

INKCUKACHA NGEPROJEKTHI

Isihloko: Ingxelo ehlaziyiweyo ecetywayo yokusiNgqongileyo yokugqibela kwiSikhululo saMandla eNyukliya sakwaEskom kunye neZixhobo ezihambelana naso (i-Nuclear-1)

ULawulo lokusiNgqongileyo: ISebe leMicimbi yokuSingqongileyo (i-DEA)

Inombolo yophononongo ye-DEA: 12/12/20/944

Umfaki-sicelo: I-Eskom Holdings Limited

Abacebisi bokusiNgqongileyo: GIBB (Pty) Ltd

Umhla: februwari 2016

lingxelo zeAfrikaans neSingesi zolu Shwankathelo loPhumezo zincanyatheliswe kule ngxelo kwaye ziyafumaneka kwa-GIBB Public Participation Office; Umnxeba: 012 348 5880 ngeeyure zomsebenzi: uMvulo ukuya kuLwesihlanu – 09h00 ukuya kwi-13h00 ngaphandle kweeholide zikawonkewonke; Ifeksi: 012 348 5878 ne-imeyile: nuclear1@gibb.co.za). Ingxelo yesiNgesi yolu xwebhu yiKopi yeSiseko.

ISISHWANKATHELO SEQUMRHU ELILAWULAYO

ISISHWANKATHELO

Isiphumo esingundoqo sale Ngxelo eHlaziyiweyo sesokuba iDEA igunyaziswa okokuba iqwalasele phantsi kwemiqathango isiza sase Thyspunt ukwenzela iSikhulo saMandla seNukliya sakwaEskom nemiqathango.

U-Eskom Holdings (SOC) Limited (u-Eskom) uceba ukwakha, ukusebenzisa nokuyekisa ukusebenza isikhululo esiqhelekileyo samandla enyukliye eMzantsi Afrika, ukuze akwazi ukumelana neemfuno ezipheleleyo zombane. Kumazwe amaninzi kuqukwa noMzantsi Afrika, ukukhula kwezogqosho kunye neemfuno zabahlali kubangela iimfuneko ezinkulu kakhulu kunakuqala zamandla, nangona kukho impucuko eqhubekayo nekhawulezileyo yobuchule bezamandla ombane. Ngenxa yoku, kufanele kufakelwe umthamo omtsha wokuvelisa umbane ukwanelisa iimfuno ezikhulayo zamandla ombane.

Ivelisiwe intlaninge yiqikelelo olwahlukileyo lokunyuka kweemfuneko zamandla ombane kwixesha elizayo, kusekelwe kwiimeko ezithile ezohlukileyo ezinokuthi zibe khona kuphuhliso lwezogqosho lwaseMzantsi Afrika. Olunye uphando lolu qikelelo olwenzelwe i-IRP 2010 lubonisa iimeko ezohlukileyo eziphandiweyo. Imeko esetyenziswe kwi IRP 2010 “elungiselelwe umgaqo-nkqubo” yeyona Mfuneko iNkulu ePhakathi (Moderate Maximum Demand) njengoko iboniswa leli nani lingezantsi. Le imeko ibonisa ukukhula kweyona mfuneko iphezulu ukusuka kumalunga nama 39 GW ngo 2010 ukuya kumalunga nama 74 GW ngo 2034. Kufanele kugxininiswe ukuba u Eskom uceba umthamo omtsha ngokusekelwe kwi IRP 2010 (nezilungiso zayo zexesha elizayo) kuhambisana neSebe lezaMandla kungenjalo kulungiswe iiplanti ezigugileyo

Isicwangciso soPhuhliso lweSizwe (IKhomishini eCebayo kaZwelonke 2012) sifuna nangakumbi ukuba iMveliso Eyonke yezaseKhaya (GDP) ibe sele inyuke nge 2.7 ngokubonakalayo ngo 2030, nto leyo ethetha ukunyuka kwe GDP nge 5.4 % ngonyaka. Ukuba esi santya sokukhula okanye nesinganeno koku siyafunyanwa, ukukhula kweemfuneko zamandla ombane kungalindelwa ukuba kuqhubeka yaye kuya kuhlala kufuneka ukwakhiwa komthamo omtsha wokuvelisa umbane eMzantsi Afrika. Ngoko ke, xa kukhangelwa la manani, i-IRP 2010 icingela ukunyuka okumalunga nama 21 GW kweyona mfuneko iphakamileyo xa kufikelelwa ku 2025 namalunga nama 29 GW ngo 2030.

Ngoko UEskom ukumelana nesisidingo sombane, uceba ulwakhiwo lwendlela yokuveliswa komthamo owongezelelweyo, ohambelana nenkqubo yokuqhubela phambili ukwaneliswa kwamandla ombane, nokuphuhliswa ngokutsha iindlela zokuvelisa umbane. Njengoko kuxeliwe, ngokusekelwe kuqikelelo, kukho imfuneko entsha yamandla ombane angaphezulu kwama-40 000 Megawatts (MW), ukumelana nesidingo saleminyaka engama-20 ezayo. Isicwangciso esiDityanelweyo seMithomo yaMacedo sowama-2010 esamkelweyo (Integrated Resource Plan 2010), esichaza amacebo obuchule karhulumente okumelana neemfuno ezikhulayo zamandla, sibonisa ukuzinikezela kukarhulumente kulwakhiwo lwamandla enyukliye angama-9 600 MW ngowama-2030. Injongo kaEskom kukwenza uphando malunga nokuba nokwenzeka kokunuswa kokuveliswa kwamandla enyukliye afunwa nguMzantsi Afrika.

UQIKELELO NOCELOMNGENI OLUNGUNDOQO

Ngexesha kubhalwa lomqulu, uEskom norhulumente waseMzantsi Afrika bebengekafikeleli kwisigaba sokuchonga oyena uyakuwelwa ngumqa esandleni sokwakha esisikhululo/sititshi sombane ophakwa ngeNyukliya. Ngoko ke nokuba ngubani umakhi oyakuthi akhethwe, imigaqo nemimiselo yolwakhiwo iyakuhambiselana naye okanye ayiphuncule yena ngokwakhe. Ukuba umakhi okhethiweyo akakwazi ukumelana nendlela yokusebenza ethiwe theca kumqulu wemigaqo nemimiselo yokwakha kwakuba yimfuneko ukujonga ngokutsha iqondo lokuchaphazeleka.

Siyaqikelela ukuba kunokwenzeka igunya lokwakha, ukusebenza Kanye nokuyekiswa kokusebenza kwesikhululo sombane weNyukliya nokuba kukweyiphi indawo kwezikhuphisanyo, uEskom uyakugonyamela ukungena nokuphuma kwabantu nezixhobo kwesosikhululo. Siyaqikelela kananjalo ukuba uyakuphinda angonyamele imihlaba ephononongwe yilengxelo, kunye nayiphi imihlaba ethengwe okanye engonyamelwe nguye ngenjongo zolondolozo ndalo.

Siyaqikelela kananjalo ukuba INNR (egunyaziswa yi NNRA) iyakuphendula isicelo esigunyazisiweyo sakwa Eskom sokufuna umhlaba, sokwakha, sokusebenza, sokususa imiqobo eyingozi nokuyekiswa kwesikhululo sombane weNyukliya nokuba umsebenzi wokwakha isikhululo eso awusokuze uqaliswe kungafumanekanga maphepha mvume agunyazisa oko

Ngako ke INPS ayisokuze iqhubeke ngaphandle kokuyizalisekisa yonke imimiselo nemigaqo yezokhuselo ethiwa theca yiNNR. Sayiqikelela kananjalo ukuba iNNR inawo Amandla kunye nabasebenzi bokuhlola ezokhuseleko njengoko butyikitywe kumqulu weNNR.

Sikwaqikelela ukuba abasebenzi beNPS bakuba beqeqeshwa baxhotyiswa ngokwaneleyo khonokuze bakwazi nemeko zokhuseleko nokuqinesikisa ukuba imigaqo yokhuseleko iyalandelwa kuze kunciphe amathuba empazamo

Ngokucetyiswa yiDEA nangomgaqosiseko weli loMzantsi Afrika (Act No. 108 of 1996) ne NEMA siyaqikelela ukuba iDEA yiyo enoxanduva lokuphonononga uchaphazelo isikhululo sombane weNyukliya esinokuba nayo kwindalo, ize yona iNNR ibe negunya lokuthabatha izigqibo ngokwemeko ezichaphazela ukuphutshuluka kwamaza anobungozi omoya

Naso nasiphi isigunyaziso esingesiso esi sokugunyaziswa kwalomqulu we EIA singaphandle kwesicelo esenziwa ngulomqulu we-EIA

iEMP ithathwa ngengomqulu ophuhlileyo ngako ke uyakusoloko ehlaziywa ngawo onke amaxesha kuvela iimbono ezintsha

Okoko ingxelo yeNyukliya 1 draft yaphumayo ukuya kwimihlangano yasekuhlaleni, kwapapashwa ukuba izicwangciso zePebble Med Modular Reactor Demonstration Power Plant (PBMRDPP) eKoeberg zabhujiswa yonke imibhalo ebingqamene nayo ebifumaneka kwimiqulu engaphambili kwalo ikhutshwe yonke kulomqulu wochaphazeleko lwendalo (EIA)

Konke ukuphawula ngalengxelo kwamasebe karhulumente avela emaphondweni nakwandlunkulu akubandakanywanga kwiDraft EIR kodwa kuqulathwe kwingxelo ezimbini, eziyi Revised Draft EIR no Draft Revised EIR Version 2

Ushwankathelo lwazo zonke iingxelo zeengcaphephe kanye nolu lwalengxelo yochaphazeleko lwendalo (EIA) luguqulwe ukusekela kwisiNgesi ukuya esiXhoseni nasesiBhulwin. Apho kufumanisekwe ukuba ezingxelo azingqamelani ngomxholo eyonangxelo eyakuthathwa ukuba iyichanile futhi isemxholweni yileyo yesiNgesi

IMINGENI

Isicelo sokuqala yasesendawo enye. Kwaza phaya ngoka 2009 uEskom wapapasha ukuba injongo zokucelela ugunyaziso lwendawo ezintathu ezahlukeyo. Nangona kunjalo ngexesha kubhalwa lengxelo ezonguquko bezingekapapashwa ngokusemthethweni ngako ke esisicelo silandela laambono yokuqala yesicelo sendawo enye

Ngenxa yexesha lengxelo eyenziwa ngayo ngo 2009, umsebenzi weengcaphephe wenziwa ngamaxesha angachanekanga, angangqamenanga nexesha ekwakufaneleke ukuba wenziwa ngalo, ngenxa yoko umsebenzi owongenzekileyo uye wagunyaziswa ngawona maxesha alungele nophando ukunika nokholeleko lomsebenzi weengcaphephe

Olona qikelelo malunga neendleko zesakhiwo esinokumelana neenhlekele ezinamandla alukho kwi Economic Impact Assessment (Appendix E17) kodwa ke iindleko zesakhiwo esikumila kunjalo zifumaneka kwi Revised Draft EIR Version 2

Imingeni ebhalwe kwingxelo yengcaphephe (Technical Specialist Report) ku Appendix E kodwa ayohlulwanga ekufakweni kwayo apha

Kuqikelelwa ukuba INNR izakuzamkela iimbono zika Eskom njengokuba zibolekwe kwi European Utility Requirements (EUR) ngokungqameleni nemeko ezichazwe kwiphepha lesiNgesi. Ukuphonongwa komngcipheko wenhlekele (Seismic Risk Assessment) lusekezelwe kulwazi olukhoyo okwangoku

IIMFUNeko ZOWISO MTHETHO

Iimfuneko zowiso-mthetho zezixhobo zenyukliye eMzantsi Afrika zininzi ngokugqithisileyo. Ngokubhekiselele kwisikhululo samandla enyukliye, kudingeka izigunyaziso ezimbini ezivela kubalawuli abasemagunyeni ukubakhankanya, iSebe leMicimbi yokusiNgqongileyo (i-DEA¹), kunye noMlawuli weSizwe weNyukliye (i-NNR). Ezi zigunyaziso, nezinye eziliqela, ziyadingeka phambi kokuba kuqaliswe ngemisebenzi yokwakha.

Izigunyaziso zokusingqongileyo ngokubhekiselele kuMthetho weSizwe woLawulo lokusiNgqongileyo (i-NEMA, uMthetho onguNombolo. 107 ka-1998), kunye neZigunyaziso ze-EIA Regulations (2006) ziyafuneka phambi kokuba isikhululo esicetywayo samandla enyukliye sakhiwe, njengoko ibandakanya le 'misebenzi idwelisiweyo' (o.k.u. imisebenzi enokuthi ibe nempembelelo enokuthi yonakalise okusingqongileyo), eyona iphambili:

- (1a) Kukusekwa kwezakhiwo nokusetyenziswa kwezixhobo, kubandakanya izakhiwo ezihambelana naso okanye izixhobo, ukuze kuveliswe umbane apho ukuveliswa kombane kungaphezulu kwama-20 Megawatts, ze isakhiwo sibe ngaphezulu kumgama oyihektare enye;
- (1b) Kunye nokwakhiwa kwezakhiwo okanye ukusetyenziswa kwezixhobo, kuquka izakhiwo ezibandakanyekayo okanye ukusetyenziswa kwezixhobo zenyukliye, kuquka ukuveliswa, ukukhuliswa, ukusetyenzwa, nokusetyenzwa ngokutsha kokugcinwa okanye ukulahlwa kwamafutha enyukliye, iimveliso zokuqhekeka kwee-athom kunye nenkunkuma.

U GIBB (Pty) Ltd (GIBB)² uthe watyunjwa nguEskom, njengomSebenzi woHlobo lokusiNgqongileyo (i-EAP), ukuba aqhube inkqubo yoHlobo lweMpembelelo yokusiNgqongileyo (i-EIA), ze aseke iSicwangciso soLawulo lokusiNgqongileyo (i-EMP), sesikhululo esicetywayo samandla enyukliye (esiza kubizwa ngokuba yi-Nuclear-1 emva koku), kunye nezakhiwo ezihambelana naso. Iqela leengcali lithe lancedisa kwi-EIA, laze laqulunqa iingxelo eziyimfuneko zobungcali.

Inkqubo ye-EIA ye-Nuclear-1 iqulathe izigaba ezimbini, isiGaba sokuVavanya nesiGaba sokuHlola. Kufakwe isicelo kwi-DEA ngoMeyi ka-2007, saze saguqulwa ngoJulayi ka-2008, sesikhululo esinye

samandla enyukliye afikelela kuma-4 000 MW. Isigaba soVavanyo lwe-EIA sesiqukunjelwe. I-DEA,

¹ Ebelisakwaziwa njengeSebe leMicimbi yokusiNgqongileyo noKhenketho

² Ibisakuba ngu Arcus GIBB (Pty) Ltd ngaphambili

ifumene izimvo zoogunyaziwe abachaphazelekayo bezokusiNgqongileyo kwiPhondo yaye zaphumeza iNgxelo yoVavanyo ngoNovemba ka-2008.

Oku kuphumeza kwabandakanya isiphakamiso sokuba ezimbini kwezintlanu zeesayithi ezichaseneyo zangaphambili zihlolwe ngethuba lesigaba soVavanyo, eziyiBrazil neSchulfontein eMntla-Koloni, ze zikhutshwe ekubeni ziphinde zibe nokuqwalaselwa kwi-EIA. Ukukhutshwa kweziziza bekusekelwe ngokubhekiselele kwimfuno elinganiselweyo yasekhaya, kunye nokungabikho kweendlela esele zikho zokuhambisa umbane ezihambelana neziziza. I-DEA yaphumeza iSicwangciso sokuGqibela seSifundo se-EIA ngoJanuwari ka-2010.

Ngokusekelwe kwizimvo ezifunyenweyo ze-EIR eYilwayo ebinikwe uluntu negunyabantu ukwenza izimvo ngethuba lowama-2010, i-EIR eYilwayo iye yahlaziywa. I-EIR eYilwayo eHlaziyiweyo (Ushicilelo 1) ye Nuclear-1 yenziwe yafumaneka kuwonke-wonke ukuze kufunyanwe izimvo zabantu ngayo ukususela ngoMeyi 2011 – Agasti 2011. Ngokusekelwe kwizimvo ezivela kwi-DEA nakuwonke-wonke malunga nale ngxelo, kuye kwafuneka olunye uphando nokhangelo elongeziweyo lweengcaphephe. Olu xwebhu luphambi kwethu ngoko ke yiNgxelo Eyilwayo Ehlaziyiweyo yeMpembelelo yokuSingqongileyo (Inguqulelo 2). Lushicilela inkqubo ye-EIA ethe yaqhutywa ukuvavanya iimpembelelo ezinokuthi zibekho zokusingqongileyo zesikhululo samandla enyukliye, kuso nasiphi kwezithathu zeesayithi ezichasene naso ezizezi, i-Duynefontein neBantamsklip eNtshona Koloni neThyspunt eMpuma Koloni. Iquka iingxelo ezithile zeengcali ezihlaziyiweyo yaye yenza izindululo ngokubhekiselele ekumisweni nasekugunyazisweni nasekusekweni okukhuthazwayo kweesayithi ze-Nuclear-1, okusekelezwe kwiziphumo ze-EIA.

IMISEBENZI YEZIPHATHAMANDLA ZIKARHULUMENTE

Ukwaleka kwisigunyaziso sokusingqongileyo ngokwemimiselo ye NEMA, isikhululo samandla enyukliya esibekwe phambili sifuna nesinye isigunyaziso esibalulekileyo esivela kwi National Nuclear Regulator (NNR) phambi kokuba luqale ulwakhiwo. Kwaye, kufuneka nezinye izigunyaziso ezininzi ezivela kumasebe ohlukeneyo, afana neSebe leZimbiwa, iSebe lezemcimbi yezaManzi (DWA), iSebe lezeMicimbi yokuSingqongileyo (DEA), amagunya ezokusingqongileyo kwiphondo kunye ne-Arhente ejongene noButyebi obuLigugu loMzantsi Afrika (South African Heritage Resources Agency), kwakunye namanye amagunya alawulayo afana noMlawuli waMandla kaZwelo-nke eMzantsi Afrika (NERSA) phambi kokuqala kolwakhiwo.

I-National Nuclear Regulator (i-NNR) inikezwe igunya nguMthetho weSizwe woLawulo lweNyukliya (i-NNRA, uMthetho onguNombolo. 47 ka-1999) ukukhusela abantu, izakhiwo neempahla, kunye nokusingqongileyo ekonakalisweni yinyukliye ngokuthi iseke imigangatho yokhuseleko kunye nemisebenzi yolawulo. Ngokuhambelana neCandelo 20 le NNRA, akukho mntu ufanele ukuhlala, ukwakha, ukusebenza, ukucoca ukungcola okanye ukuyekisa ukusebenza kwendawo efakelweyo yenyukliya, ngaphandle kwaphantsi kwesigunyaziso selayisenisi yokufakela ezenyukliya. Icandelo 21 le NNRA lenza isibonelelo somntu onqwenela ukwenza neyiphi kwezi ntshukumo ukuba afake isicelo kuMbhexeshi oLawulayo (Chief Executive Officer) kwi NNR ukufumana loo layisenisi. Kodwa ke, ngokoMgaqo-Siseko weRiphabhliki yeloMzantsi Afrika, 1996 (Inombolo yoMthetho 108 wango 1996) (“uMgaqo-siseko”) ne NEMA, i DEA inoxanduva lokuthatha izigqibo malunga neempembelelo ezingathi zibe khona zesikhululo samandla kokusingqongileyo, nangona ezi mpembelelo zingathi ziquke ezo zayamene nemiba ethile yeengozi zemitha ye-radiation (radiological hazards) eyayamene nendawo leyo esetyenziswayo.

Kuqwalaselo loxanduva oluntlantlo-mbini kodwa olugqalileyo ngokubhekise kuhlolo novandlakanyo lwemiba yemitha ye-radiation, - isivumelwano sentsebenziswano esigqitywe phakathi kwe DEA ne NNR sapapashwa ngokusesikweni ngowe 18 Julayi 2008. Enye yeenjongo yesi sivumelwano “kukuthintela uphinda-phindo olungafunekayo noluphephekayo lweenzame” phakathi kwe NNR ne DEA. Inkqubo yogunyaziso ye-NNR ingena kanye kwimiba yenyukliya nokhuseleko lwemitha ye radiation eyayamene nendawo ekwakhiwa kuyo, uyilo, ukwakhiwa, ukusetyenziswa nokuyekiswa kokusebenza kwendawo okanye ziixhobo ezisetyenziswayo kufakelo lwenyukliya. Okunye, uMlawuli-

jikelele we DEA ukhuphe isibhengezo ngo Janyuwari 2009 (Isihlomelo B4) ukuyicacisa ngakumbi injongo yesi sivumelwano. Isibhengezo sibonisa ukuba ukhuseleko lwenyukliya, imitha ye-radiation ne radiology “ zingcono xa ziphantsi kwenkqubo yolawulo lwe NNRA yaye ukuphathwa kwale miba minye kwinkqubo ye-EIA kuya kubangela ukuphinda-phindwa okungafunekiyo nokunokuphetshwa.”

Kugwalaselo lwesi sivumelwano, indlela esetyenziswa yi-EIA, ukuya kuthi ga nokuquka uYilo oluHlaziyiweyo lwe-EIR (Ushicilelo 1) olwakhutshelwa ukufumana izimvo zikawonke-wonke ngo 2011, kukuba “lingxelo zoKhuseleko lweSiza”² ezilungiswe njengenxalenye yenkqubo yogunyaziso lwelayisenisi yenyukliya ziqukiwe njengeZihlomelo kwi EIR eyilwayo, kodwa imiba yemitha ye-radiology ayisayi kuhlolwa ngokuthe vetshe kwi EIA. Kodwa ke, ngokuqaphela iimfuno ze NEMA, imithetho eyayamene noku efana noMthetho woNyuso lwezoBulungisa kuLawulo wango 2000 (Promotion of Administrative Justice Act, 2000) (Inombolo 3 yoMthetho wango 2000) kunye neminye imiba yangaphambili yezomthetho efuna uqwalaselo lwazo zonke izinto ezinefuthe kwimo yentlalo-qoqosho (uqoqosho loluntu) kwinkqubo ye-EIA, uhlolo lwefuthe lwezemitha yenyukliya lwesi sikhululo samandla sibekwa phambili luqukiwe kule nguqululo yangoku ye-EIR. Nangona le ndlela yokuquka uhlolo lwefuthe lwezemitha yenyukliya lwesi sikhululo samandla sibekwa phambili ubungozi bophinda-phindo phakathi kweenkqubo zelayisenisi ze EIA ne NNR, umngcipheko kwi EIA xa kujongwe izibheni ezingathi zibe khona, ngokusekelwe ekungafakweni kwemiba ebalulekileyo efana nemiba yezempilo kwinkqubo ye EIA, uthathwa njengongaphezulu kunobungozi bophinda-phindo. Olu shicilelo lwangoku lwe EIR ngoko ke luyityeshela kakhulu indlela ebisetyenziswa kolunye ushicilelo lwangaphambili lwe EIR ngokubhekisele ekuqwalaseleni ifuthe lemitha yenyukliya.

