W Handout from 4/27/04 Meeting

April 7, 2004

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Division of Inspection Program Management, NRR

SUBJECT: SUMMARY OF APRIL 1, 2004, MEETING WITH NUCLEAR ENERGY INSTITUTE TO DISCUSS SAMPLE SCHEDULES FOR THE CONSTRUCTION INSPECTION PROGRAM INFORMATION MANAGEMENT SYSTEM DEMONSTRATION PROJECT

On April 1, 2004, Nuclear Regulatory Commission (NRC) staff from the Inspection Program Branch, the New Reactor Licensing Section, the Information Management Section, and the Office of the Chief Information Officer (OCIO) met with representatives from the Nuclear Energy Institute (NEI) to discuss two detailed, non-proprietary example schedules developed by Westinghouse for the Construction Inspection Program Information Management System (CIPIMS) demonstration project. Both examples were for schedules of pertinent work activities to meet Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) for the Advance Boiling Water Reactor (ABWR) certified design. The first example was for one ITAAC for the Turbine Gland Seal System and the second example was for one ITAAC for constructing the Nuclear Island Buildings in a manner so that all deviations with the Design Description were reconciled.

This meeting was classified as a Category 2 meeting which provided an opportunity for members of the public to discuss regulatory issues with the NRC. Attachment 1 is a list of attendees. The meeting minutes and handout can be accessed through the Agencywide Documents Access and Management System (ADAMS) under Accession Nos., respectively, ML040960298 and ML040960230.

The NRC staff discussed the necessity of both the NRC and NEI having a common language and common understanding of the type of information and its format to be submitted to the NRC for scheduling inspectors prior to and during the construction of a plant licensed under 10 CFR 52.

The representative from Westinghouse discussed in detail the basis for the format of the schedule for the work activities for meeting ITAAC 2.10.9.1 for the Turbine Gland Seal System. The schedule was submitted in both a Gantt Chart format and a data report that listed some of the preceding work activities required for meeting and verifying this particular ITAAC. The schedule was simplified by utilizing the immediate first level of predecessors not those further back in time. The Westinghouse representative stated that one possible benefit of the CIPIMS

demonstration project will be to better define the work activities prior to and after issuance of a Combined Operating License (COL).

During this discussion, the NRC and NEI were unable to agree on how much of the overall master construction schedule, for building a new plant, would be submitted to the NRC by a licensee. The major points of contention were the number and type of predecessors required to be listed as prerequisites for completing a particular ITAAC, the detail to be represented for constructing a specific module offsite, and how to deal with proprietary information so it is not in the public domain. The NRC would like the whole master schedule in order to effectively and efficiently use inspection resources but NEI would like to limit the scheduling information to what is actually needed by the NRC so as not to be overly burdensome to either the NRC or the licensee. The representative of Westinghouse stated that a better example of the level of detail that could be utilized was shown in the sample schedule previewed but not distributed at the last meeting between the NRC and NEI on February 13, 2004. The NRC plans to review that sample schedule after Westinghouse removes all proprietary information from it and the NRC receives it.

The NRC and NEI agreed to use a rolling-window approach for scheduling information so that more detail is provided for those work activities to be completed near term and less detail for those activities to be completed for example six to twelve months in the future. In regard to the level of detail represented in a schedule for constructing a module, the NRC proposed that a licensee have some means in the schedule to alert the NRC that a module is being built other than just the start and finish dates. The NRC and NEI did not fully agree on whether or not the detailed schedule for a sub-vendor, assigned to build a module offsite, would be included in the scheduling information provided to the NRC.

The representative from Westinghouse then discussed the schedule for the work activities for meeting ITAAC 3.3.2.a for constructing the Nuclear Island structures. The schedule was submitted only as a data report that listed some of the preceding work activities required for meeting and verifying this particular ITAAC. The schedule was simplified by utilizing the immediate first level of predecessors not those further back in time. This particular ITAAC required a report which reconciled all deviations identified during construction with the approved design. The NRC and NEI agreed that it was necessary to determine where the supporting information for this and similar reports would reside.

The Westinghouse representative stated that the scheduling information, to be sent to the NRC, would be more understandable if it was in the Program Evaluation and Review Technique (PERT) format. This lead to a discussion on the viability of the PERT chart as the method of providing scheduling information to the NRC since it was a derived product and could not be queried for different sorts. The NRC said it was better to provide them the whole schedule and then they would determine how the data would be formatted so that different sorts could be obtained, like for example, all the line items for a singular type of activity related to an ITAAC or all the precursors for a particular ITAAC.

NEI stated that they would prefer to send proprietary information to the NRC resident office at a plant site rather then to NRC headquarters. The NRC said it did not matter where proprietary information was sent unless some means was provided for preventing it from getting into the public domain. Both the NRC and NEI agreed that it would be beneficial if one means for providing the proprietary scheduling information to the NRC could be approved just once by OGC and be available for all licensees.

The NRC and NEI agreed to get together during the week of April 26th to discuss two more CIPIMS workstreams. Any future plans for the CIPIMS project will be discussed at the next meeting.

Action Items:

1. Westinghouse will provide a version of the schedule, from which all proprietary information has been gleaned, from the last meeting between the NRC and NEI on February 13, 2004, to the NRC.

2. The NRC will review the schedule, from the last meeting between the NRC and NEI on February 13, 2004, to determine if that level of detail is sufficient for all future submittals of scheduling information to the NRC.

3. NEI will determine where the supporting data for deviation reports and similar reports should reside.

4. NRC will ask OGC whether the use of a dedicated server, for the receipt of proprietary information and with read-only capability, would be in violation of the requirements for dissemination of proprietary information.

5. Westinghouse will provide to the NRC PERT charts for each of the example schedules discussed at this meeting.

6. Westinghouse will provide to the NRC an example of a two-week rolling schedule.

7. Westinghouse will try to find a workstream that contains both electrical and instrumentation and control (I&C) components.

Project No. 0689

Attachments: 1. List of Attendees
2. Meeting Handouts

cc w/atts: See next page

See also tables from APP-GW-GMP-005 and -006 as needed for definitions of areas, elevations, and commodity codes.

Primavera Activity Numbers for AP1000

Note - these rules are generally followed, but there are exceptions to them. This document is provided as a heuristic guideline for determining what an activity reflects

The first two characters designate the genus for activity. Each item shown below is further explained in a separate section:

A4 – Construction item - Annex building Schedule
C1 – Construction item - Nuclear Island, Containment Area schedule
C2 – Construction item - Auxiliary Building Schedule
D6 – Construction item - Diesel Generator Building Schedule
E6 - Engineering Schedule
L1 – Licensing Schedule
L8 – Level 1 Schedule
N0 – Construction item - Nuclear Island Areas
P1 – Procurement
R5 – Construction item - Radwaste Building schedule
S0 – Startup Schedule
T2 – Construction item - Turbine Building Schedule
Y0 – Construction item - Yard and site prep schedule

Construction items: (A4, C1, C2, D6, N0, R5, T2, Y0):

Formatted in the following fashion:

bbea3ccsss EXAMPLE: C1223PL070

Where bb is the general building area, in our example, C1. This is in the nuclear island containment area.

The third character (e) is the elevation of the activity, and the fourth character (a) is the area within the building. In our example above, this is at elevation 2 and in area 2. All multi-floor buildings are subdivided into major floor elevations. The high point of floor has been selected as the dividing line between elevation designators. This is significant because the steel, reinforcing, deck, concrete and embeds for the floor itself are coded to the elevation below while equipment, pip etc. that are above the floor are coded to the next higher elevation. Major buildings have also been divided into areas, using column lines as divider points. Many construction activities span multiple areas and/or elevations. Since only one digit is available for each, the activity is coded to the lowest digit. For example, the auxiliary boiler room spans area 2 and 3 of the turbine building, and the auxiliary boiler itself spans 2 floor elevations (3 and 4). The auxiliary boiler

setting activity is therefore coded T232. Please see the attached tables and figures from APP-GW-GMP-005 and APP-GW-GMP-006 for area and elevation specifics.

The fifth character (phase code) in construction items is always a "3".

The sixth and seventh characters (cc) identify the commodity or type of construction. In our example above, PL indicates a pipe line. These are generally defined in the Commodity Locator Codes table (see APP-GW-GMP-005).

The 8th through 10th characters (sss) are a numerical sequence number, with no inherent importance or intelligence.

Non-Construction Activities, except for L1

For activities that are primarily system related versus location related, the first digits contain the building and system designators rather than elevation and area designators.

The fifth character of the activity ID is also usually a phase code, following the logic below:

0 - General
1 - Pre-construction
3 - Construction
5 - Site work
9 - Startup testing
E - engineering

E6 - Engineering

These activities all start with E6001, indicating Engineering, no specific area, pre-construction. The vast majority of these activities then continue with GE for general engineering, followed by a 3-digit sequence number. For example, the activity E6001GE225 refers to the raw water supply concept.

Several activities have a two-character system designation for the 6th and 7th characters. These are engineering activities specific to a system or commodity. For example, the activity E6001PV002 refers to the squib valve (PV) analysis and justification package.

P1 - Pre-construction

There is little configuration consistency in these activities other than the first two characters (P1) designate them as pre-construction, usually procurement related activities.

The third through fifth characters may indicate the system (i.e. P1WLSMT11 refers to a specific tank in the WLS system).

Or, the third through fifth characters may indicate an area (i.e. P100GCAQ1 refers to overall, general architectural finishes/miscellaneous carpentry).

Or, the characters after "P1" may refer to a specific component, and vary in length depending on the name of the component.

S0 - Startup Schedule

Third and fourth character indicate system (i.e. S0RC9TP100 refers to the RCS system).

The fifth character is either a 3, indicating an activity that will take place during construction, or a 9, indicating an startup activity. There are also several "R" phases, referring to rolling the turbine or generator.

The sixth and seventh characters may indicate the following:

nn	(two numbers) – Distributed Processing Unit numbers
BR	turbine roll
ES	Perform initial setup of instruments
EW	connect power or wiring
FT	fuel load
GL	complete tech spec, close open items
PL	piping work (restore piping, clean piping
T0	LLRT - all penetrations
TE	powered (electrical) checkout
TF	final checks of calibration and full system checkouts
TI	inspection
TN	criticality tests
TP	preliminary activities for startup (hydro, hot functional)
TV	verification of calibration and testing
TW	controls and alarms test
TX	flush, fill, hydro activities
ZA	fuel cycle complete

The 8th through 10th characters are a sequence number.

L8 - Level 1 Schedule

If 3rd and 4th characters are "00", then the following applies:

5th digit - Phase code:
0 - General
1 - Pre-construction

3 - Construction
5 - Site work
9 - Startup testing
E - engineering

For example, L8000TN888 refers to power-range testing, while L8005GE000 refers to preliminary site engineering.

The 3rd through 5th characters may alternatively define the area in which the activities will happen.

0RZ	Radwaste Building
0TB	Turbine Building
100	General site pre-startup
200	General site permanent
5NI	Nuclear Island
ANN	Annex Building
AUX	Auxiliary Building
CMT	Containment
DGB	Diesel Generator Building

These are followed by two general commodity locators, and then a 2-digit sequence number which has no inherent intelligence.

For example, the activity L8AUXPL000 refers to some (below elevation 100') level 1 Piping in the Auxiliary building.

Licensing (first two characters are L1)

Licensing activities do not conform to the structures listed above. Instead, they are generally sequenced within the general areas of COL, Westinghouse items, and ITAAC items.

L100xxxxxx - COL items
L1000GWxxx - Licensing activities which Westinghouse is responsible for
L1ITsxxx - ITAAC items, where s indicates status (T for ITAAC predecessors complete, S for submitted to NRC, V for NRC Verify, or P for publish to Federal Register Notice (FRN).

Table 2.10.9 Turbine Gland Seal System

Inspections, Tests, Analyses and Acceptance Criteria		
Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
1. The basic configuration of the TGS System is as shown on Figure 2.10.9.	1. Inspections of the as-built system will be conducted.	1. The as-built TGS System conforms with the basic configuration shown on Figure 2.10.9.
2. Main control room displays provided for the TGS System are as defined in Section 2.10.9.	2. Inspections will be performed on the main control room displays for the TGS System.	2. Displays exist or can be retrieved in the main control room as defined in Section 2.10.9.

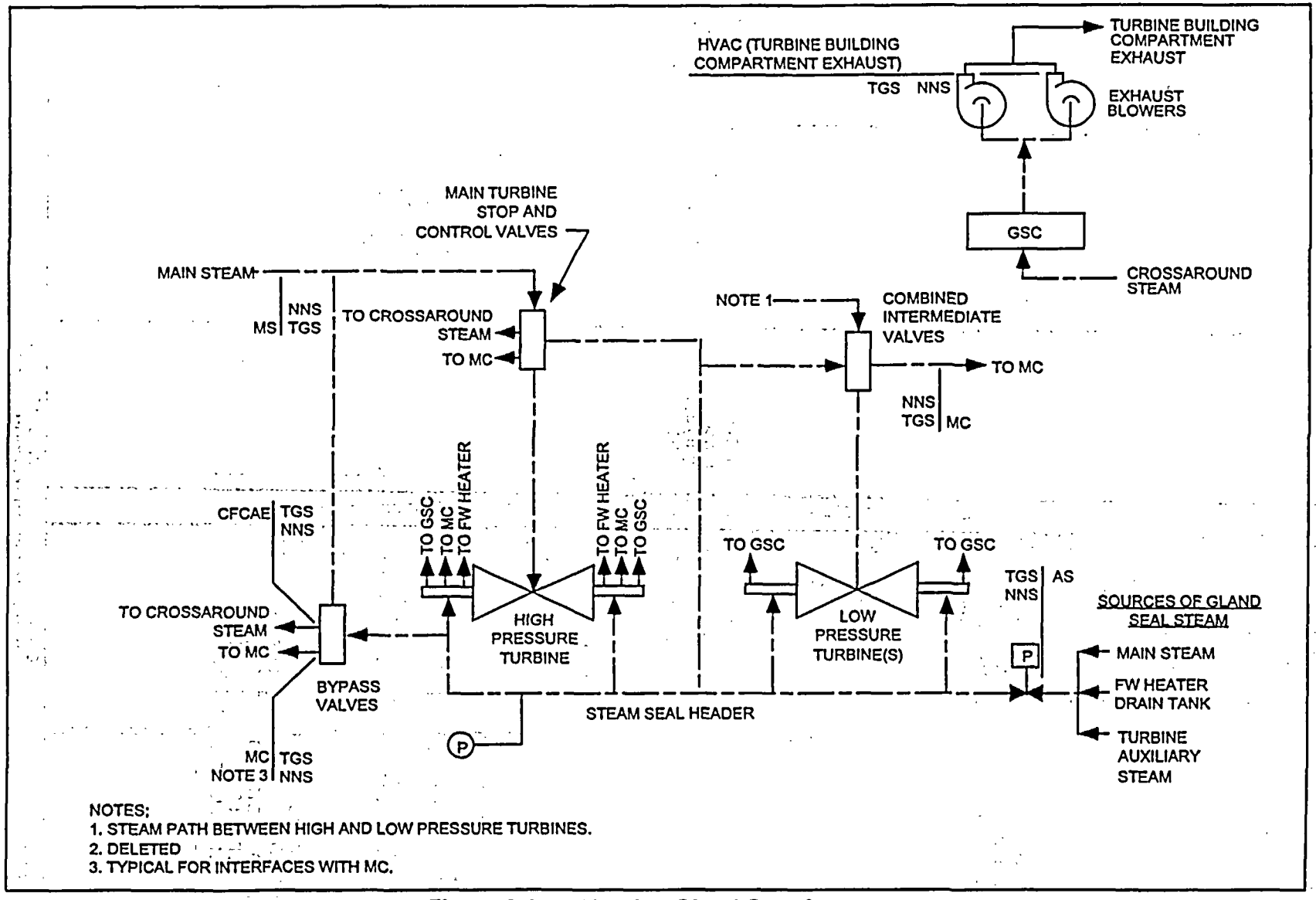
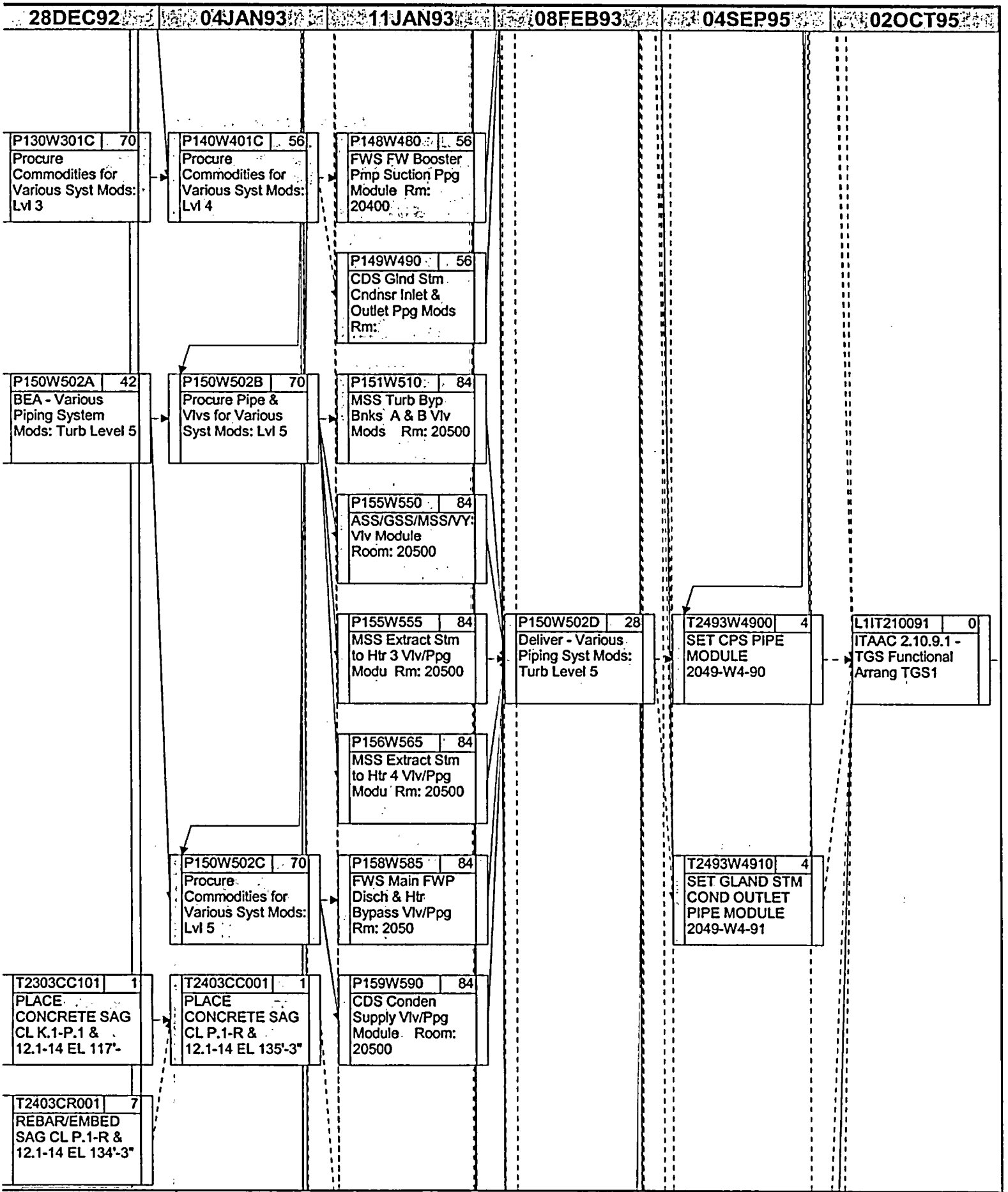


Figure 2.10.9 Turbine Gland Seal System



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CIMS Sheet 17A of 20B
IPIMS/ITAAC DEMONSTRATION SCHEDUL

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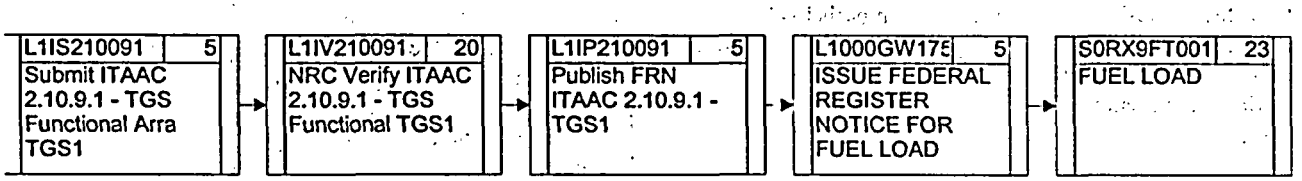
TGS1 LOGIC 5x5



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CIMS Sheet 17B of 20B
IPIMS/ITAAC DEMONSTRATION SCHEDUL

