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May 20, 1987

O. L. Olson
Chairperson
Readiness Review Board
Basalt Waste Isolation Project
Department of Energy
Richland Operations Office
Federal Building
825 Jadwin Avenue
Richland, WA 99352

Subject: Independent Management Review Team Restart Report

**Ref: Basalt Waste Isolation Project Management Guide PMG 19.11-RRI-02I,
"Readiness Review Final Report Instructions"**

Dear Mr. Olson:

The Independent Management Review Team (IMRT) has completed its review of the adequacy of the management and management processes to be used by the Integrating Contractor to control the restart of activities on the Basalt Waste Isolation Project (BWIP). The evaluation was performed during the period February 2 through March 27, 1987. The team prepared a checklist of five (5) major management criteria to guide their evaluation activities. The criteria selected were as follows:

- I. General Management and Processes
- II. Project and Business Management and Processes
- III. Technical Management and Processes
- IV. Quality Assurance
- V. Test and Construction

These criteria were further broken down to sub-criterion, to yield 25 individual criterion. This criteria checklist was approved by the Readiness Review Board.

The subject final IMRT Restart Report is enclosed and was prepared in accordance with the reference. The report contains the executive summary, and the body of the report provides the objective evidence to support the conclusions reported in the executive summary. Also enclosed is the criteria checklist which has been completed for each of the 25 management criteria and which reflects the conclusions drawn in the report.

The report is a "snap shot" in time of the status of Rockwell BWIP management structure and operational processes. It is based upon the procedural, management, and staffing status of BWIP as of March 27, 1987. It does not reflect any changes that were made in the processes or procedures after March 27, nor does it reflect any plans to complete open items that were issued after March 27. Based upon the status at that time, overall

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Lee D. Olson
May 20, 1987
Page Two

compliance with the 25 management and management process criteria was graded between 2, "Less than Adequate" and 3, "Satisfactory." Therefore, as of March 27, 1987, the team's opinion was that Rockwell had not fully achieved the management systems and disciplines necessary to satisfy the management criteria utilized in the evaluation. However, the status of the Rockwell management systems and processes has changed significantly in the past six weeks.

Recommendation

A review made during the week of May 10, 1987 showed that since the assessment was conducted, Rockwell management has addressed or is addressing the items identified by the Independent Management Review Team as potential deficiencies related to the restart. A review of the Readiness Review Team's Report and objective evidence was also performed in conjunction with the final review of the IMRT report. This analysis showed there were no major concerns in either report related to restart which required resolution between the two teams, and there are no significant items in the IMRT report which would preclude a partial lifting of the Stop Work Order. Therefore, the Independent Management Review Team recommends that a partial lift of the Stop Work Order be granted to the Integrating Contractor.

Upgrading the conclusions to a Level 3, "Satisfactory," to support fully lifting the Stop Work Order can be accomplished easily by Rockwell. This requires that they identify as complete or show a plan to complete those recommendations given in the IMRT report and that they obtain DOE-RL concurrence on those items reported as complete and on proposed plans and related schedules.

The Team expresses its appreciation to the Rockwell and other Major Project Participants personnel who openly assisted in the evaluation of project activities forming the foundation of the IMRT report. The assistance of DOE-RL personnel in making available documents for review is similarly acknowledged.

Sincerely yours,



Darrel G. Hubbard
IMRT Team Leader

Concur:



John M. Amaral
IMRT Chairperson

DGH:sm
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Enclosures (2)



ENCLOSURE 1

BASALT WASTE ISOLATION PROJECT

**INDEPENDENT MANAGEMENT REVIEW TEAM
STOP WORK ORDER
RESTART REPORT**

May 20, 1986

**Management Analysis Company
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San Diego, California 92130
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INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT**EXECUTIVE SUMMARY****I. INTRODUCTION**

The Chairman of the AMC Readiness Review Board established in February 1987 an Independent Management Review Team to evaluate the Rockwell BWIP management structure and the associated operational processes as they were to be applied to the general restart activities.

The team consisted of the following members:

J.M. Amaral, Chairperson
D.G. Hubbard, Team Leader
L.E. Zwissler
C.H. Barnes
R.B. Hansen
S.R. Holguin
L.D. Sorensen

II. EVALUATION PLAN

The evaluation was performed during the period February 2 through March 27, 1987. The team prepared a checklist of five (5) major management criteria to guide their evaluation activities. The criteria selected were as follows:

- I. General Management and Processes
- II. Project and Business Management and Processes
- III. Technical Management and Processes
- IV. Quality Assurance
- V. Test and Construction

These criteria were further broken down to sub-criterion to yield 25 individual criterion.

The team interviewed 81 management and supervisory personnel and reviewed existing documentation and records to provide objective evidence to support their evaluation. Interviewees included 69 managers and 12 individual contributors/team leaders. The interviews covered 65 personnel from Rockwell, 1 from Battelle-Pacific Northwest Laboratories (PNL), 1 from Westinghouse, 8 from

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT

Morrison-Knudsen (M-K) the Construction Manager, 4 from Kaiser Engineers/Parker Brinckerhoff (KE/PB) the architect engineer, and 2 matrixed Boeing Computer Systems (BCSR) personnel.

III. REPORT STRUCTURE AND CONTENT

The report is presented in 25 sections, one for each management criterion. Each criterion is sub-divided into four sections: a statement of the criterion; the evaluation developed from document reviews, observations, and input from multiple interviews; a conclusion about the adequacy of the current activities to meet the criterion; and recommendations for actions to upgrade inadequacies or discrepancies related to restart. The report provides evaluative statements supporting and pointing out the need for the listed recommendations. There are redundancies in the evaluation and recommendation sections: this was done to reduce the need for cross-referencing, thus to simplify the review of each criterion.

The report is a "snap shot" in time of the status of Rockwell BWIP management structure and operational processes. It is based upon the procedural, management, and staffing status as of March 27, 1987. It does not reflect any changes made to the processes or procedures after March 27, nor does it reflect any plans issued after March 27 to complete open items.

A grading system was used to express the degree to which the then current management and processes met the criteria. The grading system is structured as follows:

GRADE

- | | |
|---|---------------------|
| 1 | Unsatisfactory |
| 2 | Less than Adequate |
| 3 | Satisfactory |
| 4 | Highly Satisfactory |
| 5 | Outstanding |

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT**IV. OVERALL CONCLUSIONS**

Overall compliance with the 25 management and management process criteria is graded between 2, "Less than Adequate" and 3, "Satisfactory." As of March 27, 1987, the team's opinion was that Rockwell had not fully achieved the management systems and disciplines necessary to satisfy the management criteria utilized in the evaluation.

The project is evolving from a research and development mode into a structured and controlled Major System Acquisition project mode. Data is the key product at this stage of the project, and the goal is to produce and obtain data that meets regulatory, technical, and public requirements; not just data that meets the approval of the scientific community. These varied requirements and the changing program structure have resulted in inconsistencies and incompleteness in plans and procedures.

IV.1. General Management and Processes

Overall compliance with the General Management and Processes major criterion is graded as 2, "Less than Adequate." The charters, roles, responsibilities, and authorities for the various organizations are not clear, wholly understood, or well-defined. There may be some weaknesses in staffing. The project interface relationships among the project participants must be clarified and actions must be taken to assure that all staff understand and comply. A number of plans and various implementing procedures have not been issued. Policies and procedures relating to controlled documents, document hierarchy, requirements matrices, and the related lists or reports are not complete.

IV.2. Project and Business Management and Processes

Overall compliance with the Project and Business Management and Processes major criterion is graded as 2, "Less than Adequate." This is primarily due to the management systems and processes not quite being ready to support restart. Specifically, the Project Baseline Plan and Schedule has not been developed to the maturity required to control the BWIP. The required plans and implementing procedures have not been

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT

issued, or they need strengthening. In addition, there is concern over the adequacy and qualification of the staff for some of the processes.

IV.3. Technical Management and Processes

Overall compliance with the Technical Management and Processes major criterion is graded as 2, "Less than Adequate." This is primarily due to areas needing strengthening in systems engineering, design control, and technical data system readiness. The areas include procedure availability, charters, roles, responsibilities, and staffing.

IV.4. Quality Assurance

Overall compliance with the Quality Assurance major criterion is graded as 3, "Satisfactory." However, there is a lack of complete incorporation of requirements into implementing plans and procedures.

IV.5. Test and Construction

Overall compliance with the Test and Construction major management criterion is graded as 2, "Less than Adequate." This is primarily due to the fact that necessary implementing procedures have not been issued.

Since the review was conducted, Rockwell management has addressed or is addressing the items identified by the Independent Management Review Team as potential deficiencies related to the restart. Therefore, upgrading the conclusions to a Level 3, "Satisfactory," can easily be accomplished by identifying as complete or showing plans to complete those recommendations identified as necessary for lifting the Stop Work Order.

V. MAJOR GENERIC RECOMMENDATIONS

The details supporting the recommendations for each management criterion are included in the corresponding report section. The recommendations may be summarized into the following major classes to facilitate management review and preparation of action plans for resolution.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT

1. Revise and upgrade Project Management Procedures Manual (PMPM) ORG. 1.1 to clearly define charters, roles, responsibilities, interfaces, and authorities of all Rockwell organizational components.
2. Define and improve the interface relationships, including technical direction, project management, and business management, between and among DOE-RL, the IC, Rockwell as an MPP, and other Major Project Participants. Provide training to assure that the staff understands and complies with the interface requirements.
3. Determine and meet by training and acquisition the staffing requirements to satisfy capability and capacity needs.
4. Complete and issue required plans in accordance with project requirements.
5. Complete, issue, and implement necessary implementing procedures and instructions. Prepare and control the matrix of requirements and implementing documents to provide management control of new and changed requirements.
6. Prepare, issue, and use as a project controlling document the Project Baseline Plan and Schedule.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT

TABLE OF CONTENTS

<u>Section</u>		<u>Page</u>
	EXECUTIVE SUMMARY	i
I	GENERAL MANAGEMENT AND PROCESSES	I.1-1
I.1	Organization and Staffing	I.1-1
I.1.A	Management Criterion	I.1-1
I.1.B	Evaluation	I.1-1
I.1.B.1	Integrating Contractor Versus Major Project Participants	I.1-1
I.1.B.2	Roles and Responsibilities	I.1-2
I.1.B.3	Staff	I.1-3
I.1.B.4	Structure	I.1-4
I.1.C	Conclusion	I.1-5
I.1.C.1	Integrating Contractor Versus Major Project Participants	I.1-5
I.1.C.2	Roles and Responsibilities	I.1-6
I.1.C.3	Staff	I.1-6
I.1.C.4	Structure	I.1-6
I.1.D	Recommendations	I.1-6
I.1.D.1	Integrating Contractor Versus Major Project Participants	I.1-6
I.1.D.2	Roles and Responsibilities	I.1-6
I.1.D.3	Staff	I.1-7
I.1.D.4	Structure	I.1-8
I.2	Communication, Integration, and Interfaces	I.2-1
I.2.A	Management Criterion	I.2-1
I.2.B	Evaluation	I.2-1
I.2.B.1	Integration	I.2-1
I.2.B.2	Project-wide Communication	I.2-1
I.2.B.3	Interface/Direction	I.2-2
I.2.B.4	Reporting and Meetings	I.2-3
I.2.B.5	Rockwell Vertical Communication	I.2-3
I.2.B.6	Rockwell Horizontal Communication	I.2-4

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT

TABLE OF CONTENTS
(Continued)

<u>Section</u>		<u>Page</u>
I.2.C	Conclusion	I.2-4
	I.2.C.1 Integration	I.2-4
	I.2.C.2 Project-wide Communication	I.2-5
	I.2.C.3 Interface/Direction	I.2-5
	I.2.C.4 Reporting and Meetings	I.2-5
	I.2.C.5 Rockwell Vertical Communication	I.2-5
	I.2.C.6 Rockwell Horizontal Communication	I.2-5
I.2.D	Recommendations	I.2-5
	I.2.D.1 Integration	I.2-5
	I.2.D.2 Project-wide Communication	I.2-6
	I.2.D.3 Interface/Direction	I.2-6
	I.2.D.4 Reporting and Meetings	I.2-6
	I.2.D.5 Rockwell Vertical Communication	I.2-6
	I.2.D.6 Rockwell Horizontal Communication	I.2-6
I.3	Project Documents	I.3-1
I.3.A	Management Criterion	I.3-1
I.3.B	Evaluation	I.3-1
	I.3.B.1 Hierarchy and Requirements Traceability	I.3-1
	I.3.B.2 Master Document and "Q-Lists"	I.3-2
	I.3.B.3 Controlled Documents	I.3-3
	I.3.B.4 Availability	I.3-4
I.3.C	Conclusion	I.3-4
	I.3.C.1 Hierarchy and Requirements Traceability	I.3-4
	I.3.C.2 Master Document and "Q-Lists"	I.3-4
	I.3.C.3 Controlled Documents	I.3-5
	I.3.C.4 Availability	I.3-5

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT

TABLE OF CONTENTS
(Continued)

<u>Section</u>		<u>Page</u>
	I.3.D Recommendations	I.3-5
	I.3.D.1 Hierarchy and Requirements Traceability	I.3-5
	I.3.D.2 Master Document and "Q-Lists"	I.3-5
	I.3.D.3 Controlled Documents	I.3-6
	I.3.D.4 Availability	I.3-6
I.4	Training and Qualification	I.4-1
	I.4.A Management Criterion	I.4-1
	I.4.B Evaluation	I.4-1
	I.4.C Conclusion	I.4-3
	I.4.D Recommendations	I.4-3
I.5	Management Involvement and Commitment to Quality	I.5-1
	I.5.A Management Criterion	I.5-1
	I.5.B Evaluation	I.5-1
	I.5.C Conclusion	I.5-1
	I.5.D Recommendations	I.5-2
I.6	Security	I.6-1
	I.6.A Management Criterion	I.6-1
	I.6.B Evaluation	I.6-1
	I.6.C Conclusion	I.6-1
	I.6.D Recommendations	I.6-1
II	PROJECT AND BUSINESS MANAGEMENT AND PROCESSES	II.1-1
II.1	Project Planning and Control	II.1-1
	II.1.A Management Criterion	II.1-1
	II.1.B Evaluation	II.1-1
	II.1.C Conclusion	II.1-2
	II.1.D Recommendations	II.1-2
II.2	Records Management and Document Control	II.2-1
	II.2.A Management Criterion	II.2-1

