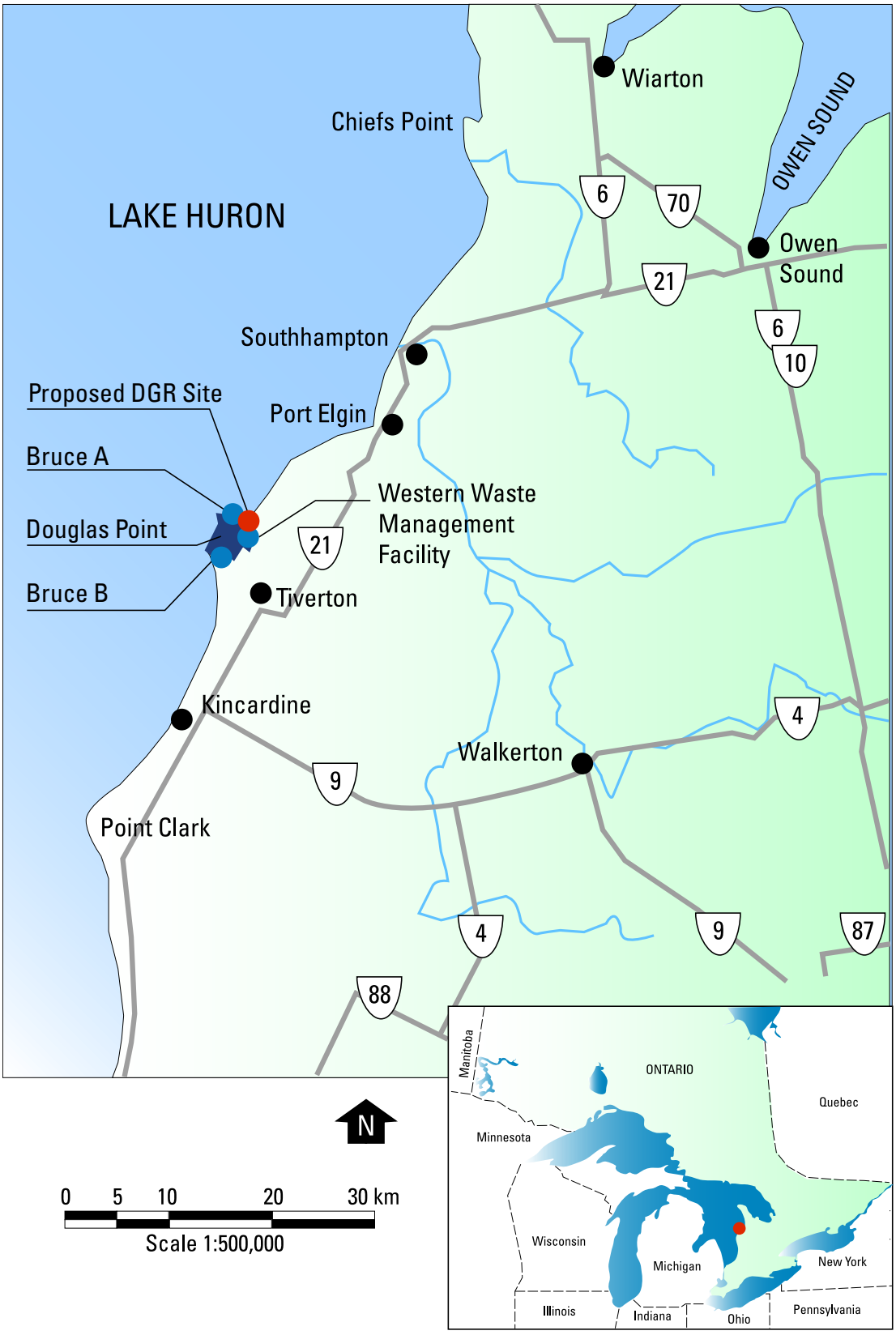
OPG's DEEP GEOLOGIC REPOSITORY PROJECT

For Low & Intermediate Level Waste

2009 Annual Report

nwmo
NUCLEAR WASTE MANAGEMENT ORGANIZATION
SOCIÉTÉ DE GESTION DES DÉCHETS NUCLÉAIRES

ONTARIO POWER GENERATION



OPG's Deep Geologic Repository Project for Low & Intermediate Level Waste is proposed adjacent to the Western Waste Management Facility in the Municipality of Kincardine

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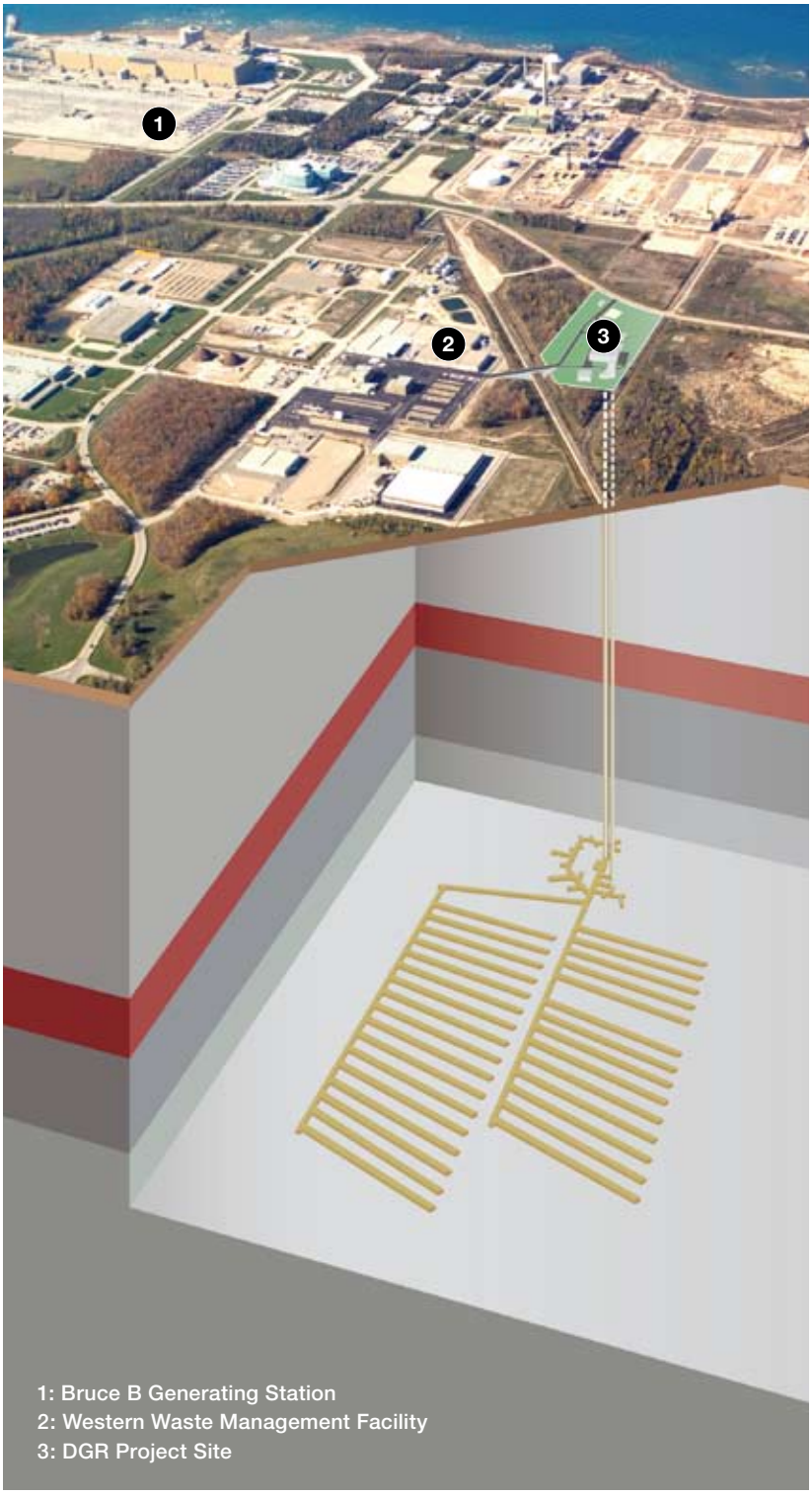
KEY FEATURES