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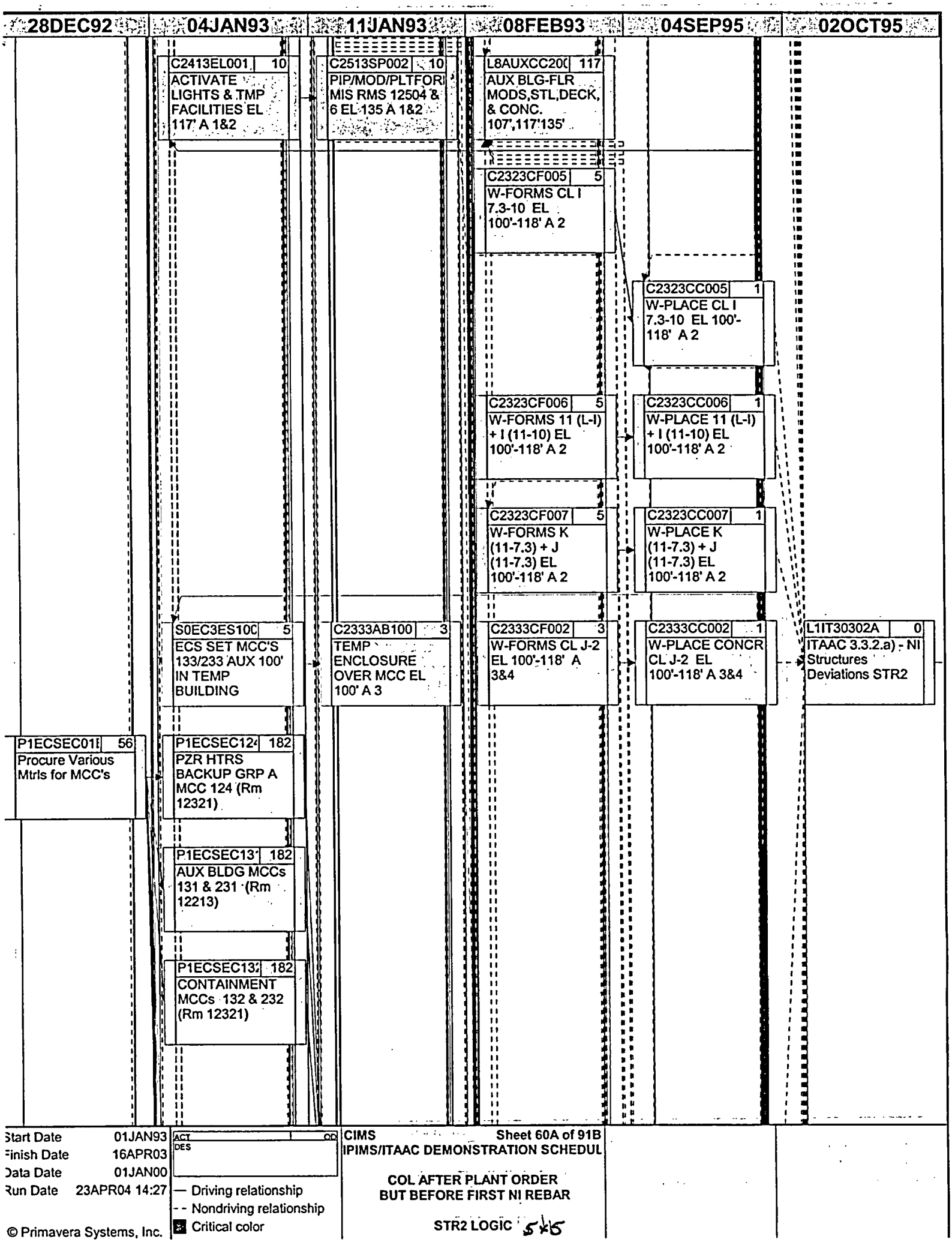
BUT BEFORE FIRST NI REBAR

TGS1 LOGIC 5x5

Table 3.3-6
Inspections, Tests, Analyses, and Acceptance Criteria

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
1. The physical arrangement of the nuclear island structures and the annex building is as described in the Design Description of this Section 3.3 and Figures 3.3-1 through 3.3-14. The physical arrangement of the radwaste building, the turbine building, and the diesel generator building is as described in the Design Description of this Section 3.3.	An inspection of the nuclear island structures, the annex building, the radwaste building, the turbine building, and the diesel generator building will be performed.	The as-built nuclear island structures, the annex building, the radwaste building, the turbine building, and the diesel generator building conform with the physical arrangement as described in the Design Description of this Section 3.3 and Figures 3.3-1 through 3.3-14.
2.a) The nuclear island structures, including the critical sections listed in Table 3.3-7, are seismic Category I and are designed and constructed to withstand design basis loads as specified in the Design Description, without loss of structural integrity and the safety-related functions.	i) An inspection of the nuclear island structures will be performed. Deviations from the design due to as-built conditions will be analyzed for the design basis loads. ii) An inspection of the as-built concrete thickness will be performed.	i) A report exists which reconciles deviations during construction and concludes that the as-built nuclear island structures, including the critical sections, conform to the approved design and will withstand the design basis loads specified in the Design Description without loss of structural integrity or the safety-related functions. ii) A report exists that concludes that the as-built concrete thicknesses conform with the building sections defined on Table 3.3-1.
2.b) Site grade level is located relative to floor elevation 100'-0" per Table 3.3-5.	Inspection of the as-built site grade will be conducted.	Site grade is consistent with design plant grade within the dimension defined on Table 3.3-5.
2.c) The containment and its penetrations are designed and constructed to ASME Code Section III, Class MC.(1)	See Tier 1 Material, Subsection 2.2.1, Containment System.	See Tier 1 Material, Subsection 2.2.1, Containment System.

1. Containment isolation devices are addressed in subsection 2.2.1, Containment System.


28DEC92
04JAN93
11JAN93
08FEB93
04SEP95
02OCT95
C2413EL001 10
ACTIVATE LIGHTS & TMP FACILITIES EL 117' A 1&2
C2513SP002 10
PIP/MOD/PLTFOR MIS RMS 12504 & 6 EL 135 A 1&2
L8AUXCC20(117
AUX BLG-FLR MODS,STL,DECK, & CONC. 107',117'135'
C2323CF005 5
W-FORMS CL I 7.3-10 EL 100'-118' A 2
C2323CC005 1
W-PLACE CL I 7.3-10 EL 100'-118' A 2
C2323CF006 5
W-FORMS 11 (L-I) + I (11-10) EL 100'-118' A 2
C2323CC006 1
W-PLACE 11 (L-I) + I (11-10) EL 100'-118' A 2
C2323CF007 5
W-FORMS K (11-7.3) + J (11-7.3) EL 100'-118' A 2
C2323CC007 1
W-PLACE K (11-7.3) + J (11-7.3) EL 100'-118' A 2
S0EC3ES10C 5
ECS SET MCC'S 133/233 AUX 100' IN TEMP BUILDING
C2333AB100 3
TEMP ENCLOSURE OVER MCC EL 100' A 3
C2333CF002 3
W-FORMS CL J-2 EL 100'-118' A 3&4
C2333CC002 1
W-PLACE CONCR CL J-2 EL 100'-118' A 3&4
L1IT30302A 0
ITAAC 3.3.2.a) - NI Structures Deviations STR2
P1ECSEC01E 56
Procure Various Mtrls for MCC's
P1ECSEC12 182
PZR HTRS BACKUP GRP A MCC 124 (Rm 12321)
P1ECSEC13 182
AUX BLDG MCCs 131 & 231 (Rm 12213)
P1ECSEC13 182
CONTAINMENT MCCs 132 & 232 (Rm 12321)
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Sheet 60A of 91B
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STR2 LOGIC 5*5

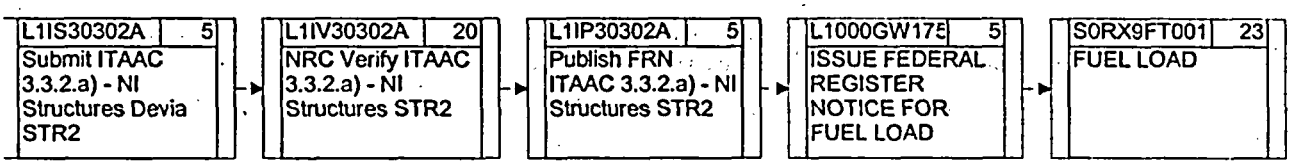


Table 2.10.9 Turbine Gland Seal System

Inspections, Tests, Analyses and Acceptance Criteria		
Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
1. The basic configuration of the TGS System is as shown on Figure 2.10.9.	1. Inspections of the as-built system will be conducted.	1. The as-built TGS System conforms with the basic configuration shown on Figure 2.10.9.
2. Main control room displays provided for the TGS System are as defined in Section 2.10.9.	2. Inspections will be performed on the main control room displays for the TGS System.	2. Displays exist or can be retrieved in the main control room as defined in Section 2.10.9.

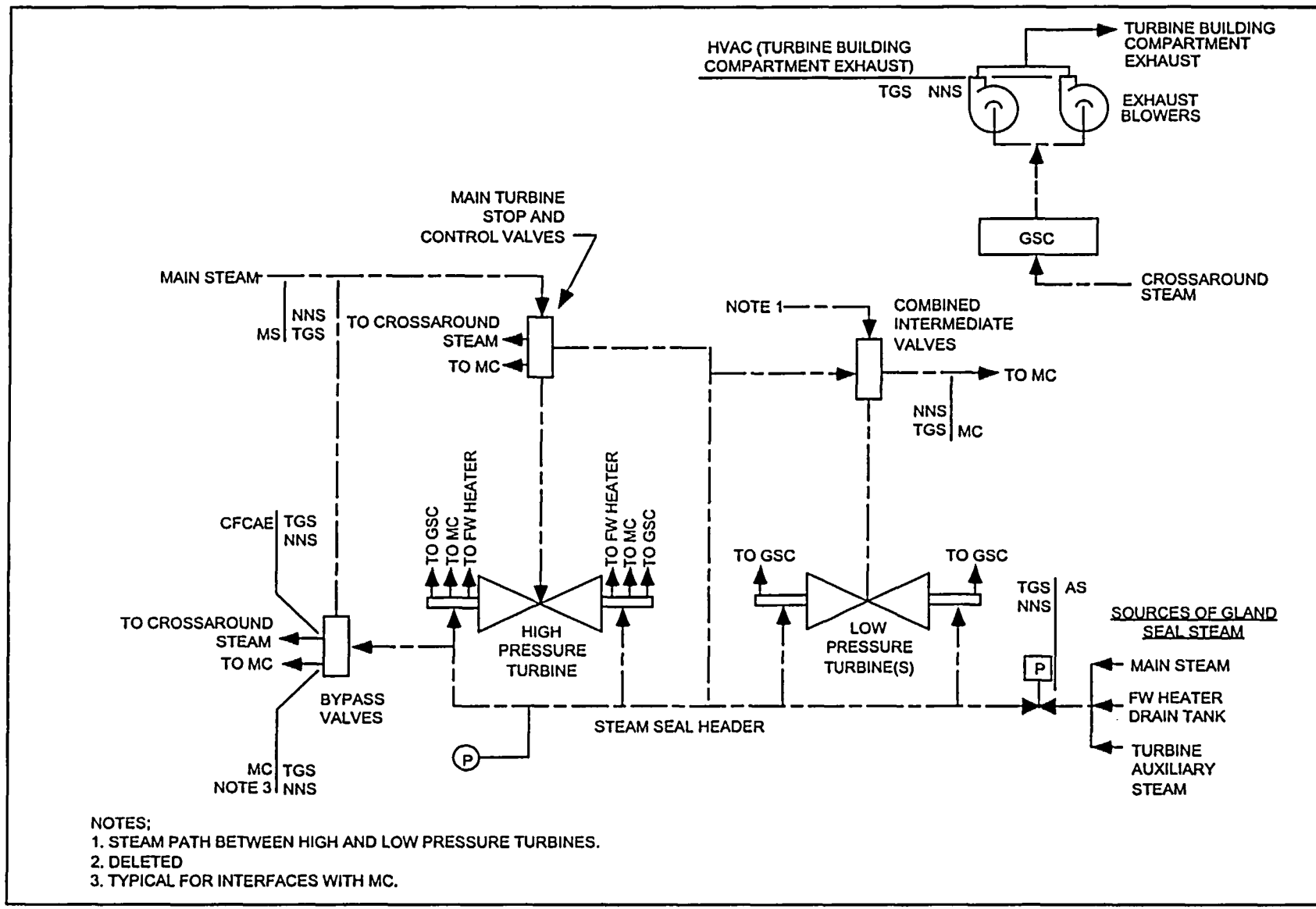
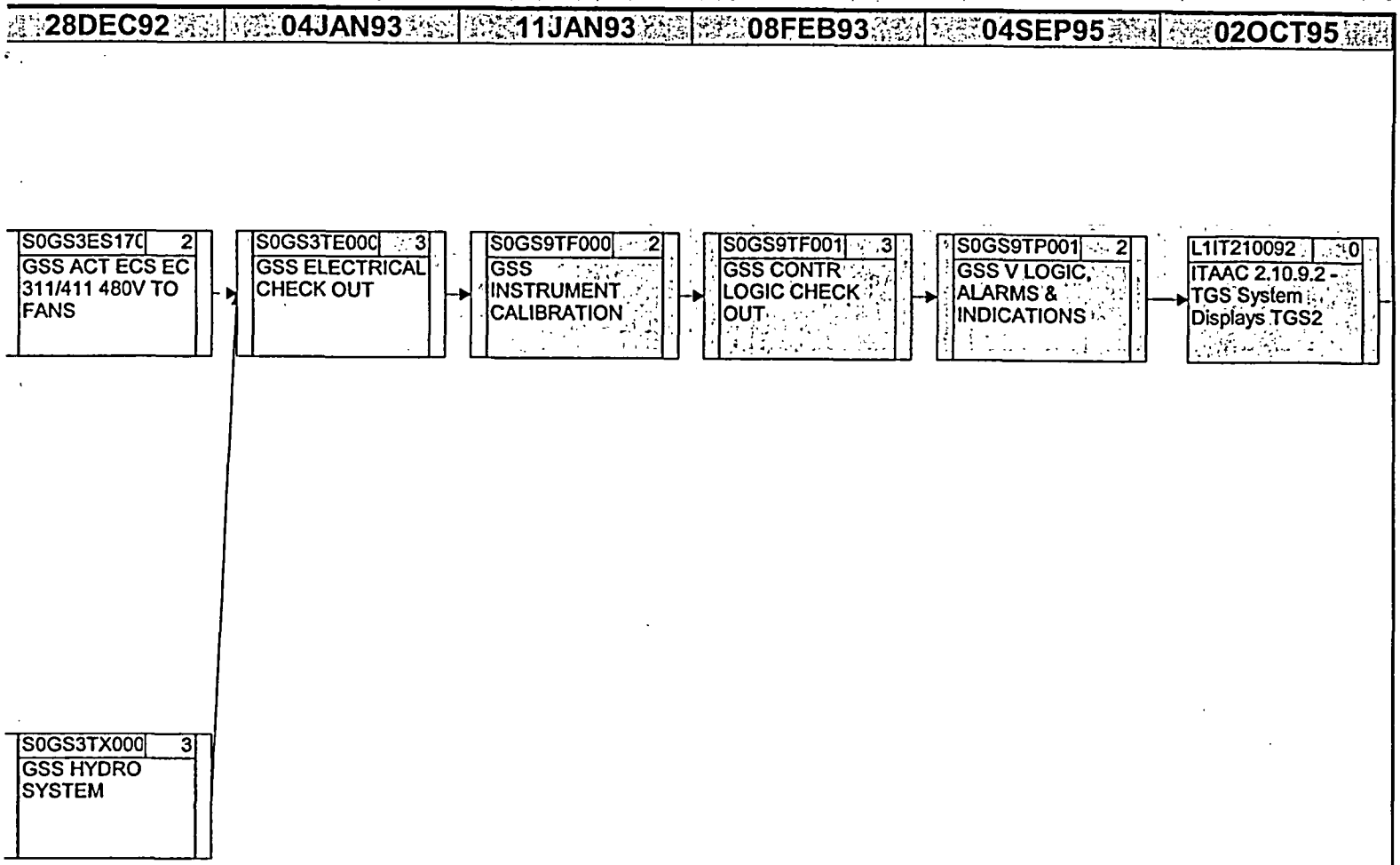


Figure 2.10.9 Turbine Gland Seal System



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IPIMS/ITAAC DEMONSTRATION SCHEDUL

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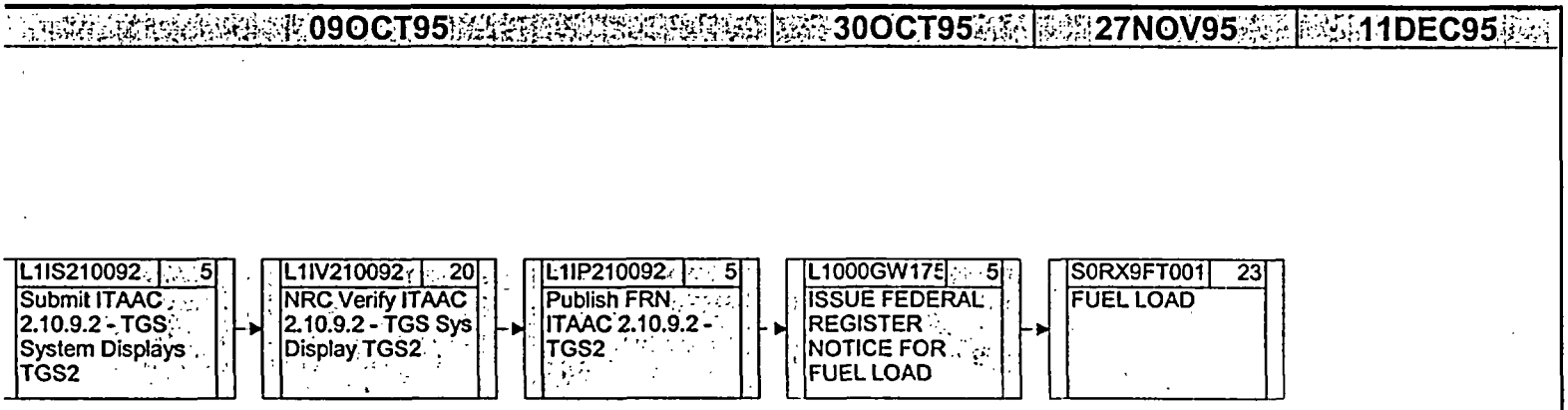
TGS2 LOGIC 5x5



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CIMS Sheet 1B of 1B
IPIMS/ITAAC DEMONSTRATION SCHEDUL

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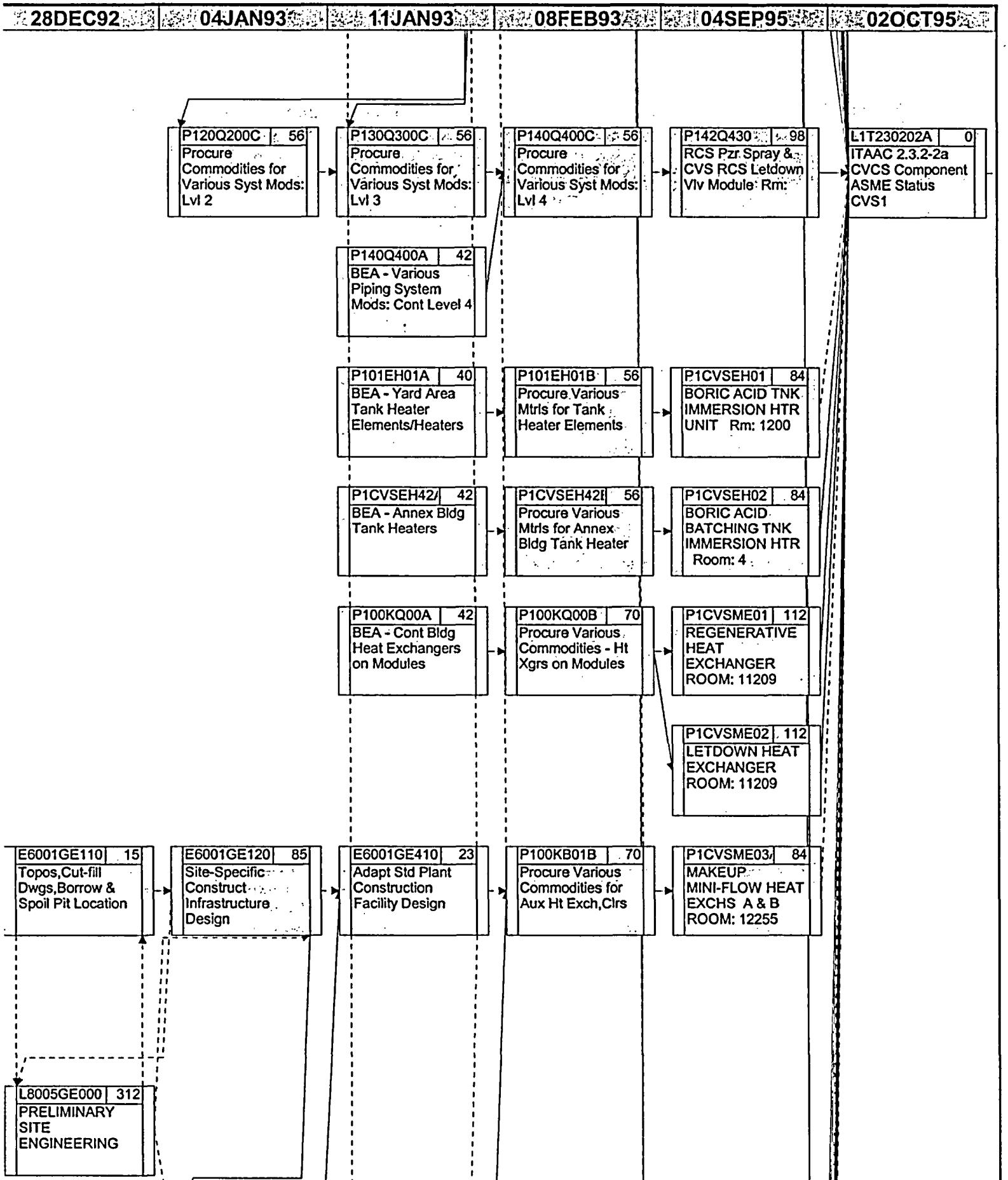
TGS2 LOGIC 5x5