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT

TABLE OF CONTENTS
(Continued)

<u>Section</u>		<u>Page</u>
	II.2.B Evaluation	II.2-1
	II.2.C Conclusion	II.2-4
	II.2.D Recommendations	II.2-4
II.3	Commitment and Corrective Action Control	II.3-1
	II.3.A Management Criterion	II.3-1
	II.3.B Evaluation	II.3-1
	II.3.C Conclusion	II.3-2
	II.3.D Recommendations	II.3-2
II.4	Acquisition and Procurement	II.4-1
	II.4.A Management Criterion	II.4-1
	II.4.B Evaluation	II.4-1
	II.4.C Conclusion	II.4-3
	II.4.D Recommendations	II.4-3
II.5	Configuration Management	II.5-1
	II.5.A Management Criterion	II.5-1
	II.5.B Evaluation	II.5-1
	II.5.C Conclusion	II.5-3
	II.5.D Recommendations	II.5-4
II.6	Management Information Systems	II.6-1
	II.6.A Management Criterion	II.6-1
	II.6.B Evaluation	II.6-1
	II.6.C Conclusion	II.6-3
	II.6.D Recommendations	II.6-3
III	TECHNICAL MANAGEMENT AND PROCESSES	III.1-1
III.1	Environmental, Licensing, Safety, and Health	III.1-1
	III.1.A Management Criterion	III.1-1
	III.1.B Evaluation	III.1-1
	III.1.C Conclusion	III.1-1
	III.1.D Recommendations	III.1-2

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT

TABLE OF CONTENTS
(Continued)

<u>Section</u>		<u>Page</u>
III.2	Systems Engineering	III.2-1
	III.2.A Management Criterion	III.2-1
	III.2.B Evaluation	III.2-1
	III.2.C Conclusion	III.2-2
	III.2.D Recommendations	III.2-2
III.3	Engineering and Design	III.3-1
	III.3.A Management Criterion	III.3-1
	III.3.B Evaluation	III.3-1
	III.3.C Conclusion	III.3-2
	III.3.D Recommendations	III.3-2
III.4	Science	III.4-1
	III.4.A Management Criterion	III.4-1
	III.4.B Evaluation	III.4-1
	III.4.C Conclusion	III.4-1
	III.4.D Recommendations	III.4-1
III.5	Technical Data System	III.5-1
	III.5.A Management Criterion	III.5-1
	III.5.B Evaluation	III.5-1
	III.5.C Conclusion	III.5-2
	III.5.D Recommendations	III.5-2
IV	QUALITY ASSURANCE	IV-1-1
IV.1	QA Program Plans and Procedures	IV.1-1
	IV.1.A Management Criterion	IV.1-1
	IV.1.B Evaluation	IV.1-1
	IV.1.C Conclusion	IV.1-3
	IV.1.D Recommendations	IV.1-4

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT

TABLE OF CONTENTS
(Continued)

<u>Section</u>		<u>Page</u>
IV.2	Quality Engineering, Inspection, Surveillance, Audit, and Assessment	IV.2-1
	IV.2.A Management Criterion	IV.2-1
	IV.2.B Evaluation	IV.2-1
	IV.2.C Conclusion	IV.2-3
	IV.2.D Recommendations	IV.2-3
IV.3	Unusual Occurrence Reporting	IV.3-1
	IV.3.A Management Criterion	IV.3-1
	IV.3.B Evaluation	IV.3-1
	IV.3.C Conclusion	IV.3-1
	IV.3.D Recommendations	IV.3-1
IV.4	Quality Concerns Program	IV.4-1
	IV.4.A Management Criterion	IV.4-1
	IV.4.B Evaluation	IV.4-1
	IV.4.C Conclusion	IV.4-1
	IV.4.D Recommendations	IV.4-1
V	TEST AND CONSTRUCTION	V.1-1
V.1	Test	V.1-1
	V.1.A Management Criterion	V.1-1
	V.1.B Evaluation	V.1-1
	V.1.C Conclusion	V.1-1
	V.1.D Recommendations	V.1-1
V.2	Handling, Storage, Receiving, and Shipping	V.2-1
	V.2.A Management Criterion	V.2-1
	V.2.B Evaluation	V.2-1
	V.2.C Conclusion	V.2-2
	V.2.D Recommendations	V.2-2

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT

TABLE OF CONTENTS
(Continued)

<u>Section</u>		<u>Page</u>
V.3	Construction Management	V.3-1
	V.3.A Management Criterion	V.3-1
	V.3.B Evaluation	V.3-1
	V.3.C Conclusion	V.3-2
	V.3.D Recommendations	V.3-2
V.4	Industrial Safety	V.4-1
	V.4.A Management Criterion	V.4-1
	V.4.B Evaluation	V.4-1
	V.4.C Conclusion	V.4-2
	V.4.D Recommendations	V.4-2

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT**I. GENERAL MANAGEMENT AND PROCESSES****I.1 ORGANIZATION AND STAFFING****I.1.A Management Criterion**

The current Rockwell organization must be effectively structured and sufficiently staffed with qualified personnel to restart project work and to manage the project after restart.

I.1.B Evaluation

The evaluation for this criterion is divided into four sections or areas to facilitate review, analysis, and recommendations.

I.1.B.1 Integrating Contractor Versus Major Project Participants (MPP)

- a. The Rockwell role as Integrating Contractor is seen as improving. Interviews indicate the new Management and Integration organization is beginning to function as a project office, and that it will gain strength as the staff is strengthened with experienced personnel.
- b. Interviews indicate there is a lack of understanding at various management levels within Rockwell regarding the contractual scope, responsibility, and authority of other project participants. Examples include:
 - o The interrelationship and roles of the Contracting Officer's Technical Representative (COTR) and the Management and Integration End Function Managers in dealing with the direct funded contractors are not clear.
 - o The Rockwell internal organizational roles and responsibilities for direction of construction activities are not clear.
 - o The Construction Manager COTR and Architect Engineer (A/E) COTR appear to be bypassed on many requests for technical information and clarification.
- c. There is the perception that Rockwell has not taken the lead in on-site project integration, but that it has spent more time looking at in-house situations.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT

- d. Interviews indicate that End Function managers need to take a step back and manage the work load by reducing their involvement in technical work.

I.1.B.2 Roles and Responsibilities

- a. There is an apparent need to specifically define and clarify the functions and responsibilities of the QA Department Groups, consistent with the current organizational structure, either in the Project Management Procedures Manual (PMPM), ORG 1.1 or in separate charter-type documents. The precise responsibilities of the QA Department are not clearly defined in ORG 1.1.
- b. The responsibility for resolving the quality assurance issues on BWIP is assigned, apparently, to the Rockwell General Manager and not the BWIP Project Director. Consequently, the BWIP QA Manager may not have overall authority and responsibility for the QA Program as required by the SRP Section 1.10.
- c. There appears to be a project-wide confusion about roles and responsibilities such as design, detail design, kicking off construction, and construction. There is confusion about who is driving the process: the End Function Manager for L6 or the End Function Manager for L7.
- d. The charters and roles of the End Functions are not well-defined.
- e. There is currently no named person or designated position within the Rockwell BWIP Organization (other than, possibly, the Project Director) that could be deemed responsible for the overall security management of the project.
- f. The role of industrial safety is not clearly identified.
- g. The interface between Training with Management & Integration is undefined.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT

- h. Interviewees and document reviews indicate position descriptions are incomplete (either not available or lacking job prerequisites) and are inconsistent for the same job in different departments.

I.1.B.3 Staff**Qualifications**

- a. End Function Managers and staff have strong technical backgrounds but lack extensive program management experience. There is a variation of acceptance by Rockwell line organizations of the various End Function managers.
- b. The BWIP Business Management Department needs strengthening in the area of personnel who have planning and scheduling expertise. A new centralized scheduling group has been approved with the intent to provide these services to the functional managers. The requisitions are not filled as of this date.
- c. Rockwell senior BWIP project management is perceived as very strong, and the top layers of project management is gaining strength.
- d. Interviews indicate that 10-15 percent of the overall incumbent staff may need further training to meet the qualifications for their positions.
- e. The Rockwell Construction Department staff are qualified.
- f. The records management and document control staff, with some exceptions, lack experience in dealing with implementation of NQA-1 documentation programs.

Staffing Level

- a. Budget ceilings imposed on groups matrixed to BWIP by other Rockwell functions could lead to some manpower limitations.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT

- b. Interviews indicate that Management and Integration Function may be as much as 50 percent understaffed.
- c. The COTR position appears to be somewhat perfunctory and lacks staff to maintain a centralized interface.
- d. A Staffing Plan for the Data Management Unit was presented in August, 1986. Five positions were identified for the Unit; only one was budgeted.
- e. Records management and document control organization charts show that implementing organization structures were not in effect and that certain positions had not been filled at the time interviews were conducted. Interviews indicated that the document control organization necessary to fully implement the program would not be in place for approximately 60 days, assuming that requested resources were obtained and the necessary implementation steps and training were complete.

Quality of Work Life

- a. Interviews indicate that obtaining qualified staff is hampered by low beginning salaries, program bureaucracy, geographical area, and restrictions on professional activities.
- b. Interviews indicate the vast majority of BWIP personnel are perceived as capable, professional, and enthusiastic. The way they deal with their work frustrations is considered admirable.

I.1.B.4 Structure

- a. The SRP requires that the individual retaining "overall authority and responsibility for the QA Program . . . is at the same or higher organizational level as the highest line manager directly responsible for performing activities affecting quality . . ." The organizational title of the QA Manager is Department Manager, in contrast to the titles of "Director" for functional managers of quality effecting activities.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT

- b. The reorganization has significantly improved vertical communication and has generally improved horizontal communication within Rockwell.
- c. The reorganization has helped teamwork by more clearly defining roles and responsibilities. Managers now have more responsibility, with position -- rather than personality -- imparting the required authority.
- d. It is not apparent that there is a central planning and scheduling function with related controls.
- e. The BWIP safety function is not shown on the Rockwell BWIP organization chart, nor is the BWIP security function.

I.1.C Conclusion

Overall compliance with the Organization and Staffing management criterion is graded as 2, "Less Than Adequate." An understanding is just emerging that the project is evolving from a research and development mode into a structured and controlled project mode. There is also a growing realization that data is the key product at this stage of the project, and that the goal is to produce/obtain data that meets requirements for regulatory, technical and public acceptance, not just scientific community approval. However, interviews coupled with a review of PMPM ORG 1.1 show that the charters and roles for the various organizations are not clear, wholly understood, or well-defined. There may also be some weaknesses in the staff or staffing of specific organizations. A separate conclusion for each of the four areas of this criterion is given below:

I.1.C.1 Integrating Contractor Versus Major Project Participants (MPP)

Compliance with the Integrating Contractor Versus MPP portion of the management criterion is graded as 2, "Less than Adequate." The charter and authorities of the various participants are not well understood within Rockwell, and its function as Integrating Contractor is being marginally performed.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT**I.1.C.2 Roles and Responsibilities**

Compliance with the Roles and Responsibilities portion of the management criterion is graded as 2, "Less Than Adequate." The overall set of charters, roles, authorities, and responsibilities is not clear or well defined.

I.1.C.3 Staff

Compliance with the Staffing portion of the management criterion is graded as 2, "Less Than Adequate." There are perceived staff shortages in the document control, records management, planning and scheduling, and Management and Integration organizations.

I.1.C.4 Structure

Compliance with the Structure portion of the management criterion is graded as 3, "Satisfactory." However, the organizational level of the QA Department Manager apparently is not at the same or higher level than the functional directors performing quality effecting activities.

I.1.D Recommendations

Recommendations are provided below for each of the four areas of this criterion.

I.1.D.1 Integrating Contractor Versus Major Project Participants (MPP)

(1) Train Rockwell BWIP management personnel in the charters and authorities of other MPPs.

I.1.D.2 Roles and Responsibilities

(1) Revise and upgrade PMPM ORG 1.1 to clearly define and identify charters, roles, responsibilities, interfaces, and authorities. Specific items which should be addressed include but are not limited to:

- o Define charters for each MPP, the Integrating Contractor, and the Management and Integration Function.
- o Identify roles responsibilities, interfaces, and authorities for each End Function.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT

- o Include roles responsibilities, interfaces, and authorities for each Rockwell project line organization down through the group level.
- o Clarify the specific responsibilities of the Quality Assurance Manager.
- o Clarify the charters for the individual QA Groups to resolve the apparently redundant and confusing assignments of responsibility.
- o Resolve the authority for the Surveillance Group to perform an "inspection overview and acceptance program" for the Exploratory Shaft and similar programs for the BWIP by inclusion in the individual group charters.
- o Define the responsibility of the BWIP Project Director for quality and the resolution of quality assurance issues.
- o Clearly establish within Rockwell the ultimate responsibility for the resolution of quality assurance issues.
- o Strengthen and clarify role of Integrating Contractor and the Management and Integration Function.
- o Clarify the roles of the COTR, Technical Integration Coordinator (TIC), and Management & Integration End Function Manager in dealing with Direct Funded Contractors (Construction Manager and A/E).
- o Clarify the Rockwell internal organizational roles and responsibilities for direction of construction activities.
- o Define in clear, unequivocal terms the charter of the Systems Engineering Department.
- o Define the design organizational interfaces addressed in the BWIP Design and Development Plan.
- o Clarify roles, responsibilities and interfaces of the Site Department.
- o Identify safety responsibility and roles.
- o Identify security responsibility and roles.

I.1.D.3 Staff

- (1) Complete staffing and training of the Document Control Department.
- (2) Implement a centralized Integrating Contractor planning and scheduling function staffed with qualified personnel.

I.1.D.4 Structure

- (1) Complete implementation of the centralized Integrating Contractor planning and scheduling function.
- (2) Clarify the proper organizational level within the BWIP organization for the present Quality Assurance Department Manager.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT**I.2 COMMUNICATION, INTEGRATION, AND INTERFACES****I.2.A Management Criterion**

Rockwell must have an effective system for integrating the efforts of all project participants, keeping management apprised of project status, and effectively communicating information within Rockwell and to appropriate project participants.

