Date: **April 7, 2022**
Time: **1 pm**
Location: **Zoom (see email invitation for instructions)**

Welcome and Introductions			
1.0	a. Agenda Review b. Notice of Proxies c. Adoption of the Agenda (D) d. Declarations of Interest e. Approval of Minutes – September 9, 2021 (D) ► draft minutes attached as a separate document f. Correspondence – none	**Pg.**	*Chair Graham*
Staff Reports, Updates and Presentation			
2.0	**Source Protection Program Update Part 1**—presentation (I) ……..		*Laura/Brian*
3.0	**Annual Progress Reporting**—staff report attached and presentation (D)……	1-4	*Laura Cummings*
4.0	**Risk Management Official Annual Reports**—staff report attached (I)……	5-11	*Brian Stratton*
5.0	**Chalk River Proposed Near Surface Disposal Facility**-staff report attached (D)	12-13	*Laura Cummings*
6.0	**Source Protection Program Update Part 2**—presentation (I)……		*Laura/Brian*
Other			
6.0	**Other Business**		*Chair Graham*
7.0	**Member Inquiries**		*Chair Graham*
8.0	**Next Meeting** -TBD		*Chair Graham*
9.0	**Adjournment**		*Chair Graham*

(I) = Information (D) = Decision

Delegations: If you wish to speak to an item on the Agenda please contact Laura Cummings before the meeting (laura.cummings@rvca.ca or 613-692-3571 x 1148)

If you are a member of the public and would like to join the Zoom meeting please contact the above for remote meeting details.

3.0 2021 Annual Progress Report to MECP

Date: April 7, 2022
To: Mississippi-Rideau Source Protection Committee
From: Laura Cummings, Project Manager
Mississippi-Rideau Source Protection Region

Recommendation:

That the Mississippi-Rideau Source Protection Committee receive for review the draft Annual Progress Report for 2021;

And further, that the Mississippi-Rideau Source Protection Committee assess and grade the progress achieved so far, providing a grade achieved through discussion at the meeting of April 7, 2022 to be recorded in the meeting minutes;

And further that the Mississippi-Rideau Source Protection Committee direct staff to summarize the comments, notes, grading and discussion and provide the Annual Progress Report to the Source Protection Authority for their approval.

Annual Reporting Requirements

The *Clean Water Act* (Section 46) requires the Annual Progress Report to be prepared and:

- Describe measures taken to implement the Plan
- Describe the results of monitoring programs
- Describe extent to which objectives set out in the plan are being achieved
- Contain other information as prescribed by the regulations

Ontario Regulation 287/07 (Section 52) describes other information to be included:

- Description and reasons for policy delays
- Description of steps taken to address deficiencies in information
- Summary of the report prepared and submitted by the RMO each year
- Any other information the SPA considers advisable

Background

The Source Protection Authorities are required to submit an Annual Progress Report each year, under Section 46 Ontario's *Clean Water Act*. The report is to be submitted to the Ministry of Environment, Conservation and Parks (MECP) by May 1 of each year and is to be provided to the SPC for comment at least 30 days prior to this. The report summarizes:

- Measures taken to implement the source protection plan;
- Results of monitoring policies;
- The extent to which objectives of the plan are being achieved; and,
- Other information that might be required by the regulation.

This is the fifth Annual Progress Report since the Source Protection Plan came into effect on January 1, 2015. The previous four Annual Progress Reports were submitted on May 1st of 2018, 2019, 2020, and 2021.

There are two components of the progress reporting, a public facing report document and a supplemental form. The MECP has an electronic reporting tool to summarize responses for the 2021 supplemental form and annual report. Instead of submitting Word documents, responses this year are to be entered online.

The purpose of this staff report is to provide guidance to assist with the interpretation of the Annual Progress Reporting documents, and to outline the process for the SPC review of these documents.

Committee members have been provided with a draft version of both the public facing report and the supplemental reporting form prior to the meeting. Committee members were provided with a comment sheet for written comments and are asked to provide these if desired, by April 7.

Staff will provide a presentation summarizing the reporting information, and the committee will have the chance to verbally discuss and come to a consensus on the report scoring. The discussion and scoring will be summarized in the reports.

