

Ukwandisa Ixesha Lokusebenzisa Isitishi Sokuphehla Umbane Ngenyukliya SaseKoeberg



Yintoni ukwandisa ixesha lokusebenzisa isitishi (long-term operation [iLTO])?

Ukwandisa ixesha lokusebenzisa isitishi (iLTO) sokuphehla umbane ngenyukliya libinzana elisetyenziswa ukuchaza inkqubo yokuhlola ukhuseleko nokufumana isigunyaziso esivela kwabasemagunyeni sokuba isitishi esiphehla umbane sisebenze ngokukhuselekileyo ukudlula kwixesha esilisikelweyo kwilayisensi yaso yokuqala.

Iiyunithi ezimbini zeSithisi Sokuphehla Umbane Ngenyukliya SaseKoeberg ekuqaleni zazidizayinelwe ukuba zisety-

enziswe iminyaka engama-40, kusetyenziswa uqikelelo oluphantsi kakhulu. Ezi yunithi ziza kuba neminyaka engama-40 zisebenza ngokukhuselekileyo ngoJulayi 2024 (kuYunithi 1) nangoNovemba 2025 (kuYunithi 2). Ulwazi namava endlala yokubhexesha, yokuhlola, neyokulungisa olu hlobo lwesitishi senyukliya, iye yaphuculwa ukutyhubela iminyaka. Ngoku izitishi ezininzi eziphehla umbane ngenyukliya ziyakwazi ukusebenza ngendlela ekhuselekileyo neyonga imali naxa sele

zidlule kwiminyaka engama-40 ezidizayinelwe ukuba zisebenze ngayo. Ngokuvumelana nolu qheliselo, uEskom ufake isicelo kwiGunya Lelizwe Elilawula Inyukliya (National Nuclear Regulator [uNNR]) sokuqhubeka esebenzisa iyunithi nganye eminye iminyaka engama-20. Ukuba iyavunywa loo nto, ezi yunithi zimbini ziza kuqhubeka zisebenza ngendlela ekhuselekileyo de ibe nguJulayi 2044 (kwiYunithi 1) noNovemba 2045 (kwiYunithi 2) ngokulandelelana kwazo.

Ngaba ukwandisa ixesha lokusebenza kwesitishi yinto eqhelekileyo?

Ukwandisa ixesha lokusebenziswa kwesitishi sokuphehla umbane ngenyukliya ukudlula kwixesha elikwilayisensi yaso yokusebenza eliyiminyaka engama-40 yinto eqhelekileyo ehlabathini jikelele.

Ehlabathini lonke, kukho iiriyektha zenyukliya ezili-133 ezineminyaka engama-40 nangaphezulu zisebenza, ibe eyona riyektha indala isebenzayo ineminyaka engama-53 isebenza (iYunithi 1 kwisitishi sokuphe-

hla umbane saseNine Mile Point eNew York). Ukususela ngoJanuwari 2022, iKomishini Elawula Inyukliya YaseUnited States (United States Nuclear Regulatory Commission [iUSNRC]) ihlaziye ilayisensi zokusebenza zeeyunithi zeeriyektha zenyukliya ezingama-94. Ukususela ngoko ikhuphe ezinye ilayisensi ezihlaziyiweyo (ukuze yendise ixesha lokusetyenziswa kwazo ukusuka kwiminyaka engama-60 ukuya kwimin-

yaka engama-80) kwiiyunithi zeeriyektha zenyukliya ezintandathu, ibe ezinye ezisithoba zisaqwalaselwa.

EFransi, iiyunithi zeeriyektha zenyukliya ezingama-21 kwezingama-56 ezisebenzayo zineminyaka engama-40 nangaphezulu, ibe iBugey-2 (eyona yunithi yabo indala isebenzayo) yakonekthwa kwigradi yombane ngowe-1978.

I-IAEA ibandakanyeka njani kwisicelo se-LTO?

IArhente Yamandla EAthom Yamazwe Ngamazwe (International Atomic Energy Agency [IAEA]) iye yacelwa ukuba ize kuhlola ukhuseleko malunga nokulungela kweKoeberg ukuba kwenziwe iLTO, isebenzisa imigangatho yamazwe ngamazwe, kwaye icebise ngoko kunokwenziwa ukuze iLTO yenziwe ngendlela ekhuselekileyo. UEskom uzimisele ukusebenzisa izinto ezicetyiswe yi-IAEA ukuze iLTO yenziwe ngendlela ekhuselekileyo ibe sele enze

inkqubela ephawulekayo kulo mba. Eli nyathelo lenze iKoeberg yafumana ithuba lokusungula indlela ecwangcisiweyo negqineke iphumelela yokulungiselela iLTO ekhuselekileyo.