I.2.B Evaluation

The evaluation for this criterion is divided into six sections or areas to facilitate review, analysis, and recommendations.

I.2.B.1 Integration

- a. Formal and official BWIP "Technical Integration Coordinators (TIC)" have been established with Westinghouse and Pacific Northwest Laboratories (PNL) in accordance with PMPM Procedure 6-101. These official interfaces are perceived as a positive function in performing the Integrating Contractor role and in strengthening technical direction and administrative communication.
- b. End Functions still have integration problems. They are caused by difficulty in obtaining cooperation because of the tendency to get involved in technical details and direction, as opposed to staying involved in project management.
- c. Rockwell is producing a number of new manuals and procedures and the other MPPs are confused about which or any they should be following. Requirements in Rockwell procedures are sometimes not coordinated, or interfaces are not defined in relation to other contractor procedures.

I.2.B.2 Project-wide Communication

- a. Project communication and coordination between various departments needs strengthening due to insufficient attention having been given to interfacing and integrating procedures.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT

- b. Project document control is hampered by the current communication path through Rockwell Construction or through Science and Engineering to the other MPPs.
- c. The current communication path between MK and KE/PB is cumbersome and complex. For example, it flows from one MPP to another MPP, through the cognizant COTR to one Rockwell technical line organization to another Rockwell line organization to the other cognizant COTR and then to the other MPP.

I.2.B.3 Interface/Direction

- a. There are some apparent interface problems between scientific and test/operations personnel regarding attendance at tests, control of tests, and analysis of test data.
- b. The current interface path for resolution of constructor/A-E problems is cumbersome and complex. It flows from Construction Manager to A/E through the Construction Manager cognizant Rockwell COTR to one Rockwell technical line organization to another Rockwell line organization to the A/E cognizant Rockwell COTR and then to the A/E.
- c. The Data Management Unit does not interface with the Configuration Management group.
- d. The Rockwell BWIP Design and Development Plan identifying external and internal design interfaces among project participants have not been formally released.
- e. There are two separate configuration management organizations -- one for software, one for the facility. Effective communication and integration between these related activities is not occurring.
- f. The general interfaces between Rockwell and the other MPPs are governed by PMPM Procedure 06-101.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT**I.2.B.4 Reporting and Meetings**

- a. Interviews show a perception that there are too many meetings, many of which are of only minimal value.
- b. Interviewees indicate that productive time is lost by attending too many meetings.
- c. Resource management reports are now prepared and issued weekly.
- d. Each month Rockwell holds two half-day project status meetings with DOE-RL.
- e. The Monday morning project meeting is considered to be effective and gaining in value.
- f. Interviewees indicate there may be much time lost in excessive reporting.

I.2.B.5 Rockwell Vertical Communication

- a. Interviews and document reviews indicate that vertical communication has improved within the organization. Vertical communication is fairly open and problem solving is occurring at lower levels, rather than elevating concerns to directors.
- b. Many interviews indicated that there is still some difficulty getting concerns elevated up the management chain in a timely manner.
- c. The Records Management/Document Control organization, which is central to an effective sustained restart, is three management levels removed from the Project Director. Intermediate management does not have contemporary experience with NQA-1 projects of this nature and may not provide adequate support for this activity.
- d. Observation of major staff meetings indicates they are controlled, informative, provide for cross communication, and reinforce priorities.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT

- e. Interviews indicated an inadequate communication of project priorities and changes to priorities from DOE-RL down to the group and unit levels.

I.2.B.6 Rockwell Horizontal Communication

- a. Interviews indicate that horizontal communication is improving as the Management and Integration function becomes stronger.
- b. Interviewee perceptions are that horizontal communication is good across the top of the BWIP Rockwell organization, but some pockets of isolation still exist at lower levels. Communication between various functions at the group level is felt to need improvement.
- c. Interviews indicated that the project-wide training conducted on project requirements and implementing procedures has improved the horizontal communication within Rockwell.

I.2.C Conclusion

Overall compliance with the Communication, Integration, and Interfaces management criterion is graded as 3, "Satisfactory." However, the Integrating Contractor integration function has not received adequate procedural coverage. The processes and implementing procedures controlling communication, integration, and interfaces need to be improved.

A separate conclusion for each of the six major areas of this criterion is also given below.

I.2.C.1 Integration

Compliance with the integration portion of the management criterion is graded as 2, "Less than Adequate." Communication in the area of procedure development is poor between Integrating Contractor, A/E, and Construction Manager.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT**I.2.C.2 Project-wide Communication**

Compliance with the Project-wide Communication portion of the management criterion is graded 3, "Satisfactory;" however steps should be taken to improve the timeliness of written communication among MPPs, the Integrating Contractor, and DOE-RL.

I.2.C.3 Interface/Direction

Compliance with the Interface/Direction portion of the management criterion is graded as 3, "Satisfactory."

I.2.C.4 Reporting and Meetings

Compliance with the Reporting and Meeting portion of the management criterion is graded as 3, "Satisfactory;" however, improvement in effectiveness and reduction in the number of meetings and number of attendees is desirable.

I.2.C.5 Rockwell Vertical Communication

Compliance with the Vertical Communication portion of the management criterion is graded as 3, "Satisfactory."

I.2.C.6 Rockwell Horizontal Communication

Compliance with the Horizontal Communication portion of the management criterion is graded as 3, "Satisfactory;" however, improvement in the timeliness of the written communication cycle should be accomplished.

I.2.D Recommendations

Recommendations for each of the six major areas in this criterion are given below.

I.2.D.1 Integration

- (1) Continue strengthening the Management and Integration operation and the role of the End Function manager.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT**I.2.D.2 Project-wide Communication**

- o None

I.2.D.3 Interface/Direction

(1) Ensure that the detailed interfaces stated in the BWIP Project Management Procedure Manual, ORG 1.1 and the Project Management Plan, are included in the Rockwell individual plans, and that these plans are finalized and issued for use.

(2) Integrate the software configuration management function and the engineering configuration management function.

I.2.D.4 Reporting and Meetings

- o None

I.2.D.5 Rockwell Vertical Communication

- o None

I.2.D.6 Rockwell Horizontal Communication

- o None

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT**I.3 PROJECT DOCUMENTS****I.3.A Management Criterion**

Project documentation, both requirements and implementing, must be identified, hierarchically related, controlled, maintained, approved, and issued (and released for use if currently required by project status).

I.3.B Evaluation

The evaluation for this criterion is divided into four sections.

I.3.B.1 Hierarchy and Requirements Traceability

- a. The only hierarchy chart currently available is contained in the draft Project Management Plan and Management and Integration Plan.
- b. There is no procedure covering the development and maintenance of a project documentation hierarchy, responsibility for its maintenance, or how it is controlled.
- c. There is no configuration management of procedures to assure continuity and consistency between procedures and instructions. Each procedure and instruction is handled independently. Configuration management is lacking in the review process for plans and procedures, (i.e., changes get proposed one on top of another). Changes proposed subsequent to transmittal for DOE-RL review may need to be incorporated in the draft undergoing review.
- d. Two matrices or indices relating QA Requirements to implementing procedures exist:
 - o Appendix B - Requirements and Implementing Procedures Index of RHO-BW-MA-3
 - o QA Requirements Matrix in RHO-BW-MA-17

However, there are no procedures that address the development, maintenance, or authority of these matrices or how the two are kept synchronized.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT

- e. There is no procedure or specified requirement for matrix type relationship tables in the management and administration area that relate top down requirements to implementing procedures. Initial matrices in the business management and administration area were included as Appendix G to the Rockwell BWIP Restart Readiness Report. However, there is no procedure drafted or issued that addresses the development, maintenance, or authority of this matrix.
- f. There is a lack of consistency among the plan and procedure documents with regard to organizational titles used, treatment of other Major Project Participants, invoking top level plans, and etc.
- g. The Procedure Review Committee reviews only Rockwell documents. The Rockwell QA department is the only Rockwell organization reviewing other MPP administrative procedures for adequacy with respect to QA requirements. There is no review for compliance with other project requirements. Management and Integration should be reviewing these as the Integrating Contractor.

I.3.B.2 Master Document and "Q-Lists"

- 1. Various informal document and document status reports/lists were found. However, there is no official master document list providing their status. There is no procedure covering the development, contents, maintenance, and change control of a master document list(s).
- 2. Drafts of Q-Lists were seen in various groups. Procedure 4-121 requires that a Q-List be used to maintain the quality level designation listing of items for BWIP. However, there is no administrative procedure which covers the development, maintenance, contents, change, and roles and responsibilities for these lists. There is also no procedural coverage for establishing and maintaining quality levels for administrative plans and procedures.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT

I.3.B.3 Controlled Documents

- a. The PMPM contains procedures which are dated by both an issue date and effective date. [For example, the Table of Contents, Revision 48 issue date 03-10-87, identifies procedure 1-111 BWIP, Action Tracking System, issue date 03-05-87 effective date 03-26-87 Revision 1. Revision 0 of this procedure is in effect until 03-26-87 for controlling activities. However, Revision 0 has been removed from controlled manuals (i.e. #107) and is not available for use until the Revision 1 is effective.] There is a period of time, generally about 21 days, between issue dates and effective dates during which procedures that are specifically effective are removed from manuals and replaced by those not yet effective. Hence, no procedure exists to control the activity during this period. This may not be a serious problem concerning administrative procedures. A serious error may occur if technical work is accomplished to a revised procedure prior to its effectivity date.
- b. There is no procedure or method for identifying and designating a document as controlled.
- c. There is no procedure covering the content, format, development, maintenance, or issuance of a controlled document list.
- d. The "Controlled Document List, dated 2/12/87, (Report BDC-01) and issued under Rockwell Project Directive - "Controlled Document List" and transmitted by Rockwell letter 32909, R1 "BWIP Controlled Document List" dated 2/19/86, from D. C. Gibbs (Rockwell) to J. H. Anttonen (DOE-RL) is inaccurate and uncontrolled. It is more akin to a master or controlled document status list. [For example, procedures 06-107 and 06-108 are shown as Rev 1-A, whereas in actuality Rev 1 of both documents dated 9/12/86 and 9/23/86 respectively are in effect; Procedure 4-121 Rev 0 is shown as unissued, but it was issued 2/11/87 showing the statusing is not timely; and the effective date for documents is not shown.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT**I.3.B.4 Availability**

- a. The top level project documents (Project Management Plan, Project Plan, Management and Integration Plan, etc.) are not issued and are only available in a variety of draft forms.
- b. A number of required procedures in the areas of procurement, project administration, safety, security, quality assurance, and system engineering have not been issued.

I.3.C Conclusion

Overall compliance with the management criterion is graded as 2, "Less Than Adequate." Some efforts have been made in the hierarchy, requirements traceability and master document areas. The major portions of the controlled document process are under procedural control. However, the top documents in the process are not issued, and when issued, their impact down through the documentation structure will not be easily assessed since the traceability matrices are not completed. The application of configuration control principles to the change of documentation is not apparent. The current method and procedures for identifying, handling, and listing controlled documents could lead to the use of the wrong document version on the project. Conclusions for each of the four areas of this criterion are given below.

I.3.C.1 Hierarchy and Requirements Traceability

Compliance with the hierarchy portion of the management criterion is graded as 1, "Unsatisfactory." Procedures for document hierarchy and requirements matrices are not available and their application needs to be project-wide.

I.3.C.2 Master Document and "Q-Lists"

Compliance with the master document and Q-List portion of the management criterion is graded as 1, "Unsatisfactory." Procedures for these lists are not available, and the lists need to be project-wide.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT**I.3.C.3 Controlled Documents**

Compliance with the controlled document portion of the management criterion is graded as 2, "Less Than Adequate." There is no policy or procedure covering the controlled document list.

I.3.C.4 Availability

Compliance with the availability portion of the management criterion is graded as 2, "Less Than Adequate." The top level project documents have not been issued and are not available except in various draft forms. The viability and compliance with requirements of the implementing documents and procedures is therefore suspect.

I.3.D Recommendations

Recommendations for each of the four major areas in this criterion are given below.

I.3.D.1 Hierarchy and Requirements Traceability

- (1) Prepare and issue a project wide procedure covering the development and maintenance of a document hierarchy/chart and of matrix type relationship tables that relates requirements to implementing procedures.
- (2) Issue a QA requirements matrix.
- (3) Issue a management and administrative requirements matrix.

I.3.D.2 Master Document and "Q-Lists"

- (1) Establish policy for the definition and contents of a master Document and Status list and a Q-List.
- (2) Prepare and issue a project wide procedure for a Q-List.
- (3) Prepare and issue a project wide procedure for the Master Document and Status list.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT**I.3.D.3 Controlled Documents**

- (1) Prepare and issue a procedure for identifying and listing controlled documents and for issuing and controlling the controlled document list. Issue controlled document list.

- (2) Revise the present system of issuing procedures, identifying effective dates and removing superseded procedures to provide manual holders with current procedures, consistent with effective dates on superseding procedures.

I.3.D.4 Availability

- (1) Increase the priority level of and emphasis on issuing top level project documents and their associated annexes.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT**I.4 TRAINING AND QUALIFICATION****I.4.A Management Criterion**

An effective program (organization, administration, facilities, equipment, and material) must exist for indoctrination, training and qualification of project personnel. The program must ensure effective control and implementation of training activities and that individuals are qualified as appropriate for their assigned responsibilities.