Kulo mxholo, kufanele kukhankanywe ukuba iindlela ezisetyenziswa kwinkqubo ye EIA nenkqubo yelayisenisi ye NNR zohluka kakhulu. Umngxilo wenkqubo ye EIA kukuhlola iimpembelelo ezingathi zibe khona zokukhutshwa yimitha yenyukliya (kuqukwa okukhutshwa xa kusetyenzwa ngesiqhelo nakwiimeko zokungazoli). Kodwa ke, umngxilo wenkqubo yelayisenisi ye NNR kukubonakalisa ngaphandle kwentandabuzo eqiqileyo ukuba amanyathelo anzulu okhuselo (umaleko wezixokelelwano zokhuselo ezininzi, ezingeyomfuneko, nezingadibenanga) asetyenziswe kuyilo nokusetyenziswa kwesi sikhululo samandla esibekwe ngaphambili onele ukunciphisa amathuba okusilela okungakhokelela kwintshabalalo ngaphakathi okanye ekusileleni kwesiqulathi sesixhobo esivalele okwenzeka ngaphakathi kwenyukliya, abe kumazinga amkelekileyo nabonisa ukuba akukho bungozi bungenzeka. Ngoko, inkqubo ye EIA igqalise kwiziphumo zokukhutshwa kwemitha ye-radiation. Inkqubo yelayisenisi ye NNR nayo igqalise kwiziphumo kodwa ikwayilelwe ukunciphisa amathuba oko kukhutshwa kwemitha.

INKCAZELO YEPROJEKTHI

Ubuchule be-Pressurised Water Reactor (i-PWR), obusebenzisa amanzi njengesiphozisi, buthe bakhethwa ngu-Eskom ebukhethela i-Nuclear-1. Ii-PWR zikholisa ukuba zizona ziphenduli zisetyenziswayo kwiHlabathi jikelele. U-Eskom uqhelene nobu buchwepheshe buvela kwezempilo nokhuselo, kunye nemibono yentsebenziswano, emva kokubusebenzisa iminyaka engama-30 kwiSikhululo saMandla eNyukliya saseKoeberg (i-KNPS). Isikhululo samandla enyukliya esikuyilo olukuMgangatho wesi-III siyakhethwa nguEskom ngenxa yobulula bokusetyenziswa kunye noburhabaxa boyilo, ukufumaneka, nokuba nokwenzeka okuncitshisiweyo kweengozi zokunyibilikiswa, eyona mpembelelo incinane kokusingqongileyo, okona kusetyenziswa kuninzi kwamafutha kunye nokona kukhutshwa kuncinane kwenkunkuma.

Iingcaciso ezipheleleyo zesayithi ecetywayo yenyukliye azikabikho, njengoko kungekabikho mnikezeli ukhethiweyo.

Indlela esetyenzisiweyo kule nkqubo ye-EIA ibe ngoko kukubalula iimfuneko ezigubungelayo zezokusingqongileyo nezinye ezibandakanyekayo, ekufuneka uyilo nokwakhiwa kwesikhululo samandla ombane kwisayithi sizithobele. Kuqulunqwe indlela egubungelayo ukuqinisekisa ukuba

²The Emergency Response Assessment, Site Access Control Report and Human Health Risk Assessment

zimele obona bunjani buthile bakudala obungqamene neminye imizimveliso eyohlukeneyo kubuchwepheshe be-PWR.

Indawo ethe yahlolwa kule EIA ilungiselela ukwanda kwexesha elizayo kwesikhululo samandla ombane, ukuba oku kuthe kwaba nokwenzeka ngokokusingqongileyo nangokobuchwepheshe ngelo xesha. Kuqikelelwa ukuba ukusekwa okudingekayo kukonke ukuze kwakhiwe i-Nuclear-1 (4 000 MW) (esi sicelo) ezihektare ezingama-200 ukuya kuma-280 yaye esi ssicelo sangoku sesiGunyaziso sokusiNgqongileyo ngoko ke singama 4 000 MW kuphela. Ukongeza kukusekwa kwesikhululo samandla enyukliya, kuza kuba kho amacandelo amabini ommandla wokuthinta, ngeenjongo zokucwangcisa iimeko zongxamiseko, kwindawo enezakhiwo yesikhululo samandla ombane. Iindawo zokuthinta ezamkelwe kwihlabathi jikelele zisaqwalaselwa ukulungiselela i-Nuclear-1. Kukho ulinganiselo kwindawo eziimitha ezingama-800 kuphuhliso lomhlaba oluya kuthi lunyanzeliswe. I-NNR iya kuthi ithabathe isigqibo sokugqibela ngokuphathelene nobukhulu bendawo yokuthinta, ngokwe-NNRA.

Uludwe lwezakhiwo kwisikhululo esicetywayo samandla ombane luya kubandakanya, *phakathi kwezinye*, iziphenduli namaholo ee-injini zomsinga, kunye nokugcinwa kwamafutha enyukliya, izixhobo zokujongana nenkunkuma, iindawo zokungenisa nokukhupha eziyimfuneko ukugcina/ukukhupha amanzi asetyenzisiweyo ukuze apholise le nkqubo, umzimveliso wokususa ityuwa, imijelo yamandla phakathi kwesiza se-injini, iindlela, iyadi yamandla amakhulu ombane, kunye nasiphi na esinye isakhiwo senkonzo encedisayo. UMzimveliso we-iNjini yomsinga weRhasi oVulelekileyo (i-OCGT), uya kuthi usetyenziselwe ukuveliswa okungxamisekileyo kombane kwisayithi yaseThyspunt.

Kwimeko apho iprojekthi ecetywayo ithe yagunyaziswa, kucingeleka ukuba ulwakhiwo luya kuthatha malunga neminyaka esi-9. Iiyunithi zokuqala ziya kuqala ukuvelisa umbane wezorhwebo ngowama-2023 / 2024³.

INDAWO ESUKUYO ISIKHULULO SAMANDLA ENYUKLIYA

Iindawo ezintathu ezinokukhethwa ezihloliweyo kwiSigaba se EIA zezi:

- I-Duynefontein, esecaleni nakumntla we KNPS kunxweme oluseNtshona Kapa, malunga nama 35 km kumantla esixeko saseKapa. Esi siza sikumlaba okhoyo we Eskom, oquka umyezo wendalo.
- I-Bantamsklip, eselunxwemeni olusemazantsi eKapa, embindini ophakathi kwe Danger ne Quoin Points. Esi siza siyinxalenye somhlaba we Eskom we Bantamsklip iyonke, yaye usetyenziselwa kakhulu ukuvuna iintyatyambo nokuloba iintlanzi.
- I-Thyspunt, eselunxwemeni lweMpuma-Koloni phakathi kwe Oyster Bay ne St. Francis Bay. Esi siza se Nuclear-1 ebekwa ngaphambili sese Eskom, kodwa kukho iqela lezindlu kumhlaba osecaleni kwaso, ngaphandle kweMimandla ebekwe phambili njengeyokuCebela ngeMo yoNxunguphalo kwisikhululo samandla enyukliya (EPZ).

INKQUBO YE-EIA, INTATHO-NXAXHEBA YOLUNTU NOVAVANYO LWEMPEMBELELO

INKqubo ye-EIA eqhutywa ngokweMimiselo yowama-2006 ye-EIA, ibandakanya iNkqubo yeNtatho-nxaxheba yoLuntu (i-PPP) kunye nezifundo zobuchwepheshe, kwanemiba echongiweyo yaze yahlolwa.

³ Le mihla ingahluka kwimihla equkiweyo kwezinye izahluko ze-EIR. Nangona kunjalo iminyaka yama-2023 / 2024 ihambelana ne-IRP yama-2010 eyamkelwe kutshanje.

INkqubo ecetywayo ithe yaziswa embindini ka-2007, xa kuqaliswa ngobhaliso lwabo baNomdla nabaChaphazelekayo (ii-I&AP), yaye luqhebekile kuyo yonke i-EIA. IiNtsuku ezininzi zokwazisa uLuntu ngokuBanzi, iiNtlanganiso zamaQela zokuGqalisela kuNdoqo kunye namaQela abaChaphazelekayo abaPhambili abanjwa ukwenzela ukuba ii-I&AP zikwazi ukuxoxa ngeziphumo zeNgxelo eYilwayo yokuKhangela ngokuPheleleyo (i-DSR) neqela le-EIA. Izimvo ze-I&AP zaye zadityaniswa kwiNgxelo yeMiba neMpendulo (i-IRR) kunye neNgxelo yokuGqibela yoVavanyo.

Iimpembelelo ezinokuthi zibe kho neziphathelene ne-Nuclear-1, zithe zachongwa kwiSigaba soVavanyo. Iiprojekthi ezohlukeneyo ezichasene nale icetywayo, zithe zabalulwa yaye zadluliselwa phambili ukuze ziqwalaselwe kwiSigaba se-EIA.

Imeko esisiseko kwisayithi nganye echaseneyo ithe yaphandwa ngamachule ezokusingqongileyo yaze yachazwa ngokubhekiselele ngokwemiba yezinto ezibambekayo, yebhayoloji neyasekuhlaleni. Ezinye iimpembelelo ezongezelelweyo zithe zachongwa ngophando loochwepheshe abohlukeneyo (uphando olwenziwe kwikhompyutha nolwenziwe ebantwini ngqo) nangenkqubo eqhubekayo yoonxibelelwano nee-I&AP. Oochwepheshe bathe bahlola ukubaluleka kweempembelelo ezichongiweyo nezinokuthi zibe kho, baze benza isindululo esifanelekileyo sokuthomalalisa apho kukho imfuneko. Ngethuba leSigaba se-EIA, uluntu nalo luye lwanikezela ngolwazi olubalulekileyo nolungqamene nalo, kunye nolunye ulwazi kwi-EIA, kunye nesiqinisekiso esinisekisiweyo sokuba le miba ithe yaqwalaselwa kuphando lokusingqongileyo. Iziphumo zophando loochwepheshe ziye zadityaniswa zaze zahlolwa kule EIR icetywayo ihlaziyiweyo (Ushicilelo 1) nakule ngxelo ikhoyo ngoku.

Elinye ilungu eliphambili leSigaba se-EIA luhlolo loluntu ngokutsha lweziphumo, ezithe zanikezelwa kule-EIR ecetywayo eHlaziyiweyo (Ushicilelo 1). Zonke ii-I&AP ezibhalisiweyo zither zaziswa malunga nobukho beNgxelo nobeeNtlanganiso zoLuntu ezicetywayo. Iindibano zokubonisana eziBalulekileyo zaBathathi-nxaxheba ziye zabanjwa eNtshona Koloni naseMpuma Koloni. Ubukho be-EIR ecetywayo eHlaziyiweyo (Isilungiso 2) kunye namalungiselelo eeNtlanganiso zoLuntu zithe zapapashwa ngokuthengiswa kumaphephandaba.

I-EIR eYilwayo eHlaziyiweyo (Isilungiso 2) neengxelo ehamba nazo iya kulungiswa, apho kufanelekileyo, ukulandela izimvo ezifunyenweyo ezivela kwii-I&AP ngexesha lophengululo. Iingxelo zokugqibela emva koko ziya kuthunyelwa kwi-DEA ngenjongo yokuqwalaselwa nokuthathwa kwesigqibo.

IZIPHUMO EZIBALULEKILEYO KWIINGUQU

Iinguqu ezibalulekileyo kule-EIR eYilwayo eHlaziyiweyo ukusuka kupapasho lwe-EIR eYilwayo ne EIR eYilwayo eHlaziyiweyo (Ushicilelo 1) yokufumana izimvo ngowama-2010 nowama 2011 ngokuhambelana zezi:

I-Pebble Bed Modular Reactor (PBMR)

- Ukuyekwa kwezicwangciso zoMboniso woMatshini waMandla we-Pebble Bed Modular Reactor (PBMR) e-KNPS. Ngako oko i-EIR eYilwayo eHlaziyiweyo ayiqulathanga ukuxelwa kwezicwangciso ze-PBMR;

Uphando lokuBeka Iso kuManzi aphantsi komhlaba (Groundwater Monitoring Study)

- Ngexesha i-EIR eYilwayo eHlaziyiweyo ibonelelwa izimvo zikawonke-wonke ngo 2011, uphando lwaye lwacinga ngeziphumo zokuBeka Iso kuManzi aphantsi komhlaba ezaziqokelelwe ngonyaka wekhalenda ka 2010. Uhlolo lokuHamba kwaManzi oMhlaba (i-Geohydrological Assessment) luhlaziyiwe ngolwazi oluqokelelweyo lokuBeka Iso kuManzi aphantsi komhlaba oluthe lwaqokelelwa ukusukela ngoko. Oku kuphucula intembeko kuqikeleloo lwefuthe kumanzi aphantsi komhlaba kunye nakwimigxobhozo yaye kuphucula intembeko nangakumbi ekusebenzeni kakuhle kwamanyathelo ongenelo abekwe ngaphambili ngakumbi kwisiza sase-Thyspunt;

Olunye ulwazi oluqokelelwe kwinkqubo eqhubekayo yokubeka iso kumanzi aphantsi komhlaba kuzo zontathu ezi ziza luyaluqinisekisa uqikelelo lwefuthe kumanzi aphantsi komhlaba nakwimigxobhozo, yaye luqinisekisa ukuba udonga kwehidroloji olusikiweyo xa kugronjelwa isiqithi senyukliya sesikhululi samandla esibekwe phambili luya kusebenza ukudambisa impembelelo kwimigxobhozo ebalulekileyo, efana nomgxobhozo we Langefontein vlei kwisiza se Thyspunt.

I-Dune-geomorphology nokuMpompoza kokuNgcola

- U Lauren Elkington, umfundi wezinga le Masters kwiDyunivesithi yase Rhodes, upapashe ithisisi emalunga nethafa leenduli zesanti ezihambayo e Oyster Bay ngo Juni ka 2012 yaye iziphumo zale thisisi ziye zanananwa ngokuphathelele kwi Nuclear-1. Uhlolo lohamba-hambo lweenduli zesanti nalo lunakane oonobangela bezona ziganeko zezikhukula ngo 2011 nango 2012, lwakhangela kwakhona nokuba ingaba kukho ubungqina kusini na bobango lokuba kukho uqukugelo lobumdaka kwithafa leenduli zesanti lwaphanda nangefuthe lezikhukula kumlambo i-Sand River nomhlaba okumlomo womlambo iSand River (delta) kwichweba lomlambo i Kromme River. Uphando olongezekileyo luqinisekisa ukuba abukho ubungqina bokumpompoza kokungcola kwisiza okanye ubukho beemeko zokumpompoza kokungcola. Kananjalo luqinisekisa ukuba ayikho ingozi yomonakalo kwi-Nuclear-1 okanye kwiindlela zokungena nengozi encinci yokunyibilika kweentlabathi (okanye imigxobhozo yentlabathi ebizelayo), ngokuxhomekeke ekubeni kusetyenziswa iinkqubo zobunjineli ezisesikweni zeendlela nezakhiwo ezihambelana nazo; Uhlolo lomhlaba okumlomo womlambo i-Sand River kwichweba lomlambo i Kromme River nalo lwenziwa yaye kwafunyaniswa ukuba ichweba lomlambo i Kromme lithanda ukuba ligcwale mome yisanti. Isanti ivela kumlambo i Sand River nakumsinga ohamba nesanti ukuya kwichweba ivela elwandle. Umhlaba okumlomo womlambo iSand River awuzanga wakhe walivingca ngci ichweba lomlambo iKromme, yaye akungathanga oko kungenzeka. Kukwafunyenwe ukuba olu qukugelo lobumdaka kuthwa lukhona kumlambo iSand River zizinto ezishiywe ngugandaganda, ngoko kwakusakhiwa umhlaba ongezantsi ukukhusela idama (“ Lio n el ’s Dam ”) kumlambo i Sand River.

Amafa oBuzwe (Heritage)

Imithombo yase Thyspunt

- I-Heritage Impact Assessment (i-HIA) (uHlolo lweMpembelelo yezaMafa oBuzwe) lufumene ukuba isiza sase-Thyspunt sithathwa “njengeMbonakalo-mhlaba yeMveli” njengoko ichazwa yi-United Nations Educational, Scientific and Cultural Organisation (UNESCO) World Heritage Convention. Ngexesha i-EIR eYilwayo eHlaziyiweyo ipapashelwa izimvo zikawonke-wonke ngo 2011, iziza zamafa obuzwe ezigugutha unxweme e Thyspunt zasisele ziwuvavanywe kakuhle umhlaba wazo kodwa kwakusekhona ukungaqiniseki malunga neziza zamafa obuzwe kwindawo esembindini walapho isikhululo samandla sihamba khona kwesi siza, nanjengoko ukushinyana kwezityalo kuthintele ufikelelo kwinkoliso yale ndawo kwesi siza. Nangona ubukho bezinto zenzululwazi ngezakudala bebubonakala noko kwimimandla ekufutshane eselunxwemeni nakumathafa avulekileyo eenduli zesanti, imimandla eshinyene izityalo abangela izikhwewu elwazini. Oku kwasonjululwa ngokongeza isigaba sovavanyo lomhlaba ongamafa obuzwe (ukugronjwa okuvavanywayo, okwenziwa phakathi kwama 30 Oktobha ne 15 Disemba 2011 phantsi kwemvume yokugromba ekhutshwe yi SAHRA. Olu phando lwesibini lubandakanye ukwenza ulingo lokugromba/uxilongo lomphezulu womhlaba kwiindawo ezili 113 kuwo wonke lo mmandla wenyukliya ubekwa phambili apho ukubonakala kumphezulu womhlaba kwakunzima. Oku kugubungela konke apho sihamba khona isikhululo samandla esibekwa phambili kunye neendawo ezingathi zisetyenziselwe ukucocelwa ukugcina izixhobo zokusebenza okwethutyana. Injongo yalo msebenzi ibikukukhangela ngaphantsi kwentshela kwiindawo ezinezityalo ezishinyeneyo apho bekungakwazeki ukuthatha isampuli ngaphambili. Kuthe xa kubonakala ukuba kuncinane kakhulu okwenzululwazi ngezakudala kule ndawo yeenduli zesanti ezinezityalo, i-SAHRA yacela ukuba kuncitshiswe izinga lokuthatha isampuli kube kukugronjwa kanye kwindawo apho imigca yegridi idibana khona eyi 400 m. Oku kulivumele iqela lohlolo lwezamafa obuzwe

ukuba basebenzise obabo ububanzi bokucinga ukuphepha ukuchaphazela intshinyela yemithi yendawo leyo kunye nemimandla yemigxobhozo.

- Oku kugromba kuvavanywayo kufumanise ukuba le ndawo isembindini yesiza sase Thyspunt apho sihamba khona isikhululo samandla enyukliya esibekwe phambili iqulathe iziza ezimbalwa kakhulu ezingamafa obuzwe yaye inkoliso yeziza igugutha unxweme okanye isethafeni leenduli zesantsi eziHambayo, apho kufumaneka amanzi amatsha. Oku kufunyanisiweyo kubonisa ukuba kungenzeka ubukhulu becala ukuba kuphetshwe ukuchaphazeleka kobuqu bamafa obuzwe, ukuba amaziko nezibonelelo ziyabhekeliswa elunxwemeni nge 200 m zibe “ kummandla ofileyo” ngokwezenzululwazi ngeezakudala kwiinduli zesanti ezinezityalo (kumzantsi weThafa leeNduli zeSanti eziHambayo e Oyster Bay).

Ukulahlwa Kwamanzi APholisayo e Thyspunt

- Ukuqwalasela iindawo ezimbini ezitshintshisanayo zokulahla amanzi okupholisa e-Thyspunt: kufuphi nonxweme nakude nonxweme. Uhlobo lugqibe kwelokuba indawo yokulahla ekufuphi nonxweme yamkelekile e-Thyspunt ngembono yeziphili zaselwandle (umz. i-chokka squid). Uhlobo olongezelelweyo lwe-chokka squid luqinisekise ukuba iimpembelelo zokulahlwa kwentlenga elwandle, namanzi okupholisa afudumeleyo akunakuba neziphumo ezibalulekileyo kwi-chokka squid okanye ekulobeni iintlanzi.

Nangona kukho olu hlolo nokuba imibhobho ekhupha amanzi ekude nonxweme naleyo ikufuphi nonxweme inefuthe elamkelekileyo ngokwembono yeikholoji (izinto eziphilayo nendawo eziphila kuyo) yaselwandle, yingcebiso ye EAP ukuba itonele ezikhupha amanzi ezikude nonxweme zigunyaziswe njengenxalenye yesicelo ukuze kunyinwe nangaphezulu ifuthe kwindalo yaselwandle e Thyspunt nase Dwynefontein.

Ukulahlwa kwezinto Ezingafunwayo e Thyspunt

- Ukulahla izinto ezingafunwayo kumaza amakhulu ngaselunxwemeni e-Thyspunt. Uhlobo lugqibe kwelokuba, kuya kwenzeka iimpembelelo ezincinci ukuba nje ubunzulu bolwandle obukhuthazwayo buyasetyenziswa kwisiza sokulahla. Xeshikweni ukwanda kwentlenga e-Seal Point kungachaphazela indlela amaza abetha phantsi ngayo, akukho ukwanda kwentlenga engqindilili okunokwenzeka e-St. Francis Bay, e-Bruce's Beauties nase-Jeffrey's Bay. Imeko yamaza angaselunxwemeni kwezi ndawo ngako oko ayinakuchaphazeleka.

Ukulahlwa kwaManzi aneTyuwa (Brine)

- Kuyacetyiswa ukuba kusetyenziswe umbhobho ukulahla amanzi anetyuwa ngaphaya kwendawo yokudada emazeni ngexesha lolwakhiwo endaweni yokuwalahla kwindawo ekudadwa kuyo phezu kwamaza.

Uhlobo lokuchaphazeleka kweZidalwa ezAnyisayo zaselwandle

- Inkcazelo kunye nohlolo lokuchaphazeleka kwezidalwa ezanyisayo zaselwandle iqukiwe kwingxelo ehlaziyiweyo yazo zontathu iziza.

Uhlobo lokuchaphazeleka isiLwanyana saselwandle esineengalo eziliqela sifana nengwane (i-Squid)

- Uvavanyo lwaselwandle lokuhlola uchaphazeleko kwi-squid luphindwe lwahlolwa emva kokukhathazeka kweshishini lokuloba i-squid. Oku kuquke ukuhoywa okuthe vetshe kolwazi oluqokelelweyo lokulobela ukuthengisa olubonelelwe liSebe lezoLimo, Amahlathi nezokuLoba (DAFF) yaye intlola yolwazi olukhoyo kunye nokufunyanisiweyo kwintlola yezaselwandle yi Scientific Squid Working Group (SSWG), ebonelela ngengcebiso kwi DAFF malunga nolawulo lokuloba i-squid. I-SSWG ikwaqokelele uhlobo olulolwayo ukuze bavavanye ukunyaniseka kokufunyaniswe kuhlolo lwezaselwandle. Ngokulandela oku, izimvo ze SSWG ziqukiwe kwiSihlomelo 6 sohlolo lwezaselwandle. Okufunyaniswe yi-SSWG kuxhasa ngokubanzi oko kohlolo lwezaselwandle.

