Canadian Nuclear Safety Commission | Commission canadienne de sûreté nucléaire

CMD 22-H7.136A

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Date: 2022-05-17
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Supplementary Information

Presentation from Lynn Jones

Renseignements supplémentaires

Présentation de Lynn Jones

In the Matter of the

À l'égard des

Canadian Nuclear Laboratories (CNL)

Laboratoires Nucléaires Canadiens (LNC)

Application from the CNL to amend its Chalk River Laboratories site licence to authorize the construction of a near surface disposal facility

Demande des LNC visant à modifier le permis du site des Laboratoires de Chalk River pour autoriser la construction d'une installation de gestion des déchets près de la surface

Commission Public Hearing
Part 2

Audience publique de la Commission
Partie 2

May 30 to June 3, 2022

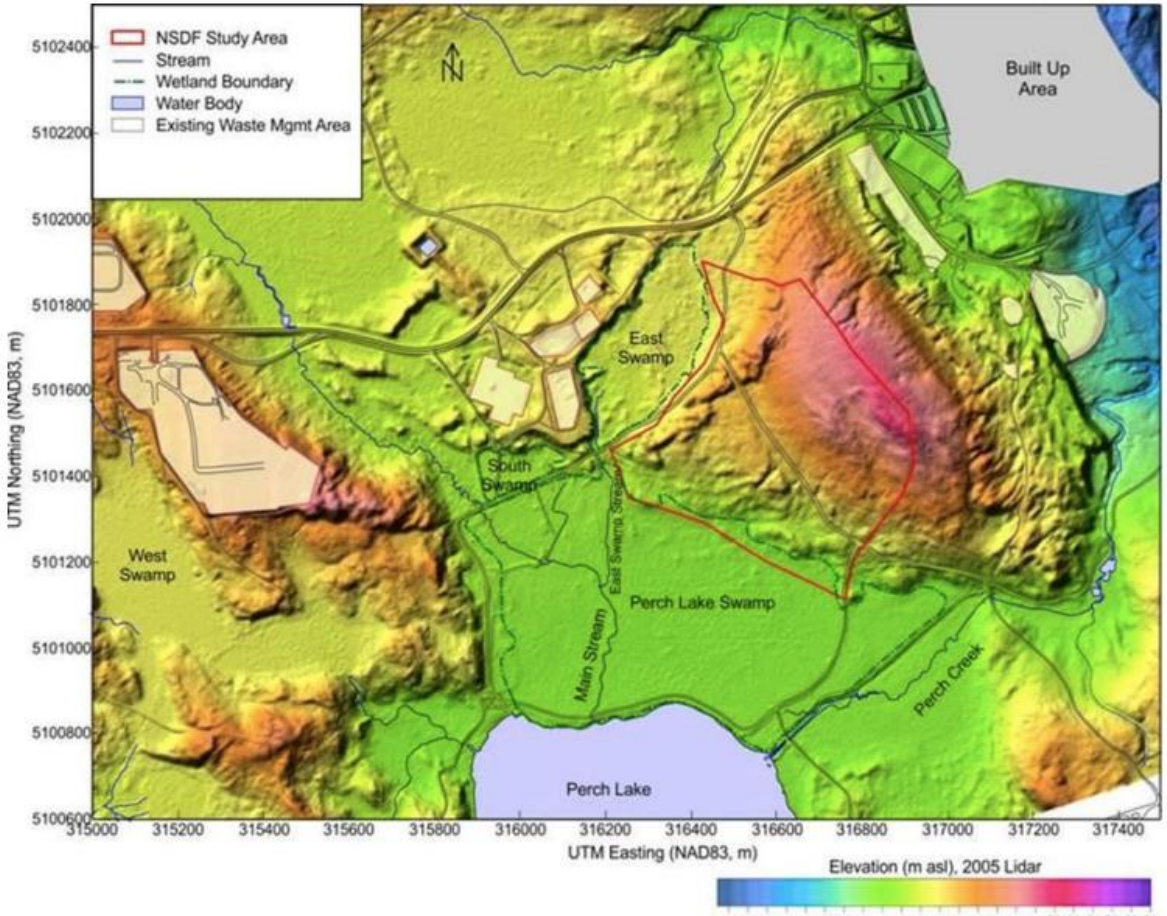
30 mai au 3 juin 2022

Canada

The Chalk River Mound (NSDF) is expected to disintegrate

Presentation to the CNSC by Lynn Jones, MHSc, 31 May 2022


Ontario
Québec
Riv. Outaouais
CRL
MAIN CAMPUS
Laundry Pit
Chemical Pit
In-active
Landfill
Pointe au
Baptême
Reactor Pit 1
WMA A
Reactor
Pit
2
Perch
Lake
PE0123


