

## Radionuclides (Radium) biyaha la cabbo ku jira

Walxaha shucaaca raadiyoo aktif, oo sidoo kale loo yaqaan radionuclides, labaduba waa kuwo si dabiici ahna u abuurma bini'aadankuna sameeyaan. Radionuclides ka yimaada illaha dabiiciga ah waxay geli karaan biyaha dhulka hoostiisa ah iyo biyaha sare ee Minnesota. naturally occurring sources can get into groundwater and surface waters in Minnesota. Marka radionuclides sii kala jajabaan (kiimiko ahaan duqoobaan), waxay abuuraa shucaac. Radionuclides waa qayb dabiici ah oo ka mid ah deegaankeena, sidoo kale xaddi yar oo shucaacaas ahi si caadi ah ayuu ula socdaa hawada, biyaha, iyo ciidda nagu wareegsan. Marka uu ku soo gaaro shucaacaas oo badan wuxuu sababi karaa dhibaatooyin caafimaad.

### Saamaynta Caafimaadka

Soo-gaarista shucaaca wuxuu keeni karaa noocyo kala duwan oo saameynaya caafimaadka taasina waxay ku xiran tahay isha shucaacu ka yimid, qadarka shucaaca ah ee ku soo gaaray (wadarta qiyaasta), iyo dhererka muddada aad shucaacaas aad ku dhex jirtay. health effects depending on the source of radioactivity, how much radiation you are exposed to (total dose), and how long you are exposed to the radiation. Biyaha la cabbo ee leh heer radionuclide oo u dhow heerarka biyaha federaalka ee la cabi karo ayaad ka heleysaa inaad la qaadato qiyaaso shucaac oo aad u hooseeya maalin kasta. Soo-gaarista shucaaca, marka lagu daro ilaha kale ee soo-gaarista shucaaca, waxay wax yar kordhin kartaa halista nolashaada in uu kugu dhaco kansarka ama dhibaatooyin kelyaha la xiriiira.

### Sida Loo Ilaaliyo Naftaada iyo Qoyskaaga

Hay'adda Ilaalinta Deegaanka ee Maraykanka (U.S. Environmental Protection Agency's [EPA]) *xeerkeeda Radionuclides* (eeg qaybta ilaha) waxay leedahay afar heer oo federaal ah oo loogu talagalay radionuclides ka biyaha la cabbo. Xeerka EPA Radionuclides wuxuu ku qeexayaa biyaha nadiifka ah ee la cabbi karo inay ka kooban yihiin qadar ilaa ama ka yar:

- 15 picocuries oo ah qaybaha alfa halkii litir oo biyo ahba (pCi/L)
- 5 pCi/L ee radium la isku daray 226/228
- 20 pCi/L oo uranium ah
- 4 millirem oo ah beta/photon emitters sannadkii (mrem/yr)

### Haddii aad leedahay ceel gaar ah

Qodobbada ka qaybqaata jiritaanka radionuclides ee biyaha ceelasha Minnesota wakhtigan si buuxda looma fahmin. Haddii aad ka welwelsan tahay shucaaca radionuclides ee ceelkaaga gaarka ah, waxaad kharash ku bixin kartaa in lagu baaro ceelkaaga. Waaxda Caafimaadka ee Minnesota (Minnesota Department of Health [MDH]) waxay ku talinaysaa in la isticmaalo shaybaar la aqoonsan yahay si loo baaro biyaha ceelkaaga (eeg *Search for Accredited Laboratories [Raadinta Shaybaarada La aqoonsan yahay]*). La xiriir shaybaarka si aad u hesho weel saamiga lagu qaado iyo tilmaamo, ama weydii qeybta adeegyada deegaanka ee degmadaada ama qeybta caafimaadka dadweynaha haddii ay bixiyaan adeegyada baarista biyaha ceelasha.

Waxaad u isticmaali kartaa heerarka u degsan Xeerka Radionuclides heerka ceelkaaga gaarka ah. Nidaamyada sifeynta biyaha guriga, sida sida isbeddelka ion, jilciyaasha biyaha, iyo hababka osmosis-ka, waxay yarayn karaan heerarka qaar ka mid ah radionuclides biyahaaga (eeg Home Water Treatment [Daaweynta Biyaha Guriga]).

