DOE/SF/70015--T4

Atomics International
North American Rockwell

SUPPORTING DOCUMENT

NUMBER	REV LTR/CHG NO.
WPL-030-330-001	A SEE SUMMARY OF CHG

PROGRAM TITLE

AI-MSG MODIFICATION FOR LLTR

DOCUMENT TYPE

Work Plan

KEY NOUNS

MSG PLAN

DOCUMENT TITLE

AI03-16SF-70015

AI-MSG MODIFICATION WORK PLAN

ORIGINAL ISSUE DATE

8-22-73

GO NO.	S/A NO.	PAGE 1 OF TOTAL PAGES 25
9036	12100	REL. DATE 8-23-73

PREPARED BY/DATE	DEPT	MAIL ADDR
J. P. Page/8-20-73 JPP	716	LB11

IR&D PROGRAM? YES ☐ NO ☒ IF YES, ENTER TPA NO. _____

APPROVALS — DATE

J. S. McDonald JSMcDonald 12/5/73

R. Balent R Balent

SECURITY CLASSIFICATION

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UNCL	☒	☐
CONF.	☐	☐
SECRET	☐	☐

(CHECK ONE BOX ONLY)
RESTRICTED DATA ☐
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ABSTRACT

This document contains the Work Plan for the modification of the AI Steam Generator for tests in the Large Leak Test Rig. This Work Plan describes the objectives, scope of work, schedule and manpower, end items, and meetings and reports required for the modification.

MASTER

DOE/SF/70015--T4

DE82 005397

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NO. WPL-030-330-001
PAGE 1.1

REV	SUMMARY OF CHANGE	APPROVALS AND DATE
A	Complete revision based on GE and RRD comments	JBm 12/16/73 Rel. Date 12/18/73

AI-MSG MODIFICATION WORK PLAN

TABLE OF CONTENTS

WORK PLAN FOR MODIFICATION

OF THE AI-MSG

I. OBJECTIVES

The objectives of the AI-MSG Modification Project are to perform the engineering, fabrication and related activities which are required to modify the Atomis International Modular Steam Generator (AI-MSG or MSG) for use as a test article in the Large Leak Test Rig (LLTR). The objectives of the LLTR tests of the modified MSG are to:

1. Verify the integrity of the AI reference LMFBR steam generator design during major tube leak events,
2. Provide information for verification of methods for analyzing major tube leak transients, and
3. Provide information for establishing relief system characteristics during major tube leak events.

II. SCOPE

The scope of effort covered by this plan involves those activities necessary to modify the existing AI Modular Steam Generator (MSG) for use as a test article in the LLTR. These activities include engineering design of the modifications, disassembly of the MSG (AI will cover a portion of the disassembly costs in conjunction with contract AT(04-3)-813), manufacturing and Quality Assurance required for the modification, acceptance testing of the unit and transport of the unit to the LLTR site.

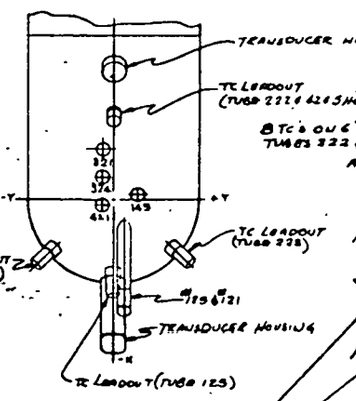
The concept for modification is shown in Figure 1 (Drawing N030330015). Key personnel are listed on Table 1, along with their project responsibilities. The work to be performed is divided into three elements: Program Management, Engineering, and Production Operations. Tasks within these elements for which

