

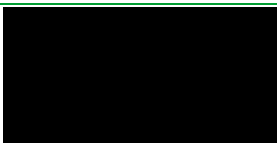
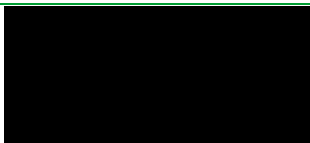
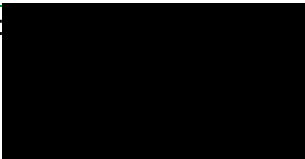
Evaluatierapport Safety Factor 13

Noodplanning

Vertrouwelijk

In opdracht van COVRA N.V.

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Afkortingen

10EVA	10 jaarlijkse evaluatie van de technische, operationele, personele en organisatorische voorzieningen inzake veiligheid en stralingsbescherming.
ADRZ	Admiraal De Ruyter Ziekenhuis
AI	Arbeidsinspectie
AID	Actuele individuele dosis
ALARA	As Low As Reasonably Achievable
ANVS	Autoriteit Nucleaire Veiligheid en Stralingsbescherming
ARIUS	Association for Regional and International Underground Storage
ASD	Algemene StralingsDeskundige
AVG	Afvalverwerkingsgebouw.
BOT-mi	Beleidsondersteunend team milieu-incidenten
CCK	Centrale Controle Kamer
Club of Agencies	het samenwerkingsverband waarin 17 Europese radioactief afval management organisaties vertegenwoordigd zijn
COG	Container Opslaggebouw.
Colli	Verpakkingseenheid
COVRA N.V.	Centrale Organisatie Voor Radioactief Afval.
CZV	Chemisch zuurstof verbruik, een waarde die aangeeft hoeveel chemisch oxidatiemiddel nodig om organische vervuiling volledig te oxideren.
ENEF	Het European Nuclear Energy Forum
EOCI	Extraheerbare organische chloorkoolwaterstoffen (bijv. chloroform, tetrachloorkoolwaterstof).
EPZ	Elektriciteitsproductiemaatschappij Zuid-Nederland
ERDO-WG	European Repository Development Organisation WorkingGroup
ERH	Energy Resource Holding B.V.
EURATOM	Europese Gemeenschap voor Atoomenergie
GRI	Global Reporting Initiative
HABOG	Hoogradioactief afvalbehandelings- en opslaggebouw
HCK	HABOG Controle Kamer
HRA	Hoogradioactief afval
IAEA	Internationaal Atoom Energie Agentschap



IGD-TP	Europees Technologisch platform Implementatie van eindberging
IOSO	Internationaal Operationeel Storings Overleg
KAM-zorg	Kwaliteit, Arbo en Milieuzorg.
KCB	Kerncentrale Borssele
LMRA	Laag- en middelradioactief afval
LOG	Laag- en middelradioactief afval opslaggebouw.
MAK	Monocyclische aromatische koolwaterstoffen.
MDA	Minimum Detectable Activity
Mo-afval	Radioactief afval afkomstig van de productie van Molybdeen 99
MOSAIK	Opslag- en transportcontainer (Type B)
MTR-2	Transportcontainer (Type B)
MVO	Maatschappelijk Verantwoord Ondernemen
NORM	Naturally occurring radioactive material.
NRG	Nucleair Research en consultancyGroup .
ONDRAF/NIRAS	Belgisch nationale instelling voor het beheer van radioactief afval en verrijkte splijtstoffen
OPERA	OnderzoeksProgramma Eindberging Radioactief Afval
OSO	Operationeel Storings Overleg
PIMBY	Please In My Backyard. Ook: Italiaanse stichting die prijzen toekent aan opvallende prestaties op terreinen waartegen veel maatschappelijke weerstand bestaat
RIVM	RijksInstituut voor Volksgezondheid en Milieuhygiëne.
S-dienst medewerker	Sleutel dienst medewerker.
SF	Safety Factor
SRL	Safety Reference Level
TOPA	10 jaarlijkse evaluatie van de Technische, Organisatorische, Personele en Administratieve voorzieningen
UNSCEAR	United Nations Scientific Committee on the Effects of Atomic Radiation.
VOG	Verarmd uranium opslaggebouw.
VOS	Vluchtige organische stoffen.
VZO	Voeding Zonder Onderbreking
WAS	WaarschuwingsAlarmSysteem
WSA	Waste Safety Appraisal
WENRA	Western European Nuclear Regulators Association
WENRA WGWD	Working Group Waste and Decommissioning

Samenvatting

COVRA streeft naar een voortdurende, verdere verbetering van de veiligheid van de nucleaire installaties. Dit wordt o.a. ingevuld door iedere 10 jaar een periodieke veiligheidsevaluatie uit te voeren. In de COVRA vergunningsvoorwaarde C32 is vastgelegd dat de eerste komende 10 jaarlijkse veiligheidsevaluatie gaat over de periode 2009 – 2018.

Leidraad voor deze evaluatie is de IAEA Guide SSG-25 “Periodic Safety Review for Nuclear Power Plants”. In 2018 heeft de WENRA Working Group Waste and Decommissioning in 2018 Safety Reference Levels opgesteld [1]. In overeenstemming met het beleid van WENRA, zullen deze Safety Reference Levels opgenomen worden in de nationale regelgeving van de lidstaten. Daarop vooruit lopend, zijn deze opgenomen in het toetsingskader. Dit rapport bevat de evaluatie van Safety Factor 13, waarbij is gekeken naar de bedrijfsnoodorganisatie van COVRA.

Het doel van deze evaluatie van de noodplanning is nagaan of:

- COVRA beschikt over adequate procedures, personeel, faciliteiten en uitrustingen voor de beheersing van noodsituaties;
- De maatregelen van de organisatie voldoende zijn afgestemd met maatregelen van de lokale en nationale overheden;
- Deze (maat)regelen regelmatig worden geoefend.

Een belangrijke conclusie van dit rapport is dat er binnen COVRA regelmatig BHV oefeningen plaatsvinden. Bij deze oefeningen wordt ook samengewerkt met externe hulpverleners zoals de regionale brandweer, het Admiraal De Ruyter Ziekenhuis en ambulance diensten.

De belangrijkste bevindingen zijn:

- De KAM-procedure A4 incidenten en ongevallenprocedure is incompleet. Zo ontbreekt het VOG2 en wordt er naar nationale plannen en instanties verwezen die niet meer bestaan. Het is onduidelijk hoe de selectie van deze ongevals categorie tot stand is gekomen en of met 13 ongevalscategorieën alle mogelijke ongevallen omvat. 5.1.b
[REDACTED]. Tot slot is niet duidelijk in hoeverre de ongevallenprocedure is besproken met de relevante instanties;
- Een aantal onderwerpen worden zowel in het bedrijfsnoodplan als in de ongevallenprocedure beschreven, waardoor er de kans is op tegenstrijdige informatie;

- Er zijn bij COVRA geen procedures beschikbaar die gebruikt worden om haar installaties veilig te stellen tijdens een incident of ongeval. Indien voor COVRA dergelijke noodprocedures niet van toepassing zijn, ontbreekt het aan de argumentatie waarom dit het geval is;
- Het is onduidelijk hoe COVRA borgt dat de inhoud van het rode boekje altijd actueel en accuraat is. Daarbij rekening houdend met beveiligingszaken en privacybescherming;
- De oefeningen van het crisisteam ontbreken in het meerjaren oefenplan;
- COVRA beschikt over een groot aantal gekwalificeerde BHV'ers;
- Er wordt adequaat gereageerd op brand(meldingen), waardoor de gevolgen van een mogelijke brand zo beperkt mogelijk worden gehouden;
- Omdat alle informatie en communicatie via de CCK verloopt, wordt de kans op miscommunicatie geminimaliseerd terwijl tegelijkertijd zo efficiënt mogelijk gewerkt kan worden;
- Vanuit nucleaire professionaliteit meldt COVRA ook niet-meldingsplichtige storingen aan ANVS;
- COVRA heeft regelmatig contact met zusterorganisaties in het buitenland met onder andere als doel van elkaar te leren;
- De BHV-organisatie oefent regelmatig met hulpdiensten van buitenaf;
- Er zijn duidelijke afspraken voor medewerkers, bezoekers en contractors m.b.t. PBM's en stralingshygiëne;
- Er wordt duidelijk aangegeven wat het stralingsniveau in de verschillende ruimtes zijn.

1 Safety Factor 13

Algemeen bestaat er het streven naar een voortdurende verdere verbetering van de (bedrijfs)veiligheid van nucleaire installaties. In dit kader past het periodiek uitvoeren van een veiligheidsevaluatie als een vaststaand onderdeel. Voor COVRA is in de vergunning vastgelegd dat een dergelijke evaluatie iedere 10 jaar moet plaatsvinden (10EVA). Leidraad voor deze evaluatie is de IAEA Guide SSG-25 “Periodic Safety Review for Nuclear Power Plants” [2]. Veertien zogenaamde Safety factoren bevatten aspecten als ontwerp, bedrijfsvoering, stralingshygiëne, organisatie etc. Met de behandeling van deze factoren wordt het onderwerp “(bedrijfs)veiligheid” volledig afgedekt.

De 15 Safety Factoren worden volgens de in het basisdocument [3] beschreven methodiek geëvalueerd. Deze evaluatie wordt uitgevoerd aan de hand van het in dit basisdocument per Safety factor vastgesteld toetsingskader. Rapportage vindt plaats per Safety factor of cluster van Safety factors. Dit laatste gebeurt voor alleen bij de factoren die onderling zodanig met elkaar verweven zijn dat een gezamenlijke behandeling voor de hand ligt.

Dit rapport bevat de evaluatie van Safety Factor 13: Noodplanning; wat zal worden afgekort tot SF13.

1.1 Doel

Het algemene doel van een 10EVA is om periodiek, gestructureerd en uitvoerig de veiligheidssituatie van de nucleaire installaties en organisatie te evalueren om te waarborgen dat deze veilig zijn voor de komende periode, rekening houdend met alle externe ontwikkelingen, interne veranderingen en opgedane ervaringen. Doel voor de evaluatie van de noodplanning is om vast te stellen dat:

- De organisatie beschikt over adequate procedures, personeel, faciliteiten en uitrustingen voor de beheersing van noodsituaties;
- De maatregelen van de organisatie voldoende zijn afgestemd met maatregelen van de lokale en nationale overheden;
- Deze (maat)regelen regelmatig worden geoefend.

1.2 Scope

De scope van de 10-jaarlijkse veiligheidsevaluatie is de gehele nucleaire installatie op het COVRA terrein zoals benoemd in de vergunning [4]. Dit betreft de gebouwen AVG, COG, LOG, VOG, VOG2, HABOG

en het transport op het COVRA terrein. Binnen de voorliggende evaluatie komen de volgende onderwerpen aan de orde:

1. Geschiktheid van on-site middelen en voorzieningen ter ondersteuning van de bedrijfsnoodplannen;
2. Geschiktheid van on-site technische en operationele ondersteuningscentra;
3. De efficiëntie van overleg- en communicatiestructuren tijdens een noodsituatie, met name de interactie met externe organisaties;
4. De inhoud en efficiëntie van trainingen en oefeningen van de bedrijfsnoodplannen en de evaluatierapporten van deze oefeningen;
5. De instelling van regelmatige evaluaties en updates van de bedrijfsnoodplannen;
6. Wijziging in onderhoud en opslag van middelen en voorzieningen en wijziging in woon- en werkomgeving (industrie) in het gebied rondom de site.

1.3 Toetsingskader

In het basisdocument [3] is het toetsingskader beschreven. Deze is gebaseerd op de Safety Reference Levels (SRL's) opgesteld door WENRA Working Group Waste and Decommissioning (WGWD) [1]. De voor Safety Factor 13 van toepassing zijnde SRL's zijn opgenomen in BIJLAGE A.

Daarnaast is het toetsingskader aangevuld met een aantal hoofdstukken uit de IAEA Safety Standards GSR part 3 "Radiation protection and safety of radiation sources: International Basic Safety Standards" [5] en GSR part 7 "Preparedness and response for a nuclear or radiological emergency" [6]. Deze zijn opgenomen in respectievelijke BIJLAGE B en BIJLAGE C met daarin aangegeven welke artikelen niet relevant zijn voor deze Safety Factor.

1.4 Werkwijze

In dit rapport zal getoetst worden in hoeverre de bedrijfsnoodplanning van COVRA voldoet aan het toetsingskader zoals in het basisdocument [3] opgenomen. De periode die geëvalueerd zal worden loopt van 1 januari 2009 t/m 31 december 2018. Concreet houdt dit in dat geen van de wijzigingen die na 1 januari 2019 zijn aangebracht, worden meegenomen in dit verslag. Dit geldt niet alleen aan wijzigingen aan de procedures, maar ook aan de installatie, voorschriften, organisatiestructuur, etc.

Om tot dit Safety Factorrapport te komen, zijn de volgende stappen gezet:

- Opstellen van het toetsingskader (zie [3] voor het volledige toetsingskader);

- Bestuderen van de COVRA documentatie
 - KAM documenten,
 - Notities,
 - Evaluaties,
 - Etc.,
- Toetsen van de situatie bij COVRA aan de eisen uit het toetsingskader;
- Indien noodzakelijk is er extra informatie gezocht bij direct betrokkene werknemers; zoals het Hoofd Bedrijfshulpverlening en het Afdelingshoofd Controle & Zorg;
- Opstellen rapportage met de bevindingen en de algemene beoordeling van de voorliggende safety factor(en);
- Review van het rapport door COVRA.

Uiteindelijk zal COVRA dit rapport opsturen naar de ANVS, die als toezichthouder verantwoordelijk is voor de inhoudelijke beoordeling van dit rapport.

Bij de beoordeling van de mate waarin COVRA voldoet aan de gestelde eisen en richtlijnen wordt gebruik gemaakt van de volgende categorisering:

- Tekortkomingen zijn punten waarbij niet aan het toetsingskader wordt voldaan;
- Verbeterpunten zijn punten waarbij gedeeltelijk aan het toetsingskader wordt voldaan;
- Aanbevelingen zijn punten waarbij aan het toetsingskader wordt voldaan, maar waarbij verdere verbetering mogelijk is
- Good practices zijn punten waarbij in ruime mate aan het toetsingskader wordt voldaan.

De resultaten van deze evaluatie vormen samen met de resultaten van de evaluaties van de andere Safety Factoren de input voor de samenvattende beoordeling.

1.5 Leeswijzer

Er wordt in dit evaluatierapport begonnen met op basis van het toetsingskader de verschillende onderwerpen te clusteren. Van deze geclusterde onderwerpen wordt een korte beschrijving gegeven op welke manier COVRA het betreffende onderwerp invult geeft. Daarna wordt op basis van het toetsingskader de vastgestelde resultaten beschreven.

Het betreft de volgende geclusterde onderwerpen:

- COVRA's noodorganisatie (paragraaf 2.1);
- Faciliteiten die de noodorganisatie tot haar beschikking heeft (paragraaf 2.2);



- COVRA's ongevallenprocedures en bedrijfsnoodplan (paragraaf 2.3);
- Overige plannen en procedures die relevant zijn voor de noodorganisatie (paragraaf 2.4);
- Communicatie met en naar externe partijen (paragraaf 2.5);
- Oefeningen die door de noodorganisatie worden gedaan (paragraaf 2.6);
- Aantal punten die getuigen van COVRA's goed werkgeverschap (paragraaf 2.7).

De inhoudelijke structuur van paragrafen 2.1 tot en met 2.7 is hetzelfde. Elke paragraaf begint met een opsomming, waarin staat aangegeven welke SRL's en hoofdstukken uit GSR part 3 en GSR part 7 worden geëvalueerd. Hierbij worden alleen artikelen geëvalueerd die van toepassing zijn op de desbetreffende paragraaf. In de kern van elke paragraaf zijn vervolgens de resultaten van de evaluatie beschreven. Vervolgens wordt elke paragraaf afgesloten met een korte opsomming van de tekortkomingen, verbeterpunten, aanbevelingen en good practices. Waar van toepassing is aangegeven op welke artikelen uit het toetsingskader een bepaalde bevinding is gebaseerd.

Deze evaluatie wordt in paragraaf 2.8 afgesloten, waarbij de resultaten worden gekoppeld aan de scope zoals gedefinieerd in paragraaf 1.2. Tot slot worden in hoofdstuk 3 de belangrijkste conclusies kort samengevat.

2 Evaluatie

In dit hoofdstuk worden de verschillende onderwerpen geëvalueerd. Er wordt begonnen met een beschrijving van de huidige situatie, gevolgd door de resultaten die op basis van het toetsingskader zijn verkregen. In de laatste paragraaf wordt puntsgewijs de onderwerpen, zoals gespecificeerd in paragraaf 1.2 aangegeven op welke wijze COVRA hieraan invulling geeft. Hierbij wordt gebruik gemaakt van de eerdere paragrafen in dit hoofdstuk.

2.1 COVRA's noodorganisatie

Toetsingskader: GSR part 3: H4; GSR part 7: H5; SRL: P-47

De noodorganisatie van COVRA wordt beschreven in procedure A4, de “Incidenten en ongevallenregeling COVRA N.V.” (hierna: ongevallenprocedure) [7]¹. Het plan is opgesteld door het Hoofd van de BHV in samenwerking met de Controle & Zorg afdeling. Naast de ongevallenprocedure heeft COVRA in 2018 ook een bedrijfsnoodplan [8] opgesteld. Aangezien beide documenten naast elkaar staan, zullen beide documenten als zodanig worden beoordeeld. In paragraaf 2.3 worden het bedrijfsnoodplan en de ongevallenprocedure inhoudelijke geëvalueerd.

De subtitel van de ongevallenprocedure is “Bedrijfsnoodplan”; terwijl “bedrijfsnoodplan” ook de titel is van bijlage 1 van de ongevallenprocedure én van het gelijknamige document uit 2018. De bijlage 1 van de ongevallenprocedure is een voorloper van het gelijknamige document uit 2018. Uit de praktijk van COVRA blijkt dat bijlage 1 van de ongevallenprocedure is komen te vervallen.

De procedures beschrijven de organisatiestructuur, procedures en maatregelen die COVRA heeft genomen om de gevolgen van een incident of calamiteit te minimaliseren. Daarnaast is vastgelegd wanneer een incident opgeschaald moet worden naar diensten buiten COVRA.

COVRA's noodorganisatie bestaat uit drie delen:

- BedrijfsHulpVerlenings (BHV) organisatie: deze wordt hieronder nader beschreven.

¹ In dit evaluatierapport wordt veelvuldig naar de ongevallenprocedure verwezen. Om de leesbaarheid te verhogen zal dit niet elke keer apart worden aangegeven. In plaats daarvan kan worden aangenomen dat alle informatie afkomstig is uit de ongevallenprocedure; tenzij anders is aangegeven. Indien van zowel de ongevallenprocedure als andere bronnen gebruik is gemaakt zijn beide bronnen aangegeven.

- BedrijfsBeveiligingsDienst (BBD): de medewerkers zijn verantwoordelijk voor de beveiliging. Beveiligingsaspecten zijn een onderdeel van de 10EVA Security en vallen buiten de scope van deze evaluatie en wordt daarom niet verder meegenomen [3].
- CrisisTeam (CT): Het crisisteam bestaat uit de aanwezige en opgeroepen MT leden (waaronder de Plant Security Manager); eventueel ondersteund door deskundigen (stralingsdeskundigen, transport & logistiek medewerkers, etc.). Het crisisteam wordt alleen opgeroepen in het geval van incidenten met ernstige gevolgen; zoals ernstig persoonlijk letsel, materiële schade, milieuschade of mogelijke imagoschade. Indien het crisisteam bijeen wordt geroepen, zal zij opereren vanuit het crisiscentrum (d.w.z., het kantoor van de directie).

Daarnaast is beschreven hoe de BHV organisatie is georganiseerd:

- Hoofd BedrijfsHulpVerlening (hierna: Hoofd van de BHV): het Hoofd van de BHV is verantwoordelijk voor de organisatie van de BHV-organisatie. Hier valt o.a. onder:
 - o Het adviseren van de directie met betrekking tot BHV-zaken;
 - o Het zorg dragen voor onderhoud en beheer van BHV-voorzieningen (zie paragraaf 2.2);
 - o Het doen opleiden en oefenen van medewerkers van de BHV-organisatie en bijhouden van gegevens hierover;
 - o Het opstellen van een jaarlijkse budgetaanvraag t.b.v. de BHV-organisatie;
 - o Het administratief beheer van de BHV-organisatie.
- BedrijfsHulpVerleners (hierna: BHV'ers): BHV'ers zijn medewerkers van COVRA die zijn opgeleid om BHV-taken uit te voeren. Hoewel het niet in de ongevalprocedure is gespecificeerd, worden de BHV'ers opgeleid en bijgeschoold conform de eisen van het NIBHV [9]. Hierdoor zijn zij opgeleid om in noodsituaties de taken van BHV'ers (levensreddend handelen, bestrijden van een beginnende brand, evacuatie van gebouwen en gidsen van externe hulpverleners) uit te voeren.

Elke BHV'er die binnen COVRA actief is, heeft in ieder geval een opleiding tot niveau 5 stralingsmedewerker gevolgd [10]. Op deze manier is geborgd dat BHV'ers voldoende kennis van straling en de risico's daarvan hebben. Daarnaast worden zij jaarlijks bijgeschoold, waardoor hun kennis en kunde voldoende is en blijft.