### Haddii aad ku jirto nidaamka biyaha dadweynaha Nidaamyada biyaha

bulshada (nidaamka u adeega halka aad ku nooshahay) baaritaanda radionuclides lagu sameeyay ka hubi in heerarku ay buuxinayaan heerarka EPA. Waxaad ka heli kartaa heerarka radionuclides ee laga helay nidaamka u adeegaya meesha aad ku nooshahay adiga oo akhriya warbixinta tayada biyaha ee nidaamka (sidoo kale loo yaqaan Warbixinta Kalsoonida Macmiilka

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(Consumer Confidence Report [Consumer Confidence Report]) [CCR]). Waxaad wici kartaa nidaamka biyaha dadweynaha degaankaaga si aad u hesho nuqulka warqad CCR, ama waxaad ka heli kartaa onlayn (eeg *Warbixinta Kalsoonida Macmiilka*).

### Iska yaree gaaritaanka kale ee Radionuclides

Gurigaaga ka baar radon (radionuclide qaab gaas ah) iyo qaadashada tillaabooyin lagu dhimayo heerka radon waa mid ka mid ah waxyaabaha ugu muhiimsan ee aad samayn karto hoos u dhig qiyaasta guud ee shucaaca. Fiiri *Radon in Minnesota Homes (Radonka ku jira gudaha Guryaha Minnesota)* wixii macluumaad dheeraad ah.

### Xogta Asalka ah

Shucaaca dabiiciga ah iyo kuwa dadku sameeyeen ayaa kugu hareeraysan maalin walba. Qiyaastii kalabar shucaaca aad la kulanto sannad kasta waxuu ka yimaadaan ilo dabiici ah, sida qorraxda, ciidda, iyo dhagaxa. Qaybta kale waxay ka timaadaa ilo bini'aadmigu sameeyay, sida shaybaarada caafimaadka (raajada) iyo daawaynta iyo qalabka dhismayaasha gurayaha iyo wadooyinka. Illo kasta oo shucaac ah ayaa ku keenaya qiyaasyo kala duwan oo shucaac ah. Tusaale ahaan, daawaynta caafimaadka ee shucaaca la isticmaalo ayaa leh qiyaas aad u sarreeya oo shucaac ah marka loo eego qiyaasta aadka u yar ee shucaaca ah ee aad ka hesho biyaha la cabbo ee leh radionuclides. Hab-nololeedkaaga ayaa sidoo kale saameyn ku yeelan kara inta shucaac ah ee aad ku soo gaarta. come in contact with. Ku duulista diyaaradaha, ku noolaanshaha meelaha joogga sare leh, ku noolaanshaha meel u dhow meel dhuxusha laga qodo, iyo shaqooyinka qaarkood (sida macdanta dhulka hoostiisa laga qodo) waxay kuu keeni karaan in ay ku soo gaartl qiyaas sare oo shucaac ah. Wax badan ka baro shucaaca *Qiyaasaha Nolol maalmeedkeena (Doses in Our Daily Lives)*.

### Radionuclides ee Biyaha Minnesota

Radionuclides, sida radium, polonium, radon, iyo uranium, waxay si dabiici ah uga dhashaan Minnesota waxaana laga heli karaa qadar yar biyaha

dhulka hoostiisa ku jira ee Minnesota. Guud ahaan, biyaha dhulka dushiisa ah ma laha radionuclides heerkiisu ka sarreeyo heerarka EPA.

Sannadkii 2014, sagaal (1.2 boqolkiiba) nidaamyada biyaha ee dawladda hoose ee Minnesota (nidaamyada u adeega guryaha magaaloooyinka iyo magaaloooyinka) waxay lahaayeen heerar radium biyaha laga sifeeyay oo ka sarreeya heerka EPA. Daraasadaha MDH waxay heshay in heerarka ugu sarreeya ee radionuclides ee ilaha biyaha laga helay Mount Simon-Hinckley iyo Jordan Aquifers ee koonfur bari ee Minnesota.

Tiro aad u yar oo ka mid ah ceelasha gaarka ah ee Minnesota ayaa laga baaray radionuclides.

Warbixinnada soo socdaa waxay sharraxayaan waxyaalo badan oo ku saabsan radionuclides ka biyaha Minnesota:

- *Warbixinta Sannadlaha ah ee Ilaalinta Biyaha la cabbo (Drinking Water Protection Annual Reports)*
- *Uranium ku jirta nidaamka biyaha bulshada (Uranium in community water systems)*
- *Radium ka ku jira nidaamyada biyaha bulshada (Radium in community water systems)*

### Waxa ay MDH qabanayso

MDH waxay nidaamisaa nidaamyada biyaha dadweynaha iyadoo:

- Bixineysa oggolaanshaha qorshayaasha sifenta ee nidaamyada biyaha dadweynaha.
- Dhaqangelinta Xeerka Badbaadada Biyaha la cabbo.
- Baaritaanka howlaha biyaha dadweynaha.