1: Bruce B Generating Station
2: Western Waste Management Facility
3: DGR Project Site

DGR surface facilities

Low level waste emplacement room

Intermediate level waste emplacement room

OPG'S DEEP GEOLOGIC REPOSITORY PROJECT FOR LOW & INTERMEDIATE LEVEL WASTE

Ontario Power Generation (OPG), with the support of the local Bruce County municipalities, is proposing to construct a Deep Geologic Repository (DGR) for the long-term management of low and intermediate level radioactive waste at the Bruce nuclear site. OPG has contracted the Nuclear Waste Management Organization (NWMO) to manage the DGR project through the regulatory approvals process.

The DGR is proposed to be situated about 680 m (2230 feet) below ground surface in low permeability limestone, beneath a 200 m (660 feet) thick layer of low permeability shale. These sedimentary bedrock formations provide natural barriers that will safely isolate the radioactive waste for many thousands of years and beyond.

The DGR would be located adjacent to OPG's Western Waste Management Facility (WWMF) at the Bruce nuclear site, in the Municipality of Kincardine. The DGR facility would manage about 200,000 cubic metres of low and intermediate level packaged waste. Only low and intermediate level waste from OPG-owned nuclear generating stations in Ontario would be placed in the DGR. Used fuel will not be stored in the DGR.

OPG's Western Waste Management Facility (WWMF) currently manages and provides interim storage for the low and intermediate level waste that is received from OPG's Pickering and Darlington nuclear stations and the Bruce Power stations. Much of the waste that will be placed in the DGR is already at the WWMF.

In 2009, activities conducted in support of the regulatory approvals process for a DGR site preparation and construction licence included: geoscientific site characterization, safety assessment, preliminary facility engineering design, environmental studies, and community engagement. Significant progress was made in all areas, keeping NWMO on target to deliver a licensing submission in early 2011.

2009 DGR HIGHLIGHTS

- Effective January 1, 2009 OPG contracted the NWMO to manage the DGR project through the regulatory approvals process.
- On January 26, 2009 the Canadian Nuclear Safety Commission and Canadian Environmental Assessment Agency issued final Guidelines for the Environmental Impact Statement and the final Joint Review Panel Agreement.
- On May 11, 2009 the Major Projects Management Office (MPMO) issued a Project Agreement, outlining federal roles and responsibilities during the regulatory review of the DGR project.
- Geoscientific site characterization work conducted in 2009 further verified that the site has excellent geology which will provide a high level of safety.
- Updated Preclosure and Postclosure safety assessment reports were completed. The results indicate that impacts are low and that the DGR will safely isolate and contain the waste.
- Design activities advanced from the conceptual engineering to the preliminary engineering level.
- Field studies to update baseline environmental data were completed. This information provides the starting point from which the potential effects of the DGR will be assessed.
- Extensive DGR communications continued throughout the Bruce community, with the project continuing to enjoy strong community support.
- OPG and NWMO completed a series of engagement activities in Michigan.
- A protocol agreement was signed with Saugeen Ojibway Nation.
- Discussions continued with the Métis Nation of Ontario and Historic Saugeen Métis for their participation in the regulatory review process.


REPOSITORY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TRANSITION OF THE DGR PROJECT TO THE NWMO

On January 1, 2009 OPG contracted NWMO to manage development of the DGR. The NWMO is responsible for taking the DGR project through the regulatory approvals process, on behalf of OPG. As part of the agreement, most OPG staff that had been working on the DGR project became NWMO employees.

OPG remains the sole owner of the DGR and the DGR project will continue to proceed as originally planned with all commitments being honoured, including that the DGR will only accommodate low and intermediate level waste from OPG-owned nuclear facilities.

The NWMO is a not-for-profit company established by OPG, Hydro Québec and New Brunswick Power, the nuclear power utilities in Canada, to implement a long-term solution for Canada's used nuclear fuel.

The NWMO's Adaptive Phased Management (APM) plan for the safe management of Canada's used nuclear fuel will involve the construction of a deep geologic repository in an informed and willing host community in a location in Canada yet to be determined. OPG's proposed Deep Geologic Repository (DGR) for low and intermediate level waste is a completetely separate project and will remain so. Combining the expertise of key staff in a single organization provides significant benefit from mutual experiences and lessons learned in the application of technology for deep geologic repositories, community consultation, and the collaboration with international partners. The Adaptive Phased Management program will benefit from skills, knowledge and relationships developed in the DGR project.

Aerial view of OPG's Western Waste Management Facility

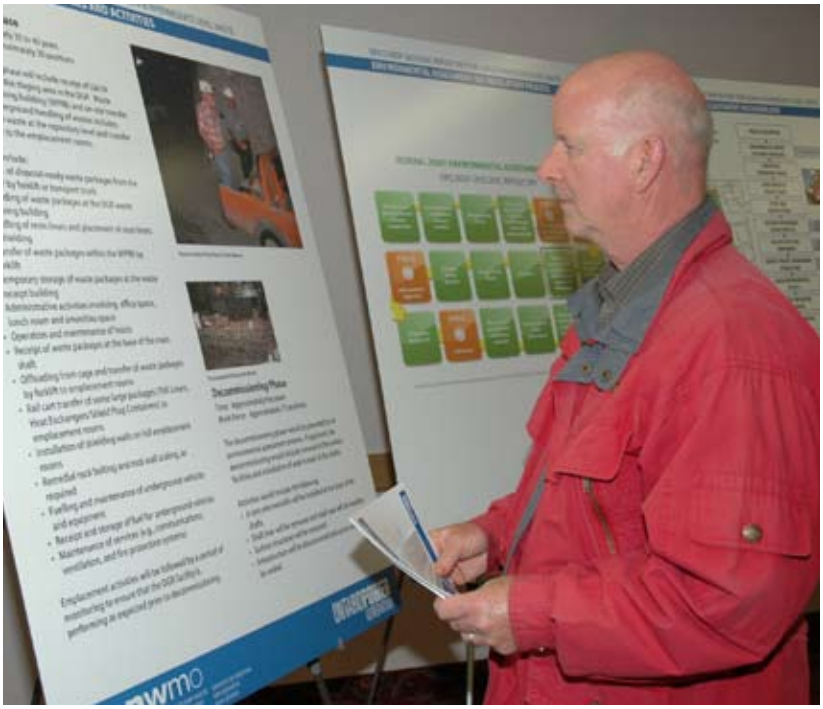
REGULATORY APPROVAL PROCESS

In January 2009, following a public review and comment period in 2008, the Canadian Nuclear Safety Commission (CNSC) and the Canadian Environmental Assessment Agency (CEAA) released the final guidelines for the Environmental Impact Statement (EIS) for the DGR project and the final Joint Review Panel (JRP) Agreement. The EIS guidelines identify the information needed to examine the potential environmental effects of the proposed project as well as requirements for a licence to prepare a site and construct the DGR. The JRP Agreement establishes how the panel will function, including procedures for appointing the JRP members, the proposed terms of reference (i.e. responsibilities) for the panel and the process for conducting the reviews. These documents are available on the CEAA website at **www.ceaa-acee.gc.ca**