Afhankelijk van de situatie kunnen medewerkers die geen onderdeel zijn van de BHV-organisatie ondersteunende taken op zich nemen. Hierbij gaat het bijvoorbeeld om het verlenen van assistentie bij ontruiming of het gidsen van externe hulpdiensten.

De BHV-organisatie wordt geactiveerd en aangestuurd vanuit de Centrale Controle Kamer (CCK) in het AVG. In de CCK komen alle meldingen, bijvoorbeeld brand of een ongeval, binnen. Er is te allen tijde minimaal één Operator/BeveiligingsMedewerker (OBM) in de CCK aanwezig. De OBM wordt tijdens

kantooruren ondersteund door een S-dienst (Sleuteldienst) medewerker². Daarnaast kan de OBM ondersteuning krijgen van deskundigen, zoals een ASD-er en/of bedrijfsvoeringvertegenwoordiger. Buiten kantooruren zijn deskundigen op basis van consignatiedienst bereikbaar. De medewerkers in de CCK besluiten vervolgens tot het activeren van de BHV-organisatie en de aansturing hiervan. Het Hoofd van de BHV wordt daarbij in eerste instantie niet betrokken; aangezien deze geen directe rol heeft in de uitvoerende taken van de BHV-organisatie.

Wat opvalt aan de BHV-organisatie van COVRA, is dat er op dit moment (januari 2020) een groot aantal BHV'ers zijn (22 op een totaal van ca. 65 medewerkers) [7] [11]. In de ongevalprocedure wordt aangegeven dat dit er voldoende zijn. Onduidelijk is echter wat de onderbouwing hiervan is en waarvoor dit aantal voldoende zou moeten zijn. Ook valt op dat er geen minimum eisen zijn m.b.t. het aantal beschikbare BHV'ers voor bepaalde werkzaamheden zoals herstapelcampagnes in het LOG of verwerkingscampagnes in het AVG.

Tekortkomingen:

- N.v.t.

Verbeterpunten:

- N.v.t.

Aanbevelingen:

- Het is onduidelijk wat het minimum aantal beschikbare BHV'ers is voor risicovolle werkzaamheden. Het wordt aanbevolen dit wel vast te leggen.

Good practices:

- COVRA beschikt over een groot aantal gekwalificeerde BHV'ers.

2.2 Faciliteiten t.b.v. de noodorganisatie

Toetsingskader: GSR part 3: H4; GSR part 7: H5, H6; SRL: P-47

Een melding van een ongeval of noodgeval komt binnen in de CCK. De CCK vormt het zenuwcentrum waar vandaan het COVRA terrein en de gebouwen worden gemonitord. Om dit goed te kunnen doen is de CCK onder andere uitgerust met:

- 5.1.b

5.1.b

- | 5.1.b [redacted]
[redacted]
[redacted]
- | [redacted]
- | [redacted]
[redacted]
 - [redacted]
 - [redacted]
 - [redacted]
 - [redacted]
- | [redacted]
- | [redacted]

Naast deze faciliteiten, is de CCK ook ingericht om berichten of meldingen van externe partijen te ontvangen. Hierbij valt te denken aan bijvoorbeeld NL-Alerts, het WaarschuwingsAlarmSysteem (WAS)-alarm of waarschuwingen van de Stormvloedwaarschuwingsdienst. Wanneer een vervolgactie noodzakelijk is, wordt deze vanuit de CCK in gang gezet.

De BHV-organisatie wordt vanuit de CCK aangestuurd, omdat de medewerkers in de CCK het beste overzicht hebben van de situatie. Daarnaast beschikken zij over de mogelijkheden om met externe hulpverleners te communiceren en wanneer nodig om assistentie te vragen. Vanwege de centrale functie die de CCK heeft, is er in het HABOG een ruimte ingericht met gedeeltelijk dezelfde faciliteiten als de CCK. Mocht de CCK niet langer beschikbaar zijn, dan kan de controlekamer van het HABOG (HCK) de een aantal taken van de CCK overnemen, zoals een cameratoezicht op het COVRA terrein en via een telefoonverbinding communicatie met externe partijen (o.a. de veiligheidsregio) [10]. Het opstarten of afschakelen van installaties in het AVG is een taak die niet vanuit het HCK overgenomen kan worden.

Het is echter niet gedefinieerd onder welke omstandigheden de taken van de CCK vanuit het HABOG overgenomen moeten worden. Daarnaast is ook onduidelijk wanneer een dergelijk scenario voor het laatst is geoefend.

Verspreid over de verschillende gebouwen zijn faciliteiten aangebracht die door de BHV-organisatie gebruikt kunnen worden. De aanwezige faciliteiten verschillen per gebouw en zijn geselecteerd op basis van het verwachte gebruik. Dit houdt in dat in de opslaggebouwen en het kantoorgebouw EHBO-koffer(s) en diverse brandbestrijdingsmiddelen aanwezig zijn. Ook heeft COVRA de beschikking over een AED. Daarnaast is elk gebouw uitgerust met meerdere brandmelders die direct in de CCK binnenkomen.

Ter aanvulling van deze middelen is er in het AVG een ruimte ingericht die gebruikt wordt als verzamelpunt en uitvalsbasis van de BHV-organisatie. Deze ruimte is voorzien van o.a. portofoons, brandcards, BHV-hesjes en zaklampen. Het Hoofd van de BHV is verantwoordelijk voor het onderhoud en periodieke controles van deze hulpmiddelen.

Daarnaast heeft COVRA de beschikking over 20 reserve EPD's (Electronische Persoonlijke Dosismeter), die aan externe hulpverleners kunnen worden uitgedeeld als zij het terrein van COVRA betreden [10]. Hiermee wordt ervoor gezorgd dat ook voor hen duidelijk is wat voor dosis zij hebben opgelopen tijdens een inzet. COVRA heeft verspreid over zowel het kantoorgebouw als het HABOG de mogelijkheid om de EPD's uit te lezen [10].

Het is aannemelijk dat op het moment de EPD's uit het HABOG door externe hulpverleners worden gebruikt, het crisisteam ook bij elkaar zal komen. **5.1.b**

5.1.b Waar deze locatie zich bevindt, is echter niet vastgelegd [12]. Daarmee is ook onduidelijk in hoeverre de externe locatie te allen tijde beschikbaar is, in hoeverre deze is uitgerust om dienst te doen als crisiscentrum en/of dit scenario meegenomen wordt in de oefeningen van de noodorganisatie.

Daarnaast zijn in het ontwerp voorzieningen opgenomen om de kans dat een ongeval optreedt te verkleinen en/of de gevolgen te beperken. Het ontwerp van het HABOG voorziet in passieve veiligheidssystemen die een veilige opslag garanderen. Het HABOG heeft wel de beschikking over een VZO systeem (Voeding Zonder Onderbreking), aangevuld met een noodaggregaat. Daarnaast is er de mogelijkheid om een mobiele noodaggregaat aan te sluiten. Doel van deze voorzieningen is de ondersteunende systemen (monitoring, verlichting, etc.) van elektriciteit te voorzien. De capaciteit van de VZO installatie is voldoende om ondersteunende systemen ieder geval **5.1.b** van stroom te voorzien en wordt periodiek getest. Hoewel het onwenselijk is dat de ondersteunende systemen uitvallen, vormt dit niet een bedreiging voor de nucleaire veiligheid [13].

Dit geeft tijd om bepaalde bedrijfsprocessen veilig te stoppen. De aanwezigheid van de noodaggregaat geeft COVRA de mogelijkheid om in het HABOG lasten die nog in hijskranen hangen alsnog naar de gewenste locatie te verplaatsen [13]. In het HABOG zijn voorzieningen getroffen om deze handelingen ook handmatig uit te kunnen voeren.

Naast het HABOG heeft het AVG ook de beschikking over **5.1.b** noodaggregaten, om veiligheidsrelevante systemen van stroom te kunnen voorzien. Hierbij ligt de nadruk op het in operationeel houden van het ventilatiesysteem en rookgasbehandeling, (nood)verlichting en

instrumentatie. In tegenstelling tot het HABOG, zijn de hijskranen in het AVG niet beschikbaar op het moment dat er vanuit het stroomnet geen elektriciteit beschikbaar is [14]. Maandelijks wordt er door COVRA gecontroleerd of er nog voldoende diesel voor de aggregaten aanwezig is. Zodra de voorraad minder dan 50% van de totale opslagcapaciteit dreigt te worden, wordt deze aangevuld [15].

Tot slot zijn op het COVRA terrein een aantal hydranten geplaatst die door de brandweer gebruikt kunnen worden.

Tekortkomingen:

- N.v.t.

Verbeterpunten:

- Er zijn geen protocollen beschikbaar voor het geval de HABOG controlekamer een gedeelte van de taken van de Centrale controlekamer moet overnemen.
- Scenario's waarbij de Centrale controlekamer niet langer beschikbaar is en de taken overgenomen moeten worden vanuit de HABOG controlekamer dienen in het oefenplan te worden opgenomen.

Aanbeveling:

- **5.1.b**
Een aanbeveling is om dit proactief wel te doen. [o.a. *GSR part 7: 6.24*].

Good practices:

- Omdat alle informatie en communicatie via de CCK verloopt, wordt de kans op miscommunicatie geminimaliseerd terwijl tegelijkertijd zo efficiënt mogelijk gewerkt kan worden.

2.3 COVRA's ongevalprocedure en bedrijfsnoodplan

Toetsingskader: GSR part 3: H4; GSR part 7: H4, H5, H6; SRL: P-13, P-47

Ter voorbereiding op een mogelijk ongeval of noodsituatie heeft COVRA een tweetal documenten opgesteld: de ongevalprocedure uit 2014 [7] en meer recent het bedrijfsnoodplan (2018) [8]. In deze documenten worden zowel de procedures als verantwoordelijkheden vastgelegd. Documenten zoals het brandweeraanvalsplan [16] en de brandbestrijdingsprocedure [17] zijn ter ondersteuning van deze twee documenten en worden in paragraaf 2.4 behandeld.

Bij COVRA heeft het Hoofd van de BHV-organisatie in samenwerking met de Controle & Zorg afdeling de documenten opgesteld. Omdat beide documenten naast elkaar staan, zullen beide documenten apart geëvalueerd worden. Algemeen kan echter gesteld worden dat er een overlap is tussen beide documenten;

bijvoorbeeld doordat in beide documenten de noodorganisatie wordt beschreven. Hoewel de beschrijving van de noodorganisatie in beide documenten gelijk is, wordt het als onwenselijk gezien om dezelfde informatie in twee – aan elkaar gelijkwaardige – documenten te beschrijven.

2.3.1 Bedrijfsnoodplan

Het bedrijfsnoodplan beschrijft de procedures die gevolgd moeten worden op het moment dat er sprake is van een conventioneel ongeval zoals brand, bommelding of ongeluk met slachtoffers. Ongevallen waarbij stralingsslachtoffers zijn gevallen of situaties waarbij sprake is van verhoogde stralingsniveaus binnen de gebouwen liggen buiten de scope. Hoewel een officiële verwijzing naar de ongevallenprocedure ontbreekt, wordt aangenomen dat in dergelijke de ongevallenprocedure gebruik zal worden.

Een ander observatie is dat het bedrijfsnoodplan geen documentcodering conform het KAM-systeem heeft.

2.3.2 Ongevallenprocedure

De ongevalsprocedure beschrijft de taken, verantwoordelijkheden en procedures in geval er sprake is van een ongeval of noodsituatie. Ook de taken en verantwoordelijkheden van deskundigen zoals de Algemeen Coördinerend Stralingsdeskundige en het Hoofd van de BHV zijn duidelijk beschreven [18]. Wat echter opvalt is dat er geen kader is waarbinnen taken of verantwoordelijkheden gedelegeerd kunnen worden.

De ongevallenprocedure is sinds 2014 niet meer bijgewerkt. Op basis van KAM document A1 had de procedure uiterlijk op 17 januari 2019 op juistheid en functionaliteit beoordeeld moeten worden [19] [20]. Voor zover bekend is dat niet gebeurd. Als een gevolg hiervan zijn recente uitbreidingen zoals de bouw van het VOG2 niet in het plan of onderliggende scenario's opgenomen.

Mede omdat het document niet tijdig is bijgewerkt, wordt er verwezen naar bijvoorbeeld de Arbeidsinspectie en het National Plan voor de Kernongevallenbestrijding. Echter, deze bestaan niet meer en zijn opgevolgd door respectievelijk de Inspectie SZW en het National Crisisplan Stralingsincidenten. Ook is er – voor zover bekend – geen contact geweest met instanties zoals de ANVS, Gemeente Borssele en/of de Veiligheidsregio Zeeland over (de inhoud van) de ongevallenprocedure [21].

Daarnaast is de ongevallenprocedure is op bepaalde onderdelen onvolledig. Hieronder staan de belangrijkste of meest opvallende punten genoemd die niet volledig zijn uitgewerkt:

- In de ongevallenprocedure zijn 13 ongevalscategorieën gedefinieerd, verdeeld over 4 groepen [7]:
 - o Ongeval met persoonlijk letsel
 - o Ongeval met persoonlijk letsel met straling, maar de veiligheidsfuncties zijn intact;

- De veiligheidsfuncties hebben gefaald;
- Externe gebeurtenis.

Echter in de ongevallenprocedure ontbreekt de argumentatie of verwijzing naar:

- 1) Waarom er voor deze 13 ongevals categorieën is gekozen;
- 2) In hoeverre deze ongevals categorieën maatgevend zijn voor alle mogelijke radiologische en conventionele ongevallen die plaats kunnen vinden.

- Er wordt gesproken over een Emergency Turnback Dosis (ETD) van 500 μ Sv. Bij deze dosis is er sprake van een stralingsincident en moet er gehandeld worden conform ongevalscategorie B1. Het ontbreekt echter aan kaders waarbinnen het toestaan om vrijwillig een dergelijke dosis op te lopen voor het redden van levens, het veiligstellen van installatieonderdelen of om escalatie van de situatie te voorkomen. Ook protocollen rondom de inzetbaarheid van medewerkers die een dergelijke dosis hebben opgelopen ontbreken;

- 5.1.b [Redacted text block consisting of multiple blacked-out lines]

- Tot slot wordt in de ongevallenprocedure de mogelijkheden van lokale BHV inzet niet beschreven. Er zijn scenario's denkbaar waarin bijvoorbeeld alleen VOG2 wel ontruimd moet worden; bijvoorbeeld als gevolg van een bommelding. Hoewel dergelijke scenario's altijd maatwerk vereisen, is onduidelijk in hoeverre COVRA is voorbereid op dergelijke scenario's. Door proactief kaders vast te leggen, kan de hulpverlening effectiever plaatsvinden op de momenten dat dergelijk maatwerk nodig is.

Ook valt op dat er geen overzicht is gevonden van de mogelijke condities waaraan BHV'ers of andere hulpverleners kunnen worden blootgesteld. Hierbij valt te denken aan maximale temperaturen, geluiden, gevaarlijke stoffen, maximale activiteit, etc. Hierdoor is het lastig om de maximale blootstelling waaraan BHV'ers en externe hulpverleners worden blootgesteld zo laag mogelijk te houden. Hoewel er in procedure A1 [19] wordt aangegeven dat het ALARA principe (As Low As Reasonably Achievable) op alle processen van toepassing is, wordt het aanbevolen dit expliciet op te nemen in de ongevalsprocedure.

Tekortkomingen:

- De ongevallenprocedure is incompleet en niet meer actueel. Dit blijkt onder andere uit [o.a. *GSR part 3: 4.15; GSR 7: 4.3, 4.17, 5.23, 5.42, 5.51, 5.55, 6.19, 6.36; SRL: P-13, P-47*):
 - o Het VOG2 is niet opgenomen in de ongevallenprocedure;
 - o Er wordt verwezen naar nationale plannen en instanties verwezen die niet meer bestaan;
 - o Het is onduidelijk hoe de selectie van deze ongevals categorie tot stand is gekomen en of met 13 ongevalscategorieën alle mogelijke ongevallen omvat;
 - o Voor de ETD ontbreken de kaders waarbinnen het is toegestaan om een hogere dosis op te lopen. Evenmin is duidelijk in hoeverre medewerkers die een te hoge dosis hebben opgelopen nog ingezet (mogen) worden tijdens ongevalssituaties;
 - o 5.1.b
 - o Tot slot is niet duidelijk in hoeverre de ongevallenprocedure is besproken met de relevante instanties.
- Een aantal onderwerpen worden zowel in het bedrijfsnoodplan als in de ongevallenprocedure beschreven, waardoor er de kans is op tegenstrijdige informatie. [o.a. *GSR 7: 4.3, 5.23; SRL: P-13, P-47*]

Verbeterpunten:

- Integreer het bedrijfsnoodplan is volledig in het managementsysteem. [o.a. *GSR 7: 4.3, 5.23; SRL: P-13, P-47*]

Aanbevelingen:

- Hoewel het ALARA principe van toepassing is op alle werkzaamheden en processen die er bij COVRA plaatsvinden, komt het niet expliciet terug in de ongevalsprocedure. Het wordt aanbevolen om mogelijke blootstellingsbelastingen van hulpverleners (radiologische, geluid, temperatuur, etc.) op te nemen in de noodorganisatiedocumenten;
- Er zijn geen scenario's beschreven voor een lokale BHV inzet, bijvoorbeeld alleen in het VOG2 of HABOG. Het wordt aanbevolen een aantal kaders voor te bereiden, waarbinnen een lokale BHV inzet plaats kan vinden.

Good practices:

- N.v.t.

2.4 Overige plannen & procedures

Toetsingskader: GSR part 7: H4, H5, H6; SRL: P-46, P-47

Ter aanvulling op de ongevallenprocedure heeft COVRA nog een aantal aanvullende en ondersteunende procedures en documenten opgesteld. Een van de onderliggende procedures is de werkinstructie D12 (decontaminatie) [22]. In dit document is duidelijk beschreven hoe er gereageerd moet worden indien een medewerker in contact is gekomen met chemicaliën; of als er sprake is van een inwendige of uitwendige besmetting van medewerkers door radioactief materiaal. Daarnaast zijn er zowel in het AVG als HABOG ruimten ingericht waar deze personen gewassen en mate van besmetting gemeten kan worden [11].

Voor de andere documenten die de ongevallenprocedure ondersteunen ligt de nadruk op brandbestrijding. Procedure B07 (Brandmelding en Bestrijding) geeft een duidelijk stappenplan voor hoe er in verschillende situaties (dag/nacht/weekend/etc.) vanuit de CCK gereageerd dient te worden [17]. In procedure B27 (het brandweeraanvalsplan) staat de relevante informatie voor de brandweer beschreven [16]. Deze laatste procedure is na de revisie in 2018 gedeeld met de brandweer [21]. M.b.t. procedures B07 en D12 is het echter onduidelijk in hoeverre deze beoordeeld zijn conform het KAM handboek [19].

Zoals blijkt uit het veiligheidsrapport [23] en het onderbouwende rapport ‘selectie begingebourtenissen’ [24], is de gebeurtenisfrequentie van brand relatief (ten opzichte van de andere geselecteerde begingebourtenissen) hoog. Hierdoor is het aannemelijk dat er door een brand radiologische vrijzetting optreedt. Door de huidige procedures worden (beginnende) branden in een zo vroeg mogelijk stadium ontdekt. Hierdoor worden radiologische vrijzetting zoveel mogelijk voorkomen.

Vanwege de risico’s en mogelijke gevolgen van brand, heeft de veiligheidsregio Zeeland met een aantal Zeeuwse bedrijven een overeenkomst afgesloten om een zogenoemde schuimpool op te zetten. Het idee was om gezamenlijk een grote hoeveelheid schuimvormend middel beschikbaar te hebben bij brandbestrijding. Omdat deze schuimpool specifiek is voor BRZO bedrijven met een hoge brandlast, is deze pool niet op COVRA van toepassing [25].

Daarnaast is er gekeken naar documenten waaruit blijkt dat er voorbereidingen zijn getroffen op het moment dat er zich een ongeluk voordoet bij naastgelegen bedrijven. Hierbij valt te denken aan ongelukken bij bijvoorbeeld windturbines in de directe nabijheid van COVRA, Heerema, Zeeland Refineries of bij de kerncentrales van EPZ of ENGIE/Electrabel (Doel, België). De kans is namelijk aanwezig dat COVRA snel moet reageren op voorvallen die zich voordoen op één van deze locaties. Om die reden is er gekeken naar procedures die zijn opgesteld om snel (delen van) installaties of processen veilig te stellen en/of af te schakelen. Het blijkt dat COVRA geen procedures heeft die betrekking hebben

op het veiligstellen van installaties. Een argumentatie waaruit blijkt dat dergelijke procedures niet nodig zijn is evenmin gevonden in het KAM-systeem.

Dergelijke procedures kunnen ook worden gebruikt op het moment dat er sprake is van interne noodsituaties. Hoewel de kans op een emissie naar buiten tijdens een noodsituatie zeer klein is [26], kunnen dergelijke procedures gebruikt worden om:

- Escalatie van de situatie te voorkomen;
- De situatie te stabiliseren;
- Emissies als gevolg van de noodsituatie te voorkomen.

Door het opstellen en oefenen van dergelijke procedures heeft COVRA de mogelijkheid om snel een installatie veilig te stellen. Hierdoor kunnen ernstige(re) schade en mogelijke emissies naar de omgeving zoveel mogelijk verder beperkt worden.

Tekortkomingen:

- Er zijn bij COVRA geen procedures beschikbaar die gebruikt worden om haar installaties veilig te stellen tijdens een incident of ongeval. Indien voor COVRA dergelijke noodprocedures niet van toepassing zijn, ontbreekt het aan de argumentatie waarom dit het geval is [o.a. *GSR par 7: 5.16, 5.25, 6.20; SRL: P-13, P-46*].