Isicelo seLTO sixhaswa yingcombolo ngokhuseleko eye yathunyelwa ku-NNR ukuze agunyazise. Le ngcombolo ngokhuseleko inobungqina nezibakala ezibhaliweyo ezibonisa ukuba akuyi kubakho mngcipheko ungafanelekanga kukhuseleko, kwimpilo,

okanye kokusingqongileyo ukuba iKoeberg ingaqhubeka isebenza eminye iminyaka engama-20 ngaphezu kwexesha elikwilayisensi yayo yokuqala eliyiminyaka engama-40. Ingcombolo engokhuseleko isekelwe kuhlolo lokhuseleko oluquka uhlobo olwenziwe yi-IAEA. Ingcombolo engokhuseleko ehleliweyo iyafumaneka kuwonke- wonke ibe ingafunyanwa kwiwebhusayithi yakwaEskom.

Kutheni kujoliswe ekulawuleni ukuguga koomatshini besitishi saseKoeberg?

Imigangatho yamazwe ngamazwe ifuna ukuba kuhlolwe ukulawulwa kokuguga njengexalenye yenkqubo yokufaka isicelo selayisensi yeLTO. Imiyalelo ekhokelayo malunga nokuLawula Ukuguga noKwandisa Ixesha Lokusebenza Kwezitishi Eziphehla Umbane Ngenyukliya ichaza izinto ekufuneka zenziwe ukuze kuqinisekwe ukuba iiprogramu zokulawula ukuguga zisebenza kakuhle.

Uqheliselo neenkqubo

ezisebenzayo zokulawula ukuguga zinokuthintela imiphumo emibi yokuguga (njengokudleka) ingenzi oomatshini besitishi basenze singasebenzi kakuhle ebudeni bexesha elandisiweyo lokusebenza kwaso. Iqela leengcali zamazwe ngamazwe (eziphantsi kwelAEA) liye lahlola ulawulo lokuguga. Injongo ibi- izinto ekufuneka zenziwe ukuze neenkqubo ezikhoyo ngoku eKoeberg zokulawula ukuguga kusetyenziswa izinto ezifunwa ngamazwe ngamazwe, lilizwe

nayimithetho kukhuseleko.

IKoeberg ilugqibile uphicotho lolawulo lokuguga, ibe iziphumo zingqinile ukuba iLTO ingaxhaswa ngendlela ekhuselekileyo. Ukuphuculwa kweeprogramu zokulawula ukuguga, ukuvavanywa nokubekwa esweni koomatshini bokhuseleko ziza kuqhubeka ngaphambi kweLTO nasebudeni balo lonke ixesha leLTO ukuze kuqinisekise ukhuseleko, nokusebenza ngendlela enokuthenjwa kwesi sitishi.

Hlobo luni lomsebenzi wokulungisa nowokuhlola ekufuneka wenziwe eKoeberg ukuze kuxhaswe iLTO?

IKoeberg isoloko iwenza umsebenzi wokulungisa nowokuhlola iisistimu zayo zokhuseleko ngokuhambisana nemigangatho nezikhokelo zamazwe ngamazwe nezelizwe, ezihlolwa zize zilawulwe ngokwemiyalelo. Uhlolo

lobunjini lwafumana izinto ezingakumbi ekufuneka zenziwe ngaphambi kweLTO nasebudeni beLTO. Injongo yokwenza ezi zinto kukuqiniseka ukuba iKoeberg iqhubeka ikhuselekile kwaye isebenza kakuhle ngalo

lonke ixesha leLTO. Ezinye zezinto ezinkulu ekufuneka zenziwe ziboniswe ngezantsi. Iijenareyitha zomphunga ngoomatshini abakhulu bokugqibela abatshintshwayo ukwenzela iLTO.

Ezinye izinto ezinkulu ezigqityiweyo okanye ekucetywa ukuba zigqitywe ngaphambi kweLTO

- Ukutshintshwa kwejenareyitha zomphunga
- Ukufakelwa kweendawo zokubeka amafutha koovimba
- Ukutshintshwa kweetanki zokugcina amanzi okutshintsha amafutha
- Ukutshintshwa kwee-reactor vessel heads
- Ukulungiswa kwekhonkile kwizakhiwo zeriyektha
- Ukuphuculwa kweesistimu zokubeka esweni nezokulawula zeanalogu
- Ukuphunyezwa kweeprogramu ezin- gakumbi zokulawula ukuguga
- Ukuhlolwa nokuvavanywa komatshini ababalulekileyo kukhuseleko (umz., isakhiwo sokugquma uvavanyo oludityanisiweyo lom- khamo wokuvuza
- Uhlolo oluhlaziyiweyo lwazo zonke iinkalo zesiza saseKoeberg (iinyikima, iitsunami, izaqhwithi, njl)



Ukulayishwa kweengxowa zamafutha ezisetyenzisiweyo.



Indawo yokugcina iijenereyitha zomphunga ezizakuthatha indawo yezitshintshwayo.



I-Reactor Cavity kunye neTanki yeNkqubo yokuPholisa i-Fuel Pool.



Ukufika kweNtloko yeSikhumbi soxinzelelo Iwe-Reactor kunye noLawulo Iwe-Rod Drive Mechanism e-Koeberg.



Ukufika kwenye yeejenereyitha zomphunga ezintandathu.

Linjani ifuthe leLTO kukhuseleko lwenyukliya?