Implementing Bodies
The policies in the Source Protection Plan are implemented by “implementing bodies”, who report to the Source Protection Authority each year, usually by February 1, according to the monitoring policies in the Source Protection Plan:

- Municipalities (15 with legally binding responsibilities, 16 with only non-legally binding responsibilities)
- Risk Management Staff
- Principal Authority – approval agency for septic systems – Health Unit, municipality or Conservation Authority depending on location
- Ontario Ministries (OMAFRA, MECP, MNRF, MTO, MGCS/TSSA and MMAH)
- Source Protection Authority (SPA) – the Conservation Authority in its legislated role under the *Clean Water Act*

Reports were received from most implementing bodies, compiled and analyzed by Source Protection staff to respond to the reportable items in the public facing and supplementary Annual Progress Reporting forms.

Reportable Themes
The public and supplemental reporting forms are grouped into themes, corresponding to the reporting that was provided by implementing bodies. Themes include overall progress (implementation status) of policies, monitoring policy implementation, municipal progress, septic inspections, risk management plans, provincial progress, and source protection awareness. There are ten general sections in the public facing annual report, and 67 reportable items included in the supplemental reporting form for the MECP.

Public Facing Annual Progress Report
The public portion of the Annual Progress Report includes an introductory section which includes Source Protection Committee comments, information about the Mississippi-Rideau Source Protection Region, and an overall 'grade' for the region in achieving source protection plan objectives. Where the form asks for grading, there are three options for the SPC:

- P: Progressing Well/On Target, meaning that the majority of the source protection plan policies have been implemented and/or are progressing
- S: Satisfactory, meaning that some of the source protection plan policies have been implemented and/or are progressing
- L: Limited progress, meaning that a few of the source protection plan policies have been implemented and/or are progressing

It has ten general sections, that pull information from the MECP supplemental reporting form, and include:

1. **Source Protection Plan Policies:** this section reports a percentage of the policies that are considered to be 'implemented' and 'in progress' in the region. It requires the SPC to grade the overall plan implementation progress, based on information gathered from the implementing bodies. Progress has been made in implementing many policies in the Source Protection Plan according to the timelines set out in the plan. There are 56 policies addressing drinking water threat activities, 50 of which address significant drinking water threat activities, and 6 that address moderate-low drinking water threat activities. There are 16 policies that are not directly associated with addressing specific drinking water threat activities, such as administrative policies, education-outreach, transportation corridors and transport pathways and 15 monitoring policies. Most of the policies are either in progress or are considered implemented.
2. **Municipal Progress:** this section summarizes information on municipal implementation progress for land-use planning and asks the committee to grade the overall progress towards implementing these policies. It also includes information on day to day planning decisions from the municipal progress reports.
3. **Septic Inspections:** there are two on-site sewage systems that require inspection every five years, according to the Building Code. These two systems are inspected by the Principal Authority. The committee is asked to grade the overall progress towards implementing these policies.
4. **Risk Management Plans**: there are several plans required at sites throughout the Mississippi-Rideau Region. Several plans have been negotiated and agreed to, and a few are under negotiation currently or have had a site visit by a Risk Management Official or Inspector. More detailed information is provided in the supplemental form outlining the number of inspections, and information is available outlining delays in implementing risk management policies. The committee is asked to grade the overall progress towards implementing these policies.

5. **Provincial Progress**: this section gives a general summary of information on the reviews by provincial implementing bodies and reports on the progress reviewing previously issued provincial approvals and asks the committee to grade the overall progress.
6. **Awareness and Change in Behaviour:** this report section provides information on road signs in the region and on education and outreach programs and tools in use. No grading is required.
7. **Source Protection Plan Policies: Summary of Delays:** this section discusses policy tools where there are delays in implementation, causing the policy to not meet the dates specified in the source protection plan. In the Mississippi-Rideau Region, this section focuses on discussing a few risk management policies for existing activities. No grading is required.
8. **Source Water Quality: Monitoring and Actions:** no issues have been identified in our assessment reports regarding the quality of municipal drinking water sources, so this section has not been completed. No grading is required.
9. **Science-based Assessment Reports: Work Plans:** no work plans were required to be implemented for our assessment reports, so this section has not been completed. No grading is required.
10. **More from the Watershed:** this section highlights some of the feedback received during the annual reporting process from municipalities with legally binding policy responsibilities. No grading is required.

Annual Progress Reporting Supplemental Form for Source Protection
This form (now online) is meant to provide a standardized form across the province for sharing critical information from the source protection authorities on implementation progress. It is to be completed and provided to the MECP by May 1, 2022.

The report has been provided along with the agenda for committee information and discussion, and to support the information provided in the public facing annual progress report. This report, along with the public facing report, is for submission directly to the MECP to provide additional detail they require to assess plan implementation progress.

