CENTER FOR NUCLEAR WASTE REGULATORY ANALYSES

<u>FOR ADDRESSEE ONLY</u>

March 17, 1989

To: Phil Altomare

From: Allen Whiting and Ted Romine

Subject: Program Architecture Comment Resolution and Related Materials

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Attached is the document ACTIONS RE NRC COMMENTS ON PA PROCESS AND PRODUCTS, which is transmitted for review and concurrence by the NRC staff and management, including representatives of the OGC. This is provided per our agreements of March 9 and 10, 1989, as confirmed in meetings this week in Washington. Please note that this incorporates all comments that you provided this week on an earlier draft.

Also attached is a draft outline for an Administrative Procedure that the Center recommends be developed. This procedure would be the vehicle to evaluate the role of all tasks assigned to the Center in light of the Program Architecture. Criteria would be established in the procedure to specifically evaluate how the PA would influence the conduct of the work, and how the products of the task would support and/or be input to the PA development process.

It is our understanding that review of the attached will be completed March 20, 1989. Your assistance in this matter is greatly appreciated.

cc: W. Patrick
     R. Johnson

March 17, 1989

DRAFT

ACTIONS RE NRC COMMENTS ON PA PROCESS AND PRODUCTS

This submittal summarizes (1) the general and specific comments provided
by the NRC relative to Program Architecture (PA) efforts of the Center,
and (2) the actions planned or in process to respond to those comments.
The correspondence included below is that itemized in the February 15,
1989, letter cited below. Comments recorded in the Center notes of the
December 1, 1988, "R7 Debriefing" are also treated below.

A.   COMMENTS ON CNWRA'S MEETING REPORT WITH REGARD TO PROGRAM ARCHI-
      TECTURE DEVELOPMENT MILESTONES A3/A4 AND E17 PROGRAM ARCHITECTURE
      INPUT, letter Altomare to Whiting, 11/25/88.

1.   Comment - Illustrate the "dynamics" of proceeding from one WSE&I [PA
      Process] block to another.
      Action - The detailed PA Process logic, alternatives, "IF" tests,
      decision points, flow paths and similar features are to be
      developed in a PA Process Network. This effort is currently
      scheduled to start the week of March 20. The individual
      activities, including NRC support and review activities, are
      currently being assembled in a CPM chart for Center management
      and NRC review. This chart and supporting explanation will be
      provided to the NRC on Monday, March 20.

2.   Comment - PA 22-step process is truncated in presence of Regulatory
      Uncertainty.
      Action - Based on the results of the February-March discussions,
      the procedure described in TOP-001-02, Sections 5.4.1 and
      5.4.2, and Attachment A, NRC Uncertainty Reduction Method, have
      been modified to invoke a process involving submittal to the
      NRC of an analysis of "high-risk" uncertainties and the receipt
      of advice from the NRC on how to proceed. The recommended
      revision of TOP-001-02 covering this item is included in the
      March 17 presentation.

3.   Comment - Documentation of procedure for selection of the suite of
      Regulatory Texts that make up a Regulatory Requirement.
      Action - The procedure for the selection of the suite of Regulatory
      Texts that comprise a Regulatory Requirement will be added to
      the instructions for Field 9 in TOP-001-02. The essence of the
      addition will be the process that has been used, and will be
      used in the future, to select closely-related rules. This
      basically involves identifying (1) the unique individual top-
      level system and/or program requirements and (2) the lower-
      level implementation requirements (e.g., design criteria)
      associated with each of those objectives/requirements. For
      example, for 10 CFR 60, Subpart E, this involved identifying
      the individual system performance objectives, land ownership

requirements and siting criteria, and the design criteria
associated with each.

B. **CENTER NOTES OF R7 (PASS PROOF OF SYSTEM) DEBRIEFING**, Patrick,
12/1/88.

1. Comment - (Bunting) Show how an answer would be achieved using the
PASS versus "the normal way" of doing it.
Action - This was accomplished in the December 21 R7 presentation
by demonstrating the capability to rapidly "navigate" any
desired path through the records associated with a given
Regulatory Requirement.

2. Comment - (Pearring) Concern for prioritization; e.g., "Shaft [is]
more important than heater tests to begin 5 years from now."

