatially or temporally distributed parameters.

If an alternative ELEMENT OF PROOF is acceptable, it shall be clearly identified as such and included in this field. The primary ELEMENT OF PROOF and the alternative shall each clearly reference the other.

This field also is to contain general guidelines and criteria for acceptable DOE COMPLIANCE DEMONSTRATION METHOD(s) for each ELEMENT OF PROOF. Guidelines and criteria are intended to define the bounds of acceptable demonstration methods without specifying a particular approach; i.e., without prescribing HOW.

If the REGULATORY REQUIREMENT is expressed in deterministic terms or implies a deterministic proof, and a probabilistic approach is considered to be more appropriate or meaningful, a REGULATORY or TECHNICAL UNCERTAINTY shall be included in Field 30, Uncertainties, and a reference to the Uncertainty made here.

Format - Field size: Variable length up to 32K characters.

16. WHEN ACTION REQUIRED (PAPD Step 5)

Content - This field will contain the milestone and/or date by which the ELEMENT OF PROOF must be met to avoid impacting the overall schedule. Multiple entries shall be delimited by double comma and a space (see example under Field 8). Dates are to be in a YYYYMMDD format.

Format - Field size: TBD characters.

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17. COGNIZANT ELEMENT (PAPD Step 2)

Content - This field contains a single two-letter code that identifies the Center Element/Subelement assigned responsibility for actions related to the ELEMENT OF PROOF.

Format - Field size: 2 characters.

18. ESSENTIAL EXPERTISE - [NOTE: This field is for CNWRA management use. It will be retired upon completion of internal plans.]

Content - This field contains two-letter codes that identify the principal area(s) of expertise other than that of the Cognizant Element (Field 17) that are judged to be essential for actions related to the ELEMENT OF PROOF.

Format - Field size: TBD characters.

19. SUPPORT EXPERTISE - [NOTE: This field is for CNWRA management use. It will be retired upon completion of internal plans.]

Content - This field contains two-letter codes that identify the principal area(s) of expertise judged to be needed for actions related to the ELEMENT OF PROOF. These entries do not duplicate those of Fields 17 and 18.

Format - Field size: TBD characters.

20. EVALUATION FINDING TOPIC (PAPD Step 22)

Content - This field contains the general subject and keywords of the EVALUATION FINDING in the next field. It is intended as a vehicle for consistent identification and consolidation of findings related to a given topic. (See Field 8 content description.)

Format - Field size: TBD characters.

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21. EVALUATION FINDINGS (PAPD Step 22)

Definition - NRC staff judgment which reflects the merits of the Applicant's information to address the ELEMENTS OF PROOF and thus, the REGULATORY REQUIREMENT. EVALUATION FINDINGS are included in the Safety Evaluation Report prepared by the staff and submitted to the Licensing Board.

Content - The EVALUATION FINDING(s) applicable to each EOP in Field 15 will be referenced in this field.

Format - Field size: TBD characters.

22. DOCUMENT CODE

Content - This field will contain references to correspondence and technical documents related to the subject of the preceding EVALUATION FINDING, ELEMENTS OF PROOF or parent REGULATORY REQUIREMENT that may be selected as references or extracted and included in specific documents.

Format - Field size: TBD characters.

23. QA STATUS - [This is a temporary field for CNWRA use that will be retired upon completion of the first iteration of the PA Database.]

Content - This field contains a code that identifies the stage of QA verification of intended Database entries completed to date.

Format - Field size: TBD characters.

24. DOE COMPLIANCE DEMONSTRATION METHOD TOPIC (PAPD Step 22)

Content - This field contains the general subject and keywords of the DOE COMPLIANCE DEMONSTRATION METHOD in the next field. It is intended as a vehicle for consistent identification and consolidation of items related to a given topic. (See Field 8 content description.)

Format - Field size: TBD characters.

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25. DOE COMPLIANCE DEMONSTRATION METHOD (PAPD Step 22)

Definition - How DOE plans to present and support its claim that each ELEMENT OF PROOF has been met. That is, those test results and/or analyses, singly or in combination, that will be used and presented to the NRC to address each ELEMENT OF PROOF. "Analyses" includes but is not limited to methodologies, models, codes, designs, consensus, certification, plans, procedures, and audits of records.

Content - DOE compliance demonstration analysis and planning activities will be monitored and their results compared to the requirements of the ELEMENTS OF PROOF and to the NRC COMPLIANCE DETERMINATION METHODS. This approach will provide a basis for guidance to DOE that will help them (1) avoid unacceptable demonstration methods and (2) place realistic limits on characterization, research and demonstration efforts early in the planning and budgeting process.

As a result of the ongoing technical review and rulemaking processes, this field will be completed to contain for each ELEMENT OF PROOF a brief description (with appropriate references to published full descriptions) of the COMPLIANCE DEMONSTRATION METHOD(s) DOE has proposed to use and the status of NRC acceptance of the method(s).

The DOE COMPLIANCE DEMONSTRATION METHOD description must include the DOE demonstration strategy and one or more of the following, as applicable: (1) test methods, (2) analytical methods, and (3) performance confirmation methods (in accordance with 10CFR60, Subpart F). Contingency, backup or other alternative methods under serious consideration shall also be summarized and, if published, referenced. Where insufficiencies are found, appropriate TECHNICAL UNCERTAINTIES and/or OPEN ITEMS will be developed.

