MEMORANDUM

DATE: 11/06/2002

TO: MAYOR & MEMBERS OF COUNCIL

CC: CAO

FROM: COUNCILLOR GLENN SUTTON

RE: COU-2002-04 : TRIP REPORT: LOW & INTERMEDIATE LEVEL NUCLEAR WASTE DISPOSAL PRACTICES – SWITZERLAND, FRANCE & SWEDEN

Purpose: to report back to Council on the European Itinerary arranged by OPG, of the current practices & community perspectives for the disposal & storage of both low level (LLW) and intermediate level (ILW) nuclear waste in Switzerland, France and Sweden.

Background: as per the Memorandum of Understanding between the Municipality of Kincardine and OPG, a series of facility visits was proposed. The objective was to assess various types of storage and community agreements.

1.0 ZWILAG: Wurenlingen, Switzerland

Contact: Mr. Jean-Pierre Wenger, Executive Director. He has been with this project from the beginning. Up until 1983, their LLW was disposed of in Spain or thrown overboard from ships into the ocean until Greenpeace protested and laws were changed. The project started in 1987 with general licencing. Approval was received in 1991. The building permit was issued in 1999. There were 250 construction workers involved. Commissioning was done in the spring of 2000. Zwilag is "interim storage" leading to long term underground storage. There are 29 employees. The cost of construction was 500,000,000 Swiss francs. The annual operating costs are $14,000,000 Swiss francs with 80% fixed costs. Zwilag is next to the Paul Schirrer Institute. There were 2 referendums in 1985 and 1990. As a result, there were no new nuclear stations for 10 years. Also, of interest, on Dec. 22, 2001, a referendum on having an open electricity market was defeated.

Zwilag was formed in 1991. It is owned by the four nuclear power companies that operate nuclear reactors in Switzerland and the costs are based on their power output. Zwilag consists of these major components:

a) Receiving Room

b) Evaporator & Centrifuge Room – excess water is used for grouting.

c) Conditioning Facility – sort, decontaminate, treat, solidify & pack. This facility is waiting for an operating licence.

d) Incineration – 850 degrees C operating temperature, hi-powered plasma torch, thermal reduction of mass. The combustion facility had a test run with inactive waste in September, 2002 and a trial run with radioactive waste is scheduled for January, 2003. Oxygen and propane are used.

e) Storage – up to 200 casks (for HLW) with 40 years of initial cooling. There are currently 10 flasks there (3 vitrified HLW, 7 spent fuel assemblies).

f) Hot Cells – for decontamination of parts (glove boxes & high pressure water jets).

g) Storage Hall – for LLW, remote control (under construction, not able to tour). Present LLW storage is done at reactor sites.

h) Transport – LLW has a special truck called a drum transporter with an optical reader & driven by batteries, HLW uses 140 ton flasks that contain fuel from reprocessing.

Contact: Mayor of Wurenlingen. Their Council has a mayor & 4 councillors for a population of 3,700 people. At first, the local people would not accept the project. Compensation was provided. Normal taxes are paid. In June 1989, a normal meeting was held with the public accepting the facility (214 yes, 174 no). Later in a secret ballot referendum, the people voted 707 yes and 600 no. Then the contract was signed. Zwilag gives some limited support to local charity and participated in a local small business fair. The contract is for approximately 35 years. Council was in favour. There is a "Board" consisting of 10 board members and the Mayor, who oversee the facility. They review quarterly reports. Only nuclear liability is covered. The 4 NPP's (nuclear power plants) have a decommissioning fund.

2.0 NAGRA: National Cooperative for the Disposal of Radioactive Waste (Wettingen, Switzerland)

Contact: Mr. Hans Issler, President. Nagra has 50 to 60 people employees and was created in 1972. Its mandate is to develop safe disposal concepts. They are looking for toxic isolation in stable geology to allow for controlling and retrievability of nuclear waste. They make use of "pilot cabins" which are fully instrumented small cells under the ground in rock formations. So far their preferred site is Wellenburg. All LLW and ILW from the nuclear plants, hospitals and decommissioning of NPP's will be stored there. Nagra is 97% funded by the NPP's and 3% by the federal government.

Reference: "Principles applying to compensation for services rendered in the public interest" by E. Kowalski & Valentin Egloff contains an excellent summary of the principles of compensation.