I.4.B Evaluation

1. Rockwell successfully completed a functional analysis of the management control system in support of training and qualification. The project wide general training courses developed and given to all Rockwell BWIP personnel have heightened awareness and understanding of project management requirements, quality assurance requirements, and related implementing procedures. Program definition and requirements are adequately covered by procedures PMPM Procedures 13-109 and 13-121.
2. Interviews and reviews indicate that position descriptions are incomplete, not available, or are inconsistent between the same positions in different departments. The job task analysis (JTA) process is underway with a group of about 75 Rockwell personnel trained in JTA methodology doing the work. Only the BWIP Business Management Department, which is a matrix function, has unilaterally decided not to do JTA. Current functional analysis techniques and incomplete or inconsistent position descriptions will not allow a clear and complete definition of job qualifications or training requirements. To complete identification of training requirements, each position needs to be analyzed (job task analysis or equivalent), and a position description with qualification prerequisite requirements completed and training qualification cards needs to be prepared. Training must then be performed and objective evidence of qualifications must be placed on file.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT

3. Employee attitudes indicate a general acceptance and growing appreciation for the training function. Training content and the quality of training is seen as excellent, and the orientation training process is continuing to improve.
4. Every BWIP miner will be treated as a "new miner" (10CFR30, part 48) with respect to mine safety training.
5. For BWIP, procedures 13-106 through 13-121 govern Rockwell qualification and training efforts and they outline the duties and responsibilities of the training organization.
6. The Qualification and Training System Plan (SD-BWI-TR-002) is not yet issued.
7. The training program requires and utilizes trained, qualified, and certified instructional staff (PMPM Procedure 13-108). This process is considered to be effective with certified instructor requirements being more extensive than those of Rockwell's central training group. Program development and delivery is governed by procedures 13-107, 13-110, 13-112, 13-113 and 13-114.
8. The training program provides for evaluation and feedback (PMPM Procedures 13-111, 13-117, 13-119, and 13-120) of the program to allow changes and upgrades of the process.
9. A review of the qualification and training documentation and records showed that the records required to be in the file (per PMPM Procedure 13-106, paragraph 6.1.1.3) for two revised administrative procedures were not on file for many individuals. The training program requires re-reading due to revisions, but the effectivity date had already passed and the responsible manager or designee had not completed the retraining required or had failed to document it. In addition, the job requirements and qualification and training requirements in relation to how an incumbent is qualified and trained are not available for any given position.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT**I.4.C Conclusion**

The Training and Qualification program is graded as 4, "Highly Satisfactory," in meeting the management criterion. The training conducted to date appears to be good and well received. The training system and process as described in PMPM Procedure 13-106 "Administration of Qualification and Training", and detailed in procedures 13-107 through 13-121 is very good and the current state of implementation is satisfactory. However, all positions descriptions and job tasks analyses should be completed and records made available to demonstrate personnel qualification compliance.

I.4.D Recommendations

- (1) Upgrade training records and files to contain items needed to assure personnel are qualified and trained. Assure through improved proceduralized control that records showing retraining (re-reading) to meet changed administrative procedures are in qualification and training files prior to the effective date for the procedure being used for retraining.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT**I.5 MANAGEMENT INVOLVEMENT AND COMMITMENT TO QUALITY****I.5.A Management Criterion**

Management, at all levels, who are assigned functional responsibility for project activities, must demonstrate, by virtue of personal interest, awareness, and knowledge, a visible involvement and commitment to controlling the quality of the project.

I.5.B Evaluation

1. A high percentage of interviewees responded that management's involvement and commitment to quality is strong, as evidenced by the Policy Statement in Rockwell Quality Assurance Manual MA-3 and personal involvement in activities related to the Quality Assurance Program.
2. Several managers did not know that there was a QA policy statement, although all indicated a good understanding of the QA program as it applied to their activities. Managers understand and accept their role in the quality assurance process. They believe that problems will arise during the initial stages of implementation of the procedures, but they are confident they can resolve these in the early stages of the restart program.
3. The Quality Awareness Program is being developed to improve overall BWIP Project knowledge and support of QA requirements.
4. A Rockwell Quality of Work Life program has been developed and implemented.

I.5.C Conclusion

Management at all levels demonstrates a personal interest, awareness, and knowledge and visible commitment to controlling the quality of the project. Compliance with the management involvement and commitment to quality is graded 4, "Highly Satisfactory."

I.5.D Recommendations

- o None

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT**I.6 SECURITY****I.6.A Management Criterion**

The security control system and related and supporting management must ensure the protection of BWIP personnel, facilities and property, including protection of sensitive material.

I.6.B Evaluation

1. There is no BWIP security plan or draft of a plan available which addresses BWIP-specific requirements.
2. Security policy, SD-BWI-AP-010, for the BWIP unclassified computer system is available in draft, but no procedures exist.
3. There are no procedures which address the involvement of security in the development of exploratory shaft or repository design criteria or design.
4. There is currently no named individual or designated position within the Rockwell BWIP Organization (other than possibly the Project Director) which could be deemed responsible for the security management overview for the project.
5. The Rockwell IRMP Execution Plan which covers computer and data security is still in draft.

I.6.C Conclusion

The compliance with the Security management criterion is graded as 3, "Satisfactory." However, there is a lack of approved BWIP specific security plans and procedures.

I.6.D Recommendations

- (1) Complete revision to PMPM Procedure 11-101.
- (2) Issue procedures covering unclassified computer and security input to repository design and design criteria.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT**II PROJECT AND BUSINESS MANAGEMENT AND PROCESSES****II.1 PROJECT PLANNING AND CONTROL****II.1.A Management Criterion**

Project plans must ensure completion of the project to the highest industry, government and DOE standards by identifying, interrelating, sequencing, and implementing the tasks of the project organizations. Project planning and the budgeting, scheduling, coordination, and control of work must ensure that the objectives of the project plan are met effectively and efficiently, and they must ensure that changes are authorized and controlled.

II.1.B Evaluation

1. Rockwell does not have a total integrated schedule for the project that supports the Level 1 Project Summary Schedule issued by DOE-RL. Rockwell has a plan to have an interim baseline schedule in place by the end of June 1987. But, based on evaluations of the schedules being developed, the interrelationships of the activities as they relate to the milestones may not have been accomplished in time. This, in effect, could leave them in a position of not being able to control changes.
2. The logic development task presently underway to define activities and relationships is being conducted without direct respect to the Work Breakdown Structure and time duration. Until Level 2 End Functional Schedules are complete, it will not be clear if the logic will support the Master Schedule.
3. A technical/schedule baseline does not exist. Until this baseline is established, change control cannot be effective and is virtually nonexistent.
4. Rockwell Management Control System (MCS) manual MA-141 is referenced in procedures, but interviewees stated it was cancelled for BWIP.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT**II.1.C Conclusion**

The compliance with the Project Planning and Control criterion, is graded as 2, "Less Than Adequate." This is primarily due to the lack of a baseline schedule that meets DOE ORDER 4700.1 requirements. There is also a lack of integrated planning and scheduling and a lack of consistency in planning and scheduling methodologies or tools.

II.1.D Recommendations

- (1) Establish and issue a project baseline plan and schedule. The plan and schedule prepared by the Integrating Contractor should represent the complete scope of work organized by Work Breakdown Structure. Program milestones should also be included and the equivalent level of supporting logic should also be included. All schedules should be integrated by the Integrating Contractor in accordance with DOE ORDER 4700 requirements.
- (2) Implement change control for cost, schedule, technical and scope per DOE order 4700.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT**II.2 RECORDS MANAGEMENT AND DOCUMENT CONTROL****II.2.A Management Criterion**

Management of project documentation must be implemented, support the effective control and coordination of project activities, and provide a strong foundation for the documentation/information requirements of the repository's design, licensing, construction and operational phases.

II.2.B Evaluation

1. Interviews indicated that information and documentation related issues are receiving increased attention from the project during this restart phase. There is a concern, by those interviewed, that the lack of contemporary experience with regulated projects (i.e., NQA-1, NRC, etc.) may result in failure to recognize and support critical elements of the records management and document control programs.
2. According to interviews with Rockwell managers who are effected, the records management and document control program described in PMPM Section 8 has not been implemented. Organization charts which were provided to show an implementing organization structure were not in effect and certain positions had not been filled at the time interviews were conducted.
3. Interviews indicated that a document control organization sufficient to fully implement the program would not be in place for approximately 60 days, assuming that requested resources were obtained and that necessary implementation steps and training were complete.
4. The records management and document control staff -- with some exception -- lacks experience in dealing with implementation of NQA-1 documentation programs. The aerospace perspective on data management provided in the current team provides valuable experience in data management for government contracts, but it does not provide the degree of balance necessary to deal with the NQA-1 and NRC requirements that confront a project of this nature.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT

5. Interviews and document reviews revealed concern about how records management and document control is being implemented. For example, numerous procedures in the PMPM refer to PMPM Procedure 8-103, BWIP Records Management System, which has not yet been issued. In addition, the IRMP has been revised since it was submitted to DOE-RL for approval.
6. The planned organization for Document/Records Management for FY87 appears to be complex and is broken down into numerous functional areas. Concerns were expressed by those interviewed whether this organization possessed adequate resources to effectively integrate the records management and document control activities of MPPs.
7. There are multiple lists used for identifying and providing status of controlled documents on the project. These lists are updated at different frequencies to reflect issue changes to documents issued during the previous month. There is not a commonly understood proceduralized approach to determining the current document issue to which an individual or contractor should be working to for Quality Levels I or II related work. There is no apparent proceduralized process to maintain permanent records of distribution lists showing what issue was transmitted to and received by each participant.
8. According to multiple interviews and reviews of completed audits, the project appears to have inadequate records storage facilities to meet the requirements of BQARD. Interviews disclosed that although many records have been transmitted to records management and microfilmed, a large backlog of records remains in the custody of originating organizations and that these are under varying degrees of protection. Current project procedures contain records capture statements that are not consistent with industry practices in identifying the following: permanent records; the criteria for determining when a record is complete; and when the records should be transmitted to the Records Management organization for processing. Rockwell has been maintaining the hardcopy of records after they have been microfilmed, in spite of procedural instructions to

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT

destroy the hardcopy after filming. It is suspected that these hardcopy records are used to help augment the retrievability of records that are requested by both internal and external sources, in spite of the fact that these hard copy files are not procedurally controlled. Interviews also disclosed that geotechnical samples that are treated as one-of-a-kind quality records are not adequately protected under the storage requirements of the BQARD.

9. There was a concern expressed by those interviewed that older contracts with subcontractors and suppliers may not have consistently contained data requirements. Additionally, concern was also expressed that an accountability check for data deliverables was not consistently applied to completed work to assure that required data was transmitted to BWIP Document Control in accordance with project procedures. The project has not yet established a strong position on identifying those specific records that are required to meet the regulatory, management prudence, and business needs of the project. Also, the project has not provided assurance that the responsibilities for the technical review and validation of those records are clearly or uniformly identified, proceduralized, and implemented throughout the project participant organizations. Multiple organizations appear to operate records management functions autonomously, as in the case of Training which maintains its own system. There is probably good retrievability of correspondence and contractor interface documents but poor retrievability of procurement, work orders, and quality inspection records.
10. Interviews disclosed concerns that numerous documents have been transmitted to Records Management as permanent records without there being adequate assurance that the documents have been reviewed and validated. This is normally accomplished by qualified individuals using proceduralized criteria for determining completeness and technical acceptance. Currently the only proceduralized validation process observed is clerical in nature, and it is performed by clerical persons in the BDC.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT

PMPM Procedure 8-105, "Recording Data and Corrections for Quality Records" requires validation of QA records in accordance with PMPM Procedure 8-103. This has not been issued, leaving this technical validation issue suspect for records that have already been processed.

II.2.C Conclusion

The criterion for Records Management and Document Control is graded as 2, "Less Than Adequate." This is primarily due to the level of issuance and implementation of required program plans, procedures, and organizational structure.

- o Procedural and organizational enhancements and changes have not been clearly identified and implemented to meet minimum QA program requirements.
- o Major programmatic issues such as records storage facilities, identification of required records, records and technical validation, and acceptance have not been addressed and resolutions confirmed in procedures.
- o Public response systems processes and organizations within Rockwell are not in place to support anticipated litigation or discovery actions. Additionally, it will be particularly critical to assure that significant project decisions are properly documented in permanent records, so there will be a trail of management prudence.
- o It is not possible to completely evaluate the capability of the project to manage records and control documents when the controlling and implementing policy and procedures have not been issued.

II.2.D Recommendations

- (1) Establish mechanisms to ensure that the staff clearly understands which specific restart records and documents effect quality and which systems provide current issue status information. Proceduralize and put in place

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT

requirements for identifying, validating, and transmitting completed quality records promptly to Records Management processing and storage.

- (2) Assure that the IRMP and related requirements documents and implementation procedures effecting this area are issued and are consistent with each other and the organizational structure.
- (3) Assure that all known issues (permanent storage, identification, technical review and acceptance for DOE-RL record validation, and etc.) related to effective implementation of the program are clearly identified for resolution in the appropriate management control system. It may not be necessary to fix all programmatic and organizational deficiencies prior to full restart, but reasonable assurances must be made that critical issues effecting quality related work are properly identified and a process that assures effective resolution is in place.
- (4) Critically evaluate the readiness of records management/document control functions at a detailed implementation level before full restart is authorized. There have been numerous programmatic and organizational changes over the last nine months which have not yet been fully implemented. Test case packages of non-safety related documentation of each document type could be walked through the system to identify any deficiencies and to develop experience with procedural requirements, data flow, and organizational responsibilities.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT

II.3 COMMITMENT AND CORRECTIVE ACTION CONTROL**II.3.A Management Criterion**

Management must be committed to seek out and employ methods and information systems for identifying commitments and problem areas and their underlying causes. The process must ensure that timely coordinated and corrective actions are taken to eliminate these problems and meet commitments.

II.3.B Evaluation

1. The Rockwell BWIP Action Tracking System (ATS) is governed by PMPM Procedure 1-111.
2. The BWIP ATS is in operation and used on a weekly basis to track and close out the types of items covered in the applicability paragraph of PMPM Procedure 1-111 as well as certain items designated by the Project Director and some Division Managers.
3. Interviews indicated that the ATS was utilized, that commitments once entered were tracked to completion, and that management worked and managed the items to the committed dates. However, there was no indication that any trending was done.
4. The long term viability of the procedure and process is hard to assess since it is left to the discretion of the initiating functions to add items to ATS.
5. Action items coming into Rockwell travel through each management level before reaching the person responsible for completing the work. This process is neither timely nor responsive.
6. PMPM Procedure 10-104 "Regulatory Commitment Record Database System (RECORD)" covers commitments to regulatory, licensing, or external agencies and institutions. The "RECORD" system also contains licensing items which may also be in ATS.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT

7. The major project participants are also creating their commitment and action tracking systems to support BWIP.

II.3.C Conclusion

Compliance with the commitment and corrective action control management criterion is graded as 3, "Satisfactory." There are two major tracking systems, the "ATS" and "RECORD," with DOE-RL and each Major Project Participant (MPP) having their own systems.

