

UNCLASSIFIED

SECRET

RELEASED IN PARTS-U
B1, 1.4(B), 1.4(D) OUTGOING

Department of State

N2

PAGE 01 OF 02 STATE 395061

3829 081997 5506444

PAGE 01 STATE 395061

3829 081997 5506444

ORIGIN OFFICE DES-01
INFO SSD-01 SSS-01 SSI-02 O-01 P-02 T-01 C-01 [] INR-01
PA-01 SP-01 SMP-01 ACDA-01 OCT-01 SSSA-01 EAP-01
/019 AT JAM
OCT PASS INRE NSCE CIAE ACDE

INFO SS-01 [] DES-01 X-01 EAP-01 /005 AT BP

ORIGIN SS-00

INFO LOG-00 ADS-00 /000 R

DRAFTED BY: DES/NTS: ABURKART

APPROVED BY: []

S/MP: JSHIPLEY

EAP/RA/TC: DBROWN AIT/M: JNYLE

DOE/NE: GWEBER

ACDA/MUC/NTS: JPCOLTON

DES/NTS: WDECLERCO

S/S-O: JNORRIS

S/S: RHMUELLER

-----223210 221129Z /30

P 221122Z DEC 87

FM SECSTATE WASHDC

INFO AIT TAIPEI FROM AIT WASH D.C. 0000

SECRET STATE 395061

EXDIS

DECAPTIONED

E.O. 12356: DECL: OADR

TAGS: NNMP, TRGY, ENRG, TV, []

SUBJECT: ASSISTANCE TO TRR CONVERSION

REF: STATE 363020

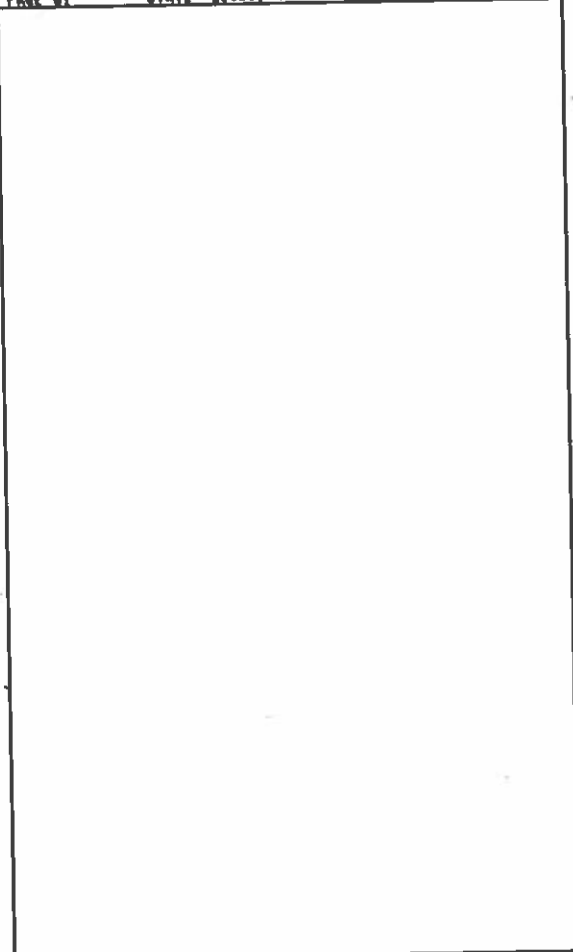
1. SECRET - ENTIRE TEXT EXCEPT PARA 5.

2. REF CONTAINED A SUMMARY OF VERY SUCCESSFUL NOVEMBER MEETINGS AT BROOKHAVEN WHEN [] MET WITH EXPERTS OF INER TO DISCUSS TECHNICAL ISSUES RELATED TO TRR CONVERSION.

3. [] WE WANT TO MAKE USE OF INER'S WILLINGNESS TO FUND TECHNICAL EXPERTISE TO MAKE PROGRESS IN SOLVING PROBLEMS RELATED TO CONVERSION. IN THIS REGARD, DR. DIAMOND OF BNL, THE PROJECT COORDINATOR FOR AIT, WROTE DR. CHANG OF INER, THE DEPUTY DIRECTOR IN CHARGE OF THE PROJECT, WITH A PROPOSAL

FOR TECHNICAL ASSISTANCE INVOLVING SIX TASKS. THE LETTER IS QUOTED IN PARA 5.