In May 2009, the Major Project Management Office (MPMO) – a Government of Canada organization whose role is to provide oversight for the federal environmental assessment and regulatory process for major resource projects – issued a Project Agreement. The Project Agreement outlines the process by which the federal departments or agencies will carry out their roles and responsibilities during the federal regulatory review of the proposed DGR project. The DGR MPMO Project Agreement is available at the Major Project Management Office website at **www.mpmo-bggp.gc.ca**

The DGR Environmental Impact Statement, along with the Preliminary Safety Report, is expected to be submitted to the Joint Review Panel in early 2011. Based on the schedule provided in the DGR MPMO Project Agreement, the full regulatory review and approval process for a site preparation and construction licence is expected to take at least 21 months. The process includes a public review of the documentation and a public hearing where stakeholders will have the opportunity to present their feedback on the project.

After the hearing the Panel makes a recommendation to the Minister of the Environment who takes it to the federal Cabinet for the final decision. The Environmental Impact Statement must be accepted before a site preparation and construction licence can be issued by the CNSC.



Ongoing public consultation

GEOSCIENTIFIC SITE CHARACTERIZATION PROGRAM

Geoscientific site characterization activities entered their final phase in 2009 as part of a step-wise four-year program to assess and confirm the suitability of the site to safely host the DGR. The Geoscience work program is divided into two key areas; site-specific characterization studies that involve a multi-disciplinary deep drilling program at the Bruce site; and a Geosynthesis program that combined with information from the site-specific studies describes the geoscientific basis for understanding the past, present and future geologic evolution of the site as it influences DGR safety.

Geoscience Activities

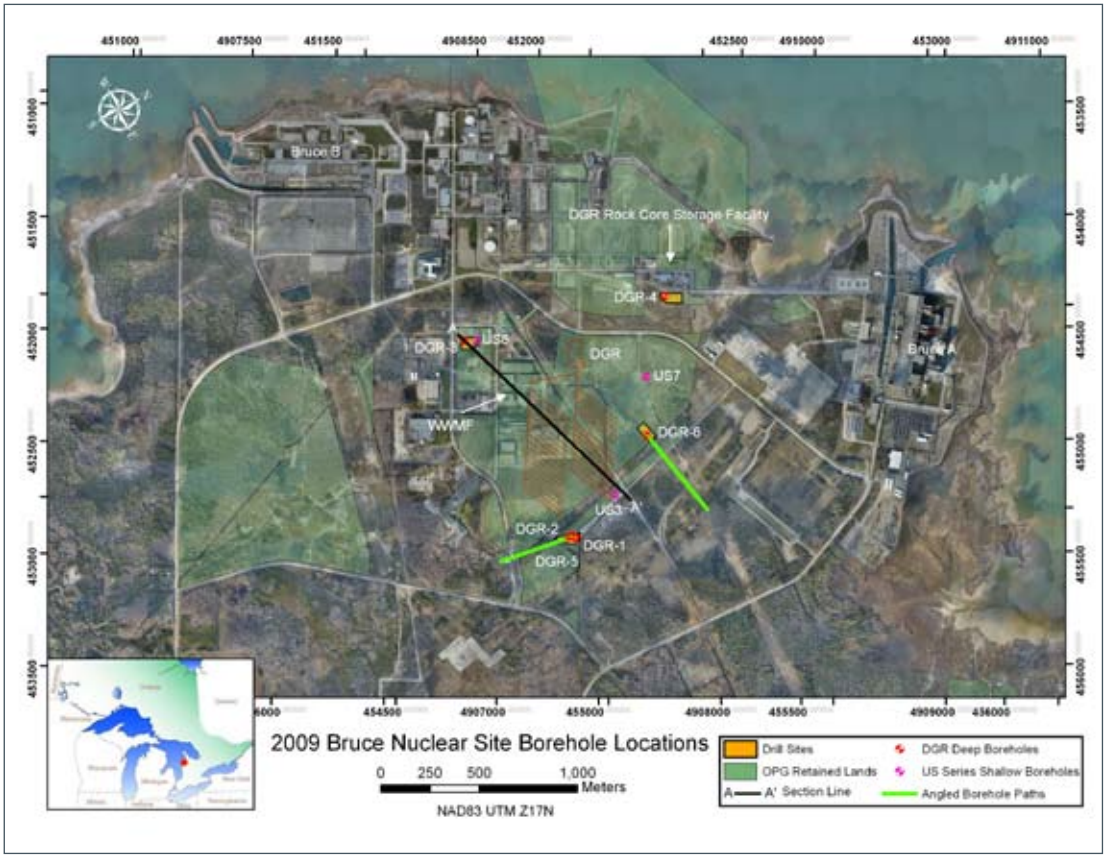
During 2009, field activities included the drilling and coring of two deep inclined boreholes (DGR-5 and DGR-6) that were oriented primarily to assess and verify the nature of vertical bedrock structure and its effect on DGR implementation. Consistent with the Phase II Geoscientific Site Characterization Plan, prepared in 2008, geophysical and hydrogeologic testing in these boreholes will be completed by spring 2010. The completion of the two inclined boreholes concludes the planned DGR drilling program, with four deep vertical boreholes having been completed in 2007 and 2008. The information from these six deep boreholes will provide the necessary information to establish the current site conditions and expected future evolution as it influences the DGR's long-term performance and Safety Case.

Further field activities in 2009 involved the completion of a groundwater monitoring network within deep vertical boreholes DGR-1, DGR-2, DGR-3 and DGR-4. Within each of these boreholes multi-level casing systems have been installed to depths of 840 m that combined, provide over 130 isolated intervals to observe groundwater conditions. A similar monitoring network (US-series) within the shallow (<200 m depth) bedrock groundwater regime adds an additional 31 measurement

Top left: NWMO engineer Dylan Luhowy examining rock core

Top right: Multi-level monitoring system installation

Bottom: Inclined borehole drilling



points. Routine monitoring of groundwater pressures and quality provides a 3-dimensional understanding of site conditions that supports, among other studies, the ongoing Geosynthesis and Environmental Assessment.