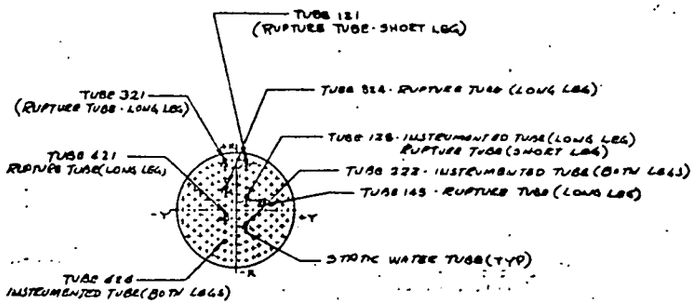
REVISIONS

LTR	DESCRIPTION	DATE	APPROVED

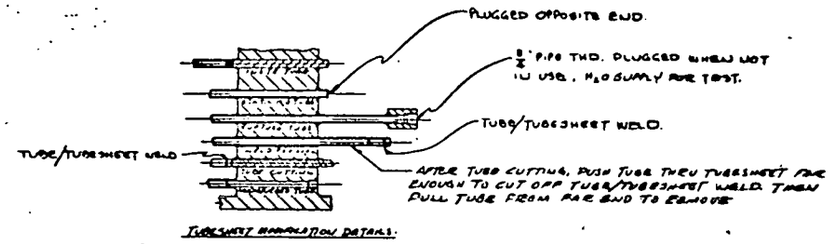
NOTES: UNLESS OTHERWISE SPECIFIED ON THIS DRAWING

Figure 1
Concept for MSG Modification

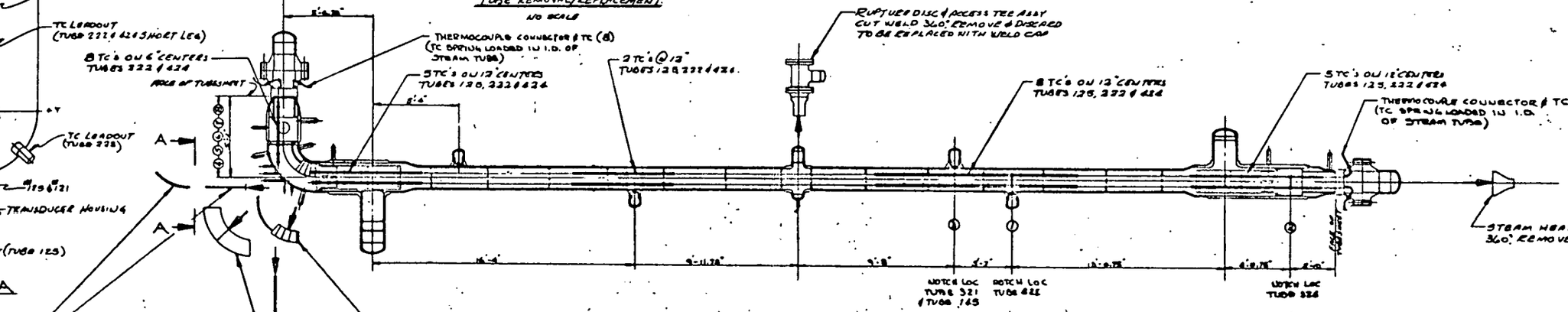




TUBE REMOVAL/REPLACEMENT
NO SCALE



TUBESHEET MANIPULATION DETAILS:



REVISIONS (FROM REF DWG NO303300006)
1. 8 LONG RUPTURE TUBES WAS 15
2. 8 LONG INSTRUMENTED TUBES WAS 5 (40 TC's WAS 64 TC's)
3. 4 TC LEADOUTS IN ELBOW WAS 6
4. 16 TC's IN STEAM TUBES - SPRING LOADED (NOT SHOWN)
5. LOWER HEADER & UPPER CROSS NOT REMOVED

DRAWN BY	B. M. [illegible]	
CHKD BY		
APPD		
ENGR		

Atomics International
North American Rockwell
(AT MSG MODIFICATION) - REVISED CONCEPT

SIZE	CODE IDENT NO.	DRAWING NO.
E	09974	NO303300/5
SCALE 1"=1'-0"		SHEET

INFORMATION ONLY

TABLE 1

AI MSG MODIFICATION
PROJECT RESPONSIBILITIES

Administration	R. C. Pendleton
Data Control	J. C. Stanley
Design Review	W. B. Haigler
Engineering Design	R. L. McAlpin
Facilities	D. A. Sheptenko
Handling	F. C. Burnett
Health and Safety	E. L. Roddy
Inspection - DeSoto Facility	W. T. Ford
Santa Susana Facility	W. T. Gabriel
Material and Process	C. C. Woolsey
Manufacturing - DeSoto Shop	D. W. Hebdon
Santa Susana Shop	W. W. Dillingham
Manufacturing Engineering	L. F. Haase
Production Operations	L. T. Bogaert
Project Manager	J. P. Page
Purchasing	L. P. Simpson
Quality Assurance Engineering	T. D. Williams
Specifications	A. Carnazzola
Stress Analysis	W. Dauterman
Thermal Analysis	E. M. Mouradian
Tooling	M. Moessler
Welding	L. F. Haase

NOTE: See QPI-030-330-001, Appendix XI for Line Organization Charts

financial responsibility is assigned and for which costs are separately collected are assigned subaccount status as shown in the Work Breakdown Structure, Figure 2. All of the work described in this plan is to be performed under one General Order, GO 09036, "AI-MSG Modification for LLTR"; it has been assigned an AI Model number of "030" by Engineering Data, and all supporting documents will carry the category number of "330," which is the AI WBS number for steam generators.

Brief descriptions of the activities to be performed under each of the subaccounts shown in the Project WBS follow:

A. Modification Engineering

Documents which are expected to be issued as a result of Modification Engineering are listed on Table 2. The configuration Summary (CS-030-330-001) for the MSG Modification will list all controlled documents.

1. Design - SA33610

Effort under this subaccount will include the preparation of a design layout, detail engineering drawings, an assembly drawing, and an interface control drawing.

2. Stress - SA33620

Effort under this subaccount is directed to the preparation of two stress reports: 1) an interim report which supports preliminary design and the procurement of long-lead materials, and 2) a final report which provides the detailed analyses of the design of the modified MSG in compliance with the criteria contained in the Design Specification. One or more supporting Technical Information (TI) document(s) may be issued as reference material for the stress reports.