NSDF Study Area
Stream
Wetland Boundary
Water Body
Existing Waste Mgmt Area
N
Built Up Area
East Swamp
South Swamp
East Swamp Stream
West Swamp
Perch Lake Swamp
Main Stream
Perch Creek
Perch Lake
UTM Northing (NAD83, m)
5102400
5102200
5102000
5101800
5101600
5101400
5101200
5101000
5100800
5100600
UTM Easting (NAD83, m)
315000
315200
315400
315600
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316000
316200
316400
316600
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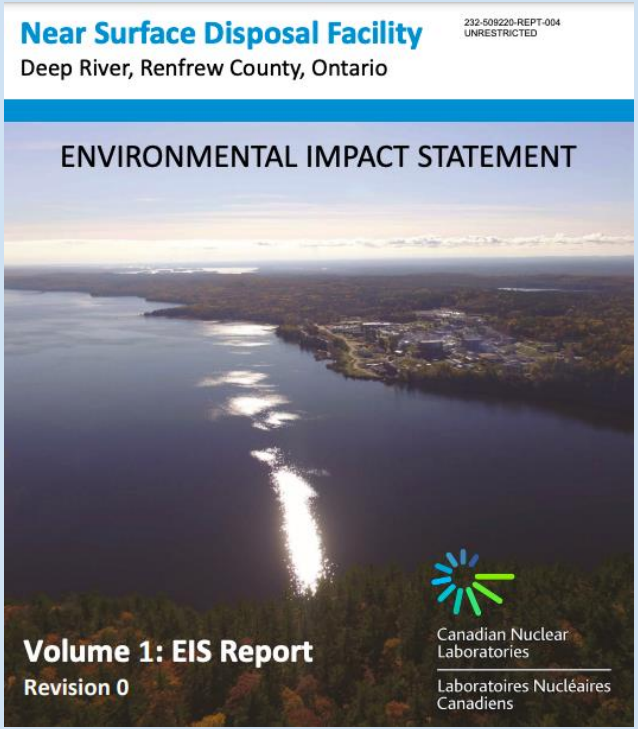
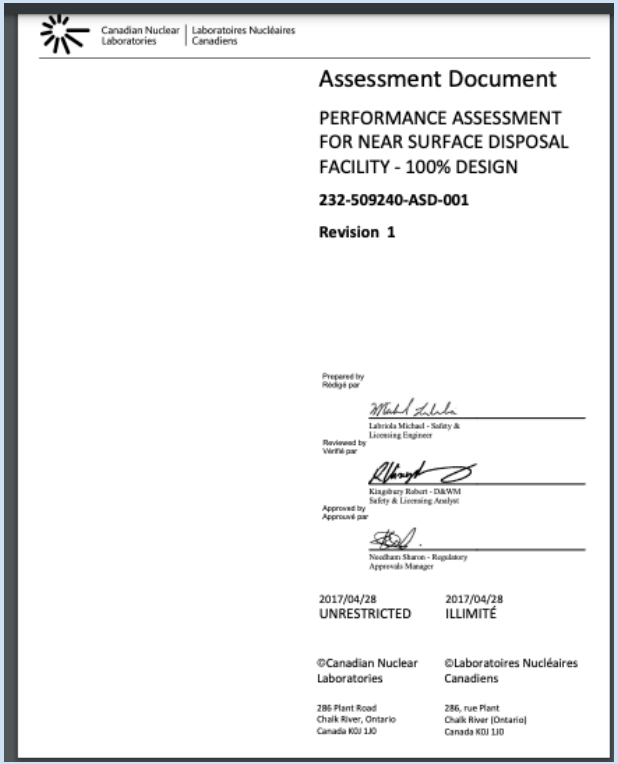
317000
317200
317400
Elevation (m asl), 2005 Lidar

References:


Near Surface Disposal Facility
232-509220-REPT-004
UNRESTRICTED
Deep River, Renfrew County, Ontario
ENVIRONMENTAL IMPACT STATEMENT
Volume 1: EIS Report
Revision 0
Canadian Nuclear Laboratories
Laboratoires Nucléaires Canadiens


Canadian Nuclear Laboratories | Laboratoires Nucléaires Canadiens
Assessment Document
PERFORMANCE ASSESSMENT FOR NEAR SURFACE DISPOSAL FACILITY - 100% DESIGN
232-509240-ASD-001
Revision 1
Prepared by
Rédigé par
Lahrida Michael - Safety & Licensing Engineer
Reviewed by
Vérifié par
Kingsbury Robert - DkWM Safety & Licensing Analyst
Approved by
Approuvé par
Needham Sharon - Regulatory Approvals Manager
2017/04/28
UNRESTRICTED
2017/04/28
ILLIMITÉ
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Chalk River, Ontario
Canada K0J 1J0
286, rue Plant
Chalk River (Ontario)
Canada K0J 1J0

The draft EIS includes:

- 25 occurrences of the phrase **“liner and cover failure as a result of normal evolution”**

- **3 occurrences** of the phrase “inevitable failure of the cover”

The "Bathtub" Scenario

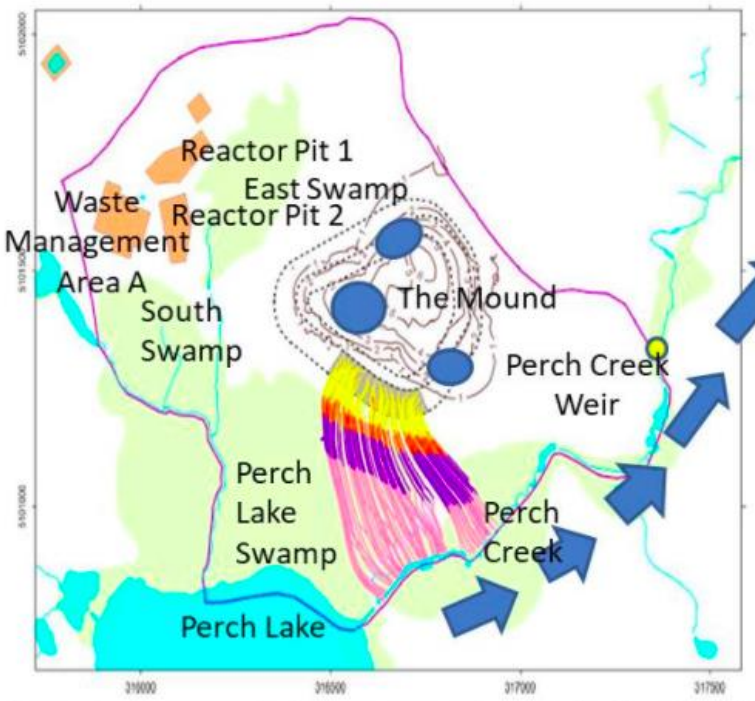


Figure 8-5 Conceptual Representation of the "Bathtub" Scenario Source: *Performance Assessment for NSDF to Support the EIS* March 2017 232-509240-ASD-001 Rev. 0

"**Upon cover failure, untreated leachate discharges into Perch Creek** along its northern stream bank (between Perch Lake and Perch Creek Weir **approximately 1.5 km from Ottawa River**) at a daily average flow rate of 120 m3/d (43,200 m3/year). The total waste volume will require approximately 25 years to fully discharge into Perch Creek." (Source: *EIS*, p. 5-212)

Table 5.8.6-5: Radionuclide Flux Flowing out of the ECM during Bathtub Scenario

Radionuclide	Radionuclide Concentrations (Bq/yr)	Radionuclide	Radionuclide Concentrations (Bq/yr)
Ac-227	1.07×10^{6}	Pu-239	2.14×10^{7}
Ag-108m	2.52×10^{6}	Pu-240	3.25×10^{7}
Am-241	7.77×10^{7}	Pu-241	1.25×10^{-2}
Am-243	5.25×10^{4}	Pu-242	1.01×10^{5}
C-14	2.48×10^{10}	Ra-226	3.07×10^{6}
Cl-36	3.71×10^{8}	Ra-228	1.95×10^{-6}
Co-60	1.16×10^{-8}	Se-79	1.16×10^{5}
Cs-135	2.12×10^{5}	Sn-126	8.32×10^{4}
Cs-137	2.62×10^{9}	Sr-90	3.36×10^{7}

