

memorandum

WM DOCKET CONTROL
CENTER

DATE: October 22, 1984

REPLY TO
ATTN OF: RW-43

'84 OCT 26 AIO:57

SUBJECT: Evaluation of OCRWM International Activities

TO: J. M. McGough, AL
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WM Record File 109
WM Project 1
Docket No. _____
PDR
LPDR _____

Distribution:

REB	JDB	MK
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(Return to WM, 623-SS) 12

The Director has recently indicated that OCRWM will perform an evaluation of international activities and develop a comprehensive strategic plan for future international cooperation by late November 1984. To this end, the Division of Program Integration, which is responsible for administrative oversight of OCRWM international activities, has developed a preliminary draft report that identifies and evaluates international activities being pursued by cognizant Headquarters and field offices. A copy of this draft is attached.

The purpose of providing this draft report to you is twofold. First, it displays the format we envision using for the final report to the Director. Your comments on this format would be useful. The second purpose is to obtain your comments on the information presented and to obtain your inputs for information that is missing. The contents of the attached draft have been developed to identify not only ongoing activities with bilateral agreement nations and international agencies, but also to include an indication of future exchanges that could be cost effective for the OCRWM program.

To facilitate completion of the report, the PI has established specific dates to visit the Headquarters and field offices maintaining international activities. These dates are shown below:

<u>Program Office and Field Office</u>	<u>Date of PI Visit</u>
BWIP and SF/MRS - RL	October 26, 1984
WMPO - NV	October 29, 1984
SSDP + Transp. - AL	October 30, 1984
CRPO - CH	November 1, 1984
SRPO - CH	November 2, 1984

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PDR WASTE
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To ensure that discussions during the planned visits are performed in an efficient manner, it will be necessary that each office involved complete its review and fill in the missing information prior to the scheduled visits.

Should you have suggestions for additions to this evaluation, they should be ready for discussion at the time of the above visits.



Robert A. Purple, Director
Program Integration Division
Office of Policy, Integration
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Office of Civilian Radioactive
Waste Management

Attachment

cc: B. C. Rusche
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w/o attachment

IE-1
MA-2
NE-1
DP-1
NRC
GAO
Field Operations Office

INFORMATION RETRIEVAL AND EVALUATION SCHEDULE

<u>Activity</u>	<u>Milestone/Time Frame</u>
1. DOE/HQ-PI to issue draft report to OGR, OSTs, and field offices.	10/17/84
2. OGR, OSTs, and field offices review and complete relevant sections of the draft report.	10/22-26/84
3. DOE/HQ-PI and contractors (PNL and Weston) visit field offices to collect and discuss information documented in the draft report.	10/26/84 - BWIP & SF/MRS-RL 10/29/84 - WMPO-NV 10/30/84 - SSDP & transp.-AL 11/01/84 - CRPO-CH 11/02/84 - SPRO-CH
4. PNL to prepare final draft and transmit original to DOE/HQ-PI.	11/05/84
5. DOE/HQ-PI to finalize report and formulate recommendation document.	11/10-29/84
6. DOE/HQ (OGR, OSTs, & OPIO) to review and concur in final report.	11/12-16/84
7. Submit report to Director.	11/30/84

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- EXCHANGE PROGRAMS--STORAGE AND TRANSPORTATION
- EXCHANGE PROGRAMS--DISPOSAL

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- CANADA
- COMMISSION OF THE EUROPEAN COMMUNITIES (CEC)
- FRANCE
- GERMANY FR
- INTERNATIONAL ATOMIC ENERGY AGENCY (IAEA)
- JAPAN
- NON-AGREEMENT COUNTRIES (DENMARK, FINLAND, HOLLAND, INDIA, ITALY)
- OECD/NUCLEAR ENERGY AGENCY (NEA)
- SWEDEN
- SWITZERLAND
- UNITED KINGDOM

FUTURE PROGRAM DIRECTIONS

PROGRAM IMPLEMENTATION

INTRODUCTION

It has been US policy for many years to cooperate with other nations, on a bilateral basis and through participation in OECD/NEA and IAEA activities, in developing radioactive waste management technology. The policy has been implemented in a variety of ways: participation in international conferences, workshops and committees; exchange of technical experts with other countries; collaboration in joint test programs; transfer of US computer codes to other nations; courtesy visits to US and foreign sites; and exchange of technical documents.

Many of these international waste management activities produce results that are directly benefiting the US storage or geologic repository program, hence may be easily shown to be properly funded by the Office of Civilian Radioactive Waste Management (OCRWM) from the waste fund established under the Nuclear Waste Policy Act of 1982 (NWP). Other international activities have been undertaken as part of a larger scope exchange of technology or simply as a one-way transfer in accordance with national policy, without readily discernible direct benefit to the US storage or repository deployment program.

OCRWM has an obligation to ensure that the civilian waste management fund be used only for the purposes specified by NWP and that international activities achieve to the maximum extent possible, a reasonable balance of benefits between the parties. Accordingly, the Director of OCRWM requested that the international activities sponsored by OCRWM be evaluated and that a comprehensive strategic plan for future international cooperation be developed. This document has been prepared pursuant to that request.

Activities related to Section 223 of the NWP (provision of technical assistance to non-nuclear weapons states concerning spent fuel storage and disposal) are not included in this evaluation.

OBJECTIVES OF OCRWM INTERNATIONAL PROGRAMS

1. TO FULFILL REQUIREMENTS OF EXISTING BILATERAL AGREEMENTS (BELGIUM, CANADA, CEC, FRANCE, GERMANY FR, JAPAN, SWEDEN, UNITED KINGDOM)
2. TO COMPLY WITH US FOREIGN POLICY (COOPERATE WITH OTHER NATIONS IN PEACEFUL USES OF NUCLEAR ENERGY(a); SUPPORT IAEA AND OECD PROGRAMS)
3. TO PROMOTE INTERNATIONAL CONSENSUS ON THE PACKAGING, STORAGE AND DISPOSAL OF RADIOACTIVE WASTES AND SPENT NUCLEAR FUEL AND TO ASSURE THAT US VIEWS AND POLICIES ARE CONSIDERED WHEN INTERNATIONAL EVALUATIONS ARE CONDUCTED AND INTERNATIONAL STANDARDS ARE SET
4. TO CONSERVE US RESOURCES THROUGH JOINT PROJECTS (e.g. THE ASSE MINE TESTS AND OTHER UNDERGROUND RESEARCH LABORATORY PROGRAMS) AND THROUGH ACCESS TO FOREIGN TECHNOLOGY, FACILITIES, R&D RESULTS AND OPERATING EXPERIENCE (b)
5. TO SECURE INDEPENDENT REVIEW AND CONFIRMATION OF US DATA, DESIGN CONCEPTS AND MODELING STUDIES
6. TO SATISFY THE CONGRESS AND OTHERS THAT REASONABLE EFFORT IS BEING MADE TO AVOID UNWARRANTED DUPLICATION OF R&D EFFORTS OF OTHER NATIONS

a) It is important to the US that other countries dispose of their spent fuel and high-level waste safely. A serious accident in a repository anywhere in the world could have a significant adverse impact on public acceptance of the US repository program.

b) OCRWM needs to stay abreast of operating experience in the waste conditioning, waste packaging and D&D areas, to be prepared to handle the radioactive wastes and equipment that are bound to be generated during repository operation.

OVERVIEW OF CURRENT ACTIVITIES

This section is intended to be a collection of up to six tables similar to the attached samples; it has not been prepared as yet.

TABLE C-1

MAJOR WASTE HANDLING AND ISOLATION
BY COUNTRY

COUNTRY \ ACTIVITY	TRANSPORTATION	INTERIM STORAGE	SHALLOW LAND BURIAL	GEOLOGIC ISOLATION	SEA BED ISOLATION	AIRBORNE WASTE IMMOBILIZATION	SAFETY/RISK ANALYSIS
Austria				x			x
Belgium	x	x		xx		x ^a	x
Canada		xx		xx		x	x
Denmark				x			
France	xx	x	x	xx	xx	x	xx
Federal Republic of Germany	xx	x		xx		xx	xx
India				x			x
Ispra							x ^b
Italy				x			
Japan	xx			x	xx	x	x
Netherlands				x			x
Spain		x		x			
Sweden		x		x			x
United Kingdom	x	x		x	xx	xx	xx
USSR	x	x	x	x			

x = R&D activities underway
 xx = U.S. interest in cooperative program is already identified
 a. Eurochemic/NEA Program-- Mol, Belgium
 b. Joint Research Centre of CIC--Ispra, Italy

Source: U.S. Department of Energy. 1980c. Nuclear Waste Management: Program Summary Document, FY 1981. Assistant Secretary for Nuclear Energy, Office of Nuclear Waste Management, DOE/NE-0008, Draft.

