

SEP 30 1988

MEMORANDUM FOR: Hugh L. Thompson, Jr., Director
Office of Nuclear Material
Safety and Safeguards

FROM: Robert E. Browning, Chairman
Center Review Group

SUBJECT: CENTER REVIEW GROUP MEETING MINUTES - 88-2

A Center Review Group (CRG) meeting was held on Tuesday, June 14, 1988. Those in attendance were:

- | | |
|--|---|
| Robert E. Browning, Chair | Ronald L. Ballard, HLTR, Member |
| Joseph O. Bunting, HLSE, Member | B. J. Youngblood, HLOB, Member |
| Charles MacDonald, SGTR, Member | Richard Grill, RES, Acting |
| Donald Hassell, OGC, Advisor | for Frank A. Costanzi |
| Mary Mace, Div. of Contracts, Advisor | Barbara Stiltenpole, CRG Coordinator |
| Shirley L. Fortuna, HLSE, Observer | Philip Justus, HLTR, Observer |
| Jerome Pearring, HLTR, Observer | |

The first item on the agenda (see Attachment 1), provide advice to Mr. Browning regarding redirection to the Center, was discussed by Mr. Bunting. The redirection is to accelerate development of selected portions of the Program Architecture; specifically, identifying which regulatory requirements (for those statutes and regulations that have been identified as having application or potential application to NRC's HLW regulatory program) that are regarded as being critical to "siting" and related activities. The Center shall take those requirements which are "siting" constrained and apply them to its "Process for Developing and Maintaining the NRC HLW Program Architecture" (see Attachment 2) and perform the necessary analyses. The analysis itself would consist of a statement of the "regulatory requirement," an identification of the "elements of proof" for the regulatory requirement, and an indication of what "compliance determination methodology" and attendant "information requirements" would be necessary for addressing the "elements of proof." The analysis would conclude with a statement of the "uncertainties" associated with the aforementioned items and the technical programs necessary to resolve them. The Center's development of the elements of proof requires written technical direction from NRC.

Mr. Browning asked what regulations the Center was now looking at. The attached letter dated June 6, 1988, Latz to Bunting, states that they will have to significantly reduce the number of regulations and statutes that must be considered. Mr. Browning stated that we need to have DOE's time line in order

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to determine how this fits within their schedule. Mr. Grill commented that we need to focus now on regulations that immediately impact the HLW program.

Mr. Bunting indicated that there were two activities that were not only complementing this redirection but were aiding in its development. These activities involved the drafting by the Center of Technical Operating Procedures (TOP's) and the joint development of definitions for Program Architecture concepts by NRC and the Center. The TOP document would be used by the Center to provide its staff with instructions on how to implement each of the so-called "WSE&I process blocks" used to develop and maintain NRC's Program Architecture, whereas the glossary of terms would provide the respective staffs with a consistent terminology for the NRC-HLW regulatory program. (It was noted that the NMSS staff is coordinating with the Office of the General Counsel on the development of the definitions.)

The discussion then focused on the "WSEI process block" diagram. Blocks 1 and 2 in the process diagram (e.g., to establish requirements) is generally regarded as an NRC role as opposed to a DOE role. Mr. Youngblood had a question regarding open items. It was decided that some type of evaluation needs to be done on the establishment of criteria for the identification of open items. Mr. Bunting indicated that it is ultimately NRC's decision as to what goes in to the "open items" category.

To facilitate acceleration of the Program Architecture, Mr Bunting indicated that it may be necessary to reprogram HLW funds from the other Program Elements, other than Waste Systems Engineering & Integration, in Task 1 (Support Development and Maintenance of Program Architecture) and Task 2 (Develop Technical and Analytical Capabilities) only. Mr. Ballard wanted to know how this acceleration would impact on the Center's FY89 Operations Plan. Mr. Bunting stated that the approach he would like to take is to have three Operations Plans, one for each FIN (e.g., NMSS HLWM, NMSS SGTR, and RES).

Also discussed were the following topics:

- 1) Mr. MacDonald asked if NRC had looked at DOE's HLW Program and if so, how much has been done to date. This is being coordinated by Phil Altomare who will report back at the next meeting.
- 2) On the subject of Quality Assurance, it is necessary to make sure that the approach has been resolved. Presently, procedures are being developed.