Progress continues toward completion of a final Geosynthesis document scheduled for the fall of 2010. The Geosynthesis will be a peer-reviewed document that provides a description of both the regional and site-specific geologic, hydrogeologic, hydrogeochemical, and geomechanical conditions and how such conditions influence estimates of long-term DGR performance. Particularly important will be the interpretation of future evolution and barrier performance of the bedrock formations hosting and enclosing the DGR site as influenced by perturbations such as repository excavation, glaciations and possible seismicity.

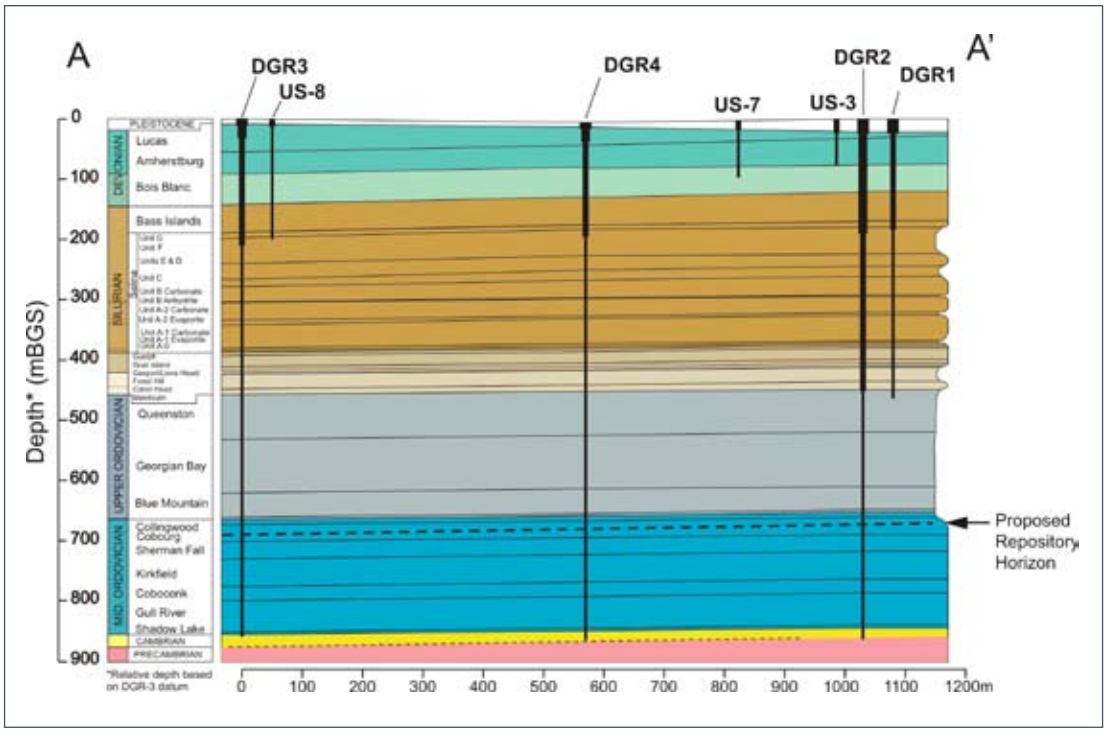
The case for the geoscientific suitability of the Bruce site is organized around several key principles, which are consistent with international experience in repository development. A brief explanation of these principles and some examples of recent work follow.

Geoscience Review Group

During 2009 the Geoscience Review Group (GRG) continued to provide guidance and oversight on all aspects of the geoscientific investigations and the geosynthesis. The four member GRG comprises internationally renowned scientists and engineers. Together they have between them nearly one hundred years of experience and have worked on nuclear waste programs in Japan, Hungary, Switzerland, Sweden, Finland, Korea, the United States and the United Kingdom.

PREDICTABLE GEOLOGY

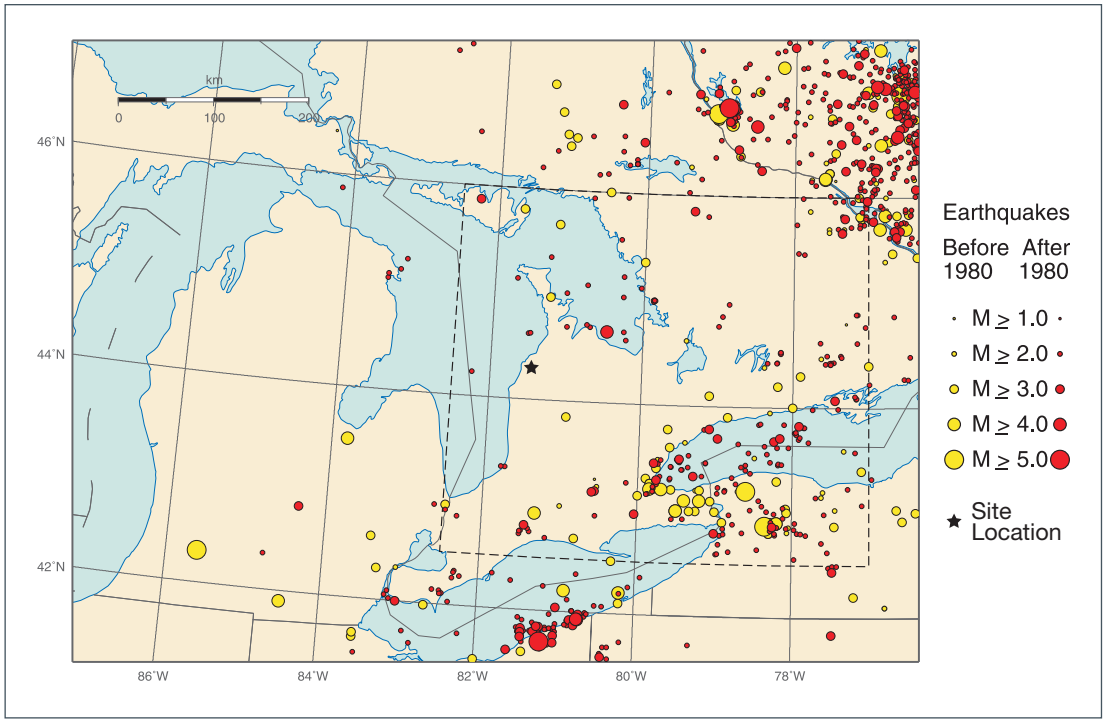
Examination of drill core obtained during the deep drilling program, a 2-dimensional seismic survey and downhole testing, has provided a basis to verify the bedrock stratigraphy beneath the Bruce site. In total 34 individual bedrock formations, Cambrian (543 million years old) to Devonian (350 million years old) in age, exist in the 840 m thick sedimentary sequence underlying the site. This includes 200 m of shale that lie above the Cobourg Formation, a clay rich limestone that will host the proposed DGR. Over distances of kilometres the elevation of bedrock formation contacts and formation thicknesses are predictable to within metres or less. The properties of bedrock formations including rock mass permeabilities, rock matrix porosity, mechanical strength and saline pore fluid composition also reveal consistency at site scale.