Ukubeka Iso kwizilwanyana ezingenaMqolo

- Ukubeka Iso okongezekileyo kwizilwanyana ezingenamqolo kuye kwenziwa kwiziza zonke

Okunokukhethwa kokucocelwa ukugcina izixhobo zokusebenza okwexeshana kwiSiza ngasnye

- I-Es k om iphuh lis e le is i za ngas in ye i in da wo 'e zi ziimvulophu' zang aph am bi k ok wen za nto zogcino lwezixhobo zokusebenza okwethutyana zalapho sihamba khona isikhululo samandla. Ezi ndawo zogcino lwezixhobo zokusebenza okwethutyana zibonelelwe kwiqela le EIA yaye ziye zalungiswa emva koko ukuze ziqwalasele eminye imiba nokukhathazayo okuphakanyiswe ziingcaphephe ngexesha lewekhshophu yomanyano lweengcaphephe eyenziwa ngowama 25 Agasti 2008, kwintlanganiso yesibini yomanyano neqedlana leengcaphephe eyabanjwa ngowe 26 Septemba 2008 (zombini ngexesha lesiGaba soPhando nenkqubo ye EIA), kwakunye newekhshophu yomanyano lweengcaphephe eyenziwa ngowama 24 nama 25 Novemba 2009, ngexesha lesiGaba se EIA. Indawo ebekwe phambili yokubekwa kwesikhululo samandla nayo ichtatshazelwa ziimephu zobuzaza (bona ekupheleni kweSahluko 9) ezaphuhliswa kukho igalelo lengcaphephe.

Ezona nguqu ezazenziwe kwiindawo zogcino lwezixhobo kukushenxiswa kwesikhululo samandla esibekwe phambili ukusuka kwi 100 m ukusuka elwandle ukuya kuma 200 m ubuncinane ukusuka kuphawu oluphakamileyo lwamanzi. Oku kushenxiswa kwakusenzelwa ukuvumela ugcino lwemimandla yeikholoji imi kakuhle, ngexesha kunyina ukuchatshazelwa kweenduli zesanti ezimosheka lula neempawu zezamafa ezobuzwe, kwiziza zonke. Ingxaki evela kuphawu oluphakamileyo lwamanzi iya kunceda nokuthintela uchaphazeleko lwesikhululo ngenxa yokunyuka kwezinga lwamanzi olwandle okwayamene nenguqu yemozulu. Ezi ndawo zibekwe phambili zogcino lwezixhobo zokusebenza okwexeshana zicingela nokufumanisa iindawo ezimosheka lula zokusingqongileyo zeziza yaye zibeka izikhululo zamandla kwezona ndawo zingamosheki lula zokusingqongileyo zezi ziza⁴. Iingcaphephe zihlola indawo yonke esingaba kuyo (ummandla we EIA) yaye zibonelela ngeengcebiso kumanyathelo okunciphisa, imimandla emosheka lula kakhulu neendawo ekungangenwa kuzo konke konke.

Umzobo 3-16 ukuya kuMzobo 3-21 kwiSahluko 3 seyona Ngxelo inguNdoqo ubonelela ngendlela eya kuba yiyo le ndawo yogcino lwezixhobo zokusebenza okwethutyana ye zikhululo zamandla enyukliya njengeziza ezizezinye ezinokusetyenziswa. Ezi ndawo zibonisa umzobo " o yim vul oph u " kumthengisi ongekakhethwa okwangoku.

Kubalulekile ukuqaphela ukuba kukho ubunzima ngokuphathelele neeNdawo zocebo lweMo yoNxunguphalo (EPZs) obugqibayo ukuba indawo isikhululo esikuyo ingashenxiswa kangakanani na ezizeni ngokwayamene nokungqongileyo. Xa kujongwe ezinye iziza ezinokusetyenziswa, kuya kuba khona i-PAZ (khangela kwisigaba 3 ukufumana ingcaciso ye EPZ) nommandla ongama 800 m ubuncinane (kwabizwa njenge EZ) ukusuka kwisikhululo samandla. Ngoko isikhululo samandla asinako ukusondezwa ngaphezu kwama 800 m koyena mgaqo ukufutshane, nanjengoko kungavunyelwa lufikelelo lungenanyino kuwonke-wonke kwi-

⁴ It must be noted that the final position of the nuclear power station will be determined following the appointment of the final vendor and the detailed investigations on the inter-site geological conditions. The positions proposed by the specialists and EAP are to be used as a guideline. Should the position have to be shifted significantly outside that proposed in this EIR, a supplementary environmental assessments may need to be undertaken by Eskom.
Nuclear-1 EIA

PAZ. Nangona kuphuhlise indawo wnye yogcino lwezixhobo kwisiza sase Thyspunt, ezimbini zaziphuhliselwe i Duynefontein njengoko kucacisiwe kwisigaba esingezantsi.

I-Duynefontein

U Eskom yayisele iziphuhlisile iindawo ezimbini ezizezinye zogcino lwezixhobo zesiza sase Duynefontein. Enye indawo ibihamba ngobude igugutha unxweme, ize eyesibini (Umzobo 3-18 noMzobo 3-19) ibe ncinane noko ngokuba nezibonelelo zayo ezifana neeyadi zabakhi nemimandla yokugcinwa kwempahla ekrwada ezingaphakathi kwesiqithi seNyukliya. Indawo yesibini yogcino lwezixhobo zokusebenza yaziswe ukuphendula uchaphazelo obelungakwizinga eliphankamileyo lweenkqubo zezezityalo kwiinduli zesanti ezishukumayo zommandla wase Atlantis wethafa lenduli yesanti⁵ ngokoHlobo lwango 2011 lwekholoji yeZeZityalo kwiinduli zesanti. Isixokelelwano seenduli zesanti ezingamlezayo e Duynefontein sixhaphakile, esi sixokelelwano singaveli kakhulu kuNxweme lweNtshona Kapa. Kodwa ke, ngokusekelwe kolunye uphando nomnye umsebenzi kwezi ndawo owenziwe kwisiza sase Duynefontein (Ingxelo yeeNduli zeSanti zeZeZityalo yango 2015 – Isihlomelo E11), kucetyiswe imeko yokulinganisa ngokutsha, ngenxa yokuzinziswa kweenduli zesanti ezihambayo ezikufutshane ne KNPS ekhoyo.

Izinto ezimbini ezibalulekileyo kolu linganiso ngokutsha: (i) ilahleko enkulu yokuhamba kweenduli zesanti ngenxa yophuhliso emazantsi, kudityaniswa nokunyuka komaleko wemifuno kuthethe ukuba induli yesanti ayisenako ukusebenza kwisimo sayo samandulo yaye (ii) uphuhliso luya kuba kwiindawo ezinezityalo kuphela kwisixokelelwano seenduli zesanti, kuvunyelwa isixokelelwano esincinane esihambayo esishiyekileyo ngasemantla ukuba sisebenze ixesha elide, nangona sinyiniwe.

Ngoko ke, kungenzeka ukuba kungenelwe nakwindawo esemazantsi esixokelelwano seenduli zesanti (kufutshane nesiza se Nuclear-1), kukho izibonelelo ezithile. Kodwa ke, ukusebenzisa umhlaba kangangoko kwanokuhambisana nendlela ye EIR ukuzikhupha kwindawo yeenduli zesanti ezihambayo kangangoko, le ndawo yokuqala yogcino lwezixhobo ayisayi kuhlolwa okanye icingelwe le RDEIR Inguqulelo 2. Ngoko ke, indawo enye kuphela ebekwe phambili yesiza sase Duynefontein, yeyona incinane njengoko kuboniswe kuMzobo 3-18 nakuMzobo 3-19 nakwiSihlomelo A).

Izithuthi

- Isiza sase Thyspunt sifuna uhlaziyo lwendlela yokuhamba kwezithuthi ngokuphathelele kwiindlela zikawonke-wonke, ufikelelo nokukhutshwa kwizakhiwo ngexesha likaxakeka ngesigaba solwakhiwo. Iindlela ezicetyiswayo kwisilungiso 9 seNgxelo yeziThuthi zahlaziywa emva kokubonelelwa kwe EIR eyilwayo eHlaziyiweyo ukuba kufunyanwe uluvo lukawonke-wonke ngoMeyi 2011. Ngokusekelwe kolu hlaziyo, i R330 kubekwa phambili ukuba ngoku isetyenziselwe kuphela izithuthi ezihambisa abantu kunye nezithuthi ezinomthwalo ongaqhelekanga, yaye izigaba ezithile ziya kufuna ukulungiswa kusenzelwa le njongo. Umgaoqo i-Oyster Bay Road ngoku kubekwa phambili ukuba ulungiswe ube yindlela egudileyo

⁵ It must be noted that from a geomorphological point of view, this habitat is not regarded as sensitive by the Nuclear-1 dune geomorphology specialist.

esetyenziswa ngexesha lezigaba zolwakhiwo nokusebenza ukuze abasebenzi babe nofikelelo nezithuthi ezinkulu nendlela yokuphuma xa kukho imo yonxunguphalo yemimandla efana ne Oyster Bay. I-DR1762, edibanisa i-R330 nomgaqo i-Oyster Bay Road ibekwa phambili ngoku ukuba ilungiswe igude ukubonelela ngoqhagamshelwano oluphucukileyo phakathi kwempuma nentshona. Iindlela ezihamba kude nezakhiwo ukuya empuma nasentshona ye Humansdorp nazo ngoku zibekwa phambili ukuba zakhiwe ukunciphisa ukuchaphazeleka kwezithuthi kumbindi we Humansdorp. Ngenxa yoku, izithuthi ezinzima zokwakha ezifikelela kwisiza sase Thyspunt azisayi kufuneka zihambe phakathi kumbindi we Humansdorp

Imigaqo efikelela kuMntshona weThyspunt

- Kukhe kwajongwa iindlela ezine zoFikelelo eNtshona ekugaleneni ezingoo W1, W2, W3 no W4. U W1 ukuya ku W3 zonke zivela kumntshona wo Umzamuwethu (phakathi ko Umzamuwethu ne Oyster Bay), ngexesha i-W4 ivela kwindlela i Humansdorp-Oyster Bay road ukuya empuma yo Umzamuwethu. I-W4 yayikhatyiwe ekugaleneni ziingcaphephe zokusebenza komzimba (biophysical specialists) ngokuba kungenzeka ichaphazele ummandla osentshona wethafa leenduli zeSanti eziHambayo e Oyster Bay kunye nezixokelelwano ezisebenzisanayo ezimosheka lula, ukunqumla kwayo umgca wokomisa nobude bawo. Nge W1, W2 ne W3, i-W1 ithandiwe luninzi lweengcaphephe.

Ukugonda okukhathaza i-I&AP malunga nendlela yasentshona efikelelayo kwafunyanwa ngexesha lezimvo zikawonke-wonke zango 2011 malunga ne EIR eYilwayo eHlaziyiweyo (ushicilelo 1), kukhangelwe uhambelwano olutsha lweNdelela yoFikelelo eNtshona. Ezi zizezinye zigqalise ekuhambelaniseni iNdelela yoFikelelo eNtshona nempuma yo Umzamuwethu ukuthintela ukuba indlela ingadali iyantlukwano phakathi ko Umzamuwethu ne Oyster Bay. Olunye uhambelwano olulolunye nale ndlela luya lwakhangelwa pha ukuya ekupheleni kuka 2012 yaye okunokukhethwa okungaphakathi okukokona kude eOyster Bay (IR2) luye lwacetyiswa emva koku. Olu hambelwano lunefuthe elithile kwezokusebenza komzimba kodwa alubalulekanga kangako ukuba lungabangela izinto ezibulalayo.

Ukukhutshwa kwe Bantamsklip njengesiza esiNgathi sisebenziseke

- Ngokugqityezelwa nokuvunyelwa okulandeleyo kwengxelo yoKhangelo ngo 2008, injongo ibikughuba uhlolo oluthe vetshe lweziza ezithathu ezingathi zikhethwe ze Nuclear 1 ezibizwa ngokuba yi Duynfontein, Bantamsklip ne Thyspunt. Zonke ezi ziza zintathu ziphandwe ngokulinganayo njengenxalenye yesigaba sokuhlola se EIA. Kolo phando, kuye kwacaca ukuba ngexesha i-Bantamsklip ihleli iliziko elinako ukuba nesikhululi samandla enyukliya, ayithandeki njengezinye kwezi ziza ze Nuclear 1. Njengoko uhlolo oluthe vetshe lwe Bantamsklip sele luchaziwe lwabelwa kwiindawo zikawonke-wonke njengenxalenye yolunye uyilo lweNgxelo yeeMpembelelo kokusingqongileyo, senziwe isigqibo sokuba i-Bantamsklip ikhutshelwe ngaphandle ingaphinde ithathelwe ntweni kule EIR xa kujongwe ubufutshane.

Ezona zizathu zintathu zokukhuphela i-Bantamsklip ngaphandle ngeli xesha zayamene nomgcipheko wezithuthi, ukucetywa kweedolophu nezinga lentlola elifumanekayo kwiqela le Nuclear-1 EIA kwimigca yothumelo eya kufuneka ikhuphe amandla ukusuka kwisikhululo samandla esisebenzayo. Ngokuphathelele kwezothutho, indlela ephakathi kwezibuko laseKapa ne Bantamsklip inde yaye intsonkothile noko ngokwenkcazo-mphandle, kukho nemfuneko yokuhamba ngenyiba eyi Sir Lo wr y's eyingxaki, xa kuthalekiswa neendlela zokufikelela kwezinye iziza ezi zimbini. Le ndlela ngoko inobunzima obukhulu ngobugcisa kwizithuthi ezinemithwalo enzima yaye ngoko inobungozi bokhuseleko obukhulu obayanyaniswa nayo (kwabanye abasebenzisi beendlela nakubasebenzi bezithuthi) kunezinye iindlela. Kukwakhona iqela leebhrorho ezizizithintelo kunye namathambeka anyusa umnqantsa kule ndlela, angekhoyo kwiindlela eziya kusetyenziselwa ezi ziza zimbini zizezinye.

Isizathu sesibini sisekelwe kwindlela yokujonga ukucetyelwa kokusetyenziswa komhlaba kwanokhuselo nokusetyenziswa kokusingqongileyo (urban planning). Zontathu ezi ziza zijongiwe zaphandwa ngabaCebi bendlela yokusetyenziswa koMhlaba eDolophini (Urban Town Planners) (Isihlomelo E34). Ezi ziza ziye zanikwa amangaku ngokweemfuno zophuhliso zeSikhululo saMandla eNyukliya, apho isiza sase-Bantamsklip safumana awona mangaku asezantsi. Amanqaku achatshazelwa ngabasebenzi abambalwa abahlala kufutshane nesiza eso ingxaki efunyenweyo kwisiza sase Bantamsklip xa kuthelekiswa ne Duynefontein okanye i-Thyspunt. Oku kubonisa ukuba esi siza aisesona silungele i Nuclear-1 xa kujongwa imiba yokusetyenziswa komhlaba nokhuselo lokusingqongileyo.

Isizathu sesithathu kukuba kukho uxanduva ngqo (njengoko kuyimfuneko ngokwemiqathango ye EIA) ukuba kuvavanywe konke okuchaphazelekayo okungayanyaniswa hayi nesikhululo samandla enyukliya kuphela kodwa nezibonelelo ezayamene noko nazo. Izibonelelo ezayamene noku ezinkulu ngaphandle kwamathandabuzo ziingcingo zothumelo eziya kufuneka ukubonelela ngombane ngesigaba solwakhiwo, kodwa nokuwukhupha umbane kwisikhululo samandla esisebenzayo ukuwugqithisa. Kuzo zombini i-Duynefontein ne Thyspunt, uvavanyo oluthe vetshe lweengcingo zombane luyafumaneka kwiqela le EIA kodwa eze Bantamsklip azikafumaneki. Uvavanyo oluthe vetshe lokusingqongileyo olwenziwe e Thyspunt nase Duynefontein luthathelwe ingqalelo kunye novavanyo lwefuthe lwezi ziza, kunika isiphumo sovavanyo lwefuthe elidityanisiweyo njengoko kuboniswa kwiSahluko 10. Ngenxa yokuba ulwazi olufana nolu lungekho eBantamsklip, iqela le EIA alinako ukuvavanya ngokwaneleyo ifuthe elidityanisiweyo lesiza sase Bantamsklip. Ngoko ke, akukwazeki okwangoku nje ukubonelela ngohlolo oluthelekiseka ngokugqibeleleyo phakathi kwezi ziza zintathu.

Iqela le EIA liqinisekile ukuba ukukhuphela ngaphandle i-Bantamsklip kule EIR akujongeli phantsi uxanduva lokuphanda ngokucokisekileyo ezinye iindawo okanye lokufumana isiza singafanelekanga ukusetyenziselwa inyukliya kwixesha elizayo. Ukuqukwa kwesiza se Bantamsklip kuya kongeza ezinye iingxaki ezinkulu kwi-EIR esele inobayo ubunzima kungakhange kuphuculwe ukuthatha izigqibo nangeyiphi na indlela ebonakalayo. Isiza sase Bantamsklip siya kuthi ngoko ke singaphinde sithathelwe ingqalelo kule EIR. Abafundi abanomdla kuvavanyo lwangaphambili lwesiza sase Bantamsklip bangalufumana ulwazi ku <http://projects.gibb.co.za/Projects/Eskom-Nuclear-1-Revised-Draft-EIR>.

Nangona sibekile ngasentla, abafundi kufanele balumkise ukuba oku akuthethi ukuba isiza sase Bantamsklip asinakuze siphinde sijongelwe iSikhululo saMandla eNyukliya kwixesha elizayo. Esi siza asinaziphene zanaphakade ngohlolo olwenziwe ngaphambili; kodwa ke, kwezi ngxaki zikhankanywe ngasentla, i-Bantamsklip ayisayi kulungela ukuhlangabezana namaxesha abekiweyo okwakha alindelweyo kwi Nuclear-1, yaye ngoko ke ayisayi kuphinda ithathelwe ingqalelo kule EIA.

Ukucetywa kokusetyenziswa komhlaba edolophini (Town planning)

- Kuye kwenziwa uphando lokucetywa kwendlela yokusebenzisa umhlaba ukuvavanya indlela isikhululo samandla esibekwe phambili esingathi sichaphazele ngayo ukusetyenziswa komhlaba ongqongileyo. Iziza ezibekwe phambili zivavanywe ngokwesakhiwo esingqongileyo (matrix) sophuhliso esihlole okungqongileyo kwamaziko, kwezoqoqosho, kwezentlalo nezobume bendawo.

Uhlobo lwemitha ye-Radiology

- Kuye kwenziwa uphando lwentlola yemitha ye radiology ukuvavanya indlela ukukhutshwa kwemitha kwisikhululo samandla esibekwe phambili okungathi uchaphazele ngayo imimandla esecaleni kwaso. Uphando lujonge imitha ekhoyo kokusingqongileyo evela kwiziza, ukuchaphazeleka okungakhona ebantwini nakwizinto ezingengabantu xa kusetyenzwa ngesiqhelo.

Ingxelo yeNgozi eNgaphaya koYilo lweNdawo

- Olu phando lukhangela okona kubi kunokwenzeka, ukuba kungakho ingozi yenyukliya. Kuthathelwa ingqalelo iingozi ezifana ne Three Mile Island, i-Chernobyl ne Fukushima.

Intlola yoPhando lweNgcaphphe ngabanye abenza umsebenzi ofanayo

- Intlola yophando lweengcaphphe ngabanye abenza umsebenzi ofanayo yenziwe. Le ntlola ifumanise ukuba lonke uphando olwenziweyo lwanele yaye akukho ziphene zibulalayo zithe zachongwa. Ezinye iinkcukacha zibonelelwe kwiSahluko 8 sale ngxelo.

UHLULO LWEZINYE IINDLELA ZEPROJEKTHI

Ukuqwalaselwa kweeprosjekthi ezizezinye yiyona mfuneko iphambili ye-EIA, njengoko zinikezela ngesiseko sokukhethwa kwabalawuli belo candelo nee-I&AP. Iiprosjekthi ezizezinye eziqwalaselwayo kufuneka zibe zezizizo yaye zibe nokwenzeka. Ezi projekthi zizezinye eziqwalaselwa ngethuba le-EIA ziquka ezi zilandelayo:

- Indawo yesikhululo samandla ombane;
- Iindidi zokuveliswa kombane;
- Iindidi zemizimveliso yenyukliya;
- Iindlela zothutho;
- Iindawo zesikhululo samandla enyukliya kwiziza
- Isiseko somzimveliso wenyukliya;
- Ukuhanjiswa kwamanzi afreshi nokusetyenziswa kwamanzi atsalwe emhlabeni;
- Ukulawulwa kwamanzi anetyuwa;
- Ukungeniswa kwamanzi aselwandle;
- Ukukhutshwa kwamanzi kunye nokungcola kweekhemikhali;
- Ukulawulwa kwezinto ezonakeleyo;
- Ukufikelela kwiisayithi;
- Ukuhanjiswa kwenkunkuma kunye;
- Nezinye iindawo ezingenaluphuhliso (o.k.u. 'Akuhanjwa').

Uhlobo lwezinye iiprosjekthi lusekelezwe kwintlanganisela yeendidi zohlolo ezishicilelwe ziingcali, iziphumo zeqweba zohlanganyelo lweengcali ebelibanjwe ngoNovemba ka-2009, kunye nohlanganyelo luka GIBB nohlolo lweziphumo zophando, kuquka neengxelo zengcali zezihlaziyo ukususela ngo 2010 ukuza kuthi ga ngoku.

UHLULO OLUTHELEKISA EZINYE IZIZA EZINGATHI ZISETYENZISWE

Intlola ivela kwimo yokungqongileyo okufumana into nendlela oku kungqongileyo kufumana oku kuya kutshintsha ngenxa yeSikhululo saMandla eNyukliya (i NPS) kunye neentshukumo eziya kufuneka

ukwakha nokusebenza ngaxesha-nye. Uhlolo olubekwe apha lufunyanwe kigela lophando lweengcaphephe ezacelwa zilwenze njengxenye yenkqubo ye EIA (njengoko iqukiwe kwi EIR eYilwayo eHlaziyiweyo (Inguqulelo 10). Olu phando lwenzelwe ukubonelela uhlolo lweengcaphephe lwezinto ezohlukileyo zeSikhululo saMandla eNyukliya kunye nempembelelo esingathi sibe nayo kokusingqongileyo. Uphando ngalunye lweengcaphepheluqulathe inkqubo yokuhlola kunye nokuchaphazeleka kuloo mmandla wobungcali kwakunye nokwabela ukubaluleka kokuba ngunobangela kwiimpembelelo ezo zichongiweyo.

Kuphando lweengcaphephe, ukuchaphazeleka kuchazwe njengenguqu engathi ibe khona kokusingqongileyo ngenxa yokwakhiwa okanye kokusetyenziswa kweSikhululo saMandla eNyukliya esibekwe phambili. Kumashumi amathathu anesihlanu ophando lweengcaphephe olwenziweyo lusenzelwa i-EIA, kuchongwe ukuchaphazeleka okungakhona okwahlukileyo okungama-250 yaye kwabekwa ukubaluleka kuko ngakunye njengonobangela, njengoko kufunwa yimiqathango ye EIA. Ama-250 ochaphazeleko ludwelisiwe kwitheyibhile engezantsi.

Ukuchaphazeleka okungakhona kuzo zombini iziza (emva kokuncitshiswa okanye emva kolungiso lokulola) njengoko kuchongiwe kuphando lweengcaphephe olwenzelwe i-EIA.