Table 2.3.2-4
Inspections, Tests, Analyses, and Acceptance Criteria

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
1. The functional arrangement of the CVS is as described in the Design Description of this Section 2.3.2.	Inspection of the as-built system will be performed.	The as-built CVS conforms with the functional arrangement as described in the Design Description of this Section 2.3.2.
2.a) The components identified in Table 2.3.2-1 as ASME Code Section III are designed and constructed in accordance with ASME Code Section III requirements.	Inspection will be conducted of the as-built components as documented in the ASME design reports.	The ASME Code Section III design reports exist for the as-built components identified in Table 2.3.2-1 as ASME Code Section III.
2.b) The piping identified in Table 2.3.2-2 as ASME Code Section III is designed and constructed in accordance with ASME Code Section III requirements.	Inspection will be conducted of the as-built piping as documented in the ASME design reports.	The ASME Code Section III design reports exist for the as-built piping identified in Table 2.3.2-2 as ASME Code Section III.
3.a) Pressure boundary welds in components identified in Table 2.3.2-1 as ASME Code Section III meet ASME Code Section III requirements.	Inspection of the as-built pressure boundary welds will be performed in accordance with the ASME Code Section III.	A report exists and concludes that the ASME Code Section III requirements are met for non-destructive examination of pressure boundary welds.
3.b) Pressure boundary welds in piping identified in Table 2.3.2-2 as ASME Code Section III meet ASME Code Section III requirements.	Inspection of the as-built pressure boundary welds will be performed in accordance with the ASME Code Section III.	A report exists and concludes that the ASME Code Section III requirements are met for non-destructive examination of pressure boundary welds.
4.a) The components identified in Table 2.3.2-1 as ASME Code Section III retain their pressure boundary integrity at their design pressure.	A hydrostatic test will be performed on the components required by the ASME Code Section III to be hydrostatically tested.	A report exists and concludes that the results of the hydrostatic test of the components identified in Table 2.3.2-1 as ASME Code Section III conform with the requirements of the ASME Code Section III.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04SEP95
02OCT95
P120Q200C 56
Procure Commodities for Various Syst Mods: Lvl 2
P130Q300C 56
Procure Commodities for Various Syst Mods: Lvl 3
P140Q400C 56
Procure Commodities for Various Syst Mods: Lvl 4
P142Q430 98
RCS Pzr Spray & CVS RCS Letdown Vlv Module Rm:
L1T230202A 0
ITAAC 2.3.2-2a CVCS Component ASME Status CVS1
P140Q400A 42
BEA - Various Piping System Mods: Cont Level 4
P101EH01A 40
BEA - Yard Area Tank Heater Elements/Heaters
P101EH01B 56
Procure Various Mtrls for Tank Heater Elements
P1CVSEH01 84
BORIC ACID TNK IMMERSION HTR UNIT Rm: 1200
P1CVSEH42A 42
BEA - Annex Bldg Tank Heaters
P1CVSEH42B 56
Procure Various Mtrls for Annex Bldg Tank Heater
P1CVSEH02 84
BORIC ACID BATCHING TNK IMMERSION HTR Room: 4
P100KQ00A 42
BEA - Cont Bldg Heat Exchangers on Modules
P100KQ00B 70
Procure Various Commodities - Ht Xgrs on Modules
P1CVSME01 112
REGENERATIVE HEAT EXCHANGER ROOM: 11209
P1CVSME02 112
LETDOWN HEAT EXCHANGER ROOM: 11209
E6001GE110 15
Topos,Cut-fill Dwgs,Borrow & Spoil Pit Location
E6001GE120 85
Site-Specific Construct Infrastructure Design
E6001GE410 23
Adapt Std Plant Construction Facility Design
P100KB01B 70
Procure Various Commodities for Aux Ht Exch,Clrs
P1CVSME03A 84
MAKEUP MINI-FLOW HEAT EXCHS A & B ROOM: 12255
L8005GE000 312
PRELIMINARY SITE ENGINEERING
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CVS1 LOGIC 5x5
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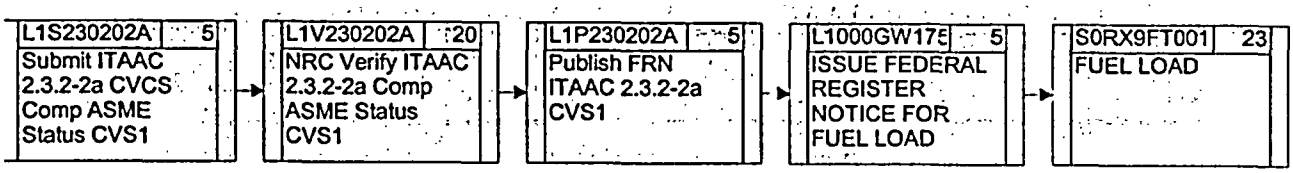

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CIMS Sheet 5B of 6B
IPIMS/ITAAC DEMONSTRATION SCHEDUL

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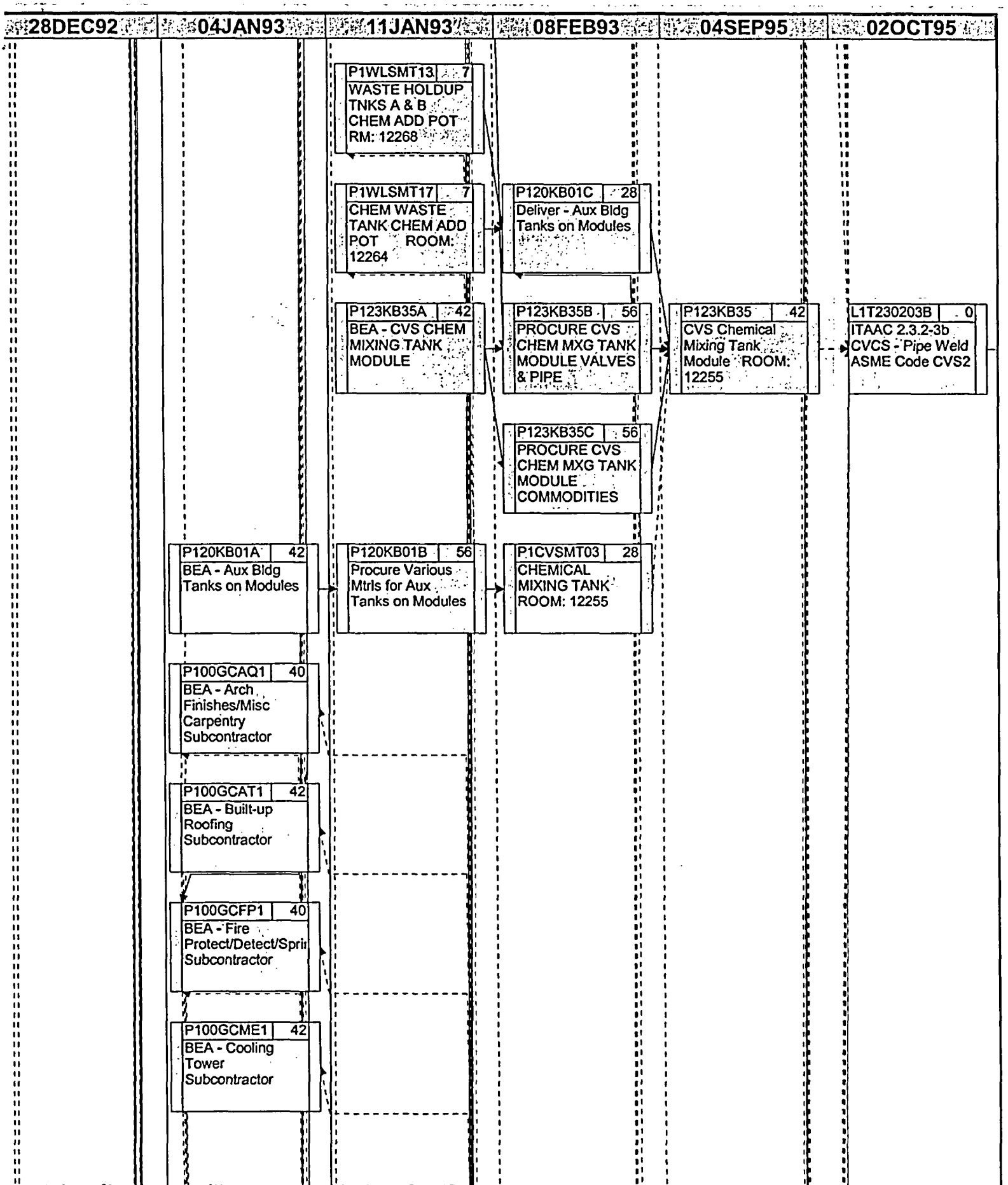
CVS1 LOGIC 5x5

Table 2.3.2-4
Inspections, Tests, Analyses, and Acceptance Criteria

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
1. The functional arrangement of the CVS is as described in the Design Description of this Section 2.3.2.	Inspection of the as-built system will be performed.	The as-built CVS conforms with the functional arrangement as described in the Design Description of this Section 2.3.2.
2.a) The components identified in Table 2.3.2-1 as ASME Code Section III are designed and constructed in accordance with ASME Code Section III requirements.	Inspection will be conducted of the as-built components as documented in the ASME design reports.	The ASME Code Section III design reports exist for the as-built components identified in Table 2.3.2-1 as ASME Code Section III.
2.b) The piping identified in Table 2.3.2-2 as ASME Code Section III is designed and constructed in accordance with ASME Code Section III requirements.	Inspection will be conducted of the as-built piping as documented in the ASME design reports.	The ASME Code Section III design reports exist for the as-built piping identified in Table 2.3.2-2 as ASME Code Section III.
3.a) Pressure boundary welds in components identified in Table 2.3.2-1 as ASME Code Section III meet ASME Code Section III requirements.	Inspection of the as-built pressure boundary welds will be performed in accordance with the ASME Code Section III.	A report exists and concludes that the ASME Code Section III requirements are met for non-destructive examination of pressure boundary welds.
3.b) Pressure boundary welds in piping identified in Table 2.3.2-2 as ASME Code Section III meet ASME Code Section III requirements.	Inspection of the as-built pressure boundary welds will be performed in accordance with the ASME Code Section III.	A report exists and concludes that the ASME Code Section III requirements are met for non-destructive examination of pressure boundary welds.
4.a) The components identified in Table 2.3.2-1 as ASME Code Section III retain their pressure boundary integrity at their design pressure.	A hydrostatic test will be performed on the components required by the ASME Code Section III to be hydrostatically tested.	A report exists and concludes that the results of the hydrostatic test of the components identified in Table 2.3.2-1 as ASME Code Section III conform with the requirements of the ASME Code Section III.



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CIMS Sheet 25A of 31B
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CVS2 LOGIC 5x5

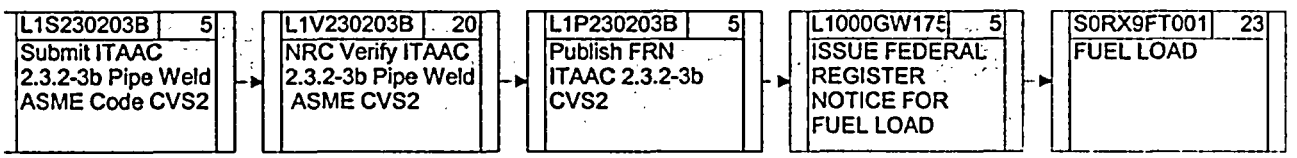


Table 2.3.2-4 (cont.)
Inspections, Tests, Analyses, and Acceptance Criteria

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
6.c) Separation is provided between CVS Class 1E divisions, and between Class 1E divisions and non-Class 1E cable.	See Tier 1 Material, Section 3.3, Nuclear Island Buildings.	See Tier 1 Material, Section 3.3, Nuclear Island Buildings.
7.a) The CVS preserves containment integrity by isolation of the CVS lines penetrating the containment.	See Tier 1 Material, subsection 2.2.1, Containment System.	See Tier 1 Material, subsection 2.2.1, Containment System.
7.b) The CVS provides termination of an inadvertent RCS boron dilution by isolating demineralized water from the RCS.	See item 10b in this table.	See item 10b in this table.
7.c) The CVS provides isolation of makeup to the RCS.	See item 10b in this table.	See item 10b in this table.
8.a) The CVS provides makeup water to the RCS.	i) Testing will be performed by aligning a flow path from each CVS makeup pump, actuating makeup flow to the RCS at pressure greater than or equal to 2000 psia, and measuring the flow rate in the makeup pump discharge line with each pump suction aligned to the boric acid tank. ii) Inspection of the boric acid tank volume will be performed. iii) Testing will be performed to measure the delivery rate from the DWS to the RCS. Both CVS makeup pumps will be operating and the RCS pressure will be below 6 psig.	i) Each CVS makeup pump provides a flow rate of greater than or equal to 100 gpm. ii) The volume in the boric acid tank is at least 70,000 gallons between the tank outlet connection and the tank overflow. iii) The total CVS makeup flow to the RCS is less than or equal to 200 gpm.

14.2.9.2.3 Chemical and Volume Control System Testing

Purpose

The purpose of the chemical and volume control system testing is to verify that the as-installed system properly performs the following defense-in-depth functions described in subsection 9.3.6 and appropriate design specifications:

- Provide makeup water to the reactor coolant system
- Provide boration of the reactor coolant system
- Provide auxiliary pressurizer spray

Prerequisites

The construction testing of the as-installed chemical and volume control system is completed. The following interfacing and support systems are available as necessary to support testing: component cooling water system; service water system; reactor coolant system; electrical power and distribution systems. Data collection is available as needed to support the specified testing and system configurations.

General Test Acceptance Criteria and Methods

Chemical and volume control system performance is observed and recorded during a series of individual component and integrated system testing. The following testing verifies the system properly performs the defense-in-depth functions described in subsection 9.3.6 and appropriate design specifications:

a) Operation of pumps and valves which perform defense-in-depth functions is verified, including:

   - Makeup pumps
   - Boric acid mixing control valve
   - Makeup flow control valve

b) Calibration and operation of defense-in-depth related instrumentation, controls, actuation signals and interlocks is verified, including:

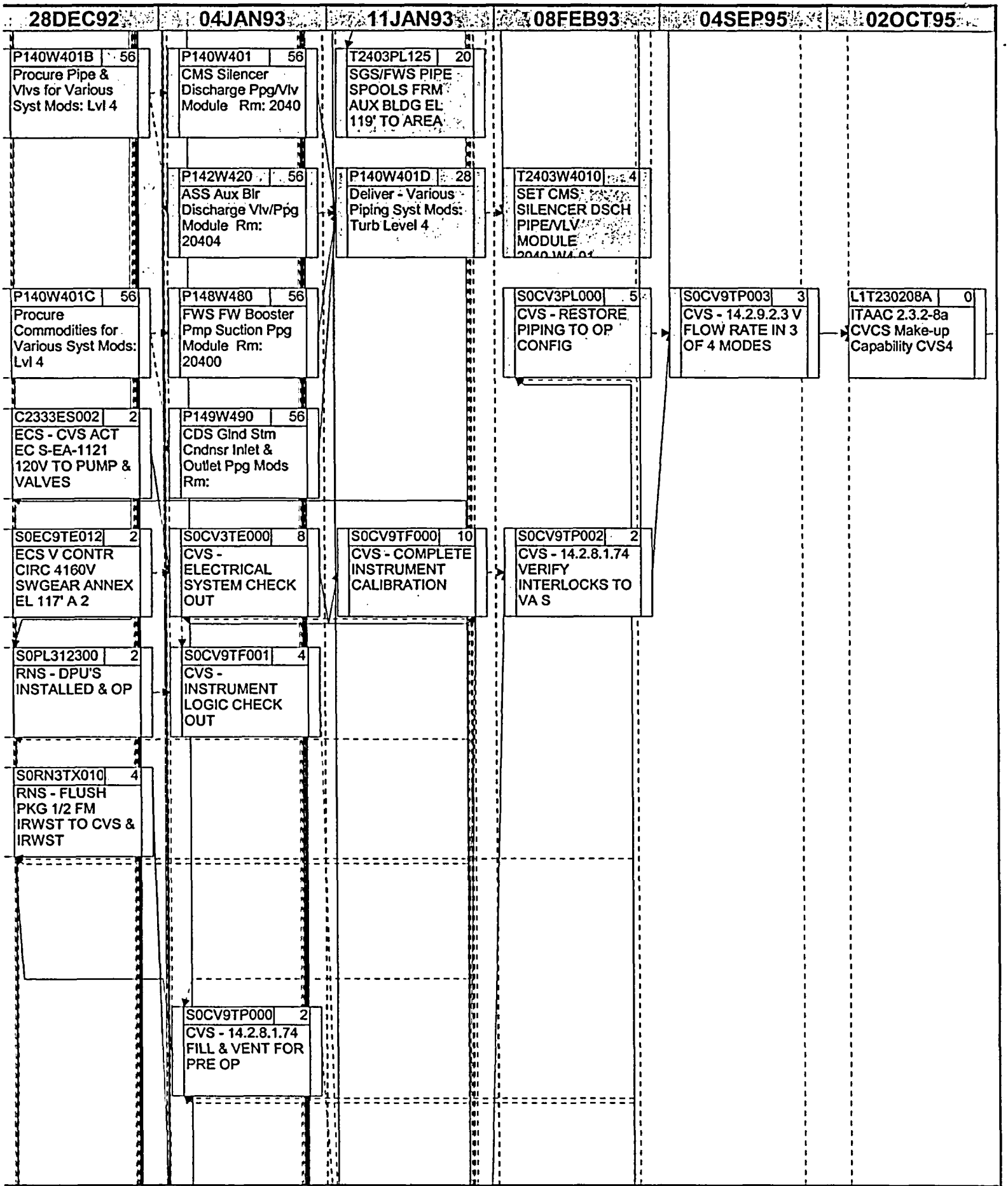
   - Automatic makeup pump actuation and shutoff
   - Automatic alignment of the boric acid tank
   - Pressurizer auxiliary spray initiation and termination
   - Letdown/purification isolation

   This testing includes actuation of defense-in-depth pumps and remotely-operated valves from the main control room. Pressurizer level control testing is described in subsection 14.2.9.1.1.

c) The capability of the makeup pumps to operate when performing their normal makeup and pressurizer spray functions is verified with the reactor coolant system at normal operating pressure.

d) The capability of the makeup pumps to operate at miniflow and the operation of the miniflow heat exchanger is verified.

e) The proper purification loop flowrate through the demineralizers and filters is verified.



