



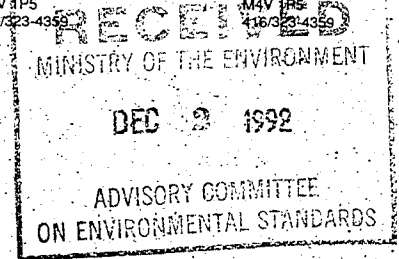
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MEMORANDUM

December 2, 1992

TO: Dr. Phil Byer, Chair
Environmental Assessment Advisory Committee

Dr. Mark Goldberg, Chair
Advisory Committee on Environmental Standards

Dr. Stuart Bailey
Hazardous Contaminants Branch

Dr. Ken Roberts
Water Resources Branch

Arieh Cohen
Waste Management Branch

FROM: Linda Pim and Anne Wordsworth
Minister's Office

Re: Review of Guideline/Standard for Tritium Drinking Water

As part of a report to the Minister in July 1992 -- titled "Review of Requests for an Individual Environmental Assessment of the Proposed Pickering/Ajax Water Supply Plant" -- the Environmental Assessment Advisory Committee examined the guideline/standard used in Ontario for tritium in drinking water. We have enclosed the pertinent section of the EAAC report and the Committee's recommendations to the Minister on tritium.

As part of her decision of September 28, 1992 not to bump up the water treatment plant to an individual EA, the Minister stated:

"With respect to the health risks of radionuclides in the area, I agree with EAAC's conclusion that these remain significant and legitimate concerns of the public. In response to these concerns, I will be requesting the Advisory Committee on Environmental Standards (ACES) to carry out a public review and advise me, by the end of



Memorandum -
Guideline/Standard for
Tritium Drinking Water

1993, on an appropriate standard for tritium in drinking water. ACES will be requested, as part of its review, to address the effects of long-term exposure to low levels of radionuclides and of short-term exposure to sudden elevated levels in drinking water."

We believe that the best way to start the ball rolling to implement the Minister's decision on the tritium issue would be to convene a meeting of representatives of EAAC, ACES and the Ministry, as listed above. The purpose of the meeting will be to determine exactly what ACES will be asked by the Minister to do, what EAAC envisioned ACES doing, and what might be expected of the Ministry as input to the ACES review.

Please get back to our assistant, Mary Ouroumis, at 323-5922 as to which one or more of the following dates and times for a meeting would suit you. The meeting would take place at 135 St. Clair Ave. West, room to be confirmed.

Thursday, Dec. 10	2- 3 p.m. X or 3-4 p.m. ^① ✓
Friday, Dec. 11	10-11 a.m. X or 1-2 p.m. X
Monday, Dec. 14	2- 3 p.m. ✓ or 3-4 p.m. ✓
Tuesday, Dec. 15	10-11 a.m. X or 2-3 p.m. ✓ ^②

We look forward to meeting with you in the near future.
Thanks for your co-operation.

Linda Pim
Linda Pim

per. Anne Wordsworth
Anne Wordsworth

ENVIRONMENTAL ASSESSMENT ADVISORY COMMITTEE

REPORT NO. 50 TO THE MINISTER OF THE ENVIRONMENT

**REVIEW OF REQUESTS FOR AN INDIVIDUAL
ENVIRONMENTAL ASSESSMENT OF
THE PROPOSED PICKERING/AJAX
WATER SUPPLY PLANT**

JULY 24, 1992

**Dr. Philip Byer, Chair
Ms Christine Lucyk, Member**

addition, the Region has agreed to consider further alternative treatment processes during plant design, to design the plant to accommodate future process changes in order to respond to changing standards or raw water quality, to monitor the quality of the drinking water, and to take appropriate action to respond to future problems. Therefore, the Committee does not believe that an individual EA is needed provided that these commitments by the Region are set out as terms and conditions.

The above conclusion relies on the adequacy of the province's drinking water objectives now and in the future. We note that the province is moving toward tighter standards on drinking water quality, and that many of the concerns of the residents should be addressed through reviews of the objectives, and the Region meeting any changes in these. The requestors, however, have raised concerns that may not entirely be addressed even though the Region will meet all of the objectives now or in the future. One of the major benefits of the EA process is its ability to go beyond existing standards. On the other hand, the Region submitted that on the grounds of equity, no municipality should be required to meet a different level of water quality than is required across the province.