*Barnaamijka Kormeerka Deegaanka* wuxuu hubinayaa in heerarka shucaaca ay ka nabad qabaan dadka degan agagaarka xarunta tamarta nukliyeerka ee Minnesota iyada oo la adeegsanayo saamiyo baaritaan lagu sameynayo oo biyaha, caanaha, iyo hawada ah.

MDH waxay samaysay daraasado ku saabsan radium iyo polonium- 210 (radionuclide) biyaha dhulka hoostiisa ee Minnesota waxayna bixisay macluumaad ku saabsan Safe Drinking Water Act Standards (Xeerka Biyaha la Cabo ee Badbaadada leh Heerarkooda) ah ee Biyaha la cabbo ee shucaaca

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ku fadaroobay.

- *Distribution of Radium in Minnesota Drinking Water Aquifers (Heerarka Radium ee Biyaha la Cabo ee Minnesota)*
- Polonium-210 ka laga helay Minnesota Aquifers: Daraasad tijaabo ah *Aquifers: A Pilot Study*
- *Environmental Protection Agency Safe Drinking Water Act Standards (Wakaaladda Ilaalinta Deegaanka Xeerka Biyaha la Cabo ee Badbaadada leh Heerarkooda): Microbiological, Radiological, and Inorganic Contaminants (Shucaaca Microbiological, iyo Fadarowga waxyaalaha orgaaniga ahayn.).*
- Xeerarka Radionuclides ([www.epa.gov/dwreginfo/radionuclides-rule](http://www.epa.gov/dwreginfo/radionuclides-rule))
- Radon in Homes (Radonka ku jira Guryaha) ([www.health.state.mn.us/communities/environment/hawo/radon](http://www.health.state.mn.us/communities/environment/hawo/radon))
- Radium in community water systems (Radium ka ku jira nidaamyada biyaha dadweynaha) ([data.web.health.state.mn.us/web/mndata/radium-messaging](http://data.web.health.state.mn.us/web/mndata/radium-messaging))
- Search for Accredited Laboratories (Raadi Shaybaadhada La aqoonsan yaha) ([www.health.state.mn.us/labsearch](http://www.health.state.mn.us/labsearch))
- Uranium in community water systems (Uraniumka ku jirta nidaamka biyaha dadweynaha) ([data.web.health.state.mn.us/web/mndata/uranium-fariin](http://data.web.health.state.mn.us/web/mndata/uranium-fariin))

## Ilaaha

- Consumer Confidence Reports (Warbixinnada Kalsoonida Macaamilka) ([www.health.state.mn.us/ccr](http://www.health.state.mn.us/ccr))
- Distribution of Radium in Minnesota Drinking Water Aquifers (Heerarka Radium ee Biyaha dhulka ku jira ee la cabo ee Minnesota )(PDF) ([www.health.state.mn.us/communities/environment/water/docs/swp/rareport.pdf](http://www.health.state.mn.us/communities/environment/water/docs/swp/rareport.pdf))
- Doses in Our Daily Lives (Qiyaasaha Nolol maalmeedkeenu u baahan tahay) ([www.nrc.gov/about-nrc/radiation/around-us/doses-daily-lives](http://www.nrc.gov/about-nrc/radiation/around-us/doses-daily-lives))
- Drinking Water Protection Annual Reports (Warbixinta Sannadlaha ah ee Ilaalinta Biyaha la cabbo) ([www.health.state.mn.us/communities/environment/biyo/dwar](http://www.health.state.mn.us/communities/environment/biyo/dwar))
- Safe Drinking Water Act Standards (Xeerka Biyaha la Cabo ee Badbaadada leh Heerarkooda) ([www.health.state.mn.us/communities/environment/water/factsheet/sdwa](http://www.health.state.mn.us/communities/environment/water/factsheet/sdwa))
- Environmental Monitoring (Kormeerka Deegaanka) ([www.health.state.mn.us/communities/environment/radiation/monitor](http://www.health.state.mn.us/communities/environment/radiation/monitor))
- Home Water Treatment (Daaweynta Biyaha Guriga) ([www.health.state.mn.us/communities/environment/water/factsheet/hometreatment](http://www.health.state.mn.us/communities/environment/water/factsheet/hometreatment))
- Polonium-210 Occurrence in Minnesota's Aquifers (Polonium-210 waxaa laga helaa biyo mareenada Minnesota.): A Pilot Study (Daraasad Tijaabo ah ) ([www.health.state.mn.us/communities/environment/risk/docs/guidance/dwec/polonium210report.pdf](http://www.health.state.mn.us/communities/environment/risk/docs/guidance/dwec/polonium210report.pdf))

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Si aad xogtan ugu hesho qaab sidan ka duwan, wac: 651-201-4700. Waxaa lagu daabacay warqad dib loo warshadeeyay.