II.3.D Recommendations

- o None

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT**II.4 ACQUISITION AND PROCUREMENT****II.4.A Management Criterion**

The project procurement process must ensure that equipment, materials, and services furnished by suppliers or contractors meet project requirements. Methods for administration and control of contractors and suppliers, including contractual changes and quality assurance, must ensure effective control of contractor performance.

II.4.B Evaluation

1. The Rockwell procurement process is described in PMPM Procedure 6-120 and procurement planning is covered by Procedure 6-112, but they do not address the roles of the other MPPs as described in Procedure 6-117.
2. Procurement documents are prepared, reviewed, approved, and issued per PMPM Procedure 06-114. The procedure is supplemented by Procedure 06-121 for Vendor Data submittals and by Procedure 06-122 for Vendor Information Data Requirement Specification. There is currently no procedural method to assure that a quality level change, in the quality level block of a revised requisition, will be identified if it is different from the original order or to assure that the change was justified and properly documented.
3. Development of the work scope in support of the procurement process is covered in PMPM Procedure 6-105.
4. Procurement Documentation is controlled in accordance with PMPM Procedure 06-116. All direction to suppliers/contractors is formal and written. After a requisition is received in BWIP Procurement, all oral communication regarding the order is logged in the requisition file. This is not covered in procedure Procedure 06-116.
5. Supplier requests for deviations are documented and handled in accordance with PMPM Procedure 06-123 which covers both pre- and post-award actions.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT

6. Procurement tracking is done using the Purchasing Information Documentation System (PMPM Procedure 06-116) and the Advanced Procurement Plan (PMPM Procedure 06-112). However, procedures do not cover use, operation, level of automation, or maintenance of these systems.
7. Supplier qualification and evaluation and the operation of the Rockwell BWIP-Qualified Suppliers List is covered by PMPM Procedure 06-106. The relationship of this procedural process is not linked to PMPM Procedures 4-101 and 4-107. These procedures are internal to Rockwell and are not applicable project-wide. A qualified suppliers list in accordance with Procedure 06-106 has not yet been compiled.
8. There is a site-wide Hanford integrated suppliers list, but it was stated that these suppliers may not satisfy NRC requirements for suppliers.
9. Supplier source inspection is covered by PMPM Procedure 06-107.
10. Bid evaluation and award is covered by PMPM Procedure 06-124 which invokes the Federal Acquisition Regulations.
11. PMPM Procedures 06-119 and 06-125 cover material shipping, handling, receiving, and storage.
12. The provisioning of spares in support of construction and operation does not appear to be addressed by BWIP procurement or technical procedures.
13. Interviews indicate that qualification checks on the adequacy of the credentials of the technical service subcontract personnel are not performed by procurement.
14. Interviews indicate that BWIP Procurement personnel have completed the required reading training but have not received OJT in the implementation of the procedures.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT

15. There were 163 procurements planned for FY87, but only one has been placed. Therefore, the procurement process has not been tested in practice, even though an apparently adequate procedural process is in place.

II.4.C Conclusion

Compliance with the Procurement management criterion is graded as 2, "Less than Adequate." The framework of the BWIP procurement process exists procedurally. However, there is still a need for role clarification, for assuring proper cross-references to other PMPM procedures, and for strengthening the procurement procedures.

II.4.D Recommendations

- (1) Upgrade procedures to clarify the Integrating Contractor roles, the roles of Management and Integration Function, and the QA procedures and requirements invoked in the procurement process.
- (2) Modify PMPM Procedures 06-114 and SD-BWIP-AR-030 to assure that quality level changes on revised requisitions are identified, justified and properly documented.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT**II.5 CONFIGURATION MANAGEMENT****II.5.A Management Criterion**

A configuration management process, methods, and information system must be implemented and employed to identify, change, status, and verify the configuration of all hardware, controlled software, designs, and documentation.

II.5.B Evaluation

1. The BWIP configuration management program appears to still be in the developmental process and has undergone a number of organizational changes that have produced varying degrees of improvement. According to interviews conducted in early March, 1987, the program was not yet considered to be in place and regulatory compliance was primarily dependent on the design control process. The newest approach to configuration management is expected to be based on existing DOE-RL approved configuration management plans for other projects at Hanford. Implementation of a new configuration management plan is expected by August 1987.
2. An element of the configuration management program is described in PMPM Section 14 for software configuration control. There are software configuration control issues that require resolution before the status of the overall configuration management process can be determined.
3. PMPM Procedure 5-101 "Change Proposal Processing" is dependent on individual organizations and MPPs using the Action Tracking System (ATS) to assure completion and closeout of change implementation actions in documentation, software and hardware. This process does not appear to ensure that the documents which implement changes will be entered into ATS by the responsible organizations. Therefore, it may be difficult to provide auditable traceability of change implementation and positive verification of change package completion. Interviews indicated that the change verification process was not formally implemented.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT

4. The Configuration Management Plan was submitted 12/8/86. Some informal feedback and comments were received from DOE-RL, but no official comment had been received as of 2/24/87. Current information suggests that the plan is being returned to Rockwell as disapproved.
5. According to the interviews, approximately 20% of the required configuration management procedures that have been prepared are adequate and there was a need to expand and increase the depth of the procedures. Configuration management has prepared an upgrade plan and schedule that extends time phased implementation of the program from 3/87 to 4/88. According to the interviews, the full program will be developed commensurate with developing project needs.
6. The computerized Configuration Verification Accounting System (CVAS) data base defined in PMPM Procedure 5-102 is procedurally described as being in place. But, according to interviews, CVAS is a concept that is not in place and will be dependent upon multiple, manual sources of data. This manual process appears not to be proceduralized or controlled. Additionally there appears to be redundancy between the CVAS and the current controlled document status lists produced by the Document Control organization, increasing the chance of conflict and regulatory exposure.
7. According to interviews, construction drawings for temporary applications such as "lifts" are not yet under the configuration management program. Designs and changes for site equipment (e.g., jigs and fixtures) must be compatible with designs for items such as the ES liner to preclude a safety hazard. Items of this nature leave cause for concern about other activities that may have been overlooked in implementing the configuration management program.
8. PMPM Procedure 5-101 references PMPM Procedure 2-101 for identification of technical requirements documents. The procedure states that the SEMP, SSRD and SDR define the technical baseline. These documents and others have not yet been issued, and until they are issued,

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT

it will not be practical to effectively implement the configuration management program. Additionally, PMPM Procedure 5-101 requires utilization of Procedure 8-103 "Records Management System" for processing of completed records. This procedure is not yet issued for implementation.

9. The Configuration Management organization is dependent upon the timely management of documentation and utilization of information systems to support its mission. There does not appear to be a strong interface relationship between the Information Resource Management (IRM) work being performed by the BWIP Information Management organization and the Configuration Management organization. Key management systems of all MPPs such as document control, action tracking, records management, and project management must carefully consider the needs of configuration management to assure proper implementation of the program.
10. There are two separate Configuration Management organizations -- one for software, one for the facility. Effective communication and integration between these related activities is not occurring.

II.5.C Conclusion

Compliance with the criterion for Configuration Management is graded 2, "Less Than Adequate." This is due to lack of issued BWIP Configuration Management Plan and implementing procedures, and complete implementation of the system and processes.

ATS is designed to handle exceptions to normal project processes and requirements and should not be used to manage a normal process such as Configuration Management.

Experience with ATS has demonstrated that it is very difficult to assure that configuration status information is maintained current and accurate when multiple independent organizations provide the input and when normal management process data is comingled with exception reporting.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT

II.5.D Recommendations

- (1) Complete implementation of project-wide configuration management program (including software, procedures, and training).
- (2) Identify all items (i.e., drawings, specifications, procedures, standards, and etc.) to be included in configuration management.
- (3) Complete and issue the configuration management plan. Configuration management should be a project-wide management system to assure that the impact of changes on all effected organizations is considered and that a central authority exists to authorize approved changes and to identify current issues and revisions to controlled documents, software, and hardware.
- (4) Clearly describe the interfaces and responsibilities for Information Management and Configuration Management organizations in the Configuration Management Plan. Communication and interfaces with software configuration control management activities and project configuration management activities should be strengthened.
- (5) Complete a review of existing and planned implementing procedures for the Configuration Management plan and revise procedures as necessary or written. This should include the development of CVAS data base. If CVAS data base will not be computerized at the time of restart, then alternative methods need to be established, proceduralized, and controlled.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT**II.6 MANAGEMENT INFORMATION SYSTEMS****II.6.A Management Criterion**

Management information systems required to restart and initially perform the work must be planned, documented, implemented, and operational.

II.6.B Evaluation

1. The Information Resource Management Program (IRMP) for BWIP appears to be headed in a positive direction. A significant amount of effort has gone into putting together a framework to manage and control information management processes, systems, and resources. The IRMP document is not issued, so a determination could not be made of the effectiveness of implementing procedures and execution progress.
2. The software configuration control program is a large complex activity. It is being implemented with a staff, which to date, has focused primarily on developing the programmatic framework for software and computer hardware control. Most of the effort has been focused on software controls, with the work on computer hardware controls just now beginning.
3. Concern was expressed over the ability to fully implement the necessary supporting computer software and hardware configuration control program within the required time frame. Concerns center around perceived lack of adequate staff and experience in dealing with the NRC and implementing NQA-1 requirements.
4. The overall impact of IRMP on the Rockwell line organization is not known at this time. According to the interviews, approximately 800 to 1000 safety related computer codes and an unspecified number of computer hardware devices are to be put under the program. There does not appear to be any formal impact analysis detailing the applications and devices effected, the approach to be taken to gain control and the resources necessary to accomplish the work. Of particular concern are the many microcomputer d-Base III applications that have been and are being developed to support restart and continuing project activities which

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT

may be effected by the IRMP program. Additionally, there does not appear to be any agreed upon or published criteria to define what constitutes Q-type computer system applications or devices.

5. There appears to be little practical experience in implementing the IRMP program to date. Interviewees indicated that the IRMP will be initially implemented on a procedural basis during June-July 1987 at the earliest. Full implementation of the program is not scheduled until January, 1988. During the course of the interviews, it was noted that computer systems used to support BWIP are administratively decentralized throughout the project, among the Hanford site contractors, and with MPPs.

Those interviewed also expressed concern that organizations still tend to work independently with respect to information systems. This was evidenced by examples of training systems and commitment/action tracking applications developed by various organizations. IRMP-procedural controls have been established to address these issues, but they apparently are not yet effective.

6. The current project environment appears disconnected and is not conducive to the orderly completion of information systems work in a planned manner. There is an organization within Rockwell charged with the full spectrum of IRMP activities. However, individual End Functions, Line Organizations, and MPPs can contract directly with Boeing Computer System (BCSR) for information systems services, people, and resources to accomplish work under their organization's direction, as outlined in Implementation Plans. This can be done with little or no direct involvement with the Information Management organization.
7. Interviews indicated that at least 497 software programs had been identified as critical for restart. These involve both performance assessment and site characterization applications. Those interviewed indicated that they did not have a baseline status of those codes. They also indicated that there were concerns over the credibility and traceability history of published results, and over the configuration of the

hardware, software, and telecommunications equipment used to process the results.

II.6.C Conclusion

Compliance with the criterion for Management Information Systems required for restart is graded as 2, "Less Than Adequate." This is primarily due to lack of issued program plans and implementing procedures. Operational status of the IRMP across the project has not been achieved.

II.6.D Recommendations

- (1) Clearly identify, plan, and schedule down to at least Level 3 (to support the needs of restart) the impact of bringing the project into conformance with a published and approved IRMP. Key management information systems required for restart should be in place and evaluated before restart begins to help assure operation in accordance with requirements.
- (2) Identify, plan, and resource load commensurate with the incremental restart of work activities, the impact of bringing the estimated 497 computer system codes under software configuration control.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT**III TECHNICAL MANAGEMENT AND PROCESSES****III.1 ENVIRONMENTAL, LICENSING, SAFETY, AND HEALTH****III.1.A Management Criterion**

The Licensing organization process must provide for sufficient prelicensing work to be accomplished such that licensability of the repository is not a constraint to construction and operation of the repository -- including keeping the NRC and all project participants apprised of site characterization planning and activities as they proceed.

III.1.B Evaluation

1. The BWIP Licensing Department appears to be well-managed. The planning and scheduling functions required to support licensing are established and functioning well. Also, the procedures for controlling the review and administrative functions of the Site Characterization Plan are in place.
2. The BWIP Regulatory Commitment Record Database (RECORD) System which tracks all regulatory-related commitments made to external agencies and all responses to comments made by external agencies to BWIP is now implemented on a microcomputer. There are approximately 1000 commitments being tracked in the database. The Licensing Department is ready to provide up-to-date status and information regarding regulatory concerns and interactions with external agencies such as the NRC, the State of Washington, the affected Indian Tribes, and the DOE.
3. The BWIP licensing department provides periodic, formal status reports on the licensing process to the project and DOE-RL.

III.1.C Conclusion

The compliance with the Environmental, Licensing, Safety, and Health management criterion, is graded as 3, "Satisfactory."

III.1.D Recommendations

- o None

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT

III.2 SYSTEMS ENGINEERING**III.2.A Management Criterion**

Rockwell Systems Engineering must implement the technical requirements of the Systems Engineering Management Plan (SEMP) that apply to the repository design, waste package design, siting licensing, performance assessment, and other technology-development activities. The processes must cover the activities and the integration of development and evaluation, construction, operation, closure, and decommissioning.