Verbeterpunten:

- N.v.t.

Aanbevelingen:

- In het huidige managementsysteem bevinden zich documenten, waarbij onduidelijk is of deze documenten conform COVRA procedure beoordeeld en goedgekeurd zijn. Hierdoor is de status van het betreffende document onduidelijk. Aanbevolen wordt consequent er voor te zorgen dat de status van dergelijke documenten duidelijk is.

Good practices:

- Er wordt adequaat gereageerd op brand(meldingen), waardoor de gevolgen van een mogelijke brand zo beperkt mogelijk worden gehouden.

2.5 Communicatie met en naar externe partijen

Toetsingskader: GSR part 7: H4, H5, H6; SRL: P-13, P-46, P-48

Het is mogelijk dat er zich een situatie voordoet waarop de BHV-organisatie van COVRA niet is uitgerust. In dergelijke situaties zal vanuit de CCK de hulp van externe hulpverleners worden ingeroepen.

Er zijn duidelijke richtlijnen wanneer hulp van externe hulpverleners nodig is op het moment dat er een (beginnende) brand wordt vermoed [17]. Daarnaast beschikken de medewerkers in de CCK over een EHBO diploma ter aanvulling op de BHV training. Als gevolg hiervan kunnen zij een gefundeerd inschatting maken van de ernst van persoonlijk letsel.

Op het moment dat externe hulpverleners bij COVRA aanwezig zijn om te assisteren, zullen zij de leiding over de bestrijding van het ongeval overnemen. COVRA medewerkers zoals BHV'ers en deskundigen zullen in dergelijke gevallen de externe hulpverleners ondersteunen. Hierbij gaat met name om het gidsen van de hulpdiensten, informeren over aantallen (mogelijke) slachtoffers of het delen van relevante informatie omtrent radioactieve materialen of de installaties.

Over dergelijke situaties staat weinig beschreven in de ongevallenprocedure. Er wordt vanuit gegaan dat in goed overleg tussen de betrokken partijen de juiste beslissingen worden genomen. Hierbij gaat het niet alleen over technische inhoudelijke kennis van de installaties maar ook communicatie naar buiten.

Naast het contact met externe hulpverleners is het mogelijk dat COVRA contact met andere externe partijen moet opnemen; bijvoorbeeld de ANVS, Inspectie SZW, Gemeente Borssele en/of de Hoofdingenieur-directeur Rijkswaterstaat. In de ongevallenprocedure staat beschreven op welke momenten contact met welke relevante instantie opgenomen dient te worden. Hierin staat ook beschreven binnen wat voor termijn dit dient te gebeuren en door wie het contact gelegd moet worden. In het zgn. “rode boekje” welke in de CCK aanwezig is staan de contactgegevens van alle mogelijk relevante instanties. Het is echter onduidelijk hoe COVRA heeft geborgd dat de telefoonnummers in het rode boekje worden bijgewerkt en daarmee actueel zijn.

Een van de instanties waarmee in de periode 2009 – 2018 contact is geweest, is de ANVS. COVRA heeft de plicht vanuit haar kernenergievergunning nucleaire incidenten te melden. Echter, als gevolg van haar goed werkgeverschap meldt COVRA ook storingen en onregelmatigheden.

Hieronder staat een overzicht van de meldingen die tussen 2009 en 2020 zijn gemaakt:

- 2009: Besmetting van een aantal ruimtes in het AVG (INES schaal: 0) [27]
- 2010: Cs-137 besmetting aantal ruimtes AVG (INES schaal: 0) [28]
- 2010: Radon besmetting bij de verwerking van actief schroot (INES schaal: 0) [28]
- 2012: Waterstofontwikkeling in de cilinders met hoogradioactief afval (INES schaal: 0) [29]
- 2016: Besmetting van een medewerker en laboratorium tijdens het opruimen van een zuurkast (INES schaal: 0) [30]

In de verslagperiode heeft COVRA tevens storingen gemeld aan ANVS, zonder dat COVRA meldingsplichtig was vanuit de afgesproken categorieën van meldingen.

Bij het verplaatsen van een aantal Syntacsbussen is in 2010 een lichte besmetting met Cs-137 geconstateerd. Deze besmetting is het gevolg van deksels die tijdens het verplaatsen open zijn gegaan. Na het constateren van de besmetting is een schoonmaakactie gestart. Doordat de producent van het afval de interne processen anders heeft ingedeeld, heeft COVRA het verwerkingsproces anders in kunnen delen. Als gevolg hiervan worden vergelijkbare besmettingen in de toekomst voorkomen.

Tijdens het verkleinen van RVS schroot m.b.v. een balenpers, is in 2010 is Ra-226 vrijgekomen. Hierbij hebben twee operators ieder een maximale volgdosis van 0,15 mSv hebben opgelopen. Als gevolg van dit voorval zijn de werkprocedures aangepast. Als gevolg van het voorval is o.a. besloten voor het verkleinen van balen niet langer gebruik te maken van de balenpers. Daarnaast is in de procedures vastgelegd dat er vooraf overleg met de stralingscontroledienst dient te zijn.

Na aanleiding van de waterstofontwikkeling in de cilinders is er in 2012 direct een intern onderzoek gestart naar de oorzaak. Dit onderzoek heeft in 2019 tot een eindrapport geleid [31]. Al eerder is tijdens het onderzoek vastgesteld dat de productie van waterstof niet tot verhoogde veiligheidsrisico's zou leiden. In het eindrapport worden een aantal mogelijke oplossingen uitgewerkt die als doel hebben de waterstofproductie te verminderen. In 2020 worden er vervolgmogelijkheden n.a.v. dit rapport genomen.

Het incident uit 2016 heeft betrekking op om een kleine verspreiding van radioactief materiaal, via de schoen van een medewerker. Er is bij de ANVS melding van het incident gemaakt, waarna maatregelen zijn getroffen om in de toekomst de kans op dergelijke incidenten zo klein mogelijk te maken.

Daarnaast onderhoudt COVRA contacten met onder andere Belgoprocess, ENRESA en Dansk Dekommissionering [11]. Dit overleg vindt 1 tot 2 keer per jaar plaats, waarbij ook veiligheidsrelevante onderwerpen worden besproken. Op deze manier kan COVRA ervaringen delen en ontvangen over incidenten die hebben plaatsgevonden en de best practices van vergelijkbare organisaties implementeren om de veiligheid te verhogen.

Tekortkomingen:

- Het is onduidelijk hoe COVRA borgt dat de inhoud van het rode boekje altijd actueel en accuraat is. Daarbij rekening houdend met beveiligingszaken en privacybescherming.

Verbeterpunten:

- N.v.t.

Aanbevelingen:

- N.v.t.

Good practices:

- Vanuit nucleaire professionaliteit meldt COVRA ook niet-meldingsplichtige storingen aan ANVS.
- COVRA heeft regelmatig contact met zusterorganisaties in het buitenland met onder andere als doel van elkaar te leren.

2.6 Oefeningen van de noodorganisatie

Toetsingskader: GSR part 7: H5, H6; SRL: P-46, P-47, P-48

De BHV-organisatie van COVRA oefenen gemiddeld 2 tot 3 keer per jaar [32]. De inhoud en frequentie van de oefeningen is hierbij gebaseerd op het meerjaren oefenplan uit 2016 [33]. Tijdens de oefeningen wordt vaak samengewerkt met externe hulpverleners zoals de brandweer, ADRZ en ambulancedienst [34] [35] [36]. De oefeningen worden altijd geëvalueerd, waarbij gebruik gemaakt kan worden van het standaard evaluatieformulier FB809. Echter, dit evaluatieformulier is niet gebruikt bij de vier oefeningen die in het kader van deze evaluatie zijn opgevraagd [34] [35] [36] [37]. In plaats daarvan zijn er bij de evaluaties 4 verschillende templates gebruikt, waarbij het niveau van de evaluaties sterk wisselt.

Het valt op dat een groot gedeelte van de oefeningen gebaseerd is op een scenario zijn waarbij een enkel slachtoffer is gevallen en er medische assistentie nodig is [34] [35] [36]. Hoewel het zowel voor de BHV-organisatie als de ambulance dienst belangrijk is dergelijke scenario's te oefenen, blijven andere scenario's onderbelicht. Hierbij valt bijvoorbeeld te denken aan de volledige uitval van de CCK, de dreiging van een overstroming of een calamiteit bij Heerema.

Naast de BHV-organisatie oefent het crisisteam gemiddeld ook 1 tot 2 keer per jaar [32]. Echter, de oefeningen van het crisisteam komen niet naar voren in het meerjaren oefenplan. Daardoor is onduidelijk welke scenario's met welke frequentie door het crisisteam worden geoefend.

Tekortkomingen:

- De oefeningen van het crisisteam ontbreken in het meerjaren oefenplan. [o.a. *GSR part 7: 6.31; SRL: P-47, P-48*].

Verbeterpunten:

- Veel BHV oefeningen draaien om een slachtoffer dat is gevallen waarbij medische assistentie nodig is. Echter, andere mogelijke scenario's lijken zijn niet opgenomen in het meerjaren oefenplan. Aanbevolen wordt om dit wel te doen [o.a. *GSR part 7: 6.31; SRL: P-47, P-48*].

Aanbevelingen:

- De standaardtemplate die beschikbaar is voor de evaluatie van (geplande) BHV inzet wordt niet gebruikt. Aanbevolen wordt om dit wel te doen.

Good practices:

- De BHV-organisatie oefent regelmatig met hulpdiensten van buitenaf.

2.7 Goed werkgeverschap

Toetsingskader: GSR part 3: H4, H5; GSR part 7: H5

Binnen COVRA zijn duidelijke afspraken gemaakt over het gebruik van Persoonlijke Beschermings Middelen (PBM's) [10]. Procedure B06 (Stralingshygiënische voorschriften) [38] als D131 (Persoonlijke beschermingsmiddelen) [39] worden hiervoor gebruikt. Deze procedures gelden zowel voor COVRA medewerkers, externe partijen die op het COVRA terrein aan het werk zijn als bezoekers.

Bij elke ruimte wordt aangegeven wat het stralingsniveau in de desbetreffende ruimte is. Hierdoor is het voor iedereen die de ruimte wil betreden direct duidelijk aan wat voor straling zij worden blootgesteld. Onderdeel van de straling is de radonstraling, die vanwege het veelvuldig gebruik van beton aanwezig is. Meer informatie over de maatregelen die COVRA neemt ter bescherming tegen radon, kan gevonden worden in het SF14-SF15 evaluatierapport.

Vanwege de vele oefeningen die worden gedaan (zie paragraaf 2.6), is het verlenen van spoedeisende hulp goed en strak georganiseerd. De oefeningen verlopen doorgaans soepel. Met zowel de ambulancedienst als het Admiraal De Ruyter Ziekenhuis (ADRZ) zijn afspraken gemaakt wat er moet gebeuren op het moment dat er sprake is van een mogelijk besmet slachtoffer. Wat echter ontbreekt zijn afspraken over zowel de medisch als psychische nazorg voor slachtoffers van stralingsongelukken [40]. Doordat de medische gevolgen van een te hoge dosis zich pas vaak op lange termijn manifesteren is een goede nazorg van belang.

Tekortkomingen:

- N.v.t.

Verbeterpunten:

- Plannen maken over de nazorg voor slachtoffers van (stralings)ongelukken [o.a. *GSR part 7: 5.101*].

Aanbevelingen

- N.v.t.

Good practices:

- Er zijn duidelijke afspraken voor medewerkers, bezoekers en contractors m.b.t. PBM's en stralingshygiëne.
- Er wordt duidelijk aangegeven wat het stralingsniveau in de verschillende ruimtes zijn.

2.8 Onderwerpen opgenomen in de scope

Hieronder wordt puntsgewijs de onderwerpen, zoals gespecificeerd in paragraaf 1.2 aangegeven op welke wijze COVRA hieraan invulling geeft. Hierbij wordt gebruik gemaakt van de resultaten die in eerdere paragrafen van dit hoofdstuk zijn verkregen. Relevante conclusies zullen kort herhaalt worden met een verwijzing naar het desbetreffende hoofdstuk. Eventuele tekortkomingen, verbeterpunten of aanbevelingen zullen niet worden herhaald.

2.8.1 Geschiktheid van on-site middelen en voorzieningen ter ondersteuning van de bedrijfsnoodplannen

In paragraaf 2.2 is de geschiktheid van de on-site beschikbare middelen die gebruikt kunnen worden ter ondersteuning van de bedrijfsnoodplannen geëvalueerd. De beschikbare middelen worden periodiek gecontroleerd, waardoor de juiste werking zoveel mogelijk wordt bevorderd.

Daarnaast zijn in het ontwerp voorzieningen opgenomen die de kans op en de mogelijke gevolgen van een noodsituatie zover als redelijkerwijs mogelijk verkleint respectievelijk beperkt. Voorbeeld hiervan is het bewust minimaliseren van de hoeveelheid brandbare materialen in de gebouwen, het beperkt opslaan van diesel in de gebouwen en het aanbrengen van noodstroomvoorzieningen dragen hieraan bij.

2.8.2 Geschiktheid van on-site technische en operationele ondersteuningscentra

De CCK in het AVG fungeert als zenuwcentrum waar vandaan alle activiteiten gecoördineerd worden. Vanuit de CCK kan het hele COVRA terrein gemonitord worden; inclusief de belangrijkste parameters in het HABOG. Daarnaast beschikt De CCK over een groot aantal communicatiemiddelen, zowel voor gebruik op het COVRA terrein als naar buiten het terrein

5.1.b

[REDACTED] (zie paragraaf 2.2). Daarmee is onduidelijk in hoeverre COVRA op dergelijke scenario's is voorbereid.

2.8.3 De efficiëntie van overleg- en communicatiestructuren tijdens een noodsituatie, met name de interactie met externe organisaties

Op het moment dat het noodzakelijk is dat er assistentie komt van externe hulpverleners, wordt vanuit de CCK contact met de meldkamer van de veiligheidsregio opgenomen. Indien externe hulpverleners worden ingezet, zullen COVRA medewerkers de hulpverleners zoveel mogelijk ondersteunen. De periodieke en gemeenschappelijke zorg dragen voor een zo goed mogelijke samenwerking tussen de verschillende partijen (Zie paragraaf 2.5).

Wat betreft de oefeningen van het crisisteam is onduidelijk in hoeverre zij oefenen met de externe partijen. Hierbij gaat het zowel om operationeel en strategisch oefeningen om de noodsituatie op te lossen.

2.8.4 De inhoud en efficiëntie van trainingen en oefeningen van de bedrijfsnoodplannen en de evaluatierapporten van deze oefeningen

Het Hoofd van de BHV speelt een grote rol door de BHV oefeningen te plannen en organiseren. Er zijn jaarlijks meerdere oefeningen voor de BHV-organisatie; naast jaarlijks minimaal 1 oefening met externe hulpverleners. Hierbij worden verschillende scenario's geoefend, waarbij de nadruk vaak ligt op het verlenen van hulp aan slachtoffers. Andere scenario's lijken weinig tot niet te worden geoefend (Zie paragrafen 2.2 en 2.6).

2.8.5 De instelling van regelmatige evaluaties en updates van de bedrijfsnoodplannen

Zoals eerder in paragrafen 2.3 en 2.4 is beschreven, zijn een aantal voor de noodorganisatie belangrijke documenten van COVRA niet recent bijgewerkt. Voor meer informatie wordt daarom naar de desbetreffende hoofdstukken verwezen.



2.8.6 Wijziging in onderhoud en opslag van middelen en voorzieningen en wijziging in woon- en werkomgeving (industrie) in het gebied rondom de site

Zoals in de paragrafen 2.3 en 2.4 naar voren is gekomen, zijn een aantal belangrijke documenten van COVRA niet recent bijgewerkt. Als gevolg daarvan zijn de beschrijvingen van de omgeving en de daaruit volgende procedures ook niet meer volledig. Het is mogelijk dat het ontbreken van een periodieke review van (belangrijke) documenten hierbij een rol speelt.

3 Conclusies

Tijdens deze evaluatie is er gekeken naar de ongevallenprocedure en onderliggende documenten die aanwezig zijn bij COVRA. Hieronder worden de gevonden tekortkomingen, verbeterpunten, aanbevelingen en good practises gepresenteerd:

Tekortkomingen:

- De ongevallenprocedure is incompleet en niet meer actueel. Dit blijkt onder andere uit:
 - o Het VOG2 is niet opgenomen in de ongevallenprocedure;
 - o Er wordt verwezen naar nationale plannen en instanties verwezen die niet meer bestaan;
 - o Het is onduidelijk hoe de selectie van deze ongevals categorie tot stand is gekomen en of met 13 ongevals categorieën alle mogelijke ongevallen omvat;
 - o Voor de ETD ontbreken de kaders waarbinnen het is toegestaan om een hogere dosis op te lopen. Evenmin is duidelijk in hoeverre medewerkers die een te hoge dosis hebben opgelopen nog ingezet (mogen) worden tijdens ongevalssituaties;
 - o **5.1.b**
[Redacted]
 - o Tot slot is niet duidelijk in hoeverre de ongevallenprocedure is besproken met de relevante instanties.
- Een aantal onderwerpen worden zowel in het bedrijfsnoodplan als in de ongevallenprocedure beschreven, waardoor er de kans is op tegenstrijdige informatie;
- Er zijn bij COVRA geen procedures beschikbaar die gebruikt worden om haar installaties veilig te stellen tijdens een incident of ongeval. Indien voor COVRA dergelijke noodprocedures niet van toepassing zijn, ontbreekt het aan de argumentatie waarom dit het geval is;
- Het is onduidelijk hoe COVRA borgt dat de inhoud van het rode boekje altijd actueel en accuraat is. Daarbij rekening houdend met beveiligingszaken en privacybescherming;
- De oefeningen van het crisisteam ontbreken in het meerjaren oefenplan.

Verbeterpunten:

- Er zijn geen protocollen beschikbaar voor het geval de HABOG controlekamer een gedeelte van de taken van de Centrale controlekamer moet overnemen;
- † Scenario's waarbij de Centrale controlekamer niet langer beschikbaar is en de taken overgenomen moeten worden vanuit de HABOG controlekamer dienen in het oefenplan te worden opgenomen;
- Integreer het bedrijfsnoodplan is volledig in het managementsysteem;

- Veel BHV oefeningen draaien om een slachtoffer dat is gevallen waarbij medische assistentie nodig is. Echter, andere mogelijke scenario's lijken zijn niet opgenomen in het meerjaren oefenplan. Aanbevolen wordt om dit wel te doen;
- Plannen maken over de nazorg voor slachtoffers van (stralings)ongelukken.

Aanbevelingen:

- Het is onduidelijk wat het minimum aantal beschikbare BHV'ers is voor risicovolle werkzaamheden. Het wordt aanbevolen dit wel vast te leggen;
- 5.1.b . Een aanbeveling is om dit proactief wel te doen;
- Hoewel het ALARA principe van toepassing is op alle werkzaamheden en processen die er bij COVRA plaatsvinden, komt het niet expliciet terug in de ongevalsprocedure. Het wordt aanbevolen om mogelijke blootstellingsbelastingen van hulpverleners (radiologische, geluid, temperatuur, etc.) op te nemen in de noodorganisatiedocumenten;
- Er zijn geen scenario's beschreven voor een lokale BHV inzet, bijvoorbeeld alleen in het VOG2 of HABOG. Het wordt aanbevolen een aantal kaders voor te bereiden, waarbinnen een lokale BHV inzet plaats kan vinden;
- In het huidige managementsysteem bevinden zich documenten, waarbij onduidelijk is of deze documenten conform COVRA procedure beoordeeld en goedgekeurd zijn. Hierdoor is de status van het betreffende document onduidelijk. Aanbevolen wordt consequent er voor te zorgen dat de status van dergelijke documenten duidelijk is;
- De standaardtemplate die beschikbaar is voor de evaluatie van (geplande) BHV inzet wordt niet gebruikt. Aanbevolen wordt om dit wel te doen.

Good practices:

- COVRA beschikt over een groot aantal gekwalificeerde BHV'ers;
- Omdat alle informatie en communicatie via de CCK verloopt, wordt de kans op miscommunicatie geminimaliseerd terwijl tegelijkertijd zo efficiënt mogelijk gewerkt kan worden;
- Er wordt adequaat gereageerd op brand(meldingen), waardoor de gevolgen van een mogelijke brand zo beperkt mogelijk worden gehouden;
- Vanuit nucleaire professionaliteit meldt COVRA ook niet-meldingsplichtige storingen aan ANVS;
- COVRA heeft regelmatig contact met zusterorganisaties in het buitenland met onder andere als doel van elkaar te leren;
- De BHV-organisatie oefent regelmatig met hulpdiensten van buitenaf;
- Er zijn duidelijke afspraken voor medewerkers, bezoekers en contractors m.b.t. PBM's en stralingshygiëne;

- Er wordt duidelijk aangegeven wat het stralingsniveau in de verschillende ruimtes zijn.

