

INTERIM REPORT

Accession No.
ORNL/FTR-952

| | |
|--|---|
| Contract Program or Project Title: | Advanced Instrumentation for Reflood Studies (AIRS) |
| Subject of this Document: | Report of Foreign Travel of M. B. Herskovitz, Staff Member, and N. D. McCollough, Engineering Associate, Advanced Instrumentation for Reflood Studies (AIRS) Program. |
| Type of Document: | ORNL Foreign Trip Report |
| Authors: | M. B. Herskovitz and N. D. McCollough |
| Date of Document: | October 8, 1980 |
| Responsible NRC Individual and NRC Office or Division: | W. S. Farmer, Division of Reactor Safety Research, NRC--FTS 427-4272 |

This document was prepared primarily for preliminary or internal use. It has not received full review and approval. Since there may be substantive changes, this document should not be considered final.

Prepared for the
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555
Under Interagency Agreements DOE 40-551-75 and 40-552-75
NRC FIN No. B-0413

Oak Ridge National Laboratory
Oak Ridge, Tennessee 37830
operated by
Union Carbide Corporation
for the
Department of Energy

INTERIM REPORT

8010810 560

NRC Research and Technical
Assistance Report

OAK RIDGE NATIONAL LABORATORY

OPERATED BY
UNION CARBIDE CORPORATION
NUCLEAR DIVISION



POST OFFICE BOX X
OAK RIDGE, TENNESSEE 37830

ORNL

FOREIGN TRIP REPORT

ORNL/FTR-952

DATE: October 8, 1980

SUBJECT: Report of Foreign Travel of M. B. Herskovitz, Staff Member and N. D. McCollough, Engineering Associate, Advanced Instrumentation for Reflood Studies Program at ORNL

TO: Herman Postma

FROM: M. B. Herskovitz and N. D. McCollough

PURPOSE: To provide field installation support for the Slab Core Test Facility I (SCTF-I) at the Japanese Atomic Energy Research Institute at Tokai, Japan and to participate in a design review of the Cylindrical Core Test Facility II (CCTF-II)

SITES VISITED: September 23-30, 1980 Japanese Atomic Energy Research Institute, Tokai, Japan

ABSTRACT: The travelers installed upper plenum prong probes in the SCTF-I, made adjustments to the upper plenum structural film probe, and reviewed the installation schedule for the balance of SCTF-I instruments. A design review meeting was held to review the CCTF-II requirements. The design of the CCTF-II in-core guide tube probes was fixed.

REPORT

The travelers participated in the installation of the upper plenum prong probes for the SCTF I. The electrical and mechanical measurements of the sensors were correct as expected. Mechanical adjustment of six previously installed upper plenum structural film probes was performed at Tokai, Japan. The travelers also participated in a design review meeting at the Japanese Atomic Energy Institute (JAERI) on September 26, 1980. The design of the CCTF-II in-core sensors was fixed, and other requirements were discussed.

The balance of the SCTF-I schedule was discussed:

1. ORNL formally requested three Japanese technicians, two electrical, and one mechanical for the period of October 13 to November 8, 1980.
2. The necessary utilities and services for field installation were documented, and JAERI agreed to supply.
3. The wall film probe installation will start after October 25, 1980.
4. The downcomer string probes can be completed as late as October 31, 1980.
5. The reference conductivity probe must be installed on November 8, because the vessel bottom will be installed on the previous day.
6. The electronics are to be installed in the measuring room on October 18 and ORNL will monitor the ac power installation in October 1980. A 1" flexible conduit was proposed by JAERI and agreed to by ORNL.

In a meeting held on September 27, 1980, the design requirements of the CCTF-II were reviewed.

7. The reference conductivity probe proposed by ORNL must be lengthened but cannot exceed the 600 mm available from the floor to the vessel installation. JAERI requested that the thermocouple be moved closer to the sensor end.