Format - Field size: Variable length up to 32K characters.

26. COMPLIANCE DEMONSTRATION STATUS (PAPD Step 22)

Content - This field will contain a description of the status of DOE efforts to conduct the tests and/or analyses that make up their COMPLIANCE DEMONSTRATION METHOD. This may include both quantitative status (e.g., number of tests completed versus planned, or confidence level realized versus desired) and qualitative status (e.g., the acceptability of a model, or the quality of a plan or

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procedure). The date(s) of the status report and information entered must be included in this field for each entry.

Format - Field size: TBD characters.

27. NRC COMPLIANCE DETERMINATION METHOD TOPIC
(PAPD Steps 7 and 9)

Content - This field contains the general subject and keywords of the NRC COMPLIANCE DETERMINATION METHOD in the next field. It is intended as a vehicle for consistent identification and consolidation of items related to a given topic. (See Field 8 content description.)

Format - Field size: TBD characters.

28. NRC COMPLIANCE DETERMINATION METHOD (PAPD Steps 7 and 9)

Definition - How the NRC will determine that each ELEMENT OF PROOF has or has not been met. Includes those investigative or evaluative procedures, techniques, tests, methods, or any other modes of inquiry, or any combination thereof, that will be used within the context of the NRC regulatory program, to address each ELEMENT OF PROOF identified as necessary to determine compliance with a REGULATORY REQUIREMENT. This includes but is not limited to methodologies, models, codes, consensus, certification, audits of records, etc.

Content - This field is to contain a summary of (and, if published, a reference to) the strategy and the test, investigative and/or analysis method(s) to be used by the NRC to determine if the DOE has met, or can be expected to meet, each ELEMENT OF PROOF. The method(s) must be sufficiently specific to provide the basis for identifying INFORMATION REQUIREMENTS (Field 42). If the DETERMINATION METHOD is documented by the NRC (e.g., in a Generic Technical Position or Regulatory Guide), provide the number, name and date of the document. Contingency, backup or other alternative methods under serious consideration shall also be described.

Format - Field size: Variable length up to 32K characters.

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29. UNCERTAINTY TOPIC

Content - This field contains the general subject and keywords of the UNCERTAINTY in the next field. It is intended as a vehicle for consistent identification and consolidation of items related to a given topic. (See Field 8 content description.)

Format - Field size: TBD characters.

30. UNCERTAINTIES (PAPD Step 4 and part of Steps 11 and 12)

Definitions:

Regulatory Uncertainty - Lack of certitude as to what is meant by the REGULATORY REQUIREMENT or with its ELEMENTS OF PROOF, or the adequacy, completeness, and/or necessity of the requirement itself.

REGULATORY UNCERTAINTY may stem from lack of clarity in the quoted statement, the omission of an essential requirement from the regulation, and/or the inclusion of requirements in the regulation that do not contribute to or detract from the regulatory program.

Technical Uncertainty - Lack of certitude as to how to demonstrate (DOE action) or determine (NRC action) compliance and/or obtain the requisite information.

A TECHNICAL UNCERTAINTY is created by the absence of a defined and accepted means to resolve a technical program need. TECHNICAL UNCERTAINTIES are derivable from DOE COMPLIANCE DEMONSTRATION METHODS, NRC COMPLIANCE DETERMINATION METHODS, NRC UNCERTAINTY QUESTIONS, UNCERTAINTY REDUCTION METHODS and INFORMATION REQUIREMENTS.

Institutional Uncertainty - The lack of certitude regarding the roles, missions, actions, and schedules of agencies with REGULATORY REQUIREMENTS that effect the high-level waste regulatory program, their impacts, or their integration with the NRC regulatory program.

Uncertainty, in all cases, is associated with a perceived insufficiency in a specific item. This may include one or more of several types; e.g., definition, clarity, consistency, technical acceptance, proof. Uncertainties generally act as a constraint on action in some area of interest. However, -- and this is a point that must be carefully considered in selecting and defining uncertainties -- the fact that some work remains to be completed does not, of itself, cause the results of that work to be an uncertainty.

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If the method of completing the work is unknown or lacks general acceptance, the method may be the subject of an uncertainty. Or, if the work is completed and the results will not support a useable conclusion, the conclusion may be the subject of an uncertainty.

The UNCERTAINTY statement may be thought of as the definition of a perceived insufficiency and the general type of corrective action. Together, these provide the basis for the identification of detailed corrective methods, information needs and plans in subsequent steps of the Program Architecture process.

Content - This field will contain, in full or in abstract form, the UNCERTAINTIES put forth by the NRC, DOE, States, Tribes and other affected parties. In all cases, such UNCERTAINTIES shall include reference(s) to magnetic or hard copy source(s) of the information.

DOE UNCERTAINTIES will be entered in this field as described above until the LSS becomes operational. From that point, DOE UNCERTAINTIES will be identified by an appropriate reference to the LSS; that is, the field will contain the identifier or code to be used to obtain this information from the LSS.