- [1] WENRA WGWD, „Radioactive Waste Treatment and Conditioning Safety Reference Levels,” april 2018.
- [2] IAEA, „SSG-25: periodic safety review for nuclear power plants,” IAEA, Wenen, 2013.
- [3] ██████████, „COVRA basisdocument,” NRG-24182/18.151197 versie D, Arnhem, 28 oktober 2019.
- [4] Minister van economische zaken, „Besluit: kernenergiewetvergunning verleend aan COVRA N.V. ten behoeve van de uitbreiding van HABOG, wijziging locatie VOG2 en revisie kernenergiewetvergunning van COVRA N.V.,” DGETM-PDNIV/14210039; ministerie van economische zaken, Den Haag, 7 jan 2015.
- [5] IAEA, „GSR part 3: radiation protection and safety of radiation sources,” IAEA, Vienna, 2014.
- [6] IAEA, „GSR part 7: preparedness and respons for a nuclear or radiological emergency,” IAEA, Vienna, 2015.
- [7] Centrale Organisatie voor Radioactief Afval (COVRA), „A4: Incidenten & Ongevallen Regeling COVRA N.V. (Bedrijfsnoodplan),” COVRA, Vlissingen, 2014.
- [8] Centrale Organisatie voor Radioactief Afval (COVRA), „Bedrijfsnoodplan,” COVRA, Vlissingen, 2018.
- [9] Centrale Organisatie voor Radioactief Afval (COVRA), „Integraal Opleidingsplan voor de afdelingen beveiliging, BDV, C&Z, HABOG, O&S, A&F en FD,” COVRA, Vlissingen, 2012.
- [10] ██████████, „Email "Vragen m.b.t. SF13",” 25 November 2019.
- [11] ██████████, „Email "Vragen BHV organisatie COVRA",” 9 December 2019.
- [12] ██████████, „Email "FW: I&O en Bedrijfsnoodplan",” 18 Juli 2019.

- [13] Nuclear Research Group (NRG), „Complementary Safetymargin Assessment COVRA N.V. (HABOG),” NRG, Arnhem, 2013.
- [14] Nuclear Research Group (NRG), „Complementary Safetymargin Assessment COVRA (AVG, COG, LOG and VOG),” NRG, Arnhem, 2015.
- [15] ████████, „" Re: 10EVA COVRA - SF1 en 13,” 28 Mei 2019.
- [16] Centrale Organisatie voor Radioactief Afval (COVRA), „B27: Brandweeraanvalsplan,” COVRA, Vlissingen, 2018.
- [17] Centrale Organisatie voor Radioactief Afval (COVRA), „B07: Brandmelding en Bestrijding,” COVRA, Vlissingen, 2005.
- [18] Centrale Organisatie voor Radioactief Afval (COVRA), „A2: Personeelskwalificatieplan,” COVRA, Vlissingen, 2010.
- [19] Centrale Organisatie voor Radioactief Afval (COVRA), „A1: Het KAM handboek COVRA N.V.,” COVRA, Vlissingen, 2007.
- [20] Centrale Organisatie voor Radioactief Afval (COVRA), „B1: KAM documenten,” COVRA, Vlissingen, 2014.
- [21] ████████, „Email "RE: Vragen m.b.t. 10EVA 2019",” 27 Mei 2019.
- [22] Centrale Organisatie voor Radioactief Afval (COVRA), „D12: Decontaminatie,” COVRA, Vlissingen, 2012.
- [23] COVRA, „Veiligheidsrapport COVRA,” Nieuwland, 2014.
- [24] ████████████████████████, „Selectie van begingeburtenissen voor COVRA,” NRG, Arnhem, 2013.
- [25] ████████, „email RE: 10EVA COVRA extra nodig SF13,” 2020.
- [26] Autoriteit Nucleaire Veiligheid en Stralingsbescherming, „Respondsplan - National Crisisplan Stralingsincidenten,” Ministerie van Infrastructuur en Milieu, Den Haag, 2017.

[40] ██████████ n, „Email "FW: Vragen BHV organisatie COVRA",” 6 Januari 2020.

[41] ██████████, „Evaluatie rapport Safety Factor 1,” NRG 2.4526.10/20.171365, Arnhem, 2020.



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BIJLAGE A. Safety Reference Levels

Hieronder zijn de door WENRA WGWD opgestelde SRL's voor Safety Factor 13 aangegeven. In de bijbehorende tabellen is overgenomen uit:

WENRA safety area	Er zijn een vijftal veiligheidsgebieden (veiligheidsmanagement, proces en product eisen, ontwerp, bedrijfsvoering, veiligheidsverificatie)
WENRA safety issue	per veiligheidsgebied zijn er een aantal veiligheidsthema's benoemd
SRL	het nummer van de Safety Reference Level
Omschrijving	de tekst van de betreffende SRL

Tabel 1: WENRA SRL's waaraan Safety Factor 13 getoetst zullen worden

WENRA safety area	WENRA safety issue	SRL	Omschrijving
Safety management	Responsibility	P-13	The licensee shall establish and maintain emergency preparedness and response plans proportionate to the hazards associated with the facility and activities, and it shall report incidents significant to safety in a timely manner to the regulatory body and other interested parties, as appropriate.
Operation	Emergency preparedness	P-46	Based upon an assessment of reasonably foreseeable events and situations that may require protective measures, the licensee shall develop arrangements for responding effectively to events requiring protective measures at the scene for: <ul style="list-style-type: none"> • regaining control of any emergency arising at the site, including events related to combinations of non-nuclear and nuclear hazards; • preventing or mitigating the consequences; and, • co-operating, where necessary with external emergency response organizations in preventing adverse health effects in workers and the public

<i>WENRA safety area</i>	<i>WENRA safety issue</i>	SRL	Omschrijving
		P-47	<p>The licensee shall:</p> <ul style="list-style-type: none"> • prepare an on-site emergency plan as a basis for the preparation and implementation of emergency measures; • establish the necessary organizational structure for clear allocation of responsibilities, authorities and arrangements for coordinating facility activities and cooperating with emergency response organizations throughout all phases of an emergency; and, • ensure that trained and qualified personnel, together with the facilities and equipment needed to control an emergency, are available should they be required
		P-48	<p>The licensee shall submit to the regulatory body the on-site emergency plan for approval. At regular intervals, the licensee shall carry out emergency exercises, some of which shall include the participation of external emergency response organizations. The plan shall be subject to review and updating in the light of experience gained.</p>

BIJLAGE B. GSR PART 3 hoofdstuk 4 – 5.

Hieronder staan de alle paragrafen van de betreffende hoofdstukken. In de tabel zijn de volgende kolommen opgenomen:

- 1^{ste} kolom de kopteksten uit de IAEA guide en de tekst van de paragrafen.
 2^{de} kolom Indien de betreffende paragraaf niet van toepassing voor COVRA is een motivatie daarvoor ingevuld.

Opgemerkt dient te worden dat alle van toepassing zijnde paragrafen gelden voor de activiteiten in alle gebouwen op het COVRA terrein.

Tabel 2: GSR part 3 hoofdstuk 4-5 waaraan Safety Factor 13 getoetst zal worden

GSR part 3 Hoofdstuk 4 (Emergency Exposure Situations) & Hoofdstuk 5 (Existing Exposure Situations)	Wel of niet van toepassing voor COVRA
EMERGENCY EXPOSURE SITUATIONS	
SCOPE	
4.1. The requirements for emergency exposure situations established in Section 4 apply to activities undertaken in preparedness for and in response to a nuclear or radiological emergency.	Scope beschrijvende tekst.
GENERIC REQUIREMENTS	
Requirement 43: Emergency management system	Grotendeels gelijk aan requirement 1 uit GSR part 7
The government shall ensure that an integrated and coordinated emergency management system is established and maintained.	Overheidstaak
4.2. The government shall ensure that an emergency management system is established and maintained on the territories and within the jurisdiction of the State for the purposes of emergency response to protect human life, health and the environment in the event of a nuclear or radiological emergency.	Overheidstaak
4.3. The emergency management system shall be designed to be commensurate with the results of a hazard assessment [15] and to enable an effective emergency response to reasonably foreseeable events (including very low probability events) in connection with facilities or activities.	
4.4. The emergency management system shall be integrated, to the extent practicable, into an all-hazards emergency management system.	

GSR part 3 Hoofdstuk 4 (Emergency Exposure Situations) & Hoofdstuk 5 (Existing Exposure Situations)	Wel of niet van toepassing voor COVRA
<p>4.5. The emergency management system shall provide for essential elements at the scene, and at the local, national and international level, as appropriate, including the following [15]:</p> <ul style="list-style-type: none"> (a) Hazard assessment; (b) Development and exercising of emergency plans and emergency procedures; (c) Clear allocation of responsibilities to persons and organizations having roles in the arrangements for emergency preparedness and response; (d) Arrangements for efficient and effective cooperation and coordination among organizations; (e) Reliable communication, including public information; (f) Optimized protection strategies for the implementation and the termination of measures for the protection of members of the public who could be subject to exposure in an emergency, including relevant considerations for protection of the environment; (g) Arrangements for the protection of emergency workers; (h) Education and training, including training in radiation protection, of all persons involved in emergency response and exercising of emergency plans and emergency procedures; (i) Preparations for the transition from emergency exposure situation to existing exposure situation; (j) Arrangements for the medical response and the public health response in an emergency; (k) Provision for individual monitoring and environmental monitoring and for dose assessment; (l) Involvement of relevant parties and interested parties. 	f, i & j: Niet van toepassing op COVRA
4.6. The government shall ensure the coordination of its emergency arrangements and capabilities with the relevant international emergency arrangements.	Overheidstaak
PUBLIC EXPOSURE	
Requirement 44: Preparedness and response for an emergency	
The government shall ensure that protection strategies are developed, justified and optimized at the planning stage, and that emergency response is undertaken by their timely implementation.	Overheidstaak
4.7. The government shall ensure that protection strategies are developed, justified and optimized at the planning stage, by using scenarios based on the hazard assessment, for avoiding deterministic effects and reducing the likelihood of stochastic effects due to public exposure.	Overheidstaak.
<p>4.8. Development of a protection strategy shall include, but shall not be limited to, the following three successive steps:</p> <ul style="list-style-type: none"> (1) A reference level expressed in terms of residual dose shall be set, typically an effective dose in the range of 20–100 mSv, that includes dose contributions via all exposure pathways. The protection strategy shall include 	Overheidstaak; Er is overlap met GSR part 7 par 4.28

GSR part 3 Hoofdstuk 4 (Emergency Exposure Situations) & Hoofdstuk 5 (Existing Exposure Situations)	Wel of niet van toepassing voor COVRA
<p>planning for residual doses to be as low as reasonably achievable below the reference level, and the strategy shall be optimized.</p> <p>(2) On the basis of the outcome of the optimization of the protection strategy, using the reference level, generic criteria for particular protective actions and other response actions, expressed in terms of projected dose or of dose that has been received, shall be developed. If the numerical values of the generic criteria³ are exceeded, those protective actions and other response actions, either individually or in combination, shall be implemented.</p> <p>(3) Once the protection strategy has been optimized and a set of generic criteria has been developed, pre-established operational criteria for initiating the different parts of an emergency plan, primarily for the initial phase, shall be derived from the generic criteria. Operational criteria, such as on-scene conditions, operational intervention levels and emergency action levels, shall be expressed in terms of parameters or observable conditions. Arrangements shall be established in advance to revise these operational criteria, as appropriate, in an emergency, with account taken of the prevailing conditions as they evolve.</p>	
4.9. Each protective action shall be justified in the context of the protection strategy.	Overheidstaak
4.10. The government shall ensure that in making arrangements for emergency preparedness and response it is taken into consideration that emergencies are dynamic, that decisions taken early in the emergency response may influence subsequent actions, and that different geographical areas may have different prevailing conditions and there may be different requirements for the response.	Overheidstaak .
<p>4.11. The government shall ensure that the response in an emergency exposure situation is undertaken by the timely implementation of arrangements for emergency response, including but not limited to:</p> <p>(a) Promptly taking protective actions and other response actions to avoid severe deterministic effects on the basis of observed conditions and, if possible, before any exposure occurs. Dose levels required to be used as generic criteria for preventing severe deterministic effects are given in Table IV.1 of Schedule IV (p. 372);</p> <p>(b) Assessing the effectiveness of the protective actions and other response actions taken and modifying them as appropriate;</p> <p>(c) Comparing residual doses with the applicable reference level, giving priority to those groups for whom residual doses exceed the reference level;</p> <p>(d) Implementing further protection strategies as necessary, on the basis of prevailing conditions and available information.</p>	Overheidstaak

³ Table A–1 in the Annex (p. 380) provides a set of generic criteria for use in the protection strategy that are compatible with reference levels within a range of 20–100 mSv, and provides further details for specific actions in different time frames

GSR part 3 Hoofdstuk 4 (Emergency Exposure Situations) & Hoofdstuk 5 (Existing Exposure Situations)	Wel of niet van toepassing voor COVRA
EXPOSURE OF EMERGENCY WORKERS	
Requirement 45: Arrangements for controlling the exposure of emergency workers	
The government shall establish a programme for managing, controlling and recording the doses received in an emergency by emergency workers.	Overheidstaak
4.12. The government shall establish a programme for managing, controlling and recording the doses received in an emergency by emergency workers, which shall be implemented by response organizations and employers.	Overheidstaak
4.13. The response organization and employers responsible for ensuring compliance with the requirements in paras 4.14–4.19 shall be specified in the emergency plan.	
4.14. In an emergency exposure situation, the relevant requirements for occupational exposure in planned exposure situations (paras 3.69–3.116) shall be applied for emergency workers, in accordance with a graded approach, except as required in para. 4.15.	
4.15. Response organizations and employers shall ensure that no emergency worker is subject to an exposure in an emergency in excess of 50 mSv other than: (a) For the purposes of saving life or preventing serious injury; (b) When undertaking actions to prevent severe deterministic effects and actions to prevent the development of catastrophic conditions that could significantly affect people and the environment; or (c) When undertaking actions to avert a large collective dose.	
4.16. In the exceptional circumstances specified in para. 4.15, response organizations and employers shall make all reasonable efforts to keep doses to emergency workers below the values set out in Table IV.2 of Schedule IV (p. 373). In addition, emergency workers undertaking actions as a result of which their doses could approach or exceed the values set out in Table IV.2 of Schedule IV shall do so only when the expected benefits to others would clearly outweigh the risks to the emergency workers.	
4.17. Response organizations and employers shall ensure that emergency workers who undertake actions in which the doses received might exceed 50 mSv do so voluntarily ⁴ ; that they have been clearly and comprehensively informed in advance of the associated health risks, as well as of available measures for protection and safety; and that they are, to the extent possible, trained in the actions that they may be required to take.	

⁴ Table A–1 in the Annex (p. 380) provides a set of generic criteria for use in the protection strategy that are compatible with reference levels within a range of 20–100 mSv, and provides further details for specific actions in different time frames

GSR part 3 Hoofdstuk 4 (Emergency Exposure Situations) & Hoofdstuk 5 (Existing Exposure Situations)	Wel of niet van toepassing voor COVRA
4.18. Response organizations and employers shall take all reasonable steps to assess and record the doses received in an emergency by emergency workers. Information on the doses received and information concerning the associated health risks shall be communicated to the workers involved.	
4.19. Workers who receive doses in an emergency exposure situation shall not normally be precluded from incurring further occupational exposure. However, qualified medical advice shall be obtained before any further occupational exposure if such a worker has received a dose exceeding 200 mSv or at the request of the worker.	
TRANSITION FROM AN EMERGENCY EXPOSURE SITUATION TO AN EXISTING EXPOSURE SITUATION	
Requirement 46: Arrangements for the transition from an emergency exposure situation to an existing exposure situation	
The government shall ensure that arrangements are in place and are implemented as appropriate for the transition from an emergency exposure situation to an existing exposure situation.	Overheidstaak
4.20. The government shall ensure that, as part of its overall emergency preparedness, arrangements are in place for the transition from an emergency exposure situation to an existing exposure situation. The arrangements shall take into account that different geographical areas may undergo the transition at different times. The responsible authority shall take the decision to make the transition to an existing exposure situation. The transition shall be made in a coordinated and orderly manner, by making any necessary transfer of responsibilities between organizations, with the involvement of relevant authorities and interested parties.	Overheidstaak
4.21. Workers undertaking work such as repairs to plant and buildings or activities for radioactive waste management, or undertaking remedial actions for the decontamination of the site and surrounding areas, shall be subject to the relevant requirements for occupational exposure in planned exposure situations stated in Section 3.	Geen bedrijfsactiviteit van COVRA
5. EXISTING EXPOSURE SITUATIONS	
SCOPE	
<p>5.1. The requirements for existing exposure situations in Section 5 apply to:</p> <p>(a) Exposure due to contamination of areas by residual radioactive material deriving from:</p> <ul style="list-style-type: none"> (i) Past activities that were never subject to regulatory control or that were subject to regulatory control but not in accordance with the requirements of these Standards; (ii) A nuclear or radiological emergency, after an emergency has been declared to be ended (as required in para. 4.20). <p>(b) Exposure due to commodities, including food, feed, drinking water and construction materials, that incorporate radionuclides deriving from residual radioactive material as stated in para. 5.1(a).</p> <p>(c) Exposure due to natural sources, including:</p>	<p>COVRA heeft geen bedrijfsactiviteiten die vallen onder (a), (b).</p> <p>Voor (c) (i)-(iii) kan afhankelijk van het radioactieve afval kan gelden dat COVRA daarmee in aanraking komt.</p>

GSR part 3 Hoofdstuk 4 (Emergency Exposure Situations) & Hoofdstuk 5 (Existing Exposure Situations)	Wel of niet van toepassing voor COVRA
(i) ^{222}Rn and its progeny and ^{220}Rn and its progeny, in workplaces other than those workplaces for which exposure due to other radionuclides in the uranium decay chain or the thorium decay chain is controlled as a planned exposure situation, in dwellings and in other buildings with high occupancy factors for members of the public; (ii) Radionuclides of natural origin, regardless of activity concentration, in commodities, including food, feed, drinking water, agricultural fertilizer and soil amendments, and construction materials, and residual radioactive material in the environment; (iii) Materials, other than those stated in (c)(ii) above, in which the activity concentration of no radionuclide in either the uranium decay chain or the thorium decay chain exceeds 1 Bq/g and the activity concentration of ^{40}K does not exceed 10 Bq/g; (iv) Exposure of aircrew and space crew to cosmic radiation.	
GENERIC REQUIREMENTS	
Requirement 47: Responsibilities of the government specific to existing exposure situations	Overheidstaak
The government shall ensure that existing exposure situations that have been identified are evaluated to determine which occupational exposures and public exposures are of concern from the point of view of radiation protection.	Overheidstaak
5.2. The government shall ensure that, when an existing exposure situation is identified, responsibilities for protection and safety are assigned and appropriate reference levels are established.	Overheidstaak
5.3. The government shall include in the legal and regulatory framework for protection and safety (see Section 2) provision for the management of existing exposure situations. The government, in the legal and regulatory framework, as appropriate: (a) Shall specify the exposure situations that are included in the scope of existing exposure situations; ⁵	Overheidstaak

⁵ In the case of exposure due to radon, the types of situation that are included in the scope of existing exposure situations will include exposure in workplaces for which the exposure due to radon is not required by or directly related to the work and for which annual average activity concentrations due to ^{222}Rn might be expected not to exceed the reference level established in accordance with para. 5.27.

GSR part 3 Hoofdstuk 4 (Emergency Exposure Situations) & Hoofdstuk 5 (Existing Exposure Situations)	Wel of niet van toepassing voor COVRA
(b) Shall specify the general principles underlying the protection strategies developed to reduce exposure when remedial actions and protective actions have been determined to be justified; ⁶ (c) Shall assign responsibilities for the establishment and implementation of protection strategies to the regulatory body and to other relevant authorities ⁷ and, as appropriate, to registrants, licensees and other parties involved in the implementation of remedial actions and protective actions; (d) Shall provide for the involvement of interested parties in decisions regarding the development and implementation of protection strategies, as appropriate.	
5.4. The regulatory body or other relevant authority assigned to establish a protection strategy for an existing exposure situation shall ensure that it specifies: a) The objectives to be achieved by means of the protection strategy; b) Appropriate reference levels.	Overheidstaak
5.5. The regulatory body or other relevant authority shall implement the protection strategy, including: (a) Arranging for evaluation of the available remedial actions and protective actions for achieving the objectives, and for evaluation of the efficiency of the actions planned and implemented; (b) Ensuring that information is available to individuals subject to exposure on potential health risks and on the means available for reducing their exposures and the associated risks.	Overheidstaak
PUBLIC EXPOSURE	
Scope	
5.6. The requirements in respect of public exposure in existing exposure situations (paras 5.7–5.23) apply to any public exposure arising from the situations specified in para. 5.1.	Scope beschrijvende tekst
Requirement 48: Justification for protective actions and optimization of protection and safety	Overheidstaak

⁶ Such actions include remedial actions such as the removal or reduction of the source giving rise to the exposure, as well as other longer term protective actions such as restriction of the use of construction materials, restriction of the consumption of foodstuffs and restriction of land use or of access to land or buildings.

⁷ In existing exposure situations that do not fall under the jurisdiction of the regulatory body, another relevant authority such as a health authority may have authority for implementing measures for protection and safety.