8. The in-core flag probe design was fixed. Elevations were checked and are agreeable. JAERI agreed to supply the piping below the lower grid spacer which provides a protective cover for the signal cables.
9. ORNL requested JAERI to supply all piping and tubing for the vent tube pressure control system. ORNL will supply the necessary metric compression fittings for this installation.
10. JAERI suggested and ORNL agreed to a two-hole clamping plate over the upper plenum prong probe.
ORNL agreed to two keys on the upper plenum prong probe. (Later experience in the installation of the SCTF-I prong probe indicated that changes to the CCTF-II prong probe design will be required).
11. JAERI will supply clamp bases for supporting all upper plenum sensor cables and ORNL will supply mating clamp pieces. 12. In-core sensor diameters will be specified as 13.6 mm reference diameter. ORNL stated that the sensor diameter may be slightly under this dimension.
13. The ORNL vent valve string probe installation design was accepted.
14. ORNL proposed a flange on the front face of the upper plenum structural film probe to be supplied in a semi-completed state such that JAERI can grind the front surface smooth with the structural member. The ground piece would then be returned to ORNL for final machining and assembly. JAERI agreed and ORNL's plan will be submitted by December 1, 1980. JAERI agreed to increase the distance of the mounting holes for cable support clamps to 40 mm.
15. ORNL requested that hard cable lengths, including internal sensor requirements be limited to 10 meters, the maximum length that can be manufactured in the ORNL fabrication facility.

APPENDIX A

The following is a list of those contacted at the Japanese Atomic Research Institute on September 22 to September 30, 1980

| <u>JAERI</u> | <u>IHI</u> | <u>U.S.</u> |
|----------------|------------|------------------|
| K. Hirano | T. Nishibe | M. B. Herskovitz |
| T. Wakabayashi | | C. K. Lewe (NUS) |
| T. Iguchi | | N. D. McCollough |
| K. Sekiguchi | | |
| N. Suzuki | | |
| T. Ohkubo | | |

APPENDIX B

Itinerary

September 22, 1980 to
September 30, 1980

SCTF-I Field Installation
of Sensors and CCTF-II
Design Review Meetings at
Japanese Atomic Energy
Research Institute, Tokai,
Japan

M. B. Herskovitz
N. D. McCollough

APPENDIX C

The following documents were received and are on file:

1. SCTF I Construction Schedule
2. CCTF-II Installation Design Document ESC PF-CC2-008 Revision 2,

DISTRIBUTION

- 1-2. Assistant Administrator for International Affairs, DOE, Washington
3. Thomas E. Murley, Director, Division of Reactor Safety Research, NRC, Washington
4. Director, Division of Safeguards and Security, DOE, Washington
- 5-6. Director, Division of International Security Affairs, DOE, Washington
7. L. S. Tong, Assistant Director, Division of Reactor Safety Research, NRC, Washington
8. W. S. Farmer, Manager, 2D/3D Program, NRC, Washington
9. Y. Y. Hsu, NRC, Washington
10. J. A. Lenhard, DOE-ORO
11. J. S. Denton, DOE-ORO
- 12-13. Director of International Programs, NRC, Washington
- 14-15. Division of Technical Information and Document Control NRC, Washington
- 16-17. Technical Information Center, DOE
18. Herman Postma, Director, ORNL
- 19-20. B. G. Sods
21. M. E. Buchanan
22. I. T. Dudley
23. R. P. Gates
24. J. E. Hardy
25. M. B. Herskovitz
26. H. N. Hill
27. J. H. Holladay
28. J. O. Hylton
29. J. M. Jansen, Jr.
30. W. H. Leavell
31. D. B. Lloyd
32. R. N. McGill
33. G. N. Miller
34. A. J. Moorhead
35. C. S. Morgan
36. C. A. Mossman
37. F. R. Mynatt
38. H. R. Payne
39. M. J. Roberts
40. D. G. Thomas
41. R. H. Thornton
42. H. E. Trammell
43. D. B. Trauger
44. P. S. Damerell, MPR Associates, Inc.
- 45-46. Laboratory Records Department
47. Laboratory Records Department-RC
48. Laboratory Protection Division
49. ORNL Patent Office
50. ORNL Public Relations Office