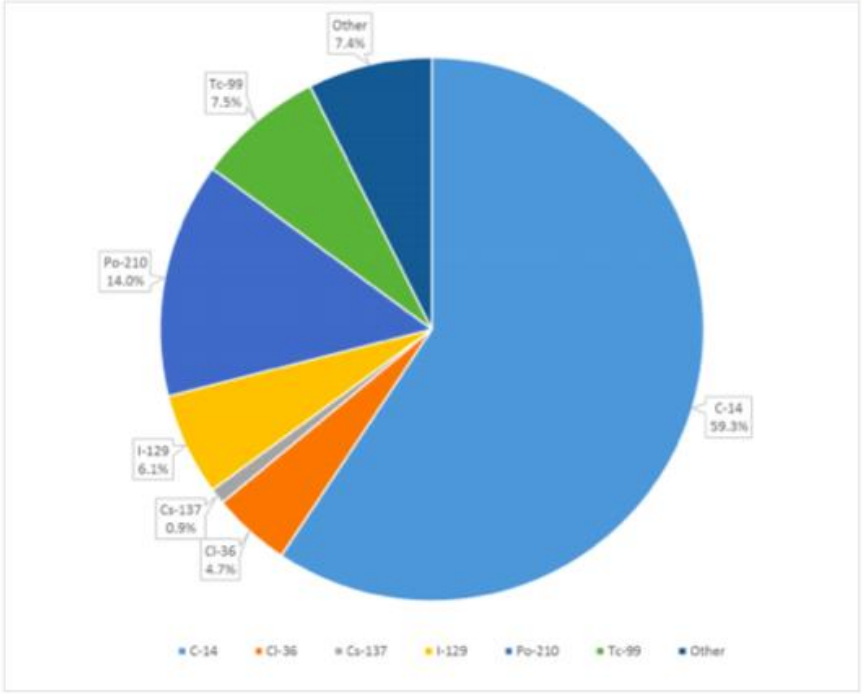
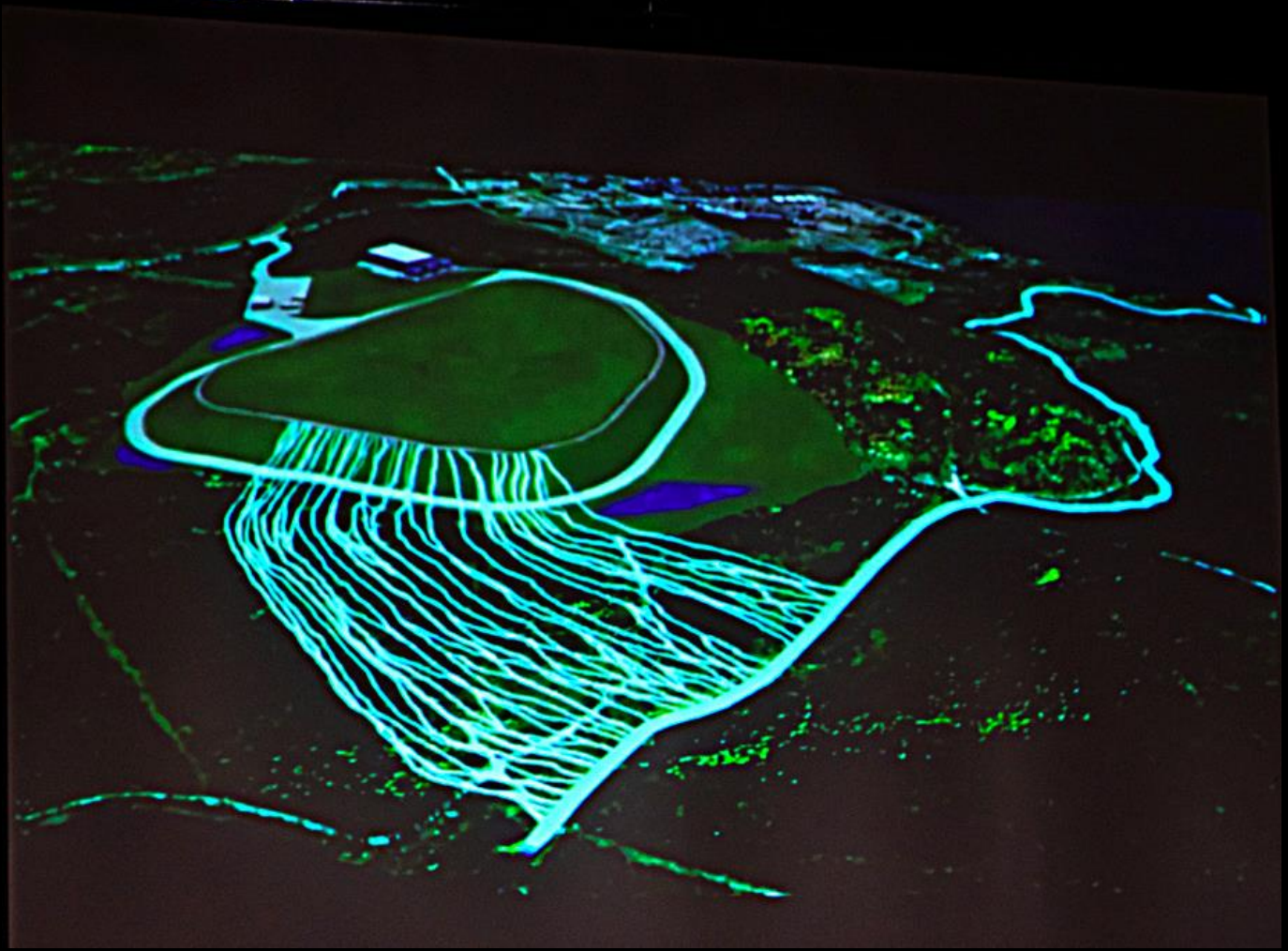