Udidi lochaphazeleko	Uchaphazeleko oluncitshisiweyo	Duynefontein	Thyspunt
Ukufaneleka kwesimo somhlaba (Geotechnical)	Ukusilela kwethambeka, kukhokelela kumngcipheko wokhuseleko (Kuncitshisiwe)	Kusezantsi	Kusezantsi
	Ukusilela kwethambeka elingamatye, kukhokelela kumngcipheko wokhuseleko	Kusezantsi	Kusezantsi
	Ukuphazamiseka kwesiza okugqithisileyo, kubangela umonakalo kobume obungqongileyo	Kusezantsi	Kusezantsi
Ukufaneleka ngokwezonyikimo	Impembelelo yokuShukuma koMhlaba kwisakhiwo sesikhululo samandla	Kusezantsi	Kusezantsi
Ubungozi kwezomhlaba	Ukukrazuka koMphezulu: Umonakalo onganako ukwenzeka ongathi ubangele ukutshintsha kobume bomphezulu womhlaba ngenxa yokuphuncuka kweepleyiti emhlabeni (tectonic faulting)	Kusezantsi	Kusezantsi
	Ukuzinza ngaPhantsi nje koMphezulu womhlaba: Ukushukuma okungakhona komphezulu womhlaba okanye ukuphakama kwawo	Kusezantsi	Kusezantsi
	Intshukumo yeNtaba-mlilo: naziphi iintaba-mlilo ebezikhe zakhona	Kusezantsi - Phakathi	Kusezantsi - Phakathi

Udidi lochaphazeleko	Uchaphazeleko oluncitshisiweyo	Duynefontein	Thyspunt
	kwingingqi yesiza		
<u>Ukuchaphazelek a kwe hidroloji</u> (ukuhamba, ukusasazwa, nobulunga bamanzi) <u>sisikhululo samandla esibekwa phambili</u>	Increased run-off peaks due to hardened surface	Kusezantsi	Kusezantsi - Phakathi
	Umthamo onyukileyo wamanzi azibalekelayo ngenxa yomphezulu oqinileyo	Kusezantsi - Phakathi	Kusezantsi
	Uphazamiseko ngexesha lokwakhiwa: ukunyuka kwamathuba okhukuliseko lomhlaba	Kusezantsi	Kusezantsi
	Uphazamiseko ngexesha lokwakhiwa: Ukudama kweendawo ekusetyenzwa kuzo	Kusezantsi	Kusezantsi
	linguqu kwimizila yoqukuqelo	Kusezantsi - Phakathi	Kusezantsi - Phakathi
	Ukunyuka kodaka olushiyekelayo ngenxa yomhlaba ongakhuli zityalo	Kusezantsi	Kusezantsi
	Ungcoliseko lwamanzi angaphezulu	Kusezantsi - Phakathi	Kusezantsi - Phakathi
	Ukunyuka kwezinga lamanzi Olwandle	Kusezantsi - Phakathi	Kusezantsi - Phakathi
<u>Ukuchaphazela kokungqongela i-hidroloji</u> (ukuhamba, ukusasazwa, nobulunga bamanzi) <u>isikhululo samandla esibekwa phambili</u>	Ukunyuka kweZinga lamanzi oLwandle	Kusezantsi	Kusezantsi
	Ukunyuka kwamanzi aselwandle ukuya kokona kuphakama kuphezulu	Kusezantsi	Kusezantsi
	Izinga eliphakame kakhulu lamanzi	Kusezantsi	Kusezantsi
	Iziganeko ezenzeka rhoqo zokunetha kakhulu kwemvula	Kusezantsi	Kusezantsi
I-Geohydrology (Ukwakhiwa)	Impuphuma yemimandla egronjiweyo ngamanzi omhlaba ngexesha lokwakhiwa	Kusezantsi	Kusezantsi
	Ukwehla kokukhutshwa ngumngxuma okhoyo wesitsali-manzi	Kusezantsi	Kusezantsi

Udidi lochaphazeleko	Uchaphazeleko oluncitshisiweyo	Duynefontein	Thyspunt
	ngexesha lokwakhiwa		
	Ukoma kwemithombo eselunxwemeni ngexesha lokwakhiwa	Kuthathelwe ingqalelo ngokuthe vetshe kuHlolo lweMigxobhozo	
	Ukuchithwa kwemigxobhozo ngexesha lokwakhiwa	Kuthathelwe ingqalelo ngokuthe vetshe kuHlolo lweMigxobhozo	
	Ungenelelo ngamanzi anetyuwa	Kusezantsi	Kusezantsi
	Ungcoliso lwamanzi asemhlabeni nge Hydrocarbon	Kusezantsi	Kusezantsi
	Ungcoliso lwamanzi asemhlabeni ngenkunkuma enobungozi	Kusezantsi	Kusezantsi
	Ungcoliso lwamanzi asemhlabeni ngezinto eziphilayo neentsholongwane	Kusezantsi	Kusezantsi
i-Geohydrology (Ukusebenza)	Ungcoliso lwamanzi asemhlabeni ngemitha neetyhefu	Kusezantsi	Kusezantsi
	Ungcoliso lwamanzi asemhlabeni nge Hydrocarbon	Kusezantsi	Kusezantsi
	Ungcoliso lwamanzi asemhlabeni ngezinto eziphilayo neentsholongwane	Kusezantsi	Kusezantsi
	Ukwehla kokukhutshwa ngumngxuma okhoyo wesitsali-manzi ngexesha lokwakhiwa	Kusezantsi	Kusezantsi
	Ukoma kwemithombo eselunxwemeni kunye/okanye iindawo ezinkcenkceza amanzi ngexesha lokwakhiwa	Kuthathelwe ingqalelo ngokuthe vetshe kuHlolo lweMigxobhozo	
	Ukuchithwa kwemigxobhozo	Kuthathelwe ingqalelo ngokuthe vetshe kuHlolo lweMigxobhozo	
	Ungenelelo ngamanzi anetyuwa	Kusezantsi	Kusezantsi
Ubonelelo ngamanzi	Ungenelelo ngamanzi aselwandle ngexesha lokwakhiwa	Kusezantsi	Kusezantsi

Udidi lochaphazeleko	Uchaphazeleko oluncitshisiweyo	Duynefontein	Thyspunt
amatsha	Ufakelo lamaqula ngaselwandle ngexesha lokwakhiwa	Kusezantsi	Kusezantsi
	Ukulahlwa kwamanzi anetyuwa ngexesha lokwakhiwa	Kusezantsi	Kusezantsi
	Ungenelelo ngamanzi aselwandle ngexesha kusetyenzwa	Kusezantsi	Kusezantsi
	Ukulahlwa kwamanzi anetyuwa ngexesha kusetyenzwa	Kusezantsi	Kusezantsi
Ukuchatshazelwa kwezityalo zendawo: isikhululo samandla eNyukliya noBumdaka obuvela ekugrombeni	Ilahleko yengqokelela yohlobo oluthile lwezityalo ezibalulekileyo	Kuphakathi	Kuphakathi
	Ilahleko yengqokelela yohlobo oluthile lwezityalo zalo ndawo (zifumane ngaphandle kwamaqela azo)	Kuphakathi	Kuphakathi
	Ilahleko yohlobo oluthile oluyi Red Data lwaloo ndawo (khule kwenye indawo okanye khulisa uhlobo oluthile oluchaphazelekayo)	Kusezantsi	Kusezantsi
	Ilahleko yendawo yokuhlala elunxwemeni ngenxa yenguqu kwimo yezulu nokunyuka kwamazinga amnzi olwandle (ummandla ogugutha unxweme nesikhululo samandla enyukliya esibhekelisiweyo elunxwemeni)	Kusezantsi	Kusezantsi
	Ukuchaphazeleka ngelahleko edibeneyo yohlobo oluthile lwesityalo, iindawo eziphila kuzo kunye nokusebenza kwendlela yokuphila kwazo (fumana indawo ezinokuba kuyo ngaphandle kwenduli yesanti enqamlezayo)	Kuphakathi	Kusezantsi
Ukuchatshazelwa kwezityalo eThyspunt: Indlela eNgenayo eseMpuma	Ilahleko ye fynbos & thicket kwiinduli zesanti (akukho kunciphisa ilahleko yendawo eziphila kuyo, kodwa phepha iziza ezikubulunga obuhle nezinqabileyo)	akukho	akukho

	Ilahleko yemigxobhozo kwimpuma ye Langefontein (lungisa kwakhona ukuphepha imigxobhozo; ibhlorho phezu komgxobhozo empuma nje kwe Langefontein) (lungisa ushenxe kwimigxobhozo emosheka lula)	akukho	akukho
	Ilahleko yohlobo oluthile oluyi Red Data lwaloo ndawo (lungisa kwakhona indlela ukuphepha uhlobo lwe RD, uze/okanye ulususe luye kwenye indawo okanye ulukhulise kwisitiya sezithole)	akukho	akukho
	Ilahleko yohlobo oluthile, iindawo eziphila kuzo kunye nokusebenza kwendlela yokuphila kwazo (beka indlela kude neenduli zesanti ezihambayo nasemigxobhozweni)	akukho	akukho
Ukuchatshazelwa kwezityalo e Thyspunt: Indlela eNgenayo eseNtshona	Ilahleko ye fynbos & thicket kwiinduli zesanti (akukho kunciphisa ilahleko yendawo eziphila kuyo, kodwa phepha iziza ezikubulunga obuhle nezinqabileyo)	akukho	Kusezantsi - Phakathi
	Ilahleko yemigxobhozo kufutshane ne Oyster Bay	akukho	Kuhloliwe kuHlobo lweMigxobhozo
	Ilahleko yomsebenzi wenxalenye yesixokelelwano seenduli zesanti ezingamleze intshona & kwamhalwumbi nomsebenzi wemigxobhozo (lungelelanisa kude neenduli ezimosheka lula & nemigxobhozo)	akukho	Kuphakathi
	Ilahleko yohlobo oluthile oluyi Red Data lwaloo ndawo (lungisa kwakhona indlela ukuphepha uhlobo lwe RD, uze/okanye ulususe luye kwenye indawo okanye ulukhulise kwisitiya sezithole)	akukho	kusezantsi
	Ilahleko yohlobo oluthile, iindawo eziphila kuzo kunye nokusebenza kwendlela yokuphila kwazo (kunjima ukunciphisa ngokugqibeleleyo,	akukho	Kuphakathi

Ukuchaphazelek a kwenkangeleko nesimo seenduli zesanti e Duynefontein	kodwa xa kukwazeka, beka indlela kude neenduli zesanti ezihambayo nasemigxobhozweni)		
	Isimo nendlela yeenduli zesanti ezihambayo kwicala lesakhiwo elisisibonelelo elingabhudli umoya (zinzisa ngamacingo amade okunqanda izinto, amagqabi nezinti (i-brushwood) nezityalo zeenduli zesanti ezikhula kulo ndawo)	akubonakali	akukho
	linduli zesanti ezihambayo kwicala lesakhiwo elisisibonelelo elibhudla umoya (akukho nto inokwenzeka)	Kusezantsi - Phakathi	akukho
	Uzinzo lweenduli zesanti ezinezityalo ezikhuliswe ngabom ngenxa yolwakhiwo lwesakhiwo esisibonelelo neendlela zokungena (zinzisa ngamacingo amade okunqanda izinto, amagqabi nezinti (i-brushwood) nezityalo zeenduli zesanti ezikhula kulo ndawo)	akubonakali	akukho
	Uzinzo lweenduli zesanti ezinezityalo ze Late Holocene parabolic ezizikhulele indalo – ukwakha izakhiwo ezizibonelelo, iingcingo zothumelo lombane neendlela zokungena ngenxa yolwakhiwo kwezibonelelo neendlela zokungena (zinzisa ngamacingo amade okunqanda izinto, amagqabi nezinti (i-brushwood) nezityalo zeenduli zesanti ezikhula kulo ndawo)	akubonakali	akukho
	Ukuchaphazeleka kweenduli zesanti ezinezityalo ezikhuliswe ngabom ngenxa yokubekwa kwengqokelela yomhlaba ongaphezulu kwiinduli zesanti ezinezityalo ezikhuliswe ngabom (zinzisa ngamacingo amade okunqanda izinto, amagqabi nezinti (i-brushwood) nezityalo zeenduli zesanti ezikhula kulo ndawo)	akubonakali	akukho

	Ukuchaphazeleka kweenduli zesanti ze Holocene parabolic ngenxa yokubekwa kwengqokelela yomhlaba ongaphezulu kwiinduli zesanti ezinezityalo ze Late Holocene ezizikhulele ngendalo (zinzisa ngamacingo amade okunqanda izinto, amagqabi nezinti (i-brushwood) nezityalo zeenduli zesanti ezikhula kulo ndawo)	akubonakali	akukho
	Ukuchaphazeleka kweenduli zesanti ze Holocene parabolic ngenxa yengqokelela yobumdaka obuvela ekugrombeni kwiinduli zesanti ezinezityalo ze Late Holocene ezizikhulele ngendalo (zinzisa ngamacingo amade okunqanda izinto, amagqabi nezinti (i-brushwood) nezityalo zeenduli zesanti ezikhula kulo ndawo)	akubonakali	akukho
Ukuchaphazelek a kwenkangeleko nesimo seenduli zesanti e Thyspunt	Ukuvela kweziphumo zokukhukulwa ngumoya kwiindlela ezingenayo ngaseMpuma naseNtshona ukuxwesa ithafa leenduli zesanti ezikhula izityalo (zinzisa, ubuyisele isimo)	akukho	Kusezantsi - Phakathi
	Ukusetyenziswa kweendlela zokuNgena zaseMpuma naseNtshona ngexesha lokusebenza (akukho kuncitshiswa)	akukho	Kusezantsi - Phakathi
	Ukwakha iingcingo zothumelo lombane ezingama 300-400 ukuxwesa iinduli zesanti ezihambayo ze Oyster Bay Mobile Dune Field (Ukubekwa ngononophelo kweenqaba ne ECO)	akukho	Phakathi
	Ukwakha izibonelelo neendlela zokungena (sebenzisa ihelikoptha xa kusakhiwa)	akukho	Kusezantsi - Phakathi
	Iingcingo zothumelo lombane ezingama 300-400 m zihamba zinqumla iinduli zesanti ezihambayo kunye nemigxobhozo ekwezi nduli kwithafa leenduli zesanti ezihambayo zase Oyster Bay ngexesha lokusebenza (sebenzisa izithuthi	akukho	akubonakali

Ukuchaphazelek a kwenkangeleko nesimo seenduli zesanti kuzo zonke iziza	ezilula xa kusenziwa ugcino lwesimo)		
	Ukwakha iingcingo zothumelo lombane ezingama 300-400 m ukuxwesa neendlela zokungena ezinqumla kwithafa leenduli zesanti ezikhula izityalo (fumana iinqaba kwimimango ebanzi nakwiintlambo ezibanzi)	akukho	Phakathi
	Ukwakha iingcingo zothumelo lombane ezingama 300-400 m ukuxwesa neendlela zokungena ezinqumla kwithafa leenduli zesanti ezikhula izityalo (sebenzisa iihelikoptha xa kusakhiwa)	akukho	Kusezantsi - Phakathi
	lingcingo zothumelo lombane ezingama 300-400 m ukuxwesa ezinqumla kwithafa leenduli zesanti ezikhula izityalo, izibonelelo neendlela zokungena, - kusetyenzwa (sebenzisa izithuthi ezilula xa kusenziwa ugcino lwesimo)	akukho	Kusezantsi - Phakathi
	Ukutshatyalaliswa kwezityalo ezikhula kwiinduli zesanti & inkcazo-mphandle ngenxa yengqokelela yomhlaba wangaphezulu nobumdaka obuvela ekugronjweni kwithafa leenduli zesanti elikhula izityalo ezizikhulela ngendalo (Dala kwakhona inkcazo-mphandle ngohlobo ibingalo ngaphambili)	akukho	Phakathi
	Ukwakha amathafa amatsha eenduli zesanti ezihambayo ngenxa yokunyuka kwezinga lamanzi elwandle ngenxa yenguqu yemo yezulu (akukho kuncitshiswa)	Phakathi	Phakathi
	Ukunyuka kweziphumo zokukhukulwa ngumoya ngenxa yokunetha nokunyuka kwamaqondo obushushu ngenxa yenguqu yemo yezulu (zinzisa ngamacingo amade okunqanda izinto, amagqabi nezinti (i-brushwood) nezityalo zeenduli zesanti ezikhula kulo ndawo)	Kusezantsi - Phakathi	Kusezantsi - Phakathi

Ukuchaphazelek a kwemigxobhozo	Ilahleko okanye ukuchithwa kwemigxobhozo ngenxa yokutsalwa kwamanzi ezintweni ngexesha kusakhiwa	Kusezantsi	akukho
	Ilahleko okanye ukuchithwa kwemigxobhozo ngenxa yokungcoliswa kwamanzi olwandle ngexesha kusakhiwa, emva kokutsalwa kwamanzi ezintweni	Kusezantsi - Phakathi	akukho
	Ukuchithwa kwemigxobhozo ngenxa yokwakhiwa kweendlela ezingaphakathi zokungena ngexesha kusakhiwa	Kusezantsi	akukho
	Ukuchithwa nokwahlulwa-hlulwa kwemigxobhozo ngenxa yokwakhiwa kweendlela ezingaphakathi	Kusezantsi	akukho
	Uchaphazeleko oludibeneyo	Kusezantsi - Phakathi	akukho
	Ilahleko okanye ukuchithwa kwemigxobhozo ngenxa yokunye ukuchaphazeleka okubangelwe zezinye izinto ezayamene nokwakhiwa kwisiza esikumazantsi e R43 (kuncitshisiwe)	akukho	akukho
	Ukuchithwa kwemigxobhozo ngenxa yokuphazamiseka komgxobhozo buqu kumantla e R43 ngexesha kusakhiwa (kuncitshisiwe)	akukho	akukho
	Ukuchithwa kwemigxobhozo okwayanyaniswa nesixokelelwano se Groot Hagelkraal ngongenelo lwezinto ezingaqhelekanga (uncitshisiwe)	akukho	akukho
	Ukwanda kokwahlulwa-hlulwa kwemigxobhozo entla nasezantsi komsinga wesixokelelwano se Groot Hagelkraal ngenxa yokwanda kokusetyenziswa kwendlela ehamba ngo R43	akukho	akukho
	Ukuchaphazeleka kwesixokelelwano semigxobhozo okwayamene nokungachaphazeleki ngqo kuphuhliso lwesikhululo samandla	akukho	akukho

	enyukliya llahleko okanye ukuchithwa		
	kwemigxobhozo ye Langefontein vlei kunye/okanye iinduli zesanti ngenxa yotsalo lwamanzi ngexesha kusakhiwa (kuncitshisiwe)	akukho	Kusezantsi - Phakathi
	llahleko okanye ukuchithwa		
	kwemigxobhozo enkcenkcezela elunxwemeni ngenxa yongenelo olwenzeka kuqukuqelo phezu komhlaba okanye kumanzi aphantsi komhlaba kuqukwa utsalo lwamanzi ngexesha kusakhiwa (kuncitshisiwe)	akukho	Phakathi
	Ukuchithwa kwemigxobhozo		
	enkcenkcezela elunxwemeni ngenxa yokufumana amanzi agcwele intshwela avela kwiindawo ezitsalwe amanzi ngexesha kusakhiwa (kuncitshisiwe)	akukho	Kusezantsi - Phakathi
	Ukuchithwa kwemigxobhozo		
	esemathambekeni enkcenkcezela elunxwemeni e Langefontein vlei (ummandla osentshona) neminye ngenxa yokusondela kwengqokelela yomhlaba wangaphezulu ngexesha kusakhiwa (kuncitshisiwe)	akukho	Kusezantsi
	Ukuchithwa kwemigxobhozo		
	enkcenkcezela elunxwemeni ngenxa yokoma kwedami eliqokelela amanzi emvuma nezinto ezibaleka zivela kwiindawo zogcino lwezixhobo okwethutyana ngexesha kusakhiwa	akukho	Kusezantsi - Phakathi
	Ukuchithwa / ukukhanywa /		
	ukuzaliswa kwamathambeka ankcenkcezayo nemigxobhozo ekumazantsi entlambo kumntla wamathafa eenduli zesanti ngexesha kusakhiwa	akukho	Kusezantsi
	<u>Isigaba soKusebenza</u>	akukho	akukho
	llahleko okanye ukuchithwa kwemigxobhozo enkcenkcezela elunxwemeni ngenxa yongenelo olwenzeka kuqukuqelo phezu komhlaba okanye kumanzi aphantsi	akukho	Phakathi