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CIMS Sheet 54A of 84B
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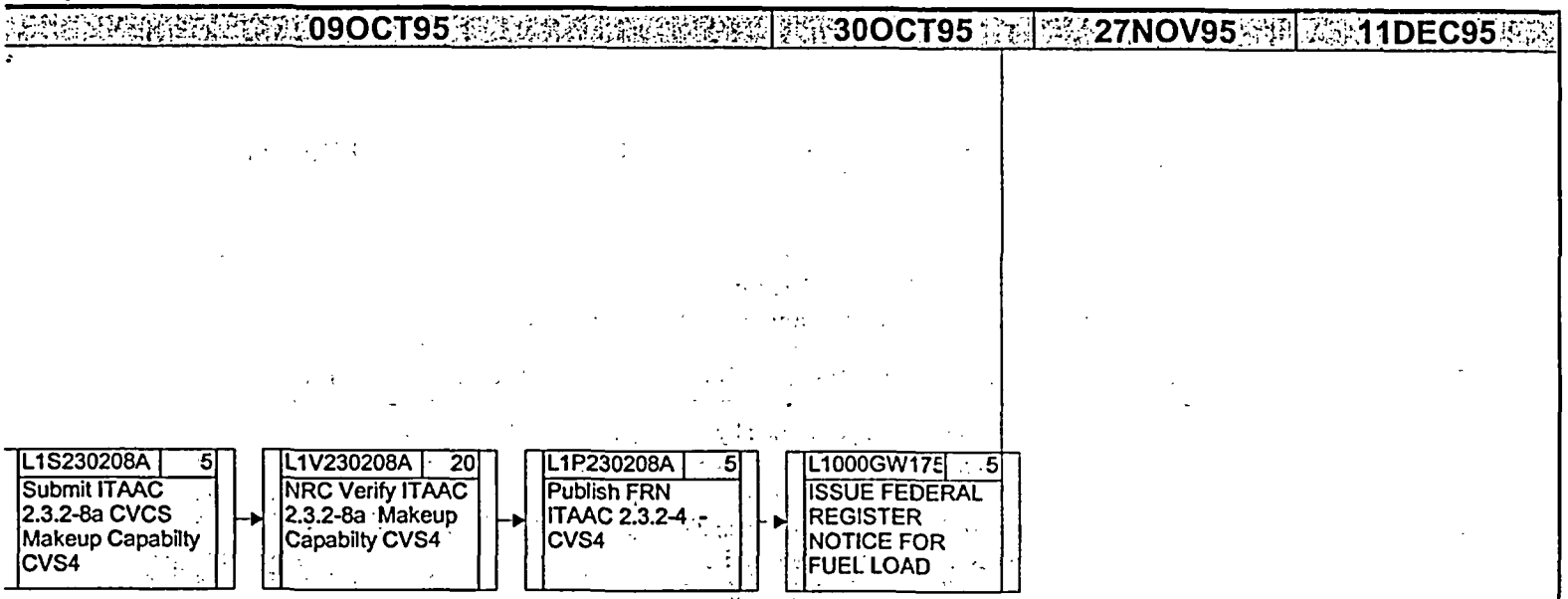
CVS4 LOGIC 5x5



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CIMS Sheet 54B of 84B
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CVS4 LOGIC 5x5

Table 2.3.2-4 (cont.)
Inspections, Tests, Analyses, and Acceptance Criteria

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
8.b) The CVS provides the pressurizer auxiliary spray.	Testing will be performed by aligning a flow path from each CVS makeup pump to the pressurizer auxiliary spray and measuring the flow rate in the makeup pump discharge line with each pump suction aligned to the boric acid tank and with RCS pressure greater than or equal to 2000 psia.	Each CVS makeup pump provides spray flow to the pressurizer.
9. Safety-related displays identified in Table 2.3.2-1 can be retrieved in the MCR.	Inspection will be performed for retrievability of the safety-related displays in the MCR.	Safety-related displays identified in Table 2.3.2-1 can be retrieved in the MCR.
10.a) Controls exist in the MCR to cause the remotely operated valves identified in Table 2.3.2-1 to perform active functions.	Stroke testing will be performed on the remotely operated valves identified in Table 2.3.2-1 using the controls in the MCR.	Controls in the MCR operate to cause the remotely operated valves identified in Table 2.3.2-1 to perform active functions.
10.b) The valves identified in Table 2.3.2-1 as having PMS control perform an active safety function after receiving a signal from the PMS.	i) Testing will be performed using real or simulated signals into the PMS. ii) Testing will be performed to demonstrate that the remotely operated CVS isolation valves CVS-V090, V091, V136A/B close within the required response time.	i) The valves identified in Table 2.3.2-1 as having PMS control perform the active function identified in the table after receiving a signal from the PMS. ii) These valves close within the following times after receipt of an actuation signal: V090, V091 < 10 sec V136A/B < 20 sec
11.a) The motor-operated and check valves identified in Table 2.3.2-1 perform an active safety-related function to change position as indicated in the table.	i) Tests or type tests of motor-operated valves will be performed that demonstrate the capability of the valve to operate under its design conditions. ii) Inspection will be performed for the existence of a report verifying that the as-installed motor-operated valves are bounded by the tested conditions.	i) A test report exists and concludes that each motor-operated valve changes position as indicated in Table 2.3.2-1 under design conditions. ii) A report exists and concludes that the as-installed motor-operated valves are bounded by the tests or type tests.

14.2.9.2.3 Chemical and Volume Control System Testing

Purpose

The purpose of the chemical and volume control system testing is to verify that the as-installed system properly performs the following defense-in-depth functions described in subsection 9.3.6 and appropriate design specifications:

- Provide makeup water to the reactor coolant system
- Provide boration of the reactor coolant system
- Provide auxiliary pressurizer spray

Prerequisites

The construction testing of the as-installed chemical and volume control system is completed. The following interfacing and support systems are available as necessary to support testing: component cooling water system; service water system; reactor coolant system; electrical power and distribution systems. Data collection is available as needed to support the specified testing and system configurations.

General Test Acceptance Criteria and Methods

Chemical and volume control system performance is observed and recorded during a series of individual component and integrated system testing. The following testing verifies the system properly performs the defense-in-depth functions described in subsection 9.3.6 and appropriate design specifications:

a) Operation of pumps and valves which perform defense-in-depth functions is verified, including:

   - Makeup pumps
   - Boric acid mixing control valve
   - Makeup flow control valve

b) Calibration and operation of defense-in-depth related instrumentation, controls, actuation signals and interlocks is verified, including:

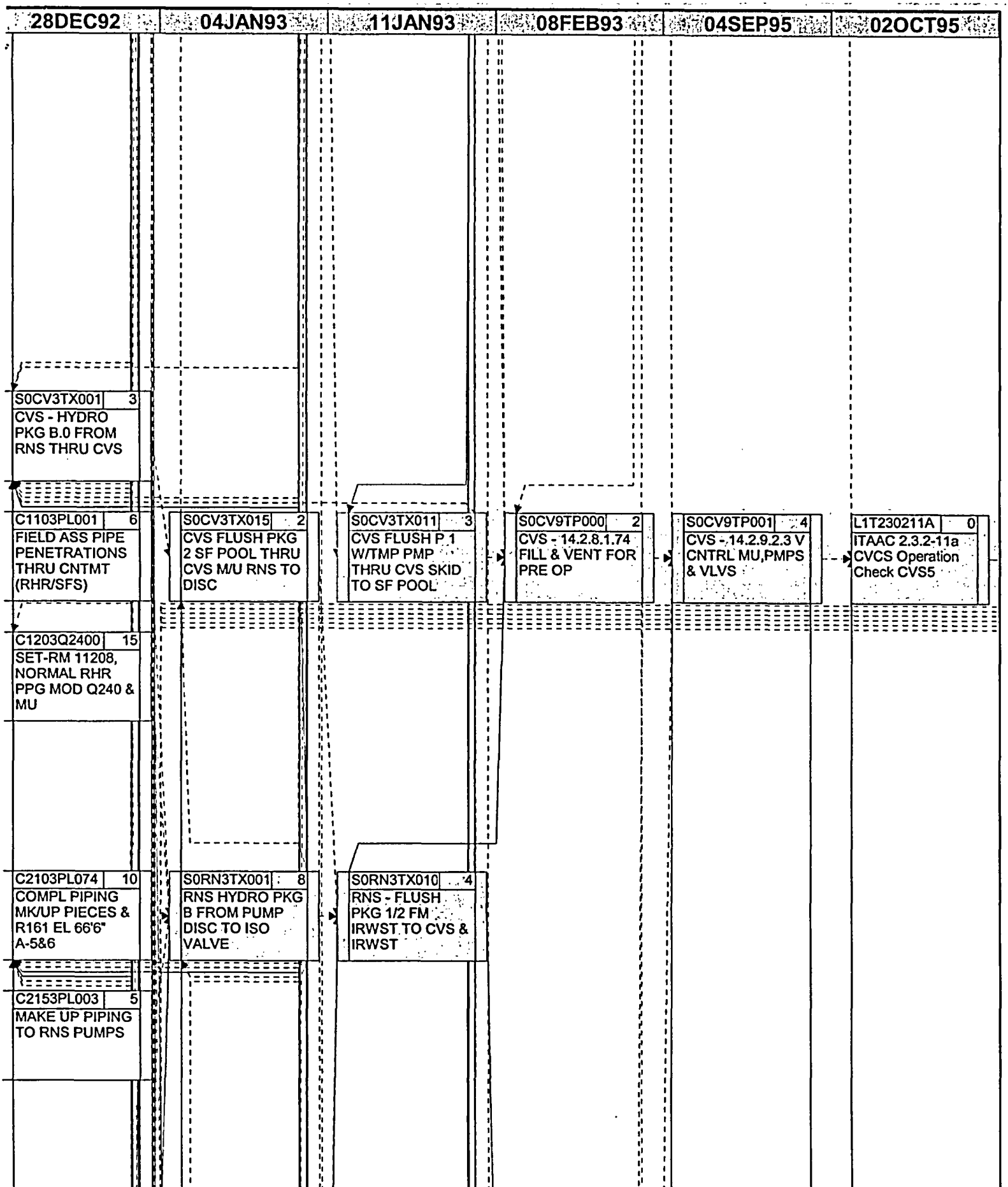
   - Automatic makeup pump actuation and shutoff
   - Automatic alignment of the boric acid tank
   - Pressurizer auxiliary spray initiation and termination
   - Letdown/purification isolation

   This testing includes actuation of defense-in-depth pumps and remotely-operated valves from the main control room. Pressurizer level control testing is described in subsection 14.2.9.1.1.

c) The capability of the makeup pumps to operate when performing their normal makeup and pressurizer spray functions is verified with the reactor coolant system at normal operating pressure.

d) The capability of the makeup pumps to operate at miniflow and the operation of the miniflow heat exchanger is verified.

e) The proper purification loop flowrate through the demineralizers and filters is verified.



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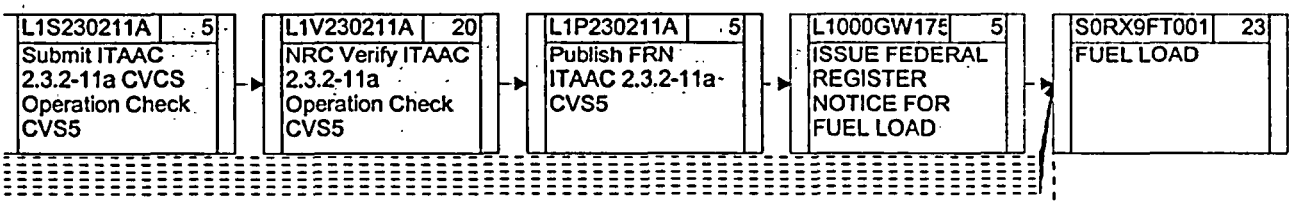
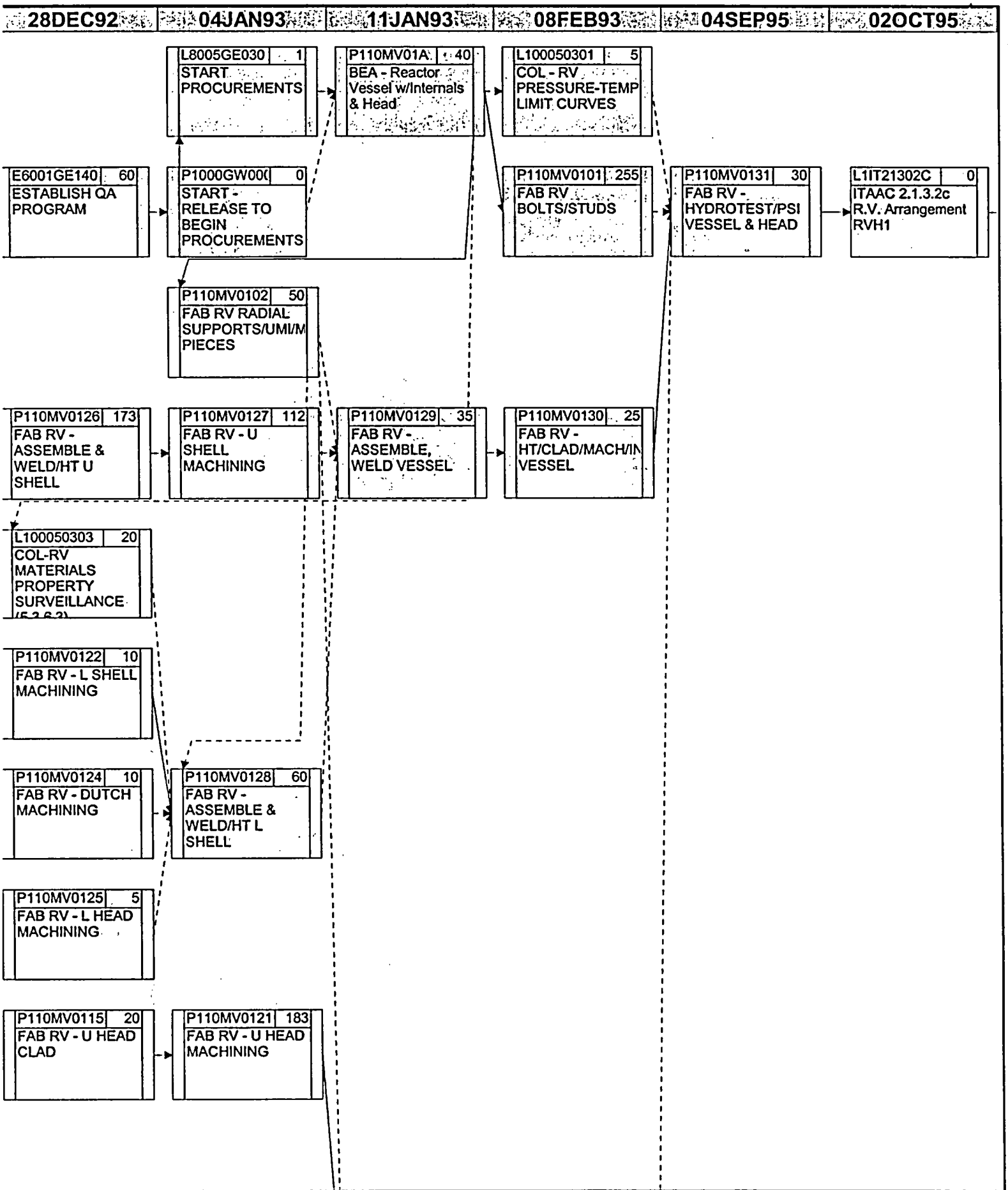


Table 2.1.3-2
Inspections, Tests, Analysis, and Acceptance Criteria

Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
1. The functional arrangement of the RXS is as described in the Design Description of this Section 2.1.3.	Inspection of the as-built system will be performed.	The as-built RXS conforms with the functional arrangement as described in the Design Description of this Section 2.1.3.
2.a) The reactor upper internals rod guide arrangement is as shown in Figure 2.3.1-1.	Inspection of the as-built system will be performed.	The as-built RXS will accommodate the fuel assembly and control rod drive mechanism pattern shown in Figure 2.3.1-1.
2.b) The control assemblies (rod cluster and grey rod) and drive rod arrangement is as shown in Figure 2.1.3-2.	Inspection of the as-built system will be performed.	The as-built RXS will accommodate the control assemblies (rod cluster and grey rod) and drive rod arrangement shown in Figure 2.1.3-2.
2.c) The reactor vessel arrangement is as shown in Figure 2.1.3-3.	Inspection of the as-built system will be performed.	The as-built RXS will accommodate the reactor vessel arrangement shown in Figure 2.1.3-3.
3. The components identified in Table 2.1.3-1 as ASME Code Section III are designed and constructed in accordance with ASME Code Section III requirements.	Inspection will be conducted of the as-built components as documented in the ASME design reports.	The ASME Code Section III design reports exist for the as-built components identified in Table 2.1.3-1 as ASME Code Section III.
4. Pressure boundary welds in components identified in Table 2.1.3-1 as ASME Code Section III meet ASME Code Section III requirements.	Inspection of as-built pressure boundary welds will be performed in accordance with the ASME Code Section III.	A report exists and concludes that the ASME Code Section III requirements are met for non-destructive examination of pressure boundary welds.
5. The pressure boundary components (RV, CRDMs, incore instrument guide tubes) retain their pressure boundary integrity at their design pressure.	A hydrostatic test will be performed on the components of the RXS required by the ASME Code Section III to be hydrostatically tested.	A report exists and concludes that the results of the hydrostatic test of the pressure boundary components (RV, CRDM's, incore instrument guide tubes) conform with the requirements of the ASME Code Section III.



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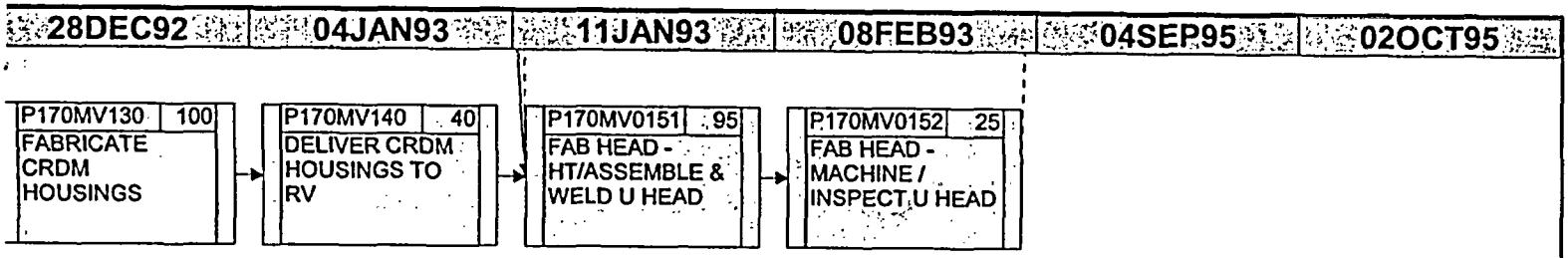

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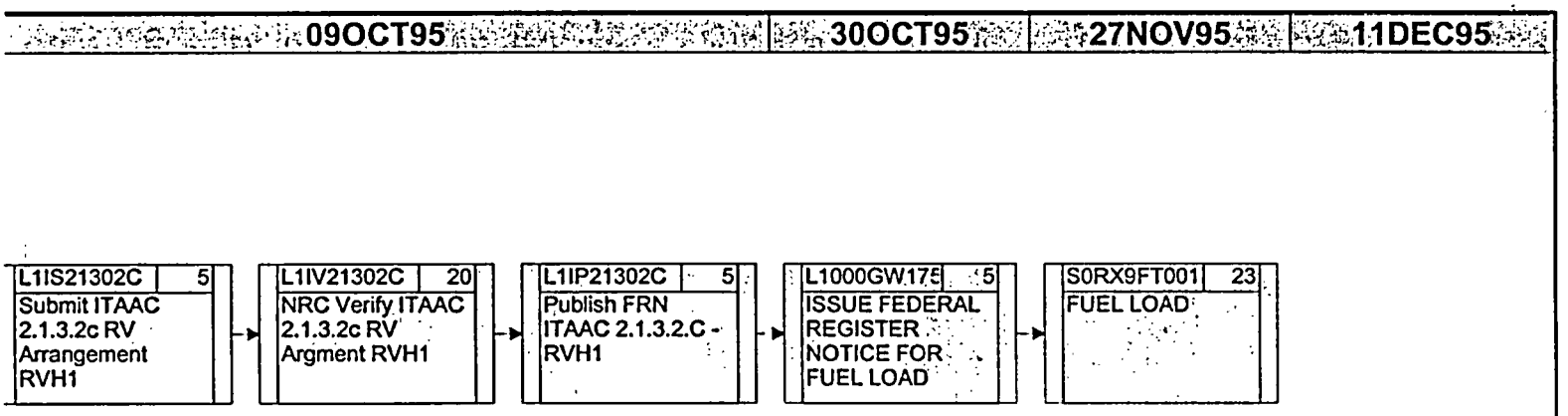