As to agenda item 2, Mr. Browning assured Mr. Bunting that he has his approval of the proposed concept for redirection to enable Mary Mace and him to renegotiate Program Architecture tasks and related impacts to include reallocation of funds between DHLWM Program Elements during their visit to the Center during the week of June 20.

| OFC | :HLSE | :HLTR | :HLOB | : SGTR | :OGC | :RES | :HLWM |
|------|------------|-----------|---------------|--------------|-----------|---------|-------------|
| NAME | :JOBunting | :RBallard | :BJYoungblood | : CMacDonald | :DHassell | :RGrill | :REBrowning |
| DATE | : | : | : | : | : | : | : |

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CRG MEETING MINUTES 88-2

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Shirley Fortuna questioned Mr. Grill about the status of RES's review of Research Project Plan #4, Siesmic/Rock Mechanics Project. Mr. Grill's response was that they were now awaiting comments from NMSS/HLTR. Mr. Pearing assured the group that HLTR has reviewed the Project Plan and that comments are being prepared for submission to RES. Mr. Pearing is to set up a meeting with J. Philip, RES on this Project per Mr. Browning. Mr. Browning also stipulated that NMSS and RES are to coordinate with the Center staff in preparing Plans, thus facilitating the review process.

Mr. Grill was under the impression that the Center has the Research money to proceed. It was explained by Mr. Bunting that this is a task order contract, and although money has been obligated, no money is authorized (released) until a project is approved.

Mr. Browning asked if there were any other items of interest or questions. There were none. The meeting was then adjourned.

Robert E. Browning, Chairman
Center Review Group

Enclosures:
As stated

DISTRIBUTION

Central Files
RBrowning, HLWM
RBallard, HLTR
MDelligatti, HLSE
JPearing, HLTR
Wott, RES

HLSE R/F
BJYoungblood, HLWM
BStiltenpole, HLSE
PAItomare, HLSE
SCoplan, HLOB
MMace, DC

NMSS RF
JBunting, HLSE
SFortuna, HLSE
PJustus, HLTR
JCook, SGTR
DHassel, OGC

HLSE
BStiltenpole
9/1/88

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|------|------------|-----------|---------------|-------------|-----------|----------|-------------|
| OFC | :HLSE | :HLTR | :HLOB | :SGTR | :OGC | :RES | :HLWM |
| NAME | :JOBunting | :RBallard | :BJYoungblood | :CMacDonald | :DHassel | :RGrill | :REBrowning |
| DATE | : 9/9/88 | : 9/23/88 | : 9/17/88 | : 9/26/88 | : 9/22/88 | : 7/7/88 | : 9/29/88 |

MEETING NOTICE

CENTER REVIEW GROUP (CRG)

TUESDAY, JUNE 14, 1988
11:00 A.M.
WFN CONFERENCE ROOM 4-B-13

AGENDA

1. Provide CRG advice to Mr. Browning regarding the redirection to the Center to revise Program Architecture development so as to focus on siting requirements. This will involve some reallocation of funding (Division of HLW funding only).
2. To obtain Mr. Browning's approval of proposed concept for redirection to enable Joe Bunting and Mary Mace to renegotiate Program Architecture task and related impacts to include reallocation of funds between DHLWM Program Elements during visit to Center week of June 20.

Background Material:

1. Definitions and Logic Diagram for Program Architecture Terminology
2. June 6, 1988 letter to J. Bunting
3. Proposed Letter, Bunting to Latz

CGR MEMBERS

Robert E. Browning, Chair
Joseph O. Bunting
Charles MacDonald

Ronald L. Ballard
B. J. Youngblood
Frank A. Costanzi

Donald Hassell, OGC, Advisor
Mary Mace, DC, Advisor

Barbara Stiltenspole, CRG Coordinator

Mr. John Latz, Pres
CRWFA

Subject: Proposed Program Architecture Redirection

In response to your Letter of June 7, 1988, enclosed please find the Logic Diagram for Program Architecture Terminology, dated June 10, 1988 and the associated definitions. The Diagram and definitions were previously telexed to you and discussed in our conference call on June 10, 1988. As discussed in our telephone conversation, the definitions have been constructed so as to convey the concept each term and its interrelationships with the other terms.

yet provide the Center the flexibility to elaborate on the definitions so as to insure clear consistent understanding of the direction that will be given to the program element managers.

As we discussed, the Elements of Proof and the Evaluation Findings are the mirror image on the staff side of the hearing process as the findings of fact and the Conclusions of Law on the Licensing Board side of the hearing process. I understand that you will now amplify these definitions and share with us your changes.

