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March 27, 1997

Docket No. 70-36

License No. SNM-33

Mr. Michael F. Weber, Chief
Licensing Branch
Division of Fuel Cycle Safety and Safeguards, NMSS
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: **CRITICALITY SAFETY PROGRAM UPDATE QUARTERLY STATUS REPORT**

Dear Mr. Weber:

Enclosed is the second quarterly status report on our Criticality Safety Program Update (CSPU), per our commitment contained in the CSPU Plan dated September 20, 1996. This program was undertaken to formalize and strengthen our criticality safety program, taking into account recognized industry standards.

Progress for this period on the CSPU is essentially on schedule. Performance against the schedule should continue during the next quarter, as staffing has been augmented by the addition of a full-time criticality safety professional based at Hematite and the addition of drafting support. Attached is an updated Gantt chart.

Should you have any questions concerning this report, please contact me or Robert Freeman, the CSPU project manager, at (314) 937-4691.

Very truly yours,

COMBUSTION ENGINEERING, INC.

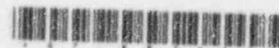
Robert W. Sharkey
Director, Regulatory Affairs

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cc: Tim Reidinger, Region III

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ABB CENO Fuel Operations

CRITICALITY SAFETY PROGRAM UPDATE

SECOND QUARTERLY STATUS REPORT

**COMBUSTION ENGINEERING, INC.
MARCH 27, 1997**

I. INTRODUCTION

Findings from our self assessment program, as emphasized during NRC inspection 70-36/96-202, highlighted the need for increased documentation and formalization of our criticality safety program. Specifically identified were the need to expand and strengthen procedures, provide additional training to personnel involved with SNM handling and processing, and streamline the change management and configuration control process. It was decided to develop a comprehensive improvement plan that would encompass all aspects of criticality safety. This plan, called the Criticality Safety Program Update (CSPU), was presented at a management meeting held at NRC Headquarters on August 14, 1996. A further description of the plan elements was submitted to the NRC Licensing Branch on September 20, 1996. The CSPU consists of two major elements: The Administrative Update and the Analysis Update. The Administrative Update addresses programmatic revisions and the Analysis Update will result in improved safety bases documentation. This report is the second quarterly status report on the progress made in implementation of the CSPU plan. The first quarterly progress report was submitted on December 20, 1996.

II. ADMINISTRATIVE UPDATE STATUS

The progress made and status of plan elements as described in our September 20 plan to date are shown below.

1. Present plan to NRC

The Criticality Safety Program Update was presented to the NRC on August 14, 1996.

Status: Complete.

2. Submit reply to criticality safety NOV from inspection 96-202

The reply to NOV 96-202 was submitted on September 13, 1996.

Status: Complete.

3. Submit plan to NRC

The Criticality Safety Program Update plan and schedule was submitted to NRC on September 20, 1996.

Status: Complete.

4. Quarterly Progress Report to NRC

This report is the second quarterly status report on the progress made in implementation of the CSPU plan.

Status: As scheduled. The third status report will be submitted by the end of June, 1997.

5. Revise ISA schedule

CE submitted a schedule on January 26, 1995, for conducting Integrated Safety Assessments (ISAs) for the Hematite Plant in fulfillment of license commitment 1.6(e). This schedule significantly underestimated the effort required to conduct ISAs of the required scope. A letter transmitting a revised schedule and scope for conducting the ISAs was submitted to NRC on November 12, 1996.

Status: Complete. On November 19, 1996, NRC replied that the revised schedule is acceptable.

III. CONFIGURATION CONTROL STATUS

1. Revise Change Management Process

The level of review required and the responsibilities concerning plant change management were to be specified. The required scope of input to a change request were to be defined. The various procedures governing change management were to be integrated into a more efficient and harmonious change program.

a) Form team: A cross functional team of plant personnel was formed to study enhancements to the change management process.

b) Establish requirements: The team reviewed the current change management program with respect to license requirements and customer commitments. The team determined the aspects of the change management process needed for the Hematite facility. They set the goals of the revised process and proposed methods for achieving those goals.

- c) **Proceduralize:** The team prepared a draft procedure whose purpose is to ensure that changes to processes, equipment, and or facilities that affect nuclear criticality, radiological or industrial safety are properly evaluated. In addition to specifying the review process, this procedure assigns responsibilities for each step of the process.
- d) **Automate Change Management Process:** The process improvement team (PIT) set an objective of migrating the paper driven change management process to a computer based system. Completion of this task has been extended to allow development of the automated approach and to integrate it with the improvements planned for the site management information system later this year. In the interim, recent modifications to the current management of change process and issuance of the Criticality Analysis Procedure (CAP) will ensure regulatory commitments are met and satisfies the intent of the CSPU.