GSR part 3 Hoofdstuk 4 (Emergency Exposure Situations) & Hoofdstuk 5 (Existing Exposure Situations)	Wel of niet van toepassing voor COVRA
The government and the regulatory body or other relevant authority shall ensure that remedial actions and protective actions are justified and that protection and safety is optimized.	Overheidstaak
5.7. The government and the regulatory body or other relevant authority shall ensure that the protection strategy for the management of existing exposure situations, established in accordance with paras 5.2 and 5.4, is commensurate with the radiation risks associated with the existing exposure situation; and that remedial actions or protective actions are expected to yield sufficient benefits to outweigh the detriments associated with taking them, including detriments in the form of radiation risks. ⁸	Overheidstaak
5.8. The regulatory body or other relevant authority and other parties responsible for remedial actions or protective actions shall ensure that the form, scale and duration of such actions are optimized. While this optimization process is intended to provide optimized protection for all individuals subject to exposure, priority shall be given to those groups for whom the dose exceeds the reference level. All reasonable steps shall be taken to prevent doses from remaining above the reference levels. Reference levels shall typically be expressed as an annual effective dose to the representative person in the range of 1–20 mSv or other corresponding quantity, the actual value depending on the feasibility of controlling the situation and on experience in managing similar situations in the past.	Overheidstaak
5.9. The regulatory body or other relevant authority shall periodically review the reference levels to ensure that they remain appropriate in the light of the prevailing circumstances.	Overheidstaak
Requirement 49: Responsibilities for remediation of areas with residual radioactive material	Overheidstaak
The government shall ensure that provision is made for identifying those persons or organizations responsible for areas with residual radioactive material; for establishing and implementing remediation programmes and post-remediation control measures, if appropriate; and for putting in place an appropriate strategy for radioactive waste management.	Overheidstaak
5.10. For the remediation of areas with residual radioactive material deriving from past activities or from a nuclear or radiological emergency (para. 5.1(a)), the government shall ensure that provision is made in the framework for protection and safety for: (a) The identification of those persons or organizations responsible for the contamination of areas and those responsible for financing the remediation programme, and the determination of appropriate arrangements for alternative sources of funding if such persons or organizations are no longer present or are unable to meet their liabilities;	Overheidstaak

⁸ The implementation of remedial actions (remediation) does not imply the elimination of all radioactivity or all traces of radioactive substances. The optimization process may lead to extensive remediation but not necessarily to the restoration of previous conditions.

GSR part 3 Hoofdstuk 4 (Emergency Exposure Situations) & Hoofdstuk 5 (Existing Exposure Situations)	Wel of niet van toepassing voor COVRA
<p>(b) The designation of persons or organizations responsible for planning, implementing and verifying the results of remedial actions;</p> <p>(c) The establishment of any restrictions on the use of or access to the areas concerned before, during and, if necessary, after remediation;</p> <p>(d) An appropriate system for maintaining, retrieval and amendment of records that cover the nature and the extent of contamination; the decisions made before, during and after remediation; and information on verification of the results of remedial actions, including the results of all monitoring programmes after completion of the remedial actions.</p>	
<p>5.11. The government shall ensure that a strategy for radioactive waste management is put in place to deal with any waste arising from the remedial actions and that provision for such a strategy is made in the framework for protection and safety.</p>	Overheidstaak
<p>5.12. The persons or organizations responsible for the planning, implementation and verification of remedial actions shall, as appropriate, ensure that:</p> <p>(a) A remedial action plan, supported by a safety assessment, is prepared and is submitted to the regulatory body or other relevant authority for approval.</p> <p>(b) The remedial action plan is aimed at the timely and progressive reduction of the radiation risks and eventually, if possible, at the removal of restrictions on the use of or access to the area.</p> <p>(c) Any additional doses received by members of the public as a result of the remedial actions are justified on the basis of the resulting net benefit, including consideration of the consequent reduction of the annual dose.</p> <p>(d) In the choice of the optimized remediation option:</p> <p>(e) Radiological impacts on people and the environment are considered together with non-radiological impacts on people and the environment, and with technical, societal and economic factors;</p> <p>(f) The costs of the transport and management of radioactive waste, the radiation exposure of and health risks to the workers managing the radioactive waste, and any subsequent public exposure associated with its disposal are all taken into account.</p> <p>(g) A mechanism for public information is in place and interested parties are involved in the planning, implementation and verification of the remedial actions, including any monitoring following remediation.</p> <p>(h) A monitoring programme is established and implemented.</p> <p>(i) A system for maintaining adequate records relating to the existing exposure situation and to actions taken for protection and safety is in place.</p> <p>(j) Procedures are in place for reporting to the regulatory body or other relevant authority on any abnormal conditions relevant to protection and safety.</p>	Overheidstaak

GSR part 3 Hoofdstuk 4 (Emergency Exposure Situations) & Hoofdstuk 5 (Existing Exposure Situations)	Wel of niet van toepassing voor COVRA
<p>5.13. The regulatory body, in accordance with para. 2.29, or other relevant authority shall take responsibility, in particular for:</p> <ul style="list-style-type: none"> (a) Review of the safety assessment submitted by the responsible person or organization, approval of the remedial action plan and of any subsequent changes to the remedial action plan, and granting of any necessary authorization; (b) Establishment of criteria and methods for assessing safety; (c) Review of work procedures, monitoring programmes and records; (d) Review and approval of significant changes to procedures or equipment that may have radiological environmental impacts or that may alter the exposure conditions for workers taking remedial actions or for members of the public; (e) Where necessary, establishment of regulatory requirements for control measures following remediation. 	Overheidstaak
<p>5.14. The person or organization responsible for carrying out the remedial actions:</p> <ul style="list-style-type: none"> (a) Shall ensure that the work, including management of the radioactive waste arising, is conducted in accordance with the remedial action plan; (b) Shall take responsibility for all aspects of protection and safety, including the conduct of a safety assessment; (c) Shall monitor the area regularly during the remediation so as to verify levels of contamination, to verify compliance with the requirements for radioactive waste management, and to enable any unexpected levels of radiation to be detected and the remedial action plan to be modified accordingly, subject to approval by the regulatory body or other relevant authority; (d) Shall perform a radiological survey after completion of remedial actions to demonstrate that the end point conditions, as established in the remedial action plan, have been met; (e) Shall prepare and retain a final remediation report and shall submit a copy to the regulatory body or other relevant authority. 	Overheidstaak
<p>5.15. After the remedial actions have been completed, the regulatory body or other relevant authority:</p> <ul style="list-style-type: none"> (a) Shall review, amend as necessary and formalize the type, extent and duration of any post-remediation control measures already identified in the remedial action plan, with due consideration of the residual radiation risks. (b) Shall identify the person or organization responsible for any post-remediation control measures. (c) Shall, where necessary, impose specific restrictions for the remediated area to control: (d) Access by unauthorized persons; (e) Removal of radioactive material or use of such material, including its use in commodities; (f) Future use of the area, including the use of water resources and its use for the production of food or feed, and the consumption of food from the area. 	Overheidstaak

GSR part 3 Hoofdstuk 4 (Emergency Exposure Situations) & Hoofdstuk 5 (Existing Exposure Situations)	Wel of niet van toepassing voor COVRA
(g) Shall periodically review conditions in the remediated area and, if appropriate, shall amend or remove any restrictions.	
5.16. The person or organization responsible for post-remediation control measures shall establish and maintain, for as long as required by the regulatory body or other relevant authority, an appropriate programme, including any necessary provision for monitoring, to verify the long term effectiveness of the completed remedial actions for areas in which controls are required after remediation.	Overheidstaak
5.17. For those areas with long lasting residual radioactive material, in which the government has decided to allow habitation and the resumption of social and economic activities, the government, in consultation with interested parties, shall ensure that arrangements are in place, as necessary, for the continuing control of exposure with the aim of establishing conditions for sustainable living, including: (a) Establishment of reference levels for protection and safety that are consistent with day to day life; (b) Establishment of an infrastructure to support continuing 'self-help protective actions' in the affected areas, such as by the provision of information and advice, and by monitoring.	Overheidstaak
5.18. The conditions prevailing after the completion of remedial actions, if the regulatory body or other relevant authority has imposed no restrictions or controls, shall be considered to constitute the background conditions for any new facilities and activities or for habitation on the land.	Overheidstaak
Requirement 50: Public exposure due to radon indoors	overheidstaak
The government shall provide information on levels of radon indoors and the associated health risks and, if appropriate, shall establish and implement an action plan for controlling public exposure due to radon indoors.	Overheidstaak
5.19. As part of its responsibilities, as required in para. 5.3, the government shall ensure that: (a) Information is gathered on activity concentrations of radon in dwellings and other buildings with high occupancy factors for members of the public ⁹ through appropriate means, such as representative radon surveys; (b) Relevant information on exposure due to radon and the associated health risks, including the increased risks relating to smoking, is provided to the public and other interested parties.	Overheidstaak

⁹ Buildings with high occupancy factors for members of the public include kindergartens, schools and hospitals.

GSR part 3 Hoofdstuk 4 (Emergency Exposure Situations) & Hoofdstuk 5 (Existing Exposure Situations)	Wel of niet van toepassing voor COVRA
<p>5.20. Where activity concentrations of radon that are of concern for public health are identified on the basis of the information gathered as required in para. 5.19(a), the government shall ensure that an action plan is established comprising coordinated actions to reduce activity concentrations of radon in existing buildings and in future buildings, which includes¹⁰:</p> <p>(a) Establishing an appropriate reference level for ²²²Rn for dwellings and other buildings with high occupancy factors for members of the public, with account taken of the prevailing social and economic circumstances, that in general will not exceed an annual average activity concentration due to ²²²Rn of 300 Bq/m³ ¹¹;</p> <p>(b) Reducing activity concentrations of ²²²Rn and consequent exposures to</p> <p>(c) levels at which protection is optimized;</p> <p>(d) Giving priority to actions to reduce activity concentrations of ²²²Rn in those situations for which such action is likely to be most effective¹²;</p> <p>(e) Including in building codes appropriate preventive measures and corrective actions to prevent the ingress of ²²²Rn and to facilitate further actions wherever necessary.</p>	Overheidstaak
<p>5.21. The government shall assign responsibility for:</p> <p>(a) Establishing and implementing the action plan for controlling public exposure due to ²²²Rn indoors;</p> <p>(b) Determining the circumstances under which actions are to be mandatory or are to be voluntary, with account taken of legal requirements and of the prevailing social and economic circumstances.</p>	Overheidstaak
Requirement 51: Exposure due to radionuclides in commodities	Overheidstaak
The regulatory body or other relevant authority shall establish reference levels for exposure due to radionuclides in commodities.	Overheidstaak

¹⁰ Guidance on the preparation of an action plan for radon is provided in Ref. [6], for example.

¹¹ On the assumption of an equilibrium factor for ²²²Rn of 0.4 and an annual occupancy of 7000 h, the value of activity concentration due to ²²²Rn of 300 Bq/m³ corresponds to an annual effective dose of the order of 10 mSv.

¹² Examples of giving priority to reducing activity concentrations of ²²²Rn in those situations for which such action is likely to be most effective include (i) specifying the levels of activity concentrations of ²²²Rn in dwellings and other buildings with high occupancy factors at which protection can be considered optimized; (ii) identifying radon prone areas; (iii) identifying characteristics of buildings that are likely to give rise to elevated activity concentrations of ²²²Rn; and (iv) identifying and requiring preventive measures for radon in future buildings that can be introduced at relatively low cost.

GSR part 3 Hoofdstuk 4 (Emergency Exposure Situations) & Hoofdstuk 5 (Existing Exposure Situations)	Wel of niet van toepassing voor COVRA
5.22. The regulatory body or other relevant authority shall establish specific reference levels for exposure due to radionuclides in commodities such as construction materials, food and feed, and in drinking water, each of which shall typically be expressed as, or be based on, an annual effective dose to the representative person that generally does not exceed a value of about 1 mSv.	Overheidstaak
5.23. The regulatory body or other relevant authority shall consider the guideline levels for radionuclides in food traded internationally that could contain radioactive substances as a result of a nuclear or radiological emergency, which have been published by the Joint Food and Agriculture Organization of the United Nations/World Health Organization Codex Alimentarius Commission [23]. The regulatory body or other relevant authority shall consider the guideline levels for radionuclides contained in drinking water that have been published by the World Health Organization [24].	Overheidstaak
OCCUPATIONAL EXPOSURE	
Scope	
5.24. The requirements in respect of occupational exposure in existing exposure situations (paras 5.25–5.33) apply to any occupational exposure arising from the situations specified in para. 5.1.	Scope beschrijvende tekst
Requirement 52: Exposure in workplaces	
The regulatory body shall establish and enforce requirements for the protection of workers in existing exposure situations.	
5.25. The requirements in respect of public exposure stated in paras 5.7–5.9 shall be applied for protection and safety for workers in existing exposure situations, other than in those specific situations identified in paras 5.26–5.33.	Scope beschrijvende tekst
Remediation of areas with residual radioactive material	
5.26. Employers shall ensure that the exposure of workers undertaking remedial actions is controlled in accordance with the relevant requirements on occupational exposure in planned exposure situations as established in Section 3.	Geen bedrijfsactiviteit van COVRA
Exposure due to radon in workplaces	
5.27. The regulatory body or other relevant authority shall establish a strategy for protection against exposure due to ²²² Rn in workplaces, including the establishment of an appropriate reference level for ²²² Rn. The reference level for ²²² Rn shall be set at a value that does not exceed an annual average activity concentration of ²²² Rn of 1000 Bq/m ³ , with account taken of the prevailing social and economic circumstances. ¹³	Overheidstaak

¹³ On the assumption of an equilibrium factor for ²²²Rn of 0.4 and an annual occupancy of 2000 h, the value of activity concentration due to ²²²Rn of 1000 Bq/m³ corresponds to an annual effective dose of the order of 10 mSv.

GSR part 3 Hoofdstuk 4 (Emergency Exposure Situations) & Hoofdstuk 5 (Existing Exposure Situations)	Wel of niet van toepassing voor COVRA
5.28. Employers shall ensure that activity concentrations of ²²² Rn in workplaces are as low as reasonably achievable below the reference level established in accordance with para. 5.27, and shall ensure that protection is optimized.	Dit is geen onderdeel van deze safety factor
5.29. If, despite all reasonable efforts by the employer to reduce activity concentrations of radon, the activity concentration of ²²² Rn in workplaces remains above the reference level established in accordance with para. 5.27, the relevant requirements for occupational exposure in planned exposure situations as stated in Section 3 shall apply.	Dit is geen onderdeel van deze safety factor
Exposure of aircrew and space crew due to cosmic radiation	
5.30. The regulatory body or other relevant authority shall determine whether assessment of the exposure of aircrew due to cosmic radiation is warranted.	Geen bedrijfsactiviteit van COVRA
5.31. Where such assessment is deemed to be warranted, the regulatory body or other relevant authority shall establish a framework which shall include a reference level of dose and a methodology for the assessment and recording of doses received by aircrew from occupational exposure to cosmic radiation.	Geen bedrijfsactiviteit van COVRA
<p>5.32. In accordance with para. 5.31:</p> <p>(a) Where the doses of aircrew are likely to exceed the reference level, employers of aircrew:</p> <ul style="list-style-type: none"> (i) Shall assess and keep records of doses; (ii) Shall make records of doses available to aircrew. <p>(b) Employers:</p> <ul style="list-style-type: none"> (i) Shall inform female aircrew of the risk to the embryo or fetus due to exposure to cosmic radiation and of the need for early notification of pregnancy; (ii) Shall apply the requirements of para. 3.114 in respect of notification of pregnancy. 	Geen bedrijfsactiviteit van COVRA
5.33. The regulatory body or other relevant authority shall establish, where appropriate, a framework for radiation protection that applies to individuals in space based activities that is appropriate for the exceptional conditions of space. While the requirements of these Standards in respect of dose limits do not apply to individuals in space based activities, all reasonable efforts shall be made to optimize protection for individuals in space based activities by restricting the doses received by such individuals while not unduly limiting the extent of such activities.	Geen bedrijfsactiviteit van COVRA

BIJLAGE C. GSR PART 7 hoofdstuk 4 – 6.

Hieronder staan de alle paragrafen van de betreffende hoofdstukken. In de tabel zijn de volgende kolommen opgenomen:

1^{ste} kolom de kopteksten uit de IAEA guide en de tekst van de paragrafen.

2^{de} kolom Indien de betreffende paragraaf niet van toepassing voor COVRA is een motivatie daarvoor ingevuld.

Opgemerkt dient te worden dat alle van toepassing zijnde paragrafen gelden voor de activiteiten in alle gebouwen op het COVRA terrein.

Tabel 3: GSR part 7 hoofdstuk 4-6 waaraan Safety Factor 13 getoetst zal worden

GSR part 7 Hoofdstuk 4 (General Requirements); Hoofdstuk 5 (Functional Requirements) & Hoofdstuk 6 (Requirements for Infrastructure)	Wel of niet van toepassing voor COVRA
4. GENERAL REQUIREMENTS	
Requirement 1: The emergency management system	Grotendeels gelijk aan requirement 43 uit GSR part 3
The government shall ensure that an integrated and coordinated emergency management system for preparedness and response for a nuclear or radiological emergency is established and maintained.	Overheidstaak
4.1. The government shall ensure that an emergency management system is established and maintained on the territories of and within the jurisdiction of the State for the purposes of emergency response to protect human life, health, property and the environment in the event of a nuclear or radiological emergency.	Overheidstaak
4.2. The emergency management system shall be designed to be commensurate with the results of the hazard assessment (see paras 4.18–4.26) and shall enable an effective emergency response to reasonably foreseeable events (including very low probability events).	
4.3. The emergency management system shall be integrated, to the extent practicable, into an all-hazards emergency management system (see paras 5.6 and 5.7).	
4.4. The government shall ensure the coordination of and consistency of national emergency arrangements with the relevant international emergency arrangements ¹⁴ .	Overheidstaak
Requirement 2: Roles and responsibilities in emergency preparedness and response	

¹⁴ Arrangements set under the Assistance Convention and under the Early Notification Convention [13] are examples of international emergency arrangements that are relevant for States Parties to these Conventions.

GSR part 7 Hoofdstuk 4 (General Requirements); Hoofdstuk 5 (Functional Requirements) & Hoofdstuk 6 (Requirements for Infrastructure)	Wel of niet van toepassing voor COVRA
The government shall make provisions to ensure that roles and responsibilities for preparedness and response for a nuclear or radiological emergency are clearly specified and clearly assigned.	Overheidstaak
<i>General</i>	
4.5. The government shall make adequate preparations to anticipate, prepare for, respond to and recover from a nuclear or radiological emergency at the operating organization, local, regional and national levels, and also, as appropriate, at the international level. These preparations shall include adopting legislation and establishing regulations for effectively governing the preparedness and response for a nuclear or radiological emergency at all levels (see para. 1.12).	Overheidstaak
4.6. The government shall ensure that arrangements are in place for effectively governing the provision of prompt and adequate compensation of victims for damage due to a nuclear or radiological emergency.	Overheidstaak
4.7. The government shall ensure that all roles and responsibilities for preparedness and response for a nuclear or radiological emergency are clearly allocated in advance among operating organizations, the regulatory body and response organizations ¹⁵ .	Overheidstaak
4.8. The government shall ensure that response organizations, operating organizations and the regulatory body have the necessary human, financial and other resources, in view of their expected roles and responsibilities and the assessed hazards, to prepare for and to deal with both radiological and non-radiological consequences of a nuclear or radiological emergency, whether the emergency occurs within or beyond national borders.	Overheidstaak;
4.9. The government shall ensure that operating organizations, response organizations and the regulatory body establish, maintain and demonstrate leadership in relation to preparedness and response for a nuclear or radiological emergency [14].	Overheidstaak
<i>Coordinating mechanism</i>	
4.10. The government shall establish a national coordinating mechanism ¹⁶ to be functional at the preparedness stage, consistent with its emergency management system, with the following functions: (a) To ensure that roles and responsibilities are clearly specified and are understood by operating organizations, response organizations and the regulatory body (see para. 4.7);	Overheidstaak

¹⁵ This also includes the allocation of roles and responsibilities, as appropriate, among members of the government.

¹⁶ The mechanism for ensuring coordination may differ for different tasks. It may involve an existing body or a newly established body (e.g. a committee consisting of representatives from different organizations and bodies) that has been given the authority to ensure the necessary coordination.

GSR part 7 Hoofdstuk 4 (General Requirements); Hoofdstuk 5 (Functional Requirements) & Hoofdstuk 6 (Requirements for Infrastructure)	Wel of niet van toepassing voor COVRA
<p>(b) To coordinate the hazard assessment within the State (see paras 4.18–4.26) and periodic reviews of the assessed hazards (see para. 4.25);</p> <p>(c) To coordinate and ensure consistency between the emergency arrangements of the various response organizations, operating organizations and the regulatory body at local, regional and national levels under the all-hazards approach, including those arrangements for response to relevant nuclear security events, and, as appropriate, those arrangements of other States and of international organizations;</p> <p>(d) To ensure consistency among requirements for emergency arrangements, contingency plans and security plans of operating organizations specified by the regulatory body and by other competent authorities with responsibilities for regulating nuclear security, as relevant, and to ensure that these arrangements and plans are integrated (see para. 4.14(b));</p> <p>(e) To ensure that appropriate emergency arrangements are in place, both on the site and off the site, as appropriate, in relation to facilities and activities under regulatory control, both within the State and, as relevant, beyond its borders, and also for sources that are not under regulatory control¹⁷;</p> <p>(f) To coordinate arrangements made for enforcing compliance with the national requirements for emergency preparedness and response as established by legislation and regulations (see paras 1.12, 4.5 and 4.12);</p> <p>(g) To coordinate a subsequent analysis of an emergency, including analysis of the emergency response (see Requirement 19);</p> <p>(h) To ensure that appropriate and coordinated programmes of training and exercises are in place and implemented, and that training and exercises are systematically evaluated;</p> <p>(i) To coordinate effective communication with the public in preparedness for a nuclear or radiological emergency.</p>	
<i>Regulatory body</i>	
<p>4.11. The government shall ensure that arrangements for preparedness and response to a nuclear or radiological emergency for facilities and activities under the responsibility of the operating organization are dealt with through the regulatory process.</p>	Overheidstaak
<p>4.12. The regulatory body is required to establish or adopt regulations and guides to specify the principles, requirements and associated criteria for safety upon which its regulatory judgements, decisions and actions are based [7]. These regulations and guides shall include principles, requirements and associated criteria for emergency preparedness and response for the operating organization (see also paras 1.12 and 4.5).</p>	Overheidstaak

¹⁷ ⁶ Examples of sources not under regulatory control are sources that have been abandoned, lost or stolen and sources under governmental control but not under regulatory control.

