

INTERIM REPORT

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Subject of this Document: Report of Foreign Travel of B. G.
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Zabriskie, Staff Member, Advanced
Instrumentation for Reflood Studies
(AIRS) Program

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INTERIM REPORT

NRC Research and Technical
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INTRODUCTION

The 2D/3D Refill/Reflood Program has three coordination meetings scheduled each year. The location of these meetings are rotated between the three countries participating in the program. The travelers attended the meeting held on July 14-18, in Garching, Federal Republic of Germany (FRG) near Munich as members of the U.S. delegation. The travelers were representing the Advanced Instrumentation for Reflood Studies (AIRS) Program at ORNL. The primary purposes of the meeting are for each participant to inform all others on their current work status and to prepare near-term detailed plans and more general long-range plans. Discussions of design issues are conducted and information and plans are presented to address the issues. Problem areas are identified and either resolved or mechanisms for their resolution are presented and agreed upon.

SCTF I INTERFACE MEETING

Representatives of the DOE laboratories (INEL, LASL and ORNL) participated in a meeting, chaired by Dr. D. M. Chapin of MPR Associates representing the USNRC, with JAERI representatives. The agenda for the meeting including both SCTF I and CCTF II issues but discussion of SCTF I issues required the entire day. The AIRS Program was represented in this meeting by B. G. Eads. A schedule for installation of film and impedance probes was presented by JAERI and was agreed to by ORNL. JAERI was advised that overtime and weekend work may be required on the part of their staff in order to meet the very optimistic schedule. It was indicated to JAERI that the ORNL personnel working on-site will be willing to work overtime to accomplish the installation schedule.

JAERI presented what they judged to be problem areas in the U.S.-supplied hardware and software for the CCTF I facility. ORNL has not yet supplied any instruments to JAERI but hopes to learn from the experiences of the other laboratories for the SCTF I instruments now being delivered. A good many of the problems described appeared to be the kind to be expected in such a large complex program. A number of the problems are expected to diminish for SCTF I because of the learning on CCTF I. JAERI has a great concern about the flexibility of the software being supplied with the instruments and requested very complete documentation at the earliest possible date. This is needed by JAERI so that they can plan and begin the integration of the U.S.-supplied software into their overall software system. ORNL is committed to supply the actual software with complete documentation

by October, 1980. In the meeting Eads agreed that every effort will be made to accelerate delivery of the documentation especially the software descriptions and interface information.

COORDINATION MEETING

The Coordination Meeting with all participants was held on July 15-18. A session with all participants was held on July 15 and B. G. Eads presented a status report on the AIRS Program. The major issues impacting AIRS are primarily related to UPTF. The UPTF schedule is slipping and thus it is proposed that SCTF III will be the coupling experiment with UPTF instead of SCTF II. The UPTF instruments will be delivered later than present plans and in addition the distribution of instruments between SCTF II and III will possibly change. The impact on ORNL resources of these changes must be evaluated and a response given to NRC by September 1, 1980. A change in the planned method of operation for UPTF was agreed upon in the meeting. It is now planned to use only saturated steam in the facility and eliminate the use of superheated steam for a portion of the test. This impacts ORNL instruments in that it will no longer be possible during a test to get an "all dry" calibration point on the impedance sensors. This was discussed in one of the later instrumentation sessions and it appears that there is a way to obtain the "all dry" calibration in between tests.

On July 16, beginning in the afternoon, separate instrumentation discussions were held and continued through July 17. W. L. Zabriskie presented the results of ORNL development of the tie plate differential pressure measurement system. Following detailed discussions, agreement

was reached between the USNRC and the Germans that nine (9) of these measurement systems will be installed in UPTF.

Delivery schedules for each facility were discussed. There are only slight changes in SCTF I and CCTF II. The change in UPTF schedules was mentioned above. The change of SCTF III to be the coupling core impacts ORNL and must be sorted out in the near term. ORNL has some flexibility to meet the desired schedules assuming funding is available with proper timing. Discussions and resolution of this with NRC will continue through August. The final delivery schedule for PKL II will be available in November 1980. ORNL fabrication for this facility will continue and we will store the instruments until advised of the delivery date.

A number of very detailed issues were discussed with JAERI relative to SCTF I and CCTF II and will not be listed here. They are listed in the minutes of the meeting. The next Coordination Meeting is proposed for November 3-6, 1980 at Los Alamos Scientific Laboratory.

APPENDIX A

Itinerary

- July 14: Meeting of U.S. DOE laboratory representatives (B. G. Eads only from ORNL) with JAERI representatives to discuss SCTF I and CCTF II instrument designs and problems at Garching, FRG.
- July 15-18: Participation in 2D/3D Program Coordination Meeting at Garching, FRG (W. L. Zabriskie, July 15-16 only)

Persons Contacted to a Significant ExtentU. S. Contacts

L. S. Tong (USNRC)	R. E. Rice (INEL)
W. S. Farmer (USNRC)	D. M. Chapin (MPR)
Y. Y. Hsu (USNRC)	C. K. Lewe (NUS)
L. M. Shotkin (USNRC)	H. Renner (NUS)
W. L. Kirschner (LASL)	

German Contacts

F. Mayinger (UH)	H. Keihne (KWU)
K. Hoffman (GRS)	D. Hein (KWU)
E. F. Hicken (GRS)	Dr. Melchoir (KWU)
F. Winkler (KWU)	

Japanese Contacts

M. Nozawa (JAERI)	T. Iguchi (JAERI)
K. Hirano (JAERI)	M. Sobajima (JAERI)
Y. Murao (JAERI)	

APPENDIX B

Handouts and Reports ReceivedU. S. Handouts

Appendix 3 of Trilateral Agreement (Draft Program Plan)
Instrument Development Loop Program, D. G. Thomas (ORNL)
Drag Body Spider Stress Analysis (ORNL)
2D/3D Program, EG&G-Idaho Program Status
LASL 2D/3D Analysis Status
CCTF Posttest Analysis of Test Cl-1 With Trac-PD2
Selection of Instrumentation for Measurement of Flow at Upper Plenum
Objectives of the 2D/3D Program
Specification Test Facility for Two Phase Flow Testing (UPTF Instr.
Pipe)
Analysis of Cylindrical Core Test Facility Core No. 1, Runs 13, 24, and
29
Proposed Plan for New SCTF-II (Hsu, Shotkin, Farmer)

FRG Handouts

Draft Program Plan for the 2D/3D Project
Influence of Nitrogen Injection on Instrument Behavior
UPTF-Status
UPTF-Schedule
Schedule DAS and Instrumentation Delivery

Japanese (JAERI) Handouts

Appendix 2 of Trilateral Agreement (Draft Program Plan)
Conceptual Design of UP Structures for SCTF II
Conceptual Design and Errata for Combined Injection Nozles for SCTF

Appendix B Continued

Japanese (JAERI) Handouts

CCTF Test Results

Status of CCTF-II Instrumentation

Problem in the Core-II Structural Design for the SCTF

Status of CCTF Core II Design

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
12. J. S. Denton, DOE-ORO
- 13-14. Director of International Programs, NRC, Washington
- 15-16. Division of Technical Information and Document Control NRC, Washington
- 17-18. Technical Information Center, DOE
19. Herman Postma, Director, ORNL
- 20-21. B. G. Eads
22. W. L. Zabriskie
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42. H. E. Trammell
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