In response to your letter of 6/11/88 concerning the proposed approach to advance the development of the Program Architecture, we discussed in our June 10th telephone conversation. I contacted to provide a statement of the requirement that the deliverable desired by December 21, 1988 should address. That statement is enclosed. I understand that that the process chart enclosed in your June 6th letter will be modified to include a block reflecting early resolution of the conceptual requirements for the deliverable and that the deliverable will contain block 1, and that the briefing in block 10 will contain the block 12 information. We also understand that we can anticipate an early review of the proposed revisions to the Program Architecture (block 6). I understand the proposed modified process would incorporate "lessons Learned" from our experience to date, as well as those proposed modifications to time phase the development of the Program Architecture so as to produce an analysis of those sections of the statutes and regulations pertaining to Siting by December 21, 1988.

Mary Mace and I anticipate meeting with you at the Center the week of June 20th to negotiate your proposal to advance the development of the Program Architecture, including impacts on currently established funding levels, costs, and milestones. It is our desire to work out the final specific revisions during the week of the 20th, grant you Contracting Officer oral Authority to proceed, and to bring back your official final proposal so that it can be incorporated by a modification to the contract while you are in Washington the following week for the management meeting.

DEFINITIONS
-687
PROGRAM ARCHITECTURE TERMINOLOGY

REGULATORY REQUIREMENT

Statement of a requirement pertaining to the High Level Waste regulatory system as quoted from the statute or regulation, or other source which has the force of law.

ELEMENTS OF PROOF

What must be proven to support a conclusion that the Regulatory Requirement has been met. This may, or may not, be included in the Regulatory Requirement. If not, they must be postulated.

This would include those conditions, specifications, procedures, or other criteria, which will be the standard by which specific evidence will be compared to evaluate the degree to which the Regulatory Requirement has been met.

CNWRG amplify as required.

COMPLIANCE DETERMINATION METHOD

How the elements of proof can/will be shown to have been met.

Includes those procedures, processes, techniques, tests, or any other method, or combination thereof, that will be acceptable, within the context of CNWRG's regulatory program, to demonstrate compliance with the elements of proof. This includes methodologies, models, codes, consensus, certifications audits of records etc.

CNWRG amplify as required.

INFORMATION REQUIREMENTS

Information required to execute a Compliance Determination Method.

This would include access to records, plans, test data, analyses, etc.

CNWRG amplify as required.

REGULATORY UNCERTAINTY

Lack of certitude as to what is meant by the Regulatory Requirement, or the adequacy, completeness, and/or necessity of the Regulatory Requirement.

Regulatory Uncertainty may stem from lack of clarity in the quoted statement, the omission of an essential requirement from the

regulation or statute, and/or the inclusion of requirements in the statute or regulation that do not contribute/detract from the the Regulatory Program.

Add/work in the CNWRA definition

TECHNICAL UNCERTAINTY

Lack of certitude as to how to demonstrate compliance and/or obtain the requisite information.

Add/work in CNWRA definition

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 NRC's regulatory program.
Work in CNWRA definitions

UNCERTAINTY QUESTION

A component of the uncertainty - an expression or inquiry that calls for a reply.