RTK
SB
GS
CC-35
ST
BY
cc-file



5. (U) QUOTE

DECEMBER 2, 1987

DR. SEN-I CHANG
DEPUTY DIRECTOR
INSTITUTE OF NUCLEAR ENERGY RESEARCH
P.O. BOX 3-12
LUNG-TAN, TAIWAN 325

SUBJECT: TECHNICAL ASSISTANCE FROM BNL FOR THE TRR IMPROVEMENT PROJECT

DEAR DR. CHANG:

I WAS PLEASED WITH THE RESULTS OF THE MEETING WE HAD AT BROOKHAVEN THE WEEK OF NOVEMBER 2, 1987. IT WAS GOOD TO SEE HOW YOUR COMMITMENT TO THE TRR IMPROVEMENT PROJECT IS BEING TRANSLATED INTO SPECIFIC ACCOMPLISHMENTS AND PLANNING FOR THE FUTURE. I HOPE THAT YOU IN TURN WERE PLEASED WITH THE TECHNICAL COOPERATION OF AIT.

AS WE DISCUSSED, THE PROJECT IS NOW MOVING TO THE POINT WHERE THERE IS A NEED FOR MORE ENGINEERING EFFORT THAN CAN BE SUPPLIED BY THE INER STAFF. BROOKHAVEN NATIONAL LABORATORY IS IN A POSITION TO SUPPLY SOME OF THIS ADDITIONAL EFFORT UNDER CONTRACT. THIS LETTER IS TO GIVE YOU MY UNDERSTANDING OF THE TECHNICAL ASSISTANCE WHICH YOU MIGHT BE SEEKING FROM BNL OVER THE NEXT FEW YEARS, AND TO ASK THAT YOU LET US KNOW OF YOUR INTENTIONS SO THAT, IF THEY ARE POSITIVE, WE CAN SEND YOU A DETAILED

Box 35 1987 Subject and Cover Files
UNCLASSIFIED

EXDIS

EXDIS

EXDIS

EXDIS

B1
B1
B1
B1
B1
B1
B1
B1
B1
B1
B1

B1

B1

Department of State

PAGE 02 OF 02 STATE 395061
PROPOSAL.

3829 001997 5506444

PAGE 01 STATE 395061

3829 001997 5506444

THE TECHNICAL ASSISTANCE WOULD FALL INTO THE FOLLOWING 6 TASKS:

- 1. PROJECT PLANNING
- 2. FUEL DEVELOPMENT
- 3. CORE DESIGN
- 4. HEAT REMOVAL DESIGN
- 5. SAFETY ANALYSIS
- 6. RESEARCH REACTOR APPLICATIONS

THE INTENT OF TASK 1 IS TO REVIEW THE EXISTING PROJECT PLAN IN DETAIL IN ORDER TO IDENTIFY ADDITIONAL WORK THAT IS NEEDED BUT NOT YET A PART OF THE PLAN, TO IMPROVE PROJECT MANAGEMENT, AND TO IDENTIFY WHERE BNL COULD SUPPLY TECHNICAL ASSISTANCE OVER AND ABOVE THAT WHICH WOULD BE IDENTIFIED FOR THIS FIRST CONTRACT. THIS WORK MUST BE ACCOMPLISHED QUICKLY IN ORDER TO ASSURE THAT INER'S OVERALL SCHEDULE FOR THIS PROJECT REMAINS INTACT. THIS TASK WOULD ALSO ALLOW FOR THE CONTINUING REVIEW OF WORK BEING DONE IN PARALLEL AT INER.

THE ASSISTANCE IN TASK 2 WOULD COVER ALL ASPECTS OF THE FUEL DEVELOPMENT PROGRAM. THIS INCLUDES CONSULTING ON TEST FUEL DESIGN, FABRICATION, IN-PILE IRRADIATION AND POST-IRRADIATION EXAMINATION; OUT-OF-PILE TESTING; DEVELOPMENT OF TRANSIENT TEST FACILITY; AND THE DESIGN AND FABRICATION OF THE FUEL FOR THE REDESIGNED CORE. IN CONJUNCTION WITH A TRANSIENT TEST FACILITY, THE EXISTING LOOP DESIGN WOULD BE REVIEWED, AND A MEANS OF LOCAL POWER CONTROL WOULD BE DESIGNED. ASSISTANCE WITH THE NEW FUEL WOULD INVOLVE HELP WITH UO2 POWDER PRODUCTION, AND PELLET, FUEL ROD AND BUNDLE FABRICATION.