For each NRC UNCERTAINTY, a brief statement will be provided that identifies what is uncertain (e.g., The regulatory intent...), defines what is needed to correct the uncertainty (e.g., ...needs to be clarified), and identifies why the uncertainty needs to be corrected. These are to be positive statements; i.e., what is needed, rather than what is not now available. Additional examples would include:

- a. A term requires further definition to avoid . . .
- b. The applicability of a theory needs to be demonstrated to provide the basis for . . .
- c. Bounds must be established in order to . . .
- d. Jurisdiction must be established so that . . .

Note that these statements imply action but are not in themselves action statements. Action statements will be developed in Field 37, DOE Uncertainty Reduction Methods, and in Field 39, NRC Uncertainty Reduction Methods.

Format - Field size: Variable length up to 32K characters.

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31. **UNCERTAINTY SOURCE**
(PAPD Step 4 and part of Steps 11 and 12)

Content - This field will identify the source(s) of the UNCERTAINTY or set of UNCERTAINTIES in the preceding field. A "source" is an agency that presented or identified the UNCERTAINTY for resolution or reduction. (The agency with action responsibility is identified in Field 34.) Potential sources include the NRC, DOE, States, Tribes and other affected parties.

Format - Field size: TBD characters.

32. **UNCERTAINTY TYPE CODE**
(PAPD Step 4 and part of Steps 11 and 12)

Content - This field will contain a code that identifies that each UNCERTAINTY is either Regulatory, Technical or Institutional.

Format - Field size: TBD characters.

33. **SITE DEPENDENCY** (PAPD Step 4 and part of Steps 11 and 12)

Content - This field will contain a code that identifies that each UNCERTAINTY is either Site Constrained, Site Specific or Generic (site independent).

Format - Field size: TBD characters.

34. **UNCERTAINTY ACTION AGENCY**
(PAPD Step 4 and part of Steps 11 and 12)

Content - This field will identify the government agency(ies) responsible for resolving/reducing each UNCERTAINTY; e.g., DOE, DOT, EPA, NRC, Congress. For REGULATORY UNCERTAINTIES, this is a single agency. For TECHNICAL UNCERTAINTIES, except in rare instances, this is also a single agency. Other agencies may coordinate in or approve certain aspects, but only one agency is responsible for eliminating or reducing the lack of certitude. In the case of INSTITUTIONAL UNCERTAINTIES, two or more agencies may share responsibility.

Format - Field size: TBD characters.

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35. NRC UNCERTAINTY QUESTIONS (PAPD Step 10)

Definition - A component of an uncertainty -- An expression of inquiry that calls for a reply.

To resolve a specific TECHNICAL, REGULATORY, or INSTITUTIONAL UNCERTAINTY, one or more questions will arise that require information to obtain an answer or make a reply. The resolution of uncertainty is dependent upon the answer(s) to the question(s) which, in turn, is dependent on the specific information.

Content - UNCERTAINTY QUESTIONS are developed by breaking an UNCERTAINTY into its constituent elements and phrasing each element as a question. If the UNCERTAINTY is not divisible, enter "DNA" (for "Does Not Apply").

The UNCERTAINTY QUESTIONS may relate to one or more of several factors involved in responding to the UNCERTAINTY. For REGULATORY and INSTITUTIONAL UNCERTAINTIES these factors, in general, are derived directly from the uncertainty. For TECHNICAL UNCERTAINTIES the factors are taken from a variety of applicable technical concerns. Examples include, but are by no means limited to:

- a. How well must the parameter of interest be known (i.e., what is the required accuracy/precision or statistical confidence)?
- b. Is applicable theory available?
- c. What level of acceptance is there in the technical community for the applicability of the theory to the conditions/processes of concern?
- d. Can the process/phenomenon be acceptably modeled/simulated?
- e. Can causal factors be identified with acceptable certitude?
- f. Can the local environment be acceptably analysed/simulated?
- g. Can the variables of interest (e.g., frequency, duration, limits, properties) be identified and quantitatively described with acceptable accuracy?
- h. Can the needed data be obtained with sufficient accuracy?
- i. What statistical confidence or safety margin is acceptable?

Format - Field size: Variable length up to 32K characters.

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36. DOE UNCERTAINTY REDUCTION METHOD TOPIC (PAPD Step 22)

Content - This field contains the general subject and keywords of the DOE UNCERTAINTY REDUCTION METHOD in the next field. It is intended as a vehicle for consistent identification and consolidation of items related to a given topic. (See Field 8 content description.)

Format - Field size: TBD characters.

37. DOE UNCERTAINTY REDUCTION METHODS (PAPD Step 22)

[NOTE: When the LSS comes on-line, this field may be reduced to the identifier or code to be used to obtain this information from the LSS.]

Content - This field will contain a summary of (and, if published, a reference to) how DOE plans to reduce each REGULATORY, TECHNICAL, and INSTITUTIONAL UNCERTAINTY related to their demonstration of compliance. Contingency, backup or other alternative methods under serious consideration shall also be described.

Format - Field size: Variable length up to 32K characters.

38. NRC UNCERTAINTY REDUCTION METHOD TOPIC (PAPD Step 15)

Content - This field contains the general subject and keywords of the NRC UNCERTAINTY REDUCTION METHOD in the next field. It is intended as a vehicle for consistent identification and consolidation of items related to a given topic. (See Field 8 content description.)