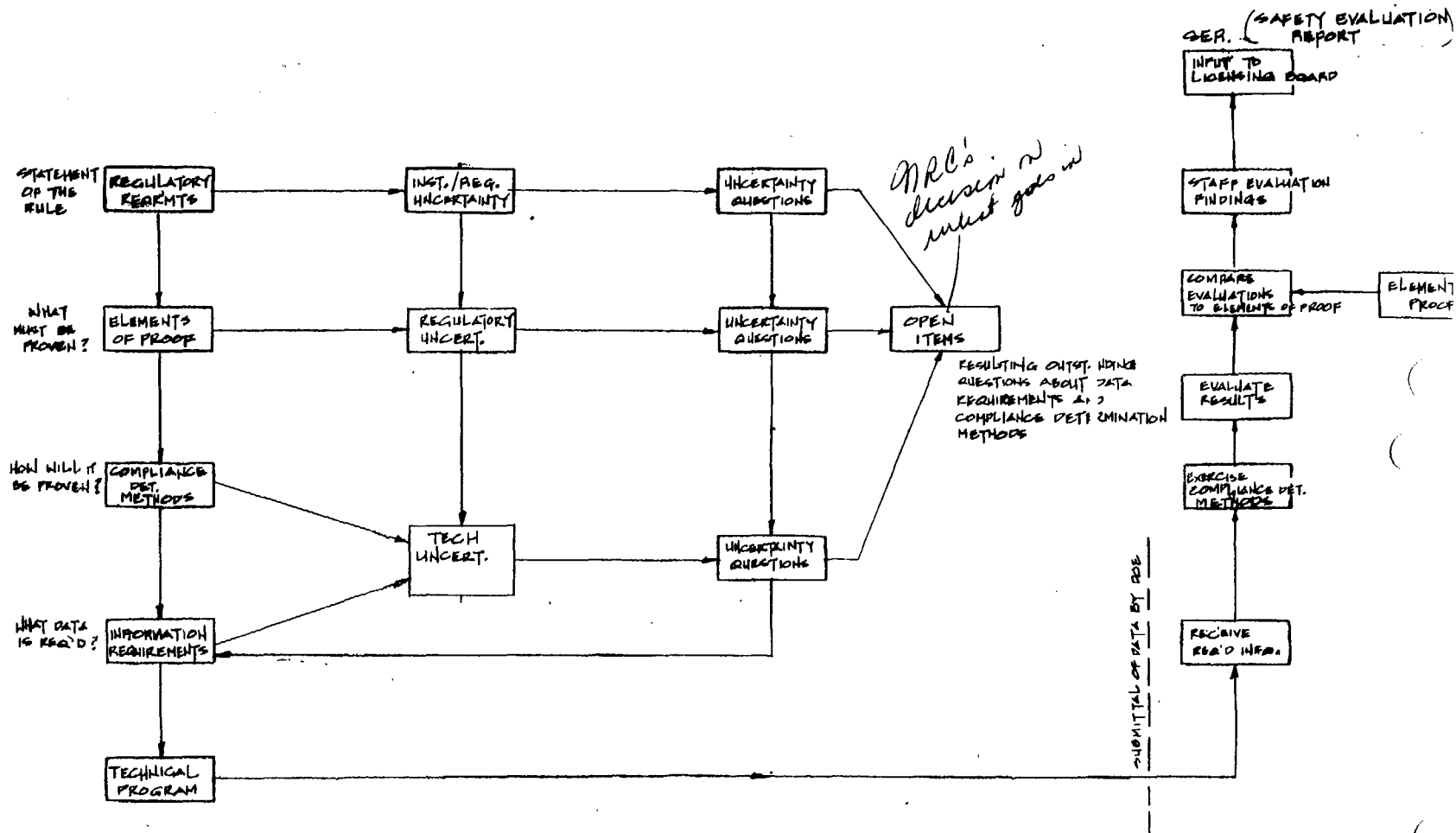
To resolve a specific uncertainty (institutional, regulatory, or technical), one or more questions will arise that will require information on which to base the reply. The resolution of the uncertainty is dependent upon the answer(s) to the question(s) which, in turn, is dependent on the specific required information.

OPEN ISSUES

Uncertainties, Questions, Information Requirements, decisions, both proactive and reactive, that has been approved by the Program Architecture Configuration Authority.

EVALUATION FINDING

Staff judgement which reflects the merits of the Applicant's information to support the elements of proof, and thus, the regulatory requirement. Evaluation Findings are included in the Safety Evaluation Report and submitted to the Licensing Board.



LOGIC DIAGRAM FOR
PROGRAM ARCHITECTURE TERMINOLOGY

JUNE 10, 1988

NOTE: THERE IS POTENTIAL FOR UNCERTAINTIES TO BE DERIVED AT ANY BLOCK IN THE PROCESS. THOSE UNCERTAINTIES MAY OR MAY NOT IMPACT THE TECHNICAL PROGRAM.

Center for Nuclear Waste Regulatory Analyses

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812) 822-5180 • FAX 812) 822-5185

June 6, 1988

U. S. Nuclear Regulatory Commission
ATTN: Mr. Joseph O. Bunting
Chief of the Systems Engineering & Evaluation Branch
Office of Nuclear Material Safety & Safeguards
Division of High-Level Waste Management
WF1
Mail Stop 4-H-3
Washington, DC 20555

Dear Mr. Bunting:

The purpose of this letter is to provide you and your staff with information concerning the approach that the Center is using to advance the development of the Program Architecture (PA) and Program Architecture Support System (PASS) in accordance with our contractual commitments and the Waste Systems Engineering and Integration (WSE&I) Operations Plan. It is provided in response to your request of June 3, 1988, for a written summary of the approach and activities that are underway and planned.

We stand ready to discuss this approach with you at your earliest convenience. If you have any questions, please contact me, W. Patrick, or A. Whiting.