TABLE C-2

**GEOLOGIC WASTE ISOLATION RESEARCH ACTIVITIES
IN FOREIGN COUNTRIES**

NATION	WASTE TYPE	FORMATIONS OF INTEREST	CURRENT STUDIES	MILESTONES
Austria	Spent fuels Miscellaneous wastes	Hard rock	Site evaluation Granite properties Safety assessment	—
Belgium	ELM Non-ELM	Clay beds	Site evaluation Clay-bed properties In-situ studies—tunnel	Pilot repository at Mol for alpha and non-ELM—1981
Canada	Spent fuels ELM Non-ELM	Banded salt Plutonic rocks	Site evaluation In-situ studies—Granite test site	Commercial repository: Site selection—1981 Demonstration—1986 Startup—2000
Denmark	Non-ELM	—	Geologic survey	—
France	Alpha wastes	Rock salt Crystalline rocks	Geologic survey Safety assessment Ole Phosphores	Pilot plant repository (alpha wastes)—1985
Germany (East)	Non-ELM	Salt	Repository development at Barmstedt	—
Germany (West)	Spent ETR fuels Non-ELM ELM	Salt	Salt mine operation—Asse mine Safety assessment Engineering for spent fuel and ELM storage	Commercial repository at Gorleben—late 1980's
India	ELM Non-ELM	Igneous rock Sediments	Site evaluation Properties of rocks	—
Ireland	Non-ELM	—	Geologic survey	—
Italy	ELM	Clay Salt	Geologic survey In-situ studies in clay beds	Pilot plant repository—mid-1980's
Japan	ELM	Varied rock	Geologic survey Safety assessment	—
Netherlands	Non-ELM	Salt	Geologic survey Safety assessment	—
Spain	ELM Non-ELM	Shale Clay Salt	Non-ELM going into old uranium mines Site evaluation	Pilot plant repository—late 1980's
Sweden	Spent fuels ELM Non-ELM	Hard rock (granite)	Field tests—Svea mine Safety assessment	Pilot plant repository—mid-1980's
Switzerland	ELM Non-ELM	Anhydrite Clay	Site evaluation Safety assessment Development of test site for ELM	—
United Kingdom	—	Clay Crystalline rock	Geologic survey Safety assessment Site evaluation	Commercial repository—2000
USSR	Non-ELM	Varied	Direct injection underground	—
CEC	ELM	—	Catalog of potential sites in member countries Support work in Belgium (clay), Federal Republic of Germany (salt), United Kingdom and France (crystalline rock)	—

Source adapted from: U.S. Department of Energy, 1980c. Nuclear Waste Management: Program Summary Document, FY 1981. Assistant Secretary for Nuclear Energy, Office of Nuclear Waste Management, DOE/NW-0008, Draft.

TABLE C-4
BILATERAL AGREEMENTS

COUNTRY	DATE OF CURRENT AGREEMENT	PRINCIPAL SUBJECT
Sweden	September 9, 1980	Radioactive Waste Isolation Stripa Mine Tests
Canada	September 8, 1976 (expires September 1981**)	Radioactive Waste Management and Systems Analysis of Heavy Water Reactors
Federal Republic of Germany	December 20, 1974 (extended to December 1984 via 1980 Amendment)	Radioactive Waste Management
United Kingdom	September 20, 1976 (extended to Sept. 1986)	Fast Breeder Reactors (FBR's)*
Belgium	January 1981	Radioactive Waste Management
Japan	January 31, 1979	Fast Breeder Reactors*
Australia	Agreement (under discussion)	HLW Immobilization Mine/Mill Tailings Nuclide Migration
European Community	Agreement (under negotiation)?	Waste Management

*These agreements on FBR's include an annex covering cooperation in nuclear waste management

**Currently being re-negotiated. Present MOU extended indefinitely until new MOU is negotiated.

Source: U.S. Department of Energy. 1980c. Nuclear Waste Management: Program Summary Document, FY 1981. Assistant Secretary for Nuclear Energy, Office of Nuclear Waste Management, DOE/NE-0008, Draft.

BELGIUM

BELGIAN REPOSITORY PROGRAM

THE BELGIAN NUCLEAR RESEARCH CENTRE (SCK/CEN) HAS AN UNDERGROUND RESEARCH LABORATORY (URL) OPERATIONAL IN A PLASTIC CLAY FORMATION BENEATH ITS MOL SITE. IMMEDIATE INTENT--STUDY CLAY PROPERTIES AND CONSTRUCTION TECHNIQUES FOR REPOSITORIES IN CLAY FORMATIONS; LONG TERM--TEST ALPHA WASTE PACKAGE EMPLACEMENT AND CONVERT THE URL INTO A REPOSITORY FOR ALPHA AND HIGH-LEVEL WASTES.

MAJOR MILESTONE: INDUSTRIAL REPOSITORY TO BE ACCEPTING ILW & TRU--1990

BLANKET AGREEMENT--WASTE MANAGEMENT

PARTIES: DOE AND SCK/CEN

TERM: 1-19-1981 to 1-19-1985

SCOPE:

1. TERMINAL STORAGE IN GEOLOGIC FORMATIONS
 - CHARACTERIZATION OF GEOLOGIC FORMATIONS
 - DEVELOPMENT AND TESTING OF FACILITIES
 - SAFETY ASSESSMENT AND PUBLIC ACCEPTANCE MATTERS
2. TECHNOLOGY OF RETRIEVABLE STORAGE
 - DESIGN VERIFICATION OF CANISTER STORAGE
 - RETRIEVABILITY DESIGN IN GEOLOGIC REPOSITORIES
 - STORAGE OF PLUTONIUM-CONTAMINATED WASTE
3. WASTE PROCESSING TECHNOLOGY
 - HIGH LEVEL WASTE SOLIDIFICATION
 - FUEL HARDWARE AND HULLS
 - INTERMEDIATE AND LOW LEVEL LIQUID WASTE
 - AIRBORNE WASTE
4. ENVIRONMENTAL EFFECTS
 - ASSESSMENT METHODOLOGY
 - BURIAL GROUND WASTE MIGRATION MODELS

SPECIFIC CURRENT COMMITMENTS: NONE

COST/BENEFIT ASSESSMENT FOR CURRENT ACTIVITIES

COST TO OCRWM:

- COPIES OF TECHNICAL REPORTS
- TIME OF US HOSTS DURING VISITS OF BELGIANS TO DOE SITES
- TRAVEL EXPENSES FOR A FEW TRIPS TO MOL EACH YEAR, USUALLY AS AN EXTENSION OF TRAVEL TO OTHER EUROPEAN SITES (IN 1984, THE AM/FAM PANEL VISIT WAS THE ONLY SIGNIFICANT ACTIVITY)

BENEFIT TO OCRWM:

- ACCESS TO BELGIAN URL STUDIES, INCLUDING DATA ON BELGIAN CLAY PROPERTIES--COULD BE USEFUL IN OCRWM STUDIES OF BARRIER

PROPOSED FUTURE DIRECTION

-SCHEDULE ANNUAL VISIT TO MOL BY DOE TEAM TO REVIEW BELGIAN URL PROGRAM AND PLANS

OVERALL ASSESSMENT

-BELGIUM HAS EXTENSIVE WASTE TREATMENT FACILITIES, SOME OF THEM NOVEL TO THE US; INFORMATION CONCERNING BELGIAN WASTE TREATMENT OPERATING EXPERIENCE MAY BE VALUABLE TO OCRWM AS WELL AS NE AND DP

-OCRWM EFFORT IS INEXPENSIVE

-OCRWM PROBABLY CAN'T TERMINATE ITS PART OF THE EXCHANGE WITHOUT SCUTTLING ENTIRE AGREEMENT

INPUT NEEDED FROM ONWI, OCRD, AND SUBSEABED PROGRAM

CANADA

CANADIAN STORAGE AND REPOSITORY PROGRAM

CANADIAN PLANS FOR MANAGING THEIR "SPENT FUEL WASTE" ASSUME LONG-TERM STORAGE, PROBABLY DRY, OF THEIR SPENT CANDU FUELS; POTENTIAL ADOPTION OF A CLOSED FUEL CYCLE, WITH REPROCESSING; AND EVENTUAL DISPOSAL OF EITHER SPENT FUEL OR HLW GLASS AND ALPHA WASTES IN A CRYSTALLINE ROCK FORMATION. CURRENT EFFORT CENTERS ON A) CONSTRUCTION AND OPERATION OF A URL NEAR AECL'S WHITESHELL LABORATORY AND B) FIELD TESTS AT OTHER SITES.