In the opinion of the Committee, when a new treatment plant is built, there is a valuable opportunity to provide the best drinking water possible through the use of state of the art technology, not just to meet the standards. The Environmental Health Directorate, Department of National Health and Welfare (in a report on THMs) stated that "when water supplies are expanded or upgraded, every effort should be made not only to meet the revised guideline, but to reduce the concentration to as low a level as possible." In our view, the Region should take this opportunity to use the best available technology to provide the safest water possible.

9.2 Radionuclides

The proximity of the proposed plant to the Pickering Nuclear Generating Station prompted concerns from residents about radionuclides, specifically tritium, in the drinking water from this plant. Tritium is a radionuclide which if ingested, inhaled or absorbed through the skin may result in serious health problems such as cancer and birth defects. It is an unstable hydrogen ion produced when the heavy water coolant of Canadian nuclear reactors absorbs neutrons during circulation through the reactor core, and is released into Lake Ontario by the PNGS. Tritium is also present from

natural sources at background levels. There is presently no treatment process which can reduce or remove tritium from the water.

The current Ontario drinking water objective for tritium, established in 1978, is a maximum concentration of 40,000 Becquerels/litre (Bq/l), which is a long term average limit. There is also a target concentration of 4000 Bq/l. Radiation standards are continually reviewed based on new information and a growing concern about health risks associated with long term exposure to low level radiation. In 1990, the International Commission on Radiation Protection (ICRP) adopted new radiation limits which were reduced by 80% for total dosage. This was based on a higher value for estimating cancer risk from radiation. The U.S. EPA has been reviewing their tritium standard which will result in a new lower level. Based on the more stringent ICRP levels, a Federal/Provincial Subcommittee on Drinking Water and Radiation Surveillance initiated its own review and is expected to tighten radiation standard by about 80%.

Tritium is sampled daily from the raw water at the existing plant, and these samples are combined weekly by the Ministry of Labour and monthly by Ontario Hydro. The results are provided to the Region quarterly. The results show that in the past few years tritium levels at the water plant are on average higher than at other plants in the area. The highest level at the Ajax plant was about 350 Bq/l.

In the case of a significant event at the PNGS, such as a major spill, a Provincial Nuclear Emergency Plan is put into effect. This sets out the responsibilities for the various parties and the procedures for monitoring, notification and shutting down the waterplant.

Requestors' Concerns

The requestors have set out detailed concerns about the health risks associated with tritium, the standard for tritium, and current practices and procedures for responding to elevated tritium levels, as summarized below.

Submissions on Health Concerns

- a recent study has shown a higher incidence of birth defects, specifically Down Syndrome, and infant mortality in the Ajax/Pickering area, and has suggested that this is related to tritium releases from the Pickering NGS;

- the Atomic Energy Control Board response to this report dismisses its findings;
- there is growing evidence that the human immune system is affected by long term exposure to low levels of radiation;
- this evidence is in complete contrast to the existing standard which is based on high doses of external radiation; and
- tritium may have significant impacts for sensitive sub-groups in the population, such as pregnant women and infants.

Submissions on Standards

- the present tritium standard is based on an average adult male of about 70 kg, which does not address the potential effect on a developing fetus;
- standard setting is an ongoing exercise and over time standards invariably become more stringent;
- the ICRP and AECB standard is being reduced because we have been underestimating the effects of radiation for 20 years; and
- what is important is not whether the standard is met but whether it is adequate.

Submissions on Tritium Levels at Proposed Site

- Ajax has the highest levels of tritium both in terms of averages and peaks along the waterfront;
- the danger of ongoing leaks is increasing with an aging nuclear plant, and these discharges should be, but are not, regulated under MISA;
- the levels of tritium from the current water supply plant (which is the proposed location for the new plant) is always higher and has been as much as 6 times higher than at neighbouring plants during the past 4 years;
- the closer the water plant is to the PNGS, the less lead time there is to respond to a leak; and

- tritium levels in the raw water do not vary significantly (only 20%) at different distances from shore or at different depths, and because of erratic water currents, the proposed longer and deeper intake pipe at the proposed site would not seem to avoid high tritium levels.