3.0 ANDRA: National Radioactive Waste Management Agency – the Centre de L'Aube Disposal Facility

Contact: Mr. Jacque Tamborini, Head of International Department & Ms. Hayet (Tour Guide). ANDRA is the French public establishment in charge of the long term management of radioactive waste produced on French territory. ANDRA keeps inventory of all radioactive waste , conducts research and build waste disposal facilities. Presently all HLW is stored at site and research by

ANDRA is in progress. The Centre de l'Aube facility, commissioned in 1992, was created by ANDRA to receive low and medium short-lived waste, even if for technical reasons, this waste may contain a small proportion of long-lived elements. It only accommodates waste from France. From the very start of its existence, the Centre de l'Aube facility has had no environmental impact of any radiological or chemical nature. It uses three barriers – casks, concrete walls and a drainage system. Designed to accommodate 1,000,000 cubic metres of radioactive waste, the Centre de l'Aube facility is expected to continue operating to about 2050. 75% of electricity in France is from NPP's.

There is a Conditioning Building where drums may be compressed. Special containers are used for waste material that allows injection of concrete. All cells are 25 meters square and allow 2,000 cubic meters of storage per cell. Five cells make up one building. There is a temporary moveable roof over the cell while it is being filled. Then it is capped with a slab of reinforced concrete, a plastic layer and a bitumen layer. In the longer term, clay will be placed on the cells and the site planted with grass. There is an underground drain system with a storm drain.

The cost of radioactive waste disposal at the Centre de l'Aube facility is 17,000 French francs per cubic meter. There are 150 employees at the Centre de l'Aube facility and its annual operating cost is 200,000,000 French francs per year. It services 58 reactors.

Contact: Mayors Phillipe Dallenagne of Soulaines-Dhuys, Gilles Gerard of d'Epothemont and Francoise Denizet of Ville aux Bois. In 1983, there was the first indication of a project and there was not much information available. In 1985 during a local consultation (meeting) 85% said no to the project. The reason was that people did not know where the facility would be located. Once it was known that it would be in the forest and not on agricultural land, the project was supported. If a vote were held now, only about 10% of the people would say no.

Soulaines receives the largest amount of financial benefits from ANDRA. The tax rate is higher for the nuclear industry than for conventional industry. The population of Soulaines is 300 in 2001 (was 241 in 1981) while the Canton has a population of 2,600. There is a commission that meets twice a year to review the Centre de l'Aube facility. Questions can be asked any time. In response to a question if the Centre de l'Aube facility has been an overall benefit, all 3 mayors said yes. It has created a new dynamic and created many new activities. About 3,000 people visit the Centre de l'Aube facility each year. This has provided the local hotels and restaurants with more business. They are pleased to receive visitors now, they were "lost in the forest before".

4.0 SKB: Swedish Nuclear Fuel and Waste Management Company

Contact: Bob Kawemark (Forsmark Kraftgrup). SFR is the final repository for radioactive operational waste in Sweden. It is situated near the Forsmark Nuclear Power Station. SFR is a central facility for final disposal of short-lived LLW and ILW originating in Sweden. It takes waste from NPP's, hospitals, industry and research. SFR is located in crystalline bedrock at a depth of more than 50 meters below the seabed, which in turn is under 5 metres of water. The facility is connected to the ground surface by two parallel kilometer long tunnels. The disposal chambers consist of 4 rock vaults plus a 70 metre high rock cavern in which a concrete silo has been built. This silo is intended

to contain most of the radioactive waste to be disposed of in SFR (ILW filter resin). This silo has bentonite clay on the outside. LLW enclosed in freight containers is placed in one of the rock vaults. Three of the rock vaults receive ILW. Two rock vaults receive dewatered filter resins in concrete tanks. The other rock vault receives waste that is placed in pits and sealed with concrete lids. The SRF must be ventilated (for radon gas).

The LLW and ILW is shipped to SFR via sea on the ship M/S Sigyn. A dual powered terminal vehicle moves the containers from the ship to the SFR. It runs on diesel above aground and electricity below ground. Note that the waste has been treated and processed at the NPP's. Typically compaction and solidification with either concrete or bitumen is done. 500 cubic metres per year is received at SFR.

SFR Data: Construction started in 1983, operation by 1988. Disposal capacity is 63,000 cubic metres. There are 12 people to operate and maintain it. There is an underground operations centre. Offices and workshops are above ground. It cost SEK 740,000,000 to construct and needs SEK 30,000,000 per year to operate. Total cost is about SEK 1,500,000,000 (this includes closure). SFR disposal cost is SEK 33,000 per cubic metre ($5,000 Canadian per cubic metre). There are 20,000 visitors per year to SFR.