3. Engineering Support - SA33630

This subaccount covers engineering activities of lesser cost impact than Design or Stress. The costs of these activities can be followed, to the extent necessary for control, using the weekly project control ("Z-tab") reports which show the name and number of hours spent by each person charging the subaccount (see Figure 3). Activities under this subaccount

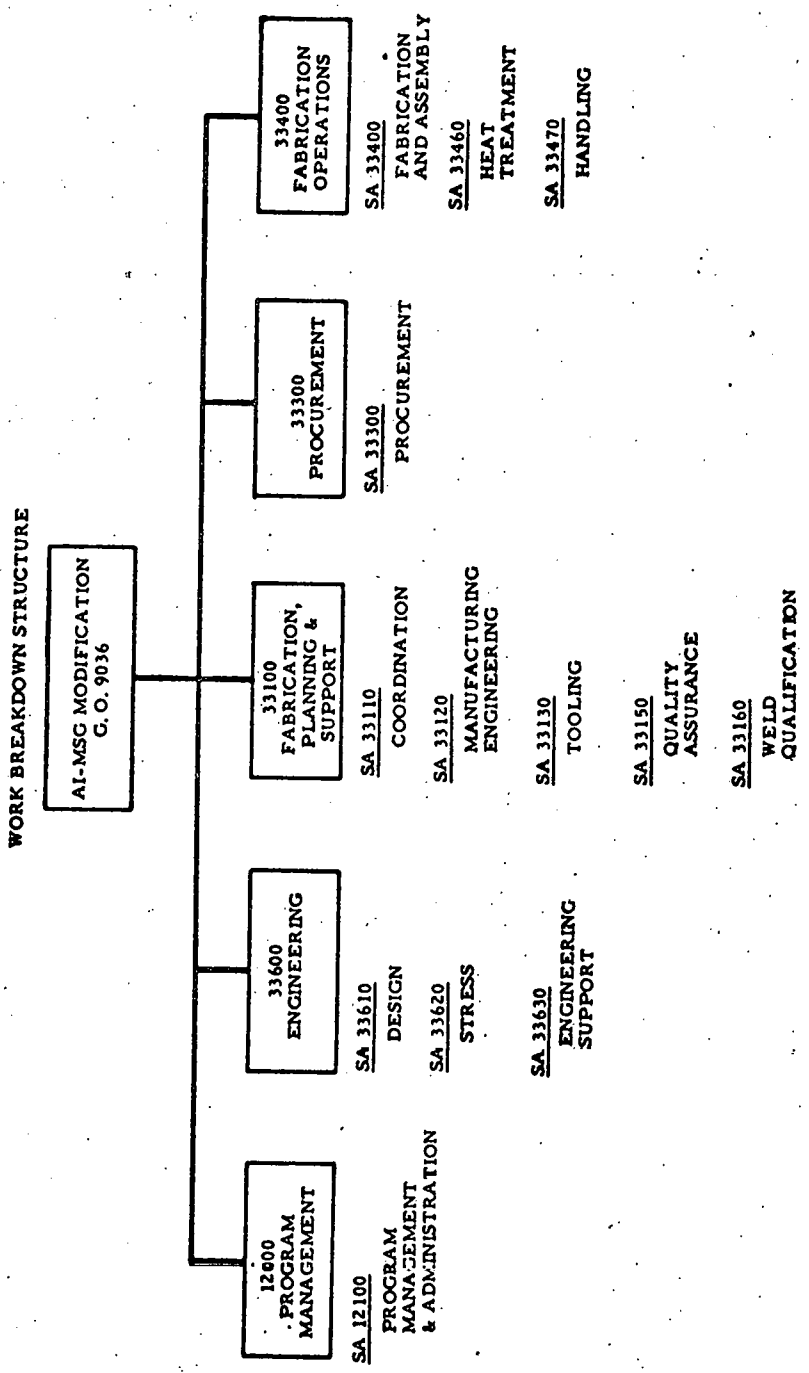


Figure 2

AI-MSG MODIFICATION

WORK BREAKDOWN STRUCTURE

TABLE 2

ENGINEERING DOCUMENTS FOR MSG MODIFICATION

Drawings

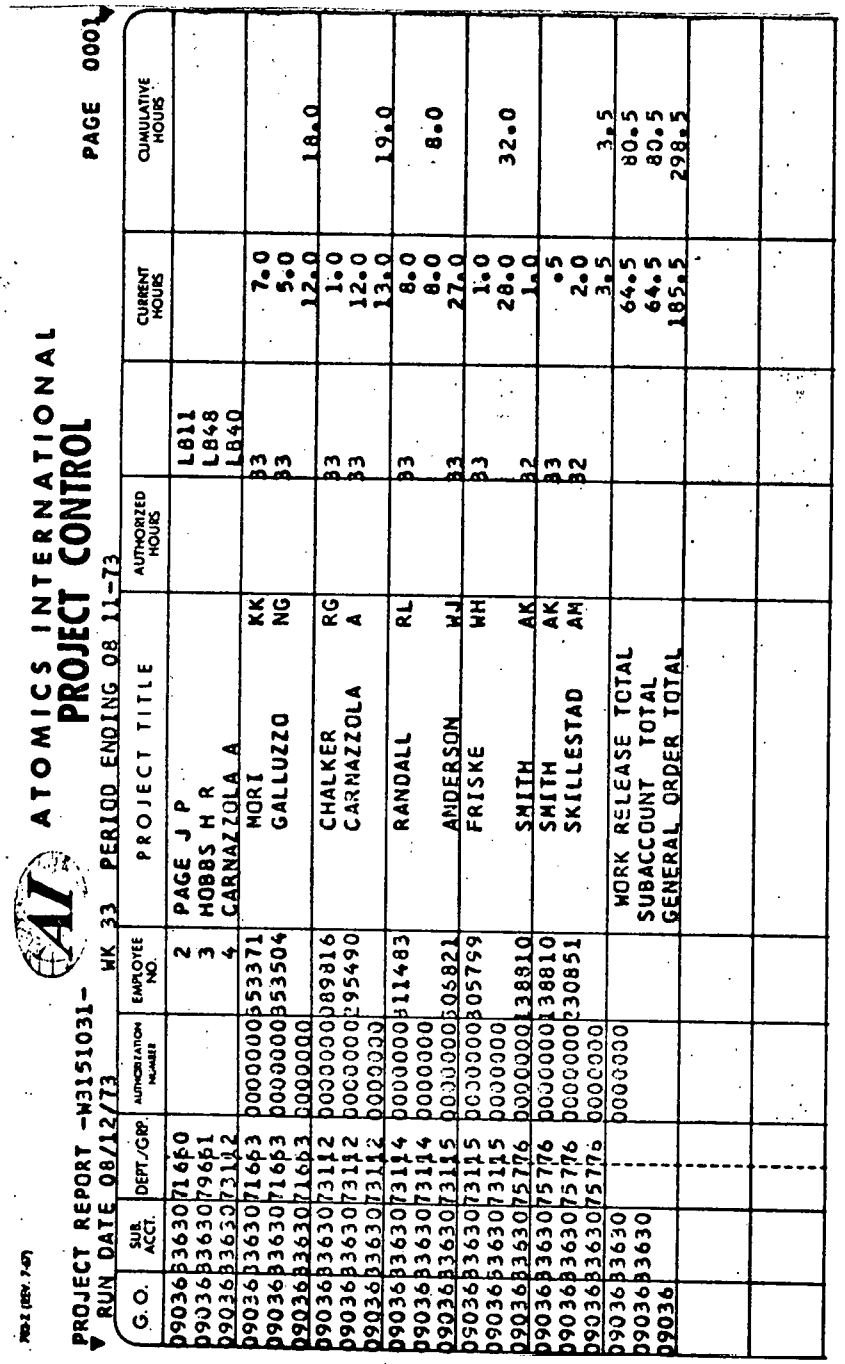
- Concept Layout
- Detail Assembly
- Flange-Welding Neck
- Leadout Assembly-Thermocouple
- Elbow Assembly
- Cap-Thermocouple Leadout
- Sleeve-Thermocouple Leadout
- Instrument-External

Specifications

- Design
- Materials (Short Form)
  - Forgings
  - Tubing
  - Welding Filler Wire
  - Plate
  - Tubing
- Material Processing

Reports

- Stress
- Technical Information
  - Thermal Analyses
  - Stress Analyses
- Design Review



ATOMICS INTERNATIONAL
PROJECT CONTROL

PROJECT REPORT -W3151031- WK 33 PERIOD ENDING 08 11-73 PAGE 0001
RUN DATE 08/12/73

G.O.	SUB. ACCT.	DEPT./GRP.	AUTHORIZATION NUMBER	EMPLOYEE NO.	PROJECT TITLE		AUTHORIZED HOURS		CURRENT HOURS	CUMULATIVE HOURS