Examples also include radioactive material that is out of regulatory control as discussed in Ref. [11].

GSR part 7 Hoofdstuk 4 (General Requirements); Hoofdstuk 5 (Functional Requirements) & Hoofdstuk 6 (Requirements for Infrastructure)	Wel of niet van toepassing voor COVRA
4.13. The regulatory body shall require that arrangements for preparedness and response for a nuclear or radiological emergency be in place for the on-site area for any regulated facility or activity that could necessitate emergency response actions. Appropriate emergency arrangements shall be established by the time the source is brought to the site, and complete emergency arrangements shall be in place before the commencement of operation of the facility or commencement of the activity. The regulatory body shall verify compliance with the requirements for such arrangements.	Overheidstaak
4.14. Before commencement of operation of the facility or commencement of the activity, the regulatory body shall ensure, for all facilities and activities under regulatory control that could necessitate emergency response actions, that the on-site emergency arrangements: (a) Are integrated with those of other response organizations, as appropriate; (b) Are integrated with contingency plans in the context of Ref. [9] and with security plans in the context of Ref. [10]; (c) Provide, to the extent practicable, assurance of an effective response to a nuclear or radiological emergency.	Overheidstaak
4.15. The regulatory body shall ensure that the operating organization is given sufficient authority to promptly take necessary protective actions on the site in response to a nuclear or radiological emergency that could result in off-site consequences.	Overheidstaak
<i>Operating organization</i>	
4.16. The operating organization shall establish and maintain arrangements for on-site preparedness and response for a nuclear or radiological emergency for facilities or activities under its responsibility, in accordance with the applicable requirements (see paras 1.12, 4.5 and 4.12).	
4.17. The operating organization shall demonstrate that, and shall provide the regulatory body with an assurance that, emergency arrangements are in place for an effective response on the site to a nuclear or radiological emergency in relation to a facility or an activity under its responsibility.	
Requirement 3: Responsibilities of international organizations in emergency preparedness and response	Overheidstaak
Relevant international organizations shall coordinate their arrangements in preparedness for a nuclear or radiological emergency and their emergency response actions¹⁸.	Overheidstaak
Requirement 4: Hazard assessment	

¹⁸ The Inter-Agency Committee on Radiological and Nuclear Emergencies and its Joint Radiation Emergency Management Plan of the International Organizations are examples of such coordination.

GSR part 7 Hoofdstuk 4 (General Requirements); Hoofdstuk 5 (Functional Requirements) & Hoofdstuk 6 (Requirements for Infrastructure)	Wel of niet van toepassing voor COVRA
The government shall ensure that a hazard assessment is performed to provide a basis for a graded approach in preparedness and response for a nuclear or radiological emergency.	Overheidstaak
4.18. Hazards shall be identified and potential consequences of an emergency shall be assessed to provide a basis for establishing arrangements for preparedness and response for a nuclear or radiological emergency. These arrangements shall be commensurate with the hazards identified and the potential consequences of an emergency.	Overheidstaak
4.19. For the purposes of these safety requirements, assessed hazards are grouped in accordance with the emergency preparedness categories shown in Table 1. The five emergency preparedness categories (hereinafter referred to as ‘categories’) in Table 1 establish the basis for a graded approach to the application of these requirements and for developing generically justified and optimized arrangements for preparedness and response for a nuclear or radiological emergency.	
TABLE 1. EMERGENCY PREPAREDNESS CATEGORIES	
Category	Description
I	Facilities, such as nuclear power plants, for which on-site events ^{19,20} (including those not considered in the design ²¹) are postulated that could give rise to severe deterministic effects ²² off the site that would warrant precautionary urgent protective actions, urgent protective actions or early protective actions, and other response actions to achieve the goals of emergency response in accordance with international standards ²³ , or for which such events have occurred in similar facilities
II	Facilities, such as some types of research reactor and nuclear reactors used to provide power for the propulsion of vessels (e.g. ships and submarines), for which on-site events ^{19,20} are postulated that could give rise to doses to people off the site that would warrant urgent protective actions or early protective actions and other response actions to achieve the goals of emergency response

¹⁹ That is, on-site events involving an atmospheric or aquatic release of radioactive material, or external exposure (due, for example, to a loss of shielding or a criticality event), that originates from a location on the site.

²⁰ Such events include nuclear security events.

²¹ This includes events that are beyond the design basis accidents and, as appropriate, conditions that are beyond design extension conditions.

²² See ‘deterministic effect’ under Definitions.

²³ See the goals of emergency response in para. 3.2 and the generic criteria in Appendix II.

GSR part 7 Hoofdstuk 4 (General Requirements); Hoofdstuk 5 (Functional Requirements) & Hoofdstuk 6 (Requirements for Infrastructure)		Wel of niet van toepassing voor COVRA
	in accordance with international standards ²³ , or for which such events have occurred in similar facilities. Category II (as opposed to category I) does not include facilities for which on-site events (including those not considered in the design) are postulated that could give rise to severe deterministic effects off the site, or for which such events have occurred in similar facilities.	
III	Facilities, such as industrial irradiation facilities or some hospitals, for which on- site events ²⁰ are postulated that could warrant protective actions and other response actions on the site to achieve the goals of emergency response in accordance with international standards ²³ , or for which such events have occurred in similar facilities. Category III (as opposed to category II) does not include facilities for which events are postulated that could warrant urgent protective actions or early protective actions off the site, or for which such events have occurred in similar facilities.	
IV	Activities and acts that could give rise to a nuclear or radiological emergency that could warrant protective actions and other response actions to achieve the goals of emergency response in accordance with international standards ²³ in an unforeseen location. These activities and acts include: (a) transport of nuclear or radioactive material and other authorized activities involving mobile dangerous sources such as industrial radiography sources, nuclear powered satellites or radioisotope thermoelectric generators; and (b) theft of a dangerous source and use of a radiological dispersal device or radiological exposure device ²⁴ . This category also includes: (i) detection of elevated radiation levels of unknown origin or of commodities with contamination; (ii) identification of clinical symptoms due to exposure to radiation; and (iii) a transnational emergency that is not in category V arising from a nuclear or radiological emergency in another State. Category IV represents a level of hazard that applies for all States and jurisdictions.	
V	Areas within emergency planning zones and emergency planning distances ²⁵ in a State for a facility in category I or II located in another State.	
4.20. The government shall ensure that for facilities and activities, a hazard assessment on the basis of a graded approach is performed. The hazard assessment shall include consideration of: (a) Events that could affect the facility or activity, including events of very low probability and events not considered in the design;		

²⁴ A radiological dispersal device is a device to spread radioactive material using conventional explosives or other means. A radiation exposure device is a device with radioactive material designed to intentionally expose members of the public to radiation. They could be fabricated, modified or improvised devices.

²⁵ See para. 5.38.

GSR part 7 Hoofdstuk 4 (General Requirements); Hoofdstuk 5 (Functional Requirements) & Hoofdstuk 6 (Requirements for Infrastructure)	Wel of niet van toepassing voor COVRA
(b) Events involving a combination of a nuclear or radiological emergency with a conventional emergency such as an emergency following an earthquake, a volcanic eruption, a tropical cyclone, severe weather, a tsunami, an aircraft crash or civil disturbances that could affect wide areas and/or could impair capabilities to provide support in the emergency response; (c) Events that could affect several facilities and activities concurrently, as well as consideration of the interactions between the facilities and activities affected; (d) Events at facilities in other States or events involving activities in other States.	
4.21. The government shall ensure that the hazard assessment identifies those facilities and locations at which there is a significant likelihood of encountering a dangerous source that is not under control. ²⁶	Overheidstaak
4.22. The government shall ensure that the hazard assessment includes consideration of the results of threat assessments made for nuclear security purposes [9–11]. ²⁷	Overheidstaak
4.23. In the hazard assessment, facilities and activities, on-site areas, off-site areas and locations shall be identified for which a nuclear or radiological emergency could — with account taken of the uncertainties in and limitations of the information available — warrant any of the following: (a) Precautionary urgent protective actions to avoid or to minimize severe deterministic effects by keeping doses below levels approaching the generic criteria at which urgent protective actions and other response actions are required to be undertaken under any circumstances, with account taken of Appendix II; (b) Urgent protective actions and other response actions to avoid or to minimize severe deterministic effects and to reduce the risk of stochastic effects, with account taken of Appendix II; (c) Early protective actions and other response actions, with account taken of Appendix II; (d) Other emergency response actions such as longer term medical actions, with account taken of Appendix II, and emergency response actions aimed at enabling the termination of the emergency (see Requirement 18); or (e) Protection of emergency workers in accordance with Requirement 11 and with account taken of Appendix I.	Aanvulling op 4.22; dus overheidstaak

²⁶ Examples of such facilities and locations are: scrap metal processing facilities, border crossing points, seaports, airports and abandoned military facilities or other facilities where dangerous sources might have been used in the past.

²⁷ This includes consideration of ‘strategic locations’, i.e. locations of high security interest in the State which are potential targets for attacks using nuclear and other radioactive material and locations for detection of nuclear and other radioactive material that is out of regulatory control, in line with Ref. [11].

GSR part 7 Hoofdstuk 4 (General Requirements); Hoofdstuk 5 (Functional Requirements) & Hoofdstuk 6 (Requirements for Infrastructure)	Wel of niet van toepassing voor COVRA
4.24. The government shall ensure that the hazard assessment also identifies non-radiation-related hazards ²⁸ to people on the site and off the site that are associated with the facility or activity and that may impair the effectiveness of the response actions to be taken.	Overheidstaak
4.25. The government shall ensure that a review of the hazard assessment is performed periodically with the aims of: (a) ensuring that all facilities and activities, on-site areas, off-site areas and locations where events could occur that would necessitate protective actions and other response actions are identified, and (b) taking into account any changes in the hazards within the State and beyond its borders, any changes in assessments of threats for nuclear security purposes, the experience and lessons from research, operation and emergency exercises, and technological developments (see paras 6.30, 6.36 and 6.38). The results of this review shall be used to revise the emergency arrangements as necessary.	Overheidstaak
4.26. The government through the regulatory body shall ensure that operating organizations review appropriately and, as necessary, revise the emergency arrangements (a) prior to any changes in the facility or activity that affect the existing hazard assessment and (b) when new information becomes available that provides insights into the adequacy of the existing arrangements. ²⁹	Overheidstaak
Requirement 5: Protection strategy for a nuclear or radiological emergency	
The government shall ensure that protection strategies are developed, justified and optimized at the preparedness stage for taking protective actions and other response actions effectively in a nuclear or radiological emergency.	Overheidstaak
4.27. The government shall ensure that, on the basis of the hazards identified and the potential consequences of a nuclear or radiological emergency, protection strategies are developed, justified and optimized at the preparedness stage for taking protective actions and other response actions effectively in a nuclear or radiological emergency to achieve the goals of emergency response.	Overheidstaak
4.28. Development of a protection strategy shall include, but shall not be limited to, the following: (1) Consideration shall be given to actions to be taken to avoid or to minimize severe deterministic effects and to reduce the risk of stochastic effects. Deterministic effects shall be evaluated on the basis of relative biological effectiveness (RBE) weighted absorbed dose to a tissue or organ. Stochastic effects in a tissue or organ shall be evaluated on the basis of equivalent dose to the tissue or organ. The detriment associated with the	Overheidstaak; Er is overlap met GSR part 3 par 4.8

²⁸ Examples of non-radiation-related hazards are the release of toxic chemicals, e.g. uranium hexafluoride (UF₆), fires, explosions and floods.

²⁹ Examples of such changes and available information include the movement of irradiated nuclear fuel to a new location, projected flooding, and information on storms or other meteorological hazards.

GSR part 7 Hoofdstuk 4 (General Requirements); Hoofdstuk 5 (Functional Requirements) & Hoofdstuk 6 (Requirements for Infrastructure)	Wel of niet van toepassing voor COVRA
<p>occurrence of stochastic effects in individuals in an exposed population shall be evaluated on the basis of the effective dose.</p> <p>(2) A reference level expressed in terms of residual dose shall be set, typically as an effective dose in the range 20–100 mSv, acute or annual, that includes dose contributions via all exposure pathways. This reference level shall be used in conjunction with the goals of emergency response (see para. 3.2) and the specific time frame in which particular goals are to be achieved.³⁰</p> <p>(3) On the basis of the outcome of the justification and the optimization of the protection strategy, national generic criteria for taking protective actions and other response actions, expressed in terms of projected dose or of dose that has been received, shall be developed with account taken of the generic criteria in Appendix II. If the national generic criteria for projected dose or received dose are exceeded, protective actions and other response actions, either individually or in combination, shall be implemented.</p> <p>(4) Once the protection strategy has been justified and optimized and a set of national generic criteria has been developed, pre-established operational criteria (conditions on the site, emergency action levels (EALs) and operational intervention levels (OILs)) for initiating the different parts of an emergency plan and for taking protective actions and other response actions shall be derived from the generic criteria³¹. Arrangements shall be established in advance to revise these operational criteria, as appropriate, in the course of a nuclear or radiological emergency, with account taken of the prevailing conditions as they evolve.</p>	

³⁰ The application solely of the reference level for effective dose would not be sufficient to develop the protection strategy. Consideration needs to be given to the particular goal to be met in the response, the time to allow for actions to be taken effectively, and the appropriate dose quantity to be used to ensure that organ doses will be kept below those at which protective actions and other response actions are justified (see para. 4.28 (1)). For example, actions to avoid or to minimize severe deterministic effects are to be taken urgently when projected doses expected to be received within a short period of time exceed those given in Table II.1 of Appendix II for the RBE weighted absorbed dose to a tissue or organ. In this case, if such doses are received, then prompt and appropriate medical actions are necessary. Moreover, selection of a particular value (to be used for optimization purposes and for retrospective assessment of the effectiveness of actions and strategy taken) within the proposed range of 20–100 mSv acute or annual effective dose would depend on the phase of the emergency, the practicality of reducing or preventing exposures, and other factors. In the urgent phase of an emergency, an effective dose of 100 mSv, acute or annual, might be justified as one of the dosimetric bases for implementing and optimizing a protection strategy. In the later phases, such as during the transition, an effective dose of 20 mSv per year may be justified as one of the dosimetric bases for implementing and optimizing a protection strategy to enable the transition to an existing exposure situation to be made

³¹ The operational criteria (i.e. operational intervention levels) need to be derived for a representative person with account taken of those members of the public that are most vulnerable to radiation exposure (i.e. pregnant women and children).

GSR part 7 Hoofdstuk 4 (General Requirements); Hoofdstuk 5 (Functional Requirements) & Hoofdstuk 6 (Requirements for Infrastructure)	Wel of niet van toepassing voor COVRA
4.29. Each protective action, in the context of the protection strategy, and the protection strategy itself shall be demonstrated to be justified (i.e. to do more good than harm), with account taken not only of those detriments that are associated with radiation exposure but also of those detriments associated with impacts of the actions taken on public health ³² , the economy, society and the environment.	Overheidstaak
4.30. The government shall ensure that interested parties are involved and are consulted, as appropriate, in the development of the protection strategy.	Overheidstaak
4.31. The government shall ensure that the protection strategy is implemented safely and effectively in an emergency response through the implementation of emergency arrangements, including but not limited to: (a) Promptly taking urgent protective actions and other response actions with account taken of Appendix II to avoid or to minimize severe deterministic effects, if possible, on the basis of observed conditions and before any exposure occurs; (b) Taking early protective actions and other response actions to reduce the risk of stochastic effects with account taken of Appendix II; (c) Providing for registration, health screening and longer term medical follow-up, as appropriate, with account taken of Appendix II; (d) Taking actions to protect emergency workers, with account taken of guidance values provided in Appendix I; (e) Taking actions to mitigate non-radiological consequences, with account taken of Appendix II; (f) Assessing the effectiveness of the actions taken and adjusting them as appropriate on the basis of prevailing conditions and available information as well as the reference level expressed in terms of residual dose; (g) Revising the protection strategy as necessary and its further implementation; (h) Discontinuing protective actions and other response actions when they are (h) no longer justified.	Overheidstaak
5. FUNCTIONAL REQUIREMENTS	
GENERAL	
5.1. The requirements established in this section address the functions that are essential for the emergency response in a nuclear or radiological emergency to be effective and for achieving the goals of emergency response (see para. 3.2).	Beschrijvende tekst
Requirement 6: Managing operations in an emergency response	

³² Examples of such impacts include possible deaths among patients evacuated without the necessary medical care and possible reduced life expectancy due to resettlement.

GSR part 7 Hoofdstuk 4 (General Requirements); Hoofdstuk 5 (Functional Requirements) & Hoofdstuk 6 (Requirements for Infrastructure)	Wel of niet van toepassing voor COVRA
<p>The government shall ensure that arrangements are in place for operations in response to a nuclear or radiological emergency to be appropriately managed.</p>	Overheidstaak
<p>5.2. For facilities in categories I, II and III, arrangements shall be made for the on-site emergency response to be promptly executed and managed without impairing the performance of the continuing operational safety and security functions both at the facility and at any other facilities on the same site.</p> <p>The transition from normal operations to operations under emergency conditions on the site shall be clearly specified and shall be effectively made.</p> <p>The responsibilities of all personnel who would be on the site in an emergency shall be designated as part of the arrangements for this transition. It shall be ensured that the transition to the emergency response and the performance of initial response actions do not impair the ability of operating personnel (such as operating personnel in the control room) to ensure safe and secure operation while taking mitigatory actions.</p>	
<p>5.3. For facilities in categories I, II and III, and, where appropriate, for activities in category IV, arrangements shall be made for an off-site emergency response to be promptly executed, effectively managed and coordinated with an on-site emergency response.</p>	COVRA's verantwoordelijkheid is om afspraken te maken met de daarvoor bestemde organisaties
<p>5.4. For a site where several facilities in categories I and II are collocated, adequate arrangements shall be made to manage the emergency response at all the facilities if each of them is under emergency conditions simultaneously. This shall include arrangements to manage the deployment of and the protection of personnel responding on and off the site (see Requirement 11).</p>	COVRA is geen cat. I of II, dus niet van toepassing.
<p>5.5. For facilities and activities in categories I, II, III and IV, arrangements have to be made, as far as practicable, so that the facility or activity has a nuclear security system or systems [9–11] that would be functional in a nuclear or radiological emergency.</p>	
<p>5.6. Arrangements for response to a nuclear or radiological emergency shall be coordinated and integrated with arrangements at the local, regional and national levels for response to a conventional emergency and to a nuclear security event.³³</p> <p>These arrangements shall take into consideration the fact that the initiator of the nuclear or radiological emergency may not be known early in the response.</p>	Alleen dat deel waar COVRA zelf verantwoordelijk voor is.

³³ The coordination and integration of arrangements for response to a nuclear or radiological emergency with arrangements for response to a nuclear security event includes coordination with and integration of arrangements for response measures such as identification, collection, packaging and transport of evidence contaminated with radionuclides, nuclear forensics and related activities in the context of an investigation into the circumstances surrounding a nuclear security event.

GSR part 7 Hoofdstuk 4 (General Requirements); Hoofdstuk 5 (Functional Requirements) & Hoofdstuk 6 (Requirements for Infrastructure)	Wel of niet van toepassing voor COVRA
5.7. Arrangements shall be made for the establishment and use of a clearly specified and unified command and control system for emergency response under the all-hazards approach as part of the emergency management system (see paras 4.1–4.3). The command and control system shall provide sufficient assurance for effective coordination of the on-site and off-site response. The authority and responsibility for directing the emergency response and for making decisions on emergency response actions to be taken shall be clearly assigned. The responsibility for directing the emergency response and for decision making on emergency response actions to be taken shall be promptly discharged following a notification of an emergency.	
5.8. Arrangements shall be made for obtaining and assessing the information necessary for making decisions on the allocation of resources for all response organizations throughout a nuclear or radiological emergency.	
5.9. For facilities in category I or II and areas in category V, arrangements shall be made for coordinating the emergency response between response organizations (including those of other States) within the emergency planning zones and emergency planning distances (see para. 5.38) and for providing mutual support.	Overheidstaak
5.10. Arrangements shall be made with other States, as appropriate, for coordinated response to a radiological emergency.	Overheidstaak
Requirement 7: Identifying and notifying a nuclear or radiological emergency and activating an emergency response	
The government shall ensure that arrangements are in place for the prompt identification and notification of a nuclear or radiological emergency and for the activation of an emergency response.	Overheidstaak
5.11. An off-site notification point ³⁴ , or more than one, shall be established to receive notification of an actual or potential nuclear or radiological emergency. The notification point(s) shall be maintained in a state of continuous availability to receive any notification or request for support and to respond promptly, or to initiate a preplanned and coordinated off-site emergency response appropriate to the emergency class or the level of emergency response. The notification point(s) shall be able to initiate immediate communication by suitable, reliable and diverse means with the response organizations that are providing support.	Overheidstaak
5.12. For facilities in categories I and II and for areas in category V, the notification point shall be able to initiate immediate communication with the authority that has been assigned the responsibility to decide on and to initiate precautionary urgent protective actions and urgent protective actions off the site (see also para. 5.7).	COVRA is een cat. III faciliteit; daarom niet van toepassing

³⁴ This may be the notification point used to receive notification of and to initiate an off-site emergency response to an emergency of any type (conventional, or nuclear or radiological).

