310-210

FORM ANC-1757
REV. 2-72

~~M. Hoffman~~
C. E. Friedrich

AEROJET NUCLEAR COMPANY

Revision: 1
Date Revised: 7/19/72
Supplement #2

GENERAL WORK AUTHORIZATION

PAGE ____ OF ____

AUTHORIZING ORGANIZATION

ISSUED BY: D. R. Mousseau PHONE EXT. 4566
ORGANIZATION TITLE: Engineering Projects
ORG. NO. 3370 LOCATION: TRA 625
MANAGER'S APPROVAL: D. R. Mousseau DATE 7/19/72
PROJECT CONTROL APPROVAL:
GWA COORDINATOR: H. A. May PHONE EXT. 2560
GWA CLOSURE: DATE

PERFORMING ORGANIZATION

ORGANIZATION TITLE: Design Engineering
ORG. NO. 3320 LOCATION: CF and TRA
MANAGER'S APPROVAL H. A. Johnson DATE 7/25/72
GWA COORDINATOR: H. A. May PHONE EXT. 2560
ACKNOWLEDGE CLOSURE: DATE

GWA NUMBER 15120 - 330 - 200
PROGRAM RESPONSIBILITY J. L. Liebenthal
TASK MANAGER D. R. Mousseau
PERFORMING ORG. NO.

AUTHORIZATIONS

LABOR HOURS 4267
MATERIAL DOLLARS $ 150,000
GWA OPEN DATE 7/1/72
GWA CLOSE DATE-LABOR 6/30/73
GWA CLOSE DATE-MATERIAL 6/30/73

DESCRIPTION OF WORK REQUESTED

DESCRIPTIVE TITLE: ATR BERYLLIUM CHANGEOUT

Provide Design Engineering Branch support including management of tooling and spare parts procurement required for ATR beryllium replacement during cycle 15A shutdown.

APPLICABLE LEVEL: (CHECK ONE)

I ☐
II ☐
III ☐

000210

Aerojet Nuclear Company

Interoffice Correspondence

April 3, 1972

D. R. Mousseau
MTR 625

REQUEST FOR ENGINEERING SERVICES - ATR BERYLLIUM REFLECTOR - JHC-63-72

This letter is to document ATR Operations verbal request for Engineering services related to the ATR Beryllium Cracking problem.

Please provide the following Engineering services:

1. Beryllium Cracking Task Force Support

   a. Perform tolerance studies to determine possible movements of broken reflector pieces and resultant displacement of core components.

   b. Determine effects on ATR control rods due to possible movements determined in 1a.

   c. Perform stress calculations on core components due to shifting of reactor internals.

   d. Perform thermal and hydraulic analyses as required.

   e. Provide Engineering services as required in designing inspection and measuring tools.

   f. Provide Engineering services as required in designing monitoring devices and "fixes" as determined by the task force.

   g. Provide fuel inspection and photographic services as needed.

2. Beryllium Reflector Block Procurement

   a. Provide cost estimates and time schedules for replacement of beryllium reflector as presently designed.

   b. Assist in preparation of operating committee request.

   c. Provide Engineering services as required for procurement of replacement reflector on an expedited basis.

3. <u>Beryllium Reflector Design Studies</u>

a. Determine if minor design changes can be made to present beryllium reflector design to improve reflector lifetime. This effort must be closely coordinated with the beryllium reflector procurement to minimize impact on delivery schedules.

b. Initiate design studies for reflector block redesign to improve reflector block service life on future replacements.

c. Determine what modifications are required to utilize the ATRC Beryllium reflector in the ATR.

J. H. Clark

J. H. Clark

ss

cc: J. D. Ford
G. H. Godfrey
A. L. Kologi
E. H. Smith
B. A. Thomas

010210

Aerojet Nuclear Company

Interoffice Correspondence

April 24, 1972

D. R. Mousseau
MTR 625

ATR HANDLING TOOLS AND EQUIPMENT REQUIRED FOR BERYLLIUM REFLECTOR CHANGEOUT
JHC-78-72

The following handling tools and equipment have been identified as needed by ATR Operations to accomplish the beryllium reflector removal and installation. Please proceed with the design and fabrication of these tools and equipment on an expedited basis to provide adequate lead time for checkout and training of ATR Operations personnel prior to the actual use of the tools and equipment.

This work must be completed by August 1, 1972.

1. Gear box support beam handling sling — 3 needed
   Dwg. No. ATR-1075-MTR-670-MS-133

2. Beryllium reflector retainer clip — 6 needed
   Dwg. No. ATR-E-1291

3. Outer flux trap baffle handling tool — 3 needed
   Dwg. No. ATR-E-1348

4. Storage rack (new item) which will hold 16 outer shim cylinders once they are discharged to the canal.

5. Beryllium block removal tools (new items) which will provide for a lifting latch below both cylinder holes, one small "I" hole, and the "B" hole of each cylinder block. This will require two tools - one for a right hand beryllium block and one for a left hand block. The tools should be made using our present beryllium block removal tool which provides for only one lifting latch (Dwg. No. ATR-E-1359) as an example. Engineering can check with K. B. Anselmi to get started.

6. Positive latch on pole hoist. Contact D. M. Sherick.

7. Cask - Engineering is aware of this and have started preliminaries.

8. Rail and Cradle Mechanism - Preliminaries started - check with L. M. Beasley.

9. Beryllium Alignment Pin (new) will be used as an insertion guide for the new beryllium blocks. It will be patterned after our present alignment cups--Drawing No. ATR-1075-MTR-670-M-167. Engineering must check with L. M. Beasley on this before starting.