Very truly yours,

John E. Lutz
President

cc: E. Adler
W. Patrick
A. Whiting

Enclosure



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Center Plan for Revision of Systems Engineering Approach and Continued Development of the Program Architecture

BACKGROUND

The development and presentation of WSE&I Major Milestone No. 18 was a significant programmatic success. Its completion resulted in a proof-in-concept for the systems engineering approach and the computer-based system for implementing that approach. In the process of developing and evaluating the PA and PASS, and responding to NRC staff critiques of this milestone, the Center has found that several modifications will be required to ensure that the PA and PASS fulfill the requirements of the Center and the technical and legal staffs of the NRC throughout the licensing process.

At the same time, NRC recognition of the capabilities of PA and PASS has led to urgent requests for the system to be pushed to a programmatically useable form in less than one third the time that was originally estimated (December 1988 versus September 1989). Such an approach is fraught with risk and, if not carefully and deliberately restrained, could lead to the failure and abandonment of the systematic course on which we have together embarked; a course that the Center believes is the only option identified to date which provides a reasonable likelihood of guiding NRC in the successful fulfillment of its HLW licensing mission.

Certain revisions may be able to be implemented that could significantly accelerate the development process (for parts of the system) while controlling the programmatic risks to the extent possible. The approach that is being sequentially evaluated and undertaken by the Center is described briefly below.

APPROACH

In view of the time and resource constraints present, in recognition of the desire of all parties to have an operational PA and PASS in place as soon as possible, and in light of the results of "lessons learned" in developments to date, the Center is undertaking a significantly different approach in continuing the development of the PA than has been taken to date.

We have identified three controlling factors that must be considered:

- Improved understanding and incorporation of licensing process features and terminology.
- Enhanced controls on development, and
- Programmatic acceleration through segmentation of the NRC-HLW licensing system.

With regard to the first item, perhaps the most significant "lesson learned" to date is the crucial need for the PA and PASS to (a) describe a process that is accurate and (b) use terminology that is consistent and compatible with the licensing process. The involvement of NRC-OGC has been pivotal in this regard.

Development of consistent terminology is currently one of two "pacing" items in the program development.

Second, enhanced controls on development have been found to be appropriate due to the complexity of the task, the multiplicity of skills and backgrounds brought to bear, and the magnitude of the effort. A second "pacing" item is the development and approval of technical operating procedures and associated guidelines or work instructions to control the development and review of the intermediate and final products of PA development.

Third, a potentially viable approach for accelerating development of selected portions of the PA has been identified. This approach calls for segmenting the suite of applicable statutes and regulations according to five timeframes of when staff action is required. These timeframes have been tentatively identified as:

- During site selection,
- Prior to construction,
- During operations, including operational monitoring,
- Prior to the decision to close and decommission, and
- Post-closure, including post-closure monitoring.

To be of substantial benefit in accelerating the time at which the PA and PASS will be programmatically useable, the first category must result in a significant reduction in the number of regulations and statutes that must be considered. It is not clear at this time whether this is true. If not, further segmentation may be necessary.

more criteria

Clarity

PROCESS

The Center is currently sequentially evaluating and implementing steps that will lead to a modification of the systems engineering process that was described first in our proposal and subsequently elucidated in the WRE&I Operations Plan. These are described briefly below and are shown in logical sequence in the attached figure. For convenience of reference, the descriptions are keyed to "block numbers": these are not in any way related to the process blocks that are used in the WRE&I Operations Plan.

Block 1. Develop and obtain NRC approval of the PA terminology as it is used to describe the licensing/hearing process. This is a pacing item that has been assigned Priority 1; without consistent terminology, it is impossible to prepare guidance to the Elements/Subelements for further work on the PA. The Center and the NRC have been working closely to obtain consensus on this matter. Concurrence by OGC is essential if the intended long-term utility of PA and PASS are to be obtained and maintained. Estimated date of completion (EDC) 6/10/88.

Block 2. Develop and obtain NRC approval of TOP-001, the technical operating procedure for the development and maintenance of the Program Architecture. This is a pacing item that has been assigned Priority 1; the additional control

provided through this TOP is essential to the orderly development of the PA. The draft procedure has been prepared, informally commented on by the NRC staff, and is being revised. Formal comments, if any, need to be received from NRC before the TOP is finalized and promulgated. EDC 6/10/88.

Block 3. Draft and obtain NRC approval of the work instruction that will provide guidance to the Program Architecture Review Committee (PARC) for MS12 review and revision. This activity has been assigned Priority 1 but must follow Blocks 1 and 2. The priority for the sequence of Blocks 3 through 5 is higher than the sequence of Blocks 6 through 8 because the former is anticipated to take longer and will allow a greater percentage of the staff effort to be directed toward the PA. This item will be the first work instruction developed to implement TOP-001. EDC draft 6/15/88.

