



Washington DC, USA, 1-3 April 2019

Proposed Radioactivity Expert Group Work Plan

Prepared by the AMAP Secretariat

18 March 2019

Background

Reference is made to *WG32-04B-6_Proposed radioactivity expert group work plan*. The document notes that the latest AMAP Radioactivity Assessment is the 2015 assessment¹. The document outlines topics, timelines and resource needs for a new assessment report and an associated Summary for Policy-Makers.

The minutes from WG32 reads: *The WG supported the work plan from the Radioactivity Expert Group with production of an update radioactivity assessment to be delivered to the 2023 Ministerial Meeting, including a section on radon and human health.*

The minutes from the HoDs meetings 28 and 31 January 2019 reads: *The Secretariat noted that general support for a new assessment on radioactivity had been given at the WG32 meeting in Kiruna, starting with scoping of the work required. Russia and Norway have indicated that they would be interested to co-lead this assessment, which would aim for completion in 2023. (...) Teleconferences will be held during spring to further develop the plans and the issue should be discussed at the April meeting.*

An expert group teleconference was held 5th March, and the document is an update of *WG32-04B-6*, based on the outcome of the teleconference.

The first Expert Group workshop is planned to be held in the autumn 2019, tentatively end-September or beginning of October. The agenda for the workshop will be scoping of the work and defining timelines. The *Norwegian Radiation and Nuclear Safety Authority* has offered to host the workshop in Tromsø, Norway. There is also an offer to host the workshop from University of Groningen, The Netherlands.

¹ <https://www.amap.no/documents/doc/amap-assessment-2015-radioactivity-in-the-arctic/1457>

Note: An earlier version (11th March) of this document exists. The main difference is that the section *Latest data on the dumped and sunken radioactive objects in the Arctic and legacy sites* has been expanded.

Requests to HoDs:

1. Review the updated list of topics to be included in the assessment work.
2. If not done already, confirm the list of experts and identify additional experts, where relevant.
HoDs may want to consult this document on the nomination of experts: *AMAP Expert/Assessment Groups: The role of experts, procedures for nominating and supporting experts, appointing reviewers and conducting peer reviews*, <https://www.amap.no/documents/download/2294/inline>).

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1. Draft list of topics to be included in assessment work

The table lists the topics to be tentatively included in the assessment work

Topics	Comments and additional information
Monitoring data from participating states	<p>The data from the “Joint Norwegian-Russian monitoring programme of radioactive contamination” as well as data from the other Arctic should be included.</p> <p>The work will include a comparison of the calculated dose rates for biota from the Barents Sea and lakes of Kola Peninsula.</p>
Latest data on the dumped and sunken radioactive objects in the Arctic and legacy sites	<p>Status on the development of the removal and securing sources in the Arctic. Assessment of the work accomplished and the resulting reduced risk in the Arctic.</p> <p>Radiological impact assessments on the present transport of spent fuel in the Arctic- ship traffic from Andrejeva, the transport from Murmansk to Mayak and the future use of Academic Lomonosov</p> <p>An EU feasibility study considering the condition and best solutions for securing some of the larger remaining marine sources in the Barents sea area in the future is to be completed in 2019. Main findings and future prospective.</p> <p>Norway will conduct a cruise to Komsomolets in July 2019 and Russia will have a cruise to Komsomolets in 2021. Updated knowledge on the status of the wreck.</p> <p>Data from Camp Century (Greenland): The Kingdom of Denmark will deliver data from Camp Century to the expert group; however, no contamination appears to be evident from the operation of the nuclear reactor at that site. Thus, it is suggested that Camp Century data be included in the upcoming assessment, but not as a specific case study.</p>
Comparing radioactivity in the Arctic with the levels reported for the Antarctic	<p>Questions have been raised by the AMAP HoDs about this topic. The expert group is asked to consider if this topic should be included in the assessment.</p>
Radon in human populations including assessment of effects on biota of potential increases in radioactivity levels due to climate changes across the Arctic region	<p>Canada and Arctic Athabaskan Council (AAC) have formulated an interest in this.</p> <p>This topic is supported by experts from Canada, Finland, Greenland, and Norway.</p> <p>The topic could be a candidate for closer work with climate change experts in addition to human health experts.</p>
Natural occurring radionuclides in food stuff	<p>Norway has had an emphasis on the dose contributions from natural occurring radionuclides in food (especially sea food) during the later years.</p>

	Additional data are available from Greenland, Canada, Iceland and Finland. The topic could be a candidate for closer work with human health experts.
The impact of climate change on the spreading of radionuclides	The Nansen Environmental and Remote Sensing Center, Norway is offering expertise and capacity within this area. Interest from experts from Canada.
Data on noble gasses from the CTBTO (<i>Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization</i>)	Interest from experts from Finland and Canada. Norway have CTBTO stations in the Arctic.
Radioactivity associated with mining (<i>Technologically Enhanced Naturally Occurring Radioactive Materials (TENORM)</i>)	Interest from experts from Canada, Greenland, Finland and Norway.

2. The AMAP radioactivity database

The present database is 20 years old, and only a few countries report regularly. The general opinion within the Experts Group appears to be that a new, simpler database would be needed in the future. The expert group will at its workshop in 2019 discuss in more detail the database issue and bring forward to the WG any proposals for simplification of the database including resource needs.

3. Identified experts

The experts listed are those that have been identified to the AMAP Secretariat, either since WG32 or for the *AMAP Assessment 2015: Radioactivity in the Arctic*. The names in bold are those that attended the expert group teleconference 5th March.