Figure 8-7 Percent Contribution by Radionuclide for Predicted Dose to an Infant in Pembroke (Bathtub Scenario)

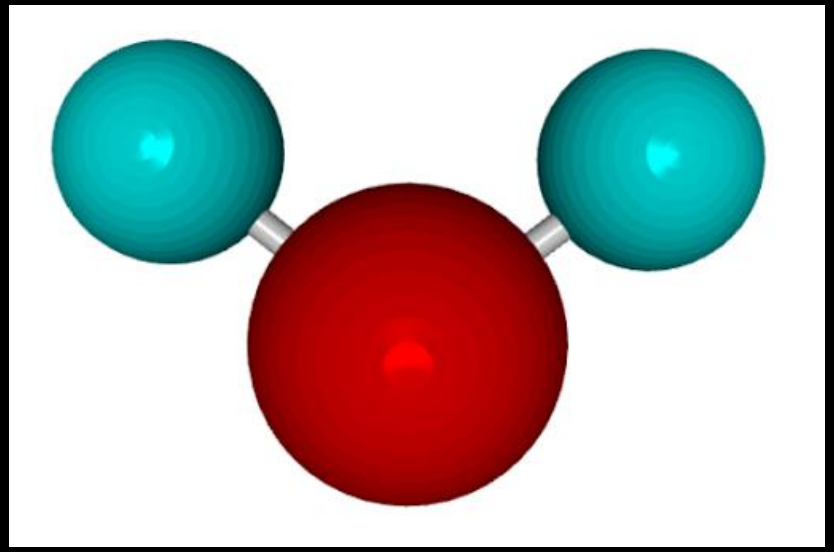
Most people would agree this is an unacceptable burden to place on future generations.

Why is this NSDF proposal even on the table? Why is it being taken seriously?