Format - Field size: TBD characters.

39. NRC UNCERTAINTY REDUCTION METHODS (PAPD Step 15)

Definition - How the TECHNICAL, INSTITUTIONAL or NRC REGULATORY UNCERTAINTY will be reduced.

Content - This field contains a summary description of how the NRC plans to reduce each NRC UNCERTAINTY. This abbreviated plan will include:

- a. Responsible Organization(s): The organization(s) within the NRC and, as applicable, its contractors assigned to the task of reducing the UNCERTAINTY (the lead organization is to be clearly identified),

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- b. Summary of Approach: A summary of the approach to be used (for example, staff technical position, NRC counsel legal opinion, rulemaking, memorandum of understanding),
- c. Required Tasks: The tasks presently considered necessary for reduction of the UNCERTAINTY to an acceptable level (NOTE: These tasks are above the level of satisfaction of INFORMATION REQUIREMENTS; i.e., INFORMATION REQUIREMENTS will be derived from the identified tasks.),
- d. Interactions: The interactions between the above tasks and/or between these tasks and other activities (inputs from, outputs to, coordination with),
- e. Schedule Constraints: The project milestones and the key uncertainty reduction method lead times (e.g., 3-year rulemaking) that dictate the schedule for (1) completion of the above tasks and/or (2) interim milestones for reviews, deliverables and interactions. The rationale behind the Field 47 schedule and network for the subject NRC UNCERTAINTY REDUCTION METHOD is to be summarized here.
- f. CPM Code: The reference code to the top-level CPM network of the NRC UNCERTAINTY REDUCTION METHOD,
- g. Uncertainty Reduction Method Reference(s): Reference(s) to more complete presentation of the NRC UNCERTAINTY REDUCTION METHOD,
- h. Postulated Elements of Proof: In cases where INSTITUTIONAL and/or REGULATORY UNCERTAINTY exists, the ELEMENTS OF PROOF for the REGULATORY REQUIREMENT as they are presumed to be after the subject UNCERTAINTY is resolved. Those Postulated ELEMENTS OF PROOF whose wording may be affected by (i.e., is sensitive to) the resolution of the subject UNCERTAINTY are to be entered in upper case (all-cap) letters. In the Uncertainty Reduction Method Notes an explanation will be provided of all such verbal dependencies and any logical dependencies that may exist. If the logical and verbal construction of the ELEMENTS OF PROOF is insensitive to the UNCERTAINTY, an explanation will be provided in the Uncertainty Reduction Method Notes. The Postulated ELEMENTS OF PROOF are to be provided in this field in the text hierarchical format. A hard-copy of the graphic ELEMENTS OF PROOF hierarchical format will be retained in the permanent hard-copy file for the subject UNCERTAINTY REDUCTION METHOD. (See Field 15, Attachment B and TOP-001-03.)

Contingency, backup or other alternative methods under serious consideration for reduction of the subject UNCERTAINTY shall also be summarized in this field.

Format - Field size: Variable length up to 32K characters.

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40. NRC UNCERTAINTY REDUCTION METHOD CODE (PAPD Step 15)

Content - This field will contain a code that, based on the description in the preceding field, identifies the basic method to be used to reduce the NRC UNCERTAINTY. The available codes for each type of UNCERTAINTY are as follows:

REGULATORY

INT	NRC to provide an interpretation
DEF	NRC to provide a definition
RG-R	NRC to issue a Regulatory Guide (Regulatory)
MOU-R	Memorandum of Understanding (Regulatory)
CLA	NRC to clarify regulatory intent
OGC	NRC OGC to provide legal opinion
RUL-R	Rulemaking (Regulatory)

TECHNICAL

RES-D	DOE to conduct research
SDY-D	DOE to conduct study(ies)
MTD-D	DOE to develop and demonstrate method
RES-N	NRC to conduct research
SDY-N	NRC to conduct study(ies)
DAA-N	NRC to define acceptable approach(es)
RG-T	NRC to issue a Regulatory Guide (Technical)
GTP	NRC to write a Generic Technical Position

INSTITUTIONAL

MOU-I	Memorandum of Understanding (Institutional)
RUL-I	Rulemaking (Institutional)

Format - Field size: TBD characters.

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41. INFORMATION REQUIREMENTS TOPIC (PAPD Steps 8, 9 and 15)

Content - This field contains the general subject and keywords of the INFORMATION REQUIREMENT in the next field. This field provides a vehicle for consistent identification and consolidation of INFORMATION REQUIREMENTS related to a given topic. (See Field 8 content description.)

Format - Field size: TBD characters.

42. INFORMATION REQUIREMENTS (PAPD Steps 8, 9 and 15)

Definition - Information required to execute a COMPLIANCE DEMONSTRATION METHOD, a COMPLIANCE DETERMINATION METHOD or an UNCERTAINTY REDUCTION METHOD. Information used to execute a NRC COMPLIANCE DETERMINATION METHOD or a DOE COMPLIANCE DEMONSTRATION METHOD would be considered as evidence regarding compliance with the REGULATORY REQUIREMENT. This includes but is not limited to facts, test data, analyses, plans, procedures and/or records.