Action - The prioritization (rank ordering) of uncertainties is
dealt with in PA Process step 13 which was first reported in
the Milestone R8 briefing. This includes consideration of
sequencing of activities as well as lead times and other
variables. The desired content and format of the final R8
submission is under review by the NRC at the present time.

3. Comment - (Ballard) Focus [should] be on Format and Content Guide
and Standard Review Plan.
Action - An acceptable "home" has been established for items of
technical evidence to be used in compliance demonstration. The
Regulatory Element of Proof ("Field 15A") record and the new
PADB records dealing with technical evidence ("Field 15B") will
provide integrated inputs to the F&C Guide. Support of
Standard Review Plans requires coordinated NRC-Center
development or identification of specific NRC Compliance
Determination Methods. The new technical evidence records will
provide the starting point for those efforts. The Center and
the NRC need to jointly develop (1) a Center library of
potentially applicable Reg Guides, Standard Review Plans, etc.,
(2) criteria for the application of such items to repository
compliance determinations, and (3) detailed procedures for the
preceding.

4. Comment - (Altomare) Need assessment of what it will take to get to
9/29/89.
Action - The first stage of this assessment will be the overall
review of the PA Process including the identification (through
an interview process) of detailed NRC and user needs and the
development of the detailed PA Process Network (see A.1,
Action). The second stage will be the preparation and
submittal of an annotated outline of the specification for the
September deliverable based, in part, on the outcome of the
second stage of that PA Process Review. The third stage,
following acceptance of the specification outline, will be the
preparation and submittal of the Center Operations Plan.

5. Comment - (Delligatti) [Need] more involvement of broader NRC staff.
   Action - The Center has offered and the NRC has participated in earlier interactions. We recommend that small task groups of Center and NRC staff be formed to address specific PA inputs; e.g., those uncertainties that may be subject to rulemakings.

6. Comment - (Brooks) [Make] Essential Expertise and Support Expertise "fields" permanent.
   Action - Comment was accepted at the time. The change will be formally included in the forthcoming TOP revision.

C. COMMENTS ON REGULATORY REQUIREMENT TOPICS E17 AND E36, letter Altomare to Whiting, 2/10/89.

GENERAL COMMENTS

1. Comment - The quality and, in some cases, the absence of information reflects on the effectiveness of the Program Architecture Review Committee (PARC).
   Action - The PARCs have functioned under the same criteria, process, procedures, and training as the original analysts. Improvements in these items based on our initial experience with the PA Process have positively influenced the PARCs and the analysts since the November submittal and will continue to do so. In the upcoming TOP revisions and in training, increased emphasis will be placed on providing the reason for the inclusion of limited or no information on a subject at a given point in time.

2. Comment - Direct a great deal of additional emphasis on development of . . information [that] is readily useable, for example, in . . . Standard Format and Content Guide and a Standard Review Plan.
   Action - See B.3, Action.

3. Comment - [Printout] format is somewhat cumbersome. Also, grouping of material in logical sequences would improve [presentation].
   Action - The mainframe can be programmed to output a wide variety of formats and layouts, and any desired sequence. The Center needs to learn from the NRC (1) what in the format was found to be cumbersome, (2) the general format and layout that is preferred and (3) the desired sequence of material. This information will be obtained during the forthcoming user-requirements interviews.

4. Comment - (a) Ensure that the Center maintains a record of the evaluations performed and the conclusions reached. At present,

it is not always clear what the analyst's rationale was in
performing the analysis.
(b) Concerns that could represent potential uncertainties
should be documented in a permanent notes field.
(c) Need to document (1) why certain regulatory [text]
requirements were added or omitted from a particular topic, (2)
which regulatory [text] requirements are driving the program
vis-a-vis the Program Architecture, and (3) the relationships
between the respective regulatory [text] requirements.

Action - (a) The structuring of the Notes "fields" in November was,
in part, for this purpose. This structuring of the Notes, the
input development and PARC review procedures, and analyst
training will be revised as necessary to emphasize the
documentation of evaluations performed, assumptions and/or
criteria used, and the rationale behind conclusions reached.
(b) Concerns that have the potential to be raised as uncer-
tainties by participants in the HLW management program or by
affected parties will be identified as potential uncertainties
and processed accordingly. Trivial concerns and observations
will be discouraged.
(c)(1) The RR Notes, sections 1.1 and 1.2, provide for
discussion of the rationale for candidate regulatory text
inclusion or omission. This will be reexamined as part of
Action (a) above. In addition, the criteria for inclusion or
omission will be reviewed and, where necessary, clarified.
(c)(2) Need amplification from the NRC. This information will
be obtained during the forthcoming user-requirements
interviews.
(c)(3) Need amplification from the NRC. This information will
be obtained during the forthcoming user-requirements
interviews.