Submissions on Monitoring and Notification

- the present monitoring of tritium by Ontario Hydro is inadequate because it does not provide information on a timely basis and residents do not have the necessary information to make a choice not to drink the municipal water;
- the leak notification process at the PNGS is too slow to assure the public that tritium contaminated water would not reach the drinking water supply system;
- when elevated levels, e.g. 300 Bq/l, are reached, public notification should be required; and
- monitoring of levels needs to be coupled with actions and information dissemination, including the possibility of water plant shut down.

Submissions on Need for an Individual Environmental Assessment

An individual EA may provide the opportunity for:

- an independent analysis of appropriate "action" levels (public advisory and shutdown of plant) for tritium in drinking water;
- an independent review of the differences between Canadian and US limits for tritium in drinking water and the relationship to the world-wide tightening of radiation exposure standards;
- an investigation of the feasibility of implementing devices to control radionuclide releases from the PNGS;
- a review of Ontario Hydro's practice of dumping radioactive waste into Lake Ontario;

- a review of AECB's rationale for not requiring the Best Available Technology Economically Achievable standard for radionuclide emissions abatement;
- a review of CUPE 1000 (Ontario Hydro's nuclear workers) rationale for supporting the implementation of zero discharge at nuclear facilities in Ontario;
- an opportunity to resolve the jurisdictional issues among the federal, provincial and local levels of government for the regulation of radioactive pollution and water quality standards; and
- an opportunity to determine the waterfront location in or near Durham which provides water with the least radioactivity under accident release conditions.

Proposed Terms and Conditions

The Ajax Save the Waterfront Committee proposed the following terms and conditions to address their concerns about tritium. (See Attachment 5 for details.)

- a review of drinking water objectives for radionuclides by ACES;
- a request by the Minister to the federal government requesting acceleration of the federal review;
- establishment of the Ajax Water Quality Committee to review contaminant concentrations;
- improved monitoring, sampling and notification procedures for tritium;
- installation of continuous real time monitors for tritium;
- review of the emergency plan to require specific actions for varying levels of tritium concentrations in the drinking water;
- provision by the Medical Officer of Health to the public of written monthly summaries on tritium concentrations, total amounts of radiation doses from all sources, and potential health risks from various levels of tritium;

- installation of filters to reduce other radionuclides, e.g. cesium;
- installation of a water current meter to permit determination of water speed and direction;
- development of a model of tritium plume movements from the PNGS;
- development of a plan to reduce water usage in the event of a treatment plant shut down;
- notification to sensitive water users of the risk of low level radiation, etc;
- undertaking a trial emergency exercise;
- evaluation of other shutdown procedures in order to develop local procedures and practices; and
- training of water treatment plant workers on tritium.

Region's Submission Concerning Tritium

In planning for the new water plant, the Region carried out some monitoring of tritium in raw water in various lake locations. Tritium sampled by the Region was in the range of 10 to 15 Bq/l which is 0.26% to 0.38% of the MOE long term target of 4000 Bq/l, and a further order of magnitude less than the standard of 40,000 Bq/l. This compares with background levels of about 10 Bq/l experienced at other plants along the waterfront and an average of about 25 Bq/l at the existing Ajax plant. The maximum level reached at the existing plant between 1988 to 1991 was 350 Bq/l. Based on this monitoring, it is the position of the Region that:

- since the levels of tritium are so far below the existing objective and target, as well as the levels discussed for new standards, the water is safe for drinking;
- any variations in tritium levels along the Durham waterfront are not significant; and
- levels of tritium are consistently lower at greater depths further offshore.

The Region therefore concluded that safe water would be provided at the proposed site with an intake at a distance of 8400 feet offshore and depth of 60 feet.

The Region submitted that:

- it has no control over the source of tritium, which is an allowable discharge from the PNGS;
- it relies on the government to establish safe levels for tritium in drinking water; and
- the standard for tritium should not be addressed in an individual EA but through a provincial/federal review of standards.

Recognizing the need for accurate monitoring and response capability in the event of a leak from the PNGS, the Region recommended the following terms and conditions:

- installation of a continuous real time water current meter between the PNGS and the water intake; and
- installation of an on-line tritium monitoring device when it becomes available.

The Region also proposed as a term and condition that the raw water intake be designed to allow further extension to a deeper depth if required in the future due to possible deterioration in raw water quality.