GSR part 7 Hoofdstuk 4 (General Requirements); Hoofdstuk 5 (Functional Requirements) & Hoofdstuk 6 (Requirements for Infrastructure)	Wel of niet van toepassing voor COVRA
<p>5.13. For facilities and locations at which there is a significant likelihood of encountering a dangerous source that is not under control (see para. 4.21), arrangements shall be made to ensure that the on-site managers of operations and other personnel are aware of the indicators of a potential radiological emergency, the appropriate notification, and protective actions and other response actions that are immediately warranted in an emergency. For facilities and locations for which there is a significant likelihood of encountering a dangerous source that is not under control and for an emergency at an unforeseen location, arrangements shall be made to ensure that the local officials responsible for the response and first responders are aware of the indicators of a potential radiological emergency, the appropriate notification, and protective actions and other response actions that are warranted to be taken immediately in an emergency.</p>	<p>Geen bedrijfsactiviteit van COVRA</p>
<p>5.14. The operating organization of a facility or activity in category I, II, III or IV shall make arrangements for promptly classifying, on the basis of the hazard assessment, a nuclear or radiological emergency warranting protective actions and other response actions to protect workers, emergency workers, members of the public and, as relevant, patients and helpers in an emergency, in accordance with the protection strategy (see Requirement 5). This shall include a system for classifying all types of nuclear or radiological emergency³⁵ as follows:</p> <p>(a) <i>General emergency</i> at facilities in category I or II for an emergency that warrants taking precautionary urgent protective actions, urgent protective actions, and early protective actions and other response actions on the site and off the site. Upon declaration of this emergency class, appropriate actions shall promptly be taken, on the basis of the available information relating to the emergency, to mitigate the consequences of the emergency on the site and to protect people on the site and off the site.</p> <p>(b) <i>Site area emergency</i> at facilities in category I or II for an emergency that warrants taking protective actions and other response actions on the site and in the vicinity of the site. Upon declaration of this emergency class, actions shall promptly be taken: (i) to mitigate the consequences of the emergency on the site and to protect people on the site; (ii) to increase the readiness to take protective actions and other response actions off the site if this becomes necessary on the basis of observable conditions, reliable assessments and/or results of monitoring; and (iii) to conduct off-site monitoring, sampling and analysis.</p> <p>(c) <i>Facility emergency</i> at facilities in category I, II or III for an emergency that warrants taking protective actions and other response actions at the facility and Upon declaration of this emergency class, actions shall promptly be taken to mitigate the consequences of the emergency and to protect people at the facility and on the site. Emergencies in this class do not present an off-site hazard.</p>	<p>COVRA is een cat III faciliteit, daarom zijn alleen c en d van toepassing.</p> <p>Een cat IV ongeval is mogelijk bij COVRA als er gedacht wordt aan sabotage/diefstal, maar dat valt buiten de scope van deze evaluatie.</p>

³⁵ The emergency classes may differ from those specified in (a)–(e) provided that emergencies of all these types are included

GSR part 7 Hoofdstuk 4 (General Requirements); Hoofdstuk 5 (Functional Requirements) & Hoofdstuk 6 (Requirements for Infrastructure)	Wel of niet van toepassing voor COVRA
<p>(d) <i>Alert</i> at facilities in category I, II or III for an event that warrants taking actions to assess and to mitigate the potential consequences at the facility. Upon declaration of this emergency class, actions shall promptly be taken to assess and to mitigate the potential consequences of the event and to increase the readiness of the on-site response organizations.</p> <p>(e) <i>Other nuclear or radiological emergency</i>³⁶ for an emergency in category IV that warrants taking protective actions and other response actions at any location. Upon declaration of this emergency class and the level of emergency response, actions shall promptly be taken to mitigate the consequences of the emergency on the site, to protect those in the vicinity (e.g. workers and emergency workers and the public) and to determine where and for whom protective actions and other response actions are warranted.</p>	
<p>5.15. For facilities in category I, II or III and for category IV, arrangements shall be made to review the declared emergency class in the light of any new information and, as appropriate, to revise it.</p>	
<p>5.16. The emergency classification system for facilities and activities in categories I, II, III and IV shall take into account all postulated emergencies, including those arising from events of very low probability.</p> <p>The operational criteria for classification shall include emergency action levels and other observable conditions (i.e. 'observables') and indicators of the conditions at the facility and/or on the site or off the site. The emergency classification system shall be established with the aim of allowing for the prompt initiation of an effective response in recognition of the uncertainty of the available information. It shall be ensured that any process for rating an event on the International Nuclear and Radiological Event Scale (INES) [15] does not delay the emergency classification or emergency response actions.³⁷</p>	
<p>5.17. For facilities and activities in categories I, II and III, and for category IV, arrangements shall be made:</p> <p>(1) to promptly recognize and classify a nuclear or radiological emergency;</p> <p>(2) upon classification, to promptly declare the emergency class and to initiate a coordinated and preplanned on-site response;</p>	<p>1 – 3) COVRA 4) is taak van de overheid.</p>

³⁶ This class covers broad types of emergency (see Table 1 and paras 4.21 and 4.22). A graded approach may need to be taken when postulating emergencies and expected consequences within this class in order to determine the level of emergency response warranted.

³⁷ The emergency classification system is not to be confused with the INES. The INES is a scale developed for use by States solely for the purpose of communicating with the public on the safety significance of events associated with sources of radiation. The INES is not to be used as a basis for emergency response actions.

GSR part 7 Hoofdstuk 4 (General Requirements); Hoofdstuk 5 (Functional Requirements) & Hoofdstuk 6 (Requirements for Infrastructure)	Wel of niet van toepassing voor COVRA
<p>(3) to notify the appropriate notification point (see para. 5.11) and to provide sufficient information for an effective off-site response; and</p> <p>(4) upon notification, to initiate a coordinated and preplanned off-site response, as appropriate, in accordance with the protection strategy.</p> <p>These arrangements shall include suitable, reliable and diverse means of warning persons on the site, of notifying the notification point (see paras 5.41–5.43, 6.22 and 6.34) and of communication between response organizations.</p>	
<p>5.18. In the event of a transnational emergency, the notifying State shall promptly notify³⁸³⁹ the IAEA of the emergency and, either directly or through the IAEA, those States that could be affected by it. The notifying State shall provide information on the nature of the emergency and on its potential transnational consequences, and shall respond to requests from other States and from the IAEA for information for the purposes of mitigating any consequences.</p>	Overheidstaak
<p>5.19. The State shall make known to the IAEA and to other States, directly or through the IAEA, its single warning point responsible for receiving emergency notifications and information from other States and information from the IAEA. This warning point shall be maintained in a state of continuous availability to receive any notification, request for assistance or request for verification and to promptly initiate a response or verification. The State shall promptly inform the IAEA and shall inform other States, directly or through the IAEA, of any changes that occur in respect of the warning point. The State shall make arrangements for promptly notifying and for providing relevant information, directly or through the IAEA, to those States that could be affected by a transnational emergency.</p>	Overheidstaak
<p>5.20. The notifying State shall have arrangements in place for promptly responding to requests from other States or from the IAEA for information in respect of a transnational emergency, in particular with regard to minimizing any consequences. These arrangements shall include making known to the IAEA and to other States, directly or through the IAEA, the notifying State's designated organization(s) for so doing.</p>	Overheidstaak
<p>5.21. Arrangements shall be made for promptly and directly notifying any State within the emergency planning zones and emergency planning distances (see para. 5.38) within which urgent protective actions and early protective actions and other response actions could be required to be taken.</p>	Overheidstaak

³⁸ Such a notification is in accordance with the State's obligations under the general principles and rules of international law and, for the case of a transboundary release that could be of radiological safety significance for another State, it is in accordance with the Early Notification Convention [13].

³⁹ A transnational emergency that is considered to represent a public health emergency of international concern may also be expected to be notified in accordance with the International Health Regulations [16].

GSR part 7 Hoofdstuk 4 (General Requirements); Hoofdstuk 5 (Functional Requirements) & Hoofdstuk 6 (Requirements for Infrastructure)	Wel of niet van toepassing voor COVRA
5.22. Appropriate emergency response actions shall be initiated in a timely manner upon the receipt of a notification from another State or of information from the IAEA on a notification relating to an actual or potential transnational emergency that could have impacts on the State or its nationals.	Overheidstaak
Requirement 8: Taking mitigatory actions	
The government shall ensure that arrangements are in place for taking mitigatory actions in a nuclear or radiological emergency.	Overheidstaak
5.23. The operating organization of a facility or activity in category I, II, III or IV shall promptly decide on and take actions ⁴⁰ on the site that are necessary to mitigate the consequences of a nuclear or radiological emergency involving a facility or an activity under its responsibility.	
5.24. Off-site emergency services shall be made available for the purpose of, and shall be capable of, supporting the on-site emergency response at facilities and activities in category I, II, III or IV. ⁴¹	Overheidstaak
5.25. For facilities in category I, II or III, arrangements shall be made for mitigatory actions to be taken by the operating personnel, in particular: (a) To prevent escalation of an emergency; (b) To return the facility to a safe and stable state; (c) To reduce the potential for, and to mitigate the consequences of, radioactive releases or exposures. These arrangements shall take into account the full range of possible conditions affecting the emergency response, including those resulting from conditions in the facility and those resulting from impacts of postulated natural, human induced or other events and affecting regional infrastructure or affecting several facilities simultaneously. Arrangements shall include emergency operating procedures and guidance for operating personnel on mitigatory actions for severe conditions (for a nuclear power plant, as part of the accident management programme [17]) and for the full range of postulated emergencies, including accidents that are not considered in the design and associated conditions. As far as practicable, the continued functionality of nuclear security system(s) (see Refs [9–11]) needs to be considered in these arrangements.	

⁴⁰ Such actions may include actions with off-site consequences such as discharge of radioactive material to the environment, provided that the appropriate off-site organizations are notified in advance.

⁴¹ This is not to be understood as diminishing the responsibility of the operating organization to have adequate capabilities to respond to an emergency arising in the facility or activity under its responsibility.

GSR part 7 Hoofdstuk 4 (General Requirements); Hoofdstuk 5 (Functional Requirements) & Hoofdstuk 6 (Requirements for Infrastructure)	Wel of niet van toepassing voor COVRA
<p>5.26. The operating organization of a facility or activity in category I, II, III or IV shall assess and determine, at the preparedness stage, when and under what conditions assistance from off-site emergency services may need to be provided on the site, consistent with the hazard assessment and the protection strategy.⁴¹</p>	
<p>5.27. For facilities in category I, II or III, arrangements shall be made, in particular by the operating organization, to provide technical assistance to the operating personnel. On-site teams for mitigating the consequences of an emergency (e.g. damage control, firefighting) shall be available and shall be prepared to perform actions at the facility. Paragraph 5.15 of Safety of Nuclear Power Plants: Design (SSR-2/1) [18] states that: “Any equipment that is necessary for actions to be taken in manual response and recovery processes shall be placed at the most suitable location to ensure its availability at the time of need and to allow safe access to it under the environmental conditions anticipated.” The operating personnel directing migratory actions shall be provided with information and technical assistance to allow them to take actions effectively to mitigate the consequences of the emergency. Arrangements shall be made to obtain support promptly from the emergency services (e.g. law enforcement agencies, medical services and firefighting services) off the site. Off-site emergency services shall be afforded prompt access to the facility, and shall be informed of on-site conditions and provided with instructions and with means for protecting themselves as emergency workers.</p>	
<p>5.28. Arrangements shall be made for the operating organization of an activity in category IV, first responders in an emergency at an unforeseen location, and those personnel at locations where there is a significant likelihood of encountering a dangerous source that is not under control (see para. 4.21) to take promptly all practicable and appropriate actions to mitigate the consequences of a nuclear or radiological emergency. These arrangements shall include providing basic instructions and training in the means of mitigating the potential consequences of a nuclear or radiological emergency (see para. 5.44).</p>	Overheidstaak
<p>5.29. Arrangements shall be made to provide expertise and services in radiation protection promptly to local officials, first responders in an emergency at an unforeseen location and specialized services (e.g. law enforcement agencies) responding to emergencies involving activities and acts in category IV, and to those personnel at locations where there is a significant likelihood of encountering a dangerous source that is not under control (see para. 4.21). This shall include arrangements for on-call advice or other appropriate mechanisms and arrangements to dispatch to the site an emergency team capable of assessing radiation hazards, mitigating radiological consequences and managing the exposure of emergency workers. In addition, arrangements shall be made to determine whether and when additional assistance is necessary and to determine how to obtain such assistance (see paras 5.24 and 5.94).</p>	Overheidstaak
<p>5.30. Arrangements shall be made to initiate a prompt search in the event that a dangerous source could possibly be in the public domain as a result of its loss or unauthorized removal (see para. 5.47).</p>	Beveiliging is geen onderdeel van deze 10EVA

GSR part 7 Hoofdstuk 4 (General Requirements); Hoofdstuk 5 (Functional Requirements) & Hoofdstuk 6 (Requirements for Infrastructure)	Wel of niet van toepassing voor COVRA
Requirement 9: Taking urgent protective actions and other response actions	
The government shall ensure that arrangements are in place to assess emergency conditions and to take urgent protective actions and other response actions effectively in a nuclear or radiological emergency.	Overheidstaak
5.31. Arrangements shall be made so that the magnitudes of hazards and the possible development of hazardous conditions are assessed initially and throughout a nuclear or radiological emergency in order to promptly identify, characterize or anticipate, as appropriate, new hazards or the extent of hazards and to revise the protection strategy.	
5.32. The operating organization of a facility in category I, II or III shall make arrangements to promptly assess and anticipate: (a) Abnormal conditions at the facility; (b) Exposures and radioactive releases and releases of other hazardous material; (c) Radiological conditions on the site and, as appropriate, off the site; (d) Any exposures or potential exposures of workers and emergency workers, the public and, as relevant, patients and helpers in an emergency.	Het tweede deel van zowel punt c ("off-site") als d ("the public and, as relevant, patients and helpers in an emergency") zijn niet van toepassing. Hierbij gaat het om ongevallen die invloed hebben buiten het terrein van COVRA. Op het moment dat dergelijke situaties zich voordoen, neemt de overheid een leidende rol op zich.
5.33. These assessments as stated in para. 5.32 shall be used: (a) For deciding on mitigatory actions to be taken by the operating personnel; (b) As a basis for emergency classification (see para. 5.14); (c) For deciding on protective actions and other response actions to be taken on the site, including those for the protection of workers and emergency workers; (d) For deciding on protective actions and other response actions to be taken off the site; (e) Where appropriate, to identify those individuals who could potentially have been exposed on the site at levels requiring appropriate medical attention in accordance with Appendix II.	d) is niet van toepassing, omdat de verantwoordelijk dan ligt bij de externe hulpdiensten.
5.34. These arrangements as stated in para. 5.32 shall include the use of pre-established operational criteria in accordance with the protection strategy (see para. 4.28(4)) and provision for access to instruments displaying or measuring those parameters that can readily be measured or observed in a nuclear or radiological emergency. In these arrangements, the expected response of instrumentation and of structures, systems and components at the facility under emergency conditions shall be taken into account.	Meenemen bij 5.32 (a), (b) en 1st deel (c)

GSR part 7 Hoofdstuk 4 (General Requirements); Hoofdstuk 5 (Functional Requirements) & Hoofdstuk 6 (Requirements for Infrastructure)	Wel of niet van toepassing voor COVRA
<p>5.35. The operating organization for activities in category IV shall make arrangements to assess promptly the extent and/or the significance of any abnormal conditions on the site, any exposures or any contamination. These assessments shall be used:</p> <ul style="list-style-type: none"> (a) For initiating the mitigatory actions; (b) As a basis for protective actions and other response actions to be taken on the site; (c) For determining the level for emergency response and for communicating the extent of the hazards to the appropriate off-site response organizations. <p>These arrangements shall include the use of pre-established operational criteria in accordance with the protection strategy (see para. 4.28(4)).</p>	<p>Een cat IV ongeval is mogelijk bij COVRA als er gedacht wordt aan sabotage/diefstal. Dergelijke scenario's vallen buiten de scope van deze evaluatie.</p>
<p>5.36. Arrangements shall be made such that information on emergency conditions, assessments and protective actions and other response actions that have been recommended and have been taken is promptly made available, as appropriate, to all relevant response organizations and to the IAEA throughout the emergency.</p>	<p>COVRA communiceert met de overheid (veiligheidsregio, ANVS). De IAEA wordt geïnformeerd door ANVS.</p>
<p>5.37. Arrangements shall be made for actions to save human life or to prevent serious injury to be taken without any delay on the grounds of the possible presence of radioactive material (see paras 5.39 and 5.64). These arrangements shall include providing first responders in an emergency at an unforeseen location with information on the precautions to take in giving first aid or in transporting an individual with possible contamination.</p>	
<p>5.38. For facilities in category I or II, arrangements shall be made for effectively making decisions on and taking urgent protective actions, early protective actions and other response actions⁴² off the site in order to achieve the goals of emergency response, on the basis of a graded approach and in accordance with the protection strategy. The arrangements shall be made with account taken of the uncertainties in and limitations of the information available when protective actions and other response actions have to be taken to be effective, and shall include the following:</p>	<p>COVRA is geen cat. I of II faciliteit en het is een overheidstaak</p>

⁴² Although defined under this overarching requirement, emergency planning zones and emergency planning distances are applicable for both urgent protective actions and early protective actions and other response actions. Within emergency planning zones, the main focus is on taking precautionary urgent protective actions, urgent protective actions and other response actions. However, within emergency planning distances, urgent decisions may be warranted, as a precaution, to prevent inadvertent ingestion and to restrict the consumption of food, milk and drinking water that could be directly contaminated following a significant release of radioactive material to the environment and then consumed.

GSR part 7 Hoofdstuk 4 (General Requirements); Hoofdstuk 5 (Functional Requirements) & Hoofdstuk 6 (Requirements for Infrastructure)	Wel of niet van toepassing voor COVRA
<p>(a) The specification of off-site emergency planning zones and emergency planning distances⁴³ for which arrangements shall be made at the preparedness stage for taking protective actions and other response actions effectively. These emergency planning zones and emergency planning from those specified provided that, at the preparedness stage, such areas and distances are designated and arrangements are made to effectively take precautionary urgent protective actions, urgent protective actions and early protective actions and other response actions within these areas and distances in order to achieve the goals of emergency response distances shall be contiguous across national borders, where appropriate, and shall include.</p> <p>(i) A precautionary action zone (PAZ), for facilities in category I, for which arrangements shall be made for taking urgent protective actions and other response actions, before any significant release⁴⁴ of radioactive material occurs, on the basis of conditions at the facility (i.e. conditions leading to the declaration of a general emergency; see para. 5.14), in order to avoid or to minimize severe deterministic effects.</p> <p>(ii) An urgent protective action planning zone (UPZ), for facilities in category I or II, for which arrangements shall be made to initiate urgent protective actions and other response actions, if possible before any significant release of radioactive material occurs, on the basis of conditions at the facility (i.e. conditions leading to the declaration of a general emergency; see para. 5.14), and after a release occurs, on the basis of monitoring and assessment of the radiological situation off the site, in order to reduce the risk of stochastic effects.⁴⁵ Any such actions shall be taken in such a way as not to delay the implementation of precautionary urgent protective actions and other response actions within the precautionary action zone.</p> <p>(iii) An extended planning distance (EPD) from the facility, for facilities in category I or II (beyond the urgent protective action planning zone), for which arrangements shall be made to conduct monitoring and assessment of the radiological situation off the site in order to identify areas, within a period of time that would</p>	

⁴³ The off-site emergency planning zones and emergency planning distances may differ

⁴⁴ A significant release of radioactive material is a radioactive release that could lead to severe deterministic effects off the site and thus warrants taking protective actions or other response actions off the site.

⁴⁵ Taking actions within the urgent protective action planning zone in order to reduce the risk of stochastic effects would not mean that no severe deterministic effects could possibly be observed within the urgent protective action planning zone. However, any severe deterministic effects are most likely to occur within the precautionary action zone.