5. Comment - The NRC recommends that the terms "Elements of Proof" and
    "Postulated Elements of Proof" be replaced with "Regulatory
    Elements of Proof" and "Postulated Uncertainty Reduction
    Language" (PURL), respectively.
    Action - The discussions of the past few weeks have clarified the
    concerns and needs of the NRC relative to this comment. The
    recommended revision of TOP-001-02 covering these items is
    included in the March 17 presentation.

6. Comment - (a) Section 5.4.2 of TOP-001-02 truncates the 22-step
    process in the presence of a Regulatory or Institutional
    Uncertainty.
    (b) An NRC decision point for resolution of uncertainty now
    appears to be needed.
    (c) How the Center will proceed with [the process] needs
    clarification.
    Action - (a), (b) and (c). One outcome of recent discussions
    relative to PA Key Questions, including uncertainty reduction
    in general (see C.5, Action, above), has been the establishment
    of an approach to completion of the 22-step process in the
    presence of an uncertainty. The resulting recommended revision
    of TOP-001-02 is included in the March 17 presentation.

7. Comment - (a) Care must be given to determining which of the potential uncertainties are selected for uncertainty clarification. In this respect, more attention needs to be given to PASS data field #46 (priority/ranking).
(b) Consideration should be given to the use of the term "potential" or "preliminary" uncertainty rather than "uncertainty" alone.

Action - (a) Milestones R8 and R9 will be the first of what is anticipated to be a series of such rankings of uncertainties. Care must be exercised in the face of eagerness to "drop out" uncertainties on the basis of a judgment by a particular party. It is essential to the integrity of the systems approach that such (by nature subjective) evaluations be conducted in as uniform a manner as possible. In addition, consideration should be given as to whether a "comparative evaluation" is desired (this suggests ranking "all" uncertainties at once) or a "fixed-reference evaluation" is desired (here one ranks uncertainties one-by-one against a selected scale of "importance"). The Center recommends that fixed-reference evaluation be used only in the absence of a population of uncertainties that will permit meaningful comparative evaluation.
(b) The consistent use by analysts of the term "potential uncertainty" will be stressed in the revised procedures, in PARC review, and in training.

8. Comment - OGC recommends prefatory language for incorporation into TOP-001-02 and all PA-derived products.
Action - The recommended paragraph will be included in all appropriate PA procedures and products.

DETAIL COMMENTS
NOTE: The detail comments can be accommodated in the revisions of the applicable TOPs without substantive change to the PA process. The specific response to each detail comment, together with a reference to the TOP section containing that response, will be added below and submitted with the revised TOPs.

PROCEDURE
Attachment A to TOP-001-02

To be developed during the planned procedure revision based on the NRC comments, Center Lessons Learned and the PA Review (see B.4, Action).

TOP-001, revision 1

To be developed during the planned procedure revision.

CONTENT
General

To be developed during the planned procedure revision.

Specific -- E17

To be developed during the planned procedure revision.

Specific -- E36

To be developed during the planned procedure revision.

FORMAT

To be developed during the planned procedure revision.

D. Enclosure to COMMENTS ON PROGRAM ARCHITECTURE DEVELOPMENT MILESTONES
    A5, A6, AND R7, letter Altomare to Whiting, 2/15/89.

1. Comment - (a) Lack of clarity with regard to the functional role of
        [certain] PASS data fields. The PASS data fields in question
        are as follows: 10, 13, 14, 21, 22, 34, and 47.
        (b) Also of concern is how one "cross-walks" from these seven
        fields to the other fields in PASS.
    Action - (a) Need clarification from NRC re "functional role".
        (b) Need clarification from NRC re "cross-walks". The
        information for both (a) and (b) will be obtained during the
        forthcoming user-requirements interviews.