MAJOR MILESTONES: URL OPERATIONAL--1986; COMPLETION OF CONCEPT VERIFICATION FOR A GEOLOGIC REPOSITORY--1990

BLANKET AGREEMENT-- WASTE MANAGEMENT

PARTIES: DOE AND AECL

TERM: 9-8-1976 to 8-25-1987

SCOPE:

- PREPARATION AND PACKAGING OF RADIOACTIVE WASTES
- DECONTAMINATION AND DECOMMISSIONING
- SURFACE AND SUBSURFACE STORAGE
- CHARACTERIZATION OF GEOLOGIC FORMATIONS
- DISPOSAL IN GEOLOGIC FORMATIONS
- TRANSPORTATION REQUIREMENTS
- OPERATIONAL CONSIDERATIONS
- ENVIRONMENTAL AND SAFETY CONSIDERATIONS
- PUBLIC ACCEPTANCE ISSUES
- DOE PARTICIPATION IN CANADIAN URL (NOT SPELLED OUT IN BLANKET AGREEMENT; COVERED BY EXCHANGE OF LETTERS, MINUTES OF MEETINGS)

SPECIFIC CURRENT COMMITMENTS (FROM 7/1983 MEETING)

- ARRANGEMENTS TO BE MADE FOR AECL TO OBTAIN INFORMATION ON NSTF DATA ACQUISITION SYSTEM (CPO)
- SUPPORT OF DOWNHOLE EXPERIMENTAL WORK WILL BE MAINTAINED THROUGH USGS (CPO)
- DOE WILL NOTIFY AECL ON APPROPRIATE CONTACTS FOR TECHNICAL AREAS AS SOON AS DOE REORGANIZATION AND CPO CONTRACTOR ORGANIZATION HAVE BEEN COMPLETED (COMPLETE)
- CPO WILL WORK DIRECTLY WITH AECL ON PARTICIPATION IN ATIKOKAN HYDROGEOLOGY STUDY (CPO)
- PARTICIPATION IN EXISTING COMMITTEES AND REVIEW GROUPS WILL CONTINUE ON URL AND CPO TEST AND DESIGN CONCEPTS (CPO)
- CPO WILL SUPPORT REVIEWS OF URL BY LBL, LLL, ETC. (CPO)
- DOE IS TO REVIEW AECL MATERIALS TESTING APPROACH TO EVALUATE EXCHANGE IN THIS AREA (COMPLETE)
- THE US IS TO HOST THE 1984 AECL/DOE PROGRAM REVIEW AND PLANNING MEETING (CPO)

COST/BENEFIT ASSESSMENT FOR CURRENT ACTIVITIES

COSTS TO OCRWM:

- LABOR AND TRAVEL COSTS FOR DOE AND CONTRACTOR PARTICIPATION IN DOE/AECL MEETINGS
- COSTS OF TECHNICAL ASSISTANCE TO URL PROGRAM
- IN FY 1981, DOE FUNDED ONE OF THE FIRST BOREHOLES DRILLED AT THE URL SITE (\$200K ?) TO OBTAIN DRILLING INFO.

BENEFIT TO OCRWM:

- ACCESS TO CRYSTALLINE ROCK TEST BED AND CANADIAN RESULTS IN CHARACTERIZING A PREVIOUSLY-UNDISTURBED GRANITE MONOLITH
- OPPORTUNITY TO COLLABORATE IN URL TEST PLANNING AND TO CONDUCT US TESTS IN A CRYSTALLINE ROCK URL
- ACCESS TO OUTSTANDING CANADIAN WORK ON PERFORMANCE ASSESSMENT AND SITING CRITERIA

PROPOSED FUTURE DIRECTIONS

OVERALL ASSESSMENT

INPUT NEEDED FROM OCRD, CPO, BWIP AND TUFF PROJECTS

COMMISSION OF THE EUROPEAN COMMUNITIES (CEC)

MEMBER STATES OF THE EUROPEAN COMMUNITIES

BELGIUM	GREECE	LUXEMBOURG
DENMARK	IRELAND	NETHERLANDS
FRANCE	ITALY	UNITED KINGDOM
GERMANY FR		

CEC REPOSITORY DEVELOPMENT PROGRAM

THE CEC JOINT RESEARCH CENTRE (JRC) AT ISPRA IS EMBARKING UPON A MAJOR STUDY CONCERNED WITH WASTE DISPOSAL SAFETY; CEC FUNDING HELPS SUPPORT GEOLOGIC REPOSITORY STUDIES, INCLUDING URL'S, IN THE FOLLOWING COUNTRIES: BELGIUM AND ITALY--CLAY HOST ROCK; FRG AND THE NETHERLANDS--SALT FORMATIONS; FRANCE AND THE UK--CRYSTALLINE ROCK.

LIMITED AGREEMENT--WASTE ISOLATION SYSTEM

PARTIES: DOE AND CEC

TERM: 10-6-82 TO 10-6-87

SCOPE:

- CHARACTERIZATION OF WASTE FORMS
- DISPOSAL IN GEOLOGIC FORMATIONS

SPECIFIC CURRENT COMMITMENTS:

- THE US TECHNICAL COORDINATOR WILL ADVISE THE CEC OF TECHNICAL DISCUSSIONS AND MEETINGS THAT MAY BE OF INTEREST TO THE CEC (OCRWM)
- US TECHNICAL DOCUMENTS IN THE AREA OF A) CHARACTERIZATION OF WASTE FORMS AND B) WASTE DISPOSAL IN GEOLOGIC FORMATIONS WILL BE TRANSMITTED ROUTINELY TO THE CEC (REPOSITORY PROJECT OFFICES)
- THE US IS TO BE INVITED TO MEETINGS OF THE CEC ROUND ROBIN LEACH TEST COMMITTEE (IN PROGRESS)
- SPECIFIC AREAS FOR COOPERATION IN MCC-RELATED AREAS ARE TO BE DEVELOPED; AN EXCHANGE OF TEST PROCEDURES AND TEST FORMS IS TO BE ARRANGED (IN PROGRESS)
- SPECIFIC PLANS FOR COOPERATION ON SEABED DISPOSAL ARE TO BE DEVELOPED (DOE/AL-SNI)
- THE NEXT CEC-DOE PROGRAM PLANNING MEETING WAS SCHEDULED FOR THE SPRING OF 1984 IN BRUSSELS; HOWEVER, ONLY A SIMPLE, SHORT OVERALL STATUS REVIEW WAS HELD IN PARIS IN SEPTEMBER 1984. AGREED TO MAKE EFFORT TO BROADEN IMPLEMENTATION PROGRAMS BETWEEN CEC AND DOE (OCRWM)
- DOE IS TO MAKE AN ACTIVE EFFORT TO IMPLEMENT THE AGREEMENT IN OTHER TECHNICAL AREAS (NE/DP/RW)

COST/BENEFIT ASSESSMENT FOR CURRENT ACTIVITIES

COSTS TO OCRWM:

- COPIES OF TECHNICAL REPORTS
- TRAVEL AND LABOR EXPENSE FOR 3-4 TRIPS TO EUROPEAN SITES EACH YEAR (7-10K)

BENEFIT TO OCRWM:

- FOREIGN REVIEW OF MCC PROGRAM AND PROCEDURES; MCC ACCESS TO FOREIGN CHARACTERIZATION DATA
- ACCESS TO REPORTS ON CEC-SPONSORED REPOSITORY PROGRAMS IN ALL MEMBER STATES, INCLUDING DENMARK, ITALY AND IRELAND
- ACCESS TO PERFORMANCE ASSESSMENT WORK OF CEC MEMBER STATES AND ESPECIALLY THE CEC'S OWN JOINT RESEARCH CENTERS