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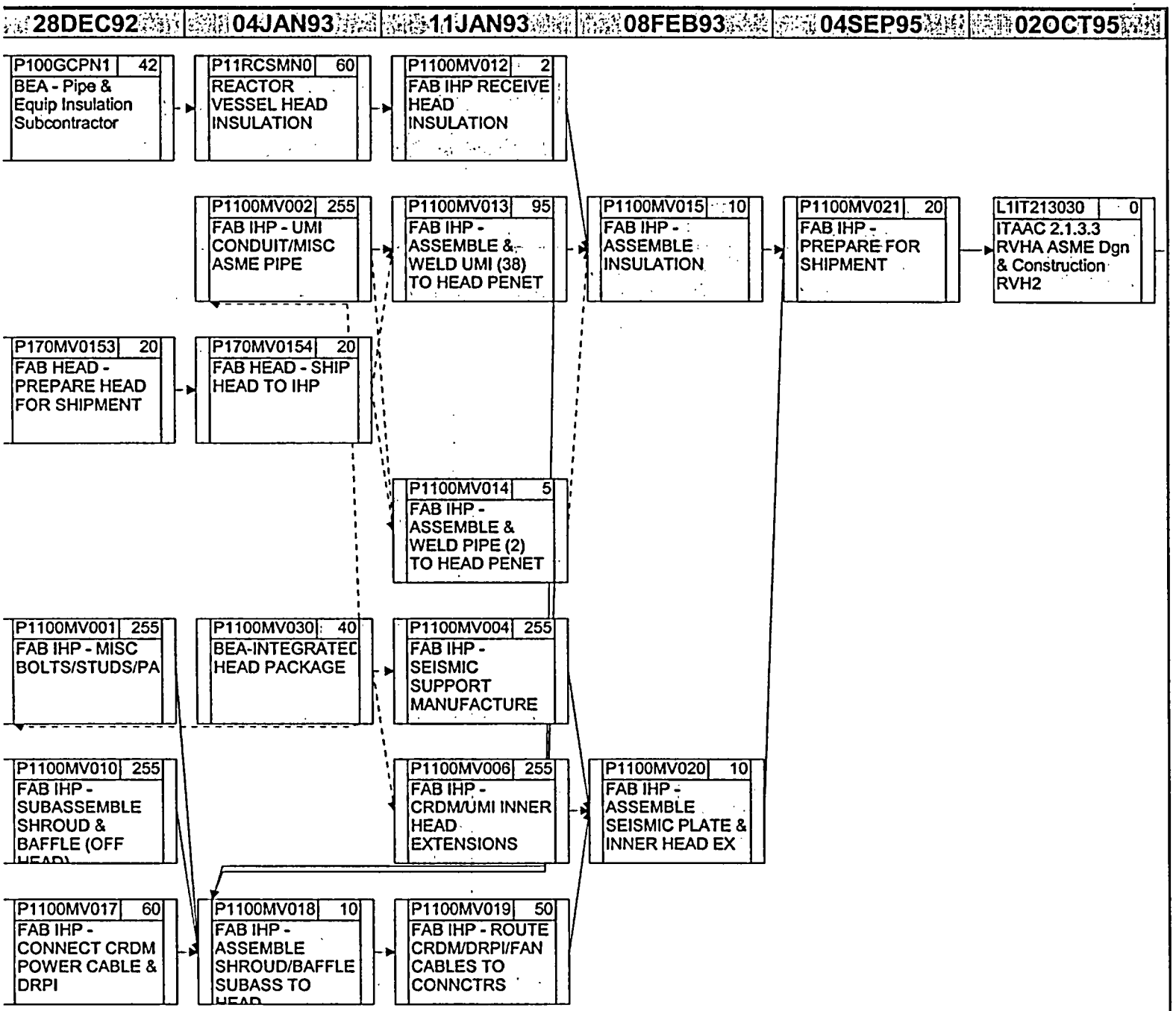
RVH1 LOGIC 5x5

Table 2.1.3-2
Inspections, Tests, Analysis, and Acceptance Criteria

Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
1. The functional arrangement of the RXS is as described in the Design Description of this Section 2.1.3.	Inspection of the as-built system will be performed.	The as-built RXS conforms with the functional arrangement as described in the Design Description of this Section 2.1.3.
2.a) The reactor upper internals rod guide arrangement is as shown in Figure 2.3.1-1.	Inspection of the as-built system will be performed.	The as-built RXS will accommodate the fuel assembly and control rod drive mechanism pattern shown in Figure 2.3.1-1.
2.b) The control assemblies (rod cluster and grey rod) and drive rod arrangement is as shown in Figure 2.1.3-2.	Inspection of the as-built system will be performed.	The as-built RXS will accommodate the control assemblies (rod cluster and grey rod) and drive rod arrangement shown in Figure 2.1.3-2.
2.c) The reactor vessel arrangement is as shown in Figure 2.1.3-3.	Inspection of the as-built system will be performed.	The as-built RXS will accommodate the reactor vessel arrangement shown in Figure 2.1.3-3.
3. The components identified in Table 2.1.3-1 as ASME Code Section III are designed and constructed in accordance with ASME Code Section III requirements.	Inspection will be conducted of the as-built components as documented in the ASME design reports.	The ASME Code Section III design reports exist for the as-built components identified in Table 2.1.3-1 as ASME Code Section III.
4. Pressure boundary welds in components identified in Table 2.1.3-1 as ASME Code Section III meet ASME Code Section III requirements.	Inspection of as-built pressure boundary welds will be performed in accordance with the ASME Code Section III.	A report exists and concludes that the ASME Code Section III requirements are met for non-destructive examination of pressure boundary welds.
5. The pressure boundary components (RV, CRDMs, incore instrument guide tubes) retain their pressure boundary integrity at their design pressure.	A hydrostatic test will be performed on the components of the RXS required by the ASME Code Section III to be hydrostatically tested.	A report exists and concludes that the results of the hydrostatic test of the pressure boundary components (RV, CRDM's, incore instrument guide tubes) conform with the requirements of the ASME Code Section III.



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RVH2 LOGIC 5x5

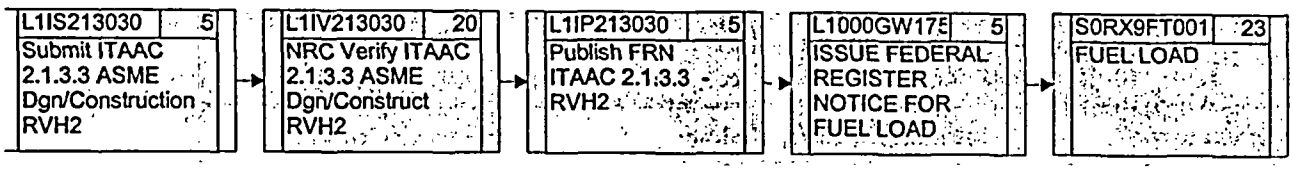


Table 2.1.1-1 (cont.)
Inspections, Tests, Analyses, and Acceptance Criteria

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
7. The new and spent fuel storage racks maintain the effective neutron multiplication factor less than the required limits during normal operation, design basis seismic events, and design basis dropped fuel assembly accidents.	i) Analyses will be performed to calculate the effective neutron multiplication factor in the new and spent fuel storage racks during normal conditions.	i) The calculated effective neutron multiplication factor for the new and spent fuel storage racks is less than 0.95 under normal conditions.
	ii) Inspection will be performed to verify that the new and spent fuel storage racks are located on the nuclear island.	ii) The new and spent fuel storage racks are located on the nuclear island.
	iii) Seismic analysis of the new and spent fuel storage racks will be performed.	iii) A report exists and concludes that the new and spent fuel racks can withstand seismic design basis dynamic loads and maintain the calculated effective neutron multiplication factor less than 0.95.
	iv) Analysis of the new and spent fuel storage racks under design basis dropped fuel assembly loads will be performed.	iv) A report exists and concludes that the new and spent fuel racks can withstand design basis dropped fuel assembly loads and maintain the calculated effective neutron multiplication factor less than 0.95.

14.2.9.1.9 Reactor Vessel Internals Vibration Testing

Purpose

The AP1000 reactor internals testing is part of a comprehensive vibration assessment program performed in accordance with Regulatory Guide 1.20 as discussed in subsection 3.9.2.4. This testing obtains data to verify the structural integrity of the AP1000 reactor internals with regard to flow-induced vibrations, as part of an internals vibration assessment program. This program also includes visual examination of the reactor internals after testing is completed, and analysis of the test data. Testing is performed for the first plant only.

AP1000 plants subsequent to the first plant are visually inspected before and after the hot functional test to confirm that the internals are functioning correctly. The major features of the reactor internals outlined in subsection 3.9.2.4 are visually inspected for signs of abnormal wear and structural changes.

Prerequisites

The construction testing of the reactor coolant system has been completed. The testing and calibration of the required test instrumentation has been completed. The test instrumentation has been installed on the internals as specified in Table 3.9-4 and the internals pre-test visual inspection has been completed. The internals, test instrumentation, and instrumentation lead wires are installed in the reactor vessel. The reactor vessel head is installed in preparation for the cold hydrostatic test of the reactor coolant system and instrument leads have been properly sealed. The proper operation and calibration of the test instrumentation and recording equipment is verified during the hydrostatic testing of the reactor coolant system.

General Test Method and Acceptance Criteria

Reactor vessel internals testing is performed for the first plant only by measuring and recording strains or accelerations of components in order to determine actual displacements that occur with the reactor coolant pumps operating. This testing is performed at several reactor coolant system temperatures during the system hot functional test. The analysis of data obtained from this testing, combined with a pre-test and post-test visual inspection of the internals, are intended to confirm that the stresses and wear on the AP1000 internals, due to flow induced vibration during plant operation, are acceptably low. The criteria for evaluating testing results are established in the AP1000 reactor internals flow-induced vibration assessment program (see Section 7 of WCAP-15949, Reference 18), and appropriate design specifications.

For the first plant only, the internals are instrumented to obtain data during the following reactor coolant system operating conditions:

a) Background noise in the instrumentation and recording equipment is recorded with no reactor coolant pumps running

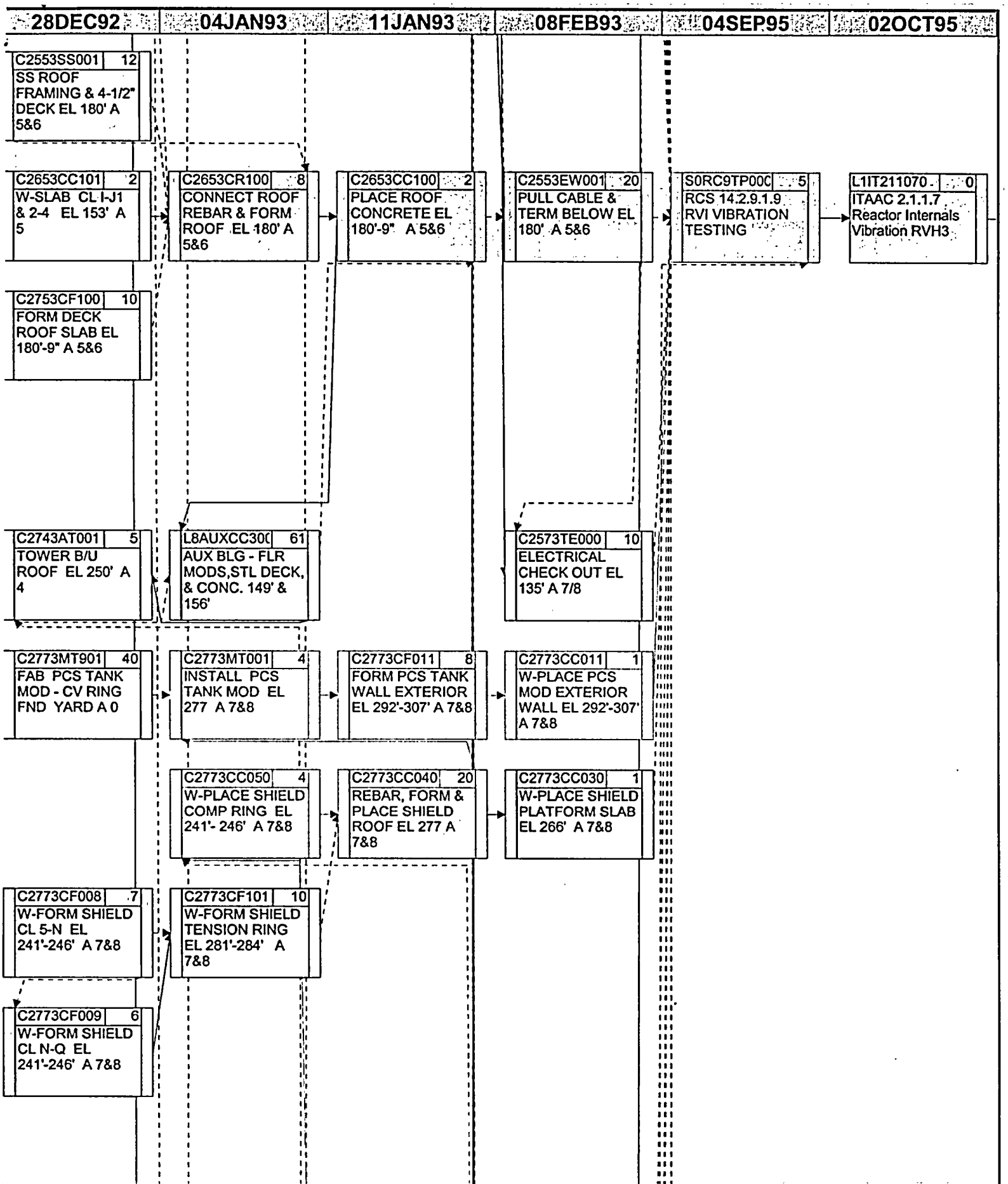
b) Data is recorded during the initial startup of the reactor coolant pumps and with all four pumps operating and with the reactor coolant at cold temperature

c) Data is recorded at several increasing coolant temperatures with the pumps operating

d) Data is recorded at the hot functional testing temperature with all four pumps operating

e) Data is recorded at the hot functional testing temperature with the appropriate combinations of reactor coolant pumps operating, including pump start and stop transients

For all plants subsequent to the first plant, visual inspections are performed before and after the hot functional test. When no indications of harmful vibrations or signs of abnormal wear are detected and no structural damage or changes are apparent, the core support structures are considered to be structurally adequate and sound for operation. If such indications are detected, further evaluation is required.



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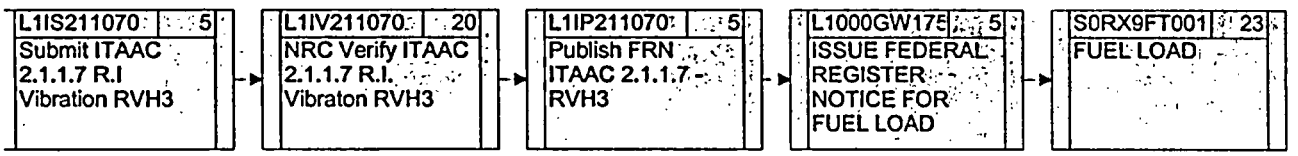

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RVH3 LOGIC 5x5

Hutchings, Donald F.

From: Winters, James W.
Sent: Wednesday, April 21, 2004 2:02 PM
To: Hutchings, Donald F.
Cc: Clelland, Jill A.
Subject: FW: Transferring prop schedule data to NRC

Bring this on Monday.

Jim

-----Original Message-----
From: Clelland, Jill A.
Sent: Wednesday, April 21, 2004 12:27 PM
To: Winters, James W.
Subject: Transferring prop schedule data to NRC

Jim,

I had a few thoughts about this.

1. Simplest way to dump data is to give the NRC their own id and password on Charon (as opposed to the shared ap_guest), they'd have access to a specific set of folders that we could dump files into. Security through password access to the site AND encrypted data files. This allows one or two way file transfer. These data files could be PDF, or possibly exported from Primavera into a format such as Excel, which the NRC could manipulate. They also would have the option of purchasing a Primavera license; I believe they're running around $4K right now, for the P3 license.

2. We could also talk with the IT group about setting up an ERoom for this. This would allow a more collaborative environment, if that's desired, in addition to a file transfer area. At this point, you have more experience with eRoom than I do, but I know that we've set up eRooms with Fuels customers, at least.

Regardless of which way we transfer the files, they need to be encrypted via our procedure to ensure that the files aren't "caught" during transfer from whichever site we use.

Jill Clelland
Passive Plant Projects & Development
Westinghouse Electric Company, LLC
(412) 374-4142

Activity ID	DELV	Activity Description	Orig Dur	Early Start	Early Finish	Total Float	Predecessors	Successors
Customer Pre-Outage Milestones								
C1000		Develop Scaffolding & Install Implement Plan	0		28MAY04*	0	IN1156	
C1002		Determine Outage Scope Resources	0		28MAY04*	0		
C1004		Vertical Slice Meetings	23	14JUN04*	14JUL04	0	IN1158, IN1164	IN1198
C1006		Confirm Implementation Org by Name/Title	0		25JUN04*	0		
C1008		Develop Detailed Revision of Outage Schedule	0		25JUN04*	0	IN1158	
C1010		Radiation Work Permits Submitted & Complete	0		09JUL04*	0		
C1012		Review, Revise & Submit for Print Outage HB	0		13AUG04*	0		
C1014		Site Challenge Boards Held	0		27AUG04*	0	IN1210	
C1016		Determine Contractor On-Site Date	0		27AUG04*	0	IN1210	
C1018		Issue Outage In-Processing Schedule	0		27AUG04*	0	IN1210	
C1020		All Outage Parts On Site	0		27AUG04*	0	1748, 1836, CH1034, IN1104, IN1192, IN1194	
C1022		Identify Outage Goals	0		29AUG04*	0		
C1024		Issue Final Schedule	0		10SEP04*	0		
Deliverables								
D1000	D	Submit PSI Procedures for Kewaunee	30	01MAR04A	26APR04	259		
D1002	C	Certified Design Report Approved by PE	0		15APR04*	266		
D1004	C	Instruction Manuals for Insulation	0		30APR04*	255		
D1006	C	Installation/Removal Instructions for Insulation	0		30APR04*	255		
D1008	C	As-built Owner's Manual	0		30APR04*	255		
D1010	C	3 Set of Design Calcs, Dwgs, Specs or other Doc	0		01JUL04*	211		
D1012	C	As-built Drawings (6 copies)	0		01JUL04*	211		
D1014	C	Addendum to original RV certified Design Rpt	0		01JUL04*	211		
D1016	C	Quality Assurance Data Package	0		01JUL04*	211		
D1018	C	CRDM Coil Trace Recording & Analysis	0		30DEC04*	81		
Misc. Administrative Activities								
A1000		P.O. To Start	0	01NOV02A				A1002*, A1004*, A1006
A1002		Project Management	646*	01NOV02A	22APR05	0	A1000*	
A1004		Procurement	511*	01NOV02A	15OCT04	135	A1000*	
A1006		P.O. (LLM)	0	15NOV02A			A1000	
A1008		P.O. (Remaining LLM)	0	01APR03A				

Start Date 01NOV02
Finish Date 22APR05
Data Date 07APR04
Run Date 22APR04 14:05

JIMW

Typical R.V. Head Replacement Project

RHS 4

Activity ID	DELV	Activity Description	Orig Dur	Early Start	Early Finish	Total Float	Predecessors	Successors
A1010		P.O. Remaining Scope	1	01JUL03A	05AUG03A			
Project Administration								
A1012		Draft Summary Document	9	31DEC02A	10JAN03A			A1014*, A1016
A1014		Draft Project Plan	8	31DEC02A	10JAN03A		A1012*	A1018
A1016		Provide Comments On Draft Summary Document	8	13JAN03A	22JAN03A		A1012	A1020
A1018		Provide Comments On Project Plan	15	13JAN03A	26FEB03A		A1014	A1022
A1020	D	Provide Final Summary Document	54	27FEB03A	24JUN03A		A1016	
A1022	D	Provide Final Project Plan	11	27FEB03A	13MAR03A		A1018	
RVH & CRDM								
Specifications								
S1000		Issue Comments Response To MHI	0	15NOV02A	22NOV02A			
S1002		Issue Final Draft For Internal & Customer Rev	0	25NOV02A	06DEC02A			
S1004		Comments From Reviewers Received	15	09DEC02A	24JAN03A			S1006
S1006	D	Issue Stamped Spec	10	27JAN03A	28FEB03A		S1004	
Receipt Of LLM-RVCH Material								
1032		Reactor Vessel Closure Head (UT/W.P.)	76	29NOV02A	21APR03A			1070
1034		CRDM Head Adaptor (UT/W.P.)	20	29NOV02A	06JUN03A			1106
1038		Vent Pipe (UT/W.P.)	203	29NOV02A	15OCT03A			1106
1040		Welding Material - Low Alloy / SS	75	13DEC02A	21APR03A			
1042		Welding Material - Alloy 690	83	20DEC02A	30APR03A			
1036		Closure Head Lift Lug/Vent Shroud Support Lug	94	27DEC02A	15MAY03A			
Receipt Of CRDM Material								
1048		SS Tube Guide Tube Fig. 2	83	06DEC02A	13FEB03A		1046*	1050*
1052		SS Bar - Stationary Gripper Pole Fig. 1,2,3 (UT/	160	06DEC02A	26DEC03A		1044*	
1056		Alloy Steel Gripper Spring (16,17,18,19)	192	06DEC02A	31JUL03A		1054*	1106
1058		SS Plate Shim (20,21,22,23)	126	06DEC02A	18JUN03A		1054*	1060*
1060		SS Forging Retainer Key (3 & 4) (UT/W.P.)	126	06DEC02A	27JUN03A		1054*, 1058*	1062*
1062		CS Structure Tube Ring (5,6,7)	126	06DEC02A	31MAR03A		1060*	1106
1066		SS Bolt Lock Screw (25,26)	192	06DEC02A	30SEP03A		1054*	1106
1068		SS Locking Cup	192	06DEC02A	30SEP03A		1054*	1106
1044		SS Forging - Latch Housing (UT/W.P.)	40	20DEC02A	15APR03A			1046*, 1052*
1046		SS Forging - Rod Housing	61	20DEC02A	15APR03A		1044*	1048*
1054		Alloy Steel Bar - Link Pin (11,12,13)	126	08APR03A	05JUN03A			1056*, 1058*, 1060*, 1066*, 1068*