Block 4. Implement PARC guidance for MS12 review and revision. Initiate immediately following NRC approval (EDC 6/21/88). Completion of this effort is impossible to estimate before the procedure is in place and has been used on some of the regulations and statutes.

Block 5. Screen for "Site constrained" Regulations and Statutes. This activity will follow completion of the review and revision of MS12. EDC is dependent upon number of regulations and statutes remaining for analysis and the proportion of those that qualify as "site constrained". Note that the use of the term "site constrained" (as distinct from "site related") has been selected in an attempt to focus the first round of analysis on those site attributes which are unlikely to be readily and directly mitigable by engineering means, e.g. the affect of site seismicity on the response of surface structures is "site related" but not "site constrained".

Not clear definition

Block 6. Revise and obtain NRC approval of PA process diagram. The sequence of activities defined by Blocks 6 through 8 is assigned Priority 2. Development of the PA to date has identified that several steps (e.g. proposed conclusions of law, findings of fact, action/open items, etc.) may need to be added to the original process and at least one (issues) can be deleted. Although in concept this sequence of blocks can be performed in parallel with the sequence 3 through 5, in practice the work must be accomplished by the same WSR&I Subelement team, with review and concurrence by the same NRC-staff counterparts. EDC target 6/24/88.

Block 7. Draft and obtain NRC approval of guidance for completion of steps x-y in development of the PA. The number of steps (noted by x-y) and their definition will be determined after Block 6 is complete and following further discussion with the NRC on the definition of the 12/21/88 deliverable, the need for which came into being 5/26/88. EDC target 7/8/88 to NRC for approval.

Process diagram

Block 8. Establish Milestones, their definitions, and schedules for completion. This activity will be undertaken after Block 6 is completed. The intent is to provide a relatively simple tabular and GANTT chart presentation of this material; a level of development and presentation appropriate to guide the development of the PA but not as complete as an Operations Plan. EDC target 7/13/88 to NRC.

Index

Block 9. Modify Operations Plans for FY89-90. This activity is assigned Priority 3. Fully developed formal Operations Plans are seen as important but not essential to the conduct of the work leading to the 12/21/88 deliverable.

Block 10. Element/Subelement implementation of guidance for steps x-y. The sequence of Blocks 10 through 12 are assigned Priority 1 in the time sequence because it is anticipated to take longer to execute and will allow a greater percentage of the staff effort to be directed toward the PA than will the sequence of Blocks 13 and 14. EDC unknown pending completion of Blocks 5, 7, and 8.

Block 11. WSE&I integration of Element/Subelement inputs on steps x-y. This is the next logical step after Block 10 in the progression of PA development.

Block 12. Draft, obtain NRC approval, and implement the guidance to PARC for review and revision of the integrated inputs for steps x-y. This is the next logical step after Block 11 in the progression of PA development.

Block 13. Draft and obtain NRC approval of the specification for the 12/21/88 deliverable. This may include a specification for the state-of-development of the PA and PASS as well as a specification (or at least a description) of the particular attributes of the deliverable of 12/21/88 that was briefly introduced to the Center staff on 5/26/88. EDC unknown pending completion of Blocks 5, 7, and 8, and further discussions with the NRC staff concerning the requirements of the 12/21/88 deliverable.