Njengenxalenye yesicelo seLTO, ingcombolo yokhuseleko iyaqulunqwa ize ifakwe kuNNR ukuze ibonise ukuba akukho mngcipheko ungeyomfuneko kukhuseleko, impilo okanye okusingqongileyo ngenxa yeLTO.

IKoeberg ineminyaka ephantse ibe ngama-40 isebenza ngendlela ekhuselekileyo. Le nto ibangelwa yidizayini

esemgangathweni ophezulu yesi sitishi, ukuphunyezwa kweeprogramu ezingqongqo zokhuseleko (ngokomzekelo, iiprogramu zokulungisa nezokuhlola), ukusoloko kulandelwa iinkqubo (ngokomzekelo, ukuqinisekiswa komgangatho), kunye nokwabelana nokufunda ngamava nemibutho yamazwe ngamazwe enjengeWANO neIAEA. U-NNR naye

uphumeza indima ebalulekileyo yokuqiniseka ukuba iKoeberg iqhubeka isebenza ngendlela ekhuselekileyo ngokusibekela imithetho engqongqo nefuna kulandelwe iinkqubo ezithile.

Ingcombolo yokhuseleko iqwalasele iinkalo eziliqela yaza yaqinisekisa ukuba akukho mngcipheko ungeyomfuneko kukhuseleko, kwimpilo okanye kokusingqongileyo.

Ithini iplani yokulahlwa inkunkuma eneradiyeshini ibe ichatshazelwa njani yiLTO?

Inkunkuma eneradiyeshini ekumgangatho ophantsi nophakathi ipakishwa kwiikhonteyina zekhonkile okanye ezentsimbi ezihambisana nemiqathango engqongqo egunyaziswe nguNNR. Izinto ezijongwayo ukuze zamkelwe zichaza iinkalo ezidibene neradiyoloji, oomatshini, ezokoqobo, ezeekhemikhali, nezebhayoloji zepakeji yenkunkuma ukuze kuqinisekwe ukuba loo nkunkuma igutyungelwa kakuhle kwaye ingagcinwa ngokukhuselekileyo. Le nkunkuma sithethanje ilahlwa kwiNdawo Yokulahlwa Inkunkuma Eneradiyeshini YaseVaalputs, kuMntla Koloni. Kuza kuqhutyekwa kusenziwa ngolo hlobo ebudeni beLTO yaseKoeberg.

Sithethanje, amafutha asetyenzisiweyo enyukliya agcinwa ngokukhuselekileyo kumadama amafutha asetyenzisiweyo

nakwimigqomo eKoeberg. Kuye kwaphuhlisa indlela yokulawula inkunkuma yenyukliya yelizwe ukuze kulungiselelwe ukugcinwa kwenkunkuma eneradiyeshini ixesha elide nokulahlwa kwayo kuquka amafutha asetyenzisiweyo. Amafutha asetyenzisiweyo aza kuqhubeka egcinwa kumadama amafutha asetyenzisiweyo ubuncinane iminyaka eli-10 ibe ngelo xesha amandla akuwo aya kube ehle kakhulu aze adluliselwe kwimigqomo ekwisayithi yaseKoeberg. Amadama amafutha asetyenzisiweyo ayindlela ekhuselekileyo nenokuthenjwa yokugcina amafutha asetyenzisiweyo enyukliya ixesha elide. Le yindlela esetyenziswa kakhulu kwaye ihambisana nokwenziwa kumazwe ngamazwe sithethanje.

IKoeberg ilungiselela isakhiwo sokugcina sexeshana (temporary interim storage

facility [TISF]), ukuba uNNR uyavuma, esiza kuhlala imigqomo engakumbi yokugcina amafutha asetyenzisiweyo. Ukuze kuncitshiswe ukugcinwa kwenkunkuma eKoeberg, kucetywa ukwakhiwa kwesakhiwo esinguvimba esisembindini (centralised interim storage facility [CISF]) ibe siza kuba sisigaba esilandelayo sokugcinwa kwamafutha asetyenzisiweyo. De iCISF isungulwe liZiko Lokulahlwa Kwenkunkuma Eneradiyeshini Elizweni (National Radioactive Waste Disposal Institute), uEskom uza kuqiniseka ukuba amafutha asetyenzisiweyo agcinwa ngendlela ekhuselekileyo kwisayithi yaseKoeberg.

Inkcazelo engakumbi ingafumaneka kuxwebhu lwenkcazelo kawonke-wonke olufumaneka kwiwebhusayithi kaEskom.

Ezinye iinkalo eziqwalaselweyo kwingcombolo yokhuseleko

- Idizayini yesitishi injani xa ithelekiswa neekhowudi nemigangatho yale mihla
- Imeko abakuyo ngoku oomatshini besitishi
- Ukuthotyelwa kwezinto ezifunwa yimiyalelo kukhuseleko
- Ukusebenza kweeprogramu zokulawula ukuguga
- Iiplani zamanyathelo okuphucula ukhuseleko
- Lulonke uhlobo lokhuseleko lwenyukliya