Attachments
1. Source Protection Annual Progress Report – Draft for SPC review (public facing report) – attached as a separate document
2. Annual Progress Reporting Supplemental Form for Source Protection – Draft for SPC information (MECP report) – attached as a separate document

4.0 Risk Management Official Annual Reports

Date: April 7, 2022
To: Mississippi-Rideau Source Protection Committee
From: Brian Stratton, Risk Management Official
Mississippi-Rideau Source Protection Region

Recommendation:

That the Mississippi-Rideau Source Protection Committee receive for information the Risk Management Official Annual Reports for the 2021 calendar year.

Background

The Mississippi-Rideau Source Protection Plan contains some policies that regulate significant drinking water threats using Part IV of the *Clean Water Act.* Municipalities are responsible for these Part IV policies however they have the option of transferring their enforcement authority to another body. In the Mississippi-Rideau Source Protection Region, all municipalities except the City of Ottawa have chosen to transfer their Part IV enforcement authority to the Source Protection Authorities (SPA) which is the Conservation Authorities. Qualified staff with specialized training have been appointed by the Source Protection Authority or Municipality to implement Part IV Policies in our region.

Risk Management Official Annual Reports

Section 81 of the *Clean Water Act* requires each Risk Management Official to submit an annual report that summarizes the actions taken by risk management staff. Each report applies to a calendar year and must be submitted to the SPA by February 1 in the year following the year to which the report applies. The report will be submitted to the Ministry of Environment, Conservation and Parks (MECP) if requested by the Director. Section 65 of the *Clean Water Act* Regulation 287/07 sets out the required content of the report.

Outside the City of Ottawa, the focus of 2021 was to work with property owners to establish Risk Management Plans for existing activities where required. Risk management staff completed work reaching out to property owners, conducting site visits, and cataloguing the information gathered.

In the City of Ottawa, Risk Management staff retained assistance from the Mississippi-Rideau Source Protection Region to support Part IV policy implementation for existing significant drinking water threat activities. Risk Management staff reached out to property owners, conducted site visits, and worked on Risk Management Plans for existing activities.

Attachments: Risk Management Official Annual Reports for 2021

1. Rideau Valley Source Protection Area (2 reports)
2. Mississippi Valley Source Protection Area (2 reports)

Risk Management Official Annual Report
for the Rideau Valley Source Protection Area
Required under Section 81 of the *Clean Water Act*

Risk Management Official (RMO): Brian Stratton, P. Eng.
Period: January 1 - December 31, 2021
Source Protection Region: Mississippi-Rideau
Source Protection Area: Rideau Valley
Municipalities:

- Township of Drummond / North Elmsley
- Township of Merrickville-Wolford
- Montague Township
- Municipality of North Grenville
- Town of Perth
- Township of Rideau Lakes
- Town of Smiths Falls
- Tay Valley Township
- Village of Westport

	Required Report Content (under section 65 of O. Reg. 287/07)	**Number**	**Details**
1	Risk Management Plans agreed to by the RMO under subsection 56(1) or 58(5) of the Act and the number of plans established by the RMO under subsection 56(6), 58(10) or (12) of the Act	3	See below
2	Risk Management Plans the RMO refused to agree to or to establish under subsection 56(9), 58(15) or (16)	0	n/a
3	Orders issued under Part IV of the Act	0	n/a
4	Notices given to or by the RMO under subsection 61(2), (7) and (10)	0	n/a
5	Inspections carried out under section 62 of the Act (for the purpose of enforcement)	0	n/a
6	Risk assessments submitted under section 60 of the Act	0	n/a
7	RMO caused a thing to be done under section 64 of the Act	0	n/a
8	Prosecutions and convictions under section 106 of the Act	0	n/a

Description of Work Conducted in 2021 in the Rideau Valley Source Protection Area (Outside the City of Ottawa)

Our Risk Management staff worked with property owners to develop Risk Management Plans for the handling and storage of dense non-aqueous phase liquids (DNAPLs) in the Rideau Valley Source Protection Area (outside of the City of Ottawa), specifically in North Grenville.