09036	3630	71660		2	PAGE J P			L811		
09036	3630	79651		3	HOBBS H R			L848		
09036	3630	73112		4	CARNAZZOLA A			L840		
09036	3630	71663	0000000	53371	MORI	KK		B3	7.0	
09036	3630	71663	0000000	53504	GALLUZZO	NG		B3	5.0	
09036	3630	71663	0000000						12.0	18.0
09036	3630	73112	0000000	89816	CHALKER	RG		B3	1.0	
09036	3630	73112	0000000	95490	CARNAZZOLA	A		B3	12.0	
09036	3630	73112	0000000						13.0	19.0
09036	3630	73114	0000000	11483	RANDALL	RL		B3	8.0	
09036	3630	73114	0000000						8.0	8.0
09036	3630	73115	0000000	06821	ANDERSON	WJ		B3	27.0	
09036	3630	73115	0000000	05799	FRISKE	WH		B3	1.0	
09036	3630	73115	0000000						28.0	32.0
09036	3630	75776	0000000	38810	SMITH	AK		B2	1.0	
09036	3630	75776	0000000	38810	SMITH	AK		B3	.5	
09036	3630	75776	0000000	30851	SKILLESTAD	AM		B2	2.0	
09036	3630	75776	0000000						3.5	3.5
09036	3630		0000000		WORK RELEASE TOTAL				64.5	80.5
09036	3630				SUBACCOUNT TOTAL				64.5	80.5
09036					GENERAL ORDER TOTAL				185.5	298.5

Figure 3

SAMPLE WEEKLY PROJECT CONTROL REPORT

are as follows:

(a) Specifications Activity 001

Effort under this activity is directed to the preparation of the Design Specification, one or more Materials Process Specification(s), and one or more Materials Specification(s).