2. Comment - NRC has had little exposure to the so-called "decision
        making apparatus" . . [including] the identification of
        programs offering the most promising reduction in the most
        crucial uncertainties, and the trade-offs between various
        alternative regulatory and programmatic approaches.
    Action - The primary focus of this question is PA Process step 17,
        which action follows establishment of uncertainty rank-ordering
        in step 13, and is the precursor for the detailed planning of
        the NRC program (steps 18 through 20). Confirmation of the
        rank-ordering process reflected in R8 and R9 will establish the
        basic approach to be used in the PASS. Step 13 will provide
        the basis for defining alternative NRC programs (step 15) and
        developing their costs, schedules and lead times (step 16). A
        rank-ordering process will be defined and implemented for step
        17 that operates the same as that used in step 13 but with
        attributes appropriate to the selection of the preferred NRC
        investigative program.

3. Comment - PA is to be able to demonstrate the vertical as well as
        the horizontal integration of the high-level waste program . .
        [including] interfaces between the repository, Defense Waste
        Production Facility, transportation, and the monitored
        retrievable storage facility, and a work breakdown structure.
        It is not clear how this is being addressed in the proof of
        system.
    Action - The Center understands that the NRC intends that the PASS
        should support NRC activities related to ensuring satisfactory
        vertical and horizontal integration of all components of the

waste management system. During the upcoming PA Process
Review, it is intended to examine the full scope of the
high-level waste management program as defined by the amended
Waste Policy Act to ensure that the above policy is satisfied.
Within the limits of the NWPAA, the Center will ensure that
PASS provides the capability to define the NRC program require-
ments for all such integration.

4.   Comment - A more user-friendly [PASS] panel needs to be created
         whereby a user can get information from a menu, and subse-
         quently generate reports.
     Action - During the prototype and demonstration phases of PASS
         development, most of the displays and reports have been done
         interactively on the screen, rather than as printouts. They
         also have been done primarily on an ad hoc basis. A number of
         reports have been defined to date. This output analysis will
         be completed based on the NRC end-user interviews (see B.4,
         Action) and a user-friendly menu panel listing the report
         options will be implemented in the next phase.

DRAFT OUTLINE
ADMINISTRATIVE PROCEDURE ON PROJECT MANAGEMENT AND CONTROL

1.   INTRODUCTION

2.   BACKGROUND

3.   PURPOSE AND SCOPE

This procedure details the methods of Project Management and Control to be used at the CNWRA and establishes responsibilities and functions for personnel to abide by. The scope of project management and control includes:

-Establishing a cost and schedule control system consistent with the nature and complexity of tasks assigned, and implementing it via the Program Architecture Support System cost and schedule module.

-Providing a means by which potential management problems are identified early enough to ensure corrections.

-Examining and controlling the interfaces and interrelationships among the project elements using the systems engineering approach being implemented by the Center via the Program Architecture.

-Ensuring that the complexity of the controls established are consistent with the cost of their maintenance.

-Responding to the dynamics of the project, and the changing needs and requirements of the NRC.

-Making the control system a benefit to the management and staff.

4.   PROJECT CONTROL RESPONSIBILITY

       4.1 Technical Director
       4.2 Director of Systems Engineering/System Integration
       4.3 Director, Washington Office
       4.4 Director of IMS
       4.5 Director of Administration
       4.6 Director of Quality Control
       4.7 Element Managers/Principal Investigators
       4.8 Manager, WSEI

5.   PROCEDURES

       5.1 Statement of Project
       5.2 Task Preparation

All tasks will be an integral part of an Operations Plan or research Project Plan. The responsibility for preparation of a task statement and associated cost and schedule information will be the Element Manager or Principal Investigator who will be responsible for the delivery of the products

associated with the task. Tasks statements will be prepared using the following guidelines.

     a. Description of product and a brief explanation as to how the product is to be developed (plan of action). The activities and their associated schedule network which comprise the task.

     b. Description of the relationship of the task to the Program Architecture, including discussion of the origination of the task from the PA and/or the use of products of the task as input to the PA.

     c. Relationship to preceding and/or succeeding tasks or activities.

     d. Planning assumptions.

     e. Principal Investigator. Special skills and estimated duration of requirement for the PI.

     f. Duration of task with requested resources (skill levels, hours, materials, services, subcontractors, consultants, etc.).

     5.3 Task Authorization
     5.4 Task Priorities
     5.5 Cost Estimates
     5.6 Resources
     5.7 Budget Control
     5.8 Change Control Board (CCB)
     5.9 Risk Management

ENCLOSURES

ENCLOSURE 3