Deep Geologic Repository Joint Review Panel

Commission d'examen conjoint du projet de stockage dans des couches géologiques profondes

PMD 13-P1.169A

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Supplementary Information Oral intervention

Presentation from Don Hancock

In the Matter of

Ontario Power Generation Inc.

Proposed Environmental Impact Statement for OPG's Deep Geological Repository (DGR) Project for Low and Intermediate Level Waste

Renseignements supplémentaires Intervention orale

Présentation de Don Hancock

À l'égard de

Ontario Power Generation Inc.

Étude proposée pour l'énoncé des incidences environnementales pour l'Installation de stockage de déchets radioactifs à faible et moyenne activité dans des couches géologiques profondes

Joint Review Panel

Commission d'examen conjoint

September 16 to October 12, 2013

Du 16 septembre au 12 octobre 2013



Waste Isolation Pilot Plant (WIPP) and International Experience with Deep Geologic Repositories

> Joint Review Panel Kincardine, Ontario September 23, 2013

DON HANCOCK Prepared for Northwatch

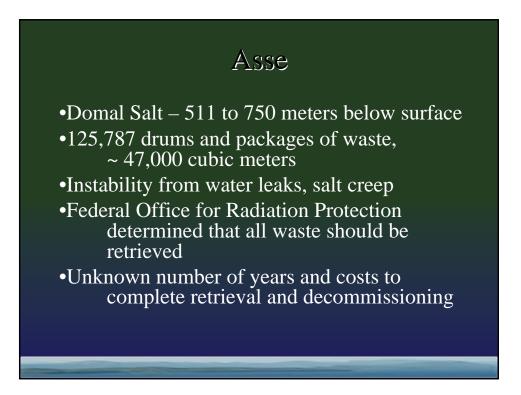
OPG states:

"The DGR Project is proposed because: * it is consistent with international best practice;" Environmental Impact Statement, page 1-2. Three DGRs have operated for a decade or longer

•Asse – Germany – 1967 to 1978

•Morsleben – Germany – 1971 to 1998

•Waste Isolation Pilot Plant (WIPP) – U.S.A. – March 1999 to present



Morsleben

•Domal Salt – 400 to 600 meters below surface

•36,753 cubic meters of drums and packages of L&ILW

•Instability from salt creep and water leaking

•Stabilized with backfill, during development and implementation of decommissioning plan

•Unknown number of years and costs to complete decommissioning

WIPP

Bedded salt – 655 meters below surface
Capacity limit – 175,564 cubic meters of defense transuranic (TRU) waste
As of 8/17/2013: 88,530 m3 Total TRU waste
Consisting of: 87,915 m3 of Contact-Handled (CH) TRU 615 m3 of Remote-Handled (RH) TRU

International Experience

•No DGR has operated to fully dispose of the planned waste capacity.

•Asse and Morsleben were closed prematurely because of safety concerns; decommissioning will take years with unknown costs

•WIPP's experience is ongoing and changing, but different in significant ways than OPG describes

WIPP Panel and Shaft

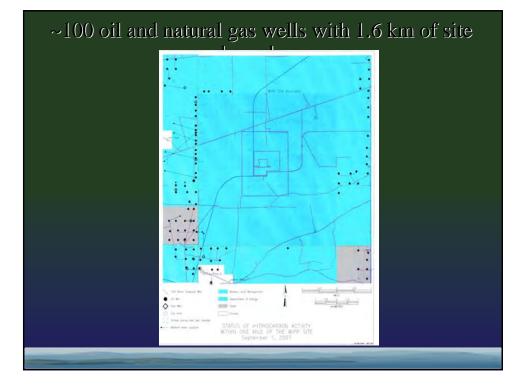
- •Panel Closure approved in 1998 not used
- •Panels 1, 2, and 5 temporarily closed with 12foot-thick (3.6 meters) explosion-isolation wall
- •Panels 3 and 4 temporarily closed with bulkheads
- •Public regulatory processes in 2013-2014 to determine alternative panel closure
- •Closure of 4 shafts approved in 1998 may change, not implemented for decades

WIPP Institutional Controls

•OPG PSR: "A period of <u>300 years</u> is assumed over which such controls, including societal memory, are effective, consistent with international practice."

•40 CFR§194.41(b): "Performance assessments shall not consider any contributions from active institutional controls for more than <u>100 years after</u> <u>disposal</u>."

•EPA Certification: "The DOE stated in the CCA that the proposed AICs will be maintained for <u>100</u> years, and that regular surveillance could be expected to detect a drilling operation."



WIPP Backfill

OPG states: WIPP has <u>no</u> backfill. IR EIS 09-410, Table 1.
40 CFR § 194.44(a): "Disposal systems <u>shall</u> <u>incorporate engineered barrier(s)</u> designed to prevent or substantially delay the movement of water or radionuclides...."

- •EPA Certification: "The EPA determined that <u>MgO will be an effective barrier</u>, based on DOE's scientific evaluation of the proposed barrier's ability to prevent ..."
- •<u>MgO backfill sacks are placed</u> in each room on stacks of waste packages.



WIPP Unplanned Changes

Instability of Panel 1 and tunnels – < 60% of Panel 1 filled – Change underground waste transport route; Panels 9 and 10
Releases of carbon tetrachloride
Emplacing empty or "dunnage" containers
Annual shutdown for maintenance
RH waste – failure to have sufficient space

Some WIPP Operational Lessons

- •Despite more than 15 years of investigations and decades of mining experience, mine instability and maintenance requirements are different and more than expected; operational changes have been required
- •Releases of carbon tetrachloride are much higher and more persistent than expected
- •Monitoring equipment can be inadequate
- •Some underground space underused, so actual RH-waste capacity is insufficient

Some Other WIPP Lessons

- •Initial Panel Closure System substantially changed
- •Approved shaft seal/institutional controls may change
- •MgO backfill required and emplaced
- •Local acceptance strong; State supports mission, not necessarily mission changes
- •Legal limits/Safety case may not prevent changes in amounts and types of waste

WIPP Mission and Changes

•WIPP Mission is disposal of up to 175,564 m3 of defense TRU waste
•Ban on High-Level Waste/Spent Nuclear Fuel However, DOE now proposes:
•Greater-Than-Class C waste
•Commercial waste from West Valley, NY
•Elemental Mercury storage
•Rename HLW in tanks, then ship to WIPP July 2, 2013 NM Environment Dept. rejected and will have public hearings

WIPP Experience and the DGR

Basic WIPP design features have changed or may change, which aspects of the DGR could change after licensing?

WIPP is failing to fulfill the RH waste mission, is OPG overly optimistic about how much ILW it can handle?

WIPP legal requirements that were integral to state acceptance could be significantly eviscerated, can community and aboriginal people rely on current DGR requirements?