The Design Specification is the "source" document for all design, analysis, fabrication, and examination and acceptance tests to be performed under the MSG Modification project. It will provide a detailed description of the intended service (sodium-water reaction conditions) of the MSG, design data, applicable codes and standards, and essentially all other necessary information. A draft is to be issued very early in preliminary design, to be followed by a formally-released version which will be kept current with regard to the requirements that will be developed during the course of analysis and detail design, of the Large Leak Injection Device (LLID) and the LLTR.

In addition, this activity will include the preparation, coordination, and release of Materials and Material Processing Specifications based on input from the Materials and Processes activity.

(b) Materials and Processes Activity 002

This activity will, within the context of the codes and standards specified in the Design Specification, define supplemental requirements or precautions to be taken in materials purchasing, cleaning, machining, welding, brazing, and heat treatment. The results of this work are a direct input to the Materials and Materials Process Specifications to be prepared under the Specifications activity. A TI will be prepared if there are any unusual aspects which deserve traceability of requirements.

(c) Thermal Analysis Activity 003

This activity will analyze the temperature transients and thermal gradients in the MSG before, during, and

after the sodium-water reaction events and provide predictions of metal temperatures as input to the stress analysis.

(d) Design Reviews Activity 004

This activity covers the effort required to coordinate, perform, document, and follow up the two design reviews--one internal, and one with the customer and the technical manager--that are planned for this project.

(e) Other Support Activity 005

Engineering support of a minor level, which cannot be directly charged to one of the above tasks, will be performed under this activity.

B. Modification Fabrication

Documents which are expected to be issued as a result of Modification Fabrication are listed on Table 3. The Configuration Summary (CS-030-330-001) for the MSG modification will list all controlled documents.

1. Planning and Support

(a) Fabrication Coordination and Control - SA33110

The coordination and control of Production Operations activities at the DeSoto and Santa Susanna shops and assistance to the Project Manager is covered under this subaccount.

(b) Quality Assurance Engineering - SA33150

This subaccount covers the preparation of a Quality Assurance Functional Plan, which describes the QA functions and responsibilities in meeting the requirements of the documents set forth in the QA Program Index. In addition, detailed quality control and inspection plans and procedures, related documentation and laboratory support are funded by this subaccount.

TABLE 3

FABRICATION DOCUMENTS FOR MSG MODIFICATION

Manufacturing Plan

Quality Assurance Functional Plan

Quality Acceptance Procedure

Process Procedures

Non-Destructive Test Procedure

Shop Drawings

Welding Qualification Certification

Non-Destructive Examination Qualification Certification

Manufacturing Production Orders

Procurement Packages

(c) Manufacturing Engineering - SA33120

This subaccount covers the selection of processes (in accordance with the requirements of the Design and Materials Process Specifications), preparation of flowsheets, detailed planning and scheduling, preparation of shop drawings, identification of needs for tooling, a pro-rated share of the Materials Control Center costs, and preparation of Production Orders and Process Procedures.

(d) Tooling - SA33130

This subaccount covers the cost of the design, fabrication, and check out of special tools which are required for the MSG Modification.

(e) Welding Qualifications - SA33160

This subaccount covers the preparation of a weld map which shows, for the MSG modification, the location and sequencing of each weld, and the procedure to be employed. In addition, the effort required for procedure and weld or qualification, if uniquely required by the MSG modification, is charged to this subaccount.

2. Procurement - SA33300

The costs of productive (end-item) materials and the cost of labor for the preparation of purchase orders, evaluation of bids, contract award and follow-up are assigned to this subaccount, as is the cost of source and receiving inspection.

3. Fabrication Operations

(a) Fabrication and Assembly - SA33400

The costs associated with the fabrication and assembly operations for the MSG modification, both at the DeSoto and Santa Susana facilities, are collected under this account.

(b) Heat Treatment - SA33460

The cost of heat treatment, anticipated to be performed at AI under subcontract, and the related direct AI charges

in support of this subcontract are assigned to this subaccount for the purpose of improving cost visibility.

(c) Handling - SA33470

The cost of handling, including the cost of the subcontract with a qualified rigger, and the preparation of detailed plans, procedures, proof tests and related inspections are assigned to this subaccount.

C. Program Management and Administration - SA12100

Planning, management, and control of all technical aspects of the LLTR is the responsibility of the Project Manager. The Project Manager is the primary interface with the Atomic Energy Commission, General Electric, Liquid Metal Engineering Center, other related activities within AI, and any other organizations which may interface with the program. Work in this general area will include preparation of this Work Plan, a Program Plan, the Quality Assurance Program Index, cost estimates, management of all document submittals, progress reports, internal and external design reviews, and coordination meetings. These are listed in Table 4. In addition, detailed recommendations regarding the codes and standards to be applied to the MSG Modification will be submitted by letter, by the Project Manager.

Program Administration activities, which assist the Project Manager, are the distribution of weekly Project Control tabs, such as shown in Figure 3, monthly Cost Reports, the development of networks, such as shown in Figure 4, and related assistance in manpower planning, as shown in Figure 5.

