

CNWRA *A center of excellence in earth sciences and engineering*

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July 24, 2002
Contract No. NRC-02-97-009
Account No. 20.01402.158

U.S. Nuclear Regulatory Commission
Attn: Ms. Janet Schlueter
Office of Nuclear Material Safety and Safeguards
Division of Waste Management
Mail Stop T7F-3
Washington, DC 20555-0001

Subject: International Training Center: 1st Workshop, Presentation material

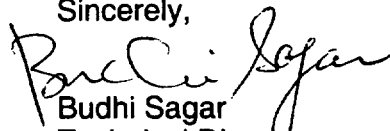
Dear Ms. Schlueter:

The purpose of this letter is to bring you up to date on the proposed International Training Center (ITC), which was discussed at a High Level Waste Board meeting several weeks ago. The 1st workshop on the NAGRA (the Swiss National Cooperative for the Disposal of Radioactive Waste) proposal to establish an ITC was held on 10–11 July, 2002. Staff from neither the Nuclear Regulatory Commission nor Center for Nuclear Waste Regulatory Analyses attended the workshop. The attached material related to the workshop was received in the mail, and is being provided for your information. NAGRA proposes to hold a 2nd workshop on September 19–20 at the Grimsel test Site.

NAGRA proposes to establish the ITC as an independent, non-commercial not-for-profit entity. As stated in the enclosed material, the objectives of the ITC will be to provide a venue for research and transfer of knowledge. Through these workshops, NAGRA is seeking input from various parties engaged in nuclear waste management and disposal (both the implementers and regulators) that may be useful in establishing the ITC. The attached material also discusses the mechanism of funding the ITC which include fees from trainees, grants, and sponsorships.

I would appreciate your reviewing the material and providing me with any comments that should be sent to NAGRA. Please contact me at bsagar@swri.org or call at (210)522–5252.

Sincerely,


Budhi Sagar
Technical Director

Enclosure

cc: B. Meehan
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National Cooperative
for the Disposal of Radioactive Waste

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Your ref.
Our ref. Kuma/doa (*I:\fig/meiringen-ITC/meeting/correspondence*)
Tel. +41-56 4371 249
Wettingen, 16th July 2002

1st ITC Workshop, Presentation Materials

Dear Dr. Sagar

Thank you for your interest in the International Training Centre.

For your information, attached herewith a set of materials as listed below that we have distributed at the subject workshop held on 10th and 11th of July at the Grimsel Test Site and the Hotel Handeck.

- Final agenda
- List of Participants
- Some key overheads from the workshop

For those who were not able to join the workshop this time, we are planning to organize another meeting on 19th-20th of September 2002 at the Grimsel Test Site and its vicinity. You will be informed of the details as soon as they are fixed.

Sincerely yours,

W.R. Alexander

R. Alexander on behalf of
Neil Chapman
Executive Consultant

H. Sakuma

Hideki Sakuma
Project Coordinator

Enclosure

c.c. I. McKinley, W. Kickmaier, R. Alexander, S. Vomvoris

International Training Centre

1st Workshop
10-11 July 2002, GTS/Handeck

FINAL AGENDA

Wednesday, July 10, 2002 - GTS

- | | | |
|-------|--|-----------------------------|
| 14:00 | Opening & Welcome
Overview of the Grimsel Test Site (GTS) | N. Chapmann
W. Kickmaier |
| 14:30 | GTS Tour
- Previous Test Sites
- Ongoing Test Sites | W. Kickmaier |
| 16:30 | Introduction to the Workshop
Coordinates & Logistics | H. Sakuma |
| 17:00 | Departure to the Hotel Handeck | |
| 19:00 | Dinner hosted by Nagra | |

Thursday, July 11, 2002 - Hotel Handeck

- | | | |
|-------|--|---|
| 08:30 | Opening Info-Session
- Workshop Objectives: the ITC proposal
- Who is interested?
- Potential Resources for Training

Coffee | N. Chapman /
H. Sakuma /
W. Kickmaier |
| 09:30 | Roundtable Discussion: <i>"What want potential user see from ITC?"</i>
- Perspective of Academic Community
- Perspective of Waste Management Technical Community | |
| 12:00 | Lunch | |
| 13:30 | Wrap-up: <i>"Discussion of ITC Model & the next step of development"</i> | |
| 14:30 | Adjourn | |

