

MOBILITY MISSION REPORT

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KLIKNETE NEBO KLEPNETE SEM A ZADEVTE TEXT.

MISSION TITLE

Attendance to EURAD WP ConCorD Final meeting (27–29 May 2024)

DESCRIPTION

Concerned organisations

- Research entities
- Technical support organisations
- Waste management organisations


Concerned infrastructures or facilities

None

Concerned phases

- Phase 3: Facility construction
- Phase 4: Facility operation and closure
- Phase 5: Post-closure

Themes and topics

- Theme 3: Engineered barrier system (EBS) properties, function and long-term performance
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- Spent Fuel and high-level waste disposal canisters
- Containers for long-lived intermediate and low level wastes
- Clay-based backfills, plugs and seals
- Cementitious-based backfills, plugs and seals
- Salt backfills
- EBS system understanding
- Theme 4: Geoscience to understand rock properties, radionuclide transport and long-term geological evolution
 - Long-term stability (uplift, erosion and tectonics)
 - Perturbations (gas, temperature and chemistry)
 - Aqueous pathways and radionuclide migration

Keywords

Container corrosion, microbial effects, irradiation, coatings, novel materials, modelling

EXECUTIVE SUMMARY

Attendance at the EURAD WP15 ConCorD (Container Corrosion under Disposal conditions) Final WP Meeting enabled me to get the first-hand insight into the research and results achieved in this WP. Additionally, the participation at the even allowed me to establish new contacts with relevant people from other research organization that are also involved in the corrosion research and thus extend my network.

1. MISSION BACKGROUND

This entire section shall be maximum two pages (remove this entire sentence).

1.1. R&D background

In EURAD, ZAG participated in WP ACED in Task 2 (Interface) where we studied the corrosion of steel in contact with saturated cementitious buffers, that is with simple CEM I cement paste or bentonite-cement grout (BCG). To study the effect of carbon steel in contact with BCG saturated with the local groundwater, the Baccue in-situ experiment had started in 2020, taking place in the IRSN underground research laboratory (URL). One key task is to study the influence of non-continuous, non-perfect contacts or the presence of voids that are filled with grout porewater solution on (carbon) steel corrosion. The whole setup is sealed with resin from the surrounding air to preserve the anoxic conditions. In WP ACED, ZAG developed, fabricated and installed electrical resistance (ER) corrosion sensor for in-situ corrosion rate monitoring within the Baccue experiment. These are non-invasive sensors where corrosion rate is determined from the monitoring of the electrical resistance vs. time. The thickness change of exposed part of ER sensor is reflected in its change of resistance.

Learning of other corrosion-related studies on HLW/SF containers was therefore highly desired for me.

1.2. Mission objectives

The aim of the mission was to participate at the WP15 ConCorD Final meeting in order to learn about the research done, presented results and remaining questions of this WP.

1.3. Mission request

To cover costs of the travel and stay in Bern in order to attend the the WP15 ConCorD Final meeting.

1.4. Mission composition

Host organisation

University of Bern organized and hosted the WP15 ConCorD Final WP meeting.

Host facility

The event took place in the Institute of Geological Sciences of Univ. of Bern.

Mission dates

26. – 30. May 2024

2. MAJOR PRACTICES, TECHNIQUES, METHODS, TOOLS OR SYSTEMS OPERATED OR STUDIED

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2.1. Practice, technique, method, tool or system operated or studied during the mission

Not applicable.

Description

Not applicable.

Usage

Not applicable.

Benefits

Not applicable.

Limitations

Not applicable.

Applicability

Not applicable.

2.2. Practice, technique, method, tool or system operated or studied during the mission

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Description

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Usage

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Benefits

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Limitations

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Applicability

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2.3. Practice, technique, method, tool or system operated or studied during the mission

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Benefits

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Limitations

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Benefits

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Limitations

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Applicability

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3. MISSION FINDINGS AND CONCLUSIONS

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3.1. Lessons learned and conclusions

I got a concise insight into the WP15 ConCorD structure, their initially planned and the actually performed research work and most importantly, the results and conclusions following from it. Just by reading the deliverables from WP ConCorD I would never learn about all details and also about the difficulties that were encountered. Particularly important for me was also to hear and learn about the impact of irradiation and microbial effects on corrosion. The way WP15 researchers set up their experiments was also very important for me. I also discussed individually with the conference participants.

3.2. Relevant findings and conclusions for home organisation

For my organization (ZAG) was important to learn what are still unanswered questions and what new perspectives of corrosion-related investigation are relevant.

3.3. Relevant findings and conclusions for host organisation

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3.4. Relevant findings and conclusions for other organisations

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4. POTENTIALS FOR IMPROVEMENT OR DEVELOPMENT

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4.1. Generic potentials

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4.2. Potentials for home organisation

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4.3. Potentials for host organisation

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APPENDICES

Mission journal

May 26th 2024: flight from Ljubljana to Zurich and then travel by train to Bern

May 27th 2024: 1st day of EURAD WP15 ConCorD Final Meeting

May 28th 2024: 2nd day of EURAD WP15 ConCorD Final Meeting

May 29th 2024: 3rd day of EURAD WP15 ConCorD Final Meeting

May 30th 2024: travel by train from Bern to Zurich and flight from Zurich to Ljubljana

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MISSION BENEFICIARY

Bojan ZAJEC
 Research associate
 Department of Materials, Laboratory for Metals, Corrosion and Anticorrosion protection
 Slovenian National Building and Civil Engineering Institute, Slovenia

PARTNER EXPERTS CONTRIBUTING TO THE MISSION

Host organisation experts

WP15 leader is Dr. Nikitas Diomidis (NAGRA), prof. dr. Paul Wersin is the head of local organizing team (Univ. of Bern).

Home organisation experts

Dr. Tadeje Kosec | Research councillor, Head of the Laboratory | Laboratory for Metals, Corrosion and Anticorrosion protection | ZAG

Dr. Andraž Legat | Research councillor | Laboratory for Metals, Corrosion and Anticorrosion protection | ZAG

Other organisations experts

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REPORT APPROVAL

Date	Beneficiary	Home mentor/supervisor	Host mentor/supervisor
May 31 st 2024	Dr. Bojan Zajec	Dr. Tadeja Kosec	Klikněte nebo klepněte sem a zadejte text.
	