Content - This field will contain INFORMATION REQUIREMENTS derived primarily from four fields: Field 25, DOE COMPLIANCE DEMONSTRATION METHODS; Field 28, NRC COMPLIANCE DETERMINATION METHODS; Field 37, DOE UNCERTAINTY REDUCTION METHODS; and Field 39, NRC UNCERTAINTY REDUCTION METHODS. When made available in the license application, the actual information will constitute evidence regarding satisfaction of the associated REGULATORY REQUIREMENT. Additional INFORMATION REQUIREMENTS may be received from States, Tribes or other affected parties. Regardless of source, each INFORMATION REQUIREMENT must be defined in terms of type of information and, as applicable, either the necessary accuracy/precision (tolerance) or statistical confidence. Any unusual review or QA requirements must be noted also. The definition must be sufficiently complete and specific (or must reference a published document that is sufficient) to provide the basis for designing and planning the program of tests, investigations and/or analyses necessary to obtain acceptable information. In general, this will require that the definition of the INFORMATION REQUIREMENT be developed to the level at which a Study Plan or a comprehensive test plan may be referenced. The key objective is to establish complete traceability from the REGULATORY REQUIREMENT to the individual tests and/or analyses that will provide the information required to demonstrate/determine compliance.

Format - Field size: Variable length up to 32K characters.

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43. INFORMATION REQUIREMENT REQUESTORS (PAPD Steps 8 and 15)

Content - This field shall contain for each INFORMATION REQUIREMENT one or more entries, each of which contains the following: (1) a code that indicates the agency that identified the need for that information and (2) a reference to the document (and chapter, section, etc.) published by that agency in which the INFORMATION REQUIREMENT is identified. Entries will be delimited by back-to-back commas followed by a space (see example under Field 8).

Format - Field size: TBD characters.

44. INFORMATION REQUIREMENT ACTION AGENCY (PAPD Steps 8 and 15)

Content - This field will contain a code that identifies the agency with prime responsibility for satisfaction of the INFORMATION REQUIREMENT; i.e., for conduct of the tests and/or analyses necessary to obtain the required information to the specified accuracy/precision or statistical confidence.

Format - Field size: TBD characters.

45. PRIORITY/RANKING CODE (PAPD Step 17)

Content - The PRIORITY/RANKING shall be established in accordance with TOP-001-(TBD). This field contains the code for the relative priority or importance ranking of the programs for satisfaction of INFORMATION REQUIREMENTS for which the NRC is the INFORMATION REQUIREMENT ACTION AGENCY (Field 44). This prioritization will be a key input to decisions regarding the allocation of NRC high-level waste management resources. The PRIORITY/RANKING code is provided in TOP-001-(TBD).

Format - Field size: TBD characters

46. PRIORITY/RANKING RATIONALE (PAPD Step 17)

Content - This field shall contain a brief explanation of the analytical and decision processes by which the PRIORITY/RANKING (Field 45) determination was made. All factors used in those processes and, as applicable, all "weights" or utility functions applied to those factors shall be described and justified. If other factors were considered but not used, the basis for that decision shall also be summarized. This is to be an abstract of the supporting rationale that is documented in accordance with TOP-001-(TBD). A reference to the source document shall be included in this field.

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The initial prioritization will be primarily judgmental based on the following factors as a minimum:

- a. Sensitivity of system performance to the parameter of interest,
- b. Accuracy/precision or statistical confidence with which the parameter must be known for a given application,
- c. When the parameter must be known to this degree of certainty ("Need Date"),
- d. Lead time needed to obtain the required information,
- e. Adequacy of the current data base for the parameter,
- f. Probability of successfully obtaining acceptable additional information about the parameter that would significantly reduce system performance uncertainty, and
- g. Cost of obtaining such additional information.

Format - Field size: Variable length up to 32K characters.

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- b. Accuracy/precision or statistical confidence with which the parameter must be known for a given application,
- c. When the parameter must be known to this degree of certainty ("Need Date"),
- d. Lead time needed to obtain the required information,
- e. Adequacy of the current data base for the parameter,
- f. Probability of successfully obtaining acceptable additional information about the parameter that would significantly reduce system performance uncertainty, and
- g. Cost of obtaining such additional information.

The PRIORITY/RANKING shall be established in accordance with TOP-001-(TBD). An abstract of the supporting rationale that is documented in accordance with that TOP and a reference to the source document shall be included in this field.

Format - Field size: Variable length up to 32K characters.

47. COSTS, SCHEDULES AND NETWORKS (PAPD Steps 16, 19 and 20)

Content - This field will contain a code leading to hard copies of, or the computer graphics for, the set of Gantt charts and networks that display the schedules for activities that derive from a single ELEMENT OF PROOF in Field 15 of this record.

Schedules for NRC and NRC contractor activities will be prepared at a minimum of three levels of detail including (1) a management summary that displays only major activities and milestones, (2) intermediate level as appropriate and (3) one or more displaying the activities planned to satisfy each INFORMATION REQUIREMENT. In the last category, each chart shall display all tasks to at least the level at which controlled procedures are invoked. All schedules will include both tasks (in Gantt format) and relevant milestones (e.g., for key inputs to be received, principal outputs, reviews).

Networks (Critical Path Method [CPM] and Precedence) shall be prepared for all NRC schedules at the management summary and intermediate levels and for selected schedules at the INFORMATION REQUIREMENT level.