Country	First name	Last name	Field of Expertise	Institute name	e-mail
Canada	Jing	Chen	Radiological protection and impact assessment. Internal and external radiation dosimetry and microdosimetry	Radiation Health Assessment Division, Radiation Protection Bureau, Health Canada	jing.chen2@canada.ca
Canada	Weihua	Zhang		Health Canada Radiation Protection Bureau	weihua.zhang@canada.ca
Denmark	Violeta	Hansen	Radioecology, Environmental chemistry	Aarhus University, DCE – Centre for Environment and Energy (DCE)	viha@bios.au.dk
Denmark	Xiaolin	Hou		Risø National Laboratory	xiho@dtu.dk
Denmark	Sven Poul	Nielsen		DTU NUTECH Center for Nuclear Technologies, Technical University of Denmark Frederiksborgvej 399 Building 204, room S06 4000 Roskilde	spni@dtu.dk
Denmark	Jixin	Qiao		DTU NUTECH Center for Nuclear Technologies, Technical University of Denmark Frederiksborgvej 399 Building 204, room S06 4000 Roskilde	jjqi@dtu.dk
Denmark	Per	Roos		DTU NUTECH Center for Nuclear Technologies, Technical University of Denmark	roos@dtu.dk

Country	First name	Last name	Field of Expertise	Institute name	e-mail
				Frederiksborgvej 399 Building 204, room S06 4000 Roskilde	
Denmark	Kristine	Thrane	Uranium mining on Greenland	National Geological Survey of Denmark and Greenland - GEUS	kt@geus.dk
Denmark / Faroe Islands	Hans Pauli	Joensen	Radionuclides in the environment	University of the Faroe Islands	hanspj@setur.fo
Finland	Ari-Pekka	Leppänen	Radionuclides in the environment, nuclear physics	STUK- Radiation and Nuclear Safety Authority Regional Laboratory in Northern Finland	ari.leppanen@stuk.fi ; ari.pekka.leppanen@ctbto.org
Finland	Jussi	Paatero	Airborne radionuclides. Transuranium elements in terrestrial environment	Finnish Meteorological Institute, Observation Services	Jussi.Paatero@fmi.fi
Iceland	Kjartan	Gudnason		Icelandic Radiation Safety Authority	kg@gr.is
Japan	Jota	Kanda		Faculty of Marine Science, Tokyo University of Marine Science and Technology Phone/Fax	jkanda@kaiyodai.ac.jp
Norway	Ingar	Amundsen		Norwegian Radiation and Nuclear Safety Authority	Ingar.amundsen@dsa.no
Norway	Bruce	Hackett	Physical oceanography. Operational ocean prediction, transport pathways for marine nutrients and contaminants, dispersion of pollution in the ocean.	Norwegian Meteorological Institute	bruce.hackett@met.no
Norway	Hilde Elise	Heldal	Marine monitoring. Radionuclides in marine food webs, in marine sediments and seawater. Radionuclides as oceanographic tracers.	Institute of Marine Research	hilde.elise.heldal@imr.no

Country	First name	Last name	Field of Expertise	Institute name	e-mail
Norway	Louise Kiel	Jensen		Norwegian Radiation and Nuclear Safety Authority	Louise.Kiel.Jensen@dsa.no
Norway	Lasse H.	Pettersson	Marine and coastal Marine and coastal optical remote sensing, discharges of radionuclides from rivers.	Nansen Environmental and Remote Sensing Center	lasse.pettersson@nersc.no
Norway	Brit	Salbu	Source term characterization, ecosystem transfer, mobility, biological uptake, accumulation and early effects as well as dose, impact and risk assessments	UMB, DE Institutt for plante- og miljøvitenskap Isotoplaboratoriet	brit.salbu@umb.no
Norway	Lavrans	Skuterud	Biophysics and terrestrial radioecology. Monitoring, modelling and assessment of uptake and transfer of natural and anthropogenic radionuclides in terrestrial food-chains, dietary surveys, food safety, remediation, human health effects.	Norwegian Radiation and Nuclear Safety Authority	lavrans.skuterud@dsa.no
Norway	William	Standring	Environmental chemistry, trace metals in freshwater and estuaries, transport of radionuclides in environment.	Norwegian Radiation and Nuclear Safety Authority	william.standring@dsa.no
Norway	Per	Strand	Radiation Protection and Radioecology, environmental impact assessment	Norwegian Radiation and Nuclear Safety Authority	per.strand@dsa.no
Russia	Alexander Ivanovich	Kryshev		RPA 'Typhoon'	kryshev@rpatyphoon.ru
Russia	Margarita Nikolaevna	Katkova		RPA 'Typhoon'	katkova@rpatyphoon.ru
Russia	Yuri	Tsaturov		Russian Federal Service for Hydrometeorology and Environmental Monitoring	tsaturov@mecom.ru

Country	First name	Last name	Field of Expertise	Institute name	e-mail
Sweden	Pål	Andersson		Swedish Radiation Safety Authority	Pal.Andersson@ssm.se
Sweden	Mats	Eriksson		Swedish Radiation Safety Authority	Mats.Eriksson@ssm.se
The Netherlands	Frits	Steenhuisen		Arctic Centre, University of Groningen	f.steenhuisen@rug.nl
USA	Vince	McClelland	Development and integration of emergency program core elements	U.S. Department of Energy	vince.mcclelland@nnsa.doe.gov

Notes:

- Vladimir Bulgakov (Russia) also attended the workshop 5th March.
- There were apologies from William Standring (Norway) and Yuri Tsaturov (Russia) to the workshop 5th March.