Committee's View on Radionuclides

The requestors have raised a number of critical issues about the potentially significant health effects from tritium in their drinking water. There can be no question about compromising the health of the residents of Durham. The issue for the Committee is whether there has been adequate planning to provide safe drinking water and whether it is prudent to build a new water supply plant near the PNGS. It is not the role of the Committee to judge definitively the arguments over health risks, whether the health of the residents has been affected by PNGS, or the adequacy of the existing tritium standard.

However, there is a growing body of evidence suggesting that there may be significant public health risks due to low level radiation from

nuclear generating stations. In response, various standard setting agencies are re-evaluating radiation standards which may result in significantly lower acceptable levels. The Minister's Advisory Committee on Environmental Standards (ACES) wrote to the Minister on this matter on November 5, 1991. From EAAC's point of view, it would be extremely shortsighted and irresponsible to ignore such warnings. When there are such concerns, even if not yet scientifically resolved, it is better to wait at least until the standards are fully reviewed before finalizing plans for the water plant. This is particularly true when considering the types of potential health risks which carry with them both human suffering and long term costs for the province's health care system. Moreover, some of these impacts may not be fully evident for 20 or more years.

The Region and Ministry of the Environment staff have indicated that the proposed plant will meet all current provincial drinking water objectives and therefore should be approved. But they are not in a position to judge the adequacy of the current standards. In the Committee's view, the residents who have to live with the threat of serious health problems deserve more than this response, particularly given that the current standard was set in 1978 and is likely to become more stringent as a result of new evidence. On the other hand, we are sympathetic to the Region's position that they do not set standards and that they are in no position to determine alternative acceptable water parameter levels.

While the Region is not responsible for setting acceptable levels of tritium nor for the source of the tritium, it is responsible for providing its residents with safe drinking water and should be concerned about the adequacy of the standard. In addition, as in the case of non-radionuclides where the Region undertook to study and to design the plant on the basis of the study results, similar attention was not given to the problem of tritium. The Region should have undertaken more monitoring to predict the flows and levels of tritium to ensure that the proposed intake is at the best possible location.

The Region has stated that the intake will be placed at a distance and depth far enough from shore to meet any new standard. The requestors indicated that while the tritium levels may be reduced by this solution, they will still be subjected to higher levels than their neighbours in Scarborough or further downstream. They have argued that they should have the same water quality as others by choosing another site for the Ajax plant with tritium at or near background levels. It is the Region's position that any differences in tritium levels achieved by choosing a

different site would be insignificant. In the opinion of the Committee, it should be possible for the Region to extend the intake from the proposed waterfront site to reach as good a water quality as is necessary.

An important complicating factor is that total exposure to radiation comes from other pathways such as air and food. Tritium in water is only a small percentage of the total radiation exposure through air, water, and food in Durham. While the requestors recognize this, they stated that limiting tritium in the drinking water source is their only direct means to reduce a part of their total exposure to radiation. It was for this reason that some of the requestors are so concerned about proper planning for the plant and asked for an individual EA. But this does not address the fundamental matter, which is the radiation source and its control at the PNGS.

The question for the Committee and the Minister is therefore whether an individual EA of the proposed water supply plant, or some other mechanism, would best address this concern over tritium. What is needed are:

- a thorough, independent and public review of standards for tritium in drinking water including its effects on sensitive groups; and
- a thorough analysis of the sources and controls of radiation in the Region and how this relates to proposed locations for the water intake.

Review of Tritium Standard

While environmental assessment is a legitimate and powerful means to address publicly the adequacy of a standard, the value and practicality of using the EA Act depends on the kind of problem being addressed and what other review mechanisms exist. An individual EA would require appropriate studies, and would allow for public review and the opportunity for independent adjudication. However, there are a number of limitations with using the EA Act to review the health effects and standard for tritium:

- the Region, as the proponent, would be required under the Act to study and defend a safe level for tritium in drinking water, for which it is not responsible;

- the EA Act and EA Board were not designed for this purpose, and would be an inefficient means of reviewing provincial standards;
- the review through the EA Act would not legally set a new tritium standard for Ontario, which is needed; and
- EA Act approval for this plant could set a different (more stringent) level for this plant than is required for other plants in Ontario.