PROPOSED FUTURE DIRECTIONS

OVERALL ASSESSMENT

- CEC WANTS TO BROADEN SCOPE OF THE EXCHANGE TO INCLUDE DOE COLLABORATION IN JOINT PROJECTS WITH CEC ITSELF
- US ACCESS TO REPORTS AND DATA FROM CEC-SPONSORED PROGRAMS, EVEN IN COUNTRIES WITH WHICH DOE HAS BILATERAL AGREEMENTS, WAS LIMITED BY CEC UNTIL THE DOE/CEC BILATERAL WAS SIGNED
- THE SAFETY OF WASTE DISPOSAL IS TO BE STUDIED EXTENSIVELY IN NEW CEC R&D PROGRAM AT THE ISPRA JOINT RESEARCH CENTER; US PARTICIPATION AND ACCESS TO RESULTS SHOULD BE AN ASSET TO OCRWM

INPUT NEEDED FROM MCC AND ALL REPOSITORY PROJECT OFFICES

FRANCE

FRENCH WASTE STORAGE AND REPOSITORY PROGRAM

UNTIL RECENTLY, THE FRENCH GEOLOGIC REPOSITORY DEVELOPMENT EFFORT EMPHASIZED CHARACTERIZATION OF GRANITE FORMATIONS. THE PROGRAM HAS NOW BEEN EXPANDED TO INCLUDE OTHER HOST ROCKS: SALT, CLAY, SCHIST AND GNEISS. CURRENT INTENTIONS--SELECT A CANDIDATE HOST ROCK AND A SITE; BUILD AN URL; AND IF FEASIBLE, EXPAND THE URL FACILITY INTO A REPOSITORY FOR ALPHA WASTES AND THEN FOR HLW

MAJOR MILESTONES: URL STARTUP--1989; DEEP REPOSITORY FOR TRU WASTES--1992; PILOT REPOSITORY TO TEST DISPOSAL OF HLW CANISTERS--1992

BLANKET AGREEMENT--WASTE MANAGEMENT

PARTIES: DOE AND CEA

TERM: 7-26-1983 TO 7-26-1988

SCOPE:

- PREPARATION AND PACKAGING OF RADIOACTIVE WASTES
- DECONTAMINATION AND DECOMMISSIONING
- SURFACE AND SUBSURFACE STORAGE
- CHARACTERIZATION OF GEOLOGIC FORMATIONS
- DISPOSAL IN GEOLOGIC FORMATIONS
- TRANSPORTATION REQUIREMENTS

SPECIFIC CURRENT COMMITMENTS:

- TWO IMPLEMENTING AGREEMENTS ARE TO BE DEVELOPED, ONE FOR WASTE DISPOSAL AND ONE FOR WASTE TREATMENT (IE)
- DOE/CEA WORKSHOPS ARE TO BE HELD ON THESE TOPICS: WASTE FORM CHARACTERIZATION METHODOLOGY (FRANCE, NOVEMBER 1984); AND REPOSITORY SITE SELECTION AND CHARACTERIZATION (1985) (MCC, OCRWM)
- OCRWM WILL NOTIFY ANDRA BY EARLY JULY (1984) AS TO THE US CONTACT FOR THE WORKSHOP ON REPOSITORY SITE SELECTION (OCRWM)
- DOE WILL PROVIDE THE CEA WITH A LIST OF DOE TECHNICAL CONTACTS FOR THE EXCHANGE BY MID-AUGUST (IE, OCRWM)
- A DOE/CEA MEETING WILL BE HELD APPROXIMATELY ANNUALLY TO REVIEW EXCHANGE PROGRAM STATUS AND PLANS (IE)

COST/BENEFIT ASSESSMENT FOR CURRENT ACTIVITIES

COSTS TO OCRWM:

- COPIES OF TECHNICAL REPORTS
- LABOR AND TRAVEL COSTS FOR PARTICIPATION IN TECHNICAL EXCHANGES, WORKSHOPS, PROGRAM MANAGEMENT MEETINGS

BENEFIT TO OCRWM:

- ACCESS TO DATA FROM WHAT MAY BE AN EXTENSIVE CEA GRANITE SITE CHARACTERIZATION PROGRAM
- ACCESS TO FRENCH RADIONUCLIDE MIGRATION AND SAFETY ASSESSMENT STUDIES

PROPOSED FUTURE DIRECTIONS

- TECHNICAL EXCHANGE CONCERNING HLW AND SPENT BREEDER FUEL STORAGE (DOE SHOULD SEEK ACCESS TO OPERATING EXPERIENCE WITH COGEMA STORAGE FACILITIES AT MARCOULE AND LA HAGUE)
- COOPERATION IN CEA STUDIES IN LECALT (LONG-TERM BEHAVIOR STUDY LABORATORY) FACILITY

OVERALL ASSESSMENT

- IN GENERAL, THE FRENCH HAVE MUCH TO GAIN FROM EXCHANGE WITH OCRWM BUT LITTLE TO GIVE IN RETURN. THEIR GRANITE DATA MAY BE USEFUL TO OCRD, AND HOPEFULLY THE LECALT WORK WILL BE BENEFICIAL TO THE US PROGRAM.

INPUT NEEDED FROM REPOSITORY PROJECT OFFICES AND CSFM PROGRAM

GERMANY, FEDERAL REPUBLIC

GERMAN STORAGE AND REPOSITORY PROGRAMS

GERMANY IS COMMITTED TO AFR STORAGE OF SPENT FUEL IN METAL ("CASTOR"-TYPE) CASKS, REPROCESSING, AND STORAGE OF ALL RADIOACTIVE WASTES IN GEOLOGIC REPOSITORIES. CHARACTERIZATION OF THE GORLEBEN REPOSITORY SITE (SALT FORMATION) IS PROCEEDING, AND AN EXTENSIVE IN SITU TEST PROGRAM IS BEING CONDUCTED, WITH US PARTICIPATION, IN THE ASSE II SALT MINE. THE KONRAD MINE (IRON ORE) IS BEING READIED FOR THE GEOLOGIC DISPOSAL OF DECOMMISSIONING WASTES.

MAJOR MILESTONES: COMPLETE SITE CHARACTERIZATION AT GORLEBEN--1985; POLICY DECISION BETWEEN FUEL REPROCESSING AND SPENT FUEL DISPOSAL--EARLY 1985; KONRAD REPOSITORY--1988; GORLEBEN REPOSITORY--1995

BLANKET AGREEMENT--WASTE MANAGEMENT

PARTIES: DOE AND BMFT (FEDERAL MINISTRY FOR SCIENCE AND TECHNOLOGY)

TERM: 12-20-1974 TO 12-31-1984

SCOPE:

1. DISPOSAL OF RADIOACTIVE WASTE IN SALT DEPOSITS
 - FACILITY DESIGN AND OPERATION
 - HEAT GENERATION AND DISSIPATION
 - ROCK MECHANICS STUDIES
 - SAFETY CONSIDERATIONS AND CLEANLINESS STANDARDS FOR CASKS
 - GEOLOGY AND HYDROLOGY
 - WASTE PRODUCT CRITERIA
 - SITE CRITERIA
 - COST EVALUATION
 - RECORDS OF REPOSITORIES
 - RISK ANALYSIS
 - MONITORING AND CONTROL
 - PUBLIC INFORMATION AND RELATIONS
2. RETRIEVABLE SURFACE STORAGE FACILITIES
3. WASTE MANAGEMENT RESEARCH AND DEVELOPMENT
 - SOLIDIFICATION OF HIGH LEVEL WASTE
 - TREATMENT AND PACKAGING OF ILW AND LLW
 - INCINERATION AND INCORPORATION IN BITUMEN
 - PROCESSES FOR REMOVAL AND STORAGE OF NOBLE GASES AND TRITIUM IN WASTE STREAMS
 - DEVELOPMENT OF CRITERIA FOR HANDLING AND STORAGE OF ALL CLASSES OF RADIOACTIVE WASTE
 - FEASIBILITY, SAFETY AND ECONOMIC ANALYSIS FOR ALTERNATIVE LONG-TERM WASTE MANAGEMENT METHODS ADOPTED OR UNDER CONSIDERATION
 - PROCESSES AND METHODS FOR THE PARTITIONING OF HLW AND FOR THE EXTRACTION OF SELECTED NUCLIDES