International Training Centre

1st Workshop List of Participants

Steven A. BANWART	University of Sheffield, Great Britain
Flaviano BRUNO	SOGIN, Italy
Urs BERNER	PSI, Switzerland
Jörg HADERMANN	PSI, Switzerland
Russell HAND	University of Sheffield, Great Britain
Yasuaki ICHIKAWA	University of Nagoya, Japan
Salvatore LOMBARDI	University of Rome, Italy
Hansruedi MAURER	ETH Zürich, Switzerland
Martin MAZUREK	University of Berne, Switzerland
Masahiko OSADA	University of Saitama, Japan
Takahira OYAMA	CRIEPI, Japan
Jussi PALMU	Posiva Oy, Finland
Sven J. Seirer	Hagerbach Gallery Ltd.
Frantisek WOLLER	RAWRA, Czech Republic
Neil CHAPMAN	NAGRA, Switzerland
Wolfgang KICKMAIER	NAGRA, Switzerland
Hideki SAKUMA	NAGRA, Switzerland
Andrea DE MARCO	NAGRA, Switzerland



International Training Centre

Key Aspects of July Workshop

ITC Objectives

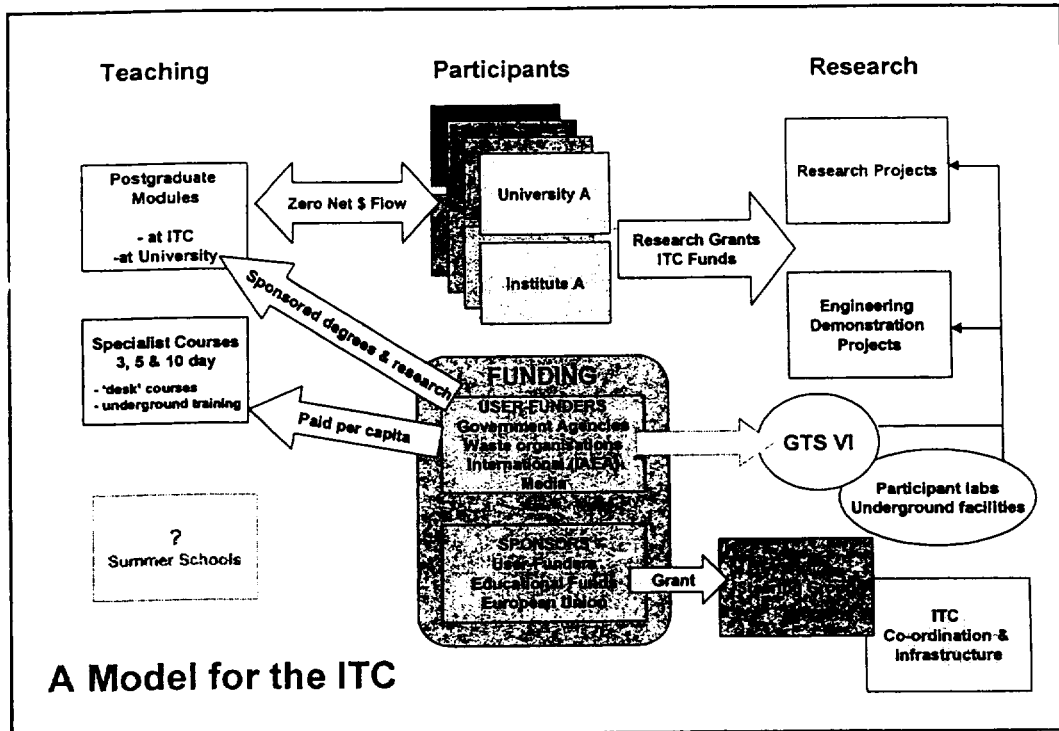
- **To transfer the technical and strategic waste management knowledge and experience acquired by today's engineers, scientists, planners and decision makers to their successors**
- **To provide a centre of expertise and a practical research base that will allow continued development of waste management knowledge and skills**

Eventual Form of the Centre

- An independent organisation, providing the broadest range of training for all users, with no bias towards the interests or requirements of any particular group of users
- A non-commercial, not-for-profit entity
- University out-station; network hub; co-operative; association?

Types of Course Offered

Stand-Alone	Introductory courses for professionals in waste management who have just started career Update/transition courses for experienced professionals in waste management who have changed or broadened responsibilities
Modular	Postgraduate modules: ITC diploma modules Underground R&D training for those starting practical testing or experimental work Undergraduate (summer) schools: introduce concepts: accredited degree modules?
Research	Postgraduate research training leading to masters or doctorate level degrees



Funding the Centre

- Per capita fees (at cost) from training courses
- Sponsorship: organisations wanting to assist training in waste management
- Academic tuition fees covering costs of having students taught at the Centre (?)
- Grants from national/international educational funds
- Bespoke courses for external clients

Model Course Curriculum - Year 1 (9/03 to 9/04)