Spent nuclear fuel is kept in CLAB (Central interim storage facility). Deep repository for HLW is planned to start in 2010. Test drilling is in progress.

Contact: Mayor of Upsalaland & County Councillor - Reinhold Delwell. There was no referendum for SFK. Most people work at Forsmarks. In Sweden, referendums are advice and not binding. There are 71 councillors for the county (300,000 population) and 49 councillors for the community (22,000 population).

Nuclear plants have a special higher tax. These taxes go to the state government.

There is a Safety Committee. A second committee meets to study local issues. They are very interested in Russian affairs and have had several trips there.

Summary & Recommendations: this data can now be used to assist Council in evaluation of SGN design options and community agreements. Comparisons can also be made when other Members of Council visit facilities in other jurisdictions (e.g. USA).

Respectfully Submitted;

Councillor Glenn R. Sutton

ONTARIO POWER GENERATION/MUNICIPALITY OF KINCARDINE

LOW & INTERMEDIATE LEVEL WASTE MANAGEMENT STUDY PROGRAM

Foundation Document

A. Joint OPG/Municipal Memorandum of Understanding dated April 2002 (see attached copy).

B. OPG/Municipal Background Document (see attached copy)

Study Tour Objectives

1. To: witness and study best practices and current systems;

2. To: engage workers/citizens/politicians in a public dialogue about their views and experiences;

3. To: review documentation and agreements;

4. To: review and interact with government regulators and history of process;

5. To: review regulatory oversight.

Study Tour

1. Centre de l'Aube (near surface facility) (France)
2. Forsmark (Sweden)
3. ZWILAG (Switzerland).

For further information please contact:

John deRosenroll, CAO
1 (519) 396-3018 or
cao@kincardine.net

OPG/Kincardine Memorandum of Understanding (MOU)

Background:

- The Western Waste Management Facility (WWMF) is a centralized, low & intermediate level radioactive waste (L&ILW) processing and interim storage facility within the Bruce Nuclear site, located in the Municipality of Kincardine.

- The OPG owned and operated facility has been safely storing L&ILW for the Bruce, Darlington and Pickering Nuclear Generating Stations for over 30 years.

- Low level waste consists of industrial items and materials such as clothing, tools and equipment, which have become slightly contaminated and are of no further use, while Intermediate level waste is comprised mainly of ion exchange resins and filters used to keep reactor systems clean.

- OPG's reference plan is to continue to store the L&ILW in the interim storage facilities at the WWMF and then permanently store the waste in a sub-surface repository, the location of which has yet to be selected.

Memorandum Of Understanding:

- In light of the current Federal legislation which deals with high level radioactive waste (mainly used fuel), the Kincardine council requested an examination of the various options for the long-term management of L&ILW at the WWMF.

- OPG signed a Memorandum of Understanding (MOU) with the Municipality of Kincardine in April 2002 agreeing to develop, in consultation with the municipality, a plan for the long-term management of L&ILW at the WWMF.

- OPG has recommended that the following work be undertaken to develop the plan:

    - An examination of the various options for long-term management of L&ILW at the WWMF, including a review of existing North American and European models for the long-term management of low and intermediate level waste
    - A geotechnical and safety feasibility study to assess the technical suitability of the various L&ILW long-term management options in the geology of the WWMF site
    - A socio-economic impact assessment of the existing WWMF and the future long-term management options for L&ILW at the WWMF
    - A public and stakeholder communication and consultation process

- The activities in the work plan are to be completed by July 2003.

Date: September 9, 2002

Subject: Speaking Notes Mayor Larry Kraemer

Canadian Association of Nuclear Host Communities

TO: Nuclear Energy Agency

Development Opportunities for Communities

In Canada, we are in the early stages of a new public process with respect to the long-term storage or disposal of low, mid and high level nuclear fuel waste. I stand before you today as a representative of the public who, through education, dialogue and mutual cooperation, intends to work with the nuclear industry in order to ensure that public confidence is maintained through the knowledge that health, safety, social risks and environmental issues, have been addressed by the leaders of our communities.