Cost and resource information will be associated with each NRC schedule and network to permit constraint identification and analysis by organization and by project product.

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Schedules and/or networks for other (non-NRC) agencies will be obtained (and referenced here by code) to the level consistent with monitoring and consultation needs of the program.

Format - Field size: TBD characters.

48. OPEN ITEMS TOPIC(S) (PAPD Step 14)

Content - This field contains the general subject and keywords of the OPEN ITEM in the next field. It is intended as a vehicle for consistent identification and consolidation of items related to a given topic. (See Field 8 content description.)

Format - Field size: TBD characters.

49. OPEN ITEMS (PAPD Step 14)

Definition - Those DOE COMPLIANCE DEMONSTRATION METHODS, COMPLIANCE DETERMINATION METHODS, UNCERTAINTY REDUCTION METHODS and INFORMATION REQUIREMENTS that have associated uncertainties; REGULATORY, TECHNICAL, or INSTITUTIONAL UNCERTAINTIES; UNCERTAINTY QUESTIONS; and decisions, both "proactive" and "reactive," that have been approved by the Program Architecture Configuration Authority for inclusion in the Open Item Tracking Module of the Program Architecture Support System. The "Open Item", in each case, is a pending, previously unplanned action relative to the definition or reduction of the uncertainty.

Content - This field will (1) identify the object of the OPEN ITEM (e.g., the UNCERTAINTY or INFORMATION REQUIREMENT) and (2) provide a description of the previously unplanned action to be completed relative to the definition or reduction of the associated uncertainty. Supporting/detailed documentation shall be referenced.

Format - Field size: Variable length up to 32K characters.

50. OPEN ITEM ACTION AGENCY (PAPD Step 14)

Content - This field will identify the agency responsible for the accomplishment of the action defined in the preceding field.

Format - Field size: TBD characters.

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51. OPEN ITEM COMPLETION DATE (PAPD Step 14)

Content - This field will contain the agreed upon date by which the Open Item action is to be completed.

Format - Field size: TBD characters.

52. NAME - [NOTE: This is a temporary field for CNWRA use that will be retired upon completion of the first iteration of the PA Database.]

Content - This field contains the initials of the person who conducted the initial requirements analysis and the leader of the team that prepared the input to each of the following fields: REGULATORY REQUIREMENTS, ELEMENTS OF PROOF, NRC COMPLIANCE DETERMINATION METHOD, UNCERTAINTIES (where NRC is an UNCERTAINTY SOURCE [Field 31]), NRC UNCERTAINTY QUESTIONS, NRC UNCERTAINTY REDUCTION METHOD, and INFORMATION REQUIREMENT (where NRC is an INFORMATION REQUIREMENT REQUESTOR [Field 43]).

Format - Field size: TBD.

53. NOTES - [NOTE: This is a temporary field for CNWRA use that will be retired upon completion of the first iteration of the PADB.]

Content - This field contains working notes of the regulatory analyst to assist in future stages of development of the PA relational database. Typically, these notes involve preliminary observations of uncertainties and inconsistencies in the statutes and regulations. All notes shall reference the related Database record.

Format - Field size: TBD.

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PROGRAM ARCHITECTURE DATABASE FIELDS

1. RECORD NUMBER
2. STATUTE/REGULATION NUMBER [Program Architecture Process Diagram (PAPD) Step 1]
3. STATUTE/REGULATION TITLE (PAPD Step 1)
4. SUBPART NUMBER (PAPD Step 2)
5. SUBPART TITLE (PAPD Step 2)
6. SECTION (AND LOWER INDENTURE) NUMBERS (PAPD Step 2)
7. SECTION (AND LOWER INDENTURE) TITLES (PAPD Step 2)
8. REGULATORY REQUIREMENT TOPIC (PAPD Step 2)
9. REGULATORY REQUIREMENT (PAPD Step 2)
10. REGULATORY REQUIREMENT APPLICABLE PERIOD (PAPD Step 2)
11. ACTION AGENCY (PAPD Step 2)
12. RELATED REGULATIONS (PAPD Step 2)
13. RELATED ISSUES (Issues defined by agencies other than NRC) [Part of PAPD Steps 11 and 12]
14. ELEMENT OF PROOF TOPIC (PAPD Steps 3, 5 and 9)
15. ELEMENTS OF PROOF (PAPD Steps 3, 5 and 9)
16. WHEN ACTION REQUIRED (PAPD Step 5)
17. COGNIZANT ELEMENT (PAPD Step 2)
18. ESSENTIAL EXPERTISE
19. SUPPORT EXPERTISE
20. EVALUATION FINDING TOPIC (PAPD Step 22)
21. EVALUATION FINDINGS (PAPD Step 22)
22. DOCUMENT CODE
23. QA STATUS
24. DOE COMPLIANCE DEMONSTRATION METHOD TOPIC (PAPD Step 22)
25. DOE COMPLIANCE DEMONSTRATION METHOD (PAPD Step 22)
26. COMPLIANCE DEMONSTRATION STATUS (PAPD Step 22)
27. NRC COMPLIANCE DETERMINATION METHOD TOPIC (PAPD Steps 7 and 9)
28. NRC COMPLIANCE DETERMINATION METHOD (PAPD Steps 7 and 9)
29. UNCERTAINTY TOPIC
30. UNCERTAINTIES (PAPD Step 4 and part of Steps 11 and 12)
31. UNCERTAINTY SOURCE (PAPD Step 4 and part of Steps 11 and 12)
32. UNCERTAINTY TYPE CODE (PAPD Step 4 and part of Steps 11 and 12)
33. SITE DEPENDENCY (PAPD Step 4 and part of Steps 11 and 12)
34. UNCERTAINTY ACTION AGENCY (PAPD Step 4 and part of Steps 11 and 12)
35. NRC UNCERTAINTY QUESTIONS (PAPD Step 10)
36. DOE UNCERTAINTY REDUCTION METHOD TOPIC (PAPD Step 22)