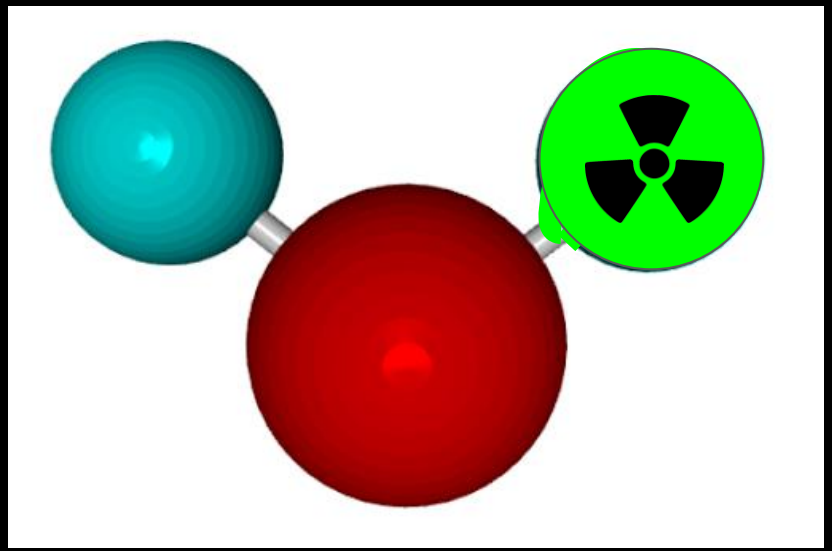



The Canadian Nuclear Safety Commission should REFUSE to license the NSDF

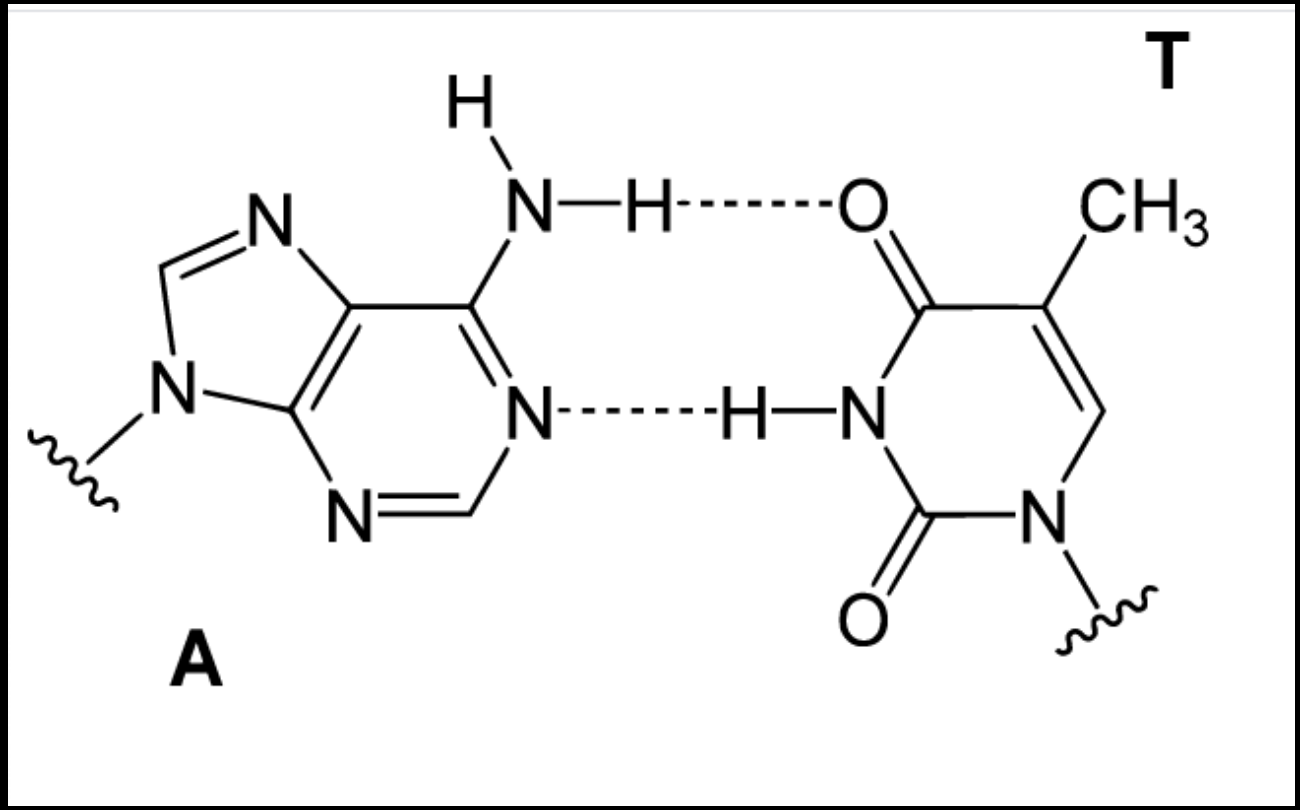
Two extra slides on tritium in case needed



Normal water molecule



Radioactive water molecule


T
H
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A