Status: Incomplete. As stated above, the Criticality Analysis Procedure (CAP) will ensure regulatory commitments are met and satisfies the intent of the CSPU. However, further improvements are planned in the overall process and procedures.

2. Centralize Document Control

Comprehensive basis documents consisting of the current plant configuration and the nuclear criticality safety basis produced in the course of the CSPU will be controlled under a Central Document Control system. The goal of this action is to produce archived, retrievable and auditable criticality safety documentation.

Status: Document control has been centralized in Building 110 (the front office building) Change management packages are being added to the Central Document Control system when completed. Additional documentation resulting from the CSPU will be added when generated and approved.

3. Surveillance testing

The installation of the Preventive Maintenance/Calibrations program. Nuclear criticality safety inspections, maintenance and calibrations required by license are to be tracked by this program to ensure they are performed on schedule.

Status: Building data records set. A PM database has been established for Plant Facilities and for Production. Records are currently being added to the database.

4.. Criticality Safety Program (RAAP-109)

The Criticality Safety Program documents policy and provides for the administration of the program. It describes the programmatic elements of the SNM license which concern design bases, changes and modifications, procedures and postings, configuration management, and nuclear criticality accident alarm systems.

Status: Complete. This document has been approved and issued.

5. Criticality Analysis Procedure (RAAP-108)

The Criticality Analysis procedure establishes the requirements for performing a Nuclear Criticality Safety Evaluation. This procedure will formalize the evaluation and documentation of the bases and assumptions affecting criticality safety process limits and the controls used in the analyses and evaluations.

Status: Complete. This document has been approved and issued.

6. Commitment/Corrective Action Tracking (RAAP-102)

The Commitment/Corrective Action Tracking program/procedure has been revised to ensure that commitments made by management personnel to the NRC and to other specified personnel, organizations, and agencies are tracked and that management attention is applied to overdue commitments.

Status: Complete.

III. LICENSE UPDATE

1. Revise chapter 4 of SNM-33

Chapter 4 of SNM-33, Nuclear Criticality Safety has been revised to incorporate applicable portions of the CSPU. Typographical errors were corrected and license conditions reworded to clarify their meaning. An amended Chapter 4 will be submitted to NRC Licensing when internal review is completed.

Status: Final review and management approval in progress. Submission to NRC will be made within the next week.

IV. TRAINING

1. Training Program (RAAP-121)

The training program describes the General Employee Training (GET) program and stipulates Nuclear Safety training requirements. Testing requirements and minimum test scores have been established. Retraining intervals are specified.

Status: Complete.

2. Professional training for Management, Supervisors and Engineers

Professional training provided to managers, supervisors, and engineers has been increased. The goal of the training is to educate personnel concerning the factors affecting nuclear criticality safety, the requirements of the NRC license, and internal procedures. The training will enable these personnel to recognize the impact of process parameters on the nuclear criticality safety of the operation and the importance of communicating good nuclear criticality safety practices to the Fuel Manufacturing operators.

Status: Management, supervisors and engineers received criticality safety training during the fourth quarter of 1996. The next training sessions are scheduled for March 31. Additional training will be conducted as the CSPU progresses.

3. Operators

Continued training is to be provided to operators in the area of Nuclear Criticality Safety. The training includes safe movement and storage of material, the requirements of the NRC license, and internal procedures.

Status: Biennial criticality safety retraining was conducted during the last quarter. Specific training was also conducted in the safe movement and storage of material, and restart of the liquid waste systems following the chemical reaction event in August. Additional training will be conducted as the CSPU progresses. We also added a new staff position since initiation of the CSPU to specifically review plant operations and provide operator training. The initial emphasis of this position was to review

current operations with respect to criticality safety procedures and postings. As a result of this very introspective review many improvements were suggested and implemented regarding criticality safety practices, procedures and postings. Several criticality safety training sessions were also conducted for specific plant areas.

V. SELF ASSESSMENT PROGRAM

1. Internal Audits/Inspections Procedure (RAAP-110)

Internal audits and inspections are to be formalized by establishing a written program and process for the conduct of safety related audits and inspections of Nuclear Fuel activities and operations. The program defines audits and inspections and establish the responsibility for their conduct, frequency, scope, and closure.

Status: Procedure has been written and is undergoing management review.