Activity ID	DELV	Activity Description	Orig Dur	Early Start	Early Finish	Total Float	Predecessors	Successors
1050		SS Tube Guide Tube Fig. 3	83	30APR03A	26DEC03A		1048*	
1064		SS Casing Thermal Sleeve (4) (UT/W.P.)	126	08JUL03A	26DEC03A			1106
RVH Manufacturing/Test/Ship								
1070		Mat. Verification	8	22APR03A	30APR03A		1032	1072
1072		Machining	7	06MAY03A	13MAY03A		1070	1076
1076		PT (W.P.)	1	14MAY03A	14MAY03A		1072	1074
1074		RVH Cladding	20	05JUN03A	01JUL03A		1076	1078, 1080
1078		Stress Relief	3	02JUL03A	04JUL03A		1074	1080
1080		RVH Primary Machining	3	05JUL03A	08JUL03A		1074, 1078	1082, 1092
1082		UTNPT	4	16JUL03A	24JUL03A		1080	1084
1084		ANIPT	1	25JUL03A	25JUL03A		1082	1086
1086		RVH Primary Maching Complete	22	26JUL03A	18AUG03A		1084	1090, 1092
1090		PT (W.P. - J-WELD BUTTERING EDGE)	1	22AUG03A	22AUG03A		1086	1094
1094		ANIPT	1	25AUG03A	25AUG03A		1090	1100
1100		Grinding	1	26AUG03A	26AUG03A		1094	1092
1088		Lifting Lug	3	28AUG03A	30AUG03A			1092
1092		Pads Welding	3	01SEP03A	01SEP03A		1080, 1086, 1088, 1100	1098
1098		MT (W.P. FIT UP)	1	04SEP03A	04SEP03A		1092	1104
1104		Complete Pad Welding	6	05SEP03A	11SEP03A		1098	1096
1096		J Weld Buttering	9	16SEP03A	25SEP03A		1104	1226
1226		Stress Relief (PWHT)	3	29SEP03A	30SEP03A		1096	1228
1228		Grinding (JWB)	3	01OCT03A	03OCT03A		1226	1230
1230		UTNMT	3	04OCT03A	07OCT03A		1228	1232
1232		ANIMT	1	08OCT03A	08OCT03A		1230	1234
1234		Final PWHT	3	09OCT03A	11OCT03A		1232	1102
1102		RVH Final Maching - 1st Phase (HOLD POINT)	12	14OCT03A	31OCT03A		1234	1236
1236		Different Machining	16	07NOV03A	18NOV03A		1102	1238
1238		Previous Machining Again	1	21NOV03A	26NOV03A		1236	1240
1240		Grinding (1st Phase)	6	27NOV03A	03DEC03A		1238	1242
1242		PT (W.P.)	3	05DEC03A	08DEC03A		1240	1244
1244		ANIPT	1	09DEC03A	09DEC03A		1242	1246
1246		Prepare for Shrink Fitting (W.P.)	6	10DEC03A	15DEC03A		1244	1106
1106		RVH Shrink Fitting	1	16DEC03A	16DEC03A		1034, 1038, 1056, 1062, 1064, 1066, 1068, 1246, 1274, 1290, 1308, 1380, 1396, 1400, 1432, 1500, 1522, 1572, 1622, 1670, 1718	1108
1108		RVH J Welding	5	20DEC03A	23DEC03A		1106	1110, 1118
1118		PT (W.P.)	1	24DEC03A	24DEC03A		1108	1120
1120		ANIPT	1	25DEC03A	25DEC03A		1118	

Typical
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Activity ID	DELV	Activity Description	Orig Dur	Early Start	Early Finish	Total Float	Predecessors	Successors
1122		J Welding	2	26DEC03A	27DEC03A			1124
1124		PT (W.P.)	1	27DEC03A	27DEC03A		1122	1126
1126		ANIPT	1	05JAN04A	05JAN04A		1124	1128
1128		J Welding Continues	3	06JAN04A	08JAN04A		1126	1130
1130		PT (W.P.)	1	09JAN04A	09JAN04A		1128	1132
1132		ANIPT	1	10JAN04A	10JAN04A		1130	1134
1134		Continue Welding	3	12JAN04A	14JAN04A		1132	1136
1136		PT (W.P.)	1	15JAN04A	15JAN04A		1134	1138
1138		ANIPT	1	16JAN04A	16JAN04A		1136	1140
1140		Welding Continues	3	17JAN04A	20JAN04A		1138	1142
1142		PT (W.P.)	1	21JAN04A	21JAN04A		1140	1144
1144		ANIPT	1	22JAN04A	22JAN04A		1142	1146
1146		Welding Continues	3	23JAN04A	26JAN04A		1144	1148
1148		PT (W.P.)	1	27JAN04A	27JAN04A		1146	1150
1150		ANIPT	1	28JAN04A	28JAN04A		1148	1152
1152		Welding Continues	2	29JAN04A	30JAN04A		1150	1154
1154		PT (W.P.)	1	31JAN04A	31JAN04A		1152	1156
1156		ANIPT	1	02FEB04A	02FEB04A		1154	1158
1158		Welding Continues	2	03FEB04A	04FEB04A		1156	1160
1160		Grinding	5	05FEB04A	11FEB04A		1158	1162, 1164
1164		PT	3	12FEB04A	14FEB04A		1160	1162
1162		ANIPT	1	16FEB04A	16FEB04A		1160, 1164	1166
1166		UTNECT (W.P.)	4	17FEB04A	23FEB04A		1162	1110
1110		CRDM Assemble Preparation	3	21FEB04A	24FEB04A		1108, 1166, 1290, 1418, 1422, 1448, 1460	1168
1168		Assemble CRDM	3	25FEB04A	27FEB04A		1110	1170
1170		Inspection	1	28FEB04A	28FEB04A		1168	1172
1172		ANI Inspection	1	02MAR04A	02MAR04A		1170	1174
1174		Start Joint Welding	2	03MAR04A	05MAR04A		1172	1176
1176		RT Grinding	1	03MAR04A	04MAR04A		1174	1178
1178		PT (W.P.)	1	09MAR04A	09MAR04A		1176	1180
1180		Attach Rod Travel Housing	1	10MAR04A	10MAR04A		1178, 1470	1182
1182		Inspection (W.P.)	1	10MAR04A	10MAR04A		1180	1184
1184		ANI Inspection	1	10MAR04A	10MAR04A		1182	1186
1186		Welding Continue	2	11MAR04A	12MAR04A		1184	1188
1188		RT & Grinding (W.P.)	1	13MAR04A	13MAR04A		1186	1190
1190		PT (W.P.)	1	15MAR04A	15MAR04A		1188	1192
1192		Attach More Travel Housing	1	16MAR04A	16MAR04A		1190	1194
1194		ANI Inspection	1	16MAR04A	16MAR04A		1192	1196
1196		Welding continues	3	17MAR04A	19MAR04A		1194	1198
1198		RT & Grinding	1	20MAR04A	20MAR04A		1196	1200

Activity ID	DELV	Activity Description	Orig Dur	Early Start	Early Finish	Total Float	Predecessors	Successors
1200		PT	1	22MAR04A	22MAR04A		1198	1202
1202		ANIPT	1	23MAR04A	23MAR04A		1200	1204
1204		Attach more Travel Housing	1	23MAR04A	23MAR04A		1202	1206
1206		ANI Inspection	1	24MAR04A	24MAR04A		1204	1208
1208		Welding	5	25MAR04A	30MAR04A		1206	1210
1210		Grinding & RT	1	31MAR04A	31MAR04A		1208	1212
1212		PT	1	01APR04A	01APR04A		1210	1214
1214		ANIPT	1	02APR04A	02APR04A		1212	1216
1216		Inspection	7	03APR04A	06APR04A		1214	1112*
1112		Hydro Preparation (H.P.)	8	16APR04	24APR04	5	1216*	1114*
1114		Hydro	1	25APR04	25APR04	6	1112*	1218*, 1220*
1218		Hydro Test & Witness (W.P.)	1	26APR04	26APR04	12	1114*	1220*
1220		Finish Hydro Drying	5	27APR04	01MAY04	12	1114*, 1218*	1222
1222		Baseline ECT & UT & PT (W.P.)	13	03MAY04*	15MAY04	13	1220	1224*
1224		Final Inspection	2	16MAY04	17MAY04	13	1222*	1310*
1310		Guide Attachment	4	18MAY04	21MAY04	13	1224*	1312*
1312		F. I. before Sand Blast	3	22MAY04	24MAY04	13	1310*	1314*
1314		Sand Blast	3	25MAY04	27MAY04	13	1312*	1316*
1316		Final Cleaning	3	28MAY04	30MAY04	13	1314*	1318*
1318		Attach Flux Ring	3	31MAY04	02JUN04	13	1316*	1320*
1320		Thermal Insulation	3	04JUN04	06JUN04	13	1318*	1322*
1322		Packing & FOB Kobe	13	06JUN04	18JUN04	13	1320*	1116*
1116		FOB Site, RVH	57	19JUN04	14AUG04	18	1322*	IN1212
Latch Housing Before Welding								
1248		1 - Receiving Material	2	06MAY03A	06MAY03A			1250
1250		2 -Material Verification	1	10MAY03A	10MAY03A		1248	1252
1252		3 -Take original mark by rub & attach control No	1	13MAY03A	13MAY03A		1250	1254
1254		4 -Verif of original marking & control No. Label	1	14MAY03A	14MAY03A		1252	1256
1256		5 -Machining for inside diameter (BTA) (PT/W.P.)	7	26MAY03A	02JUN03A		1254	1258
1260		6 -Machining for outside diameter	5	29MAY03A	03JUN03A			1262
1258		7 a-c -Machining for inside & outside diameter	14	03JUN03A	19JUN03A		1256	1262
1262		8 a,b -Machining of screw for top side	8	20JUN03A	25JUN03A		1258, 1260	1264
1264		9 a,b -Machining of weld edge for bottom side	15	25JUN03A	12JUL03A		1262	1266
1266		10 - Trimming & Cleaning	5	10JUL03A	15JUL03A		1264	1268
1268		11 -Dimensional Inspection	5	11JUL03A	16JUL03A		1266	1270
1270		12 -PT	4	14JUL03A	17JUL03A		1268	1272
1272		13 -Cleaning	9	18JUL03A	28JUL03A		1270	1274
1274		14 -Transportation	26	12AUG03A	10SEP03A		1272	1106

Activity ID	DELV	Activity Description	Orig Dur	Early Start	Early Finish	Total Float	Predecessors	Successors
Latch Housing Joint Welding								
1350		1 - 7 -Receiving Material	26	13AUG03A	11SEP03A			1352*
1352		1 - 7 -Fit Up	34	13AUG03A	29SEP03A		1350*	1354*
1354		1 - 7 -Fit Up Inspection (W.P.)	34	13AUG03A	29SEP03A		1352*	1356*
1356		1 - 7 -Welding (1st Layer to adout 1/2t)	34	13AUG03A	29SEP03A		1354*	1358*
1358		5 -RT (W.P.)	34	13AUG03A	29SEP03A		1356*	1360*
1360		1 - 7 -Welding (adout 1/2t to last layer)	34	13AUG03A	29SEP03A		1358*	1362*
1362		1 - 7 -Transportation	34	13AUG03A	29SEP03A		1360*	1364*
1366		9a,b -Machining before RT	15	26SEP03A	15OCT03A		1364	1368
1364		8 -Receiving Material	27	29SEP03A	29SEP03A		1362*	1366
1368		10 -Trimming and cleaning	3	14OCT03A	16OCT03A		1366	1370
1370		11 -Dimensional Inspection	5	15OCT03A	20OCT03A		1368	1372*
1372		12 - PT	5	16OCT03A	21OCT03A		1370*	1374*
1374		13 -Transportation	5	17OCT03A	22OCT03A		1372*	1376*
1376		14 -Receiving Material	9	20OCT03A	29DEC03A		1374*	1378*
1378		15, 16 -PT	9	20OCT03A	29DEC03A		1376*	1380*
1380		17 -Transportation	9	20OCT03A	29DEC03A		1378*	1106
Flange before Welding								
1382		1 -Receiving Material	1	30JUN03A	30JUN03A			1384
1384		2 -Material Verification	1	08JUL03A	08JUL03A		1382	1386
1386		3 -Take origl mark by rub & attach ctrl No.label	2	09JUL03A	10JUL03A		1384	1388
1388		4 -Verifica of original mark & ctrl No. label	1	11JUL03A	11JUL03A		1386	1390
1390		5 -Machining of weld edge & inside diameter	2	14JUL03A	15JUL03A		1388	1392
1392		6 -Trimming & cleaning	2	16JUL03A	17JUL03A		1390	1394
1394		7 -Dimensional Inspection	6	18JUL03A	24JUL03A		1392, 1398	1396
1398		9 -Cleaning	1	28JUL03A	28JUL03A			1394
1396		8 -PT (W.P.)	1	29JUL03A	29JUL03A		1394	1106
1400		10 -Transportation	1	07AUG03A	07AUG03A			1106
Head Adapter & Flange Joint Welding								
1402		1 - 7 -Receiving Material	1	12SEP03A	12SEP03A			1404
1404		1 - 7 -Fit Up	3	30SEP03A	02OCT03A		1402	1406*
1406		1 - 7 -Fit Up Inspection	3	30SEP03A	02OCT03A		1404*	1408*
1408		1 - 7 -Welding (1st Layer to adout 1/2t)	3	30SEP03A	02OCT03A		1406*	1410*
1410		5 -RT	1	30SEP03A	30SEP03A		1408*	1412*
1412		1 - 7 -Welding (adout 1/2t to last layer)	3	30SEP03A	02OCT03A		1410*	1414*
1414		1 - 7 -Transportation	3	30SEP03A	02OCT03A		1412*	1416
1416		8 -Receiving Material	1	03OCT03A	03OCT03A		1414	1418

Activity ID	DELV	Activity Description	Orig Dur	Early Start	Early Finish	Total Float	Predecessors	Successors
1418		9a,b -Machining before RT	2	06OCT03A	07OCT03A		1416	1110, 1420
1420		10 -Trimming & Cleaning	1	08OCT03A	08OCT03A		1418	1422
1422		11 -Dimensional Inspection	1	09OCT03A	09OCT03A		1420	1110, 1424
1424		12 -PT	1	10OCT03A	10OCT03A		1422	1426
1426		13 -Transportation	1	16OCT03A	16OCT03A		1424	1428
1428		14 - 17 -Receiving Material	1	17OCT03A	17OCT03A		1426	1430*
1430		14 - 17 -RT	1	17OCT03A	17OCT03A		1428*	1432*
1432		14 - 17 -Transportation	1	17OCT03A	17OCT03A		1430*	1106
Rod Travel Housing								
1434		1 -Receiving Material	8	06MAY03A	06MAY03A			1436
1436		2 -Material Verification	22	13MAY03A	13MAY03A		1434	1438
1438		3 -Take Original Mark by rub&attach ctrl No. Lab	11	15MAY03A	15MAY03A		1436	1440
1440		4 Verification of original mark & ctrl No. label	9	20MAY03A	20MAY03A		1438	
1442		5 -Machining for inside diameter (BTA)	7	05JUN03A	19JUN03A			1444*
1444		6 -Cleaning	7	06JUN03A	19JUN03A		1442*	1446*
1446		7 -UT (W.P.)	8	11JUN03A	20JUN03A		1444*	1448*
1448		8a,b -Machining for outside diameter	14	12JUN03A	01JUL03A		1446*	1110, 1450
1450		9a-c -Machining for top side and weld edge	12	02JUL03A	15JUL03A		1448	1452
1452		10 -Trimming and cleaning	8	16JUL03A	25JUL03A		1450	1454
1454		11 -Dimensional and visual inspection	5	18AUG03A	21AUG03A		1452	1456
1456		12 -PT	4	20AUG03A	25AUG03A		1454	1458
1458		13 -Marking	4	26AUG03A	29AUG03A		1456	1460*
1460		14 -Verification of marking	4	26AUG03A	29AUG03A		1458*	1110, 1462
1462		15 -Cleaning	3	23FEB04A	24FEB04A		1460	1464*
1464		16 -Cleaning test	3	23FEB04A	24FEB04A		1462*	1466
1466		17 -Packing	3	24FEB04A	25FEB04A		1464	1468
1468		17 -Inspection before transportation	1	26FEB04A	26FEB04A		1466	1470
1470		17 -Transportation	1	27FEB04A	27FEB04A		1468	1180
Guide Tube								
1330		1 -Receiving Material	1	04JUN03A	04JUN03A			1332
1332		2 -Material Verification	1	11JUN03A	11JUN03A		1330	1334
1334		3 -Attach control No. label	1	16JUN03A	16JUN03A		1332	1336
1336		4 -Machining before girding of outside diameter	11	24JUN03A	07JUL03A		1334	1338
1338		5 -Machining of groove	9	04JUL03A	14JUL03A		1336	1340*
1340		6 -Trimming, Cleaning	8	08JUL03A	16JUL03A		1338*	1342
1342		7 -Strain adjustment	2	17JUL03A	18JUL03A		1340	1344
1344		8 -Grinding before plating	13	24JUL03A	05AUG03A		1342	1346
1346		9 -Trimming, Marking, Cleaning	4	06AUG03A	08AUG03A		1344	1348
1348		10 -Dimensional Inspection	4	07AUG03A	11AUG03A		1346	1276

Activity ID	DELV	Activity Description	Orig Dur	Early Start	Early Finish	Total Float	Predecessors	Successors
1276		11 -Cleaning, Packing	1	12AUG03A	12AUG03A		1348	1278
1278		12 -Chrome plating of outside diameter	5	22AUG03A	29AUG03A		1276	1280
1280		13 -Dimensional & Visual Inspection	2	01SEP03A	02SEP03A		1278	1282
1282		14 -Grinding of plated outside diameter	14	03SEP03A	22SEP03A		1280	1284
1284		15 -Trimming, Cleaning	3	24SEP03A	26SEP03A		1282	1286*
1286		16 -Dimensional Inspection	6	29SEP03A	01OCT03A		1284*	1288
1288		17 -Cleaning, Packing	1	07OCT03A	07OCT03A		1286	1290*
1290		18 -Cleaning Inspection	1	07OCT03A	07OCT03A		1288*	1106, 1110
Latch Arm (before cutting)								
1292		1 -Receiving material	1	07MAY03A	07MAY03A			1294
1294		2 -Material Verification	1	09MAY03A	09MAY03A		1292	1296
1296		3 -Attach control No. label	1	10MAY03A	10MAY03A		1294	1298
1298		4 -Machining for inside diameter (BTA)	1	12MAY03A	16MAY03A		1296	1300
1300		5 -Cutting	1	20MAY03A	20MAY03A		1298	1302
1302		6 -Machining of groove	1	21MAY03A	23MAY03A		1300	1304
1304		7 -Machining of pin hole	2	26MAY03A	27MAY03A		1302	1306
1306		8 -Machining of groove & pin hole before welding	6	28MAY03A	04JUN03A		1304	1308
1308		9 -Attach control No. label	1	07JUN03A	07JUN03A		1306	1106, 1472
Latch Arm (before separation)								
1480		5 -Stellite Welding	31	24JUN03A	30JUL03A			1482
1472		1 -Cutting	3	09JUL03A	11JUL03A		1308	1474
1474		2 Maching of inside/outside diameter before weld	7	12JUL03A	19JUL03A		1472	1476
1476		3 -Trimming, Cleaning	5	19JUL03A	24JUL03A		1474	1478
1478		4 -Dimensional Inspection (before welding)	3	25JUL03A	28JUL03A		1476	1482*
1482		6 -Machining of Inside/Outside diameter	5	07AUG03A	18AUG03A		1478*, 1480	1484*
1484		7 -Machining of groove	12	18AUG03A	29AUG03A		1482*	1486*
1486		8 -Trimming	7	20AUG03A	02SEP03A		1484*	1488*
1488		9 -Grinding of outside diameter	11	26AUG03A	03SEP03A		1486*	1490*
1490		10 -Machining of inside diameter	4	01SEP03A	04SEP03A		1488*	1492
1492		11 -Grinding of end face	5	04SEP03A	09SEP03A		1490	1494
1494		12 -Machining of pin hole	4	30SEP03A	03OCT03A		1492	1496
1496		13 -Trimming, Attach control No. label	5	01OCT03A	06OCT03A		1494	1498
1498		14 -Dimensional Inspection	4	03OCT03A	07OCT03A		1496	1500
1500		15 -PT of Stellite welding	3	06OCT03A	08OCT03A		1498	1106, 1504
Latch Arm (after separation)								
1502		1 -FPS entry (DWG No./Mark)	2	08OCT03A	09OCT03A			1504
1504		2 -Cutting (EDM)	2	09OCT03A	10OCT03A		1500, 1502	1506