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37. DOE UNCERTAINTY REDUCTION METHODS (PAPD Step 22)
38. NRC UNCERTAINTY REDUCTION METHOD TOPIC (PAPD Step 15)
39. NRC UNCERTAINTY REDUCTION METHODS (PAPD Step 15)
40. NRC UNCERTAINTY REDUCTION METHOD CODE (PAPD Step 15)
41. INFORMATION REQUIREMENTS TOPIC (PAPD Steps 8, 9 and 15)
42. INFORMATION REQUIREMENTS (PAPD Steps 8, 9 and 15)
43. INFORMATION REQUIREMENT REQUESTORS (PAPD Steps 8 and 15)
44. INFORMATION REQUIREMENT ACTION AGENCY
(PAPD Steps 8 and 15)
45. PRIORITY/RANKING CODE (PAPD Step 17)
46. PRIORITY/RANKING RATIONALE (PAPD Step 17)
47. COSTS, SCHEDULES AND NETWORKS (PAPD Steps 16, 19 and 20)
48. OPEN ITEMS TOPIC(S) (PAPD Step 14)
49. OPEN ITEMS (PAPD Step 14)
50. OPEN ITEM ACTION AGENCY (PAPD Step 14)
51. OPEN ITEM COMPLETION DATE (PAPD Step 14)
52. NAME
53. NOTES

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Attachment B to TOP-001-02

Example Element of Proof Hierarchy

DOE SHALL DEMONSTRATE THAT:

The repository is designed so that until permanent closure, radiation exposures and radiation levels, and routine releases of radioactive materials to unrestricted areas, will at all times be maintained within the limits specified in 10CFR20 and 40CFR191. [10CFR60.111(a) and 40CFR191; 10CFR20.106(d), 10CFR20.106(f)**, 10CFR20.106(g)**, 10CFR60.132(b), 10CFR60.132(c)**, 10CFR60.132(e), 10CFR60.133(g)(1)]

1 Concentrations of routine releases of radioactive materials to the unrestricted area will not exceed the limits specified in 10CFR20. [10CFR20.106; 10CFR60.132(b), 10CFR60.132(c)**, 10CFR60.133(g)(1)]

1.1 Concentrations of routine releases of radioactive materials to the unrestricted area will not exceed the limits specified in Appendix B, Table II of 10CFR20, except as authorized pursuant to paragraph 20.106(b). For purposes of this section concentrations may be averaged over a period not greater than one year [10CFR20.106(a)],

OR

1.2 The applicant has made a reasonable effort to minimize the radioactivity contained in effluents to unrestricted areas; and that it is not likely that radioactive material discharged in the effluent would result in the exposure of an individual to concentrations of radioactive material in air or water exceeding the limits specified in Appendix B, Table II of 10CFR20. [10CFR20.106(b)]

AND

1.3 The daily intake of radioactive material from air, water, or food by a suitable sample of an exposed population group, averaged over a period not exceeding one year, will not exceed the daily intake resulting from continuous exposure to air or water containing one-third the concentration of radioactive materials specified in Appendix B, Table II of 10CFR20,

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the Commission may limit quantities of radioactive materials released in air or water during a specified period of time. [10CFR20.106(e)]

AND

- 2 The repository is designed so that until permanent closure, direct radiation exposures and radiation levels will at all times be maintained within the limits specified in 10CFR20.

- 2.1 The limits of levels of radiation in unrestricted areas are not likely to cause any individual to receive a dose to the whole body in any period of one calendar year in excess of 0.5 rem [10CFR20.105(A)].

OR

- 2.2 There is not created in any unrestricted area from radioactive material and other sources of radiation in his possession: (1) Radiation levels which, if an individual were continuously present in the area, could result in his receiving a dose in excess of two millirems in any one hour, or (2) radiation levels which, if an individual were continuously present in the area, could result in his receiving a dose in excess of 100 millirems in any seven consecutive days. [10CFR20.105(b)]

AND

- 2.3 Uranium fuel cycle operation subject to the provisions of 40 CFR190 will comply with that part. [10CFR20.105(c)]**

AND

- 3 Management and storage of high-level waste will be conducted in such a manner as to provide reasonable assurance that the combined annual dose equivalent to any member of the public in the general environment resulting from (1) discharges of radioactive material and direct radiation from such management and storage and (2) all operations covered by 40CFR190; will not exceed 25 millirems to the whole body, 75 millirems to the thyroid, and 25 millirems to any other critical organ. [40CFR191.03]

Elements of Proof relative to demonstration method and data acceptability (reference Attachment A, Field 15) remain to be developed.