2. Abnormal Event/Occurrence Reporting Procedure (RAAP-105)

The Abnormal Event/Occurrence Reporting procedure will establish a more formalized and auditable process for the investigation, documentation, and establishment of permanent corrective action.

Status: Procedure has been written and is undergoing management review.

VI. ANALYSIS UPDATE

1. Conversion

a) Plant configuration: The current plant configuration and process flow diagrams were reviewed against existing documentation. The following items have been verified and updated as required:

i) P&IDs: Schematic diagrams of items with criticality safety implications have been revised and verified.

ii) Drawings: Layout drawings of the equipment in which the accumulation of more than a safe mass of SNM is possible will be reviewed. The relative positions and critical dimensions of each item will be verified against information used for the existing ISA.

Status: P&ID and layout drawings for the conversion process have been reviewed and revisions are complete. Several layout drawings and many component drawings remain to be verified. They are being carefully examined and verified during the analysis stage of the conversion analysis update.

- b) Safety Basis: Documentation including KENO analyses, hand calculations, and change requests will be gathered from files at both Windsor and Hematite and repeated as necessary.

Status: Activity in this area is about 25% complete.

2. Recycle/Recovery

- a) Plant configuration: The current plant configuration and process flow diagrams will be reviewed against existing documentation. The following items will be verified and updated as required:
 - i) P&IDs: Schematic diagram of items with safety implications.
 - ii) Drawings: Layout drawings of the relative positions and critical dimensions of equipment in which the accumulation of more than a safe mass of SNM is possible.

Status: Although not scheduled to be done until later, the chemical reaction event in August required changes in the configuration of recovery filtrate, recycle scrubber solution and mop water liquid systems prior to restart of these processes. Various P&IDs were revised to reflect these changes.

- b) Safety Basis: Documentation including KENO analyses, hand calculations, and change requests will be gathered from files at both Windsor and Hematite and repeated as necessary.

Status: Documentation pertaining to the liquid waste systems was reviewed in conjunction with the proposed configuration changes.

- c) Evaluation: After the existing documentation is assembled, each category, process, or piece of equipment as appropriate will be reviewed to identify any assumptions, bounding conditions, upset conditions, contingencies, margin to criticality, and NCS barriers.

Status: This evaluation was completed for the liquid wastes systems.

- d) Analysis Upgrade: The nuclear criticality safety analysis will be updated if required.

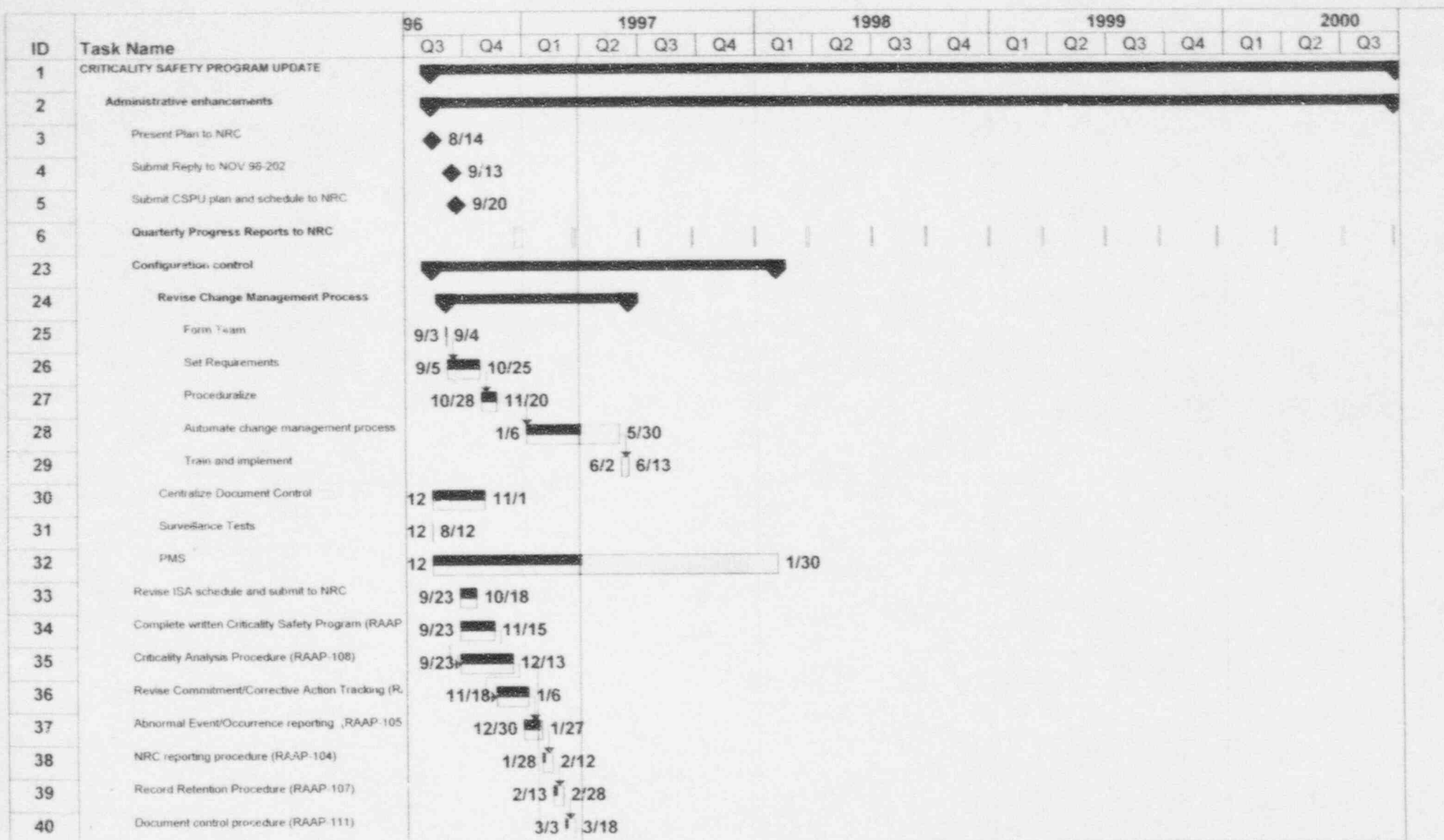
Status: An updated nuclear criticality safety evaluation was prepared for the liquid waste systems.