Details of Risk Management Plans Agreed To:

RMP Ref. #	**Location**	**Vulnerable Area**	Activity
NG-17-DNAPL	07197210150553000000	Kemptville	Storage of DNAPLs
NG-18-DNAPL	07197160402220500000	Kemptville	Storage of DNAPLs
NG-19-DNAPL	07197160350200300000	Kemptville	Storage of DNAPLs

Risk Management Official Annual Report
for the Mississippi-Rideau Source Protection Region
Required under Section 81 of the *Clean Water Act*

Risk Management Official (RMO): Tessa Di Iorio, M.Sc., P.Geo.
Period: January 1- December 31, 2021
Source Protection Region: Mississippi-Rideau
Source Protection Area: Rideau
Municipality: The City of Ottawa

	Required Report Content (under section 65 of O. Reg. 287/07)	**Number**	**Details**
1	Risk Management Plans agreed to by the RMO under subsection 56(1) or 58(5) of the Act and the number of plans established by the RMO under subsection 56(6), 58(10) or (12) of the Act	4	See Table 1
2	Risk Management Plans the RMO refused to agree to or to establish under subsection 56(9), 58(15) or (16)	0	n/a
3	Orders issued under Part IV of the Act	0	n/a
4	Notices given to or by the RMO under subsection 61(2), (7) and (10)	0	n/a
5	Inspections carried out under section 62 of the Act (for the purpose of enforcement)	0	n/a
6	Risk assessments submitted under section 60 of the Act	0	n/a
7	RMO caused a thing to be done under section 64 of the Act	0	n/a
8	Prosecutions and convictions under section 106 of the Act	0	n/a

The City of Ottawa Risk Management Office implements Part IV policies, including:

- review of development applications within vulnerable areas made under the *Planning Act* related to new activities;
- Section 59 internal screening procedures for *Planning Act* and *Building Code Act* applications will be amended following the enactment of a Section 59 By-Law, the process will be initiated in 2022;
- development of an RMO database to facilitate threats verification and RMP management for existing activities.

Mississippi-Rideau Source Protection Region staff were retained by the City to support Part IV policy implementation related to existing significant drinking water threat activities, including verification of existing threats and if necessary, negotiating Risk Management Plans in vulnerable areas to safeguard drinking water sources. In 2021, four RMPs were negotiated for existing DNAPL threats. There are currently three outstanding fuel threats (residential heating oil) that require risk management, due to non-cooperative landowners. The City is developing a strategy, in consultation with the Source Protection Region, to manage the outstanding fuel threats.

Table 1: Information requirements for established Risk Management Plans

Information required in Section 65 (1) of O.Reg. 287/07: Risk Management Plans agreed to by the RMO under subsection 56(1) or 58(5) of the Act			
RMP #	Location of the property to which the plan relates.	Wellhead protection area or surface water intake protection zone where the property is located.	Activity to which the plan relates.
OTTAWA-01-DNAPL	6104 Perth Street	Richmond – WHPA-C (vulnerability score 6)	Storage and handling of DNAPL
OTTAWA-02-DNAPL	5949 Ottawa Street	Richmond – WHPA-C (vulnerability score 6)	Storage and handling of DNAPL
OTTAWA-03-DNAPL	3835 McBean Street	Richmond – WHPA-C (vulnerability score 6)	Storage and handling of DNAPL
OTTAWA-04-DNAPL	4 Colonel Murray Street	Richmond – WHPA-C (vulnerability score 6)	Storage and handling of DNAPL

Risk Management Official Annual Report
for the Mississippi Valley Source Protection Area
Required under Section 81 of the *Clean Water Act*

Risk Management Official (RMO): Brian Stratton, P. Eng.
Period: January 1 - December 31, 2021
Source Protection Region: Mississippi-Rideau
Source Protection Area: Mississippi Valley
Municipalities:

- Beckwith Township
- Town of Carleton Place
- Town of Mississippi Mills

Required Report Content (under section 65 of O. Reg. 287/07)		**Number**	**Details**
1	Risk Management Plans agreed to by the RMO under subsection 56(1) or 58(5) of the Act and the number of plans established by the RMO under subsection 56(6), 58(10) or (12) of the Act	0	n/a
2	Risk Management Plans the RMO refused to agree to or to establish under subsection 56(9), 58(15) or (16)	0	n/a
3	Orders issued under Part IV of the Act	0	n/a
4	Notices given to or by the RMO under subsection 61(2), (7) and (10)	0	n/a
5	Inspections carried out under section 62 of the Act (for the purpose of enforcement)	0	n/a
6	Risk assessments submitted under section 60 of the Act	0	n/a
7	RMO caused a thing to be done under section 64 of the Act	0	n/a
8	Prosecutions and convictions under section 106 of the Act	0	n/a

Risk Management Official Annual Report
for the Mississippi-Rideau Source Protection Region
Required under Section 81 of the *Clean Water Act*

