



French-Russian cooperation in G8 Global Partnership

Nuclear Projects: Main achievements and path forward

Web site : <http://www-pmg8.cea.fr/>

September 24-25, 2008

Paris, CEG meeting

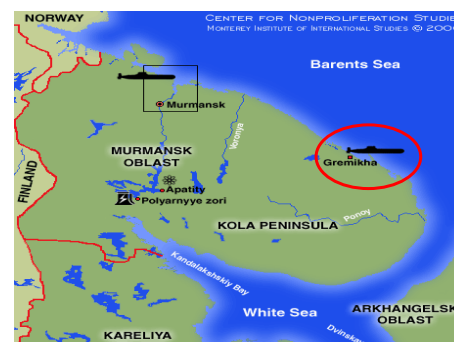
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Gremikha (ex naval base, Kola)

Overall Objectives:

- Packing and transportation of SNF (fast reactor cores "alpha" and VVR type fuel) for interim storage and/or reprocessing
- Solid and liquid waste elimination
- Decontamination and clean-up before closure
- End of programme : 2015 or later



Gremikha is among the first priorities for Rosatom

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Gremikha : project presentation



Initial status :

- Eight "alpha" cores → **acceptable** conditions
- Ninth "alpha" core (n°910) → to be discharged and stored
- ≈ 900 VVR SFA → **unacceptable** conditions
- Radiological situation on Open Pad → **harsh**
- Solid & Liquid RW → HLW, ILW, LLW
- Infrastructure → many **unacceptable** points



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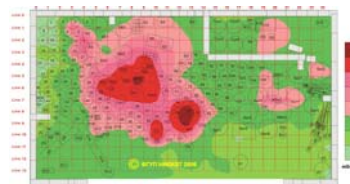


Gremikha : project presentation

Work done or in progress:

- Delivery of radioprotection equipment : 2005 / 2006
(France → 2 M€)
- Detailed feasibility study : KIRO+DON+OBIN (→ end 2008)
(France → 8,5 M€)
- Safety enhancement & priority projects for preparing remediation (France → ≈ 10 M€)
- Coordination with other donors : EBRD, EU, Italy

2005 →



2006 →



2007 →



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Gremikha : project presentation

Main achievements:

- Dose rate reduced on Open Pad
- Refurbishment of infrastructure → back-up power supply, buildings, dry-dock,..
- Inventory of VVR SFA → 635 intact SFA
- Staff → equipped correctly
- KIRO → achieved
- DON → achieved
- OBIN → in progress
- Scheme for intact VVR → in progress
- Preparation of removal → started (294 SFA)



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Gremikha : Problems met

Main problems met:

- 1) Insufficient use of the supplied radiation protection equipment by Russian personnel
- 2) Unacceptable delay in reports delivery → from several months to more than **1 year**
- 3) Some nuclear hazardous activities started **before acceptance** French experts.

Solutions found or proposed:

- 1) SevRAO committed to effectively use the radiation protection equipment
- 2) ROSATOM committed to reduce the delay
- 3) ROSATOM committed that no nuclear hazardous action would start before acceptance.

Additional measures:

- 1) French experts will check during all visits (3 per year) the radiation protection equipment status
- 2) Frequent technical meetings for discussing prior to reports delivery

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Gremikha : Path forward for France

Contribution in safe handling and storage of potentially hazardous nuclear materials (nuclear fuel, high level wastes) :

- Unloading of the last “alpha” core (N 910)
- Purchase of equipment and preparation of the site for SNF evacuation
- Removal VVR fuel assemblies
- Removal and dismantling of “alpha” cores
- Removal of HLW



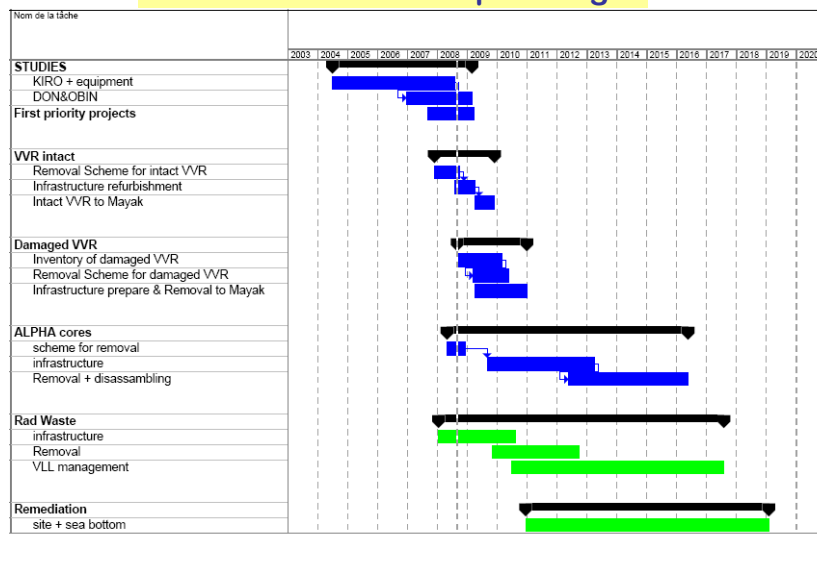
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Gremikha : Tentative planning



→ French contribution effective or possible

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Severodvinsk : solid waste incinerator

- Former incinerator : out of service for over 15 years
- Objective : operate the facility with a process flow of 20-40 kg/h
- Contract CEA → AREVA TA
- Work started 01/2007 → 2009 or 2010
- Equipment to Zvezdotchka → end 2008
- **Total cost : 10M€**



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Radioisotope thermoelectric generators (RTG)

- 2005: cooperation with Norway (Barents sea) extended to 2006, realization by 2008 **~700 k€**
- 2008 : development of bilateral cooperation with Russia, for :
 - elimination of 4 RTGs in Baltic sea
 - design of a hot cell in Mayak (?)
 } **~ 1 M€**
- Possible path forward :
 - Removal of 20 more RTGs in Baltic sea
 - **Funding of the** hot cell in Mayak (?)

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