- e) ISA: The ISA team will use the above information during its assessment.

Status: The ISA team used the updated nuclear criticality safety evaluation during its assessment of the changes and operation of the modified liquid waste systems.

VI. SUMMARY

Progress to date on the CSPU plan was generally in accordance with the schedule submitted on September 20, 1996 and updated on December 20, 1996. Significant accomplishments to date include generation and presentation of the plan, revision and submission of the ISA schedule, revision or writing of procedures- including the overall program document and the Criticality Analysis Procedure, updating conversion plant drawings, conducting training, and revision of Chapter 4 of SNM-33. Criticality safety staffing has been augmented by the addition of a full-time criticality safety professional based at Hematite since January.



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ID	Task Name	96	1997					
		Q3	Q4	Q1	Q2	Q3	Q4	
1	CRITICALITY SAFETY PROGRAM UPDATE							
2	Administrative enhancements							
3	Present Plan to NRC	◆ 8/14						
4	Submit Reply to NOV 98-202	◆ 9/13						
5	Submit CSPU plan and schedule to NRC	◆ 9/20						
6	Quarterly Progress Reports to NRC							
23	Configuration control							
24	Revise Change Management Process							
25	Form Team	9/3 9/4						
26	Set Requirements	9/5 10/25						
27	Proceduralize	10/28 11/20						
28	Automate change management process	1/6 5/30						
29	Train and implement	6/2 6/13						
30	Centralize Document Control	12 11/1						
31	Surveillance Tests	12 8/12						
32	PMS	12						
33	Revise ISA schedule and submit to NRC	9/23 10/18						
34	Complete written Criticality Safety Program (RAAP	9/23 11/15						
35	Criticality Analysis Procedure (RAAP-108)	9/23 12/13						
36	Revise Commitment/Corrective Action Tracking (R	11/18 1/6						
37	Abnormal Event/Occurrence reporting (RAAP-105	12/30 1/27						
38	NRC reporting procedure (RAAP-104)	1/28 2/12						
39	Record Retention Procedure (RAAP-107)	2/13 2/28						
40	Document control procedure (RAAP-111)	3/3 3/18						