Risk Management Official (RMO): Tessa Di Iorio, M.Sc., P.Geo.
Period: January 1- December 31, 2021
Source Protection Region: Mississippi-Rideau
Source Protection Area: Mississippi
Municipality: The City of Ottawa

	Required Report Content (under section 65 of O. Reg. 287/07)	Number	Details
1	Risk Management Plans agreed to by the RMO under subsection 56(1) or 58(5) of the Act and the number of plans established by the RMO under subsection 56(6), 58(10) or (12) of the Act	0	n/a
2	Risk Management Plans the RMO refused to agree to or to establish under subsection 56(9), 58(15) or (16)	0	n/a
3	Orders issued under Part IV of the Act	0	n/a
4	Notices given to or by the RMO under subsection 61(2), (7) and (10)	0	n/a
5	Inspections carried out under section 62 of the Act (for the purpose of enforcement)	0	n/a
6	Risk assessments submitted under section 60 of the Act	0	n/a
7	RMO caused a thing to be done under section 64 of the Act	0	n/a
8	Prosecutions and convictions under section 106 of the Act	0	n/a

The City of Ottawa Risk Management Office implements Part IV policies, including:

- review of development applications within vulnerable areas made under the *Planning Act* related to new activities;
- Section 59 internal screening procedures for *Planning Act* and *Building Code Act* applications will be amended following the enactment of a Section 59 By-Law, the process will be initiated in 2022;
- development of an RMO database to facilitate threats verification and RMP management for existing activities.

Mississippi-Rideau Source Protection Region staff were retained by the City to support Part IV policy implementation related to existing significant drinking water threat activities, including verification of existing threats and if necessary, negotiating Risk Management Plans in vulnerable areas to safeguard drinking water sources. There are currently two outstanding fuel threats (residential heating oil) that require risk management, due to non-cooperative landowners. The City is developing a strategy, in consultation with the Source Protection Region, to manage the outstanding fuel threats.

5.0 Proposed Near Surface Disposal Facility at Chalk River Laboratories

Date: April 7, 2022
To: Mississippi-Rideau Source Protection Committee
From: Laura Cummings, Project Manager
Mississippi-Rideau Source Protection Region

Recommendation:

That the Mississippi-Rideau Source Protection Committee receive this update about the proposed Near Surface Nuclear Waste facility at Chalk River and support the City of Ottawa's comments.

Background

The Canadian Nuclear Safety Commission (CNSC) is currently considering comments received on the proposed Near Surface Disposal Facility (NSDF) at the Chalk River Laboratories site by the Canadian Nuclear Laboratories (CNL). This proposal was discussed with the Source Protection Committee in November 2017 and April 2021 after initial comments were submitted by the City of Ottawa in August 2017 and the item was brought to the City's Standing Committee on Environmental Protection, Water and Waste Management in March 2021.

The proposal is for an engineered disposal facility for radioactive waste (primarily low-level waste, with some specific intermediate-level and mixed waste). The proposed site is in Renfrew County, approximately 200 kilometres northwest of Ottawa, in the town of Deep River.

The site would have an operating life of at least 50 years and would be consisting of multiple disposal cells, a wastewater treatment plant, and supporting infrastructure. More detailed information on the project is available on the Impact Assessment Agency of Canada website.

Comments by the City of Ottawa

The City of Ottawa's comments were submitted to the CNSC as part of the combined Environmental Assessment (EA) and public hearing process on the proposed NSDF situated in Chalk River, located adjacent to the Ottawa River and upstream of the City of Ottawa's drinking water intakes.

Comments from the City urge the CNL and its regulator to take action on the City's concerns to protect the drinking water resource. City comments include recommendations and concerns to improve the design and operation of the NSDF, with a particular focus on the ongoing protection of the Ottawa River which is the main drinking water source for the residents of Ottawa. In addition to filing the written submission, City staff also plan to request to speak to these points at Part II of the Commission Hearing. Note that Part I of the hearing was held on February 22, where CNSC and CNL staff presented the

application. Part II of the hearing will include public delegate presentations and is set to take place starting May 31, 2022.