THE ASSISTANCE IN CORE DESIGN FOR TASK 3 IS TO HELP OPTIMIZE THE DESIGN WITH RESPECT TO MAXIMUM FLUX LEVELS FOR EXPERIMENTAL FACILITIES, REFUELING SCHEMES WITH MINIMUM WORKER IRRADIATION, MAXIMUM UTILIZATION OF EXISTING URANIUM RESOURCES, MINIMUM COOLANT REACTIVITY WORTH, AND MINIMUM PROBLEMS IN HEAT DEPOSITION. THE EFFORT MIGHT ALSO INVOLVE PROVIDING INER WITH THE METHODOLOGY NEEDED TO DO THESE CALCULATIONS.

TASK 4 RELATES TO PROBLEMS THAT HAVE BEEN IDENTIFIED DUE TO THE AMOUNT OF ENERGY DEPOSITION BEING CALCULATED FOR THE MODERATOR AND FOR THE BOTTOM THERMAL SHIELD. WORK IN THIS AREA WILL BE A COMBINATION OF HELPING INER TO EFFICIENTLY USE THEIR CALCULATIONAL TOOLS TO PRODUCE RESULTS WITH MINIMUM UNCERTAINTY AND, IF NECESSARY, TO REDESIGN THE REACTOR IF ENERGY DEPOSITION REMAINS A PROBLEM. THE LATTER REFERS TO THE ADDING OF A HEAT EXCHANGER FOR THE MODERATOR, THE CHANGING OF CORE DESIGN TO MINIMIZE ENERGY DEPOSITION IN THE SHIELD AND THE ADDING OF INSTRUMENTATION TO MORE CLOSELY MONITOR THE SHIELD.

WORK ON SAFETY ANALYSIS FOR TASK 5 WOULD INVOLVE DOING

INDEPENDENT CALCULATIONS TO HELP BENCHMARK INER METHODS, PROVIDING INFORMATION ON FLOW REDISTRIBUTION PROBLEMS AND HELPING TO REDESIGN THE REACTOR IF NEEDED. AN EXAMPLE OF THE LATTER IS THE POTENTIAL FOR REDESIGN AS A RESULT OF THE ANALYSIS OF A LOSS-OF-INSTRUMENT-AIR EVENT.

TASK 6 IS TO PROVIDE CONSULTING ON THE APPLICATION OF THE TRR IN NEW AREAS. OF PARTICULAR INTEREST WOULD BE NEUTRON RADIOGRAPHY. AN ALLIED AREA IS THE USE OF NEUTRON DIFFRACTION FOR STRESS ANALYSIS.

THE ABOVE 6 TASKS OBVIOUSLY ENCOMPASS A LOT OF WORK AND MORE THAN CAN BE SUPPLIED DURING THE INITIAL PHASE OF A CONTRACT BETWEEN INER AND BNL. MY SUGGESTION IS THAT WE ENTER INTO AN AGREEMENT WHERE THE FIRST ORDER OF BUSINESS IS TASK 1. FOLLOWING THAT REVIEW, WORK WOULD BEGIN IN ONE OR MORE OF THE OTHER TASKS. AN INITIAL CONTRACT FOR 1-2 ENGINEERING STAFF YEARS DURING 1988 WOULD BE CONSISTENT WITH GETTING STARTED SOON AND DETERMINING WHERE THE EFFORT SHOULD CONCENTRATE AND AT WHAT LEVEL. IF YOU THINK THIS IS APPROPRIATE, PLEASE LET ME KNOW AND PLEASE SUPPLY ANY ADDITIONAL INFORMATION THAT YOU THINK WE SHOULD HAVE. WE WOULD THEN BE HAPPY TO SEND YOU A DETAILED PROPOSAL FOR THIS WORK. I LOOK FORWARD TO HEARING FROM YOU.

SINCERELY YOURS,

DAVID J. DIAMOND, GROUP LEADER
PLANT TRANSIENT ANALYSIS GROUP

UNQUOTE.
WHITHEAD

EXDIS

EXDIS

EXDIS

EXDIS

**NATIONAL
SECURITY
ARCHIVE**

This document is from the holdings of:

The National Security Archive

Suite 701, Gelman Library, The George Washington University

2130 H Street, NW, Washington, D.C., 20037

Phone: 202/994-7000, Fax: 202/994-7005, nsarchiv@gwu.edu