The Canadian Association of Nuclear Host Communities was created out of this sense of obligation by the communities, which are hosts to the nuclear industry in Canada. Over the years, the nuclear industry has worked hard at developing trust and goodwill at the local level. Against this backdrop of policy changes at both the provincial

(new competitive energy markets) and the federal level (Bill C-27, an act respecting the long-term management of nuclear fuel waste) have necessitated a new public dialogue for these policy proposals. Now, through the leadership of the Mayors of the host nuclear communities, the grass roots level of society needs to be heard. Based upon these early discussions, the Canadian Association of Nuclear Host Communities held its inaugural meeting at the Federation of Canadian Municipalities' Annual Conference, this past spring in Hamilton, Ontario. Founding members of the Association include The City of Pickering, the Municipality of Clarington, the Town of Deep River, The Municipality of Kincardine, and the Gentilly District in Becancour, Province of Quebec.

Individually, all member municipalities, have significant experience with the nuclear industry in their own backyards and they now realize that the time is right to work together to create a collective voice. Each of the CANHC member communities has a different structural background with the nuclear industry and I will attempt to provide a brief overview of the facilities that influence their views:

1/ City of Pickering

- Durham Region (east of Toronto)
- Mayor Wayne Arthurs
- Pickering site consists of two stations, each with four 550-megawatt reactors.
- Dry storage facility for the spent nuclear fuel
- Pickering –B- units in operation and –A- units currently in rehabilitation stage.

2/ Municipality of Clarington

-Mayor John Mutton

-Durham Region (east of Toronto)

- Darlington`s site consists of four 950 megawatt reactors
- Canada's candidate site for the international ITER project.
- De-Tritiation Facility
- Home to the Port Hope waste site (former Eldorado site)

3/ Town of Deep River

- Mayor John P Murphy
- Renfrew County (north west of Ottawa)
- Home to Atomic Energy Canada Limited , Chalk River Laboratories

- AECL waste facility
- Also home to the Maple #1 & # 2 test reactors

4/ The Gentilly District of Becancour, PQ

- Mayor Maurice Richard
- Gentilly reactor , one 550 megawatt reactor

5/ The Municipality of Kincardine, County of Bruce

- Kincardine site consists of Bruce –A- (currently in rehabilitation mode) & -B-, twin four unit 850-megawatt reactors.
- Home to the Western Waste Management facility (all OPG low and medium level waste plus Bruce Dry Fuel Storage)
- Historical note, location to Douglas point, the first commercial reactor in Canada.
- Bruce Energy Center , a 900 acre energy concept park that is premised on the use of excess nuclear steam for industrial growth

(We should add a little about their views here or change lead in)

With this common nuclear industrial history several new issues have come to light, re-affirming the need for an organization such as the CANHC :

1/ the first privatization of a nuclear facility in Canada (Bruce power lease of the Kincardine facility) Note may want to talk a little bit about perceived uncertainty around private companies as highlighted by B.E.

2/ Introduction of bill C-27 and the commonality to all of the CANHC communities. Note may want to talk a little bit about Point Lepreau and implications of it's current troubles to this issue!

3/ Taxation appeals of nuclear properties in Ontario.
At a time when member municipalities expect a dramatic increase in both financial cost and council duties related to issues stemming from C-27.

4/ Clear recognition that the status quo is changing in the energy industry and the collective need to stay up to speed with the issues.

5/ New concerns about the long-term viability of the industry.

6/ Security issues arising from 9-11 affecting the viability of some of the options envisioned in C-27

Now with these harbingers of change in the wind the CANHC has been formed and some of the unofficial benefits to our new group will be:

A/ the ability to create stakeholder clarity, i.e. the CANHC will be a bonifide group who democratically represent the public in present or future policy debates of nuclear issues.

B/ Creation of a group who will create continuity beyond the current single life of any single Municipal Council, this is a long term issue and this is seen as an important factor as it will help our communities not have to start all over again each new Council term.

C/ Creation of a forum where Municipal leaders have the ability to share experiences, so that reasoned discussions can and will take place between the Nuclear industry / governments and the host communities.

D/ Recognition that these new nuclear policy issues will take time and financial resources, thus being better done from a larger scale group, rather that on a singular basis.