III.2.B Evaluation

1. There is no clear understanding throughout the BWIP organization regarding the nature of Systems Engineering or their responsibilities.
2. The Systems Engineering functions are not part of the scheduling process.
3. There is now little or no interaction between Systems Engineering and Licensing.
4. The Systems Engineering interfaces with internal and external organizations are poorly defined and not clearly understood.
5. There are many Systems Engineering documents and procedures required to specify the sequence of technical activities for characterizing the site, developing the Repository and Waste Package, relating subsystems to each other, managing technical procedures, studies, reviews and documentation. The following apply to these documents and procedures:
 - o The total number of required Systems Engineering documents has not been identified.
 - o The documents which have been identified are in any of the following conditions: drafted but not approved by DOE-RL; being prepared (in various stages of completion); or not yet started.
 - o The development of several Systems Engineering documents is not timely or phased to support interrelated activities.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT

- o The procedures required to implement Systems Engineering need to be reviewed for their adequacy and conformance with each other and with procedures external to the Systems Engineering organization. The need for additional procedures must also be evaluated.
6. The recent appointment of a well-qualified permanent Systems Engineering Department Manager will strengthen Rockwell's role as an Integrating Contractor and will make a positive contribution to the management of the BWIP organization.

III.2.C Conclusion

The compliance with the Systems Engineering management criterion is graded as 2, "Less Than Adequate," because of the following:

- o The Systems Engineering Department is not functioning according to requirements, as described in the SEMP.
- o The management systems, documents, and procedures required to implement Systems Engineering in the BWIP organizations are not sufficiently developed.
- o The interfaces and coordination of Systems Engineering with internal and external organizations have not been adequately defined in BWIP procedures.

III.2.D Recommendations

- (1) Identify, prepare, approve, and issue all Systems Engineering administrative documents which will impact BWIP restart activities.
- (2) Identify the Systems Engineering internal and external interfaces, and prepare procedures to identify the related interfacing organizations and the type of coordination required.
- (3) Define in clear, unequivocal terms the charter of the Systems Engineering Department in PMPM ORG 1.1.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT**III.3 ENGINEERING AND DESIGN****III.3.A Management Criterion**

Design control must be project-wide and provide for the following: definition and control of design inputs to provide a consistent basis for making design decisions; identification and coordination of external and internal interfaces; planning, scheduling, and controlling an orderly sequence for completing designs; verification process to ensure conformance to design requirements; specifying complete, accurate, and clear requirements for a constructible, testable, operable, and maintainable design; and, controlling changes to approved design to ensure the design criteria are not violated.

III.3.B Evaluation

1. The majority of baseline documents that establish measures which assure that regulatory requirements and design bases for BWIP are translated into specifications, drawings, procedures, and instructions, have yet to be issued. For example: Project Plan, Project Charter, WBS Dictionary, System Engineering Management Plan with annexes, Project Management Plan with annexes, and BWIP Design and Development Plan. These documents exist as drafts which are in varying stages of revision. Project personnel attempt to use them to establish work plans and schedules, but they cannot be successful because the documents may undergo changes which will impact project work.

As a result of the above, it is not possible to determine whether appropriate quality standards are or will be specified for the design and design changes of structures, systems, and components related to the quality program, or whether proper controls will be in place for handling deviations.

2. The Management Control System for design control is inadequate to support the BWIP needs; the additional procedures required to control the design are not in place, and the extent of the design verification scope is not clearly delineated in the existing released procedures.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT

3. PMPM ORG 1.1 Rev. 1 requires design organizational interfaces to be fully defined in the BWIP Design and Development plan. Delays in issuing this plan cause unnecessary confusion, delays, and inefficiencies throughout the project.
4. Documents released by Rockwell to the A/E are not clearly marked to indicate which documents constitute design inputs. This fact points to deficiencies in the control of design inputs.
5. There is an effort by the Integrating Contractor to improve the communications with the A/E and Construction Manager. This is being accomplished by keeping them informed during the early development stages of important project activities related to their work. This is viewed as a positive step by the A/E and the Construction Manager.

III.3.C Conclusion

The compliance with the Engineering and Design management criterion is graded as 2, "Less Than Adequate" because of the following:

- o Several baseline documents, which are the precursors to other BWIP documents needed for the timely functioning of the project have not been approved and issued.
- o The Management Control System for design control is inadequate.
- o The BWIP Design and Development Plan identifying external and internal design interfaces among project participants has not been formally released.
- o Design input documents are not clearly identified.

III.3.D Recommendations

- (1) Review the Design Control System to ensure that all requirements are met and that implementing procedures are adequate to identify organizational responsibilities and interfaces.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT

- (2) Have the Management and Integration Function formalize a process for indicating which project documents constitute design inputs for use by the A/E and other project participants, and specify how these documents must be handled.

- (3) Ensure that design organizational interfaces required by BWIP PMPM ORG 1.1, are defined in the BWIP Design and Development Plan, and that this plan is finalized and issued for use.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT**III.4 SCIENCE****III.4.A Management Criterion**

Rockwell must be capable of managing the site including the development and planning of the site geotechnical analysis program. This involves the geology, geophysics, hydrology, rock mechanics, geochemistry, the definition of geotechnical issues and the technical program for their resolution.

III.4.B Evaluation

1. The Site Department internal and external interfaces and coordination methods are not clearly documented in implementing procedures.
2. The Issues Resolution Strategies are perceived as being driven by schedule without regard to technical needs and requirements.
3. Some scientific personnel perceived that scientific and engineering considerations are secondary to management and quality assurance considerations, thus sacrificing technical performance. In addition, planning and control activities were perceived to be too complex to allow the changes warranted by laboratory considerations.
4. The Science and Engineering Director has established a program to resolve work related problems raised by his scientific and engineering personnel. This is a positive step toward improving morale and developing understanding of program requirements.

III.4.C Conclusion

The compliance with criterion, Science is graded as 3, "Satisfactory;" however, additional effort is necessary to identify in the department charters and the applicable procedures the internal and external interfaces.

III.4.D Recommendations

- (1) Clarify roles, responsibilities and interfaces of the Site Department.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT**III.5 TECHNICAL DATA SYSTEM****III.5.A Management Criterion**

Rockwell must have in place the organizational structure, facilities, and capability for the systematic planning control, and administration of the project technical data system.

III.5.B Evaluation

1. The following BWIP Information Management procedures have not been issued:

PMPM Procedure 14-102, Software Change Control

PMPM Procedure 14-118, Data Dictionary

PMPM Procedure 14-119, Data Flow Process & QA Checklist

PMPM Procedure 14-120, Data Flow Process Document

PMPM Procedure 14-121, Data Flow Process Definition

Procedure 14-102 was identified by Rockwell's Restart Readiness Review Team as required for partial lift of suspension.

2. A Staffing Plan for the Data Management Unit was submitted in August 1986. Five positions were identified as necessary for the Unit; only one was budgeted.
3. The Data Management Unit does not interface with the Configuration Management group.
4. Concerns were expressed that BWIP would not be ready or able to handle external data requests from the States and the Indian Tribes. It was felt that the reporting needs should be determined in order to plan for them.
5. Some interviewees expressed concern about the resolution of basic issues. They claimed that items of concern were pointed out for resolution but were ignored up the chain of command.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT

6. It was reported that it may be desirable to use data obtained previously, at a time when the adequacy of the QA Program was questionable, to support licensing the repository.

III.5.C Conclusion

The compliance with Technical Data System management criterion is graded as a 2, "Less Than Adequate," because several procedures required to implement the technical data system are not implemented.

III.5.D Recommendations

- (1) Issue PMPM Procedure 14-102.
- (2) Issue PMPM Procedures 14-118, 14-119, 14-120, and 14-121.
- (3) Prepare and issue a procedure for selecting, qualifying, and validating previously acquired data for use in support of the licensing activity.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT**IV QUALITY ASSURANCE****IV.1 QA PROGRAM PLANS AND PROCEDURES****IV.1.A Management Criterion**

The Rockwell Project QA Program and Documentation (i.e., QA Program Requirements Manual, RHO-QA-MA-3 and Program Management Procedures Manual, RHO-BW-MA-17) must be consistent with and effectively implement the requirements and controls of appropriate requirements documents including the DOE-RL BWIP QA Plan (DOE-RL-86-6) and the BQARD (DOE-RL 86-1).

IV.1.B Evaluation

1. The Rockwell Audit and Surveillance Groups are identifying deficiencies where they believe the implementing procedures and/or activities are not consistent with the baseline requirements (e.g. OGR/B-3, NQA-1 and the Standard Review Plan). Findings are written against the baseline requirements as well as against issued implementing procedures. Many comments indicated that baseline requirements had not been completely or adequately incorporated in the MA-3 requirements and implementing procedures. The requirements of OGR/B-3 were not accurately incorporated through the hierarchy of requirements documents, implementing procedures, and desk instructions. See the attached example. (IV-1 Example page IV.1-5.)
2. There is a need to define the hierarchy of QA requirements documents to state whether BQARD or the BWIP QA Plan, DOE-RL-86-6, takes precedence. These documents may not always be in agreement as changes could be incorporated in one and not in the other. This would create unnecessary differences which could be considered weaknesses in the quality programs.
3. MA-3 must be revised to be consistent with the latest approved revision of the BQARD. The thirty-one (31) QA procedures needed for restart have to be revised accordingly.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT

4. The Graded QA Program (PMPM Procedure 4-121) based on the Office of Geological Repositories requirements is extremely complex and difficult to implement. It is generally reported that attempts to implement will result in unacceptable delays to the project. The procedure is 39 pages long and requires 6 desk instructions for the Science and Engineering Function alone. Also, it was stated that PMPM Procedure 4-121 does not include SEMP requirements.
5. Rockwell, M-K, KE/PB and Westinghouse were working to unapproved procedures. In one case Rockwell canceled MA-14 procedures and directed use of MA-17 procedures that had not been approved. In other instances, participants' procedures were approved and released for internal use but were not approved by DOE-RL. People indicated that the long review cycle made this necessary. All interviewees agreed that the procedure review cycle, including Rockwell and DOE-RL, was too long to support the needs of the project.
6. Desk instructions include too many requirements and method controls because emphasis was on getting the PMPMs issued. Many PMPMs have been pushed through the system on schedule. Not all comments have been resolved and the schedule was perceived to be more important than requirements.
7. There is a system for receipt of DOE audit findings and for assurance of appropriate action to resolve findings (PMPM Procedure 8-101). Deficiencies identified by external sources have been adequately assigned and tracked. This is done by staff reporting to the Project Director.
8. PMPM Procedure 4-115, Rev. 1 does not include provisions for Stop Work by line management, as required by MA-3, Section C, Chapter 1, Paragraph 3.20 through 3.23 and Appendix B. PMPM Procedure 4-115 addresses issuance of Stop Work Orders (SWO) by QA, but does not include provisions for line management to stop work, as required by MA-3.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT

9. There are nine or more required procedures describing deficiency identification and resolution controls for the project. These cover functional areas such as audit, surveillance, nonconformance, interim problem reporting, and stop work. Additional procedures are adequate, and they describe trending, tracking, and related activities.
10. Several required procedures required for restart are in draft, review, and comment stages (e.g., PMPM Procedures 4-105 nonconformance control, 4-106 construction nonconformance control, 4-122 corrective action reporting, and 2-112 construction test control).
11. PMPM Procedure 4-103, BWIP Quality Assurance Surveillance Activities, does not require action and documentation of corrective action to preclude recurrence of conditions adverse to quality as required by MA-3 Appendix B (Chapter 16.0, Requirement 3.1). Additionally, this procedure does not include the requirement (3.9) of Chapter 16.0 of MA-3 that the QA Department shall verify for significant conditions adverse to quality that the action to prevent recurrence actually does prevent recurrence.
12. Desk instructions required to prescribe QA controls in support of PMPM procedures are not identified as "implementing procedures" in Appendix B of MA-3 as required by BQARD NRC Review Plan 2.6. For example, DI-QA-02-07 and DI-QA-02-06 prescribe requirements and controls not contained in PMPM procedures.
13. It appears that the QA procedures needed for restart have been or will be approved in sufficient time to support restart. Many of the problems have been recognized and efforts are underway to provide resolutions.

IV.1.C Conclusion

The compliance with management criterion, QA Program Plans and Procedures is graded as 2, "Less Than Adequate." This is primarily due to lack of complete incorporation of requirements into implementing plans and procedures, and due to a failure to establish a hierarchy of QA documents and the traceability of requirements to implementing procedures and instructions.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT

The identification of surveillance deficiencies and corrective action controls are adequate, except for the failure to determine cause and for corrective action to prevent recurrence of conditions adverse to quality. Also, the implementing procedure does not provide a means for verifying that corrective action actually does prevent recurrence.

IV.1.D Recommendations

- (1) Prepare and maintain a matrix of all QA requirements and implementing procedures to the paragraph level. This matrix must identify where activity interfaces exist, in order to control incorporation of changes to all affected procedures.
- (2) Ensure that any QA requirements called out in desk instructions are first specified in an implementing procedure, or add the desk instructions to the QA requirement matrix.
- (3) Incorporate in the BQARD all QA requirements that are invoked by the QA Plan Paragraph 2.1 and additional DOE-RL requirements (e.g., the PMDs) included in the QAP. Identify the BQARD as the controlling document for QA requirements for Rockwell.
- (4) Assure that BQARD requirements, as noted above, are included in MA-3 and MA-17 implementing procedures and instructions. The Integrating Contractor must assure that the BQARD requirements are imposed, as appropriate.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT

IV.1 EXAMPLE

The example observed by the Team which supports evaluation statement IV.1.B.1 is as follows:

1. OGR/B-3 (August 1986), Paragraph 4.4, Page 21, establishes requirements for management assessment, at least annually, of the system of management controls and the adequacy of resources and personnel provided to the QA Program. This requirement is applicable to field offices and their major contractors.
2. BQARD, Criterion 2, requirement 10, states the requirement for performance of an annual assessment in accordance with the direction invoked by OGR/B-3.
3. The BWIP Quality Assurance Plan, DOE-RL-86-6, Rev. 2 requires an annual management assessment but does not include the provision for inclusion of adequacy of resources and personnel provided to the QA program. Thus, this requirement is not consistent with OGR/B-3. The QA Plan (QAP) references AMC Procedure BP 2.1, Quality Assurance Program Assessment and states that each project participant is expected to accomplish similar assessments of the effectiveness of his QA Program, Procedure BP 2.1, Rev 0, Paragraph 5.1.1. This, however, references the requirements of 10CFR50 Appendix B.

It was noted that Procedure BP 2.1, draft Rev. 1 will specify requirements of the BQARD and QAP. It is important to note that OGR/B-3, August 1986 stated requirements that have been specifically included in BP 2.1, draft, Rev. 1, not yet approved as of March 13, 1987, an interval exceeding six months.