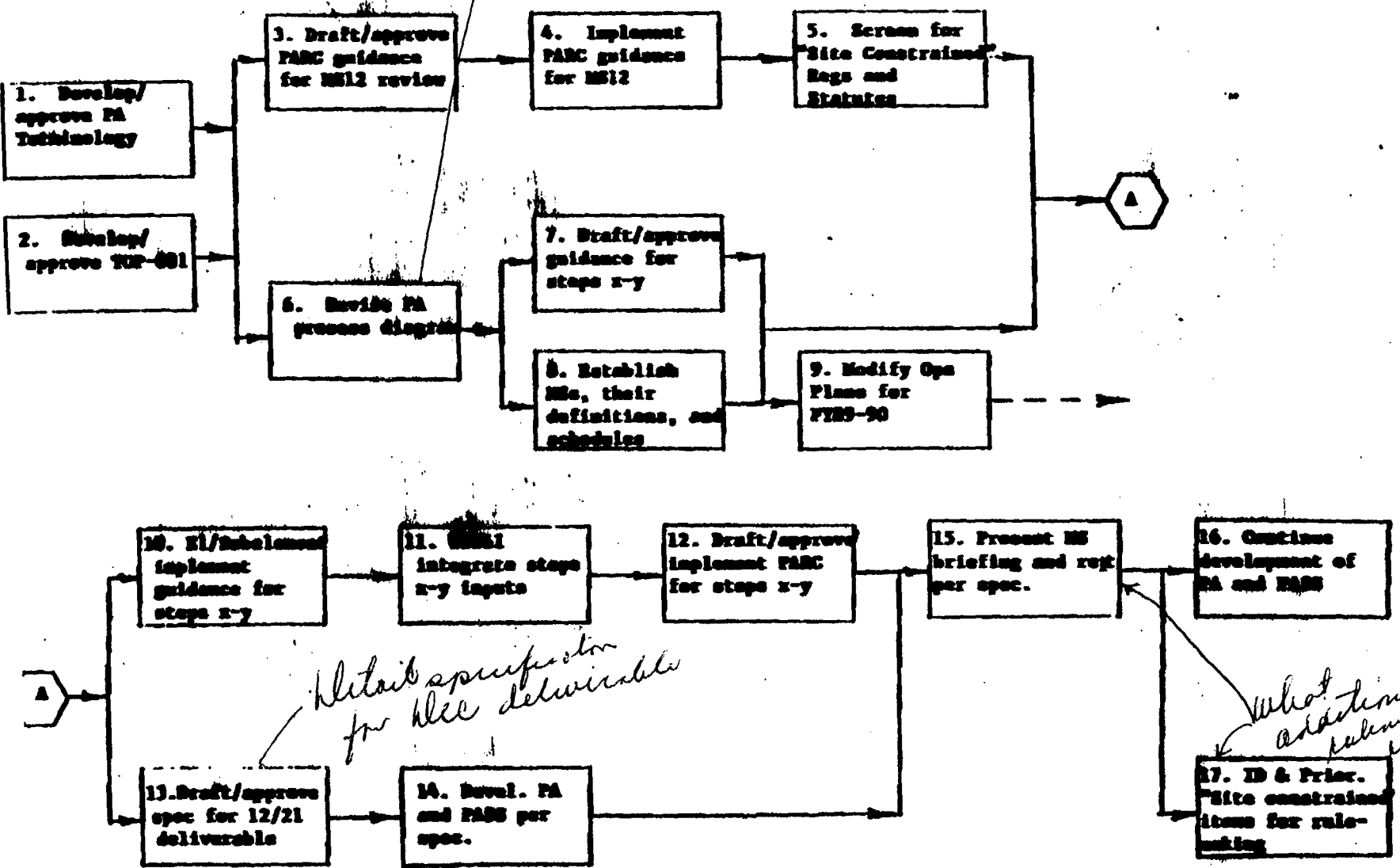
Block 14. Develop PA and PASS per the specification. This Block pertains to the activities focused on development of PASS as well as activities beyond those that will have already been undertaken via Blocks 10 through 12. It thus includes the incremental addition of inputs and PASS features that go beyond steps x-y.

Block 15. Present MS briefing and report per the specification. This is the culmination of development of the PA and PASS through steps x-y and in fulfillment of the deliverable of 12/21/88. It is anticipated that it will be presented in a manner similar to WSE&I Major Milestone No. 18.

Block 16. Continue development of PA & PASS. This Block indicates the continuing of the Center's development efforts following fulfillment of the immediate needs of the 12/21/88 deliverable.

Block 17. Identify and prioritize the "Site constrained" items for rulemaking. This Block represents the possibility that the PA and PASS development aspects may be separable from the use aspects of the 12/21/88 deliverable. It may be necessary to exercise PASS and various analytical methods to identify and prioritize items that should be considered for rulemaking and other related actions by the NRC and Center staffs. Further discussion of the purposes of the 12/21/88 deliverable are needed before an EDC can be given.