NOTE: Underlined references are the principal Regulatory Text; those without underlining are associated Regulatory Text(s). ** indicates the

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existence of a Regulatory Uncertainty relative to the referenced Regulatory Text. In the actual Database, the Uncertainty number would be cited.

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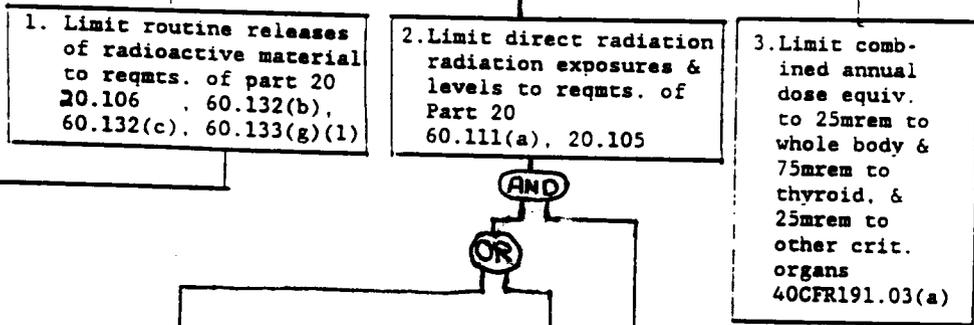
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DOE SHALL DEMONSTRATE THAT REPOSITORY IS DESIGNED TO:

Limit dose to unrestricted area to reqmts. of Part 20 and EPA 20.106(d), 60.111(a), 60.132(b), 60.132(e), 60.133(g)(1), 20.106(f)(g), 40CFR191.03(a)

AND

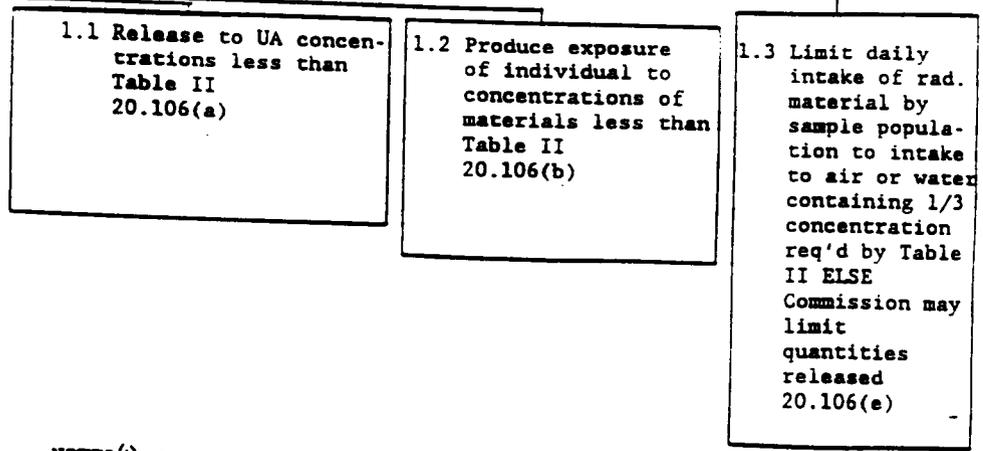
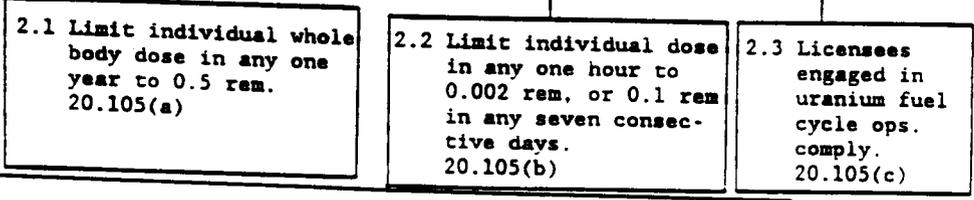


AND

OR

AND

OR



NOTE(1) All regulations listed are from Title 10 of the CFR unless otherwise specified.

(2) THE STATEMENTS OF REQUIREMENTS IN THIS EDP HIERARCHY ARE HIGHLY ABBREVIATED. FOR COMPLETE DESCRIPTIONS OF THE REQUIRED PROOFS, REFER TO PROGRAM ARCHITECTURE DATABASE FIELD 15.*



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Title Program Architecture Relational Database Work Instruction

EFFECTIVITY AND APPROVAL

Revision 1, Chg. 1 of this procedure became effective on 11/30/90. This procedure consists of the pages and changes listed below.

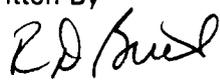
<u>Page No.</u>	<u>Change</u>	<u>Date Effective</u>
All	1	11/30/90

This procedure is obsolete and is deleted. Systematic Regulatory Analysis activities addressed by this procedure are now addressed by individual procedures to be developed as necessary.

SUPERSEDED

Supersedes Procedure No. N/A

Approvals

Written By 	Date <u>9/8/93</u>	Technical Review 	Date <u>9/9/93</u>
Quality Assurance 	Date <u>9/9/93</u>	Cognizant Director 	Date <u>9/15/93</u>