As most of you are likely aware, Bill C-27 will take Canada's singularly most unpopular political issue, that of determining a solution for the long-term storage or disposal of nuclear spent fuel and bringing it forth to a proposal stage. After which it will be reviewed by the Federal Minister of Natural Resources. Even though the technical side of this project has and will continue to be, well documented, it is the public vision surrounding this policy that requires clarity. To bring a well-rounded view of this subject to the table, the CANHC has engaged the federal government in a pro-active sense rather than a re-active one. Collectively, the Mayors of the member municipalities, which make up the CANHC, traveled to Ottawa to discuss the draft of Bill C-27 and its policy direction with respect to society in general and that of their specific communities. Together, these communities host facilities, which generate over 90% of the production of electricity in Canada. When one reads Bill C-27, it becomes clear that it is not a technical siting process, but an exercise

in democratically engaging the public in this historically challenged, landmine policy field. Again, Bill C-27, under various sections, directs the waste management organization to prepare reports that would include not only the technical applications required, but also the softer discussions. For example, section 12. (4) of Bill C-27 states that "each proposed approach must include a comparison of the benefits, risks and costs of that approach with those of the other approaches, taking into account the economic region in which that approach would be implemented, as well as ethical, social and economic considerations associated with that approach." Make no mistake. This is the sort of policy text that catches the attention of the local leaders.

As our discussions took place, it was very interesting to note that at the initial meetings at both the federal and provincial level, it was assumed that the CANHC was an organization with a generally non-supportive agenda towards the nuclear industry and specifically towards Bill C-27. This pre-set notion, held by both levels of government, that the CANHC was anti-nuclear, only dissipated once our Association was able to articulate its supportive position of the nuclear industry.

It is from this commonality that support for nuclear projects such as ITER came forward. Mayor John Mutton from the Municipality of Clarington spoke with conviction that the future of the nuclear industry could be reborn in Canada if we jointly harness the collective will of both levels of government in harmony with the public in order to capture the associated economic climate that ITER has to offer Canada.

Now, with all of that said, the CANHC position on ITER is in harmony with the CANHC's Mission Statement which states "that its purpose is to ensure the Nuclear Host Communities maintain the best interests of their communities in an ongoing pro-active relationship with the nuclear industry contained therein".

I also think that it is worth the time to also state the five official objectives of the CANHC in order to document our intent, as an organization:

1: to promote the common interests of its members through collective action;

2. to enhance its members' influence on nuclear policy made by governments, regulatory agencies and the nuclear industry in Canada;

3. to gather and share information regarding nuclear energy matters and increase public awareness of community issues related to the nuclear industry in Canada;
4. to share the experiences of the member nuclear host communities to further enable the association to achieve its principal objectives;
5. To gather and share perspectives of members and non-members of the association regarding nuclear issues. (This is an ongoing and evolving process.)

When asked to present at your conference, it was requested that comment be made on the challenges & opportunities for a successful conclusion to the nuclear waste management issue. One comment I would like to make is that after 9-11, current events on the world stage and the political issues arising from these events I see some fundamental differences in this issue not envisioned at the outset of planning for bill C-27. One of which is that National Security concerns will now probably rank at the very top of the list in requirements for an acceptable site. Therefore I wish to leave the

following generalities with you as a perspective from the non-technical side of the issue.

Part # 1, public perception to the attributes of a permanent site

- large land mass , away from the high population areas in Canada
- Geologically stable site
- Well documented engineered solution that protects the environment and human elements
- Either a well educated population base in nuclear terms or a community that derives its economic prosperity from the nuclear industry
- Stable political history

Part # 2, siting challenges

- Protection of human health & environment

-Protection of local property values

-Protection against being attributed with the social stigma of being a " nuclear waste dump"

- Public education as to the technology being used at the site.

- Public perception of being the net repository of " other peoples industrial problems "
- dealing with the multitude of existing high level sites and honoring the past commitments by the industry , with respect to the final disposal
- providing area wide information in a clear and easily understandable format in order to offset claims of secrecy made by anti-nuclear organizations
- high cost to participate in the ongoing policy debate and the time for non-nuclear entities to effectively know the new rules of the game
- lastly trying to weigh the long term liabilities against any current economic opportunities which may dissipate as a result of hosting a long term site

<u>Part # 3 siting opportunities</u>

- Development of a customized economic package for communities that participate as long term hosts. (This absolutely must also address regions social and economic aspirations as set out in C-27 this is of critical importance.)

- Guaranteed stability of the local taxation base by the growth of the nuclear industry
- Job growth in an industry with a bright future
- Articulation of the message that used fuel from CANDU differs fundamentally from used fuel from enriched systems in that there is no chance of spontaneous criticality and long-term shielding is the primary requirement.
- Last but not least the satisfaction of knowing that your community has played an important part of the waste management solution in a proactive way.