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	komhlaba ngexesha kusetyenzwa		
	Ukuchithwa kwemigxobozo enkcenkcezela elunxwemeni eshiyekileyo ngenxa yokufumana amanzi emvula abalekayo ngexesha kusetyenzwa	akukho	Kusezantsi
	Ukuchithwa kwamathambeka ankcenkcezayo nemigxobhozo ekumazantsi entlambo kumntla wamathafa eenduli zesanti ngexesha kusetyenzwa	akukho	Kusezantsi
	Ukuchithwa kwemigxobhozo kwimimango yeenduli zesanti ngenxa yokudlula kwenani elinyukileyo Izithuthi kwiinduli zesanti ngexesha kusetyenzwa	akukho	Kusezantsi
	Ugcino lwemimango yeenduli zesantsi eshiyekileyo, unkcekcezo lonxweme nemigxobhozo emazantsi entlambo esizeni ngexesha kusetyenzwa	akukho	Phakathi
	Ukucocwa kwelindle esizeni: impembelelo yobulunga bamanzi kwimigxobhozo	akukho	Kusezantsi - Phakathi
	Ukuphazamiseka kwemigxobhozo, ukwahlula-hluleka kwayo, nokuphazamiseka koqukuqelo oluhambayo ngenxa yeendlela ezingenayo neenqaba zokuthumela umbane ezisemgxobhozweni okanye eziwuxwesayo: zombini ngexesha kusetyenzwa (ukusetyenziswa kwesixokelelwano sothumelo esintantlo-mbini (dual circuit transmission system))	akukho	Kusezantsi - Phakathi
	Okunye okunokukhethwa 1 ukuya ku 3: ukuchithwa kwemigxobhozo egugutha indlela yemibhobho okanye ngenxa yokususwa kwezinto ezibonakalayo	akukho	Kusezantsi
	Ukuphazamiseka kwemigxobhozo, ukwahlula-hluleka kwayo, nokuphazamiseka koqukuqelo oluhambayo ngenxa yeendlela		Kusezantsi - Phakathi

	ezingenayo neenqaba zokuthumela umbane ezisemgxobhozweni okanye eziwuxwesayo: zombini		
	Zonke iindlela ezingenayo: ukuchithwa kwemigxobhozo kwesigaba sokwakha ngenxa yokuphazamiseka, ukutshintsha kobulunga bamanzi, ukuqinelana komhlaba	akukho	Kusezantsi
	Zonke iindlela ezingenayo: Isigaba sokusebenza: ukwahlula-hluleka kwemigxobhozo, ukuphazamiseka kwemimandla yezityalo nehidroloji (ukuhamba, ukusasazwa, nobulunga bamanzi); ukuchithwa kwemigxobhozo ngenxa yokuchaphazeleka kobulunga bamanzi nokhukuliseko lomhlaba; ukugcwaliswa nokucuthwa kwemigxobhozo apho kuwelwa khona ebhrorhweni	akukho	Kusezantsi - Phakathi
	Indlela Engenayo yaseMpuma: ukuphazamiseka komgxobhozo osezantsi kwintlambo esempuma kwindawo ekuwelwa kuyo; kuchaphazeleka uqukuqelo kwindawo leyo	akukho	Kusezantsi - Phakathi
	Indlela Engenayo yaseNtshona: ukugcwaliswa kwemigxobhozo elunxwemeni nasemathambekeni nokuphazamiseka koqukuqelo oluhle	akukho	Kusezantsi
	Uchaphazeleko oludibeneyo olwayamene nophuhliso, kungakhange kuncitshiswe ngothintelo, kodwa zonke ezinye iintlobo zokuncitshiswa zikhona	akukho	Phakathi
Ukuchaphazelek a kwezilwanyana ezisemhlabeni	Ukutshatyalaliswa kweendawo zendalo zokuhlala nenani lezo zilwanyana, kubangelwa kukususwa kwezinto kusenziwa ibala esizeni, izakhiwo, iindawo zogcino lwezixhobo okwethutyana nezibonelelo	Phakathi	Phakathi
	Ukwehla kwenani lweentlobo zezilwanyana Ezisemngciphekweni,	Phakathi	Phakathi

kuvela ekutshatyalalisweni kweendawo zokuhlala nokufa ngqo		
Ukwahlulwa-hlulwa kweendawo zendalo zokuhlala zezilwanyana kunye nezimo zeentshukumo zezilwanyana, kubangelwa zizakhiwo, izibonelelo namacingo	Phakathi	Phakathi
Ukufa endleleni, kubangelwa linani lezithuthi ezindleleni kwiindawo ezihlala kuyo izilwanyana	Kusezantsi - Phakathi	Kusezantsi - Phakathi
Ukufa okwayanyaniswa neengcingo ezihambisa umbane eziphezulu kunye nezikhululwana, kubangelwa lungquzulwano kunye nokukhatywa ngumbane	Kusezantsi	Kusezantsi
Uphazamiseko lwamanani antununtunu azalayo, abangelwa ziintshukumo zokwakha nokuphazanyiswa ngabantu ngqo	Kusezantsi	Kusezantsi
Ungcoliseko luthuli ngaphaya kwesiza sokwakha, lubangelwa luthuli olubhabhayo ukusuka apho kwakhiwa khona nasezindleleni	Kusezantsi - Phakathi	Kusezantsi
Ungcoliseko lomhlaba namanzi ngaphaya kwesiza sokwakha, lubangelwa kukuchitheka kweekhemikhali, amafutha nelindle namanzi alo	Kusezantsi	Kusezantsi
Ungcoliseko lokukhanya ngaphaya kwesiza sokwakha, lubangelwa kukukhanyisa okugqithisileyo phandle, kunye nezinto ezingalunganga zokukhanyisa nokunxibisa izikhanyisi	Phakathi	Phakathi
Utshintsho lwamazinga amanzi angaphezulu naphantsi komhlaba kunye noqukuqelo, nokuvela koko kwimigxobhozo ekufutshane, kuvela kwizakhiwo eziqinisekile eziphantsi komhlaba neendlela zokwakha	Kusezantsi - Phakathi	Phakathi
Ukubulawa kwezilwanyana zasendle zendawo leyo ngexesha lesigaba sokwakha, kubangelwa kukuzingela	Kusezantsi	Kusezantsi

	nokugcayisela ngabasebenzi bedlala naxa befuna ukupheka		
	limeko zezilwanyana eziyingxaki, zibangelwa kakhulu kukuhlangana kwabantu nezilwanyana	Kusezantsi	Kusezantsi
	Ukuqokelelana kwemitha ii radioisotopes kwindawo engqongileyo nakwimizimba yezilwanyana zasendle, ngexesha lesigaba sokusebenza, kubangelwa kukukhutshwa kwesiqhelo kwegesi koomatshini ababizwa njengee-reactors	Kusezantsi	Kusezantsi
	Ukuchaphazeleka okudibeneyo, kuvela ekudityanisweni kweempembelelo kwiimpembelelo ezikhoyo, kunye nokusebenza kwezi mpembelelo ekuhambeni kwexesha	Phakathi	Phakathi
	Ulonolozo oluphuculiweyo lomhlaba ongaphuhlisiwanga, kubangelwa sisimo somthetho esiphucukileyo kunye/okanye ulawulo	Phakathi	Phakamile
<u>Ukuchatshazelwa kwezilwanyana ezingenamqolo</u>	Ukutshatyalaliswa ngqo kwendawo ezihlala kuyo	Phakathi	Phakathi
	Ukutshintshwa okungekho ngqo kwendawo ezihlala kuyo ngokuphazamisa amanzi phantsi komhlaba	Kusezantsi	Kusezantsi
	Ulwahlulwa-hlulo lwendawo ezihlala kuyo	Phakathi	Phakathi
	Ukuncitshiswa kwamanani eentlobo ezithile ezingqobileyo/ezikhuselweyo	Kusezantsi	Kusezantsi
	Ungcoliso lomhlaba nolwamanzi	Kusezantsi - Phakathi	Kusezantsi - Phakathi
	Ungcoliso luthuli	Kusezantsi - Phakathi	Kusezantsi - Phakathi
	Ungcoliso lokukhanya – isigaba sokwakha (kuncitshisiwe apha naphaya)	Phakathi	Phakathi
	Ungcoliso lokukhanya - isigaba sokwakha (kuncitshisiwe	Kusezantsi -	Kusezantsi -

	ngokugqibeleleyo)	Phakathi	Phakathi
	Ukunyuka kwamazinga emitha ye radiation	Kusezantsi - Phakathi	Kusezantsi - Phakathi
	Ukufa ezindleleni	Phakathi	Phakathi
	Ukunyuka kobungozi bemililo	Phakathi	Phakathi
	Ukwanda kweentlobo ezingaqhelekanga ezingenelayo ezingenamqolo	Phakathi	Phakathi
	Ungenelo lomhlaba ngabantu abakhangela ingqesho	Kusezantsi	Kusezantsi
	Ukuchaphazeleka okudityanisiweyo	Phakathi	Phakathi
	Inguqu yemo yezulu	Phakathi	Phakathi
	Igalelo elihle kulondolozo	Phakathi	Phakathi
	Ukuchaphazeleka kokufikelela ezindleleni	Phakathi	Phakathi
	Ukuchaphazeleka kokulahlwa emhlabeni kwenkunkuma evela emva kokugronjwa	Phakathi	Phakathi
	Ifuthe lokukhetha ukuba kungabikho kungena konke konke	Phakathi	Phakathi
	Ifuthe leengcingo zothumelo lombane phakathi kwesikhululo samandla neYadi ye HV	akukho	Kusezantsi - Phakathi
Ifuthe lobulunga bomoya	Ukwakhiwa – iigesi ezikhutshwayo	Lisezantsi	Lisezantsi
	Ukwakhiwa – ukukhutshwa kwe PM ₁₀	Lisezantsi	Lisezantsi
	Ukwakhiwa – inkunkuma enemitha ebangelwe yingozi yenyukliya	Lisezantsi	Lisezantsi
	Ekusebenzeni - ukukhutshwa kwe Non-radionuclide	Phakathi	Phakathi
	Ekusebenzeni - ukukhutshwa kwe Radionuclide	Phakathi	Phakathi
	Ukuchaphazeleka okudityanisiweyo	Phakathi	Phakathi
Ukuchaphazelek a kwezolwandle (Oceanographic)	Ukuphazamiseka kwethutyana kokuthuthwa kwentlenga ngexesha lokwakhiwa	kusezantsi	kusezantsi

	Ukuphazamiseka kwethutyana kokuthuthwa kwentlenga (indlela 2 yokukhutshelwa ngaphandle)	akukho	akukho
	Ukukhukuliseka konxweme ngenxa yokukhutshwa kwamanzi anetyuwa ngexesha lokwakha	Kusezantsi	Kusezantsi
	Ukulahlwa kwenkunkuma emva kokugronjwa	akukho	Kusezantsi
	Ukuphazamiseka kwexesha elide kokuthuthwa kwentlenga ngexesha lokusebenza	Kusezantsi - Phakathi	Kusezantsi - Phakathi
	Ukuphazamiseka kwexesha elide kokuthuthwa kwentlenga (indlela 2 yokukhutshelwa ngaphandle) ngexesha lokusebenza	akukho	akukho
	Amazinga olwandle agqithisileyo achaphazela ukusebenza kwesikhululo samandla enyukliya ngexesha lokusebenza	Kusezantsi - Phakathi	Kusezantsi - Phakathi
Ukuchaphazelek a kokuvela kwamaza	Isiphumo sokulahla intlenga kwiimeko zamaza e Seal Point (Kuncitshisiwe – isiza esinzulu sokulahla)	akukho	Kusezantsi
	Isiphumo sokulahla intlenga e Bruce's Beauties (Kuncitshisiwe - isiza esinganzulwanga sokulahla)	akukho	Kusezantsi
Ukuchaphazelek a kwezolwandle	Ukuphazamiseka ngexesha kusakhiwa: Ngenxa yokwakhiwa kwendlela yokuthatha amanzi aphilisayo nezixokelelwano zokuphumela ngaphandle	Phakathi	Kusezantsi - Phakathi
	Ukuphazamiseka ngexesha lokwakha okubangelwa kulahlwa kwenkukuma evela ekugronjweni (kuncitshiswa ngokulahla le nkukuma kwindawo enzulu ekude nonxweme)	Phakathi	Phezulu
	Ukuthatyathwa kwamanzi aphilisayo & ukuhambisa noqukuqelo kwezinto eziphilayo	Kusezantsi - Phakathi	Kusezantsi - Phakathi
	Ukuchaphazeleka ngenxa yokukhutshwa kwamanzi aphilisayo	Phakathi	Phakathi

	afudunyeziweyo		
	Ukukhutshwa komjelo ohambisa amanzi akhupha ityuwa ngesigaba sokwakha	Kusezantsi - Phakathi	Kusezantsi - Phakathi
	Ukukhutshwa kwezinto zemitha ye radiation	Kusezantsi	Kusezantsi
	Ukukhutshwa okungacetywanga kwamanzi aphantsi komhlaba angcolileyo	Kusezantsi	Kusezantsi
Ilifa loBuzwe	Ukuchaphazeleka kwe Miocene palaeontology	Phakathi	Kusezantsi
	Ukutshatyalaliswa kwezifundo zezakudala nge Pleistocene ne nezifundo ngezidalwa zakudala	Kusezantsi - Phakathi	Kusezantsi
	Ukutshatyalaliswa kwezifundo zezakudala nge Holocene	Kusezantsi	Kusezantsi
	Ukutshatyalaliswa kweLifa lobuzwe lwesithanga	Kusezantsi	Kusezantsi
	Ukutshatyalaliswa kwembonakalo-Mhlaba	Phezulu	Phezulu
	Ukuchaphazeleka okudityanisiweyo	Phakathi	Phakathi
	Igalelo elihle kulondolozo	Phakathi	Kusezantsi - Phakathi
Ingxolo	Ifuthe lengxolo kwiifeni ezipholisayo zeoyile ngexesha lokusebenza	Lisezantsi	Lisezantsi
	Ifuthe lengxolo lokwakhiwa kweendlela	Lisezantsi	Lisezantsi
	Ifuthe lengxolo kumsebenzi nokwakhiwa okwenziwa esizeni	Lisezantsi	Lisezantsi
	Ifuthe lengxolo yhezithuthi	Lisezantsi	Aliikho
	Ifuthe lengxolo yhezithuthi 10 m ukusuka kwi R330	Alikho	Phakathi
	Ifuthe lengxolo yezithuthi 70 m ukusuka kwi R330	Alikho	Lisezantsi
Ukhenketho	Ifuthe kwizixokelelwano zamashishini okuyolisa abantu	Lisezantsi	Phakathi

	Ifuthe kwizibonelelo jikelele ezisetyenziswa ngabakhenkethi	Lisezantsi	Lisezantsi
	Ifuthe kwizinto ezibonwayo ezithandwa ngabakhenkethi	Lisezantsi	Phakathi
	Ifuthe kuluvo lwendawo njengoko kuviwa ngabakhenkethi	Lisezantsi	Phakathi
	Ifuthe lwezinto zezolwandle ezisetyenziswa ngabakhenkethi	Lisezantsi	Lisezantsi
	Ifuthe kwizinto ezisetyenziswayo ekuhlaleni	Lisezantsi	Phakathi
	Ifuthe kwizinto zomhlaba ezisetyenziswa ngabakhenkethi	Lisezantsi	Lisezantsi
Ukuchaphazelek a kwezoLimo	Ukungcoliseka luthuli	Kusezantsi	Kusezantsi
	Ukufumaneka/ Indleko yabasebenzi	Kusezantsi	Phakathi
	Inguqu kwimo yentengiso (kulungisiwe)	isezantsi	Phakathi
Ukuchaphazelek a kwezoQoqosho	Uchaphazeleko lwezoqoqosho olubanzi lwesigaba solwakhiwo - Kwindawo leyo (kuhle)	Kuphezulu	Kuphezulu
	Uchaphazeleko lwezoqoqosho olubanzi lwesigaba solwakhiwo – Kwingingqi (kuhle)	Phakathi	Phakathi
	Uchaphazeleko lwezoqoqosho olubanzi lwesigaba solwakhiwo – lwesizwe (kuhle)	Phakathi	Phakathi
	Uchaphazeleko lwezoqoqosho olubanzi lwesigaba sokusebenza - Kwindawo leyo (kuhle)	Phakathi	Phakathi
	Uchaphazeleko lwezoqoqosho olubanzi lwesigaba sokusebenza - Kwingingqi (kuhle)	Lusezantsi	Lusezantsi
	Uchaphazeleko lwezoqoqosho olubanzi lwesigaba sokusebenza - lwesizwe (kuhle)	Lusezantsi	Lusezantsi
	Ilahleko yengeniso evela kwilahleko yenxalenye yemihlaba yokuloba	ayikho	Phakathi
	Ilahleko yengeniso evela kwilahleko yokungena kwinxalenye yendawo	ayikho	ayikho

	yokubukela umnenga		
Ulawulo lwesiza	Ufikelelo olunyiniweyo kwisiza xa kusakhiwa	Kusezantsi - Phakathi	Kusezantsi - Phakathi
	Ufikelelo olunyiniweyo kwisiza xa kusetyenzwa	Kusezantsi - Phakathi	Kusezantsi
Uchaphazeleko olubonakalayo	Ukuzinyakathisa ukuba zibonwe izixhobo zokubhola nezincedisayo phambi kokuba kwakhiwe	Kusezantsi	Kusezantsi
	Ukuchithwa kwendawo ibinezityalo emehlweni, iindlela zokungena neekampi zesiza phambi kokuba kwakhiwe	Kusezantsi	Kusezantsi
	Ukuchithwa koluvo lwendawo phambi kokuba kwakhiwe	Kusezantsi	Kusezantsi
	Uthuli olubonakalayo ngexesha kusakhiwa	Lusezantsi	Lusezantsi
	Ukuchithwa kobulunga bokubona okuvela kwinguqu yezityalo nenkangeleko yomhlaba ngexesha lokwakhiwa	Phakathi	Phakathi
	Ingxushungxushu emehlweni evela kwizakhiwo, ii-ofisi zesiza, iindawo zokugcina izixhobo okwethutyana nendawo yokuhlala abantu kwisiza ngexesha kusakhiwa	Isezantsi	Isezantsi
	Inguqu kokubonayo ebusuku bgokukhanya kwangexesha lokwakhiwa	IPhakathi	IPhakathi
	Inguqu kokubonayo njengoLuvo lweNdawo ngexesha kusakhiwa	IPhakathi	IPhakathi
	Inguqu kokubonayo njengoLuvo lweNdawo kunxweme olukufutshane nengingqi engaphakathi ngenxa yobukhulu nobungakanani bezakhiwo ngexesha lokusebenza	iPhakathi	IPhakathi
	Inguqu kubulunga bokubona ingingqi ebangelwa yinkangeleko entsha yomhlaba neendlela ngexesha lokusebenza	IPhakathi	iPhakathi

	Inguqu kubulunga bokubona indawo ebusuku ngokukhanya kwangexesha lokusebenza	IPhakathi	iPhakathi
	Uthuli olubonakalayo ngexesha lokuvalwa kwesixhobo senyukliya	Lusezantsi	Lusezantsi
	Ingxushungxushu emehlweni evela kwizakhiwo, ii-ofisi zesiza, nendawo yokuhlala abantu kwisiza ngexesha lokuvalwa kwesixhobo senyukliya	Isezantsi	Isezantsi
	Inguqu ebonakalayo yomhlaba okufutshane ngenxa yomsebenzi emhlabeni ngexesha lokuvalwa kwesixhobo senyukliya	IPhakathi	iPhakathi
	Inkathazo emehlweni yezithuthi ezininzi kakhulu kwiindlela zendawo ngexesha lokuvalwa kwesixhobo senyukliya	Isezantsi	Isezantsi
Ukuchaphazelek a kwezentlalo	Ukuchaphazeleka kwendawo yokuhlala ngexesha lesigaba sokwakha (ulwakhiwo)	KuPhakathi	KuPhakathi
	Ukufika ngamandla kwabantu abafumna imisebenzi (ulwakhiwo)	KuPhakathi	KuPhakathi
	Ukwanda kwezindlu ezingekho mthethweni ezingekho sesikweni (ulwakhiwo)	Kusezantsi	Kusezantsi
	Ukudalwa kwamathuba engqesho (ulwakhiwo)	Kuphezulu	Kuphezulu
	Ukwanda kwamathuba ezoshishino (ulwakhiwo)	KuPhakathi	KuPhakathi
	Ukwanda kweentshukumo zolwaphulo-mthetho (ulwakhiwo)	Kusezantsi	KuPhakathi
	Ukwanda kwezifo ezosulela ngokwabelana ngezesondo (ulwakhiwo)	KuPhakathi	KuPhakathi
	Ukuchaphazeleka kwamanzi & nezangasese zempilo (ulwakhiwo)	Kusezantsi	Kusezantsi
	Ukuchaphazeleka kweendlela & nezithuthi (ulwakhiwo)	Kusezantsi	Kusezantsi
	Ukuchaphazeleka kobumdaka	Kusezantsi	Kusezantsi

	nenkukuma (ulwakhiwo)		
	Ukuchaphazeleka kokuhamba kwezithuthi (ulwakhiwo)	Kusezantsi	Kusezantsi
	Ukuchatshazelwa yingxolo (ulwakhiwo)	KuPhakathi	KuPhakathi
	Ukulahlekelwa ngumsebenzi (ulwakhiwo)	KuPhakathi	KuPhakathi
	Ukuchaphazeleka kokubonayo (ulwakhiwo)	KuPhakathi	KuPhakathi
	Ukuchaphazeleka kwezibonelelo zezonyango (ulwakhiwo)	Kusezantsi	Kusezantsi
	Ukuchaphazeleka kwesinyanzelo somthetho (ulwakhiwo)	Kusezantsi	KuPhakathi
	Ukuchaphazeleka kwezikolo (ulwakhiwo)	Kusezantsi	Kusezantsi
	Ukuchaphazeleka kwezibonelelo zemidlalo (ulwakhiwo)	Kusezantsi	Kusezantsi
	Ukuchaphazeleka koluvo lwendawo (ulwakhiwo)	KuPhakathi	KuPhakathi
	Ukuchaphazeleka kokusetyenziswa komhlaba kwixesha elizayo (ulwakhiwo)	KuPhakathi	KuPhakathi
	Ukudalwa kwamathuba engqesho (ukusebenza)	KuPhakathi	KuPhakathi
	Ukudalwa kwamathuba oshishino (ukusebenza)	KuPhakathi	KuPhakathi
	Ukunyuka kweentshukumo zolwaphulo-mthetho (ukusebenza)	Kusezantsi	Kusezantsi
	Uchaphazeleko lwamanzi & nezangasese zempilo (ukusebenza)	Kusezantsi	Kusezantsi
	Ukuchaphazeleka kweendlela & nezithuthi (ukusebenza)	Kusezantsi	Kusezantsi
	Ukuchaphazeleka kobumdaka nenkukuma (ukusebenza)	Kusezantsi	Kusezantsi
	Ukuchaphazeleka kokubonayo (ukusebenza)	KuPhakathi	KuPhakathi

	Ukuchaphazeleka kwezibonelelo zezonyango (ukusebenza)	Kusezantsi	Kusezantsi
	Ukuchaphazeleka kwezikolo (ukusebenza)	Kusezantsi	Kusezantsi
	Ukuchaphazeleka kwezibonelelo zemidlalo (ukusebenza)	Kusezantsi	Kusezantsi
	Ukuchaphazeleka koluvo lwendawo (ukusebenza)	KuPhakathi	KuPhakathi
	Ukuchaphazeleka kokucetywa kokusetyenziswa komhlaba kwixesha elizayo (ukusebenza)	KuPhakathi	KuPhakathi
	Ubungozi obucingelekayo obubangelwa yinyukliya (ukusebenza)	KuPhakathi	KuPhakathi
	Ukuchaphazeleka kokukhetha ukungaphuhlisi (ukusebenza)	KuPhakathi	KuPhakathi
Inkukuma yeNyukliya nenkukuma engeyiyo eyeNyukliya	Ungcoliseko lwalapho amanzi avela khona ngenxa yokukhutshwa kwemitha ekwinkukuma engamanzi (Isigaba sogunyaziso lomsebenzi, sokwenza umsebenzi nesokuvalwa kwesixhobo senyukliya)	Lusezantsi	Lusezantsi
	Ungcoliseko lokusingqongileyo ngenxa yokukhutshwa kwemitha equlathwe kwinkukuma eziigesi (Isigaba sogunyaziso lomsebenzi, sokwenza umsebenzi nesokuvalwa kwesixhobo senyukliya).	Lusezantsi	Lusezantsi
	Ungcoliseko lwalapho amanzi avela khona ngenxa yokukhutshwa kwemitha equlathwe kwi LILW okanye kwi HLW egcinwe kwiSikhululo saMandla (Isigaba sogunyaziso lomsebenzi, sokwenza umsebenzi nesokuvalwa kwesixhobo senyukliya)	Lusezantsi	Lusezantsi
	Ungcoliseko lwalapho amanzi avela khona yimitha evela ekulahlweni kwe LILW e Vaalputs (Izigaba zokwenza umsebenzi)	Lusezantsi	Lusezantsi
	Ungcoliseko lwalapho amanzi avela khona yimitha ebangelwe kukuchitheka ngengozi kwenkukuma	Lusezantsi	Lusezantsi

	enemitha ngexesha kuthuthwa (Isigaba sokwenza umsebenzi)		
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Izimvo eziliqela ezifunyenwe kubantu abanomdla nabachaphazelekayo nangakumbi abasemagunyeni zibonise ukuba kunzima ukuqonda olu chaphazeleko luninzi kangaka lubekwe kule theyibhuli ingasentla. Bacele ukuba ukubekwa kokuchaphazeleka kwenziwe lula kungakhange kube kulahlekelwa ngumongo wokufunyanwe ziingcaphephe. Ukuze kubonelelwe ezi zishwankathelo, kuyimfuneko ukuqonda ukuba inkoliso yolu chaphazeleko olubekiweyo, luluhlu lweenguqu ezidala isiphumo esinye esiluphahla olufikelela kude. Umzekelo, kuhlolo lwezilwanyana ezingenamqolo, ukufa kweentlobo ezithile ezisesichengeni ngenxa yelahleko yendawo yokuhlala, ukungquzulana nezithuthi, ukungquzulana neengcingo zombane eziphezulu, kunye nokungcoliseka okungaphandle kwesiza konke oku kubekwe njengochaphazeleko olwahlukeneyo kodwa iziphumo zalo lonke olu chaphazeleko kukunciphisa okungakhona kwamanani ohlobo oluthile lwesilwanyana olusesichengeni, nto leyo nayo edweliswe njengochaphazeleko. Sesi siphumo esibalulekileyo kwinkqubo yokuthatha isigqibo.