Given these limitations, it is important to consider what other options exist. One option, as recommended by the requestors, is a review by the Minister's Advisory Committee on Environmental Standards (ACES). ACES was specifically established to provide a public process for reviewing environmental standards. It also has a broad range of expertise for this purpose. ACES can provide a timely, independent review of the standard for tritium within the context of total radiation exposure. This review could consider the implications of the ICRP reduction for the Canadian standard and the discrepancy between Canada's standard and standards in other countries. The Committee believes that a thorough public review of tritium is needed and that ACES is the most appropriate means of undertaking such a review.

In order to have a new standard in place prior to determining the final location of the water intake, ACES should report to the Minister before the end of 1993.

Review of Sources of and Controls on Radiation in Durham and Location of Water Intake

The remaining question is whether an individual environmental assessment would be an appropriate mechanism for addressing the requestors' legitimate health concerns. There is a need to address total radiation exposures and their source, and to design and operate the proposed water plant in order to ensure the safest possible drinking water. However, there are important limitations to using the environmental assessment process for this purpose:

- an EA would focus on the siting, design and operation of the water plant but would not affect control of radiation from the PNGS;

- the Region, which is the proponent under the EA Act, has no jurisdiction or ability to require Ontario Hydro to alter its present practices; and
- the potential health risks associated with the total radiation exposure from all sources would not necessarily be addressed through an EA of the water plant.

Use of the EA Act to address these public concerns would therefore not be effective in addressing the main issues facing the residents in Durham.

This referral has raised much more important and broad public concerns than are normally associated with a new water plant. The tritium in drinking water raises questions about the Durham residents' exposure to all radionuclides because of their proximity to the PNGS. Moreover, as the population is increasing through urbanization of this area, larger numbers of people will be exposed to the radiation. Many of these households are young families and both prenatal and long-term exposure should therefore be of particular concern. A recent study on birth defects and infant mortality, conducted by National Health and Welfare for AEBCB, indicates that that Down Syndrome was found to have a significantly elevated rate in Pickering (with a lesser elevation in Ajax). While the study found no consistent pattern between these rates and the tritium releases or ground monitoring data and cautioned against assuming a health risk, it did recommend that "more detailed examination of the elevated rates of Down Syndrome would be prudent."

The lack of a statistically significant correlation does not, however, allay residents' concerns about the long-term health effects of radiation and the need for more stringent controls on the PNGS. While their specific focus is on tritium releases into Lake Ontario, which shows up in their drinking water, and will continue to be higher than in other areas, this is only part of a broader concern about total radionuclide exposure.

The Committee was startled to learn that the local public, which are the ones affected directly by the radionuclides, have essentially no ongoing role or opportunity to address or resolve their concerns about radionuclides. There is no publicly accountable forum for the residents to address these concerns. When a concern is raised about potential health effects, there is frustration with the way these concerns are handled by the AEBCB, which regulates nuclear stations, or by Ontario Hydro. There is little public input into the way their concerns are addressed. The public has no formal mechanism in which to logically formulate the questions

they want answered, to help set priorities for these, to help set the terms of reference for the needed studies, or to help determine what steps should be taken to control and monitor radionuclides from the PNGS and their exposure through all pathways.

The public, which is directly affected, does not wish to leave these crucial health matters to the AECB and Ontario Hydro alone, particularly since the decision makers are well removed from the potential problems. The residents deserve to have a greater say in matters that directly affect them. There is a lack of trust in both the AECB and Ontario Hydro which are not directly accountable to the residents.

The question is what kind of mechanism should be put in place which is responsive to the residents' concerns and will result in appropriate actions. Since the Ontario Government has jurisdiction over Ontario Hydro, and shares responsibilities for public health, it should take leadership in establishing a credible and effective mechanism to involve the public and its local government in addressing these matters.

There have in the past been some forums to involve the local residents. A recent example cited is the Darlington Pre-Baseline Health Study Committee. It was set up by the Region of Durham in 1990 in response to health concerns, specifically about low level radiation, and certain study results about birth defects in the Pickering/Ajax area that have been mentioned earlier in this report. Membership on this committee included representatives from Ontario Hydro, Ministry of Health, Durham Nuclear Awareness, Durham Region and members of the public. The committee met 12 times and made a set of recommendations including ones for further funding to conduct certain studies. The committee is no longer active, and response to their recommendations seems uncertain due to financial constraints.

This type of committee, in our view, provides an opportunity to involve the public together with the nuclear industry and government regulators. Such a committee can also call upon independent expertise for advice. However, compared with the Darlington Committee any new committee would need to have a broader and ongoing mandate.