- **Apr 03** **Steering Group (annual meeting)**
- **May 03** **Research Planning Group (annual meeting)**
- **Oct 03** **Inaugural Course: 5 days**
 - *Fundamentals of Radioactive Waste Management*
- **Specialist courses**
 - **Jan 04** ***Safety Standards & Regulation (3 day)***
 - **May 04** ***URL technology (5 or 10 day)***
 - **Sept 04** ***Geochemistry of waste disposal (3 day)***

Who is interested? (July workshop participants)

- **Institute of Geological Sciences, University of Bern**
- **Institute of Geophysics, ETH, CH**
- **Groundwater Protection and Restoration Group, University of Sheffield, UK**
- **Department of Engineering Materials, University of Sheffield, UK**
- **Department of Earth Sciences, University of Rome, Italy**
- **Environmental Engineering and Architecture, Nagoya University, Japan**
- **Geosphere Research Institute, Saitama University, Japan**
- **PSI (Paul Scherrer Institute), CH**
- **Posiva Oy, Finland**
- **RAWRA (Radioactive Waste Repository Authority), Czech Rep.**
- **SOGIN (Societa Gestione Impianti Nucleari), Italy**
- **CRIEPI (Central Research Institute of Electric Power Industries), Japan**
- **JNC (Nuclear Cycle Development Institute), Japan**
- **VSH (Hagerbach AG), CH**

Who else is interested?

- EAWAG (Swiss Federal Institute for Environmental Science & Technology)
- Institute of Geology/Engineering Geology, ETH, CH
- Institute of Hydromechanics and Water Resources Management, ETH, CH
- Department of Geological Sciences, Univ. of Michigan, USA
- Department of Nuclear Engineering, Univ. of California Berkeley, USA
- SUERC (Scottish Universities Environmental Research Centre), UK
- Institute for Mineralogy, Petrology and Geochemistry, Univ. of Freiburg, D
- Centre for Hydrogeology, Univ. of Neuchatel, CH
- BGS (British Geological Survey), UK
- Department of Chemistry, Univ. of Aberdeen, UK
- University Museum, Nagoya University, Japan
- Department of Chemical Engineering, Royal Institute of Technology, Sweden

Who else is interested? (continued)

- IAEA (International Atomic Energy Agency)
- US/NWTRB (Nuclear Waste Technical Review Board)
- HSK (Swiss Federal Nuclear Safety Inspectorate)
- CNWRA (Center for Nuclear Waste Regulatory Analysis), USA
- BfS (Federal Office for Radiation Protection), D
- NUMO (Nuclear Waste Management Organization), Japan
- RWMC (Radioactive Waste Management & Funding Research Center), Japan
- SSI (Swedish Radiation Protection Authority)
- HSK (Swiss Federal Nuclear Safety Inspectorate)

Example of offered contribution from potential participants

Scientific & technological aspects

- **Application of geophysical techniques**
- **Groundwater dynamics and transport processes**
- **Geochemical modeling**
- **Mathematical modeling for radio-nuclide transport**
- **Evaluation of field experiments**
- **Design, construction and operation of URL**
- **Performance assessment (safety case)**
- **Repository siting and characterization programme**
- **Characterization, treatment and management of radioactive waste**
- **Decommissioning**
- **Interim storage of HLW and spent fuel**

Examples of offered contributions from potential participants

Safety, societal and institutional aspects

- **Safety regulation of radioactive waste management**
- **National government's role in waste disposal**
- **Issues to be considered in preparing for license application**
- **Stakeholders confidence**

July workshop: Output

- **Confirmed expectation from the potential users**
 - **Immediate need for training experts of waste management community for implementing phase of the disposal programme (URL, site selection/characterization) as domestic resources for such requirements are limited**
 - **Would attract a wide range of post-graduate students for further diploma and higher level of academic accreditations when the ITC establishes its profile and quality**
 - **Joint research by the ITC and participating organizations are highly feasible**

July workshop: Output

- **Offered contribution from potential participants**
 - **Qualified experts as training staff to run the courses of**
 - Earth sciences
 - Engineering
 - Safety issues
 - Repository development
 - **Ready to share the facilities and instruments with the ITC**
 - **ITC trainees could take the courses at universities**
 - **Further discussion required for accreditation**

July workshop: Recommendations

- **Establish a “core group” consists of key stakeholders in Switzerland to consolidate the fundamentals of the ITC (e.g. independence and funding)**
- **Draft an action plan and a business plan of the ITC based upon further marketing research**
- **Continue discussions with potential users and participants**
 - **Workshop in Switzerland: September 19-20, 2002**
 - **Workshop in Japan: November**
- **Start discussions with potential funding organizations**
- **Provide further information to the municipality**