Geologic cross-section showing bedrock formations/stratigraphy beneath the Bruce nuclear site

SEISMICALLY QUIET SITE

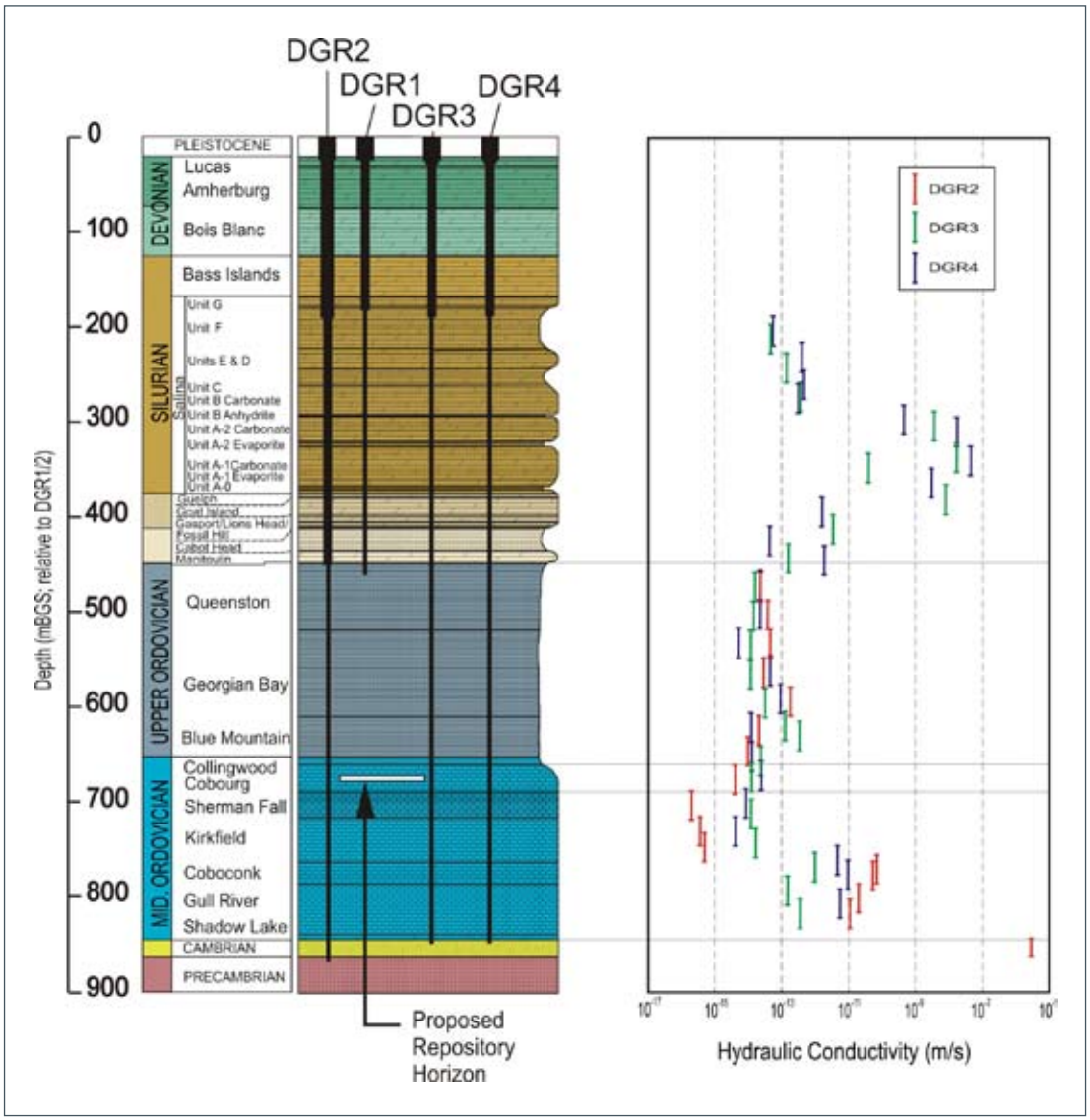
Southwestern Ontario and the Bruce region lie within the tectonically stable interior of the North American continent; a region characterized by low rates of seismicity. The historic seismicity record over 180 years shows most recorded events have magnitudes that do not exceed M5. As part of the DGR project a network of borehole seismographs was established in the summer of 2007 to allow monitoring of micro-seismicity (M=1) within a 50 km radius of the Bruce site. Monitoring results through 2009, reported by the Geologic Survey of Canada's Canadian Hazard Information Service, continue to indicate that the Bruce site is located in a seismically quiet region.



Seismic activity (start of historic records – 2009).

MULTIPLE NATURAL BARRIERS

Evidence from the deep borehole testing program reveals that the proposed DGR will be enclosed by multiple near-horizontally layered low permeability bedrock formations. This evidence includes the results of over 100 hydraulic borehole tests that yielded very low rock mass hydraulic conductivities on the order of $<10^{-13}$ m/sec in the bedrock formations proposed to host and enclose the DGR. This indicates that fluid would move through the rock at a rate of less than 1mm/yr.



Hydraulic conductivity in deep boreholes at the Bruce nuclear site.

GEOMECHANICALLY STABLE HOST ROCK

An assessment of the geomechanical stability of the DGR openings both during operations and at long-term timeframes indicates that the repository will remain safe. A comprehensive set of analyses using the site-specific data reveals that the openings within the Cobourg Formation will be stable during construction and operation. At longer time frames associated with future glacial episodes and possible seismic events, the overlying and underlying formations will provide passive barriers to contain and isolate the waste.

TRANSPORT IS DIFFUSION DOMINATED

Within the bedrock formations that will host and enclose the repository the groundwater regime appears ancient and has been resilient to external perturbations, such as glaciations, over hundreds of thousands of years. Multi-discipline evidence includes: the predictable nature and lateral extent of the thick and near-horizontally bedded sediments beneath the Bruce site, the very low rock mass permeabilities measured in the sediments, the consistent brine (300 g/L) composition of pore fluids in the low porosity rock and the distribution of environmental tracers vertically in the sedimentary column that reflect a slowly evolving groundwater system. Numerical simulations illustrate that even under cyclic glacial loading the groundwater system remains in a state in which mass transport is diffusion dominant. This is a very, very slow process and is the preferred situation for long-term waste isolation and containment.

SHALLOW GROUNDWATER RESOURCES ARE ISOLATED

In the Regional Study Area the shallow, fresh permeable groundwater system from which potable water resources are obtained is limited to depths of approximately 100 m. Geoscientific data gathered during site investigations, as described above, provide a reasoned basis to confirm that overlying ground and surface water resources are isolated from the proposed repository location, and have been for thousands of years.

NATURAL RESOURCE POTENTIAL IS LOW

Evaluation of published studies, historical records, and the results of the deep drilling program on the Bruce site strongly suggests that viable commercial oil and gas reserves do not exist beneath or adjacent to the Bruce nuclear site. Commercially viable base metal deposits have not been identified in the study area.

DESIGN OF THE DGR

The design of the DGR facility has continued to evolve, incorporating improvements at each stage. In 2009 many of the changes to the design were made to enhance the overall operational safety of the facility. Recent design work also addressed expert third-party comments on the earlier conceptual design.