Typical R.V. Head Replacement Project

Activity ID	DELV	Activity Description	Orig Dur	Early Start	Early Finish	Total Float	Predecessors	Successors
1506		3a -Machining of cutting part before grinding	7	10OCT03A	17OCT03A		1504	1508
1508		3b -Grinding of faces	7	15OCT03A	22OCT03A		1506	1510*
1510		4 -Chamfer of corners	10	17OCT03A	27DEC03A		1508*	1512*
1512		5a -Trimming of corners	9	21OCT03A	30DEC03A		1510*	1514*
1514		5b -Pin hole honing	11	23OCT03A	03JAN04A		1512*	1516*
1516		6 -Dimensional & Visual Inspection	11	24OCT03A	05JAN04A		1514*	1518*
1518		7 -PT	10	26DEC03A	06JAN04A		1516*	1520*
1520		8 -Cleaning, temporary packing	8	30DEC03A	07JAN04A		1518*	1522*
1522		9 -Cleaning Inspection	8	30DEC03A	07JAN04A		1520*	1106
Support Tube Stationary Latch								
1524		1 -Receiving Material	1	27MAY03A	27MAY03A			1526*
1526		2 -Material Verification	1	27MAY03A	27MAY03A		1524*	1528
1528		3 -Attach control No. label	1	28MAY03A	28MAY03A		1526	1530*
1530		4 -Cutting	2	28MAY03A	29MAY03A		1528*	1532*
1532		5 Maching before grinding of inside/outside diam	6	05JUN03A	09JUN03A		1530*	1534
1534		6 -Machining of groove/pin hole	10	09JUN03A	13JUN03A		1532	1536*
1536		7 -Trimming	10	09JUN03A	20JUN03A		1534*	1538
1538		8 Grinding of inside/outside diameter & end face	12	02JUL03A	15JUL03A		1536	1540
1540		9 -Trimming, Marking, Cleaning	3	16JUL03A	18JUL03A		1538	1542
1542		10 -Dimensional Inspection	7	18JUL03A	25JUL03A		1540	1544
1544		11 -Cleaning, Packing	1	28JUL03A	28JUL03A		1542	1546
1546		12 -Chrome plating of inside/outside diameter	6	30JUL03A	05AUG03A		1544	1548
1548		13 -Dimensional & Visual Inspection	2	06AUG03A	07AUG03A		1546	1550
1550		14 -Grinding of plated inside/outside diameter	13	18AUG03A	02SEP03A		1548	1552
1552		15 -Machining of pin hole before plating	5	03SEP03A	08SEP03A		1550	1554
1554		16 -Trimming, Cleaning	3	08SEP03A	10SEP03A		1552	1556
1556		17 -Dimensional Inspection	5	11SEP03A	16SEP03A		1554	1558
1558		18 -Cleaning, Packing	1	17SEP03A	17SEP03A		1556	1560
1560		19 -Chrome plating of pin hole	10	18SEP03A	25SEP03A		1558	1562
1562		20 -Dimensional & Visual Inspection of plating	2	30SEP03A	01OCT03A		1560	1564
1564		21 -Machining of pin hole	6	01OCT03A	03OCT03A		1562	1566*
1566		22 -Trimming, Cleaning	7	02OCT03A	08OCT03A		1564*	1568*
1568		23 -Dimensional Inspection	8	06OCT03A	14OCT03A		1566*	1570
1570		24 -Cleaning, Packing	1	15OCT03A	15OCT03A		1568	1572*
1572		25 -Cleaning Inspection	1	15OCT03A	15OCT03A		1570*	1106
Support Tube Movable Latch								
1574		1 -Receiving material	1	29MAY03A	29MAY03A			1576
1576		2 -Material Verification	1	30MAY03A	30MAY03A		1574	1578
1578		3 -Attach control No. label	1	02JUN03A	02JUN03A		1576	1580

Typical
R.V. Head Replacement
Project

Activity ID	DELV	Activity Description	Orig Dur	Early Start	Early Finish	Total Float	Predecessors	Successors
1580		4 -Cutting	2	03JUN03A	04JUN03A		1578	1582
1582		5 Maching before grinding of inside/outside diam	13	05JUN03A	20JUN03A		1580	1584
1588		8 Grinding of inside/outside diameter & end face	12	13JUN03A	27JUN03A			1590
1584		6 -Machining of groove/pin hole	10	18JUN03A	30JUN03A		1582	1586*
1586		7 -Trimming	10	20JUN03A	02JUL03A		1584*	1590*
1590		9 -Trimming, Marking, Cleaning	2	30JUN03A	01JUL03A		1586*, 1588	1592
1592		10 -Dimensional Inspection	4	31JUL03A	04AUG03A		1590	1594
1594		11 -Cleaning, Packing	1	04AUG03A	04AUG03A		1592	1596
1596		12 -Chrome plating of inside/outside diameter	12	05AUG03A	12AUG03A		1594	1598
1598		13 -Dimensional & Visual Inspection	2	18AUG03A	19AUG03A		1596	1600
1600		14 -Grinding of plated inside/outside diameter	14	26AUG03A	09SEP03A		1598	1602
1602		15 -Machining of pin hole before plating	6	10SEP03A	16SEP03A		1600	1604
1604		16 -Trimming, Cleaning	5	19SEP03A	24SEP03A		1602	1606
1606		17 -Dimensional Inspection	1	24SEP03A	24SEP03A		1604	1608
1608		18 -Cleaning, Packing	1	25SEP03A	25SEP03A		1606	1610
1610		19 -Chrome plating of pin hole	9	26SEP03A	06OCT03A		1608	1612
1612		20 -Dimensional & Visual Inspection of plating	2	07OCT03A	08OCT03A		1610	1614
1614		21 -Machining of pin hole	7	08OCT03A	15OCT03A		1612	1616*
1616		22 -Trimming, Cleaning	7	09OCT03A	16OCT03A		1614*	1618
1618		23 -Dimensional Inspection	7	14OCT03A	21OCT03A		1616	1620
1620		24 -Cleaning, Packing	1	22OCT03A	22OCT03A		1618	1622*
1622		25 -Cleaning Inspection	1	22OCT03A	22OCT03A		1620*	1106
Lock Plunger Movable Latch								
1624		1 -Receiving material	1	27MAY03A	27MAY03A			1626
1626		2 -Material verification	1	28MAY03A	28MAY03A		1624	1628
1628		3 -Attach control No. label	1	29MAY03A	29MAY03A		1626	1630
1630		4 -Machining of inside diameter (BTA)	7	30MAY03A	06JUN03A		1628	1632
1632		5 -Cutting	2	09JUN03A	10JUN03A		1630	1634
1634		6 Maching before grinding of inside/outside diam	6	12JUN03A	19JUN03A		1632	1636
1636		7 -Machining of groove/pin hole	7	18JUN03A	24JUN03A		1634	1638*
1638		8 -Trimming, Marking, Cleaning	7	20JUN03A	24JUN03A		1636*	1640
1640		9 -Dimensional Inspection	6	25JUN03A	02JUL03A		1638	1642
1642		10 -Cleaning, Packing	1	03JUL03A	03JUL03A		1640	1644
1644		11 -Chrome plating of inside diameter	7	19JUL03A	25JUL03A		1642	1646
1646		12 -Dimensional & Visual Inspection	2	25AUG03A	27AUG03A		1644	1648
1648		13 -Grinding of plated inside diameter	9	28AUG03A	05SEP03A		1646	1650
1650		14 -Machining of pin hole before plating	5	17SEP03A	22SEP03A		1648	1652
1652		15 -Trimming, Cleaning	4	22SEP03A	25SEP03A		1650	1654
1654		16 -Dimensional Inspection	4	26SEP03A	30SEP03A		1652	1656
1656		17 -Cleaning, Packing	1	01OCT03A	01OCT03A		1654	1658

Activity ID	DELV	Activity Description	Orig Dur	Early Start	Early Finish	Total Float	Predecessors	Successors
1658		18 -Chrome plating of pin hole	12	02OCT03A	14OCT03A		1656	1660
1660		19 -Dimensional & Visual Inspection of plating	2	14OCT03A	15OCT03A		1658	1662, 1664
1662		20 -Machining of pin hole	6	16OCT03A	22OCT03A		1660	1668
1664		21 -Trimming, Cleaning	6	17OCT03A	23OCT03A		1660	1666*
1666		22 -Dimensional Inspection	7	20OCT03A	26DEC03A		1664*	1668
1668		23 -Cleaning, Packing	1	27DEC03A	27DEC03A		1662, 1666	1670*
1670		24 -Cleaning Inspection	1	27DEC03A	27DEC03A		1668*	1106
Lock Plunger Stationary Latch								
1672		1 -Receiving material	1	27MAY03A	27MAY03A			1674
1674		2 -Material verification	1	28MAY03A	28MAY03A		1672	1676
1676		3 -Attach control No. label	1	29MAY03A	29MAY03A		1674	1678
1678		4 -Machining of inside diameter (BTA)	7	30MAY03A	06JUN03A		1676	1680
1680		5 -Cutting	2	11JUN03A	12JUN03A		1678	1682
1682		6 Maching before grinding of inside/outside diam	7	20JUN03A	27JUN03A		1680	1684
1684		7 -Machining of groove/pin hole	6	26JUN03A	03JUL03A		1682	1686*
1686		8 -Trimming, Marking, Cleaning	7	30JUN03A	07JUL03A		1684*	1688*
1688		9 -Dimensional Inspection	7	03JUL03A	10JUL03A		1686*	1690
1690		10 -Cleaning, Packing	1	11JUL03A	11JUL03A		1688	1692
1692		11 -Chrome plating of inside diameter	11	25JUL03A	31JUL03A		1690	1694
1694		12 -Dimensional & Visual Inspection	4	30JUL03A	01AUG03A		1692	1696
1696		13 -Grinding of plated inside diameter	7	04AUG03A	12AUG03A		1694	1698
1698		14 -Machining of pin hole before plating	5	21AUG03A	26AUG03A		1696	1700*
1700		15 -Trimming, Cleaning	5	27AUG03A	01SEP03A		1698*	1702
1702		16 -Dimensional Inspection	3	02SEP03A	04SEP03A		1700	1704
1704		17 -Cleaning, Packing	1	05SEP03A	05SEP03A		1702	1706
1706		18 -Chrome Plating of pin hole	10	08SEP03A	18SEP03A		1704	1708
1708		19 -Dimensional & Visual Inspection of plating	3	19SEP03A	22SEP03A		1706	1710
1710		20 -Machining of pin hole	6	24SEP03A	26SEP03A		1708	1712*
1712		21 -Trimming, Cleaning	6	25SEP03A	01OCT03A		1710*	1714*
1714		22 -Dimensional Inspection	7	29SEP03A	06OCT03A		1712*	1716
1716		23 -Cleaning, Packing	1	07OCT03A	07OCT03A		1714	1718*
1718		24 -Cleaning Inspection	1	07OCT03A	07OCT03A		1716*	1106
CRDM Assembly								
1324		Preparation	1	10NOV03A	10NOV03A			1326*
1326		Assemble CRDM	22	10DEC03A	15JAN04A		1324*	
1328		Production Test	15	13JAN04A	30JAN04A			

Activity ID	DELV	Activity Description	Orig Dur	Early Start	Early Finish	Total Float	Predecessors	Successors
COMPONENT HANDLING								
CH1000		Develop Component Handling Function Specificatio	40	26JAN04A	25FEB04A			CH1002
CH1002	D	Issue Functional Requirements for CH Equipment	3	26FEB04A	05MAR04A		CH1000	CH1004*
CH1004		Develop W CH Design Spec	6	29MAR04A	16APR04	25	CH1002*	CH1006*, CH1010*
CH1006		Moveable Work Platform Design	1	19APR04	19APR04	241	CH1004*	CH1008*
CH1008		Customer Review Moveable Work Platform Design	5	20APR04	26APR04	241	CH1006*	CH1012*
CH1010	D	Issue W CH Design Spec	3	23APR04	27APR04	25	CH1004*	CH1014*
CH1012		Fabricate Moveable Work Platform Prototype	10	27APR04	10MAY04	241	CH1008*	CH1016*
CH1014		Design Component Handling Equipment	20	28APR04	25MAY04	25	CH1010*	CH1020*
CH1016		Test Prototype Moveable Work Platform	5	11MAY04	17MAY04	241	CH1012*	CH1018*
CH1018		Xsmit to Cust Apprvd Dwgs for Moveable Work Plat	3	18MAY04	20MAY04	241	CH1016*	
CH1020		Approve Design Drawings	3	26MAY04	28MAY04	25	CH1014*	CH1022*, CH1024, CH1026
CH1022		CH Equipment Fabrication & Certification	30	31MAY04	09JUL04	25	CH1020*	CH1032
CH1024		Develop W CH Equip Testing Procedures	15	01JUN04*	21JUN04	39	CH1020	CH1032
CH1026		Develop Coil Stack Tool Assemb & Procedures	15	01JUL04*	21JUL04	2	CH1020	CH1028*
CH1028		Cust Review & Comment Coil Stack Tool Ass & Proc	10	22JUL04	04AUG04	2	CH1026*	CH1030*
CH1030		W Incorporate Cust Comments on Coil Stack Tool	5	05AUG04	11AUG04	2	CH1028*	CH1032*
CH1032		Shop Test Component Handling Equipment	5	12AUG04	18AUG04	2	CH1022, CH1024, CH1030*	CH1034*
CH1034		Component Handling Equipment Arrive on Site	0		25AUG04	2	CH1032*	C1020
CETNA								
1750		Issue Purchase Order for CETNA	0	09OCT03A				1752, 1754, 1760
1752		Parts, Tools & Mockup Final Fabrication	150	09OCT03A	12MAR04A		1750	1756
1778	D	Customer Review CETNA Parts Drawings	10	30JAN04A	30JAN04A		1760	1780
1780		W Incorporate Comments to CETNA Parts Drawings	10	30JAN04A	30JAN04A		1778	1782
1760	D	Issue Draft CETNA Parts Drawings	0		30JAN04A		1750	1778
1782	C	Issue Final CETNA Parts Drawings	0		30JAN04A		1780	1736, 1800, 1808
1800	D	Issue Draft Design Spec	0		02FEB04A		1782	1792, 1802, 1816
1802	D	Customer Review Design Spec	10	03FEB04A	13FEB04A		1800	1804
1808	D	Issue Draft Design Report & Analysis	0		02FEB04A		1782	1810
1810	D	Customer Review Design Report & Analysis	10	03FEB04A	13FEB04A		1808	1784, 1812*
1754		Source Inspection	3	04FEB04A	06FEB04A		1750	1756
1804		W Incorporate comments to Design Spec	10	16FEB04A	16MAR04A		1802	1806
1812		W Incorporate comments to Design Rpt & Analysis	40	16FEB04A	30APR04	255	1810*	1814*
1792	D	Issue Draft Interface Reqm'ts Dwg	0		05MAR04A		1800	1794*, 1826
1816	D	Issue Draft Procedures	0		05MAR04A		1800	1818*
1818	D	Customer Review Procedures	10	08MAR04A	07APR04	263	1816*	1820*

Activity ID	DELV	Activity Description	Orig Dur	Early Start	Early Finish	Total Float	Predecessors	Successors
1756		Ready to Ship	0		12MAR04A		1752, 1754	1758*
1736	C	Submit Bullet Nose Assembly Drawing to Customer	0		16MAR04A		1782	1744*
1744	D	Cust Review Bullet Nose/Fabrication Release	10	17MAR04A	07APR04	-6	1736*	1746*
1806	C	Issue Final Design Spec to customer	0		16MAR04A		1804	1824
1794	D	Customer Review Interface Reqm'ts Dwg	8	24MAR04A	07APR04	263	1792*	1796*
1784	D	Issue Draft Tools & Mockup Drawings	0		26MAR04A		1810	1786*
1786	D	Customer Review Tools & Mockup Drawings	10	29MAR04A	09APR04	260	1784*	1788*
1746		Bullet Nose Fabrication Complete	93	08APR04	16AUG04	-6	1744*	1748*
1796		W Incorporate comments to Interface Reqm'ts Dwg	9	08APR04	20APR04	263	1794*	1798*
1820		W Incorporate comments to Procedures	9	08APR04	20APR04	263	1818*	1822*
1788		W Incorporate comments to Tools & Mockup Drawing	10	12APR04	23APR04	260	1786*	1790*
1758	C	Ship Parts,Tools & Mockup to WM	0		13APR04	88	1756*	1834
1798	C	Issue Final Interface Reqm'ts Dwg to Customer	0		20APR04	263	1796*	1824
1822	C	Issue Final Procedures to Customer	0		20APR04	263	1820*	1824
1790	C	Issue Final Tools & Mockup Drawings to Customer	0		23APR04	260	1788*	1824
1826	D	Issue Draft Technical Manual	0		26APR04*	234	1792	1828*
1828	D	Customer Review Technical Manual	10	27APR04	10MAY04	234	1826*	1830*
1814	C	Issue Final Design Report & Analysis to Cusomer	0		30APR04	255	1812*	1824
1830		W Incorporate comments to Technical Manual	15	11MAY04	31MAY04	234	1828*	1832*
1824		All CETNA Documents on Site	0		31MAY04	234	1790, 1798, 1806, 1814, 1822, 1832*	
1832	C	Issue Final Technical Manual to Customer	0		31MAY04	234	1830*	1824*
1834	D	Training of Site Personnel at W-M	5	02AUG04*	06AUG04	10	1758	1836*
1836		Ship Parts, Tools & Mockup to Site	5	09AUG04	13AUG04	10	1834*	C1020
1748	C	Bullet Nose Shipment to Site	5	17AUG04	23AUG04	-6	1746*	C1020
DCP								
1762		Start 50.59 & DCP Efforts	0	23JUN03A				
1764	C	Issue Preliminary DCP Pkg to Customer - 25%	0		31OCT03A			
1766	C	Provide Draft DCP Pkg - 50%	0		12DEC03A			
1768	C	Provide Final DCP Pkg exclude 3 miss pkgs - 85%	0		17FEB04A			
1770	C	Complete Draft DCP for As-Designed Doc - 97%	0		03MAY04*	254		
1772		Customer Review	0		01JUN04*	233		
1774	C	Issue Final As-Designed DCP & 50.59 - 100%	0		15JUN04*	223		
1776	C	Iss Drft Complete DCP & 50.59 based on As-Built	0		18AUG04*	177		
DUMMY CANS								
1720		Manufacture	133*	16FEB04A	18AUG04	177		1730*, 1734*
1722		Seismic Evaluation	0		18FEB04A			1724*

Activity ID	DELV	Activity Description	Orig Dur	Early Start	Early Finish	Total Float	Predecessors	Successors
1724		Customer Review Seismic Evaluation	10	19FEB04A	16APR04	255	1722*	1726*
1732	D	Installation Drawing	40	24MAR04A	03MAY04	254		
1726		W Incorporate comments to Seismic Evaluation	10	19APR04	30APR04	255	1724*	1728*
1728		Issue Final Seismic Evaluation	0		30APR04	255	1726*	
1730	D	Delivery of Dummy Cans	0		18AUG04*	177	1720*	
1734	D	W Quality Release & Data Package	0		18AUG04	177	1720*	
SEISMIC SPACER PLATES								
1838	D	Seismic Evaluation	60	24MAR04A	16JUN04	195		1840*, 1846*
1846		Manufacture of Plates	116	24MAR04A	16JUL04	195	1838*	1848*, 1850*
1840		Customer Review Seismic Evaluation	10	17JUN04	30JUN04	202	1838*	1842*
1842		W Incorporate comments to Seismic Evaluation	10	01JUL04	14JUL04	202	1840*	1844*
1844		Issue Final Seismic Evaluation	0		14JUL04	202	1842*	
1848	C	Delivery of Plates	5	19JUL04	23JUL04	195	1846*	
1850	D	W Quality Release & Data Package	5	19JUL04	23JUL04	195	1846*	
MHI RVCH & CRDM STRESS REPORTS								
1738	D	Submit Draft Design Reports (RVCH/CRDM)	0		12MAR04A			1740
1740		Utility review of Draft Design Reports	10	15MAR04A	26MAR04A		1738	
1742	D	Submit Final Design Report (RVCH/CRDM) for DCP	0		04MAY04*	253		
INSTALLATION								
IN1000		Develop Draft Installation Plan	44	01DEC03A	29JAN04A			IN1016*, IN1018, IN1054*
IN1002		Develop Level 1 Site Schedule	15	05JAN04A	23JAN04A			IN1012
IN1004		Develop Level 1 Planning Schedule	10	12JAN04A	23JAN04A			IN1020
IN1006		Identify At-Power Walkdown Requirements	1	13JAN04A	13JAN04A			IN1008
IN1008		Perform At-Power Walkdown	1	20JAN04A	20JAN04A		IN1006	IN1010
IN1010		Draft At-Power Walkdown Report	5	21JAN04A	27JAN04A		IN1008	IN1014
IN1012		Develop Level 2 Site Schedule	30	26JAN04A	05MAR04A		IN1002	IN1060, IN1062*, IN1064*
IN1014		Review/Modify At-Power Walkdown Report	30	28JAN04A	03MAR04A		IN1010	IN1078
IN1016		Review/Modify Draft Installation Plan	25	30JAN04A	19APR04	22	IN1000*	IN1060*
IN1018		Develop Crew Organization w/o names	5	30JAN04A	05FEB04A		IN1000	IN1202
IN1020		Develop Level 2 Planning Schedule	10	30JAN04A	13FEB04A		IN1004	IN1036
IN1022		Develop Contingency Plan Book	47	30JAN04A	03MAY04	197		IN1106*
IN1024		Draft Old RVH Disassembly Procedure	46	02FEB04A	01MAR04A			IN1040*, IN1042*, IN1044*, IN1046*, IN1048*, IN1050*