Attachment: City of Ottawa comments on proposed Near Surface Disposal Facility at Chalk River

March 10th, 2022

Canadian Nuclear Safety Commission
280 Slater Street,
P.O. Box 1046 – Station B
Ottawa, ON
K1P 5S9

Re: City of Ottawa comments on proposed Near Surface Disposal Facility (NSDF) at Chalk River

Dear Commission Members,

The City of Ottawa appreciates the opportunity to provide comment on the proposed Near Surface Disposal Facility (NSDF) at Chalk River Laboratories. Over the last four years, our technical staff have reviewed information presented in various webinars, EIS Reports, and EA documents associated with the NSDF project. During that time, we have also held meetings with CNL, CNSC, and other stakeholders to improve our understanding of the project. We are pleased to report that we have received open and helpful communication from these various groups to explain the project and its implications to the natural environment. Our primary concern has been, and continues to be, the long-term protection of the Ottawa River, the primary source of drinking water for Ottawa's residents.

Our recommendations and concerns are provided in order to improve the design and operation of the NSDF, with a particular focus on the ongoing protection of the Ottawa River which in many respects is the lifeblood of our community. The City of Ottawa respectfully asks that the Commission take into consideration the recommendations attached. We trust that our comments will help the Commission in reaching a final decision, and in the drafting of requirements contained in the operating license, if approved.

Finally, we thank the Commission for the opportunity to submit our recommendations and concerns on behalf of the City of Ottawa.

If there are any questions about our comments, please feel free to contact the undersigned.

Yours sincerely,

I.Douglas, P.Eng.
Water Quality Engineer
City of Ottawa
ian.douglas@ottawa.ca

T.Di Iorio, M.Sc., P.Geo.
Risk Management Official/Inspector
City of Ottawa
tessa.diiorio@ottawa.ca

City of Ottawa comments on Chalk River Near Surface Disposal Facility (NSDF)
Written submission to Canadian Nuclear Safety Commission
March 10th, 2022

Submitted by:

Ian Douglas, P.Eng.
Water Quality Engineer
City of Ottawa
ian.douglas@ottawa.ca

Tessa Di Iorio, M.Sc., P.Geo.
Risk Management Official/Inspector
City of Ottawa
tessa.diiorio@ottawa.ca

Position

In principle, we are supportive of the proposed NSDF as a means of providing improved environmental protection and engineered storage for low-level radioactive waste. We recognize that most (90%) of the waste already exists on the Chalk River Laboratories (CRL) site and is currently located in close proximity to the river. In our opinion, maintaining a viable and active site for scientific work at Chalk River, along with careful regulatory oversight and monitoring, is the best way to ensure environmental stewardship and protection for the long-term. We are interested in science-based risk assessments, and support projects that will minimize risks to the environment. At the same time, we need to be mindful of our resident's concerns and our limitations to treat/remove some of the radioactive substances that might originate from CRL. Therefore, we submit the following comments for the proposed NSDF and its related activities.

i. **Weather shield system for NSDF** – it is important to minimize the amount of rainfall/snow that mixes with NSDF stored waste which must then be collected, treated, and discharged to the natural environment. The Final EIS Report (Section 3.4.1.9.1) describes a soil/tarp/fixative cover barrier that will be deployed daily to minimize seepage of rain/snow into the facility, which we feel provides only minimal environmental protection. In previous discussions, we had suggested the use of a temporary roof/tarp system to divert rainfall away from the operating face of the facility, as has been done in some European facilities. During technical discussions with CNL during 2021, we learned that there were plans underway to design a weather-shield system that could divert water away from the operating face of the containment mound. While we were encouraged to hear about the weather-shield system, we do not see it described or represented anywhere in the EA or Final EIS Reports. **Recommendation:** that the weather-shield system be included as a requirement of the NSDF operating license to minimize the impact of rain/snow and subsequent collection, treatment, and discharge to the natural environment.

ii. **Safeguards to protect river during demolition and waste transfer activities** – it is important to protect the river during all activities related to site demolition and waste transfer activities. It is our understanding that a number of standard operating procedures for waste handling would be required as part of licensed activities at the CRL site. However, we recommend that safeguards to specifically protect the river be included in the operating license of the NSDF. For example, misting is often used during demolition to minimize airborne particles that might be radioactive. However, CNL should consider the use of temporary berms, tarps, sumps, etc. to specifically protect the river from any surface run-off from the demolition site until all waste is safely characterized, transferred, and stored. Given the slope of the production site and proximity to the river, we are concerned that substantial rainfall/snowfall could lead to surface and sub-surface run-off that may contain radioactive contaminants. We do not see any such measures noted or referenced in the EIS/EA report. **Recommendation:** that the operating license for the NSDF include safeguards to protect the river from surface and subsurface run-off during all site demolition and waste transfer activities.