The CANHC path forward is currently in the hands of the Honorable Herb Dhaliwal, Minister Of Natural Resources, and is the outcome of a meeting between the Minister and the member Mayors in which both parties agreed to be active participants in the development of the long-term policy report being envisioned in Bill C-27. Our Association's message to the Minister conveyed our thoughts that only through the participation and the support of the citizens in the affected communities will the proposal receive public acceptance. Canadians will be looking to their local leaders for issue support and

comment. Realistically, project fruition can be assured by engaging our citizens in the process, and not merely keeping them on the periphery of the nuclear policy creation.

If you will so kindly allow me, I wish to step back from my role as chairperson of the CANHC and address you as the Mayor of Kincardine in order to recount a specific instance that deals with the long term management of both low & intermediate level waste. In a Memorandum of Understanding with Ontario Power Generation (dated April 16, 2002) the policy issue of developing a long-term plan to deal with low and intermediate level waste at the Western Waste Management Facility in Kincardine, was addressed. This case study has many of the same principals that will be envisioned in Bill C-27. Together, the Municipality and OPG have agreed to participate in a public joint study program to:

1/ study both the human health & safety issues, combined
With the geological stability of the
Existing Western Waste Management facility.

2/ review the technical study by SGN to examine the technical feasibility and other related considerations of the

long-term management of low and intermediate level waste;

3/ a socio-economic impact assessment in the municipality of Kincardine of the existing operation of the WWMF and of the potential long term plans;

4/ a review of European and American models for the long-term management of low and intermediate level waste. This component will involve on site study visits and will look at issues such as technical infrastructure and community compensation.

Overall, the proposal, once fully developed, will be presented to the public in joint open houses and community news letters in an effort to put this issue on the front page in our community. Of paramount concern to the local political leadership is the requirement that we hold a community plebiscite to democratically poll each citizen as to the public's acceptance of the proposal in our community.

It is with this sort of openness that our municipal Council can have open and frank discussions regarding the management of nuclear waste. As an aside, it is not uncommon to hear discussions

regarding the nuclear industry at the local coffee shop or on the front pages of the community's newspapers. It is the trust and goodwill that Ontario Power Generation has built up in our area that has allowed us, as a community, to mature in nuclear terms and discuss the issues that will affect us all.

Even though at this time we have all of the project participants rowing in the same direction, it has not always been a coordinated symphony. In the past my community has worked well with the previous Ontario Hydro, in order to highlight the economic advantages of being a nuclear friendly area. The Bruce Energy Center, a 900 acre energy concept park premised upon the utilization of excess nuclear steam (being used by energy intensive industries) in order to allow the community to diversify its industrial base was heralded by AECL as economic agent of the CANDU system. This " steam dream " founded the nucleus for a six-industry industrial park, however nuclear liability issues have caused a great deal of local concern about its future.

However it is from these concerns that our community has again engaged the nuclear generator in our community to re-tool the provision of low cost steam (from alternate energy sources), as an

interim methodology for keeping an economic energy advantage for our secondary industries. The case in point that I am trying to make is that through necessary change, comes both opportunity & diversity and only with meaningful local discussion and action can both the nuclear industry and the community make progress and not regress in economic terms.

In summation, the members of the Canadian Association of Nuclear Host Communities envision a symbiotic relationship with the nuclear Industry, in that we both share the same objectives (safety, social acceptance, financial security and environmental health). It is only when we take the time to educate, consult and involve the public in these discussions that we will collectively take these important societal issues off of the back bench of our policy development agenda.

Note Thoughts: Senator Tailor "it is starting to look like at the end of the day the only thing possible may be to leave it where it is."

Sierra Club any attempt to move the waste will result in the environmental battle of the millennium

Facility	Type	Comments	Yes / No
Hanford Washington	DOE/NRC/PRIVATE	LLW / Trench tech	Yes
Idaho Laboratory	DOE	LLW / Small Volume	NO
Nevada Test Site	DOE	Large volume of LLW	YES
Clive Utah	NRC	LLW & Mixed Waste	50/50
WIPP Carlsbad	DOE	Undergroud facility	YES
Los Alamos	DOE	Small LLW Facility	NO
Yucca Mountain	NRC	Low/Mid/High Prototype	Yes
Oakridge Tennessee	DOE	LLW	NO
Barnwell S/C	NRC	LLW Compact	50/50
Savanna River	DOE	LLW Wet Environment	NO
Ferald Ohio	DOE	X-LLW Soils & Rubble	NO