4. The reference in the QAP to Procedure BP 2.1 and the requirement that each Project Participant accomplish similar assessments of the effectiveness of his QA Program results in an implied requirement for the participants to comply with BP 2.1, which is an internal DOE-RL procedure.
5. The RHO-QA-MA-3 (MA-3), Rev 3, December 1986 Chapter 2.0, Paragraph 3.16 does not specifically incorporate the requirements of the BQARD and the QAP.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT

6. MA-3, Appendix B, Requirements and Implementing Procedures Index, repeats verbatim the Requirements of MA-3, Chapter 2, Paragraph 3.16. The BWIP Project implementation requirements from OGR/B-3 Section 4.4 have not been included in Appendix B.

The implementing procedures, PMPM Procedures 04-104 "Audits" and 04-111 "Trend Analysis" referenced in MA-3, Appendix B, do not implement the requirements stated in the documents listed above, items 1 through 6.

This example demonstrates that the requirements of OGR/B-3 have not been accurately incorporated through the hierarchy of requirement documents and implementing procedures.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT**IV.2 QUALITY ENGINEERING, INSPECTION, SURVEILLANCE, AUDIT, AND ASSESSMENT****IV.2.A Management Criterion**

The Rockwell quality engineering, inspection, surveillance, audit, and assessment activities, both internal and external, must be planned and executed to verify that an effective quality assurance program is maintained by Rockwell and project participants.

IV.2.B Evaluation

1. There is no organization within the QA Department entitled "Quality Engineering." This function appears to be spread throughout the QA organization, with the major portion being carried in Surveillance.
2. There is no internal inspection activity identified in the QA Department. The charter for Surveillance, dated 08-21-86, includes activities described as verification reviews, over check inspections, and providing staff qualified and trained for the performance of verification tasks. There is also a task of coordinating and implementing an inspection overview and acceptance program for the Exploratory Shaft and similar programs for the BWIP.
3. PMPM Procedure 4-107, Surveillance of Suppliers, clearly assigns responsibility to the Quality Assurance Program Integration Group for surveillance of quality-related work performed by Rockwell BWIP suppliers of items and services. The existing Charter for the Surveillance Group, item 3, includes: "Providing surveillances, overview of inspections and document review of the QA program activities of BWIP participants and Rockwell suppliers, and over check inspections as needed." This is only one example of overlapping and confusing organizational responsibilities.
4. The Surveillance Group schedules a total of 79 surveillances of Rockwell and MPP organizations and activities. Of the 79, there are 19 duplicated by the two Surveillance Units (RPAS and ESO). The surveillances are performed at least annually which may result in an unwarranted burden on

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT

the surveilled organizations if the two units overlap in the activities surveilled.

5. There is an apparent need to specifically define the functions and responsibilities of the QA Department Groups consistent with the current organizational structure, either in the PMPM ORG 1.1 or separate charter-type documents.
6. There were several comments from audited organizations characterizing the attitude of Rockwell auditors as "nitpicking," "biased," "opinionated," and "unprofessional." A review of several recent Rockwell audit reports, however, indicated the findings and observations were proper and related to the applicable procedures. There were, however, many findings related to the same activity which could have been combined into a single finding, thus reducing the number of findings.
7. Audit and surveillance personnel believe that they have the license and responsibility to perform verification activities against baseline QA requirements, including their interpretation of these requirements, rather than on the implementing procedures, and to document deficiencies against line organizations for alleged departures from such requirements. For example, an organization may be performing in accordance with an approved plan or procedure and the actual deficiency may be that the plan or procedures does not comply with a baseline requirement.
8. Many examples were noted of recent (09/86-12/86) surveillances performed on line organization activities which used requirements of baseline documents for verification of compliance. Surveillance should be performed to verify compliance with specific program implementing plans, procedures, instructions, and etc., that are applicable to the activities or items.
9. Surveillance and audit personnel believed that they were performing objective and effective verifications of compliance.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT**IV.2.C Conclusion**

The Quality Assurance Department activities in support of the management criterion, Quality Engineering, Inspection, Surveillance Audit, and Assessment are graded 3, "Satisfactory." There are areas which need attention to improve the performance and effectiveness of QA.

Negative comments about the effectiveness of audits and about the significance of findings cannot be supported by an objective review of the audit reports. Findings and observations were found to be valid indicators of noncompliance with approved procedures or requirements.

IV.2.D Recommendations

- (1) Complete a review of the charters for the individual QA Groups to resolve the apparently redundant and confusing assignments of responsibility.
- (2) Give the Surveillance Group the authority to perform an "inspection overview and acceptance program" for the Exploratory Shaft and similar programs for the BWIP by inclusion in an appropriate procedure and in the individual group charters.
- (3) Address audits and surveillance of activities and findings to approved plans, procedures, and instructions. Inconsistencies or questions of interpretation between baseline requirements and implementing documents should be documented in appropriate systems for change or clarification requests, and they should be directed to responsible document approval authorities.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT**IV.3 UNUSUAL OCCURRENCE REPORTING****IV.3.A Management Criterion**

Rockwell must have an Unusual Occurrence Reporting System responsive to applicable key documents in the Project Management Plan.

IV.3.B Evaluation

The unusual Occurrence Reporting process is controlled by PMPM Procedure 11-103 and referenced procedures, which incorporates site-wide requirements.

IV.3.C Conclusion

The Unusual Occurrence Reporting System is adequate to support restart of the BWIP, and is in compliance with the management criterion and is graded 4, "Highly Satisfactory."

IV.3.D Recommendations

None.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT**IV.4 QUALITY CONCERNS PROGRAM****IV.4.A Management Criterion**

Rockwell must have a Quality Concerns Program by which an individual may report a concern that would not be reported through other channels and which would assure that concerns are properly resolved.

IV.4.B Evaluation

The Quality Concern Program (QCP) has been initiated in accordance with PMPM Procedure 4-120. The QCP manager has been appointed and training of Rockwell project personnel is underway. The QCP is applicable for all Project personnel.

IV.4.C Conclusion

The Quality Concern Program satisfies the management criterion and is graded 3, "Satisfactory."

IV.4.D Recommendations

None.

V **TEST AND CONSTRUCTION****V.1** **TEST****V.1.A** **Management Criterion**

The test program site characterization activities must include testing necessary to ensure the integrity of the results of data collection and test activities. Measuring and test equipment must be controlled to effectively support testing.

V.1.B **Evaluation**

1. The implementing procedures included in the PMPM Sections 2, Engineering; 3, Science; 4, Quality Assurance; and 7, Operations; provide for determination of test data collection specifications, test plans, test procedures, control of test equipment, test operations, and control of test data documentation. The available procedures appear to be adequate; however, not all procedures required for restart have been approved and issued (e.g., PMPM Procedures 4-105, 7-121 Rev. 1).
2. It was suggested that the program for software validation which is applied to commercial equipment containing electronic controls was not required. This is true for equipment which is calibrated using end results against calibration standards. The software is part of the process being calibrated.

V.1.C **Conclusion**

Compliance with the Test management criterion is rated 2, "Less Than Adequate." This is a result of not having issued necessary implementing procedures and also for not having completed training to those procedures.

V.1.D **Recommendations**

- (1) Issue NCR, CAR, and other QA implementing procedures.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT**V.2 HANDLING, STORAGE, RECEIVING, AND SHIPPING****V.2.A Management Criterion**

Facilities and equipment must be planned for, acquired, installed, and maintained consistent with project needs to support site activities. Material and equipment must be inspected, controlled, and maintained to ensure the final as-built condition meets design and operational requirements.

V.2.B Evaluation

1. PMPM Procedure 6-125, Material Receiving and Delivery, in conjunction with Procedure 06-108, Receiving Inspection, adequately covers material receiving and handling. The procedure provides for controlled access areas, separate from other Hanford contractor materials.
2. PMPM Procedure 6-119 Shipping and Storage adequately covers the basic requirements for storage, and Procedure 7-105 covers the storage and handling of NSTF test materials and equipment.
3. Quality assurance and inspection requirements related to receiving and storage are adequately covered in PMPM Procedures 4-102 and 4-105.
4. PMPM Procedure 6-125 references ANSI N45.2.2 Packing, Shipping, Storage, and Handling of Items for Nuclear Power Plants, but its level of applicability and use is not specified.
5. There is no procedure covering the issuance of materials to ensure that issued material is in accordance with engineering requirements.
6. There is no procedure covering a preventive maintenance program for equipment in storage.
7. There is no procedure covering on-site equipment modifications, rework, and repairs to vendor-supplied equipment that assures such work is performed under a controlled process which ensures that changes, replacement parts, and consumables meet the design/engineering requirements.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT

8. The procedures do not describe explicitly designated storage facilities and construction warehouse facilities and whether these will be shared by Rockwell and the Construction Manager. The procedures do not cover repackaging for return shipping. The procedures also do not address the interface between receiving and storage and BWIP Resource Management tracking of capital equipment. The interface and delivery of receiving documentation to the procurement files is not clear.

V.2.C Conclusion

Compliance with the Handling, Storage, Receiving, and Shipping management criterion is graded as 2, "Less Than Adequate." The procedural process is sketchy and does not reflect a complete and thorough management process which covers the Integrating Contractor, Rockwell as an MPP, and the integration/interface of other MPPs.

V.2.D Recommendations

- (1) Issue remaining handling, storage, receiving and shipping procedures.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT**V.3 CONSTRUCTION MANAGEMENT****V.3.A Management Criterion**

Rockwell must have in place the demonstrated capability to plan, develop, coordinate, and direct the administration and execution of field construction activities in support of the Site Characterization Plan, including the Exploratory Shaft Facility, Near Surface Test Facility, and modifications to existing facilities.

V.3.B Evaluation

1. The process for resolving Construction Manager field design problems is too time consuming to meet the needs of the project. A direct, on-site connection is required between the Construction Manager and the A/E.
2. There is project-wide confusion about the roles and responsibilities such as design, detail design, and construction. There is confusion about who is driving the process: the End Function Manager for L6 or the End Function Manager for L7.
3. Rockwell Construction states that they require additional personnel.
4. The Construction Manager COTR and the A/E COTR are bypassed on many requests for technical information and clarification. The COTR position appears to be somewhat perfunctory and lacks staff to maintain a centralized interface for requests. The Integrating Contractor uses COTRs to interface with MPPs.
5. Most direction from Rockwell to the Construction Manager is informal. Construction Manager personnel see many manuals and are confused as to what governs their work.
6. There is a need for better communication between the Integrating Contractor and the Construction Manager in the area of procedure development. Requirements in Rockwell procedures are not coordinated with Construction Manager procedures.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT

7. The Rockwell Construction staff is well qualified.
8. Rockwell Construction has worked with the Construction Manager and they have prepared a detailed schedule for construction programs.

V.3.C Conclusion

The compliance with Construction management criterion, Construction Management is graded 3, "Satisfactory." Rockwell Construction and the Construction Manager are ready to support restart activities.

V.3.D Recommendations

- (1) Clarify the roles of the COTRs and the Management and Integration Function End Function Managers in dealing with the Direct Funded Contractors (Construction Manager and A/E).
- (2) Clarify the Rockwell internal organizational roles and responsibilities for direction of construction activities.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT**V.4 INDUSTRIAL SAFETY****V.4.A Management Criterion**

The site industrial safety program should achieve a high degree of personnel and public safety.

V.4.B Evaluation

1. The BWIP Safety function does not appear on the Rockwell organization chart for BWIP.
2. The Construction Prerequisite Plan Department startup teams include an industrial safety engineer from the Safety Department.
3. PMPM Procedure 11-106 adequately covers review of BWIP documents for safety concerns. PMPM Procedure 2-102, Technical Document Review, includes a safety review of technical documents with administrative procedures covered by PMPM Procedure 1-101. The BWIP Safety Group (BSG) is added to the reviewers.
4. Unusual Occurrence Reporting is site-wide and is covered by PMPM Procedure 11-103 for BWIP.
5. Construction drawings for temporary applications called "construction aids" or "jigs and fixtures" (i.e., a lifting strong-back) are not part of the Configuration Management Program. Failure to change construction aids in response to hardware design changes could result in safety hazards.
6. Rigging and Hoisting procedural manuals for both DOE-RL and Rockwell exist and are used. It could not be determined which one is applicable to BWIP since they do differ in their requirements.
7. The BWIP Safety Plan is not yet issued.

INDEPENDENT MANAGEMENT REVIEW TEAM RESTART REPORT

8. OCRWM Safety Plan DOE/RW-0119 requirements are not necessarily included in the BWIP Safety Plan Draft.
9. BWIP and the Hanford site as a whole have excellent personnel safety records. The site-wide safety incident tracking and trending program is also used for BWIP.
10. Access control for personnel and the public to existing construction and test areas are well covered by PMPM Procedures 11-102 and 11-104.
11. The establishment of the Rockwell BWIP single point of contact for safety concerns does not appear to be identified.
12. Procedures covering Safety Analysis preparation are not completed.

V.4.C Conclusion

Compliance with management criterion, Industrial Safety is graded as 2, "Less Than Adequate." Personnel safety is excellent and known safety requirements are being applied and implemented at the procedural and working levels. However, the BWIP safety philosophy and requirements structure is not yet settled, the BWIP Safety Plan is not issued, and OCRWM requirements have not yet been fully addressed.

V.4.D Recommendations

- (1) Complete addressing the requirements of the OCRWM Safety Plan DOE/RW-0119 and incorporate them in the Safety Plan.
- (2) Issue the BWIP Safety Plan.
- (3) Modify procedures to conform with and reflect existence of the BWIP Safety Plan.