The most significant change to the DGR design was the realignment of underground emplacement rooms so that rooms within each of the two panels are now parallel to each other. This new underground layout is better suited to rock conditions that are expected to exist deep underground and as such, this arrangement will enhance the long-term stability of the waste emplacement rooms.

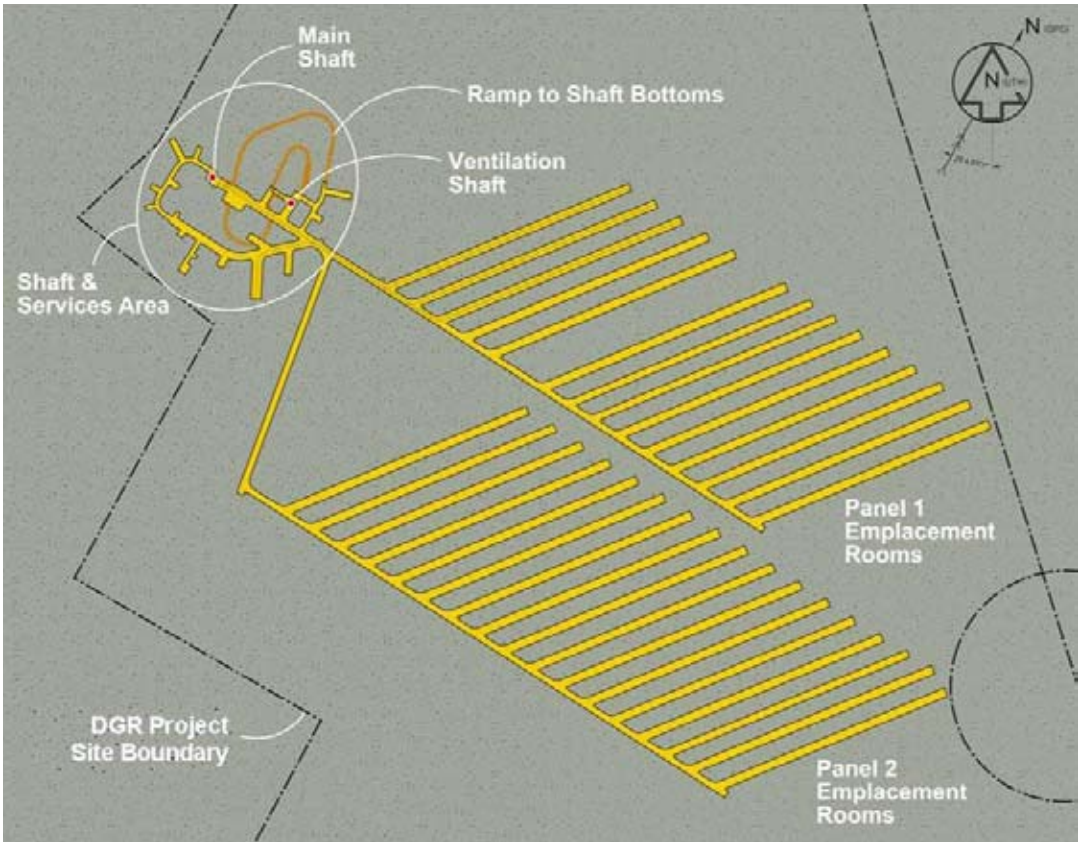
The general layout of the surface facilities has not changed from the layout developed in 2008. The surface features of the DGR include the main shaft, ventilation shaft and waste rock management area. The main shaft area will have a headframe equipped with a hoist to handle a 44-tonne payload, a waste package receiving building, and buildings housing equipment to heat air to be delivered underground for winter operations. The waste package receiving building and shaft offices will be directly connected to the main shaft headframe building. The ventilation shaft area will include a headframe building, hoist house, waste rock chute, and exhaust fan building. A crossing will be constructed to provide a link between the existing WWMF and the DGR.

The procedures for handling waste packages were reviewed in 2009 and it was decided to introduce self-propelled electric rail-carts into the waste handling system. Waste packages will be loaded onto the rail-cart by forklift inside the waste package receiving building and then moved, in a highly controlled manner, into the waste-handling cage. Once underground, the rail-cart loaded with waste packages will be moved from inside the cage to a staging location where the carts will be unloaded by forklift. The forklifts will then transport the packages to the appropriate rooms where they will be stacked in their final position. The majority of waste packages will be moved underground by this procedure. The major exception will be large and heavy waste packages which will remain on their rail-cart until the cart arrives at the emplacement room. These waste packages will be off-loaded by gantry crane from the rail cart and then transferred to a final location inside the room.

The systems associated with the waste handling cage were modified to further enhance the overall safety of waste handling operations in the main shaft. This includes the safety mechanisms for securing the main cage for loading/unloading activities and the cage arresting systems.

It is currently assumed that the DGR will be fully developed during initial construction to avoid mining activities during emplacement of waste operations. It is now assumed that the shafts, access tunnels and emplacement rooms will be excavated by precision drill and blast methods. It is estimated that about 900,000 m^3 of waste rock will be produced during excavation and this rock will be stored at surface to the northeast of the two shafts.

In 2009, NWMO established the Technical Review Group (TRG) to review and to provide expert advice on DGR design and construction. The TRG is comprised of independent technical experts who collectively have extensive experience in the fields of deep underground mine construction, mine ventilation, mine hoisting, tunneling, geomechanics and radioactive waste material handling.



Left top: An example of a drill jumbo creating underground openings in rock

Left middle: Construction of Darlington cooling water intake tunnel in Cobourg limestone

Right top: DGR underground layout

Bottom: DGR surface facilities

SAFETY ASSESSMENT

The DGR is intended to safely isolate and contain the low and intermediate level radioactive waste. Confidence in meeting this objective is summarized in a "Safety Case". The safety case synthesizes and presents the evidence for safety. Safety case elements include geological evidence from the site, design features and quantitative safety analyses.

Safety Case Elements

The safety case is based on the geologic site and waste characteristics including:

- The repository will be isolated from surface waters by its depth of about 680 m.
- There are multiple layers of low-permeability rock above the repository.
- The rock formations are 450 million years old. They have remained stable through tectonic events and climate changes during this period, including several ice ages within the past one million years. These rocks are expected to remain stable for at least the next few million years.
- The area is seismically quiet. Large magnitude earthquakes are unlikely, and would have little to no impact on the DGR.
- The properties of the deep bedrock limit the rate of contaminant movement through the rock to very slow rates.
- The waste contains primarily shorter-lived radionuclides and the radioactivity decreases with time.
- Almost all of the radioactivity would decay within or near the repository.

The DGR safety assessment: considers both the operating period and after closure, analyzes the facility behaviour under normal conditions and unlikely events or accidents, quantifies potential impacts on the public and workers, and compares the potential impacts with regulatory criteria.

Safety assessment is being carried out as an iterative process, taking account of new information. In 2009, the "Version 1" assessment was completed. Two further major iterations are planned before an operating licence could be authorized by the federal nuclear regulator.

The “Version 1” Safety Assessment follows:

- Federal Environmental Assessment Guidelines for the DGR project
- Canadian nuclear safety regulations, policy and guidance, including:
  - CNSC P-290 – *Managing Radioactive Wastes*
  - CNSC G-320 – *Assessing the Long Term Safety of Radioactive Waste Management*
  - Nuclear Safety and Control Act
- International best-practices.