4. WASTE FROM DECOMMISSIONING OF NUCLEAR INSTALLATIONS
5. OPERATING ASPECTS OF STORAGE OR DISPOSAL OF LLW AND ILW
 - METHODS OF MINIMIZING INITIAL GENERATION
 - CURRENT EFFORTS ON VOLUME REDUCTION, SUCH AS INCINERATION AND COMPACTION
 - CURRENT METHODS AND LIMITATIONS FOR PACKAGING, HANDLING AND STORAGE/DISPOSAL, INCLUDING EXISTING CRITERIA
 - CURRENTLY IDENTIFIED CATEGORIES REQUIRING SPECIAL OR UNIQUE HANDLING
6. TRANSPORTATION OF RADIOACTIVE WASTE
 - DEVELOPMENT OF A TRANSPORTATION HANDLING AND SHIPPING SYSTEM FOR LLW
 - DESIGN AND APPROVAL OF A HLW SHIPPING PACKAGE CONCEPT
 - WASTE PACKAGING TECHNOLOGY
 - SAFETY EVALUATION TECHNIQUES FOR WASTE PACKAGING AND TRANSPORT SYSTEMS, INCLUDING A QUANTIFICATION OF RISK

ASSE PROJECT IMPLEMENTATION AGREEMENT

PARTIES: DOE AND BMFT

TERM: 10-1-1981 TO 10-1-1986

SCOPE: IN SITU STUDIES OF--

- THE MIGRATION OF BRINE IN A SALT WASTE REPOSITORY UNDER THE INFLUENCE OF HEAT AND RADIATION
- TEST PROCEDURES AND TEST EQUIPMENT
- THE PERFORMANCE OF MATERIALS SUITABLE FOR PACKAGING RADIOACTIVE WASTES UNDER THE INFLUENCE OF HEAT, RADIATION AND BRINE
- TEMPERATURE AND STRESS FIELDS ASSOCIATED WITH THE MINING OF CAVITIES IN SALT AND WITH THE EMPLACEMENT OF HEAT SOURCES IN SALT

SPECIFIC CURRENT COMMITMENTS

- THE US DOE/BMFT WASTE MANAGEMENT EXCHANGE AGREEMENT IS TO BE RENEWED FOR AN ADDITIONAL FIVE YEARS THROUGH AN EXCHANGE OF LETTERS (OCRWM)
- DOE WILL REVIEW FRG PLANS FOR TEST EMPLACEMENT OF HLW GLASS IN THE ASSE MINE, AND BMFT WILL SECURE AN FRG REVIEW OF THE US SALT REPOSITORY PROJECT IN SITU TEST PLAN, AS THE NEXT STEP IN DETERMINING US INTEREST IN COLLABORATING IN THE ASSE TEST (SRP)
- THREE REPOSITORY WORKSHOPS ARE PLANNED FOR FY-1985, ON THESE TOPICS: ROCK MECHANICS; BACKFILL/SEALING; AND CANISTER/MATERIALS CORROSION (SRP)
- BEHAVIOR OF SPENT FUEL IN A REPOSITORY ENVIRONMENT IS TO BE CONSIDERED AS A FUTURE EXCHANGE TOPIC (SRP)
- BRINE MIGRATION TESTS AT THE ASSE SALT MINE, AS DEFINED IN THE EXISTING AGREEMENT, ARE TO CONTINUE (SRP)

-THE DBE (FRG) AND THE SALT REPOSITORY PROGRAM OFFICE WILL ESTABLISH AN EXCHANGE OF INFORMATION AND OBSERVERS FOR SHAFT AND REPOSITORY CONSTRUCTION ACTIVITIES OF MUTUAL INTEREST AT GORLEBEN AND IN THE US (SRPO)

-THE US AGREED TO CONTINUE TO REVIEW POTENTIAL ACTIVITIES AND TO CONTINUE DISCUSSIONS WITH THE FRG (SRPO)

THE HLW EXCHANGE PROGRAM WILL CONTINUE, WITH EMPHASIS UPON DESIGN INFORMATION, EXPERIMENTAL STUDIES AND OPERATIONAL DATA RELATED FRG AND US VITRIFICATION PRODUCTION FACILITIES; OTHER AREAS: QUALITY ASSURANCE, SAFETY, GLASS CHARACTERIZATION AND REPOSITORY ACCEPTANCE TESTING (NE, DP, SRPO)

-DOE AND BMFT WILL MAKE A CONCERTED EFFORT TO COMPLETE THE PREPARATION OF AN AGREEMENT FOR DOE TO SUPPLY ISOTOPIC HEAT SOURCES FOR IN SITU TESTS IN THE ASSE MINE (NE-COMplete)

-THE TRU WASTE EXCHANGE WILL CONTINUE, WITH WORKSHOPS ON INCINERATOR DESIGN AND OPERATIONAL EXPERIENCE, RADIONUCLIDE MIGRATION CHEMISTRY, TRU WASTE FORM PRODUCT SPECIFICATIONS, REDUCTION IN FINAL WASTE VOLUMES, AND DECONTAMINATION AND SIZE REDUCTION. A MEETING IS BEING ARRANGED ON ASSAY INSTRUMENTATION (NE, DP)

-US REPRESENTATIVES WILL VISIT FRG FOR DISCUSSIONS OF LLW PROCESSING AND LLW DISPOSAL AND STORAGE FACILITIES (1985); BENEFICIAL WORKSHOPS WILL BE IDENTIFIED AND ARRANGED FOR 1986 (NE, DP)

-SPENT FUEL MANAGEMENT (TO BE SUPPLIED BY PNL)

COST/BENEFIT ASSESSMENT FOR CURRENT ACTIVITIES

COSTS TO OCRWM:

- (INPUT FROM SRPO)

BENEFIT TO OCRWM:

1. EXPLORATORY SHAFT SINKING AT GORLEBEN IS ABOUT TWO YEARS AHEAD OF SRPO SHAFT WORK; US OBSERVATION OF GORLEBEN ACTIVITIES ALLOWS ACCESS TO DESIGN DATA, EXPERIENCE IN APPLYING TECHNIQUES, PERFORMANCE OF INSTRUMENTATION, SITE DATA, ETC.
2. THE FRG TEST PROGRAM AT THE ASSE MINE IS UNIQUE TO SPECIFIC FRG REQUIREMENTS IMPOSED BY THE GORLEBEN REPOSITORY PROJECT. MUCH OF THE FUNDAMENTAL SALT DOME RESEARCH IS COMPLETE, AND THE PRIMARY FOCUS OF CURRENT AND FUTURE TESTING WILL BE ON DEMONSTRATION TESTING (FOR THE PUBLIC). HENCE THEY ARE NOT INCLINED TO COMPROMISE THEIR TEST DETAILS TO SUIT THE

DEVELOPMENT NEEDS OF THE US PROGRAM. COOPERATIVE WORK IN THE PAST, HOWEVER, HAS ELIMINATED THE NEED FOR US DUPLICATION OF CERTAIN SALT REPOSITORY R/D ACTIVITIES, AND THE OPPORTUNITY STILL EXISTS FOR TWO TYPES OF BENEFICIAL US ACTIVITY AT ASSE:

- COLLABORATION WITH FRG IN SELECTED GENERIC TESTS THAT REMAIN TO BE DONE
- USE OF THE ASSE MINE FACILITY AS A TEST BED FOR SELECTED US R/D

PROPOSED FUTURE DIRECTIONS

1. WORKSHOPS ON SELECTED TOPICS
2. ASSIGNMENT OF US OBSERVERS TO GORLEBEN SITE DURING SITE FREEZING AND SHAFT SINKING OPERATIONS
3. US OBSERVATION OF ALL ASSE LARGE-SCALE, DEMONSTRATION-TYPE TESTS (EXTENDED VISITS BY US SPECIALISTS SHOULD BE SCHEDULED)
4. US COLLABORATION WITH FRG IN A) IN SITU STRESS MEASUREMENTS AND A BACKFILL TEST
5. NEED TO EVALUATE SRPO PARTICIPATION IN FRG HLW TEST AT ASSE TO SEE IF MEANINGFUL TO THE US PROGRAM.

OVERALL ASSESSMENT

INPUT NEEDED AND SALT REPOSITORY PROJECT OFFICES AND FROM CSFM

INTERNATIONAL ATOMIC ENERGY AGENCY(IAEA)

IAEA REPOSITORY AND SPENT FUEL MANAGEMENT PROGRAMS

THE IAEA ESTABLISHES SAFETY STANDARDS, CRITERIA AND GUIDES AND SECURES THEIR ACCEPTANCE BY IAEA MEMBER STATES, WHICH INCLUDE MOST OF THE COUNTRIES OF THE WORLD. THE AGENCY ALSO SPONSORS INTERNATIONAL CONFERENCES AND SEMINARS THAT PROVIDE CONVENIENT REVIEWS OF RECENT ADVANCES IN WASTE MANAGEMENT TECHNOLOGY AROUND THE WORLD.