Ngoko, indlela yokwenza oku ibikukuhlola uphando lweengcaphephe kuchongwe kuze kuchazwe konke okuthethwa kukuchaphazeleka okubekiweyo. Kule nkqubo, kuye kwenziwe umahluko phakathi kokuthethwa jikelele liqela lokuchaphazeleka (umz. ukuncitshiswa kwamanani ohlobo oluthile lwesilwanyana olusesichengeni) noonobangela boko kuthethwayo (umz. ilahleko yendawo yokuhlala, ukufa endleleni, ukubulawa ziingcingo zombane nokungcoliseka kude nesiza). Olu rheso lubekwe njengeendleko ezingathi zibe khona (apho urheso lungeluhlanga) okanye njengeenzuzo zokusngqongileyo (apho urheso luluhle).

Ezi ndleko zingathi zibe khona zilandelayo zokusngqongileyo zichongwe kuphando lweengcaphephe olwenzelwe i-EIA kwiSikhululo saMandla eNyukliya esibekwe phambili, oko kukuthi ukuba mandundu okungakhona/ unciphiso olungakhona kwi:

- Ezempilo nokhuseleko lukawonke-wonke ngenxa yeSikhululo saMandla eNyukliya sona buqu;
- Ezempilo nokhuseleko lukawonke-wonke ngenxa yeentshukumo ezayamene neSikhululo saMandla eNyukliya;
- Imisebenzi (impiliso);
- Ubulunga bamanzi aselwandle;
- Ubulunga bamanzi (amatsha) angaphezulu komhlaba;
- Ubulunga bamanzi aphantsi komhlaba;
- Ukufumaneka kwamanzi/ kwamanzi aphantsi komhlaba;
- Amanani eentlobo zezilwanyana ezingabileyo/ezintununtunu;
- Amanani eentlobo zezilwanyana;
- Ubutyebi bamafa obuntu
- Amanani emigxobhozo; kunye,
- Nokusebenza kwemigxobhozo (kuqukwa ulwahlulwa-hlulo).

Ezi nzuzo zingathi zibe khona zichongwe kuphando lweengcaphephe olwenzelwe i-EIA kwiSikhululo saMandla eNyukliya esibekwe phambili, oko kukuthi okungaba yimpucuko / ukwanda kwe:

- Sibonelelo sombane;
- Kolondolozo lobutyebi bamafa obuntu;
- Kwemisebenzi;
- Uhlaziyo lweendawo ezizibonelelo;
- Kolondolozo lweentlobo ngeentlobo zezinto eziphilayo (biodiversity); ne
- Mpiliso.

UKUNIKEZA UKUBALULEKA KOKUTHATHA IZIGQIBO

Eyona ndlela ingcono yokuxela olu rhesho lwezuzo yeendleko yokuthatha izigqibo kukuzixela njengokuzifaka engozini. Ukuzifaka engozini kuchazwa njengesiphumo (urhesho) sesiganeko siphinda-phindwe ngamathuba okwenzeka kwesiganeko eso. Kuninzi ukuzifaka engozini okunyamezelwayo mihla le kuba nokuba isiphumo sesiganeko siqatha, amathuba okuba esisiganeko siya kwenzeka asezantsi. Kukwayimfuneko ukucalula phakathi kwesiganeko buqu (njengonobangela) kunye nesiphumo.

Ittheybhuli engasezantsi sisixokelelwano sonikezo lwamanqaku ibonisa amaqaku eziphumo

Amanqaku eZiphumo

Indleko kokuSinqongileyo	Umngcipheko ongaphakathi
Impilo yomntu – ukufa, ilahleko yohlobo oluthile lwento ephilayo	Uphakamile
Unciphiso kumanani ezilwanyana, ukulahlekelwa yimisebenzi, ilahleko yezoqoqosho lomntu	Phakathi - phakamile
Unciphiso kubulunga bokusingqongileyo – umoya, umhlaba, amanzi. Ilahleko yendawo yokuhlala, ilahleko yamafa obuntu, ubumnandi bendawo/bomntu	Phakathi
inkathazo	Phakathi – usezantsi
Inguqu embi – engenazo ezinye iziphumo	Usezantsi
Inzuzo zokusingqongileyo	Inzuzo engaphakathi
Impucuko jikelele kwintlobo-ntle yabantu	Phakathi – phakamile
Ubulunga obuphucukileyo bokusingqongileyo – umoya, umhlaba, amanzi. Ukuphucuka kwempilo yabantu	Phakathi
Uphuhliso lwezoQoqosho	Phakathi – Usezantsi
Inguqu entle – engenazo ezinye iziphumo	Usezantsi

Nnagona kuthethwa ngamathuba, isigama 'kungenzeka' lisetyenziselwa ukunika okuthethwa luhlolo loluvo kunobuninzi bento, kuba isigama 'amathuba' sidla ngokubhekisa kwizinto ezibalwayo. Uluhlu lwezinto ezichazayo ezingathi zisetyenziswe ukubonisa okungenzeka kwiindleko nakwiinzuzo, lubekiwe kule theyibhuli ingezantsi.

Iindidi neziChazi zokungenzeka

Isichazi sokuNgenzeka	Iinkcazelo
Kungathi kungenzeki ngokuphakame kakhulu	Amathuba okuba esi siphumo sivele awabonakali
Kungangenzeki kodwa likhona ithuba lokuba kungenzeka	Amathuba okuba esi siphumo sivele asezantsi kodwa awanako ukungahoywa ngokugqibeleleyo
Kungenzeka	Isiphumo singangenzeki kodwa ukulungelana kwamathuba kuthi siya kwenzeka
Kungenzeka ngokuphakame kakhulu	Isiphumo singahlala singenzeki kodwa kubonakala kakhulu kungathi singenzeka
Qinisekileyo	Isiphumo siya kwenzeka ngokuqinisekileyo

Umngcipheko oshiyekileyo uye ke ufunyaniswe ziziphumo nokuba eso siphumo singenzeka kusini na. Iindidi zomngcipheko oshiyekileyo ziboniswe kwitheyibhile engezantsi apho kuboniswe amangaku eziphumo kwimigca ekrozayo kuze kuboniswe ukwenzeka kwimigca ehlayo. Okuthethwa kukuthathwa kweziggibo kweendidi ezohlukileyo zomngcipheko oshiyekileyo kubonisiwe apha.

Iindidi zoMngcipheko Oshiyekileyo

<u>UMngcipheko Oshiyekileyo</u>						
Isiphumo	Phakamile	Phakathi	Phakamile	Phakamile	Neziphene ezibulalayo	
	Phakathi - phakamile	sezantsi	Phakathi	Phakamile	Phakamile	Phakamile
	Phakathi	sezantsi	Phakathi	Phakathi	Phakathi	Phakathi
	Phakathi - sezantsi	sezantsi	sezantsi	sezantsi	sezantsi	Phakathi
	sezantsi	sezantsi	sezantsi	sezantsi	sezantsi	sezantsi
		Kungathi kungenzeki ngokuphakame kakhulu	Kungangenzeki kodwa likhona ithuba lokuba kungenzeka	sezantsi	Kungenzeka ngokuphakame kakhulu	Qinisekileyo
		kame kakhulu	lokuba kungenzeka			
Izinga lokwenzeka						

Ngoko ke xa uthathela ingqalelo okungasentla, ubunjani bokuthethwa ngumthathi sigqibo kungabekwa kudidi njengokuboniswe ngezantsi.

Inqaku	Ubunjani bokuthethwa kukwenza isiGqibo
Sezantsi	Iprojekthi ingagunyaziswa kukho umngcipheko osezantsi wochitho lokusingqongileyo
Phakathi	Iprojekthi ingagunyaziswa kodwa kukho imimiselo nohlolo rhoqo
Phakamileyo	Iprojekthi ingagunyaziswa kodwa kukho imimiselo eqatha namazinga aphakamileyo okuthobela nokunyanzelwa
Ineziphene ezibulalayo	Iprojekthi ayinako ukugunyaziswa

Ngoko ke okuthethwa kukuthathwa kwesigqibo kwisiphumo ngasinye esichongiweyo (noonobangela bazo ngokuhambelana) koku kulandelayo:

Impilo kaWonke-wonke noMngcipheko woKhuseleko

Indleko engathi ibe khona kokusiNgqongileyo	Ukuvezeka kabukhali kwimitha ye radioactive	
Umngcipheko ongaphakathi	Uphakamile	
Oonobangela boMngcipheko	Ukuba aba nobangela bangenzeka	
	Thyspunt	Duynefontein
Ilahleko yolawulo lokwahluleka	Kungathi kungenzeki ngokuphakame kakhulu	Kungathi kungenzeki ngokuphakame kakhulu
Ukukrazuka komphezulu womhlaba	Kungathi kungenzeki ngokuphakame kakhulu	Kungathi kungenzeki ngokuphakame kakhulu
Ukungazinzi ngaphantsi nje komphezulu womhlaba (Subsurface)	Kungathi kungenzeki ngokuphakame	Kungathi kungenzeki ngokuphakame kakhulu

	kakhulu	
Intshukumo zentaba-mlilo	Kungathi kungenzeki ngokuphakame kakhulu	Kungathi kungenzeki ngokuphakame kakhulu
Umhlabathi ongazinzanga/iyunithi yezomhlaba engazinzanga	Kungathi kungenzeki ngokuphakame kakhulu	Kungathi kungenzeki ngokuphakame kakhulu
Ukuphuphuma kwamanzi	Kungathi kungenzeki ngokuphakame kakhulu	Kungathi kungenzeki ngokuphakame kakhulu
Umonakalo obangelwe kukuphuphuma kwiindlela zokungena	Kungathi kungenzeki ngokuphakame kakhulu	Kungathi kungenzeki ngokuphakame kakhulu
Umonakalo wokukhutshwa kolwelo ngumhlaba ukuya kwiindlela zokungena	Kungathi kungenzeki ngokuphakame kakhulu	Kungathi kungenzeki ngokuphakame kakhulu
Iinduli zesanti ezihambayo zonakalisa iindlela zokungena nezakhiwo ezizibonelelo	Kungangenzeki kodwa likhona ithuba lokuba kungenzeka	Kungathi kungenzeki ngokuphakame kakhulu
I Meteo-Tsunami	Kungangenzeki kodwa likhona ithuba lokuba kungenzeka	Kungangenzeki kodwa likhona ithuba lokuba kungenzeka
Ukudleka ngenxa yamanzi aphantsi komhlaba	Kungenzeka	Kungenzeka
Inyikima	Kungathi kungenzeki ngokuphakame kakhulu	Kungathi kungenzeki ngokuphakame kakhulu
Singakhona isiphumo	Kungathi kungenzeki ngokuphakame kakhulu	Kungathi kungenzeki ngokuphakame kakhulu
Umngcipheko oshiyekileyo	Phakathi	Phakathi

Umngcipheko woKufa nomoNzakalo oyingozi obangelwa zizinto ezingadibenanga nemitha ye radiology

Indleko engathi ibe khona kokusiNgqongileyo	Umngcipheko woKufa nomoNzakalo oyingozi obangelwa zizinto ezingadibenanga nemitha ye radiology	
Umngcipheko ongaphakathi	Uphakamile	
Oonobangela boMngcipheko	Ukuba aba nobangela bangenzeka	
	Thyspunt	Duynefontein
Iingozi zezithuthi	Kungenzeka	Kungenzeka
Iziganeko ezayamene nolwaphulo-mthetho	Kungenzeka	Kungenzeka
Singenzeka isiphumo	Kungenzeka	Kungenzeka
Umngcipheko oshiyekileyo	Phakamile	Phakamile

Indleko engathi ibe khona kokusiNgqongileyo	Isigulo	
Umngcipheko ongaphakathi	Uphakamile	
Oonobangela boMngcipheko	Ukuba aba nobangela bangenzeka	
	Thyspunt	Duynefontein
Ukuziveza okungapheliyo eluthulini	Kungathi kungenzeki ngokuphakame kakhulu	Kungathi kungenzeki ngokuphakame kakhulu
Ukuziveza okungapheliyo kwimitha ye radiation	Kungathi kungenzeki ngokuphakame kakhulu	Kungathi kungenzeki ngokuphakame kakhulu
Singenzeka isiphumo	Kungathi kungenzeki ngokuphakame kakhulu	Kungathi kungenzeki ngokuphakame kakhulu
Umngcipheko oshiyekileyo	Phakathi	Phakathi

Indleko engathi ibe khona kokusiNgqongileyo	Ukunyuka kwezinga lokufa	
Umngcipheko ongaphakathi	Uphakamile	

Oonobangela boMngcipheko	Ukuba aba nobangela bangenzeka	
	Thyspunt	Duynefontein
Ukunyuka kwi HIV/AIDS/STDs	Kungenzeka	Kungenzeka
Singenzeka isiphumo	Kungenzeka	Kungenzeka
Umngcipheko oshiyekileyo	Phakamile	Phakamile

Ukuhlangabezana kuBulunga Beendawo Ezivela Amanzi Amatsha

Indleko engathi ibe khona kokusiNgqongileyo	Amanzi emvula angcolisekileyo	
Umngcipheko ongaphakathi	Phakathi	
Oonobangela boMngcipheko	Ukuba aba nobangela bangenzeka	
	Thyspunt	Duynefontein
Ukungcoliseka yimitha ye-Radiation	Kungathi kungenzeki ngokuphakame kakhulu	Kungathi kungenzeki ngokuphakame kakhulu
Ukungcoliseka yi-Hydrocarbon	Kungangenzezi kodwa likhona ithuba lokuba kungenzeka	Kungangenzezi kodwa likhona ithuba lokuba kungenzeka
Singenzeka isiphumo	Kungangenzezi kodwa likhona ithuba lokuba kungenzeka	Kungangenzezi kodwa likhona ithuba lokuba kungenzeka
Umngcipheko oshiyekileyo *	Phakathi	Phakathi

Ukuhlangabezana kuBulunga Beendawo Ezivela Amanzi Aphantsi koMhlaba

Indleko engathi ibe khona kokusiNgqongileyo	Amanzi aphantsi komhlaba angcolisekileyo	
Umngcipheko ongaphakathi	Phakathi	
Oonobangela boMngcipheko	Ukuba aba nobangela bangenzeka	
	Thyspunt	Duynefontein
Ukunyakathisa kwamanzi anetyuwa/amanzi aselwandle	Kungathi kungenzeki ngokuphakame kakhulu	Kungathi kungenzeki ngokuphakame kakhulu
Ukungcoliseka yimitha ye-Radiation	Kungathi kungenzeki	Kungathi kungenzeki

	ngokuphakame kakhulu	ngokuphakame kakhulu
Ukungcoliseka yi-Hydrocarbon	Kungangenzeki kodwa likhona ithuba lokuba kungenzeka	Kungangenzeki kodwa likhona ithuba lokuba kungenzeka
Singenzeka isiphumo	Kungangenzeki kodwa likhona ithuba lokuba kungenzeka	Kungangenzeki kodwa likhona ithuba lokuba kungenzeka
Umngcipheko oshiyekileyo *	Phakathi	Phakathi

Ukufumaneka kweNdawo ezivelisa amanzi aphantsi komhlaba Kwabanve abasebenzisi

Indleko engathi ibe khona kokusiNgqongileyo	Ukuncipha kokuphuma kwamanzi phantsi komhlaba	
Umngcipheko ongaphakathi	Phakathi	
Oonobangela boMngcipheko	Ukuba aba nobangela bangenzeka	
	Thyspunt	Duynefontein
Ukukhutshelwa ngokubonakalayo	Qinisekileyo	Qinisekileyo
linguqu kuqukuqelo lwaphantsi komhlaba	Kungangenzeki kodwa likhona ithuba lokuba kungenzeka	Kungangenzeki kodwa likhona ithuba lokuba kungenzeka
Singenzeka isiphumo	Kungathi kungenzeki ngokuphakame kakhulu	Kungathi kungenzeki ngokuphakame kakhulu
Umngcipheko oshiyekileyo	Usezantsi	Usezantsi

Ilahleko yeMigxobhozo nokusebenza kweMigxobhozo

Indleko engathi ibe khona kokusiNgqongileyo	Ukwehla kokusebenza kwemigxobhozo	
Umngcipheko ongaphakathi	Phakathi	
Oonobangela boMngcipheko	Ukuba aba nobangela bangenzeka	
	Thyspunt	Duynefontein
Ukutshatyalaliswa kwemigxobhozo buqu	Kungathi kungenzeki ngokuphakame kakhulu	Kungathi kungenzeki ngokuphakame kakhulu

Ukuncipha kwesibonelelo samanzi	Kungathi kungenzeki ngokuphakame kakhulu	Kungathi kungenzeki ngokuphakame kakhulu
Ukungena kwamanzi anobulunga obungafanelekanga	Kungathi kungenzeki ngokuphakame kakhulu	Kungathi kungenzeki ngokuphakame kakhulu
Ukubekwa kwenkukuma evela emva kokugronjwa	Kungathi kungenzeki ngokuphakame kakhulu	Kungathi kungenzeki ngokuphakame kakhulu
Singenzeka isiphumo	Kungathi kungenzeki ngokuphakame kakhulu	Kungathi kungenzeki ngokuphakame kakhulu
Umngcipheko oshiyekileyo	Usezantsi	Usezantsi

Ukuncipha koBulunga bokuNgqongileyo eLwandle

Indleko engathi ibe khona kokusiNgqongileyo	Ukuncipha koBulunga bokuNgqongileyo eLwandle	
Umngcipheko ongaphakathi	Phakathi	
Oonobangela boMngcipheko	Ukuba aba nobangela bangenzeka	
	Thyspunt	Duynefontein
Ukulahlwa kwamanzi anetyuwa namanzi ashushu	Qinisekileyo	Qinisekileyo
Amanzi abalekayo angcolisekileyo	Kungangenzezi kodwa likhona ithuba lokuba kungenzeka	Kungangenzezi kodwa likhona ithuba lokuba kungenzeka
Ukulahlwa kwenkukuma evela emva kokugronjwa	Qinisekileyo	Qinisekileyo
Singenzeka isiphumo	Kungathi kungenzeki ngokuphakame kakhulu	Kungathi kungenzeki ngokuphakame kakhulu
Umngcipheko oshiyekileyo	Usezantsi	Usezantsi

Ukuncipha kwaManani oHlobo oluthile lweZilwanyana olusesiChengeni

Indleko engathi ibe khona kokusiNgqongileyo	Ukuncipha kwaManani oHlobo oluthile lweZilwanyana olusesiChengeni
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Umngcipheko ongaphakathi	Phakathi-uphakamile	
Oonobangela boMngcipheko	Ukuba aba nobangela bangenzeka	
	Thyspunt	Duynefontein
Ilahleko nokwahlulwa-hlulwa kwendawo yokuhlala	Qinisekile	Qinisekile
Ukufa endleleni	Kungenzeka	Kungenzeka
Ukufa okwayanyaniswa neengcingo zothumelo lombane	Kungenzeka	Kungenzeka
Ukuphazanyiswa kwamanani azalayo	Kungangenzezi kodwa likhona ithuba lokuba kungenzeka	Kungenzeka
Ukungcoliseka kwemigxobhozo	Kungathi kungenzezi ngokuphakame kakhulu	Kungathi kungenzezi ngokuphakame kakhulu
Ukwehla kobulunga bamanzi aselwandle	Kungathi kungenzezi ngokuphakame kakhulu	Kungathi kungenzezi ngokuphakame kakhulu
Singenzeka isiphumo	Kungangenzezi kodwa likhona ithuba lokuba kungenzeka	Kungangenzezi kodwa likhona ithuba lokuba kungenzeka
Umngcipheko oshiyekileyo	Uphakathi	Uphakathi

linguqu kwiMpiliso

Indleko engathi ibe khona kokusiNgqongileyo	Ukwehla kwimpiliso	
Umngcipheko ongaphakathi	Phakathi	
Oonobangela boMngcipheko	Ukuba aba nobangela bangenzeka	
	Thyspunt	Duynefontein
Inguqu kumaza	Kungathi kungenzezi ngokuphakame kakhulu	NA
Ukungcoliseka yimitha yeradiology kweemveliso zezolimo	Kungathi kungenzezi ngokuphakame kakhulu	Qinisekile
Inguqu yoluvo lwendawo	Qinisekile	Kungangenzezi kodwa likhona ithuba

		lokuba kungenzeka
Ukuncipha kwenani elilotywayo le chokka squid	Kungangenzeki kodwa likhona ithuba lokuba kungenzeka	NA
Singenzeka isiphumo	Kungathi kwenzeke ngokuphakame kakhulu	Kungangenzeki kodwa likhona ithuba lokuba kungenzeka
Umngcipheko oshiyekileyo	Uphakathi	Uphakathi

Ubutyebi Bamafa Obuntu

Indleko engathi ibe khona kokusiNgqongileyo	Ilahleko yobutyebi Bamafa Obuntu	
Oonobangela boMngcipheko	Phakathi	
Oonobangela boMngcipheko	Ukuba aba nobangela bangenzeka	
	Thyspunt	Duynefontein
Ukutshatyalaliswa kwezinto ezenziwe ngabantu ezingamafa obuntu	Kungangenzeki kodwa likhona ithuba lokuba kungenzeka	Kungangenzeki kodwa likhona ithuba lokuba kungenzeka
Inguqu kwimbonakalo-mhlaba yempucuko yesizwe	Qinisekile	Kungangenzeki kodwa likhona ithuba lokuba kungenzeka
Singenzeka isiphumo	Qinisekile	Kungangenzeki kodwa likhona ithuba lokuba kungenzeka
Umngcipheko oshiyekileyo	Uphakathi	Uphakathi

Inkathazo

Indleko engathi ibe khona kokusiNgqongileyo	Inkathazo	
Umngcipheko ongaphakathi	Phakathi - Usezantsi	
	Thyspunt	Duynefontein

Ingxolo	Qinisekile	Qinisekile
Ukubona	Qinisekile	Qinisekile
Amatyotyombe	Kungenzeka	Kungenzeka
Ukuxinana kweemoto ezininzi endleleni	Kungenzeka	Kungenzeka
Singenzeka isiphumo	Qinisekile	Kungangenzezi kodwa likhona ithuba lokuba kungenzeka
Umngcipheko oshiyekileyo	Uphakathi	Usezantsi

IZIGQIBO NEENKUTHAZO

Indawo yesikhululo samandla

Ukusekwa kwe NPS e Duynefontein kuya kwenzeka ikhona ekhoyo i-NPS, iingcingo ezinkulu zothumelo lombane, kunye nendawo engqongileyo eyidolophu kunaleyo yase Thyspunt. Ngolu hlobo, iinguqu nendlela ezibonwa ngayo ziya kuba nkulu kakhulu e Thyspunt kunase Duynefontein. I-NPS ebekwe ngaphambili nezibonelelo ezayanyaniswa nayo iya kuzisa inguqu ebonakalayo kuluvo lwendawo e Thyspunt kanti le nguqu sele yenziwe e Duynefontein ngoko ukuba i-NPS ingasekwa e Duynefontein, inguqu iya kuvakala ngathi yinguqu enkulu kunendlela eyiyo. Abathathi zigqibo bafanele ukubuqonda ubungakanani benguqu yaye babe novelwano ngayo e Thyspunt indawo ethathwa njengenefuthe elikhulu elihlalayo (njengonobangela) nekungakwazekiyo ngokubanzi ukuyidambisa. Kukuphambili kwexesha kuphela okuya kudambisa kancinci kancinci iinguqu ezinkulu eziya kuvakala kubantu base Thyspunt yaye kwabanye abahlali le yinguqu abangasayi kuze bayiqhele. Abaninzi kwaba bahlali bahlala konna ngenxa kanye yoluvo abanalo lwale ndawo nokuziva ukwindawo eyodwa nepholileyo.