Although "Version 1" is an interim assessment, the results have been presented to various technical experts for review, including an international peer review team of safety assessment experts from the United Kingdom, France, Switzerland and Belgium. To read the interim reports, go to **www.nwmo.ca/dgrprojectdocuments.**

NWMO engineers Kelly Sedor and Helen Leung review safety assessment results

Operational Safety

The preclosure safety assessment covers the start of operations to the closure of the facility. The focus is on radiological safety – handling and storage of low & intermediate level waste packages under normal operations and accident conditions.

The DGR design incorporates a variety of features to ensure it is safe during the operations period. Examples of safety features include the following:

- Waste packages will meet the DGR waste acceptance criteria; for example, no surface contamination.
- The higher level radioactive wastes will be in robust concrete-and-steel packages.
- The DGR will be close to the WWMF, so waste package do not need to be moved off the Bruce site.
- All underground construction will be completed prior to the start of waste emplacement.
- The shaft hoist is based on a proven reliable multi-rope Koepe drum design.
- Combustible materials and ignition sources will be minimized.
- Emergency response system includes fire detection and suppression, two shaft exits, and underground safety refuge stations.

Based on experience from the WWMF operations, small amounts of tritium and carbon-14 are expected to be released as outgassing from the waste packages in the DGR under normal operating conditions, dropping to zero as the DGR is closed.

These emissions will be monitored. The potential doses due to these small releases are estimated to be similar to the low doses from WWMF operations, where much of the waste is currently stored. These results indicate that there are no concerns with respect to exposure to members of the public during normal operations of the DGR.

Accident scenarios were postulated for the DGR facilities, both above and below ground. These accidents were screened for likelihood and credible worst-case scenarios were identified for analysis. The accidents considered included breach of waste package and fire. The preliminary analyses indicate that radioactivity released from above or below ground accidents is low and will not harm members of the public.

Postclosure

The Postclosure Safety Assessment addresses the safety of the repository after the underground portion has been closed and sealed. It looks far into the future. In the near-term, the site is expected to remain under institutional control. However, the safety assessment assumes that beyond a few hundred years, the site reverts to a green-field use.

The safety assessment, however, is not a prediction of the future. Rather, it assesses a range of likely and unlikely futures or scenarios. Uncertainties in how things may develop in the future are addressed by using a range of scenarios, models and data and also through the use of cautious or worst-case assumptions. The methodology follows Canadian regulatory guidance and international practice.

In postclosure, the main scenarios assessed are the following:

Normal Evolution Scenario

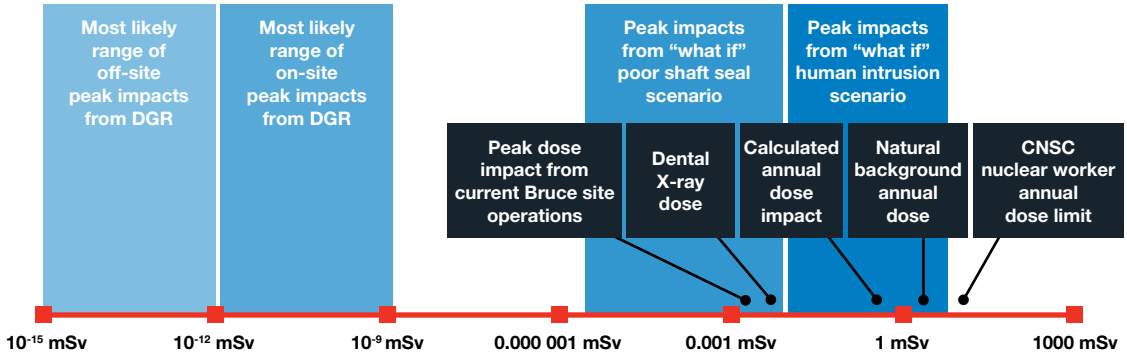
Considers what is likely to happen within and around the repository in the future

Normal Evolution	• Includes eventual glaciation across the site. • Assumes that after the site is released from institutional controls in a few hundred years and beyond people live on the repository site.

Disruptive ("what if") Scenarios

Unlikely scenarios that test the robustness of the repository.

Human Intrusion	*What if* someone accidentally drilled a deep borehole into the DGR and brought waste material to surface?
Severe Shaft Seal Failure	*What if* the main shaft seals failed?
Open Borehole	*What if* one of the existing deep site characterization boreholes was not sealed, or the seals failed completely?
Extreme Earthquake / Vertical Fault	*What if* there was a vertical fault close to the repository possibly created in the future by a very large earthquake?



Interim Safety Assessment calculated impacts

The assessment approach uses site, design and waste inventory information to construct a conceptual model of possible release pathways to develop a numerical (or computer) model. The computer model is used to quantify what could happen under various scenarios.

The interim safety assessment results indicate that there would be little to no impact from the repository. This is largely because the rock is very effective in retarding the movement of radionuclides. Key observations which will be considered further in ongoing work include the importance of the sealed shafts as a potential pathway for radionuclides, and the importance of C-14 containing methane gas generated from decomposing waste.

Waste Inventory

The amount of waste to go into the DGR is based in part on the amount of wastes currently stored at WWMF, as well as projections of future wastes. A significant portion of the wastes are already at the WWMF.

The estimated amount of waste and its total radioactivity was updated in 2009. At 2062, the assumed repository closure date, the total activity is about 17 PBq (1.7×10^{16} Bq) (taking into account new waste being emplaced as well as decay of already stored wastes).

The total radioactivity will decrease with time due to radioactive decay. During operation, key radionuclides are H-3, C-14, Co-60 and Fe-55. At long times, the residual radioactivity is primarily due to Zr-93.

COMMUNITY ENGAGEMENT

In 2009, an extensive DGR communications program continued throughout the Bruce community. Communication activities included issuing DGR project newsletters and other publications, a new DGR website, speaking engagements and presentations, Open Houses, briefings to key stakeholders and attendance at public events with the DGR mobile exhibit.

A successful strategy for engaging people in discussion on the DGR project has been to go to events where the public would already be gathering. Events that DGR staff participated in with the DGR mobile exhibit included the Port Elgin, Kincardine and Wiarton Home Shows, Mid Western AgriFair, Kincardine Scottish Games, Chippewas of Nawash PowWow, Port Elgin Pumpkinfest, Clarington Family Safety Day, and summer Farmers' Markets in Kincardine, Port Elgin and Walkerton. Overall the DGR mobile exhibit was at local community events more than 40 days.