In our view, it is essential that a Durham Nuclear Health Committee be established by the provincial and regional government. In order to be effective, this committee must have: a clear mandate unhindered by jurisdictional boundaries in order to bring together all issues related to radiation exposure in the area; public representation including local

residents and elected officials; and adequate support. An important task for this committee would be the review of water and air monitoring programs in the Region, including public notification of the results. The committee should also consider what actions should be taken for different levels of radiation and mechanisms for notifying the public, particularly the more susceptible groups. In this way, members of the public will at least be fully informed in order to take appropriate steps. There are a number of other important matters that should be considered by this committee including the increased control of radiation emissions.

There still remains the basic question asked by the residents about whether the new water treatment plant will provide safe drinking water. The Region has put forward the argument that tritium will be reduced in the raw water intake further out from shore and at a greater depth. However, since the Region has done only limited sampling of water for tritium and has limited knowledge of plumes, currents, etc., we do not know what distance from shore and depth are necessary to reach a new tritium standard which may arise from the ACES review.

The Region has stated that it is technically possible to extend the intake far enough out to reach even lower levels of tritium. The new water plant should be designed to allow for extending the intake as far out as is needed in order to meet any revised standard. The Region should undertake further sampling of tritium levels at various distances and depths, and install real time lake current meters in order to predict accurately where to place the intake. This work would also provide the Region with information needed to respond to unexpected releases from the PNGS.

If the Region believes that it can meet any new tritium standard by building the plant at the proposed site, then it could proceed with plant design and construction, except for finalizing the location of the water intake. Completion of the intake would have to await results from the additional sampling and the ACES review. If the Region is not prepared to proceed with the proposed site under these circumstances, it would need to continue with the Class EA process in order to identify another site.

10. CONCLUDING COMMENT ON NEED FOR AN INDIVIDUAL EA

The basic issue before the Committee is whether an individual environmental assessment should be required for the proposed water treatment plant. Such a determination should be based on the adequacy of

12. RECOMMENDATIONS

RECOMMENDATION #1 - The proposed Pickering/Ajax Water Supply Plant should not be bumped up to an individual environmental assessment provided that the Region meets the terms and conditions set out in Recommendation #2 and the provincial government addresses concerns about radionuclides as set out in Recommendations #3 and #4.

RECOMMENDATION #2 - As terms and conditions of approval, the Region should be required to do the following:

Water Conservation

- 1) develop, adopt and implement a water conservation strategy with established targets, following broad public consultation;

Visual Impacts

- 2) consider alternative heights and footprint designs for the plant by:

- consulting with MOE on the feasibility of burying or lowering the plant as much as possible, and if feasible, developing an alternative conceptual design based on the minimum height acceptable and an ultimate capacity of 72 m.i.g.d.;
- developing an alternative design concept based on an ultimate capacity of only 36 m.i.g.d. at the current proposed height;
- developing an alternative design concept based on a combination of an ultimate capacity of 36 m.i.g.d. and the minimum height acceptable; and
- Regional Council choosing among the above proposals and the current proposal;

- 3) continue the Compensation Policy as adopted by the Region until at least one year after construction has been completed;

Water Quality

- 4) meet all Provincial Water Quality Objectives, including any changes in these in the future, and design the plant to accommodate changes in treatment processes that may be needed to respond to such changes;
- 5) design the plant to allow for, and seriously consider installing, the best available technology, e.g. granular activated carbon, to minimize the levels of trihalomethanes in the drinking water at the plant;
- 6) further consider alternative feasible and acceptable means of disinfection of the water to be presented for a decision by Regional Council;
- 7) design the plant to allow for the use of aluminum and non-aluminum coagulants;
- 8) plant operation cannot begin until completion of the ACES review (see Recommendation #3) and a decision by the Minister on an appropriate standard for tritium in drinking water;
- 9) the raw water intake is to draw water to meet any revised tritium standard;
- 10) monitor tritium levels at various distances and depths install real time lake current meters and develop a model of tritium movement from the Pickering Nuclear Generating Station in order to accurately predict where to place the intake as per condition 9);
- 11) install a continuous, real time (on-line) tritium measurement device when it becomes available;