ENCLOSURE 2

BASALT WASTE ISOLATION PROJECT

**INDEPENDENT MANAGEMENT REVIEW TEAM
CRITERIA CHECKLIST**

May 20, 1986

**Management Analysis Company
12671 High Bluff Drive
San Diego, California 92130
(619) 481-3100**

INDEPENDENT MANAGEMENT REVIEW TEAM (IMRT) CRITERIA CHECKLIST

PMG 19.11 RRI 041

Signature: Daniel G. Hubbard Date: 20 May 87
Rev. No.: F

<u>No.</u>	<u>Action Required/ (Acceptance Criteria)</u>	<u>Grade</u>	<u>Remarks</u>
I	<u>GENERAL MANAGEMENT AND PROCESSES</u>		
I.1	Organization and Staffing: The current Rockwell organization must be effectively structured and sufficiently staffed with qualified personnel to restart project work and to manage the project after restart.	2	An understanding is just emerging that the project is evolving from a research and development mode into a structured and controlled project mode. There is also a growing realization that data is the key product at this stage of the project, and that the goal is to produce/obtain data that meets requirements for regulatory, technical and public acceptance, not just scientific community approval. However, interviews coupled with a review of PMPM ORG 1.1 show that the charters and roles for the various organizations are not clear, wholly understood, or well-defined. There may also be some weaknesses in the staff or staffing of specific organizations.
I.2	Communication, Integration, and Interfaces: Rockwell must have an effective system for integrating the efforts of all project participants, keeping management apprised of project status, and effectively communicating information within Rockwell and to appropriate project participants.	3	The Integrating Contractor integration function has not received adequate procedural coverage. The processes and implementing procedures controlling communication, integration, and interfaces need to be improved.
I.3	Project Documents: Project documentation, both requirements and implementing, must be identified, hierarchically related, controlled, maintained, approved, and issued (and released for use if currently required by project status).	2	Some efforts have been made in the hierarchy, requirements traceability and master document areas. The major portions of the controlled document process are under procedural control. However, the top documents in the process are not issued, and when

INDEPENDENT MANAGEMENT REVIEW TEAM (IMRT) CRITERIA CHECKLIST
PMG 19.11 RRI 041
Rev. No.: F

<u>No.</u>	<u>Action Required/ (Acceptance Criteria)</u>	<u>Grade</u>	<u>Remarks</u>
			issued, their impact down through the documentation structure will not be easily assessed since the traceability matrices are not completed. The application of configuration control principles to the change of documentation is not apparent. The current method and procedures for identifying, handling, and listing controlled documents could lead to the use of the wrong document version on the project.
I.4	Training and Qualification: An effective program (organization, administration, facilities, equipment, and material) must exist for indoctrination, training and qualification of project personnel. The program must ensure effective control and implementation of training activities and that individuals are qualified as appropriate for their assigned responsibilities.	4	The training conducted to date appears to be good and well received. The training system and process as described in PMPM Procedure 13-106 "Administration of Qualification and Training", and detailed in procedures 13-107 through 13-121 is very good and the current state of implementation is satisfactory. However, all positions descriptions and job tasks analyses should be completed and records made available to demonstrate personnel qualification compliance.
I.5	Management Involvement and Commitment to Quality: Management, at all levels, who are assigned functional responsibility for project activities, must demonstrate, by virtue of personal interest, awareness, and knowledge, a visible involvement and commitment to controlling the quality of the project.	4	Management at all levels demonstrates a personal interest, awareness, and knowledge and visible commitment to controlling the quality of the project.
I.6	Security: The security control system and related and supporting management must ensure the protection of BWIP personnel, facilities and property, including protection of sensitive material.	3	There is a lack of approved BWIP specific security plans and procedures.

INDEPENDENT MANAGEMENT REVIEW TEAM (IMRT) CRITERIA CHECKLIST
PMG 19.11 RRI 041
Rev. No.: F

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II	<u>PROJECT AND BUSINESS MANAGEMENT AND PROCESSES</u>		
II.1	<i>Project Planning and Control:</i> Project plans must ensure completion of the project to the highest industry, government and DOE standards by identifying, interrelating, sequencing, and implementing the tasks of the project organizations. Project planning and the budgeting, scheduling, coordination, and control of work must ensure that the objectives of the project plan are met effectively and efficiently, and they must ensure that changes are authorized and controlled.	2	There is a lack of a baseline schedule that meets DOE ORDER 4700.1 requirements. There is also a lack of integrated planning and scheduling and a lack of consistency in planning and scheduling methodologies or tools.
II.2	<i>Records Management and Document Control:</i> Management of project documentation must be implemented, support the effective control and coordination of project activities, and provide a strong foundation for the documentation/information requirements of the repository's design, licensing, construction and operational phases.	2	The level of issuance and implementation of required program plans, procedures, and organizational structure is inadequate. <ul style="list-style-type: none">• Procedural and organizational enhancements and changes have not been clearly identified and implemented to meet minimum QA program requirements.• Major programmatic issues such as records storage facilities, identification of required records, records and technical validation, and acceptance have not been addressed and resolutions confirmed in procedures.

INDEPENDENT MANAGEMENT REVIEW TEAM (IMRT) CRITERIA CHECKLIST
PMG 19.11 RRI 041
Rev. No.: F

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			<ul style="list-style-type: none">• Public response systems processes and organizations within Rockwell are not in place to support anticipated litigation or discovery actions. Additionally, it will be particularly critical to assure that significant project decisions are properly documented in permanent records, so there will be a trail of management prudence.• It is not possible to completely evaluate the capability of the project to manage records and control documents when the controlling and implementing policy and procedures have not been issued.
II.3	<i>Commitment and Corrective Action Control:</i> Management must be committed to seek out and employ methods and information systems for identifying commitments and problem areas and their underlying causes. The process must ensure that timely coordinated and corrective actions are taken to eliminate these problems and meet commitments.	3	There are two major tracking systems, the "ATS" and "RECORD," with DOE-RL and each major project participant (MPP) having their own systems.
II.4	<i>Acquisition and Procurement:</i> The project procurement process must ensure that equipment, materials, and services furnished by suppliers or contractors meet project requirements. Methods for administration and control of contractors and suppliers, including contractual changes and quality assurance, must ensure effective control of contractor performance.	2	The framework of the BWIP procurement process exists procedurally. However, there is still a need for role clarification, for assuring proper cross-references to other PMPM procedures, and for strengthening the procurement procedures.

INDEPENDENT MANAGEMENT REVIEW TEAM (IMRT) CRITERIA CHECKLIST
PMG 19.11 RRI 041
Rev. No.: F

<u>No.</u>	<u>Action Required/ (Acceptance Criteria)</u>	<u>Grade</u>	<u>Remarks</u>
II.5	<i>Configuration Management:</i> A configuration management process, methods, and information system must be implemented and employed to identify, change, status, and verify the configuration of all hardware, controlled software, designs, and documentation.	2	<p>There is a lack of issued BWIP Configuration Management Plan and implementing procedures, and complete implementation of the system and processes.</p> <p>ATS is designed to handle exceptions to normal project processes and requirements and should not be used to manage a normal process such as Configuration Management.</p> <p>Experience with ATS has demonstrated that it is very difficult to assure that configuration status information is maintained current and accurate when multiple independent organizations provide the input and when normal management process data is comingled with exception reporting.</p>
II.6	<i>Management Information Systems:</i> Management information systems required to restart and initially perform the work must be planned, documented, implemented, and operational.	2	<p>There is a lack of issued program plans and implementing procedures. Operational status of the IRMP across the project has not been achieved.</p>

INDEPENDENT MANAGEMENT REVIEW TEAM (IMRT) CRITERIA CHECKLIST
PMG 19.11 RRI 041
Rev. No.: F

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III	<u>TECHNICAL MANAGEMENT AND PROCESSES</u>		
III.1	<i>Environmental, Licensing, Safety, and Health:</i> The Licensing organization process must provide for sufficient precicensing work to be accomplished such that licensability of the repository is not a constraint to construction and operation of the repository -- including keeping the NRC and all project participants apprised of site characterization planning and activities as they proceed.	3	The process is adequate.
III.2	<i>Systems Engineering:</i> Rockwell Systems Engineering must implement the technical requirements of the Systems Engineering Management Plan (SEMP) that apply to the repository design, waste package design, siting licensing, performance assessment, and other technology-development activities. The processes must cover the activities and the integration of development and evaluation, construction, operation, closure, and decommissioning.	2	<p>The Systems Engineering Department is not functioning according to requirements, as described in the SEMP.</p> <p>The management systems, documents, and procedures required to implement Systems Engineering in the BWIP organizations are not sufficiently developed.</p> <p>The interfaces and coordination of Systems Engineering with internal and external organizations have not been adequately defined in BWIP procedures.</p>

INDEPENDENT MANAGEMENT REVIEW TEAM (IMRT) CRITERIA CHECKLIST
PMG 19.11 RRI 041
Rev. No.: F

<u>No.</u>	<u>Action Required/ (Acceptance Criteria)</u>	<u>Grade</u>	<u>Remarks</u>
III.3	<i>Engineering and Design:</i> Design control must be project-wide and provide for the following: definition and control of design inputs to provide a consistent basis for making design decisions; identification and coordination of external and internal interfaces; planning, scheduling, and controlling an orderly sequence for completing designs; verification process to ensure conformance to design requirements; specifying complete, accurate, and clear requirements for a constructible, testable, operable, and maintainable design; and, controlling changes to approved design to ensure the design criteria are not violated.	2	Several baseline documents, which are the precursors to other BWIP documents needed for the timely functioning of the project have not been approved and issued. The Management Control System for design control is inadequate. The BWIP Design and Development Plan identifying external and internal design interfaces among project participants has not been formally released. Design input documents are not clearly identified.
III.4	<i>Science:</i> Rockwell must be capable of managing the site including the development and planning of the site geotechnical analysis program. This involves the geology, geophysics, hydrology, rock mechanics, geochemistry, the definition of geotechnical issues and the technical program for their resolution.	3	Additional effort is necessary to identify in the department charters and the applicable procedures the internal and external interfaces.
III.5	<i>Technical Data System:</i> Rockwell must have in place the organizational structure, facilities, and capability for the systematic planning control, and administration of the project technical data system.	2	Several procedures required to implement the technical data system are not implemented.

INDEPENDENT MANAGEMENT REVIEW TEAM (IMRT) CRITERIA CHECKLIST
PMG 19.11 RRI 041
Rev. No.: F

<u>No.</u>	<u>Action Required/ (Acceptance Criteria)</u>	<u>Grade</u>	<u>Remarks</u>
IV	<u>QUALITY ASSURANCE</u>		
IV.1	QA Program Plans and Procedures: The Rockwell Project QA Program and Documentation (i.e., QA Program Requirements Manual, RHO-QA-MA-3 and Program Management Procedures Manual, RHO-BW-MA-17) must be consistent with and effectively implement the requirements and controls of appropriate requirements documents including the DOE-RL BWIP QA Plan (DOE-RL-86-6) and the BQARD (DOE-RL 86-1).	2	<p>There is a lack of complete incorporation of requirements into implementing plans and procedures, and a failure to establish a hierarchy of QA documents and the traceability of requirements to implementing procedures and instructions.</p> <p>The identification of surveillance deficiencies and corrective action controls are adequate, except for the failure to determine cause and for corrective action to prevent recurrence of conditions adverse to quality. Also, the implementing procedure does not provide a means for verifying that corrective action actually does prevent recurrence.</p>
IV.2	Quality Engineering, Inspection, Surveillance, Audit, and Assessment: The Rockwell quality engineering, inspection, surveillance, audit, and assessment activities, both internal and external, must be planned and executed to verify that an effective quality assurance program is maintained by Rockwell and project participants.	3	<p>There are still areas which need attention to improve the performance and effectiveness of QA.</p> <p>Negative comments about the effectiveness of audits and about the significance of findings cannot be supported by an objective review of the audit reports. Findings and observations by QA were found to be valid indicators of noncompliance with approved procedures or requirements.</p>
IV.3	Unusual Occurrence Reporting: Rockwell must have an Unusual Occurrence Reporting System responsive to applicable key documents in the Project Management Plan.	4	<p>The Unusual Occurrence Reporting System is more than adequate to support restart of the BWIP.</p>

INDEPENDENT MANAGEMENT REVIEW TEAM (IMRT) CRITERIA CHECKLIST
PMG 19.11 RRI 041
Rev. No.: F

<u>No.</u>	<u>Action Required/ (Acceptance Criteria)</u>	<u>Grade</u>	<u>Remarks</u>
IV.4	<i>Quality Concerns Program:</i> Rockwell must have a Quality Concerns Program by which an individual may report a concern that would not be reported through other channels and which would assure that concerns are properly resolved.	3	The Quality Concern Program is project wide and satisfies the management criterion.

INDEPENDENT MANAGEMENT REVIEW TEAM (IMRT) CRITERIA CHECKLIST
PMG 19.11 RRI 041
Rev. No.: F

<u>No.</u>	<u>Action Required/ (Acceptance Criteria)</u>	<u>Grade</u>	<u>Remarks</u>
V	<u>TEST AND CONSTRUCTION</u>		
V.1	<i>Test:</i> The test program site characterization activities must include testing necessary to ensure the integrity of the results of data collection and test activities. Measuring and test equipment must be controlled to effectively support testing.	2	Necessary implementing procedures have not been issued and training has not been completed to those procedures.
V.2	<i>Handling, Storage, Receiving, and Shipping:</i> Facilities and equipment must be planned for, acquired, installed, and maintained consistent with project needs to support site activities. Material and equipment must be inspected, controlled, and maintained to ensure the final as-built condition meets design and operational requirements.	2	The procedural process is sketchy and does not reflect a complete and thorough management process which covers the Integrating Contractor, Rockwell as an MPP, and the integration/interface of other MPPs.
V.3	<i>Construction Management:</i> Rockwell must have in place the demonstrated capability to plan, develop, coordinate, and direct the administration and execution of field construction activities in support of the Site Characterization Plan, including the Exploratory Shaft Facility, Near Surface Test Facility, and modifications to existing facilities.	3	The Rockwell Construction function and the Construction Manager are ready to support restart activities.

INDEPENDENT MANAGEMENT REVIEW TEAM (IMRT) CRITERIA CHECKLIST
PMG 19.11 RRI 041
Rev. No.: F

<u>No.</u>	<u>Action Required/ (Acceptance Criteria)</u>	<u>Grade</u>	<u>Remarks</u>
V.4	<i>Industrial Safety:</i> The site industrial safety program should achieve a high degree of personnel and public safety.	2	Personnel safety is excellent and known safety requirements are being applied and implemented at the procedural and working levels. However, the BWIP safety philosophy and requirements structure is not yet settled, the BWIP Safety Plan is not issued, and OCRWM requirements have not yet been fully addressed.