In addition, Program Administration tracks progress, on a weekly basis, relating to program data requirements which are generated by the Project Manager, the contract, and/or Agreements and Commitments. This report, a sample page of which is presented as Figure 6, is distributed to those with responsibility for action, the Project and Program

TABLE 4

PROGRAM MANAGEMENT DOCUMENTS

Work Plan

Quality Assurance Program Plan

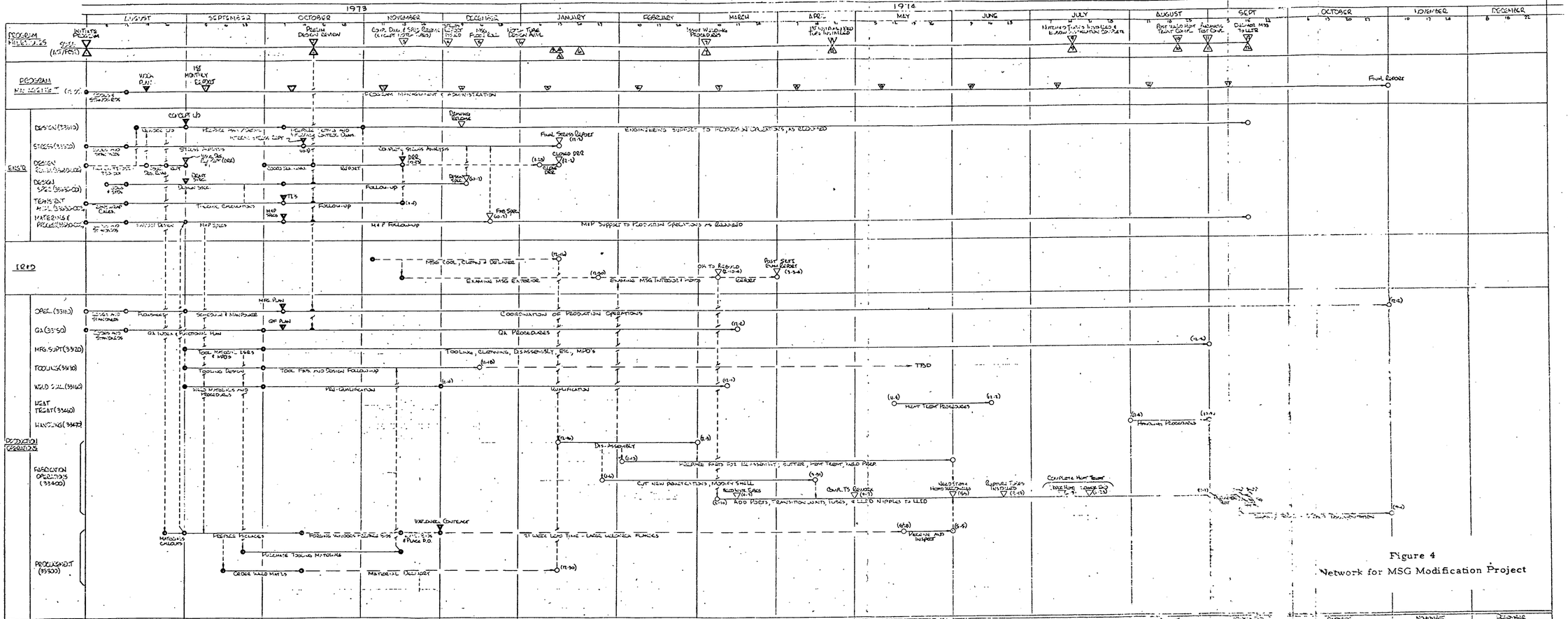
Weekly Progress Reports

Bimonthly Cost Reports

Monthly Progress Reports

Critical Items Lists

Coordination Meeting Minutes



	GFY 1974 BUDGET	ACTUAL HRS THRU NOV
MANAGEMENT	12100	2310	1191
DESIGN	33410	1150	878
STRESS	33420	1230	1106
DESIGN SPEC	33350	1450	1482
IPED	33110	960	226
QA	33150	920	302
MFG. SUPT	33120	1810	183
TOOLING	33130	1240	646
WELD & ALL	33160	870	315
HEAT TREAT	33450	-	-
HANGING	33470	-	-
FABRICATION OPERATIONS	33400	3060	-
PROCUREMENT	33500	550	502

CHANGES: 11-1-73, 11-21-73, 12-7-73, (REDRAW) 12-12-73, 12-17-73, 1-3-74, (REDRAW) (12-26)

MSG MODIFICATION NETWORK

		AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPT	OCTOBER	NOVEMBER	DECEMBER
		PLANNED - ACTUAL	PLANNED - ACTUAL	PLANNED - ACTUAL	PLANNED - ACTUAL	PLANNED - ACTUAL	PLANNED - ACTUAL	PLANNED - ACTUAL	PLANNED - ACTUAL	PLANNED - ACTUAL	PLANNED - ACTUAL	PLANNED - ACTUAL	PLANNED - ACTUAL	PLANNED - ACTUAL	PLANNED - ACTUAL	PLANNED - ACTUAL	PLANNED - ACTUAL	PLANNED - ACTUAL
EPS	PROGRAM MANAGEMENT	1.0 (1.1)	1.1 (1.9)	1.4 (1.2)	1.6 (1.3)	1.5	1.6	1.5	1.5	1.6	1.8	1.1	1.1	1.1	1.1	1.1	1.1	1.1
	ENGINEERING	1.6 (1.2)	2.8 (3.0)	4.0 (5.1)	5.9 (5.5)	1.0	1.0	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
	PROCUREMENT	1.6 (.6)	1.6 (1.2)	1.3 (2.3)	2.9 (4.5)	1.5 (1.1)	1.5	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
	TOTALS	4.1 (3.1)	11.1 (11.5)	13.2 (10.1)	13.6 (11.4)	14.3	14.5	15.4	15.4	15.6	11.3	11.1	11.1	11.1	11.0	11.1	11.1	11.1