Activity ID	DELV	Activity Description	Orig Dur	Early Start	Early Finish	Total Float	Predecessors	Successors
IN1026		Draft New RVH Assembly Procedure	46	02FEB04A	01MAR04A			IN1040*, IN1042*, IN1044*, IN1046*, IN1048*, IN1050*
IN1028	D	W Receive RVH Shipping Configuration Drawings	0	02FEB04A				IN1040*, IN1042*, IN1044*, IN1046*, IN1048*, IN1050*
IN1030	D	W Receive Design & Installation RVH Drawings	0	02FEB04A				IN1040*, IN1042*, IN1044*, IN1046*, IN1048*, IN1050*
IN1032	D	W Receive RVH Insulation Drawings	0	02FEB04A				IN1040*, IN1042*, IN1044*, IN1046*, IN1048*, IN1050*
IN1034		Devel Dwg HV/RVLIS Pipe & Weld, Xmit PCI	28	03FEB04A	19APR04	34		IN1084*, IN1086*, IN1088*
IN1036		Customer Review Planning Schedule	11	16FEB04A	01MAR04A		IN1020	IN1052
IN1038		Mfg 19 Dummy Cans to drawing	45	01MAR04A	30APR04	75		IN1104*
IN1040		Review/Modify RVH Assembly Proc in W	30	02MAR04A	09APR04	11	IN1024*, IN1026*, IN1028*, IN1030*, IN1032*	IN1074*
IN1042		Shroud Remov & Reinstall - Part of RVH Assem Pro	30	02MAR04A	09APR04	11	IN1024*, IN1026*, IN1028*, IN1030*, IN1032*	IN1074*
IN1044		Attachment: CRDM & ARPI Removal & Reinstallation	30	02MAR04A	09APR04	11	IN1024*, IN1026*, IN1028*, IN1030*, IN1032*	IN1074*
IN1046		Seismic Ring Ser Struct Removal & Reinst	30	02MAR04A	09APR04	11	IN1024*, IN1026*, IN1028*, IN1030*, IN1032*	IN1074*
IN1048		Dummy Can Remov & Reinstall - Part of Coil Stks	30	02MAR04A	09APR04	11	IN1024*, IN1026*, IN1028*, IN1030*, IN1032*	IN1074*
IN1050		Attachment: Seismic Plate/Spacer Removal & Reins	30	02MAR04A	09APR04	11	IN1024*, IN1026*, IN1028*, IN1030*, IN1032*	IN1074*
IN1052	D	Develop Level 3 Planning Schedule	20	02MAR04A	29MAR04A		IN1036	
IN1054		Develop Initial Scaffold Requirements	30	04MAR04A	30APR04	12	IN1000*	IN1116
IN1056	D	W Receive & Review RVH Storage Requirements	15	05MAR04A	30APR04	90		IN1110
IN1058	C	W Receive & Review MSDS	15	05MAR04A	30APR04	90		IN1110, IN1154*
IN1060	D	Issue Installation Plan Rev. 0	3	08MAR04A	23APR04	22	IN1012, IN1016*	IN1090*, IN1132
IN1062		Develop Level 3 Site Schedule	20	08MAR04A	30APR04	0	IN1012*	IN1100*
IN1064		Develop Field Readiness Funct Spec	53	08MAR04A	19MAY04	94	IN1012*	IN1152*
IN1066		Design Seismic Plates Issue Drawing	30	24MAR04A	03MAY04	24		IN1108*
IN1068		Develop RPI/CRDM Meg/res on head test proc	12	07APR04	22APR04	78		IN1092*, IN1094*
IN1070		Develop Project Quality Plan	24	07APR04	10MAY04	86		IN1120*, IN1122*, IN1124*
IN1072		Develop Customer Training Plan	34	07APR04	24MAY04	19		IN1148*
IN1074		Transmit RVH Assem Proc Draft to Customer	5	12APR04	16APR04	11	IN1040*, IN1042*, IN1044*, IN1046*, IN1048*, IN1050*	IN1082*
IN1076		W Receive & Review RVH Unpacking Plan	3	12APR04*	14APR04	102		IN1110

Activity ID	DELV	Activity Description	Orig Dur	Early Start	Early Finish	Total Float	Predecessors	Successors
IN1078		Transmit At-Power Walkdown Report	0		12APR04*	1	IN1014	IN1080*
IN1080		Trasnmit Laydown Info to W Outage Mgr	10	13APR04	26APR04	1	IN1078*	IN1096*
IN1082		Modify RVH Assem Proc based on Comments	10	19APR04	30APR04	87	IN1074*	IN1102*
IN1084		Develop HV/RVLIS Pipe/Support Install Procedure	24	20APR04	21MAY04	63	IN1034*	IN1130*
IN1086		Review Agreement	20	20APR04	17MAY04	61	IN1034*	IN1126*
IN1088		Issue PO & Mfg HV/RVLIS Spool Piece (2 each)	50	20APR04	28JUN04	34	IN1034*	IN1192*
IN1090		Installation Plan Approved for Use	0		23APR04	260	IN1060*	
IN1092	C	Transmit RPI/CRDM Meg/res on head test proc	10	23APR04	06MAY04	78	IN1068*	IN1112*
IN1094	C	Dev & Transmit Coil Stk Trace Measurement Proc	10	23APR04	06MAY04	78	IN1068*	IN1114*
IN1096		W Outage Mgr Review Modifiy Laydown Plan W/Cust	20	27APR04	24MAY04	1	IN1080*	IN1128*, IN1132*, IN1150*
IN1098		W Receive & Review Receipt Inspection Plan	3	30APR04*	04MAY04	88		IN1110
IN1100	D	Integrate Level 3 Site Schedule into Live System	5	03MAY04	07MAY04	0	IN1062*	IN1118*
IN1102		Approve RVH Assembly Proc in W	3	03MAY04	05MAY04	87	IN1082*	IN1110*
IN1104	C	Ship 5 Dummy Cans to KNPP	10	03MAY04	14MAY04	75	IN1038*	C1020
IN1106	D	Customer Review Contingency Plan	30	04MAY04	14JUN04	197	IN1022*	IN1184*
IN1108		Issue PO & Manufacturer Seismic Plates	50	04MAY04	12JUL04	24	IN1066*	IN1194*
IN1110	C	Transmit RVH Assembly Proc to Customer	2	06MAY04	07MAY04	87	IN1056, IN1058, IN1076, IN1098, IN1102*	IN1190
IN1112		Incorp Cust Comments on RPI/CRDM Mes/res	10	07MAY04	20MAY04	78	IN1092*	IN1190
IN1114		Incorp Cust Comments on Coil Stk Trace Measure	10	07MAY04	20MAY04	78	IN1094*	IN1190
IN1116	D	Transmit Initial Scaffold Rqmt for Cust Comment	5	10MAY04	14MAY04	7	IN1054, SV1040*	IN1132
IN1118		Verification of Live System by W	17	10MAY04*	01JUN04	0	IN1100*	IN1158*
IN1120		PCI Review & Comment on Quality Plan	20	11MAY04	07JUN04	86	IN1070*	IN1162*
IN1122		Installation Review & Comment on Quality Plan	20	11MAY04	07JUN04	86	IN1070*	IN1162*
IN1124		Customer Informational Copy of Quality Plan	20	11MAY04	07JUN04	86	IN1070*	IN1162*
IN1126	C	Transmit PCI/W Agreement	5	18MAY04	24MAY04	61	IN1086*	IN1134*, IN1136*, IN1138*, IN1140*, IN1142*, IN1144*, IN1146*
IN1128	D	Transmit Final Laydown Plan	0		24MAY04	96	IN1096*	IN1198
IN1130	C	Xmit HV/RVLIS Pipe for Customer Review & Comment	9	24MAY04	03JUN04	63	IN1084*	IN1160*
IN1132		Review/Modify Scaffold Requirement	2	25MAY04	26MAY04	1	IN1060, IN1096*, IN1116	IN1156*
IN1134	C	Develop & Transmit SS/SS WPS	10	25MAY04	07JUN04	61	IN1126*	IN1166*
IN1136	C	Develop & Transmit CS/CS WPS	10	25MAY04	07JUN04	61	IN1126*	IN1168*
IN1138	C	Transmit CS/SS WPS	10	25MAY04	07JUN04	61	IN1126*	IN1170*
IN1140		Develop & Transmit Generic Weld Procedure	10	25MAY04	07JUN04	61	IN1126*	IN1172*
IN1142	C	Dev & Transmit Weld Inspect Proced (Visual)	10	25MAY04	07JUN04	61	IN1126*	IN1174*
IN1144	C	Develop & Transmit Weld Inspection Proced (PT)	10	25MAY04	07JUN04	61	IN1126*	IN1176*
IN1146	C	Develop & Transmit Weld Rod control process	10	25MAY04	07JUN04	61	IN1126*	IN1178*
IN1148		Transmit to Cust Training Plan for Review & Com	10	25MAY04	07JUN04	19	IN1072*	IN1180*
IN1150		Trasnmit ALARA Info to W Outage Mgr	10	25MAY04	07JUN04	219	IN1096*	IN1182*
IN1152		Transmit Field Readiness Funct Spec	0		26MAY04	94	IN1064*	IN1198

Activity ID	DELV	Activity Description	Orig Dur	Early Start	Early Finish	Total Float	Predecessors	Successors
IN1154		W Devel & Xmit to Cust a consumables list w/MSDS	10	26MAY04	08JUN04	228	IN1058*	
IN1156	C	Transmit Final Scaffold Requirement	1	27MAY04	27MAY04	1	IN1132*	C1000, IN1198
IN1158		W Site Schedule Complete	0		01JUN04	0	IN1118*	C1004, C1008
IN1160		Incorp Custmer Comments on HV/RVLIS Pipe	5	04JUN04	10JUN04	63	IN1130*	IN1190
IN1162	C	Transmit Project Quality Plan	0		07JUN04	86	IN1120*, IN1122*, IN1124*	IN1198
IN1164		Support Customer Vertical Slice Meetings	5	07JUN04*	11JUN04	0		C1004
IN1166		Incorp Customer Comments	5	08JUN04	14JUN04	61	IN1134*	IN1190
IN1168		Incorp Customer Comments on CS/CS WPS	5	08JUN04	14JUN04	61	IN1136*	IN1190
IN1170		Incorp Customer Comments on CS/SS WPS	5	08JUN04	14JUN04	61	IN1138*	IN1190
IN1172		Incorp Cust Comments on Generic Weld Procedure	5	08JUN04	14JUN04	61	IN1140*	IN1190
IN1174		Incorp Cust Comments on Weld Inspect Proced VT	5	08JUN04	14JUN04	61	IN1142*	IN1190
IN1176		Incorp Cust Comments on Weld Inspection PT	5	08JUN04	14JUN04	61	IN1144*	IN1190
IN1178		Incorp Cust Comments on Weld Rod Control Process	5	08JUN04	14JUN04	61	IN1146*	IN1190
IN1180		Incorp Cust Comments to Training Plan	10	08JUN04	21JUN04	19	IN1148*	IN1186*
IN1182		W Outage Mgr Review Modifiy ALARA Plan w/Cust	10	08JUN04	21JUN04	219	IN1150*	
IN1184		Modify Contingency Plan	22	15JUN04	14JUL04	197	IN1106*	IN1196*
IN1186	D	Training Plan Ready for Xmit to Cust	0		21JUN04	19	IN1180*	IN1188*
IN1188		Identify Crew Training Reqs	10	22JUN04	05JUL04	19	IN1186*	IN1202
IN1190		Procedure Approval by ustomer	20	25JUN04	22JUL04	53	IN1110, IN1112, IN1114, IN1160, IN1166, IN1168, IN1170, IN1172, IN1174, IN1176, IN1178, SV1072*	IN1200*
IN1192	C	Ship HV/RVLIS Spool Pieces to Site	10	29JUN04	12JUL04	34	IN1088*	C1020
IN1194	C	Ship 4 Seismic Plates to Site	10	13JUL04	26JUL04	24	IN1108*	C1020
IN1196	D	Transmit Contingency Plan to Customer	5	15JUL04	21JUL04	197	IN1184*	
IN1198		Installation Planning Complete	0		22JUL04	53	C1004, IN1128, IN1152, IN1156, IN1162, IN1200*	IN1220
IN1200		All Procedures Approved by Customer	0		22JUL04	53	IN1190*	IN1198*
IN1202		Draft Day for Fall 2004 Season	1	02AUG04*	02AUG04	0	IN1018, IN1188	IN1204*, IN1206*
IN1204		Develop Crew Organization w/names	5	03AUG04	09AUG04	39	IN1202*	IN1216
IN1206		Crew Training at Waltz Mill	10	10AUG04	23AUG04	29	IN1202*	IN1214*, IN1216
IN1208		Prepare for Readiness Review	5	13AUG04*	19AUG04	0		IN1210*
IN1210	C	Readiness Review - (5 Day Lag to Milestones)	1	20AUG04*	20AUG04	0	IN1208*	C1014, C1016, C1018, IN1220
IN1212		RVH Arrives on Site	0		23AUG04*	24	1116	IN1222
IN1214	C	Transmit Crew Qualifications	1	24AUG04	24AUG04	30	IN1206*	IN1220
IN1216		W Crew Travel to Site	1	29SEP04*	29SEP04	3	IN1204, IN1206	IN1220*
IN1218		Crew Site Badge Training	3	02OCT04	04OCT04	4	IN1220*	IN1222
IN1220	C	W Crew On-Site	0	04OCT04		2	IN1198, IN1210, IN1214, IN1216*	IN1218*
IN1222		Outage Start	0	09OCT04*		0	IN1212, IN1218, SV1090	

Typical
R.V. Head Replacement
Project

Activity ID	DELV	Activity Description	Orig Dur	Early Start	Early Finish	Total Float	Predecessors	Successors
SITE SUB VENDOR								
SV1000	D	Issue PO to SSV to Initiate Engineering Design	1	31OCT03A	31OCT03A			SV1004
SV1002		Develop SSV Component Handling Plan	44	03NOV03A	31DEC03A		SV1004	SV1010
SV1004	D	Receive SSV Conceptual design	1	09JAN04A	09JAN04A		SV1000	SV1002, SV1018*
SV1006	D	Receive DOT Drawing From Customer	1	14JAN04A	14JAN04A			SV1008
SV1008		W/SSV Review & Comments on DOT Container	28	15JAN04A	26FEB04A		SV1006	SV1012
SV1010		Prepare Document Transmittal	23	04FEB04A	05MAR04A		SV1002	SV1016
SV1012	D	Transmit Comments on DOT Container to Customer	0		26FEB04A		SV1008	SV1014
SV1014		Incorporate SSV/W Comments	10	27FEB04A	29MAR04A		SV1012	SV1032
SV1016	D	Transmit Documents	1	08MAR04A	08MAR04A		SV1010	SV1036
SV1018	D	Issue Revised PO to SSV for Full Scope	9	24MAR04A	16APR04	7	SV1004*	SV1036*
SV1020		Dev Proc. to Install &Remove Runway Sys. 2100-P3	23	01APR04A	03MAY04	53		SV1042*
SV1022		Dev Proc Dwnend Old Hd in Cont,RO,Tie Dwn2100-P4	23	01APR04A	03MAY04	53		SV1044*
SV1024		Dev Proc. to Haul New Hd to Cont.& Upend 2100-P6	23	01APR04A	03MAY04	53		SV1046*
SV1026		Dev Proc Dwnend New Hd on Xporter,tie dwn2100-P2	23	01APR04A	03MAY04	53		SV1048*
SV1028		Dev Proc OSC Lift New Hd, Place onXporter2100-P1	23	01APR04A	03MAY04	53		SV1050*
SV1030		Dev Proc to Gantry Lift Old Hd w/Duratek 2100-P5	23	01APR04A	03MAY04	53		SV1052*
SV1032	D	Receive Final Approved Dwg from Customer	0	16APR04*		42	SV1014	SV1034*, SV1066
SV1034	D	Rec Input for Hndling Procedure DOT From Cust	0	16APR04*		42	SV1032*	SV1066
SV1036		SSV Develop Calcs & Drawings	8	19APR04	28APR04	7	SV1016, SV1018*	SV1038*
SV1038	D	Receive SSV General Arrangement Drawings	0		28APR04	7	SV1036*	SV1040*
SV1040		W/Cust Review SSV General Arrangement Dwg	7	29APR04	07MAY04	7	SV1038*	IN1116*, SV1056*
SV1042	D	SSV Trans Proc Instl&Remove Runway Sys 2100-P3	0		03MAY04	53	SV1020*	SV1054*
SV1044	D	SSV Trans Proc Dwnend Old Hd inCont. - 2100-P4	0		03MAY04	53	SV1022*	SV1054*
SV1046	D	SSV Trans Proc to Haul New Hd to Cont - 2100-P6	0		03MAY04	53	SV1024*	SV1054*
SV1048	D	SSV Trans Proc Dwnend NewHd on Xprter - 2100-P2	0		03MAY04	53	SV1026*	SV1054*
SV1050	D	SSV Trans Proc for OSC Lift New Hd - 2100-P1	0		03MAY04	53	SV1028*	SV1054*
SV1052	D	SSV Trans Proc Lift&Load Off-Site Trnsprt2100-P5	0		03MAY04	53	SV1030*	SV1054*
SV1054		W/Customer Review SSV Procedures	14	04MAY04	21MAY04	53	SV1042*, SV1044*, SV1046*, SV1048*, SV1050*, SV1052*	SV1060*
SV1056	D	Approve SSV Designs	10	10MAY04	21MAY04	16	SV1040*	SV1058*, SV1066
SV1058		SSV Develop Equip Test & Cert Procedure	1	24MAY04	24MAY04	35	SV1056*	SV1062*
SV1060	D	W Transmit Comments on SSV Procedures	1	24MAY04	24MAY04	53	SV1054*	SV1064*
SV1062		W/Cust Review SSV Equip Test & Cert Procedure	14	25MAY04	11JUN04	35	SV1058*	SV1074*
SV1064		SSV Incorporate W Comments	5	25MAY04	31MAY04	53	SV1060*	SV1068*
SV1066		SSV Procurement of Equipment	39	31MAY04*	22JUL04	11	SV1032, SV1034, SV1056	SV1078*
SV1068	D	W Approve SSV Procedures Submission Customer	5	01JUN04	07JUN04	53	SV1064*	SV1070*
SV1070	D	Transmit SSV Procedures to Customer	3	08JUN04	10JUN04	53	SV1068*	SV1072*

Activity ID	DELV	Activity Description	Orig Dur	Early Start	Early Finish	Total Float	Predecessors	Successors
SV1072		Customer Approve SSV Procedures	10	11JUN04	24JUN04	53	SV1070*	IN1190*
SV1074		SSV Incorporate W Comments	5	14JUN04	18JUN04	35	SV1062*	SV1076*
SV1076	D	Approve & Issue SSV Equip Test & Cert Proced	0		18JUN04	35	SV1074*	SV1080
SV1078		SSV CH Equipment Fabrication Complete	0		22JUL04	11	SV1066*	SV1080*
SV1080		Test & Certify SSV Equipment	7	23JUL04	02AUG04	11	SV1076, SV1078*	SV1082*
SV1082		SSV Equipment Test&Certification Approved by W	4	03AUG04	06AUG04	11	SV1080*	SV1084*
SV1084	C	Transmit SSV Equipment Certifications to Cust	2	09AUG04	10AUG04	11	SV1082*	SV1086
SV1086		Mobilize SSV on Site for RRVH Arrival	0	23AUG04*		3	SV1084	SV1088, SV1090
SV1088	C	SSV Equipment On Site	0		24AUG04*	1	SV1086	SV1090*
SV1090		Mobilize SSV on Site for Outage Start	1	07OCT04	07OCT04	1	SV1086, SV1088*	IN1222