10. Buckets for beryllium alignment cups - L. M. Beasley must again be contacted before work can begin.

11. 6 additional coupling shaft removal tools (puppy dogs).

12. Discharge can for the gear box support beams in order to discharge the beams through the drop tube. There will be a handling problem, so Engineering should check with K. B. Anselmi before design is started.

13. We will need 16 dummy elements for the beryllium insertion and we now only have 8 with reinforced lifting bails. We will need an additional 8 bails reinforced. Also a full 40 element core of dummy elements will be required for system cleanup after the beryllium change.

14. 4 cable mechanism which will attach to the FE track on the under side of the top head - to be used for a tie-point for the outer flux trap baffle. Engineering must check with K. B. Anselmi.

15. The lighted mirror tool will have to be extended to reach the flow distribution tank for cleanup work.

    You will be receiving a third tool list by April 27th concerned with canal equipment necessary for handling the old reflector.

16. A bucket assemblies each with four compartments for storing connecting shafts and mounting bolts during support beam discharges. Engineering c can check with K. B. Anselmi.

17. Broken beryllium discharge bucket - check with L. M. Beasley.

18. N-16 tube bottom head penetration plugging tool.

Additional tools and equipment will be identified as they become known.

J. H. Clark

J. H. Clark

ss

cc: L. M. Beasley
L. F. Burdge
J. H. Clark
K. S. Dawson
J. D. Ford
A. L. Kologi
D. M. Sherick
E. H. Smith
B. A. Thomas
File

010210

Aerojet Nuclear Company

Interoffice Correspondence

May 3, 1972

D. R. Mousseau
MTR 625

ATR HANDLING TOOLS AND EQUIPMENT REQUIRED FOR BERYLLIUM REFLECTOR CHANGEOUT
JHC-83-72

The following is a list of additional handling tools that have been identified as needed for the ATR beryllium reflector removal and installation. Please add these to the list transmitted in JHC-78-72 dated April 24, 1972.

1. Two discharge buckets which will hold an Outer Shim Control Cylinder.

2. Handling tool for a safety rod guide tube - Engineering can check with K. B. Anselmi.

3. 25' - 3/8" wire rope with a positive latching hook on one end.

4. 3/8" allen wrench on a tool handle - Engineering can check with K. B. Anselmi.

5. Storage cans or rack for old reflector blocks in the canal. Engineering can check with Ron Rolfe on this item.

6. Helicoil tools on handles - Engineering can check with K. B. Anselmi

   a. Finishing tap - #18187-14

   b. Insert tool - # 7/8" - 9 NC

   c. Extracting tool - #1227-16

7. Vacuum cleaner pump and associated hoses and fittings. Engineering can check with L. M. Beasley for this.

8. Universal tool handle with sliding hammer - Engineering can check with K. B. Anselmi.

9. Various heads (4 types) for the universal tool handle. Again, Engineering must check with K. B. Anselmi.

10. Two block-and-tackles - check with K. B. Anselmi.

11. A Beryllium cutting tool that will index in a drum position and cut the thin webs. Check with L. M. Beasley.

E. H. Smith for
J. H. Clark

DMS:ss

cc: K. B. Anselmi
L. M. Beasley
L. F. Burdge
J. H. Clark
K. S. Dawson
J. D. Ford
A. L. Kologi
D. M. Sherick
E. H. Smith
B. A. Thomas
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010210

Aerojet Nuclear Company

Interoffice Correspondence May 15, 1972

D. R. Mousseau
MTR 625

ATR HANDLING TOOLS AND EQUIPMENT REQUIRED FOR BERYLLIUM REFLECTOR CHANGEOUT - JHC-88-72

The following is a list of additional handling tools that have been identified as needed for the ATR beryllium reflector removal and inspection. Please add these to the list transmitted in JHC-78-72 and JHC-83-72.

1. 13-1/2 foot drop tube insert.

2. Two lifting cables with positive latch books - Engineering is already aware of these two items.

3. Staking tools twelve feet long.

4. Beryllium block transport bucket. Contact L. M Beasley.

5. Spare backup tools for the following existing tools:

   a. Flux wire handling tool MS-148.
   b. "I" basket handling tool with two size heads E-1386.
   c. Alignment cup handling tool E-1356.

6. Heavy duty wrench tool with heavy duty six point 9/16" socket.

7. 1/2" drill with power unit and rigging. Contact L. M. Beasley.

8. Modify existing beryllium block handling tool E-1359 so it can be latched to the cradle mechanism. Contact L. M. Beasley.

9. Turn buckle tie-down for the back end of the pole hoist. Contact K. B. Anselmi

10. A grating to cover the deep section of the experimental canal. This should be made so sections can be removed for specific experiment work and should be strong enough to support canal equipment.

J. H. Clark

J. H. Clark

br

cc: K. B. Anselmi
L. M. Beasley
L. F. Burdge
J. H. Clark
K. S. Dawson
J. D. Ford
A. L. Kologi
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E. H. Smith
B. A. Thomas
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Aerojet Nuclear Company

Interoffice Correspondence

May 24, 1972

D. R. Mousseau
MTR 625

ATR HANDLING TOOLS FOR BERYLLIUM CHANGEOUT - JHC-90-72

Please procure a second intank working platform (533-0670-48-400-033949) as part of the other equipment requested in JHC-78-72, JHC-83-72, and JHC-88-72.

J. H. Clark

J. H. Clark

ss

cc: J. D. Ford
A. L. Kologi
E. H. Smith
B. A. Thomas