Ubungakanani bale projekthi neendawo ezayanyaniswa nayo eya kuthi inyathele khona ezingaphaya kwesiza esibekwe phambili ezifana neendlela, ezinye izibonelelo neengcingo zothumelo lombane kuthetha inguqu ethe vetshe engathi ibe khona kumhlaba nakwindawo yokuhlala. Indawo ngqo enyathnela kuyo le NPS ibekwe phambili ngama 265 ha e Duynefontein nto leyo eya kuthetha ilahleko nbqo yomhlaba olondolozweyo ngoku nje. Indawo elondolozweyo ibekwe kanye kwisiseko se Koeberg NPS yaye kusetyenziswa umhlaba we Eskom yaye awuphuhlisiwanga ngezizathu zokhuseleko, kodwa oku akutshintshi ukuba ummandla wolondolozo uya kulahleka ukuba i-NPS yakhiwa e Duynefontein. Ilahleko yalo mmandla wolondolozo kuyinto ebambekayo yaye kuya kufuneka kwakhiwe into elinganayo ukuqinisekisa ukuba akukho lahleko yexabiso lezinto eziphilayo nendawo eziphila kuyo (ikholoji) ukuba i-NPS isekwa e Duynefontein.

Isiza sase Thyspunt sinobomi obahluka hlukileyo kuso yaye kukho iintlobo ezininzi ezithile zezilwanyana ezisesichengeni e Thyspunt yaye umgxobhozo wase Langefonteinvlei ubaluleke ngendlela ekhethekileyo. Ngoko, isiza esibekwa phambili se NPS e Thyspunt sibuthathaka ngaphezu kweso sase Duynefontein yaye abathathi bezigqibo bayakhuthazwa ukuba babubone obu buntununtunu xa bedibanise iintloko zabo. Okukwabalulekileyo kwezi ntetho zabo, kukuba inxenye

entle yesizathu sokuba buthathaka ibe lukhuselo lokusingqongileyo kwendalo ngokuba kungaphuhliswa.

Kunzima ukucingela ukuba ingaba esi siza besiya kuphuhliswa ngolunye uhlobo kusini na ukuba besingabekelwanga i-NPS kodwa akukho mathandabuzo ukuba ixabiso le-ikholoji yesi siza ngoku nje lingenxa yokuba uphuhliso luthintelwe. Uhlolo lungomnye umngcipheko ophakathi oshiyekileyo wamanani ancitshisiweyo eentlobo ezisesichengeni ngenxa yokungeniswa kwezibonelelo zezakhiwo ezibeka ubomi bezi ntlobo zezilwanyana emngciphekweni ngakumbi iindlela neengcingo zothumelo lombane. Ukubekwa esichengeni kobomi bezi ntlobo zezilwanyana ngenxa yezi zibonelo kungenzeka kunye nezinciphiso eziya kwenziwa, kuya kunyina ubungakanani bokufa ukuze kungabikho ukuncitshiswa kwamanani ezi ntlobo zezilwanyana.

Ubukho bemigxobhozo kuzo zombini ezi ziza, nomgxobhozo ontununtunu nangakumbi e Thyspunt, bubeka ubungozi bokuncitshiswa kokusebenza kwale migxobhozo ngokuvelisa intlenga okanye ukungcoliseka kwamanzi emvuma nge hydrocarbon okanye ngekhemikhali. Uyilo olucetyiweyo lwezi ziza kuqukwa nentelekelelo yokubeka izinto eziqokelelweyo, uthintelo lokuchitheka kwe hydrocarbon neekhemikhali nolinganiso, nokuba akukho migca yoqukuqelo eya ngqo emigxobhozweni oko kuthethe ukuba ilahleko yemigxobhozo okanye ukwehla kwezinga lokusebenza kwemigxobhozo akunakufane kwenzeke. Ngaxesha-nye, imimandla emikhulu edambisayo efunekayo kwi NPS nayo ibonelela ngethuba lokughubeka ukukhusela lo mmandla ubalulekileyo we-ikholoji. Uyilo olucetywayo lwesikhululo samandla lutshintshiwe ukuqinisekisa ukuba iindawo ezibalulekileyo esizeni ezifana nesxokelelwano seenduli zesanti nomgxobhozo we Langefontein vlei ziphetshwe.

I-NPS ebekwe ngaphambili ingaphuhliswa ngaphandle kokwehliswa kwexabiso le-ikholoji lesiza yaye kufanele kuthathelwe ingqalelo ukhuselo olughubekayo lwalo mhlaba ngokuthintela olunye uphuhliso kwinkqubo yokuthatha izigqibo. Kufanele kuqondwe nokuba okona kuphazamiseka kubalulekileyo kuya kuba ngaxesha lokwakha kuze emva koko ixesha lokusebenza liya kuchaphazela okungqongileyo kwendalo kwizinga eliphantsi noko. Ukuba i-NPS iyathintelwa ukuba isekwe e Thyspunt, kubonakala kungathi akunakungenzeki ukuba lo mhlaba uphuhliswe kodwa akulunganga ukuzama ukuthi ngaphandle kwe NPS, ixabiso le-ikholoji lalo mmandla alisayi kuyaphi. Konke okuthethwayo apha kukuba ixabiso le-ikholoji alisayi kulahleka ukuba i-NPS iphuhliswa e Thyspunt, nto leyo ingathi inganyanisi ukuba umhlaba ungangasetyenziselwa i-NPS.

Iingcingo zokuhambisa umbane ezifunekayo ukuwukhupha umbane zibeka okungqongileyo esichengeni kuqukwa ukutshintsha komhlaba ngqo, impembelelo yokubonayo, kunye nokufa kweentaka ngokungqubana nazo okanye ukutshokwa zezi ntambo. Jikelele, ubungozi bokungqubana neengcingo buthanda ukuba ngaphezulu kokutshokeka kwiingcingo zombane ngenxa yomgama phakathi kwezinikezele ngombane, kunaxa kujongwe iingcingo zosasazo. Iingcingo zothumelo lombane nazo ziya kuyitshintsha imvakalo yendawo kodwa zingaphuhliswa ngendlela eya kuthi ithintele ukutshintsha kweendawo zokuhlala ezibalulekileyo, inciphise impembelelo kwiindawo zokuhlala ezingabalulekanga, nangokusebenzisa iindidi ezohlukileyo zokudambisa ukuze kuncitshiswe izinga lokufa kweentaka. Nangona kunjalo, iingcinga zothumelo lombane azinampembelelo imbi okungqongileyo yaye oku kufanele kukhunjulwe kwinkqubo yokuthatha izigqibo, yaye akukho sikhululo samandla naphina emhlabeni sikhe sakiwa kungekho ziingcingo zothumelo zininzi ukuze zikhuphe umbane. Xa kudityaniswa konke, ukuvelisa umbane nokuwuhambisa yinto enkulu kakhulu.

Ngokufanayo nokuba i-NPS ebekwe phambili iza kubangela inguqu enkulu kwimvakalo yendawo e Thyspunt kakhulu kunase Duynefontein, kuya kuba khona neenzuzo ezingaphezulu e Thyspunt. Iprojekthi yokwakha iya kubangela inkcitho ebonakalayo namathuba engqesho nokuvuswa kwezoqoqosho lwendawo leyo. Isiphumo soku siya kuba sikhulu e Thyspunt kunase Duynefontein kuba le projekthi ye NPS ebekwe phambili iya kuzisa amathuba ophuhliso lwezoqoqosho olungazange lwakhe lwakhona ngaphambili kanti ke awunako ukuthetha loo nto nge Duynefontein. Abantu abaninzi bangathi abalufuni olu phuhliso lwezoqoqosho kulo mmandla nokuba kuya kudunga le ndawo kodwa eneneni abanye abaninzi kunaba kulo mmandla baphila impilo yobuhlwempu okanye ubuncinane bafumana amazinga aphantsi engeniso kungekho amanye amathuba okutshintsha imeko yabo. I- NPS NPS ebekwe phambili iya kuzisa hayi iinzuzo zoqoqosho ngqo kuphela kodwa nezinye iinzuzo ezinkulu ezivela koku. Kunganzima ukubona ukuba le projekthi ibekwe phambili ayisayi kubangela impucuko jikelele kwimpilo yabantu kuninzi lwabantu abachaphazelekayo abamalunga bonke kwizinga elisezantsi. Kwakhona, esis iphumo siya kucaca kakhulu e Thyspunt kunase Duynefontein kuba ezoqoqosho ziphuhle ngcono kummandla wase Duynefontein.

Uhlobo oluchaphazela ngayo uveliso lombane lolo apho uchaphazeleko luviwa apho kuveliswa khona nakwiingcingo zothumelo nangona ezona nzuzo zivela ekupheleni kweengcingo. Oku kukhuphela ngaphandle iinzuzo zezoqoqosho lwendawo oluya kufumana nto kwiintshukumo zokwakha kwanakancinane noko iinzuzo ezayanyaniswa nokusebenza kwesikhululi samandla ngohlobo lweenkcitho kuthengwa izinto ezenziwa apha kule ndawo neenkonzo zalapho nefuthe labasebenzi abarholayo abahlala nabafuna izinto neenkonzo zabo kule ndawo. Ngoko ke, kufanele kuqatshelwe ixabiso lezoqoqosho lombane oveliswayo libalulekile kodwa asilo xabiso liya kukhula kwizinga lendawo leyo (o.k.k.t. kummandla okufutshane nesikhululo samandla) kodwa kwilizwe liphela ngokusetyenziswa ngamashishi nabanye abathengayo. Ixabiso lombane nalo libalulekile nakubantu abawusebenzisa ezindlini zabo.

Ezinye iziphumo ezidityanisiweyo zingavela kwizinto ezikhutshwa kokusingqongileyo, ingcolo, ukukhutshwa kwamanzi amdaka nokusetyenziswa kwezibonelelo. Kuzo zombini i-Duynefontein ne Thyspunt umoya okhoyo ngasemva usoloko umhle jikelele ka kungekho ezinye izinto ezinkulu yaye ifuthe lale NPS ibekwa phambili akusayi kuyitshintsha ngokubambekayo le meko. Ngokuqinisekileyo uthuli oluvela koomatshini luya kufuneka lulawulwe kakuhle ngesigaba sokwakhiwa yaye kuya kuba khona okuncinane okukhutshwayo okuvela kwisixokelelwano esixhasayo esibonelela ngamandla kodwa i-NPS ebekwa phambili ayisayi kubangela inguqu ebambekayo kubulunga bomoya kwezi ziza. Oku kunjalo nangengxolo nangona kuya kuba khona amazinga oxinzelelo lwengxolo eninzi ngesigaba sokwakhiwa. Umgama ukusuka kwiziza ukuya kwezona zamkeli ezikufutshane eziva ngokukhawuleza uqinisekisa ukuba akusayi kuba khona zinguqu zibambekayo kwingxolo esoloko ikhona kokungqongileyo evela kwiintshukumo ezayamene ne NPS ebekwe ngaphambili ezidibene nezinye iintshukumo kwimimandla ehambelana nazo.

Uluvo lwabantu kukukhathazeka ngokunzulu malunga neziphumo ezibi ezingathi zibe khona empilweni ze NPS ebekwe phambili kwizinga lokukhutshwa ngengozi nangokugqithisileyo kuze kubekho ukufa okungenzeka ngoko nangoko okanye umonzakalo oqatha okanye umngcipheko wesigulo esiqatha sexesha elide. Ukuba enye kwezi okanye zombini zingathi zenzeke, iziphumo zingathi zibe mandundu kakhulu yaye nawuphi umngcipheko wokufa kwabantu ufanele ukubekwa

ukuqatshelwa njengobaluleke kakhulu yaye oku kubekwe ngalo ndlela kanye kolu hlolo. Into eyenza lo mngcipheko unyamezeleke kukuba oku akunakufane kwenzeke ngenxa yeenkqubo zokhuselo eziliqela ezisetyenzisiweyo kuyilo nasekuqhubeni i-NPS yala maxesha. Ezi nkqubo zokhuselo ziliqela zibona amazinga aphakamileyo okuphinda-phindana kwisixokelelwano solawulo nesokupholisa esincediswa ngamazinga amaninzi okugcina okuyingozi kuvalelekile. Ezi nkqubo zokhuselo ziliqela ziqinisekisa ukuba ukukhutshwa kwemitha ye-radiation kwisikhululo samandla kugcinwa ngaphantsi lee kwamazinga akhoyo eemitha kokusingqongileyo phantsi kwazo naziphi iimeko yaye ke ngoko ukufa ngenxa yokuziveza kwimitha ye radiation kungathi kungenzeki ngokuphakame kakhulu.

Umngcipheko wokufa ngokuziveza kwizinto ezingenayo imitha ye radiology kwi NPS ungavela kwiingozi zezithuthi, ukunyuka okungakhona kwe HIV/AIDS ngenxa yokuba khona kwentlaninge yabasebenzi nokwanda kwamathuba olwaphulo-mthetho olungathi lube ndlongondlongo. Ezi ziphumo ziye zayanyaniswe neeprojekthi ezinkulu zokwakha yaye ubungakanani bezi ziphumo buye buphelele ngokunjalo kwindawo leyo kwenziwa iprojekthi kuyo. Nangona kukho udambiso olubekwe phambili lokunciphisa lo mngcipheko wokufa, kusaya kwenzeka oku nangona kuya kuba kwiingcinga eliphantsi noko. Udambiso luya kunyina kuphela ubungakanani hayi ukuthintela kona ngokugqibeleleyo. Ngeenjongo zokuthatha izigqibo, ukuba isigqibo sesokugunyazisa le NPS ibekwe ngaphambili, kufanele kuqatshelwe ukuba lo mngcipheko ungenanto yakwenza nemitha ye radiation ungakhona. Uthuli oluveliswa ngoomatshini kwiintshukumo zokwakha nalo lubeka abantu emngciphekweni kodwa indlela yokuchithwa kothuli kubonisa ukuba ubungakanani balo nuya kuba ngaphantsi lee kumgangatho okhoyo wothuli abahlala nalo abantu ngokwesiqhelo, umgangatho lowo okhusela impilo yabantu.

Impilo ekhoyo yabantu ingaphuculwa nayo zizibonelelo ezongezekileyo eziya kusekwa eziya kongeza izibonelelo zonyango kunye nokuphuculwa kwesibonelelo samanzi nococeko eziza nale projekthi. Ezi zibonelelo zongezwayo zinganceda ukususa uxinzelelo olongezekileyo kwezi nkonzo zibangelwa kukwanda kwenani labantu kodwa ngokuqinisekileyo kuya kuba khona iinzuzo ezongezekileyo zabantu abangabahlali kule ngingqi. Kwakhona, kufanele kuqatshelwe ukuba ezi nzuzo ziya kubonakala kakhulu e Thyspunt kunase Duynefontein kuba i-Duynefontein sele ineenkonzo ezisele ziphuhle ngcono nezibonelelo ezingcono kunase Thyspunt.

Kukhe kwaphakanyiswa ukukhathazeka malunga nokungqonge iilwandle kuzo zombini ezi ziza ngenxa yokudibana kweprojekthi nokungqonge iilwandle ngotsalo lwamanzi ngeenjongo zokupholisa nokusela nokukhutshwa kwamanzi okupholisa afudunyeziweyo namanzi anetyuwa. Ukwakha kukwanobungozi bokukhuphela amanzi emvula angcolisiweyo elwandle nakokungqonge ulwandle yaye nenkukuma eshiyekileyo icetyelwa ukulahlwa elwandle. Kuko konke okwenziwayo kuya kuba khona ulawulo oluya kunyina umngcipheko wenguqu enkulu kokungqonge ulwandle. Olu lawulo luquka imida ecacileyo yokulahlwa kwenkunkuma elwandle, ukungxengwa kwamanzi anetyuwa avela kwiziko lokukhupha ityuwa kusetyenziswa amanzi apholisayo nento enabisayo ukunyina ifuthe lamanzi afudunyeziweyo kungena kokungqonge ulwandle. Ukwehliswa kobulunga bokungqonge ulwandle kuthathwa njengomngcipheko oshiyekileyo osezantsi.

Okokugqibela, kodwa okubalulekileyo, kuninzi okwenziwa xa kusakhiwa okungathi kuchaphazele ubulunga bamanzi aphezu naphantsi komhlaba kunye nobungakanani bamanzi aphuma phantsi komhlaba. Ezi ntshukumo zayamene nokuba khona kwee hydrocarbons nezinye iikhemikhali

eziyingozi ezingathi zichithwe ngexesha kusakhiwa. Nangona kungekho mijelo yamanzi ehamba unyaka wonke kuzo zombini ezi ziza, olu chitheko lungabangela ukungcoliseka kwamanzi abalekayo emvuma, nto leyo enganefuthe kwimigxobhozo, kubulunga bamanzi aphantsi komhlaba ngokutyhutyha / ngokutsalwa okanye ukutyekezwa elwandle. Ulawulo olungqingqwa luya kufuneka hayi ukunciphisa ubungozi bokuchitheka kuphela kodwa ukuqinisekisa ukuba kukho ukucocwa okukhawulezileyo ukuba kukho ukuchitheka okuba khona ukuthintela ukungcoliseka okuhamba nomsinga. Ukuchitheka okukhulu kufanele kuthintelwe ngodambiso olubekwe phambili kodwa ukuchitheka okuncinane noko kuye ngelishwa kwenzeke kwiziza ezikhulu zokwakha. Ukusetyenziswa ekuqaleni kwamanzi aphantsi komhlaba okufunekayo kuzo zombini iziza phambi kokusekwa kwendawo yokususa ityuwa emanzini olwandle kusekelwe hayi ukudala ukuncipha kokukhutshwa ngamanzi aphantsi komhlaba nokusetyenziswa kwamadonga ehidroloji ukuvala imimandla echaphazelekileyo kukususwa kwamanzi kuya kunyina ubungakanani botsalo ngoko kungachaphazeli nangezphi iindlela ezibambekayo uqukuqelo lwamanzi aphantsi komhlaba okanye ubungakanani bawo.

Kugqitywa kwelokuba zombini eziz ziza zamkelekile ngokwokungqonge zona ukuba kubekwe isikhululo samandla enyukliya kuzo. Isiza sase Thyspunt sithathwa njengesona siza sikhethwayo yaye kuyacetyiswa ukuba sigunyaziswe yi DEA (nemiqathango) usenzelwa i Nuclear-1. I-Eskom ifanele iqinisekise ukuba la manyathelo okudambisa afunekayo ayazalisekiswa kakuhle. Kubalulekile ukukhumbula ukuba alukho kuhlolo lweengcaphephe oluchonge iziphene ezibulalayo kuzo naziphi kwezi ziza zishiyekileyo, yaye zombini ezi ziza zibekwe ngaphambili zisabonakala zinokuphumelelisa ukuphuhliswa kwesikhululo samandla enyukliya, se Nuclear 1, ebekwa phambili ngoku, okanye esinye isikhululo samandla kwixesha elizayo. Ngoko, isiza esikhethwayo seso sibonelela ngeyona mbuyekezo inkulu ikhawulezileyo xa kujongwa kwisibonelelo sombane. I-Thyspunt iya kuyomeleza i-grid yasempuma incede nokudala iziko lokuvelisa kunxweme olugugutha impuma.

indlela zokuvelisa amandla

Uhlobo oluthelekisayo lobugcisa obusetyenzisiweyo ukuvelisa amandla njengenxalenye yesiGaba soKhangelo luvelise ezi ziqqibo zilandelayo

- Obunye ubugcisa obunokukhethwa bokuvelisa amandla buquka amalahle njengesibonelelo abusebenzi kuveliso lwamandla kwimimandla eselunxwemeni eMzantsi Afrika nanjengoko izibonelelo zamalahle zikumaPhondo aseMpumalanga nase Limpopo. Ukuthumela umbane ovela kule ngingqi ukuya kumaphondo eMpuma neNtshona Koloni kubangela ilahleko enkulu /nokungasebenzi ngenxa yomgama othathwayo;
- Nangona i-Eskom ihleli izibophelele ekuchongeni iindlela amandla in which renewable energy (e.g. wind and solar power) may be utilised to assist in the supply side of its operations, such technologies currently do not provide the capacity to provide a reliable base load (as per chapter 4) and easily integrate into the existing power network in South Africa;
- At present the only viable technology for large scale base load electricity production within the borders of South Africa, other than coal, is nuclear power; and
- Hydro-electric power is not considered a feasible alternative due to the scarcity of water in South Africa and the limited potential energy of our water resources. South Africa and Eskom are committed to work with Southern African countries for supply options that could potentially be derived from hydro-power. Realising such opportunities will take time and there is too much uncertainty currently to be able to plan effectively for such realisation.

Policy dictates that South Africa must make increasing use of nuclear power generation to reduce greenhouse gas emissions to comply with commitments made at the Copenhagen Climate Change Summit in December 2009. These commitments require South Africa to reduce CO₂ by 34 % by 2020. Over the full lifecycle greenhouse gas emissions from nuclear power generation is a fraction of those

generated using coal. The Integrated Resource Plan (IRP) presents these arguments and accordingly includes 9 600 MW of Nuclear in the power generation mix. The continued use and further development of renewable energy technologies is in no way precluded by the choice of nuclear. As pointed out earlier in this EIR, nuclear generation is not seen as an alternative to renewable technologies in the IRP. Indeed the IRP presents that both technologies need to be developed in parallel. In addition to all existing and committed power plants (Medupi, Kusile and Ingula), the IRP presents that projected electricity demand in South Africa will be supplied using the following technology mix:

- 9.6 GW (9 600 MW) nuclear;
- 6.3 GW of coal;
- 11.4 GW of renewable energy; and,
- 11.0 GW of other generation sources.

Ngokuphathelele kwezobuchwepheshe bokuvelisa amandla, uveliso lwamandla enyukliya nolubaselwa ngamalahle zizo kuphela iindlela zobuchwepheshe ezingqiniweyo zomthwalo wesiseko. Kuyakhetheka ukwakha izikhululo zamandla ezibaselwa ngamalahle kufuphi nomthombo woncedo ngenjongo yobuchule nezizathu zeendleko. Umjikelo wobomi wamagalelo okuvelisa umbane ngenyukliya ngokubhekiselele kwigesi ekhutshwayo ngokuphathelele kulondolozo lobuluhlaza bendalo nococeko lomoya (greenhouse) zincinci xa zithelekiswa nokuvelisa umbane ngomlilo wamalahle. Oku kubonisa ukuba ukuvelisa umbane ngenyukliya yinxalenye efunekayo yobuchule yoMzantsi Afrika yokuvelisa umbane ongezelelweyo ngama-40 000 MW ngonyaka wama-2025. Imithombo yamandla evuselekayo efana namandla aveliswa kwilanga nomoya akavelisi umthwalo wesiseko oqinisekisiweyo womthamo ofunekayo. Nangona kunjalo, oku akubekeli bucala uphuhliso lobuchwepheshe bamandla avuselekayo, okufuneka lwenzeke ngokunxuseneyo nokuveliswa kwamandla ngenyukliya.