Approved

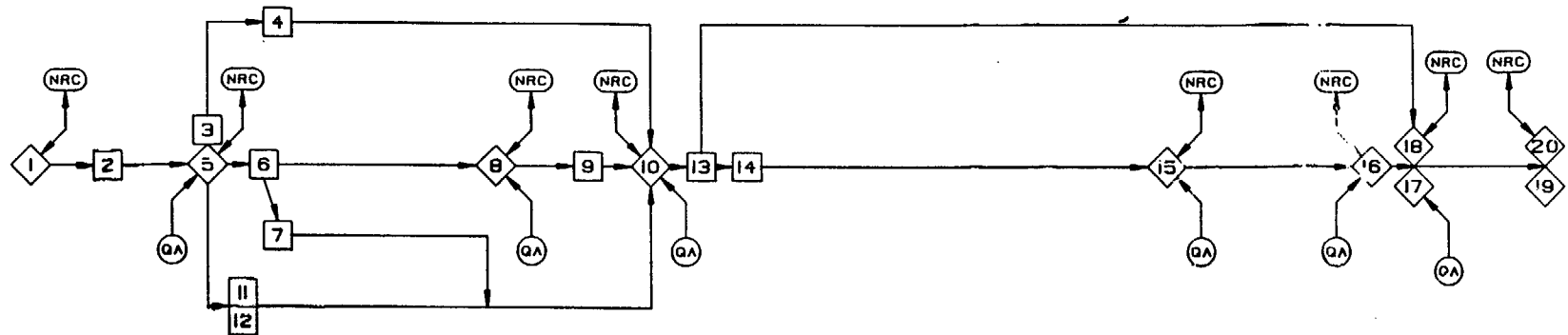


detail specification for all deliverables

What additional submissions required (2/21)

SCHEDULE HIGHLIGHTS (FY 1988-1989) FOR DEVELOPING AND MAINTAINING A PROGRAM ARCHITECTURE

| FY 1988 | | | | | FY 1989 | | | | | | | | | | | | | | | | | | |
|---------|-----|-----|-----|-----|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |



- X PHASE OF THE PROCESS REQUIRING WORK AT AND INPUT FROM THE PROGRAM ELEMENTS
- X PHASE OF THE PROCESS REQUIRING INTEGRATION
- NRC REVIEW AND APPROVAL BY NUCLEAR REGULATORY COMMISSION
- QA REVIEW AND APPROVAL BY QUALITY ASSURANCE

LEGEND

| | |
|---|-------------|
| 1. IDENTIFY APPLICABLE STATUTES AND REGULATIONS | 15 DEC 1987 |
| 2. ANALYZE REGULATORY REQUIREMENTS | 19 JAN 1988 |
| 3. IDENTIFY ALL REQUIRED FINDINGS | 1 MAR 1988 |
| 4. DESCRIBE AND QUANTIFY REGULATORY UNCERTAINTIES | 29 MAR 1988 |
| 5. IDENTIFY INTERRELATIONSHIPS AMONG WASTE SYSTEM COMPONENTS AND FINDINGS | 1 MAR 1988 |
| 6. IDENTIFY INFORMATION REQUIRED FOR FINDING | 24 MAR 1988 |
| 7. DESCRIBE AND QUANTIFY TECHNICAL UNCERTAINTIES | 28 MAR 1988 |

LEGEND (CONTINUED)

| | |
|---|-------------|
| 8. IDENTIFY CAPABILITIES FOR PROCESSING INFORMATION | 2 JUL 1988 |
| 9. DEVELOP COSTS, SCHEDULES, AND LEAD TIMES TO OBTAIN REQUIRED INFORMATION AND CAPABILITIES | 11 AUG 1988 |
| 10. CONSOLIDATE AND RANK ALL UNCERTAINTIES AFFECTING FINDING | 7 SEP 1988 |
| 11. OBTAIN DOE INFORMATION REQUIREMENTS AND UNCERTAINTIES | 15 MAR 1988 |
| 12. OBTAIN INFORMATION REQUIREMENTS AND UNCERTAINTIES OF STATES, INDIAN TRIBES AND OTHERS | 15 MAR 1988 |
| 13. SPECIFY ALTERNATE PROGRAMS AND CHANGES TO REDUCE CRITICAL UNCERTAINTIES | 12 SEP 1988 |

LEGEND (CONTINUED)

| | |
|---|-------------|
| 14. DEVELOP COSTS, SCHEDULES, LEAD TIMES, PAYMENTS AND RISKS FOR EACH ALTERNATE PROGRAM | 10 OCT 1988 |
| 15. ANALYZE PROGRAM TRADE-OFFS | 19 APR 1989 |
| 16. RECOMMEND UNCERTAINTY REDUCTION PROGRAMS AND CHANGES | 15 JUL 1989 |
| 17. DISPLAY NETWORK AND CRITICAL PATH FOR EACH FINDING | 4 AUG 1988 |
| 18. DISPLAY TOTAL PROGRAM FOR EACH FINDING | 4 AUG 1988 |
| 19. DOCUMENT PROGRAM STRUCTURE AND CHANGES | 29 SEP 1988 |
| 20. ISSUE RESOLUTION | 29 SEP 1988 |