iii. **Criteria for water discharge from NSDF wastewater treatment plant** –the Final EIS Report Table 3.4.2-2 *Radionuclide Concentrations in Wastewater and Effluent Discharge Targets* specifies that the wastewater treatment effluent will meet Canadian Drinking Water Quality Guidelines (CDWQG) or CCME Aquatic Guidelines prior to discharge. From a drinking water risk perspective, we support the application of these criteria since they will ensure that radionuclide concentrations are well within acceptable limits in the Ottawa River. The WWTP design appears to be robust and capable of removing almost all radionuclide substances. However, we would like to see the criteria specified in the operating license, including the sample location, test frequency, reporting requirements, and regulatory oversight for test results. It is our understanding that wastewater treatment will be carried out on a batch basis once a sufficient volume has been collected and stored. We expect that the release of wastewater effluent requires that individual batch test results meet the discharge criteria prior to release, rather than the use of a long-term average concentration (eg. quarterly, annual). **Recommendations:** that the operating licence for NSDF clearly state the criteria in Table 3.4.2-2 for discharge of treated wastewater including requirements for sampling, testing, reporting, and regulatory oversight. For tritium specifically, the discharge criteria should be modified to meet the Health Canada drinking water guideline of 7,000 Bq/L at all times in the NSDF wastewater effluent discharge. Lastly, chemical and radiological test results for the WWTP discharge should be included as part of CRL's routine environmental monitoring reports to demonstrate compliance with effluent discharge criteria.

iv. **Additional measures to minimize H3-Tritium and Cobalt-60 in NSDF wastewater** – the Final EIS Report Table 3.4.2-2 *Radionuclide Concentrations in Wastewater and Effluent Discharge Targets* shows predicted radionuclide maximum concentrations in the NSDF wastewater treatment influent, all of which are expected to meet drinking water standards except for three radionuclides that will require treatment:

Radionuclide	Maximum concentration in wastewater influent prior to treatment (Bq/L)	Effluent target concentration after treatment (Bq/L)	*Drinking Water Guideline Maximum Acceptable Concentration (Bq/L)
Cobalt-60	1,300	40	40
Strontium-90	9.6	5	5
Tritium-^{3}H	140,000	360,000	7,000

**Guidelines for Canadian Drinking Water Quality, Radiological Parameters (Health Canada, 2009)*

The tritium concentration is estimated to be 140,000 Bq/L in the wastewater influent, with an allowable discharge limit of 360,000 Bq/L. Both of these concentrations greatly exceed the Canadian Drinking Water Guideline of 7,000 Bq/L, by 20 to 50 times respectively. Once in the water phase, tritium is highly mobile in the natural environment and cannot be removed through treatment, either in the wastewater treatment system or in any of the water treatment plants located further downstream from Chalk River. Since the NSDF only accepts low-level solid waste, there should be design measures that can be taken to minimize water contact and leaching such that the tritium drinking water guideline of 7,000 Bq/L can be achieved at all times in the NSDF effluent discharge.

A similar comment is made for Cobalt-60 levels estimated to be a maximum of 1,300 Bq/L in the NSDF wastewater collected. Although the treatment system is robust for the removal of most radionuclides, efforts should be made to ensure that Cobalt-60 materials remain in the solid-phase and be well shielded from water contact and/or leaching while in safe storage. **Recommendation:** that measures be taken to immobilize radionuclides and ensure "dry" storage conditions to minimize/eliminate leaching of radionuclides into the NSDF wastewater stream. As an example, this might require the use of secondary containment vessels and/or operation of the weather-shield system – see item (i) above. Such requirements should be incorporated into the operating license for the NSDF.

v. **Trace organic substances in NSDF wastewater** – the Final EIS Report *Table 3.4.2-3* notes several organic substances that would exceed drinking water or aquatic discharge guidelines in the WWTP influent: *anthracene, chloroform, chrysene, ethylene dibromide, and fluoranthene*. While the WWTP is designed to remove these substances during treatment, efforts should be made to minimize these chemical substances during waste transfer and storage. **Recommendation:** that low-level waste materials containing these chemical substances be modified to minimize or eliminate leaching into the WWTP influent. As an example, this might require the use of secondary containment vessels and/or operation of the weather-shield system.