Intlobo zee-injini zenyukliya

Ili-Pressurised Water Reactor (iziXhobo zokwenza aMandla ngee-atom ngaManzi aXinzelelweyo) ngokwezizwe zezona reactor zenyukliya zisetyenziswa ngokuxhaphakileyo. I-KNPS isebenzisa ubuchwepheshe be-Pressurised Water Reactor yaye ngako oko luhlobo oluvavanyweyo lokuvelisa amandla olusebenze ngokhuseleko iminyaka engama-27 egqithileyo. UESkom ubuqhelile obu buchwepheshe ngokwembono yezempilo nokhuseleko, nangokwemeko yokusebenza.

Iindlela zothutho

Uthutho ngomgaqo lwamkelwe njengesisombululo esisodwa sokuthutha imithwalo enzima ukusuka amazubukweni ukuya e-Duynfontein nase-Thyspunt. Nangona kunjalo, e-Bantamsklip, ngenxa yeempuculo ezininzi zezixhobo zokusebenza eziya kufuneka kuthutho lwezixhobo ezinzima ukusuka kwizibuko laseKapa, uthutho ngesikhephe esinesinqe esibanzi (i-barge) ukusuka kwizibuko laseKapa kucetyiswe ngaso njengenye indlela yothutho ngaphandle kweyomgaqo.

Ngokwembono yezokusingqongileyo, le ndlela eyenye ithathwa ingamkelekanga, ngenxa yeempembelelo ezibalulekileyo ezilindelweyo ezinokuba kho xa kusakhiwa amalungiselelo okumisa isikhephe (i-barge). Nangona lungekho uhlolo olukhethekileyo olwenziweyo lweendawo zokumisa ezinokufuneka, iinkqubo zohlolo zezilwanyana ezinomqolo namafa obuzwe zozibini ziphawule ummandla oselunxwemene kufuphi nesiza sase-Bantamsklip unovakalelo oluphezulu lokuphazamiseka. Nangona kunjalo, ulwakhiwo lolungiselelo lokumisa isikhephe lungafuna inkqubo ehlukene ye-EIA.

Ukuhambisa ngesikhephe imithwalo enzima ngokungaqhelekanga ukuya e-Bantamsklip ngako oko akwamkelwanga njengenye indlela kule-EIA.

Iindawo zesikhululo samandla enyukliya kwiziza

Izimo ezitshayelelayo zeziza 'ezirhangqe' indawo yokumisa isikhululo samandla beziphuhliswe nguESkom esenzela isiza ngasinye esitshintshanayo. Ezi zimo bezinikwe iingcali yaye emva koko zalungiswa ukujongana nemicimbi ethile neenkxalabo ezivezwe ziingcali. Iimaphu zeengcali zovakalelo zidityanisiwe kwaze kwaveliswa iimaphu ezimanyeneyo zovakalelo ukubonisa ezona ndawo zifaneleke kakhulu ngokokusingqongileyo ukuba kumiswe isikhululo samandla enyukliya esicetywayo. Ukugqibezela izimo zesiza, ukuba isikhululo samandla sigunyazisiwe, kuya kufuna

uphando olunzulu, ngokusebenzisana neengcali ezifunde ngokufanelekileyo nezinamava, sakuba isiza esithandwayo nohlobo lwe-injini yamandla iqinisekisiwe.

Ngokusekelwe kubukhulu bemimandla efanelekileyo ngokokusingqongileyo ukumisa isikhululo samandla enyukliya kwiziza ezitshintshanayo (phakathi kwe-172 ha nama-293 ha), kunye nobukhulu obucetywayo bokumisa i-Nuclear-1 (ama-200 ukuya kuma-280 ha), akunakwenzeka ukwakha izikhululo ezongezelelweyo, ngaphezulu kwe-Nuclear-1, nakwesiphi seziza ezitshintshanayo.

Nangona kukho izincomo ezibanzi ezixeliweyo ngentla malunga nenani lezikhululo zamandla ezinokwakhiwa kwisiza ngasinye, kufuneka kugxininiswe ukuba isicelo sangoku sesesikhululo samandla enyukliya esinye sobukhulu bama-4 000 MW. Iimpembelelo ezongezelekayo zezikhululo zamandla enyukliya naziphi ezongezwayo kwisiza esikhethekileyo (ukuba sigunyazisiwe) kungafuneka siqinisekisiwe kwinkqubo entsha ye-EIA phambi kophuhliso naluphi olongezelelweyo.

Ukusebenzisa amanzi omhlaba atsaliweyo

Amanzi omhlaba aya kutsalwa ukusuka kwimixuma enzulu kwiziza zonke ezintathu ngenjongo yokuvumela ukwakhiwa kweSiqithi seNyukliya. Enye indlela enokukhethwa yokutsala amanzi omhlaba kukugcina nokusebenzisa amanzi kwisiza. Nangona kunjalo, umthamo wamanzi anokukhutshwa, ngokukodwa e-Thyspunt, kungafuneka amanye amanzi echithelwe elwandle. Ukugqithisela amanzi kwinkqubo yobonelelo ngamanzi kamasipala kuthathwa njengento engenakho ukwenzeka nakwesiphi seziza ezitshintshanayo, ngenxa yomgama ukusuka kweyona ndawo ikufuphi elungiselelwe iinkonzo zedolophu. Ngako oko, indibaniso yokugcina nokuchithela elwandle iyakhuthazwa.

Ubonelelo ngamanzi amatsha

Kuzo zonke iziza ukususwa kwetyuwa emanzini kuqinisekisa umthombo wobonelelo ngamanzi amatsha ukuqhuba lonke ixesha lobomi besikhululo samandla enyukliya ngaphandle koku phazamisa ukufumaneka kwamanzi amatsha kwabanye abasebenzisi. I-injini yokususa ityuwa emanzini ngako oko yenye indlela ekhethwayo yokubonelela ngamanzi amatsha kuzo zonke iziza ezitshintshanayo.

Ukuphathwa kwamanzi anetyuwa

Nayiphi indlela yokulahla amanzi anetyuwa elwandle okanye ukulahla amanzi anetyuwa kwakunye namanzi okupholisa elwandle yamkelekile ngokokusingqongileyo. Ukulahla amanzi anetyuwa elwandle kufuneka kusetyenziswe kuphela ngexesha lokwakha, yaye kufuneka amanzi anetyuwa angadityaniswa namanzi okupholisa akhutshelwa elwandle ngexesha lesigaba sokusebenza.

Ukungenisa amanzi aselwandle

Ukufakwa kweetonela zokungenisa nokukhupha amanzi okuquka ukufakwa kwemibhobho yangaphantsi kolwandle, efumana amanzi kulwandlekazi nokubonelela ngamanzi okupholisa kwindawo yokuwagcina (isidibi sokuwamkela) ebekwe kufuphi nezindlu zempompo yamanzi okupholisa yiyo kuphela indlela enokusetyenziswa kuzo zonke iziza ezitshintshanayo.

Indlela yokuphuma kwamanzi neekhemikhali ezimdaka

Izakhiwo zokukhupha amanzi okupholisa neekhemikhali ezimdaka kufuneka zenziwe kude nonxweme. Zonke izinto ezikhutshwayo kufuneka zenzeke kwimigama efanelekileyo njengoko kuchaziwe ziingcali ezichanekileyo. Ngokuxhomekeke ekubeni amanyathelo akhethekileyo okuthomalalisa achongiweyo kwingxelo yebhayoloji yolwandle ayalandelwa, ukulahlwa kwamanzi amdaka kude nonxweme ngako oko yenye indlela ekhuthazwayo.

Ukufikelela kwiisayithi

Isiza sase Thyspunt sifuna uhlaziyo lwendlela yokuhamba kwezithuthi ngokuphathelele kwiindlela zikawonke-wonke, ufikelelo nokukhutshwa kwizakhiwo ngexesha likaxakeka ngesigaba solwakhiwo. Iindlela ezicetyiswayo kwisilungiso 9 seNgxelo yeziThuthi zahlaziywa emva kokubonelelwa kwe EIR eyilwayo eHlaziyiweyo ukuba kufunyanwe uluvo lukawonke-wonke ngoMeyi 2011. Ngokusekelwe kolu hlaziyo, i R330 kubekwa phambili ukuba ngoku isetyenziselwe kuphela izithuthi ezihambisa abantu kunye nezithuthi ezinomthwalo ongaqhelekanga, yaye izigaba ezithile ziya kufuna ukulungiswa kusenzelwa le njongo. Umgaoqo i-Oyster Bay Road ngoku kubekwa phambili ukuba ulungiswe ube yindlela egudileyo esetyenziswa ngexesha lezigaba zolwakhiwo nokusebenza ukuze abasebenzi babe

nofikelelo nezithuthi ezinkulu nendlela yokuphuma xa kukho imo yonxunguphalo yemimandla efana ne Oyster Bay. I-DR1762, edibanisa i-R330 nomgaqo i-Oyster Bay Road ibekwa phambili ngoku ukuba ilungiswe igude ukubonelela ngoqhagamshelwano oluphucukileyo phakathi kwempuma nentshona. Iindlela ezihamba kude nezakhiwo ukuya empuma nasentshona ye Humansdorp nazo ngoku zibekwa phambili ukuba zakhiwe ukunciphisa ukuchaphazeleka kwezithuthi kumbindi we Humansdorp. Ngenxa yoku, izithuthi ezinzima zokwakha ezifikelela kwisiza sase Thyspunt azisayi kufuneka zihambe phakathi kumbindi we Humansdorp.

Kukhe kwajongwa iindlela ezine zoFikelelo eNtshona ekuqaleni ezingoo W1, W2, W3 no W4. U W1 ukuya ku W3 zonke zivela kumntshona wo Umzamuwethu (phakathi ko Umzamuwethu ne Oyster Bay), ngexesha i-W4 ivela kwindlela i Humansdorp-Oyster Bay road ukuya empuma yo Umzamuwethu. I-W4 yayikhatyiwe ekuqaleni ziingcaphephe zokusebenza komzimba (biophysical specialists) ngokuba kungenzeka ichaphazele ummandla osentshona wethafa leenduli zeSanti eziHambayo e Oyster Bay kunye nezixokelelwano ezisebenzisanayo ezimosheka lula, ukunqumla kwayo umgca wokomisa nobude bawo. Nge W1, W2 ne W3, i-W1 ithandiwe luninzi lweengcaphephe.

Ukugonda okukhathaza i-I&AP malunga nendlela yasentshona efikelelayo kwafunyanwa ngexesha lezimvo zikawonke-wonke zango 2011 malunga ne EIR eYilwayo eHlaziyiweyo (ushicilelo 1), kukhangelwe uhambelwano olutsha lweNdelela yoFikelelo eNtshona. Ezi zizezinye zigqalise ekuhambelaniseni iNdelela yoFikelelo eNtshona nempuma yo Umzamuwethu ukuthintela ukuba indlela ingadali iyantlukwano phakathi ko Umzamuwethu ne Oyster Bay. Olunye uhambelwano olulolunye nale ndlela luya lwakhangelwa pha ukuya ekupheleni kuka 2012 yaye okunokukhethwa okungaphakathi okukokona kude eOyster Bay (IR2) luye lwacetyiswa emva koku. Olu hambelwano lunefuthe elithile kwezokusebenza komzimba kodwa alubalulekanga kangako ukuba lungabangela izinto ezibulalayo.

Ukuhanjiswa kwenkunkuma kunye

Ngokusekelwe kwiziphumo zomzekelo wezifundo ngamalwandlekazi nohlolo lovakalelo lolwandle, kukhuthazwa ukuba izinto ezingafunwayo ezicolekileyo zilahlwe kwimekobume yolwandle. Ezishiyekileyo, ezingenakho ukupompelwa elwandle, kufuneka zilahlwe emhlabeni yaye zisetyenziselwe imisebenzi efana nokugudisa iyadi ye-HV, ukunciphisa ubukho bazo. Kufuneka kusetyenziswe umyili wezakhiwo wembonakalo-mhlaba ukunceda kuyilo olufanelekileyo lwendawo zokulahla inkunkuma yezinto ezingafunwayo ngenjongo yokunciphisa impembelelo yembonakalo.

Indlela eyodwa enokwenzeka nenokwamkelwa yokulahla inkunkuma yokusasazeka kwemitha yoMphakamo oPhantsi noMphakamo oPhakathi kukulahlwa kwiSiza sokuLahla Inkunkuma yeNyukliya e-Vaalputs. Yiyo kuphela indawo yoncedo olugunyazisiweyo lokulahla inkunkuma yolu hlobo eMzantsi Afrika yaye inomthamo owaneleyo wenkunkuma eya kuveliswa yi-Nuclear-1.

Ngokuphathelele kwiNkunkuma yoMphakamo oPhezulu (izibaso ezisetyenzisiweyo), indlela eyodwa efumanekayo okwangoku eMzantsi Afrika yeyogcino lwexesha elide lwezibaso ezisetyenzisiweyo kwisikhululo samandla senyukliya. I-Vaalputs iyaqwalaselwa njengesiza sokulahla iNkunkuma yoMphakamo oPhezulu, kodwa iinkqubo zogunyaziso olufunekayo zolu ncedo ziya kuthatha iminyaka eliqela, ngako oko okwangoku ukulahlwa kwezibaso ezisetyenzisiweyo kule ndawo yoncedo lukhetho olungenakwenzeka.

Enye indlela yokuThintela ukuHamba

Njengoko kukho imfuno engxamisekileyo yamandla ngokusekelwe kuhlumo loqoqosho eMzantsi Afrika, enye indlela yokuThintela ukuHamba ayicingwa iyenye indlela enengqiqo, njengegunya likaEskom lokubonelela ilizwe ngamandla. UESkom, ngandlela zonke ezilindelekileyo, uya kufaka isicelo sokuphuhlisa izikhululo zamandla ezongezelelweyo ezibaselwa ngamalahle ukuba isicelo sangoku siyalandulwa. Iimpembelelo kokusingqongileyo zomjikelo wobomi bokuveliswa kwamandla ngokubaselwa ngamalahle zinkulu kakhulu kunemveliso ebaselwa yinyukliya. Kunokuba nzima nangakumbi ukuphuhlisa izikhululo zamandla ezibaselwa ngamalahle kwixesha elizayo, ngenxa

yerhafu yekhaboni eya kuhlawuliswa amazwe aqhubekayo ukukhupha iigesi ezitshabalalisa ulondolozo lobuluhlaza bendalo nococeko lomoya (i-greenhouse). Enye indlela yokuThintela ukuHamba ingathetha ukuba iinzuzo ezinokuba kho ezivela kwiprojekthi ecetywayo azinakufikelelwa. Ngokuphathelele koku, kubalulekile ukulungelelanisa inzuzo, iintswelo neembono zamazwe angabamelwane nomdla wesizwe wothungelwano lombane olukhuselekileyo olulungiselela uphuhliso oluzinzileyo lwexeha elide loqoqosho loMzantsi Afrika. Nangona iimpembelelo ezingalunganga ezinokwenzeka zeprojekthi ecetywayo zinokuphetshwa ngendlela yokuThintela ukuHamba, kunyanzelekile ukuba uMzantsi Afrika uphuhlise umthamo wawo wokuvelisa amandla, ngokukodwa eNtshona naseMpuma Koloni.

Amanyathelo abalulekileyo okuthomalalisa nemiqathango yogunyaziso

Iziphumo zezifundo zobungcali ezenziwe phakathi kwale-EIA zinikela ngohlolo lwazo zombini iimpembelelo ezilungileyo nezingalunganga ezinokwenzeka ezilindelweyo ngenxa yeprojekthi ecetywayo. Iziphumo zigqiba kwelokuba azikho iziphene ezibulalayo zokusingqongileyo ezinokuthintela iprojekthi ecetywayo ekuqhubekeni nakwesiphi seziza ezitshintshanayo, ngokuxhomekeke ekubeni amanyathelo akhuthazwayo okuthomalalisa nokulawula ayaphunyezwa.

Kunyanzelekile ukuba izincomo zokuthomalalisa eziqulathwe kule-EIR, i-Environmental Management Plan (i-EMP) (isiCwangciso soLawulo lokuSingqongileyo) nezifundo zobungcali ziphunyezwe ngokungqongqo. Amanyathelo okuthomalalisa eempembelelo zebhothani, zezilwanyana ezinomqolo nezingenawo umqolo, imigxobhozo, ukwakheka komhlaba weendunduma nemithombo yoncedo yamafa obuzwe abaluleke ngokukodwa. Ukuthomalalisa iimpembelelo zamafa obuzwe kuya kufuna ngokukodwa umsebenzi weqela elikhethekileyo lesiza elizinikele kukugrumba kwithuba lexesha leenyanga ezintandathu ukuya kunyaka phambi kokuqalisa kokwakhiwa. Kananjalo kuya kubaluleka ukubandakanye iingcali ezifundileyo nezinamava zebhothani, zezilwanyana ezinomqolo nezingenawo umqolo, ukwakheka komhlaba weendunduma nezamafa obuzwe ukulungisa ngocoselelo indawo yesikhululo samandla kwisiza.

Ukuze kufikelelwe kwimigangatho yolawulo lokusingqongileyo efanelekileyo nokuqinisekisa ukuba iziphumo zezifundo zokusingqongileyo ziyaphunyezwa ngamanyathelo aphahekayo, izincomo (eziquka izincomo zengcali yobuchwepheshe) ezivela kule EIA ziqukiwe phakathi kwe-EMP (ukuthobela ummiselo we-NEMA Regulation 34) oqukiweyo kwiSihlomelo F. Kufuneka le EMP ibe yinxalenye yekontraki noosokontraki abalathelwe ukwakha isikhululo samandla enyukliya esicetywayo nezakhiwo ezayamane naso. Kufuneka i-EMP isetyenziswe ukuqinisekisa ukuthobela imiyalelo yokusingqongileyo namanyathelo olawulo ngamaxesha azo zonke izigaba zeprojekthi. Kuyimfuneko ukuphumeza le EMP yazo zonke izigaba zomjikelo wobomi (oko kukuthi, ukwakha, ukusebeza nokuphelisa ugunyaziso).

I-EMP luxwebhu olushukumisayo yaye njengoko ulwazi olutsha lufumaneka ekuhambeni kwexesha, okanye njengoko izifundo zifundwa ekuphumezeni izincomo ze-EMP, kufuneka i-EMP ihlaziye ekuhambeni kwexesha.

INDELELA EYA PHAMBILI

I-NNR igunyazisiwe yiNNRA ukuba inikezele ngokhuseleko lwabantu, izinto zabantu kunye nobume bemeko kumonakalo wenyukliya, ngokuthi kusekwe imigangatho yokhuseleko kunye neendlela zolawulo. Ngokubhekiselele kwiCandelo 21 le NNRA, u-Eskom kufuneka angenise isicelo ngokusikweni selayisenisi yokwenza isikhululo samandla enyukliya, isayithi, ukwakha, ukusebenza, ukususa isidyobho sento enobungozi nokuqhawula isivumelwano sentengo. Umthetho unika ithuba iBhodi yeNNR ukuba ibambe imihlangano kawonke –wonke ngokubhekisele kwimpilo, ukhuseleko nemicimbi yobume bemeko ebhekisele kwisicelo eso.

NgokomGaqo-Siseko weRiphabhliki yoMzantsi Afrika (Umthetho No. 108 yowe-1996) kunye noMthetho oyi- National Environmental Management Act, iDEA inoxanduva lokuhlola impembelelo

yesikhululo samandla ombane kubume bemeko. Ukwamkela uxanduva olucacileyo oluntlantlumbini malunga nohlolo lwengozi zokukhupha imitha, iNNR kunye neDEA isayine isivumelwano sentsebenziswano apho ivumayo ukuba iDEA, njengeziphatha- mandla kwimicimbi yobume bemeko, kunye ne NNR ziya kusebenzisana kuhlolo lwemicimbi enxulumene nenyukliya. Malunga noku, iingcaphephe zezifundo zemiba yeradiyoloji zibandakanyiwe kulwazi oluya kuxhasa iDEA ekuthatheni izigqibo.

Le Drafti eHlaziyiweyo ye- EIR (Isilungiso 2) isasaziwe ukuze abantu banike izimvo zabo kuzo zonke i-I & AP Inani leendibano zikawonke-wonke ziya kubanjwa ngexesha lokuveza izimvo kwixesha lale Drafti eHlaziyiweyo eyi –EIR (Isilungiso 2). Zonke izimvo kolu xwebhu ziya kuqatshelwa ngu GIBB kwaye iimpendulo kulo ziya kunikezelwa kwingxelo yemiCimbi neNgxelo (IRR) phambi kokungeniswa kweyokuGqibela iEIR kwiDEA ukuze ithathe isigqibo.

Kuyaqikelelwa ukuba iDEAET yaseMpuma Koloni kunye neDEA neDP yaseNtshona Koloni ngokunjalo kunye neNNR (kwamanye amaSebe kaRhulumente) iya kunika izimvo kwiDEA malunga nokufezeka kweEIR yokugqibela kwaye iDEA iya kuziqaphela ezi zimvo phambi kokuba yenze isigqibo malunga nokwamkeleka kweprojekthi yeNyukliya 1. Zonke i- I&AP ziya kwaziswa malunga nokufumaneka kolwazi kanjalo nesigqibo seDEA.

I-DEA igunyazisa isikhululo samandla senyukliya ecetywayo, kufuneka igunyaziswe ngokungqongqo ngokwemiqathango eboniswe kwiEIR yokuGqibela. Ukuba amanye amanyathelo okuthomalalisa afunwayo akaphunyezwa phambi kokuqala ukwakha, njengoko kukhuthaziwe (umz., imiqathango ngokuphathelele kukombiwa kweziza ze-archaeology ne-palaeontology), ngako ke ukwakhiwa kufuneka kungavunyelwa ukuqalisa.

Ukuba naziphi iinguqu eziphathekayo kuyilo lwesikhululo samandla esicetywayo emva kokunikela i-Final EIR kwiDEA ngenjongo yokuthatha isigqibo, uhlolo kwakhona lweempembelelo zokusingqongileyo lungafuneka. Ukuzigqibela ngokuphathelele kwiinkcukacha zobuchwepheshe zesikhululo samandla (njengoko kunikwe iinkcukacha kwiConsistent Dataset – Isihlomelo C) **zibalulekile** malunga nalo mba. Wakuba umthengisi wesikhululo samandla senyukliya echongiwe, kufuneka kuqinisekise ukuba imiyalelo yesikhululo samandla iyaqhubeka ukuhambelana ne-Consistent Dataset, esebenze njengesiseko senkqubo yaleEIA. Kukhuthazwa ukuba kufuneka uEskom abonelele ngesiqinisekiso esinjalo kwiDEA kuselixesha phambi kokuqala kokwakhiwa kwesikhululo samandla.