Public Consultation

12) establish an Ajax/Pickering Water Plant Committee for the design, construction and operation phases of the plant with the following mandate, membership and reporting structure:

Mandate

- in order to put in place appropriate measures for minimizing environmental impacts, the Committee is to address matters of public concern arising from the design, construction and operation of the plant;
- the Committee's mandate is not to include reconsideration of matters that have been resolved or determined as a result of the review by the Environmental Assessment Advisory Committee;
- the Committee is to be provided with necessary administrative and financial support by the Region;

Membership

- the core membership is to be: 2 local residents, 1 member selected by the Town of Ajax Council, 1 councillor from the Regional Public Works Committee, 1 regional public works staff person, and an independent chairperson;
- during the design and construction phases, 1 of the 2 local residents is to be selected by the Ajax Save the Waterfront Committee and the other to be from the Town of Ajax Waterfront Advisory Committee;
- during the construction phase, the membership is to also include 1 representative from the local labour/building trades;
- during the operation phase, the membership is to also include the Medical Officer of Health, the plant manager, representation from the plant workers, and

broader representation from the public in the service area;

- the independent chairperson is to be selected by unanimous agreement of the members of the Committee;

Meetings and Reporting Structure

- meetings of the Committee are to be open to the public;
- matters on which the Committee is unanimously agreed are to be reported by the Public Works Department through its regular reporting channels to Regional Council;
- for unresolved matters, members of the Committee are to have the opportunity to present their differing views directly to the Public Works Committee or Regional Council before decisions are made;

Use and Control of Chemicals

- 13) no gaseous chlorine is to be used in the plant;
- 14) design the plant to contain any chemical spills within the site;
- 15) have in place an emergency plan developed in consultation with the Ajax/Pickering Water Plant Committee, Fire Department and Ministry of Environment to respond to chemical spills on and off-site;

Construction Impacts

- 16) retain a full-time Environmental Inspector during the construction period to ensure that the mitigative measures developed to address construction impacts are properly implemented, and to report regularly to the Ajax/Pickering Water Plant Committee on the effectiveness of these measures;

Monitoring and Action Plans

17) monitor the levels of chlorine in the drinking water in nearby residences, and take appropriate action to address public concerns about elevated levels;

18) regularly (e.g. daily, weekly or monthly) monitor the levels of water quality parameters and report the results to the Ajax/Pickering Water Plant Committee; the parameters and frequency of reporting are to be determined by the Committee;

19) the results of the monitoring program are to be disseminated or made readily available to the public, as determined by the Ajax/Pickering Water Plant Committee;

20) have in place a program, developed in consultation with Ontario Hydro and the Ajax/Pickering Water Plant Committee, to monitor regularly the levels of tritium in the raw water in order to predict if and when there will be elevated levels of tritium in the drinking water and to determine what appropriate actions are to be taken including notification of the public; and

21) in case the treatment plant needs to be shut down because of elevated levels of tritium or for other reasons, have in place a contingency plan, developed in consultation with Ontario Hydro, the Ajax/Pickering Water Plant Committee, local hospitals, the Fire Department and the Medical Office of Health, to ensure that critical water needs are met and that the public is notified of the actions taken.

These conditions should be enforced either under the Environmental Assessment Act or under conditions of approval for the plant under the Ontario Water Resources Act.

RECOMMENDATION #3 - The Minister of the Environment should request her Advisory Committee on Environmental Standards (ACES) to carry out a public review and advise the Minister by the end of 1993 on an appropriate standard for tritium in drinking water. The Committee should, as part of its review, address the effects of long-term exposure to low levels of radionuclides and of short-term exposure to sudden elevated levels in drinking water.

RECOMMENDATION #4 - The Province, in cooperation with the Region of Durham, should establish a Durham Nuclear Health Committee with the following mandate, membership, reporting structure and funding:

- mandate should be to provide a forum to address local health concerns related to all radionuclides;
- membership should include representatives of residents of the Region, local governments, Ontario Hydro, plant workers at the Pickering and Darlington Nuclear Generating Stations, Atomic Energy Control Board, Ministry of Health, Ministry of Environment and Ministry of Energy. Others with relevant expertise could be called on as needed;
- reporting of the Committee should be to Regional Council and to the provincial government through the Ministry of Energy; and
- the Committee and implementation of its recommendations should be fully funded by Ontario Hydro.