COST/BENEFIT ASSESSMENT FOR CURRENT ACTIVITIES

COST TO OCRWM: IN MANY CASES THE AGENCY PAYS TRAVEL AND LIVING COSTS FOR CONSULTANTS AND OFFICIAL DELEGATES TO COMMITTEE AND ADVISORY GROUP MEETINGS, WHILE THE DELEGATE'S COUNTRY PAYS FOR THE TIME SPENT BY THE DELEGATE IN PREPARING FOR AND ATTENDING THE MEETING AND FOR ANY FOLLOWUP REQUIRED. ESTIMATED COSTS TO OCRWM FOR FY-1984 ARE ESTIMATED AT _____ (INPUT NEEDED; NO. OF TRIPS, ASSOCIATED COSTS)

BENEFIT TO OCRWM: IT IS VERY HELPFUL TO DOE TO BE ABLE TO BASE US NUCLEAR CODES OF PRACTICE ON INTERNATIONALLY-ACCEPTED CODES, IN THAT PUBLIC ACCEPTANCE IS MORE READILY OBTAINED. FURTHERMORE, DOE IS ABLE TO HAVE US VIEWS AND PRACTICES REFLECTED IN THE IAEA DOCUMENTS BY PROVIDING CONSULTANTS, COMMITTEE MEMBERS, ETC.

JAPAN

JAPANESE REPOSITORY PROGRAM

JAPAN IS COMMITTED TO REPROCESSING ITS SPENT FUEL AND VITRIFYING ITS HLW. THE REPOSITORY PROGRAM IS STILL IN ITS EARLY STAGES, WITH A CHOICE OF HOST ROCK STILL PENDING (PRIME POSSIBILITIES INCLUDE DIABASE, ZEOLITE TUFF AND PROPYLITE).

MAJOR MILESTONES: SELECTION OF CANDIDATE FORMATIONS--1985; SELECTION OF REPOSITORY TEST SITE FOR IN SITU TEST WITH A SIMULATED WASTE PACKAGE--1995; SELECTION OF SITE FOR IN SITU TEST WITH ACTUAL WASTE PACKAGE--2005; STARTUP OF DISPOSAL SITE--AFTER 2015

BLANKET AGREEMENT--LMFBR TECHNOLOGY

PARTIES: DOE AND THE POWER REACTOR AND NUCLEAR FUEL CORPORATION (PNC)

TERM: LMFBR AGREEMENT, 3-4-1969 TO 1-31-1989
WASTE MANAGEMENT WORKING GROUP IMPLEMENTING AGREEMENT, 1980

SCOPE:

- HLW SOLIDIFICATION
- GEOLOGIC WASTE DISPOSAL
- TRU WASTE TREATMENT
- WASTE FORM AND MATERIALS PROPERTIES AND CHARACTERIZATION TECHNOLOGY

JOINT STUDY ON SAFETY ANALYSIS OF TRANSPORTATION SYSTEMS FOR NUCLEAR FUEL MATERIALS

PARTIES: DOE AND PNC

TERM: 1981-1984 (THE WORK MAY HAVE BEEN COMPLETED--CHECK TTL AT SANDIA)

SCOPE:

- PROBABILITY ANALYSIS OF TRANSPORTATION ACCIDENTS
- DEVELOPMENT OF STRUCTURAL AND THERMAL ANALYTICAL MODELS
- SNM PACKAGE LEAKAGE TESTS
- ANALYSES OF SNM LEAKAGE AND DISPERSAL FROM SNM PACKAGES DURING ACCIDENTS
- SIMULATED COLLISION AND FIRE TESTS

SPECIFIC CURRENT COMMITMENTS

-THE FOURTH MEETING OF THE DOE/PNC JOINT WORKING GROUP ON WASTE MANAGEMENT WILL BE HELD IN THE US IN THE FOURTH QUARTER OF CY-1985

COST/BENEFIT ASSESSMENT FOR CURRENT ACTIVITIES

COST TO OCRWM:

- COPIES OF TECHNICAL REPORTS
- TIME OF US HOSTS DURING VISITS OF JAPANESE TO DOE SITES
- THE JOINT TESTS OF TRANSPORTATION SYSTEMS WERE FULLY FUNDED BY PNC, HENCE OF NO COST TO DOE

BENEFIT TO OCRWM:

- REPOSITORY EXCHANGE--NOTHING DISCRETE
- TRANSPORTATION STUDY--?? (INPUT FROM SNL/TTL)

PROPOSED FUTURE DIRECTION

- DEVELOP EXCHANGE WITH PNC AND JAERI IN THE AREA OF WASTE FORM CHARACTERIZATION; THEY HAVE EXCELLENT HOT CELL FACILITIES FOR THIS PURPOSE
- MONITOR JAPANESE HLW STORAGE R/D AND OPERATIONS. THEY MAY COME UP WITH SOMETHING USEFUL IN THIS AREA
- LET PNC TAKE THE INITIATIVE IN ANY FUTURE EXCHANGES IN THE REPOSITORY TECHNOLOGY AREA

OVERALL ASSESSMENT

- OCRWM PROBABLY MAY HAVE NOTHING TO GAIN IMMEDIATELY FROM THE JAPANESE REPOSITORY PROGRAM, EXCEPT IN THE WASTE FORM CHARACTERIZATION AREA; OCRWM SHOULD DECIDE ON THEIR RESPONSE TO THE REQUESTS FOR HELP THAT WILL PROBABLY COME FROM THE JAPANESE
- CURRENT DOE EXCHANGE AGREEMENT IS WITH PNC; EFFORT NEEDS TO BE MADE TO EXTEND IT TO INCLUDE JAERI SAFETY ASSESSMENT WORK

NON-AGREEMENT COUNTRIES

DENMARK, FINLAND, HOLLAND, INDIA, ITALY

THESE COUNTRIES HAVE GEOLOGIC REPOSITORY DEVELOPMENT PROGRAMS WITH FEATURES THAT WARRANT AT LEAST LIMITED OBSERVATION BY OCRWM:

- DENMARK DANISH SALT DOMES ARE BEING EVALUATED FOR POTENTIAL REPOSITORY SITES; TWO HAVE BEEN DEEP-DRILLED, AND DESIGNS PRODUCED FOR TWO REPOSITORY CONCEPTS--A DEEP-HOLE CONCEPT AND ONE USING SHAFTS AND GALLERIES
- FINLAND FINNISH AUTHORITIES ARE EVALUATING GRANITE FORMATIONS AND WORKING ON RELATED REPOSITORY TECHNOLOGY
- HOLLAND DUTCH REPOSITORY DEVELOPMENT EFFORTS ARE CENTERED ON THEIR SALT DOMES; THEY HAVE CONDUCTED DRY DRILLING AND BOREHOLE CONVERGENCE TESTS IN THE ASSE MINE, AND HAVE PRODUCED A REPOSITORY DESIGN
- INDIA THE INDIAN PROGRAM ENVISAGES INVESTIGATION OF PENINSULAR GNEISSES AND GRANITE FORMATIONS. HAVE HEATER TEST FACILITY IN AN UNDERGROUND MINE, AND EXPECT EVENTUALLY (LATE 1990s), ESTABLISHMENT OF AN ENGINEERING-SCALE PILOT REPOSITORY. EXCHANGE ON THE LAST ITEM MAY BE USEFUL TO OCRWM
- ITALY ITALIAN EMPHASIS IS ON CLAY HOST ROCK; AN UNDERGROUND RESEARCH LAB IS BEING BUILT IN SICILY

OECD NUCLEAR ENERGY AGENCY (NEA)

MEMBER STATES

AUSTRALIA	FINLAND	JAPAN	SWEDEN
AUSTRIA	GERMANY FR	LUXEMBOURG	SWITZERLAND
BELGIUM	GREECE	NETHERLANDS	TURKEY
CANADA	ICELAND	NORWAY	UK
DENMARK	IRELAND	PORTUGAL	US
FRANCE	ITALY	SPAIN	

NEA OBJECTIVES

THE NEA PROMOTES CO-OPERATION BETWEEN THE MEMBER GOVERNMENTS ON THE SAFETY AND REGULATORY ASPECTS OF NUCLEAR DEVELOPMENT. THE AGENCY ENCOURAGES THE MEMBER STATES TO HARMONIZE THEIR REGULATORY POLICIES AND PRACTICES, WITH PARTICULAR REFERENCE TO THE SAFETY OF NUCLEAR INSTALLATIONS, PROTECTION OF MAN AGAINST IONISING RADIATIONS, RADIOACTIVE WASTE MANAGEMENT, AND NUCLEAR THIRD PARTY LIABILITY AND INSURANCE.