1998			1999				2000		
Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3

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**ANSTE
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Also Available on
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ID	Task Name	96	1997					
		Q3	Q4	Q1	Q2	Q3	Q4	
41	License change procedure (RAAP-112)				3/19	4/8		
42	Safety related documents procedure (RAAP-113)				4/9	4/29		
43	Safety related positions document (RAAP-116)				4/30	5/13		
44	Organization and Responsibilities Procedure (AD-1				5/12	6/6		
45	Stop Work Authority procedure (RAAP-106)				6/9	7/8		
46	Update Emergency Plan (EPIP manual)				7/9	8/5		
47	Description and operation of NCS Alarm System				8/6	9/2		
48	Revise chapter 4 of SNM-33			12/18	2/5			
49	Submit chapter 4 amendment to NRC				2/6			
50	NRC review chapter 4 amendment				2/7	3/20		
51	NRC approve Chapter 4 amendment					3/21		
52	Delete part II of SNM-33 (DELETE TASK)							
53	Training							
54	Update Training Program (RAAP-121)	12						
55	Management, Supervisors, Engineers							
60	Operators							
75	Self Assessment Program							
76	Internal audits/inspections procedure (RAAP-1	12						
77	CRITICALITY ANALYSIS UPDATE							
78	CONVERSION							
79	Plant Configuration							
80	P&ID	19						
81	Drawings			10/28		1/6		
82	Basis document				1/7	1/20		

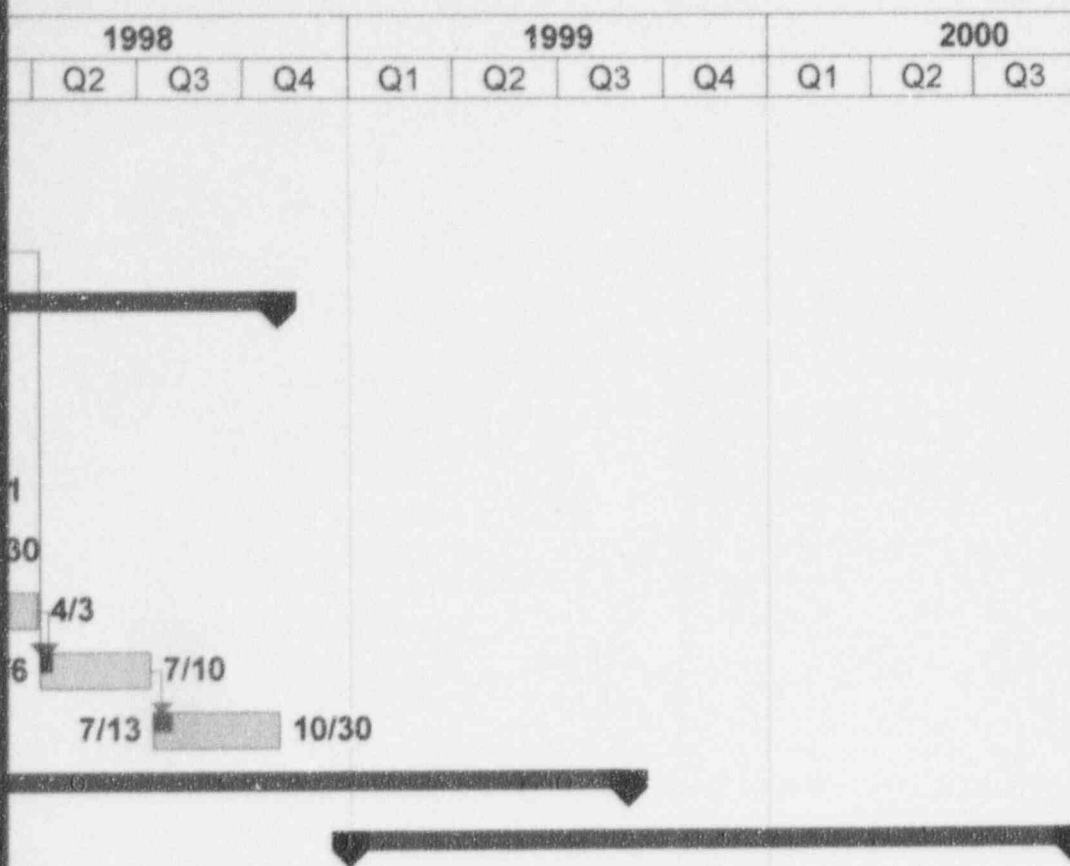
1998				1999				2000		
Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3

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ID	Task Name	96		1997			
		Q3	Q4	Q1	Q2	Q3	Q4
83	Analysis			1/21	2/24		
84	Evaluation			2/25	4/28		
85	Complete ISA			4/29	6/9		
86	RECYCLE/RECOVERY						
87	Plant Configuration						
88	P&ID			1/7	7/7		
89	Drawings				7/8		
90	Basis document						1/5
91	Evaluation						2
92	Analysis update						
93	ISA						
94	PELLET PLANT FRONT END						
102	STORAGE UNITS						



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