G.O. S.A. 09036 00000

TASK TITLE
MSG MODIFICATION

FY
74

RUN DATE 08/18/73 AT 17.00 O'CLOCK

R AND D WORKSHEET

EQUIVALENT PEOPLE

DEPT GRP UNIT	DESCRIPTION	152. JULY	200. AUG	152. SEPT	200. OCT	144. NOV	120. DEC	184. JAN	160. FEB	160. MAR	160. APR	192. MAY	160. JUNE	1984. TOTAL	HOURS
714-600	LMFBR PROGRAM MG	0.0	0.6	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	7.7	1279.
716-620	LMFBR REFUELING	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	20.
716-630	LMFBR COMPONENTS	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	20.
731-120	ENGG SYSTEMS MGM	0.0	1.0	1.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8	483.
731-130	DESIGN ENGINEERI	0.0	0.4	1.5	1.9	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	7.8	1328.
731-140	ENGG TECHNICAL S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.6	96.
731-150	MATERIALS ENGINE	0.0	0.3	0.7	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1.9	314.
731-160	STRUCT & PROCESS	0.0	0.8	2.6	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.9	855.
704-000	DEVEL SUPPORT SH	0.0	0.0	0.4	1.0	5.6	5.6	5.6	5.6	5.6	5.6	5.6	2.0	42.6	6853.
754-530	QA INSPECTION &	0.0	0.0	0.4	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	12.1	1985.
755-510	QA ENGINEERING	0.0	0.5	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	11.4	1880.
755-520	QA PLAN, PROCURE	0.0	0.1	0.5	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1.7	284.
784-410	MFG PLANNING & S	0.0	0.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	9.5	1569.
784-420	TOOLING & PRODUC	0.0	0.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	9.5	1569.
789-000	MANUFACTURING SH	0.0	0.0	0.0	0.4	1.5	3.5	3.5	3.5	3.5	3.5	2.5	0.0	21.9	3520.
790-000	PRODUCTION OPER	0.0	0.7	1.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	8.0	1328.
796-610	PROGRAM ADMINIST	0.0	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1.5	254.
753-310	PURCHASING DESGT	0.0	0.4	0.7	0.7	0.7	0.7	0.7	0.7	0.0	0.0	0.0	0.0	4.6	752.
767-000	FACILITIES ENGIN	0.0	0.1	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	1.4	230.
757-730	PHOTOGRAPHY	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.2	28.
	TOTAL	0.0	6.4	13.6	11.9	14.3	16.4	16.3	16.9	15.7	15.6	14.6	8.6	150.3	24645.

Figure 5

SAMPLE MANPOWER PLANNING SHEET

OPEN ITEMS ST

Page1
8-13-73

PROGRAM: MSG Modification for LLTR

Copies: Page, McDonald, Balent, Bogart
Williams, Reed Those having action.

ITEM NO	DESCRIPTION	REFERENCE	ACTION RESP	DUE DATE	COMPL DATE	STATUS	RESPONSE REFERENCE
1.	Date for furnishment of LLID for use with LLTV Interface Control DWG.	A/C 7-26-73 Item A2	GE	8-1-73	E A		
2.	Date for furnishment of LLID for use with MSG Interface Control DWG.	A/C 7-26-73 Item A2	GE	8-1-73	E A		
3.	Date for furnishment for LLTV Interface Control DWG.	A/C 7-26-73 Item A2	GE	8-1-73	E A		
4	Prepare MSG Interface Control DWG.	A/C 7-26-73 Item A2	Page	TBD	E A		
5.	MSG Modification for use in LLTR. Formal $ Est. for initial 70 day period	A/C 7-26-73 Item B1	Page	8-2-73	E A 8-1-73	Complete	73AT-4565 8-1-73
6.	Submit recommendations for Codes & Standards to be applied to MSG Modifications	A/C 7-26-73 Item B2	Page	8-10-73	E A 8-14-73	Complete	73AT-4842 8-14-73
7.	Selection of Codes and Standards to be used on MSG	A/C 7-26-73 Item B2	AI-GE	8-16-73	E 8-21-73 A		

FIGURE 6
SAMPLE OPEN ITEMS LIST

FORM 719-P REV. 8-69

Managers, and to the Vice President-LMFBR Programs.

III. SCHEDULE MILESTONES AND MANPOWER

The schedule and milestones for MSG Modification and interrelationship between various activities is shown on Figure 4. The manpower predicted to be needed to accomplish these goals is also shown on Figure 4.

The milestones for MSG Modification are summarized on Table 5.

