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NYKOS – New Knowledge on Sea Disposal

A research project for future mineral industry

Introduction

The Norwegian Mineral Strategy main messages include:

- The Norwegian mining industry should be of the most environmental friendly and actively seek future solutions
- More work is needed in the field of reducing excess materials and finding alternative use of excess materials
- It is expected that the mining industry is working to reduce discharge of harmful chemicals

It is a need for Research

Objectives

The objectives of the KPN NYKOS project are to:

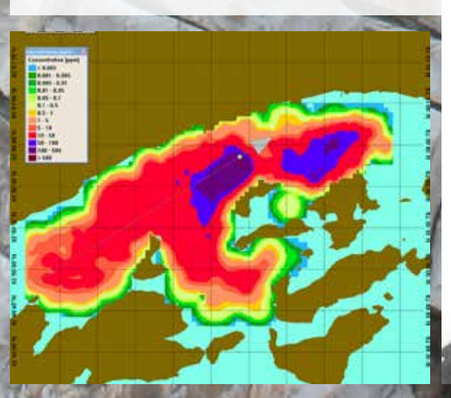
- Increase knowledge of the environmental effects of submarine deposition of fine grained tailings from the mineral industry
- Enable development of new sound environmental criteria and monitoring technologies that prepare for a sustainable mineral industry in Norway

KPN NYKOS is a competence building project with The Research Council (RCN) of Norway (BIA-Programme).

- Project budget 28 MNOK over 5 years included 5.6 MNOK contribution from participating companies

Participating companies :

- Sydvaranger AS
- Nussir
- Sibelco Nordic
- Rana Gruber
- Omya Hustadmarmor
- Nordic Mining
- Titania



Work Packages

WP1: Project Management - SINTEF / Per Helge Høgaas

- Project Management and Project Office support services
- Internal and external communication and information
- Reporting and communication with RCN
- Organise project meetings and workshops

WP2: Tailings Improvement and Characteristics. Exploiting the pre depositioning potential - NTNU / Rolf Arne Kleiv

- Study on desorption/readsorption kinetics of chemicals/fines
- Potential for recycling or immobilising chemicals/fines
  The main parts of WP2 will be executed as a Post. Doc study

WP3: Study of three comparable fjords - NGU / Nicole Jeanne Baeten

- Inspection and synthesis of morphology of already mapped fjords
- Pilot marine geology study of three comparable fjords

WP4: Effects from mine tailings and associated chemicals on marine, benthic ecosystems – NIVA / Morten Schaanning

- Development of analytical methods for chemicals associated with STPs
- Ecotoxicity
- Sensitivity of the benthic ecosystem to sedimentation of contaminated STPs
- Colonisation experiment on mine tailings disposals
- State of benthic communities in STP-affected and reference fjord
- Trace metal speciation and processes at the sediment-water interface in seabed deposits with sulphide tailings
- Development of modelling of the spreading of fine fractions
- Work package management

WP5: Modelling, Impact acceptance criteria and Risk aspects
- SINTEF Ocean / Raymond Nepstad

- Study of flocculation, dispersion of particles and modelling of sea current
- Impacts from use of added chemicals
- Validation with data from an existing fjord
- Post. Doc work – main activity on flocculation processes in sea water, risk aspects and criteria of acceptance

WP6: Best Available Techniques (BAT) for STPs
- NIVA / Eva Ramirez-Llodra

- Data management
- Workshops for BAT

Research Partners

- SINTEF Industry
- SINTEF Ocean
- Norwegian University of Science and Technology
- The Norwegian Institute for Water Research
- University of Tromsø - The Arctic University of Norway
- Geological Survey of Norway

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