NEA STORAGE AND REPOSITORY ACTIVITIES

COMMITTEES AND COORDINATING GROUPS:

- RADIOACTIVE WASTE MANAGEMENT COMMITTEE (RWMC)
- COORDINATING GROUP ON GEOLOGIC DISPOSAL (CGGD)
- SEABED WORKING GROUP
- COMMITTEE ON RADIATION PROTECTION AND PUBLIC HEALTH (CRPPH)
- EXECUTIVE GROUP--RESEARCH AND SURVEILLANCE ON SEA DUMPING
- FUEL CYCLE COMMITTEE (FCC) - SPENT FUEL STORAGE STUDY

RECENT MAJOR STUDIES:

- THE MEANING OF A DEMONSTRATION OF THE FEASIBILITY AND SAFETY OF GEOLOGIC DISPOSAL OF HIGH LEVEL WASTE (1983)
- AN INVENTORY OF DEMONSTRATION ACTIVITIES (IN PROGRESS)
- LEGAL, ADMINISTRATIVE AND FINANCIAL ASPECTS OF THE LONG TERM MANAGEMENT OF RADIOACTIVE WASTE (1984)
- A REVIEW OF NATIONAL PRACTICES AND POLICIES CONCERNING PUBLIC UNDERSTANDING OF NUCLEAR ENERGY ISSUES (198)
- DEFINITION OF LONG-TERM RADIATION PROTECTION OBJECTIVES FOR RADIOACTIVE WASTE DISPOSAL (1984)
- ASSESSMENT OF DIFFERENT SCENARIOS AND STRATEGIES FOR WASTE MANAGEMENT (1984)
- APPROACHES TO THE HANDLING OF UNCERTAINTIES IN ASSESSMENT (1985)
- STATUS OF UNDERSTANDING AND DEVELOPMENT FOR GEOLOGICAL DISPOSAL OF RADIOACTIVE WASTES ON LAND (1984)
- STATUS OF DEVELOPMENT OF THE SUB-SEABED DISPOSAL OPTION (1984)

CURRENT PROJECTS:

- STRIPA PROJECT (IN SITU TESTS IN THE STRIPA MINE, SWEDEN)
- ISIRS (INTERNATIONAL SORPTION INFORMATION RETRIEVAL SYSTEM)

WORKSHOPS:

- THE COUPLING OF HYDROLOGIC TRANSPORT AND GEOCHEMICAL MODELS FOR

PERFORMANCE ASSESSMENTS OF RADIOACTIVE WASTE DISPOSAL (6/84)
WORKSHOPS (CONT'D)

- THE DESIGN AND INSTRUMENTATION OF IN SITU EXPERIMENTS IN UNDERGROUND TEST SITES FOR RADIOACTIVE DISPOSAL (5/84)
- THE SOURCE TERM FOR RADIONUCLIDES MIGRATION FROM HLW OR SPENT FUEL IN REALISTIC REPOSITORY CONDITIONS (11/84)
- GEOCHEMISTRY MODELING OF WASTE ELEMENTS (1985)
- ROLE OF MICROORGANISMS IN WASTE MIGRATION (1985)
- ISIRS TECHNICAL WORKSHOP (6/85)
- ISSUES OF INTERFACE BETWEEN RADIATION PROTECTION, NUCLEAR SAFETY AND RADIOACTIVE WASTE MANAGEMENT

COMMITTEE MEETINGS

- CGGD (10/83)
- RWMC (12/83)
- RWMC (9/84)
- CGGD (10/84)
- RWMC (2/85)

COST/BENEFIT ASSESSMENT FOR OCRWM PARTICIPATION IN NEA ACTIVITIES

COSTS TO OCRWM:

- STRIPA PROJECT-- (INPUT NEEDED FROM CPO)
- ISIRS PROJECT-- (INPUT NEEDED FROM PNL)
- SEABED WORKING GROUP-- (INPUT NEEDED FROM SNL)
- WORKSHOPS, COMMITTEES, ETC. (INPUT NEEDED FROM ALL SOURCES)

BENEFITS TO OCRWM:

- PARTICIPATION IN NEA ACTIVITIES CAN HELP THE US INFLUENCE THE DEVELOPMENT OF INTERNATIONAL POLICIES FOR RADIOACTIVE WASTE MANAGEMENT AND THUS HELP TO AVOID A DIVERGENCE IN NATIONAL REGULATORY APPROACHES
- PARTICIPATION OFFERS THE OPPORTUNITY TO EXCHANGE IDEAS IN A BROAD INTERNATIONAL FRAMEWORK AND ENSURE CROSS FERTILIZATION
- PARTICIPATION IN THE STRIPA PROJECT:
 - .PROVIDES PRACTICAL EXPERIENCE IN DESIGNING AND PERFORMING IN SITU TESTS AT REPOSITORY DEPTH
 - .ALLOWS COMMON DEVELOPMENT OF THE SPECIALIZED TECHNIQUES THAT WILL BE REQUIRED BY EACH COUNTRY IN CHARACTERIZING THE ROCK STRUCTURES AND HYDROLOGY OF POTENTIAL DISPOSAL SITES
 - .WILL BUILD CONFIDENCE AT THE INTERNATIONAL LEVEL IN THE FEASIBILITY AND SAFETY OF THIS OPTION FOR THE DISPOSAL OF HIGHLY RADIOACTIVE WASTE
- PARTICIPATION IN THE SEABED WORKING GROUP:
 - (INPUT NEEDED FROM SNL)

SWEDEN

SWEDISH STORAGE AND REPOSITORY PROGRAMS

SWEDEN'S SPENT FUEL MANAGEMENT PROGRAM IS BASED ON 30-40 YEARS' STORAGE IN AN AFR POOL FACILITY, FOLLOWED BY DISPOSAL IN A CRYSTALLINE ROCK REPOSITORY. GOOD PROGRESS IS BEING MADE IN AN EXTENSIVE SITE CHARACTERIZATION PROGRAM; SWEDEN IS HOST TO A MAJOR MULTI-NATIONAL IN SITU TEST PROGRAM, COORDINATED BY THE OECD/NEA, IN A GRANITE FORMATION ADJACENT TO THE STRIPA IRON MINE; AND A SUB-SURFACE REPOSITORY FOR REACTOR WASTES IS BEING CONSTRUCTED BENEATH THE BALTIC SEA, NEAR ONE OF THE SWEDISH REACTOR SITES. AN UNDERGROUND SPENT FUEL STORAGE BASIN IS NEARING OPERATION.

MAJOR MILESTONES: REPOSITORY FOR REACTOR WASTES--1988; GEOLOGIC REPOSITORY OPERATIONAL--2020

BLANKET AGREEMENT--WASTE MANAGEMENT

PARTIES: DOE AND THE SWEDISH NUCLEAR FUEL AND WASTE MANAGEMENT COMPANY (SKB)

TERM: 7-1-1977 TO 9-9-1985

SCOPE:

- PREPARATION AND PACKAGING OF WASTE FORMS
- SURFACE AND SUBSURFACE STORAGE
- CHARACTERIZATION OF GEOLOGIC FORMATIONS
- FIELD AND LABORATORY TESTING
- DISPOSAL IN GEOLOGIC FORMATIONS
- OPERATIONAL CONSIDERATIONS
- ENVIRONMENTAL AND SAFETY CONSIDERATIONS
- INSTITUTIONAL AND PUBLIC RELATIONSHIPS

STRIPA PROJECT AGREEMENT

REFER TO OECD/NEA SECTION

SPECIFIC CURRENT COMMITMENTS

- DOE WILL PARTICIPATE IN INITIAL HYDROCOIN (BENCHMARKING OF HYDROLOGIC CODES) MEETING IN THE FALL OF 1983 AND WILL THEN ADVISE AS TO CONTINUED PARTICIPATION BY THE US (CPO)
- (INPUT NEEDED FROM ALL PROJECTS AND RW-20)

COST/BENEFIT ASSESSMENT FOR CURRENT ACTIVITIES

COSTS TO OCRWM:

BENEFIT TO OCRWM:

OVERALL ASSESSMENT

INPUT NEEDED FROM CPO, OCRD

SWITZERLAND

SWISS REPOSITORY PROGRAM

SWITZERLAND PLANS ON FOREIGN REPROCESSING OF SPENT FUEL AND DISPOSAL OF HLW GLASS IN A CRYSTALLINE ROCK REPOSITORY. AN URL IS OPERATIONAL AT GRIMSEL PASS IN THE ALPS

MAJOR MILESTONES: INITIAL RECEIPT OF HLW GLASS CANISTERS FROM FRANCE--1992; INTERMEDIATE-DEPTH DISPOSAL FACILITY FOR REACTOR WASTES--1995; GEOLOGIC REPOSITORY FOR HLW OR PACKAGED SPENT FUELS--AFTER 2020

BLANKET AGREEMENT--WASTE MANAGEMENT

PARTIES: DOE AND NAGRA

TERM: UNDER NEGOTIATION

SCOPE: UNDER NEGOTIATION

SPECIFIC CURRENT COMMITMENTS

-

COST/BENEFIT ASSESSMENT FOR CURRENT ACTIVITIES

COSTS TO OCRWM:

BENEFITS TO OCRWM:

PROPOSED FUTURE DIRECTIONS

OVERALL ASSESSMENT

INPUT NEEDED FROM IE, CPO

UNITED KINGDOM

UK STORAGE AND DISPOSAL PROGRAM

THE UK IS COMMITTED TO REPROCESSING THEIR SPENT FUEL, VITRIFYING THEIR HLW AND BUILDING A GEOLOGIC REPOSITORY FOR TRU WASTES. FOR A TIME, THE NATION PURSUED A VIGOROUS GEOLOGIC REPOSITORY DEVELOPMENT PROGRAM FOR HLW; AUTHORITIES HAVE NOW ELECTED TO STORE THEIR HLW GLASS FOR 50-100 YEARS AND EVALUATE THE REPOSITORY TECHNOLOGY BEING DEVELOPED BY OTHER COUNTRIES BEFORE THEY MAKE A DECISION AS TO THE DIRECTION OF THEIR HLW REPOSITORY PROGRAM. THEIR PRIMARY GEOLOGIC R/D EFFORT HAS BEEN DEVOTED TO CRYSTALLINE ROCK FORMATIONS. MOST OF THIS TYPE EFFORT IS NOW DIRECTED TOWARD ILW DISPOSAL. THE CENTRAL ELECTRICITY GENERATING BOARD HAS BEEN PRACTICING DRY STORAGE OF SPENT MAGNOX FUELS FOR MANY YEARS. A NEW WATER BASIN SPENT FUEL STORAGE AREA RECENTLY COMPLETED BY BNFL.

BLANKET AGREEMENT--LMFBR DEVELOPMENT

PARTIES: DOE AND UK ATOMIC ENERGY AUTHORITY (UKAEA)

TERM: 9-20-1976 TO 9-20-1986

SCOPE (WASTE MANAGEMENT):

- FUEL CYCLE INCLUDING FABRICATION, PROCESSING OF REPROCESSING WASTES AND STORAGE
- SODIUM TECHNOLOGY, TO INCLUDE . . . COMPONENT DECONTAMINATION
- QUALITY ASSURANCE AND NONDESTRUCTIVE PRACTICES
- ECONOMIC AND ENVIRONMENTAL CONSIDERATIONS
- TOPICS OF INTEREST TO INDUSTRY (DESIGN, CONSTRUCTION EXPERIENCE, QUALITY ASSURANCE)

SPECIFIC CURRENT COMMITMENTS

COST/BENEFIT ASSESSMENT FOR CURRENT ACTIVITIES

COSTS TO OCRWM:

BENEFIT TO OCRWM:

OVERALL ASSESSMENT

THE UK IS DOING GOOD WORK IN THE SAFETY ASSESSMENT AREA; THIS SHOULD BE MONITORED BY OCRWM.

INPUT NEEDED FROM OCRWM, CSFM

FUTURE PROGRAM DIRECTIONS

GENERAL

1. CONTINUE TO TRACK WASTE MANAGEMENT ACTIVITIES IN OTHER COUNTRIES, TO ASSURE COGNIZANCE OF NEW TECHNOLOGY THAT MIGHT BE USEFUL TO THE US.
2. HONOR OR OFFICIALLY WITHDRAW FROM COMMITMENTS MADE THROUGH OR UNDER EXISTING BILATERAL AGREEMENTS. BEFORE AN EXPIRING OBLIGATION IS RENEWED OR A NEW COMMITMENT IS MADE, THE PROPOSED ACTIVITY IS TO BE EVALUATED AND JUSTIFIED.
3. EVALUATE PROPOSED MULTINATIONAL ACTIVITIES (E.G. HYDROCOIN) AND PARTICIPATE IN THOSE THAT MEET THE CRITERIA FOR SUCH PARTICIPATION.

BELGIUM

OBSERVE BELGIAN URL PROGRAM; ASSESS BENEFIT TO OCRWM OF US PARTICIPATION.

CANADA

CONTINUE COLLABORATION WITH AECL IN URL PROGRAM

COMMISSION OF THE EUROPEAN COMMUNITIES (CEC)

1. CONTINUE TO SPONSOR MCC PARTICIPATION IN THE WASTE FORM CHARACTERIZATION WORK OF THE CEC.
2. MAINTAIN A CURRENT AWARENESS OF OTHER CEC PROGRAMS, EVALUATE THEM AND DEVELOP ACTIVE EXCHANGE AND COLLABORATION ACTIVITIES IN AREAS OF MUTUAL INTEREST. PARTICULAR ATTENTION IS TO BE PAID TO THE WASTE MANAGEMENT STUDIES PLANNED FOR THE CEC JOINT RESEARCH CENTER AT ISPRA, ITALY.

FRANCE

1. ASCERTAIN UTILITY TO US OF DATA FROM FRENCH GRANITE REPOSITORY SITE CHARACTERIZATION PROGRAM.
2. EVALUATE COOPERATION WITH CEA IN LECALT FACILITY STUDIES.

GERMANY FR

1. ASSIGN EXPERT OBSERVERS TO GORLEBEN EXPLORATORY SHAFT DRILLING PROJECT.
2. CONTINUE TO PARTICIPATE IN SELECTED TEST ACTIVITIES AT ASSE.
3. CONTINUE TECHNICAL EXCHANGES--WORKSHOPS, ETC.
4. CONTINUE ACTIVE INFORMATION EXCHANGE IN AREA OF SPENT FUEL STORAGE AND TRANSPORT CASK DEVELOPMENT.

INTERNATIONAL ATOMIC ENERGY AGENCY (IAEA)

PARTICIPATE IN APPROPRIATE IAEA ACTIVITIES.

NON-AGREEMENT COUNTRIES (DENMARK, FINLAND, HOLLAND, INDIA, ITALY)

WATCH WHAT THEY'RE DOING IN THEIR REPOSITORY PROGRAMS; INDIA, IN PARTICULAR, PLANS PILOT REPOSITORY WORK WHICH MAY BE OF INTEREST TO DOE

OECD NUCLEAR ENERGY AGENCY (NEA)

1. CONTINUE TO PARTICIPATE IN THE WORK OF THE RADIOACTIVE WASTE MANAGEMENT COMMITTEE (RWMC) AND THE COORDINATING GROUP ON GEOLOGIC DISPOSAL (CGGD).
2. PARTICIPATE IN OTHER WORK OF THE NEA WHEN IT IS DEEMED THAT THE RESULTS OF SUCH WORK WILL BENEFIT OCRWM PROGRAMS.
3. CONTINUE US PARTICIPATION IN THE STRIPA PROJECT, PHASE 2; EVALUATE US ENTRY INTO PHASE 3.

SWEDEN

MAINTAIN ACTIVE INFORMATION EXCHANGE WITH SKB AND SWEDISH REGULATORY AUTHORITIES; CONTINUE STRIPA WORK (SEE NEA SECTION).

SWITZERLAND

COMPLETE BILATERAL AGREEMENT; MAINTAIN INFORMATION EXCHANGE WITH NAGRA AND OBSERVE URL PROGRAM AT GRIMSEL PASS.

UNITED KINGDOM

EVALUATE UTILITY OF SEPARATE WASTE MANAGEMENT AGREEMENT WITH UK OR PROGRAM COVERED UNDER NEW MOU BETWEEN DOE AND UK DEPARTMENT OF ENERGY; MAINTAIN INFORMATION EXCHANGE, PARTICULARLY IN SAFETY ASSESSMENT AREA.