IV. END ITEMS AND APPROVALS

The end items of this Work Plan are the modified MSG, the engineering documentation which provides the requirements for the modification (generally in the form of a drawing or specification), the fabrication and inspection records which provide assurance that the requirements are met, and the related Quality Assurance and Program Management documents and reports.

Approval requirements for various documents issued on this program are summarized in Table 6 and are shown on the Configuration Summary.

Materials procurements in excess of $25,000 will be approved by AEC-SAN in accordance with the provisions of Contract AT(04-3)-824.

The distribution list for correspondence relating to working documents will be as shown in Table 7. Correspondence relating to manufacturing and quality assurance "hold points" will be limited to AI, GE, and the RRD Site Representatives at AI and GE.

V. MEETINGS AND REPORTS

Progress reports will be submitted in accordance with GE letter GE-AI-FW-W-PA61-00.0-0 "Reporting Requirements for Programs for which General Electric is Technical Manager," J. M. Case to J. S. McDonald, R. O. Barratt, A. Lohmeier, dated October 8, 1973. This letter provides format instructions

TABLE 5

MILESTONES

MSG MODIFICATION FOR LLTR

Initiate Program	(7/30/73)
Preliminary Design Review	(10/17/73)
Complete Drawing & Spec Release (Except Notch Tubes)	(11/18/73)
Stress Report Issued	(12/1/73)
MSG on Floor Roll	(12/15/73)
Notch Tube Design Available	(1/1/74)
Issue Welding Procedure	(3/1/74)
First Instrumented Tube Installed	(4/20/74)
Notched Tubes Installation & Elbow Re-installation Complete	(7/15/74)
Post Weld Heat Treat Complete	(8/21/74)
Pneumatic Test Complete	(9/1/74)
Deliver MSG to LLTR	(9/15/74)

TABLE 6

AI MSG MODIFICATION

DOCUMENT APPROVAL REQUIREMENTS

Item	Description	Identification
	LEVEL 1 Originals and changes identified by AI as having a significant scope, schedule, or cost impact to be approved by GE-BRD and RRD. Other changes permitted but must be submitted to GE and RRD for information.	
1.	AI-MSG Work Plan	WPL-030-330-001
2.	Detail Assembly Drawing	NO30330010
3.	Design Specification	ST030N330001
	LEVEL 2 Originals and changes to be approved by GE-BRD. Information copies to RRD.	
4.	Quality Program Index	QPI-030-330-001
5.	Quality Functional Plan	QFP-030-330-001
6.	Specifications (listed in Item 3, above) which are unique to AI-MSG modification	TBD
7.	Interface Control Drawings	NO22300006 (sheet 1)
	LEVEL 3 Originals and significant changes to be approved by GE-BRD. All changes must be submitted to GE and RRD information.	
8.	Manufacturing Flow Sheets	MPI-05004-000
	LEVEL 4 To be submitted to GE and RRD for information.	
9.	Detail Drawings	TBD

TABLE 6 (cont.)

AI MSG MOFIFICATION

DOCUMENT APPROVAL REQUIREMENTS

Item	Description	Identification
10.	Process Procedures	TBD
11.	Examination Procedures	TBD
12.	Hoisting and Rigging Procedure	TBD
13.	Configuration Summary	CS-030-330-001
14.	Non-conformance Documentation	TBD
15.	Quality Audit Reports	TBD
16.	Quality Status Reports	TBD
17.	Monthly Progress Reports	TBD
18.	Biweekly Cost Reports	TBD
	LEVEL 5 To be submitted to GE-BRD prior to installation of MSG into LLTR.	
19.	Quality Records	TBD
20.	Check Lists, Examinations, Tests and Inspections	TBD

TABLE 7

DISTRIBUTION FOR "WORKING DOCUMENT" CORRESPONDENCE

	No. of Copies	With Encl.
RRD-HQ (Division of Reactor Research & Development - U.S. Atomic Energy Commission, Washington, DC)		
Asst. Director of Plant Engineering	1	X
Chief-Heat Exchanger Branch	1	X
Chief-LMEC Branch	1	X
RRD-SO (Senior Site Reps., Site Offices)		
GE (General Electric)	1	X
AI (Atomics International)	1	X
AEC Operations Offices		
SAN		
Director-Contract Services Div. USAEC-SAN	3	X
Director-Office of Program Coordination & Management-Industrial Contracts USAEC-SAN	1	X
GE/BRD (c/o BRD Document Control Center)	6	X
(Program Manager, Technical Project Engineer, Task Leader, Manager-Materials & Project Control, Manager-Heat Transfer Equipment Systems, File)		

and distribution lists for weekly, biweekly, and monthly reports.

The distribution for the "working" documents listed in Section IV of this report will be as shown on Table 7.

Meetings planned for the MSG Modification Project, and the frequency and participation at each, is shown on Table 8.

TABLE 8

MEETINGS

Subject	Frequency	Participants
Coordination	As required	AEC, AI, GE, LMEC
Progress	To be scheduled	AEC, AI, GE
Progress	Weekly	AI Internal
Design Review	Sept. or Oct. 1973	AEC and/or GE, AI, LMEC
Design Review	August 1973	AI Internal, LMEC
Management Review	6 weeks--more frequently, as required	AI Executive Review; Vice President for LMFBR will review biweekly