vi. **WWTP discharge to Perch Lake vs. subsurface** – the EIS Report notes two options for discharge of treated wastewater effluent: (i) injection into subsurface groundwater through an exfiltration gallery, or (ii) direct discharge to Perch Lake, which in turn discharges to the Ottawa River via Perch Creek. We recommend that the WWTP effluent, once confirmed to meet acceptable discharge criteria, be released to Perch Lake. Discharging the effluent into the subsurface aquifer will only add to the burden of radionuclides (eg. tritium) already present in the groundwater. Further, a subsurface discharge represents a less controlled release that is more difficult to monitor, and its environmental effect deferred into future decades. Lastly, operating the NSDF to meet CDWQG criteria maintains the operational focus on optimizing treatment and waste handling at its source. **Recommendation:** design and operate the NSDF to minimize leaching of radionuclides such that the final WWTP effluent concentrations meet Health Canada guidelines for drinking water at the point of discharge into Perch Lake rather than discharge into the subsurface aquifer.

vii. **Import of radioactive waste from external AECL sites** – the EIS report states that 5% of material to be stored in the NSDF is expected to originate from other AECL sites outside of the watershed. The City of Ottawa does <u>not</u> support the import of radioactive waste from external sites (eg. Manitoba, Quebec) since it increases risk to the Ottawa River ecosystem, albeit incrementally. While it may be cost-effective and advantageous to CNL to do so, given the length of time for design/approval of waste storage facilities, it is counter to the principle of managing waste within the localized area of its generation. For the same reason, we would not recommend to export waste from the Chalk River site to another watershed even if the risk increases only incrementally. **Recommendation:** that the stored waste directed to the NSDF be limited only to on-site legacy waste (90%) and expected contract waste (5%) from the Ottawa area (hospitals, research, etc.).

viii. **Prompt notification of spill or release to river for NSDF** – since the City of Ottawa and many other communities rely on the Ottawa River as their primary source of drinking water, it is imperative that municipalities be promptly notified of any spill or unexpected release that might affect river water quality. Such notification would allow the City of Ottawa to form an immediate risk assessment and response plan, noting that contaminants would reach our treatment plant intakes within 5 - 25 days depending on river flow. Depending on the severity of the release, City response plans might include additional water quality sampling, treatment adjustments, provision of alternate drinking water, public health communications, etc. We presume that notification procedures are already in place for CNL through environmental regulations and oversight by the CNSC. **Recommendation:** that spill notification protocols be confirmed with downstream municipalities using the Ottawa River as a source of drinking water. The notification protocol and contact list should be tested annually. This recommendation applies to the NSDF and all related demolition/transfer activities as well as the CRL site in general.

ix. **Timely access to water quality data for Ottawa River** – for over 30 years, the City of Ottawa has conducted routine monitoring of radioactivity at both water treatment plants, based on daily samples. The results for the last 15 years have shown consistently low or background levels for alpha, beta, and tritium radioactivity. We are aware that CNL conducts routine environmental monitoring including samples taken from the Ottawa River, upstream and downstream of the site. We would appreciate receiving such test results on regular basis (eg. quarterly) to compare with levels observed at our treatment plants, and to respond to any deviations observed. In a reciprocal manner, the City of Ottawa would be pleased to share ongoing test results of our routine radiological monitoring with CNL or CNSC if desired. **Recommendation:** that radiological test results for the Ottawa River upstream

and downstream of the Chalk River site be published or shared in a timely manner (eg. quarterly) with downstream municipalities, for the purposes of data comparison and environmental trending.

x. **Environmental risk comparison for design alternatives** – during our review of the NSDF documents, we did not find satisfactory explanation to demonstrate the relative risk comparison for various waste management options. The *Final EIS Report (Section 2.5)* describes several options that were evaluated during the early phase of the project, prior to selecting the NSDF design. We recommend that the onus should be on the applicant to demonstrate that the selected option represents the best environmental protection in terms of air, soil, and water quality – even in the face of higher capital and operating costs. Long-term protection of the natural environment including the Ottawa River should be paramount in the risk ranking of alternatives. **Recommendation:** that all future environmental projects include a transparent risk ranking of alternatives with a public commenting period prior to selecting the preferred design option. It is possible that the revised Impact Assessment Act (IAA, 2019) already incorporates this step in the consultation and approval process.

In summary, the City of Ottawa respectfully request that the Commission take into consideration these recommendations. We trust that our comments will help the Commission in reaching a final decision, and in the drafting of requirements contained in the operating license, if approved. Our recommendations and concerns are provided to improve the design and operation of the NSDF, with a particular focus on the ongoing protection of the Ottawa River which in many respects is the lifeblood of our community as our primary source of drinking water.

Finally, we thank the Commission for the opportunity to submit our recommendations and concerns on behalf of the City of Ottawa.