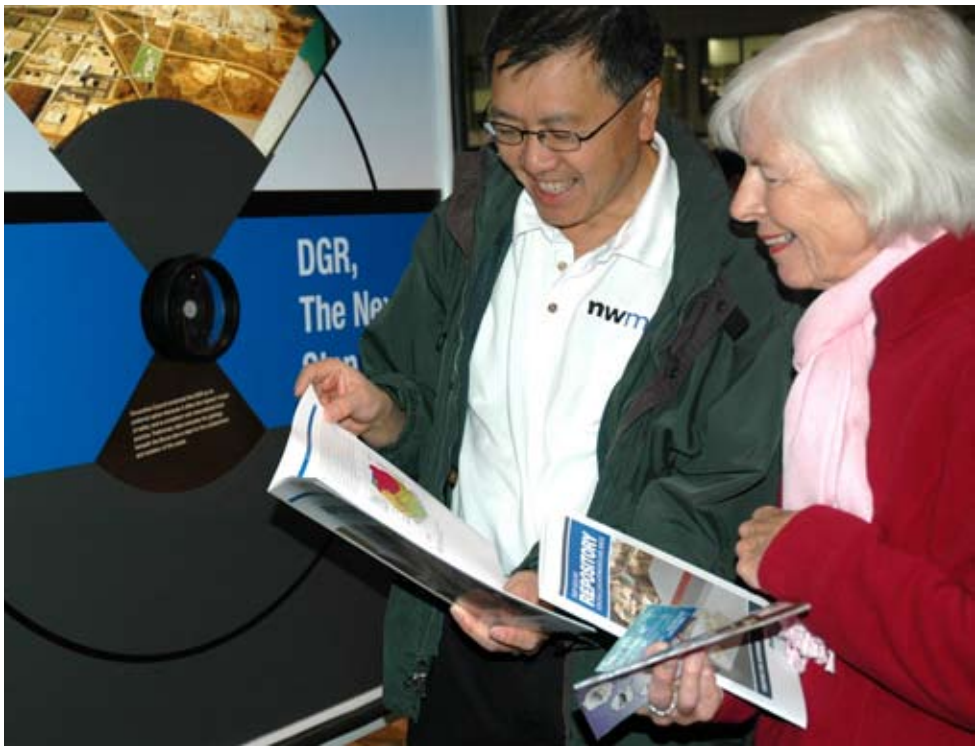
This year DGR staff also tried a new outreach activity. NWMO hosted two movie nights in Kincardine and South Bruce Peninsula, in conjunction with community partners. NWMO sponsored the viewing of an outdoor family feature film and played the DGR video on the big screen prior to the main feature. Plans to repeat and grow these "DGR Movie Nights" are scheduled for 2010.

Throughout the year, project staff made more than 45 presentations on the DGR project to local community and service groups, and professional organizations. Many of these presentations provided updates on the DGR project to groups previously addressed, but who are still keenly interested in the progress of the project.

NWMO, in conjunction with OPG, also undertook a series of engagement activities in Michigan in September to provide key politicians, officials and environmental groups with information on the DGR.

Three DGR Project newsletters were published and distributed by mail to more than 35,000 local residences. Distribution was expanded in 2009 to include all of the communities in South Bruce Peninsula and North Bruce Peninsula. The newsletters focused on the transition of the project to NWMO, DGR guidelines, safety assessment, environmental field work, preliminary design of the DGR and the Open Houses.

In 2009 NWMO initiated a DGR Community Partnership Program (CPP) to maintain and build community partnerships in Bruce County and to build NWMO's reputation and profile in its role managing the DGR project. The program supports local community initiatives in the following areas: Environment, Education, Community and Aboriginal Communities.



NWMO engineer Tom Lam discusses the DGR at the Port Elgin Home Show

Ongoing public consultation at DGR open houses and community events

In 2009 over half of the funds were directed to environmental initiatives. The majority of the balance of the funds supported municipal projects and Aboriginal community initiatives.

A third round of Open Houses was held in the local communities of Kincardine, Ripley, Walkerton, Port Elgin, Chesley, Owen Sound and Wiarton during November. Approximately 90 people attended the Open Houses. Many of the attendees were already familiar with the proposed DGR project, having participated in other stakeholder communication events. One of the primary reasons cited for attending the Open House was to obtain an update on the progress of the project and the studies associated with it. The majority of Open House attendees indicated support for the project.

At the Open Houses and throughout the year at community events the key questions and comments received on the project continued to be associated with whether used nuclear fuel or waste from other producers will be stored in the DGR, the proximity of the DGR to Lake Huron, and the potential for contamination of drinking water. The DGR Open Houses and community events provided an opportunity to respond to the questions and comments.

Aboriginal Engagement

In March a Protocol between Saugeen Ojibway Nation (SON), OPG and NWMO was signed. The protocol provides a process for SON to participate in the DGR regulatory review. Subsequent meetings with SON focused on DGR updates, upcoming project milestones, and exchange of information relevant to the project. These discussions are expected to continue in 2010.

Métis Nation of Ontario (MNO), including representatives of local Métis community councils, visited the Bruce site in November to tour the Western Waste Management Facility and receive a presentation on the DGR. Discussions with MNO are expected to continue in 2010, aimed at reaching agreement and facilitating MNO engagement on the DGR project.

Meetings were also held with the Historic Saugeen Métis to discuss developing a Protocol for their participation in the regulatory review process.

ENVIRONMENTAL ASSESSMENT PROCESS

The final guidelines for the Environmental Impact Statement (EIS) and Joint Review Panel Agreement were released by the Canadian Nuclear Safety Commission (CNSC) and Canadian Environmental Assessment Agency (CEAA) in January. The EIS guidelines list the information needed to examine the potential environmental effects of the proposed project as well as requirements for a licence to prepare a site and construct the DGR.

Baseline Environment Studies

Collection and documentation of baseline environmental data to support the EIS continued in 2009. Field work was undertaken to update the information previously compiled on surface water quality, aquatic and terrestrial species populations, social and economic conditions, and public attitude, and to obtain information on light conditions.

Baseline environmental data provides the basis on which potential environmental effects of the proposed project are predicted and which future monitoring results are compared to verify the accuracy of the environmental assessment and determine the effectiveness of mitigation measures in minimizing environmental effects.

Environmental Assessment Methodology

The assessment of effects includes a detailed description of the project, specifying project works and activities comprising the project. This description, along with the identification of the Valued Ecosystem Components (VECs) is the basis for consideration of the potential effects of the project. The Valued Ecosystem Components were identified in the EIS Guidelines and have also been displayed and discussed with community members at DGR Project Open Houses in 2007, 2008 and 2009.

For each project activity, the potential interactions with the various components of the environment are identified, and those interactions are carried forward for further evaluation. These interactions are then assessed for the potential for there to be a measurable change in the environment. Potential measurable effects are carried forward for further evaluation to determine whether those effects are adverse. If the assessment of effects indicates a potential adverse effect, mitigation measures are proposed to address the identified potential effect. Residual effects, with the mitigation in place, are then determined.

Golder Associates staff conducting baseline field studies

PROJECT SCHEDULE

The DGR project continues to be on schedule with the geoscientific site characterization work and other technical activities to be completed in mid-2010 and to form the basis for the Preliminary Safety Report, the Environmental Impact Statement and other supporting documents, which are expected to be submitted to the Joint Review Panel in early 2011. The Panel Hearing is expected to take place in 2012. If the review panel accepts the EIS, the site preparation and construction licence could be issued in 2012, or early 2013.

Pending licensing approval, the schedule includes construction of the DGR commencing in 2013, an operating licence sought in 2017/2018, and the DGR operational around 2018.