GSR part 7 Hoofdstuk 4 (General Requirements); Hoofdstuk 5 (Functional Requirements) & Hoofdstuk 6 (Requirements for Infrastructure)	Wel of niet van toepassing voor COVRA
<p>allow the risk of stochastic effects in the areas to be effectively reduced by taking protective actions and other response actions within a day to a week or to a few weeks following a significant radioactive release.</p> <p>(iv) An ingestion and commodities planning distance (ICPD) from the facility, for facilities in category I or II (beyond the extended planning distance), for which arrangements shall be made to take responseactions (1) for protecting the food chain and water supply⁴⁶ as well as for protecting commodities other than food from contamination following a significant radioactive release and (2) for protecting the public from the ingestion of food, milk and drinking water and from the use of commodities other than food with possible contamination following a significant radioactive release.</p> <p>(b) Criteria, based on the emergency classification and on conditions at the facility and off the site (see paras 4.28(3), 4.28(4), 5.14 and 5.15), for initiating and for adjusting urgent protective actions and other response actions within the emergency planning zones and emergency planning distances, in accordance with the protection strategy.</p> <p>(c) Authority and responsibility to provide sufficient and updated information to the notification point at any time to allow for an effective off-site emergency response.</p>	
<p>5.39. Within the emergency planning zones and emergency planning distances, arrangements shall be made for taking appropriate protective actions and other response actions effectively, as necessary, promptly upon the notification of a nuclear or radiological emergency. These arrangements shall include arrangements for:</p> <p>(a) Prompt exercise of authority and discharge of responsibility for making decisions to initiate protective actions and other response actions upon notification of an emergency (see para. 5.12);</p> <p>(b) Warning the permanent population, transient population groups and special population groups or those responsible for them and warning special facilities;</p> <p>(c) Taking urgent protective actions and other response actions such as evacuation, restrictions on the food chain and on water supply, prevention of inadvertent ingestion, restrictions on the consumption of food, milk and drinking water and on the use of commodities, decontamination of evacuees, control of access and traffic restrictions;</p> <p>(d) Protection of emergency workers and helpers in an emergency.</p> <p>The arrangements shall be coordinated with all jurisdictions (including, to the extent practicable, jurisdictions beyond national borders, where relevant) within any emergency planning zone or distance. These arrangements shall ensure that services necessary for ensuring public safety (e.g. rescue services and health services for the care of</p>	Overheidstaak

⁴⁶‘Water supply’ refers to water supplies that use rainwater or other untreated surface water.

GSR part 7 Hoofdstuk 4 (General Requirements); Hoofdstuk 5 (Functional Requirements) & Hoofdstuk 6 (Requirements for Infrastructure)	Wel of niet van toepassing voor COVRA
critically ill patients) are provided continuously throughout the emergency, including during the period when protective actions and other response actions are being taken.	
5.40. Within emergency planning zones and emergency planning distances, arrangements shall be made for the timely monitoring and assessment of contamination, radioactive releases and exposures for the purpose of deciding on or adjusting the protective actions and other response actions that have to be taken or that are being taken. These arrangements shall include the use of pre-established operational criteria in accordance with the protection strategy (see para. 4.28(4)).	Overheidstaak
5.41. The operating organization of a facility in category I, II or III shall make arrangements to ensure protection and safety for all persons on the site in a nuclear or radiological emergency. These shall include arrangements to do the following: (a) To notify all persons on the site of an emergency on the site; (b) For all persons on the site to take appropriate actions immediately upon notification of an emergency; (c) To account for those persons on the site and to locate and recover those persons unaccounted for; (d) To provide immediate first aid; (e) To take urgent protective actions.	
5.42. Arrangements as stated in para. 5.41 shall also include ensuring the provision, for all persons present in the facility and on the site, of: (a) Suitable assembly points, provided with continuous radiation monitoring; (b) A sufficient number of suitable escape routes; (c) Suitable and reliable alarm systems and other means for warning and instructing all persons present under the full range of emergency conditions.	
5.43. The operating organization of a facility in category I, II or III shall ensure that suitable, reliable and diverse means of communication are available at all times, under the full range of emergency conditions, for use in taking protective actions and other response actions on the site and for communication with off-site officials responsible for taking protective actions and other response actions off the site or within any emergency planning zones or emergency planning distances.	
5.44. Operating personnel for activities in category IV, first responders in an emergency at an unforeseen location and those personnel at locations where there is a significant likelihood of encountering a dangerous source that is not under control (see para. 4.21) shall be provided with guidance and training on taking urgent protective actions and other response actions. This shall include guidance and training on the approximate radius of the inner cordoned off area in which urgent protective actions and other response actions would initially be taken and on the adjustment of this area on the basis of observed or assessed conditions on the site.	Een cat. IV ongeval is mogelijk bij COVRA als er gedacht wordt aan sabotage/diefstal, maar dat valt buiten de scope van deze 10EVA

GSR part 7 Hoofdstuk 4 (General Requirements); Hoofdstuk 5 (Functional Requirements) & Hoofdstuk 6 (Requirements for Infrastructure)	Wel of niet van toepassing voor COVRA
Requirement 10: Providing instructions, warnings and relevant information to the public for emergency preparedness and response	
The government shall ensure that arrangements are in place to provide the public who are affected or are potentially affected by a nuclear or radiological emergency with information that is necessary for their protection, to warn them promptly and to instruct them on actions to be taken.	Overheidstaak
<p>5.45. For facilities in category I or II and areas in category V, arrangements shall be made to provide the permanent population, transient population groups and special population groups or those responsible for them and special facilities within the emergency planning zones and emergency planning distances (see para. 5.38), before operation and throughout the lifetime of the facility, with information on the response to a nuclear or radiological emergency. This information shall include information on the potential for a nuclear or radiological emergency, on the nature of the hazards, on how people would be warned or notified, and on the actions to be taken in such an emergency. The information shall be provided in the languages mainly spoken by the population residing within the emergency planning zones and emergency planning distances. The effectiveness of these arrangements for public information shall be periodically assessed.</p>	<p>COVRA is geen cat. I of II faciliteit.</p> <p>COVRA ligt in binnen de noodplanningszone van EPZ en DOEL (cat. V).</p> <p>Bij een dergelijke situatie gaat alle coördinatie via het nationale crisisteam.</p>
<p>5.46. For facilities in category I or II and in areas in category V, arrangements shall be made to register those members of the public in special population groups and, as appropriate, those responsible for them, and to promptly issue them and the permanent population and transient population groups, as well as special facilities in the emergency planning zones and emergency planning distances, with a warning and with instructions to be followed upon declaration of a general emergency (see para. 5.14). This shall include providing instructions on the actions to be taken in the languages mainly spoken by the population residing within these emergency planning zones and emergency planning distances (see para. 5.38).</p>	<p>COVRA is geen cat. I of II faciliteit. COVRA ligt in binnen de noodplanningszone van EPZ en DOEL (cat. V).</p> <p>Bij een dergelijke situatie gaat alle coördinatie via het nationale crisisteam.</p>
<p>5.47. For facilities in category III and category IV, arrangements shall be made to provide the public with information and instructions in order to identify and locate people who may have been affected by a nuclear or radiological emergency and who may need response actions such as decontamination, medical examination or health screening. These arrangements shall include arrangements for issuing a warning to the public and providing information in the event that a dangerous source could be in the public domain as a consequence of its loss or unauthorized removal.</p>	<p>COVRA is categorie III. Echter is de communicatie naar buiten toe een overheidstaak indien er sprake is van een off-site event.</p>

GSR part 7 Hoofdstuk 4 (General Requirements); Hoofdstuk 5 (Functional Requirements) & Hoofdstuk 6 (Requirements for Infrastructure)	Wel of niet van toepassing voor COVRA
5.48. Arrangements shall be made by response organizations in a State to promptly provide information and advice to its nationals and to those people with interests in other States ⁴⁷ in the event of a nuclear or radiological emergency declared beyond national borders, with due account taken of the response actions recommended in the State in which the emergency occurs as well as in the State(s) affected by that emergency (see paras 5.73 and 6.14).	Overheidstaak
Requirement 11: Protecting emergency workers and helpers in an emergency	
The government shall ensure that arrangements are in place to protect emergency workers and to protect helpers in a nuclear or radiological emergency.	Overheidstaak
5.49. Arrangements shall be made to ensure that emergency workers are, to the extent practicable, designated in advance and are fit for the intended duty. These arrangements shall include health surveillance for emergency workers for the purpose of assessing their initial fitness and continuing fitness for their intended duties (see also GSR Part 3 [8]).	
5.50. Arrangements shall be made to register and to integrate into operations in an emergency response those emergency workers who were not designated as such in advance of a nuclear or radiological emergency and helpers in an emergency. This shall include designation of the response organization(s) responsible for ensuring protection of emergency workers and protection of helpers in an emergency.	
5.51. The operating organization and response organizations shall determine the anticipated hazardous conditions, both on the site and off the site, in which emergency workers might have to perform response functions in a nuclear or radiological emergency in accordance with the hazard assessment and the protection strategy.	
5.52. The operating organization and response organizations shall ensure that arrangements are in place for the protection of emergency workers and protection of helpers in an emergency for the range of anticipated hazardous conditions in which they might have to perform response functions. These arrangements, as a minimum, shall include: (a) Training those emergency workers designated as such in advance; (b) Providing emergency workers not designated in advance and helpers in an emergency immediately before the conduct of their specified duties with instructions on how to perform the duties under emergency conditions ('just in time' training); (c) Managing, controlling and recording the doses received; (d) Provision of appropriate specialized protective equipment and monitoring equipment;	

⁴⁷ Examples of people with interests in other States include people travelling, people working and/or living abroad, importers and exporters, and people working in companies operating abroad.

GSR part 7 Hoofdstuk 4 (General Requirements); Hoofdstuk 5 (Functional Requirements) & Hoofdstuk 6 (Requirements for Infrastructure)	Wel of niet van toepassing voor COVRA
(e) Provision of iodine thyroid blocking, as appropriate, if exposure due to radioactive iodine is possible; (f) Obtaining informed consent to perform specified duties, when appropriate; (g) Medical examination, longer term medical actions and psychological counselling, as appropriate.	
5.53. The operating organization and response organizations shall ensure that all practicable means are used to minimize exposures of emergency workers and helpers in an emergency in the response to a nuclear or radiological emergency (see para. I.2 of Appendix I), and to optimize their protection.	
5.54. In a nuclear or radiological emergency, the relevant requirements for occupational exposure in planned exposure situations established in GSR Part 3 [8] shall be applied, on the basis of a graded approach, for emergency workers, except as required in para. 5.55.	
5.55. The operating organization and response organizations shall ensure that no emergency worker is subject to an exposure in an emergency that could give rise to an effective dose in excess of 50 mSv other than: (1) For the purposes of saving human life or preventing serious injury; (2) When taking actions to prevent severe deterministic effects or actions to prevent the development of catastrophic conditions that could significantly affect people and the environment; (3) When taking actions to avert a large collective dose.	
5.56. For the exceptional circumstances of para. 5.55, national guidance values shall be established for restricting the exposures of emergency workers, in accordance with Appendix I.	Overheidstaak
5.57. The operating organization and response organizations shall ensure that emergency workers who undertake emergency response actions in which doses received might exceed an effective dose of 50 mSv do so voluntarily ⁴⁸ ; that they have been clearly and comprehensively informed in advance of associated health risks as well as of available protective measures; and that they are, to the extent possible, trained in the actions that they might be required to take. Emergency workers not designated as such in advance shall not be the first emergency workers chosen for taking actions that could result in their doses exceeding the guidance values of dose for lifesaving actions, as given in Appendix I. Helpers in an emergency shall not be allowed to take actions that could result in their receiving doses in excess of an effective dose of 50 mSv.	

⁴⁸ The voluntary basis for response actions by emergency workers is usually covered in the emergency arrangements.

GSR part 7 Hoofdstuk 4 (General Requirements); Hoofdstuk 5 (Functional Requirements) & Hoofdstuk 6 (Requirements for Infrastructure)	Wel of niet van toepassing voor COVRA
5.58. Arrangements shall be made to assess as soon as practicable the individual doses received in a response to a nuclear or radiological emergency by emergency workers and helpers in an emergency and, as appropriate, to restrict further exposures in the response to the emergency (see Appendix I).	
5.59. Emergency workers and helpers in an emergency shall be given appropriate medical attention for doses received in a response to a nuclear or radiological emergency (see Appendix II) or at their request.	
5.60. Emergency workers who receive doses in a response to a nuclear or radiological emergency shall normally not be precluded from incurring further occupational exposure. However, qualified medical advice ⁴⁹ shall be obtained before any further occupational exposure occurs if an emergency worker has received an effective dose exceeding 200 mSv, or at the request of the emergency worker.	
5.61. Information on the doses received in the response to a nuclear or radiological emergency and information on any consequent health risks shall be communicated, as soon as practicable, to emergency workers and to helpers in an emergency.	Artsen zijn bevoegd om gedetailleerde informatie over gezondheidsrisico's te verstrekken; COVRA niet
Requirement 12: Managing the medical response in a nuclear or radiological emergency	Overheidstaak
The government shall ensure that arrangements are in place for the provision of appropriate medical screening and triage, medical treatment and longer term medical actions for those people who could be affected in a nuclear or radiological emergency.	Overheidstaak
5.62. On the presentation by an individual of clinical symptoms of radiation exposure or other indications associated with a possible nuclear or radiological emergency, the medical personnel or other responsible parties who identify the clinical symptoms or other indications shall notify the appropriate local or national officials and shall take response actions as appropriate.	Overheidstaak

⁴⁹ Such qualified medical advice is intended for assessing the continuing fitness of workers for their intended tasks involving occupational exposure in line with GSR Part 3 [8]. In line with para. 5.59 of this Safety Requirements publication, any emergency worker is to be given appropriate medical attention for doses received. To illustrate this, the generic criterion for dose that is received (100 mSv effective dose in a month), as provided in Table II.2 of Appendix II, will indicate that an emergency worker receiving such a dose needs to be registered and subjected to health screening and that the emergency worker will then need appropriate longer term medical follow-up in order to detect radiation induced health effects early and to treat them effectively.

GSR part 7 Hoofdstuk 4 (General Requirements); Hoofdstuk 5 (Functional Requirements) & Hoofdstuk 6 (Requirements for Infrastructure)	Wel of niet van toepassing voor COVRA
5.63. Arrangements shall be made for medical personnel, both general practitioners and emergency medical staff, to be made aware of the clinical symptoms of radiation exposure, and of the appropriate notification procedures and other emergency response actions to be taken if a nuclear or radiological emergency arises or is suspected.	Overheidstaak
5.64. Arrangements shall be made so that, in a nuclear or radiological emergency, individuals with possible contamination can promptly be given appropriate medical attention. These arrangements shall include ensuring that transport services are provided where needed and providing instructions ⁵⁰ to medical personnel on the precautions to take.	
5.65. For facilities in categories I, II and III, arrangements shall be made to manage an adequate number of any individuals with contamination or of any individuals who have been overexposed to radiation, including arrangements for first aid, the estimation of doses, medical transport and initial medical treatment in predesignated medical facilities.	
5.66. For areas within emergency planning zones (see para. 5.38), arrangements shall be made for performing medical screening and triage and for assigning to a predesignated medical facility any individual exposed at levels exceeding the criteria in Table II.1 of Appendix II. These arrangements shall include the use of pre-established operational criteria in accordance with the protection strategy (see para. 4.28(4)).	Overheidstaak
5.67. Arrangements shall be made to identify individuals with possible contamination and individuals who have possibly been sufficiently exposed for radiation induced health effects to result, and to provide them with appropriate medical attention, including longer term medical follow-up. These arrangements shall include: (a) Guidelines for effective diagnosis and treatment; (b) Designation of medical personnel trained in clinical management of radiation injuries; (c) Designation of institutions for evaluating radiation exposure (external and internal), for providing specialized medical treatment and for longer term medical actions. These arrangements shall also include the use of pre-established operational criteria in accordance with the protection strategy (see para. 4.28(4)) and arrangements for medical consultation on treatment following any exposure that could result in severe deterministic effects (see Appendix II) with medical personnel experienced in dealing with such injuries. ⁵¹	Overheidstaak

⁵⁰ These instructions include advice that universal precautions in health care against infection (e.g. surgical masks and gloves) generally provide medical personnel with adequate protection when treating individuals with possible contamination.

⁵¹ Such arrangements for medical consultation on treatment could include international assistance to be provided through or to be coordinated by the IAEA and by WHO; for example, under the Assistance Convention [13].

GSR part 7 Hoofdstuk 4 (General Requirements); Hoofdstuk 5 (Functional Requirements) & Hoofdstuk 6 (Requirements for Infrastructure)	Wel of niet van toepassing voor COVRA
<p>5.68. Arrangements shall be made for the identification of individuals who are in those population groups that are at risk of sustaining increases in the incidence of cancers as a result of radiation exposure in a nuclear or radiological emergency. Arrangements shall be made to take longer term medical actions to detect radiation induced health effects among such population groups in time to allow for their effective treatment. These arrangements shall include the use of pre-established operational criteria in accordance with the protection strategy (see para. 4.28(4)).</p>	Overheidstaak
<p>Requirement 13: Communicating with the public throughout a nuclear or radiological emergency</p>	
<p>The government shall ensure that arrangements are in place for communication with the public throughout a nuclear or radiological emergency.</p>	
<p>5.69. Arrangements shall be made for providing useful, timely, true, clear and appropriate information to the public in a nuclear or radiological emergency, with account taken of the possibility that the usual means of communication might be damaged in the emergency or by its initiating event (e.g. by an earthquake or by flooding) or overburdened by demand for its use. These arrangements shall also include arrangements for keeping the international community informed, as appropriate. These arrangements shall take into account the need to protect sensitive information in circumstances where a nuclear or radiological emergency is initiated by a nuclear security event. Communication with the public in a nuclear or radiological emergency shall be carried out on the basis of a strategy to be developed at the preparedness stage as part of the protection strategy. Arrangements shall be made to adjust this strategy in the emergency response on the basis of prevailing conditions.</p>	Overheidstaak
<p>5.70. Arrangements shall be made to ensure that information provided to the public by response organizations, operating organizations, the regulatory body, international organizations and others in a nuclear or radiological emergency is coordinated and consistent, with due recognition of the evolutionary nature of an emergency.</p>	<p>Alleen van toepassing voor ongevallen bij COVRA die geen gevolgen op de omgeving hebben.</p> <p>Indien ongevallen invloed hebben op de omgeving, zal de overheid een leidende rol spelen.</p>
<p>5.71. Arrangements shall be made so that in a nuclear or radiological emergency information is provided to the public in plain and understandable language.</p>	Alleen van toepassing voor ongevallen bij COVRA die geen gevolgen op de omgeving hebben.

GSR part 7 Hoofdstuk 4 (General Requirements); Hoofdstuk 5 (Functional Requirements) & Hoofdstuk 6 (Requirements for Infrastructure)	Wel of niet van toepassing voor COVRA
	Indien ongevallen invloed hebben op de omgeving, zal de overheid een leidende rol spelen.
<p>5.72. The government shall ensure that a system for putting radiological health hazards in perspective in a nuclear or radiological emergency is developed and implemented with the following aim:</p> <ul style="list-style-type: none"> - To support informed decision making concerning protective actions and other response actions to be taken; - To help in ensuring that actions taken do more good than harm; - To address public concerns regarding potential health effects. <p>In the development of such a system, due consideration shall be given to pregnant women and children as the individuals who are most vulnerable with regard to radiation exposure.</p>	Overheidstaak
<p>5.73. Arrangements shall be made to explain to the public any changes in the protective actions and other response actions recommended in the State and any differences from those recommended in other States (see paras 6.13–6.15).</p>	Overheidstaak
<p>5.74. Arrangements shall be made to identify and address, to the extent practicable, misconceptions, rumours and incorrect and misleading information that might be circulating widely in a nuclear or radiological emergency, in particular those that might result in actions being taken beyond those emergency response actions that are warranted⁵² (see Requirement 16).</p>	Overheidstaak
<p>5.75. Arrangements shall be made to respond to enquiries from the public and from news media, both national and international, including enquiries received from or through the IAEA. These arrangements shall recognize the evolutionary nature of emergencies and the need to respond in a timely manner to enquiries even when the information requested is not yet available.</p>	<p>Alleen van toepassing voor ongevallen bij COVRA die geen gevolgen op de omgeving hebben.</p> <p>Indien ongevallen invloed hebben op de omgeving, zal de overheid een leidende rol spelen.</p>
<p>Requirement 14: Taking early protective actions and other response actions</p>	

⁵² Actions beyond those emergency response actions that are warranted include, but are not limited to: actions that interfere with prompt implementation of protective actions, such as self-evacuation both from within and from outside areas from which evacuation is ordered; actions that unnecessarily burden the health care system; actions that shun or otherwise discriminate against people or products from an area affected by a nuclear or radiological emergency; elective terminations of pregnancy that are not radiologically informed; and cancellations of commercial flights that are not radiologically informed

GSR part 7 Hoofdstuk 4 (General Requirements); Hoofdstuk 5 (Functional Requirements) & Hoofdstuk 6 (Requirements for Infrastructure)	Wel of niet van toepassing voor COVRA
<p>The government shall ensure that arrangements are in place to take early protective actions and other response actions effectively in a nuclear or radiological emergency.</p>	
<p>5.76. Within the extended planning distance (see para. 5.38), arrangements shall be made for effective relocation that may be required following a significant radioactive release and for the prevention of inadvertent ingestion, in accordance with the protection strategy (see Requirement 5). These arrangements shall include:</p> <ul style="list-style-type: none"> (a) Provision of instructions and advice to prevent inadvertent ingestion; (b) Prompt monitoring and assessment; (c) Use of pre-established operational criteria in accordance with the protection strategy (see para. 4.28(4)); (d) The means for accomplishing relocation and for assisting those persons who have been relocated; (e) Provisions to extend monitoring and assessment and actions beyond the extended planning distance if necessary. 	Overheidstaak
<p>5.77. For areas within the ingestion and commodities planning distance (see para. 5.38), arrangements shall be made for prompt protection in relation to, and for restriction of, non-essential local produce, forest products (e.g. wild berries, wild mushrooms), milk from grazing animals, drinking water supplies, animal feed and commodities with contamination or possibly with contamination following a significant radioactive release, in accordance with the protection strategy (see Requirement 5). These arrangements shall include:</p> <ul style="list-style-type: none"> (a) Provision of instructions and advice: <ul style="list-style-type: none"> (i) To protect the food chain, water supply and commodities from contamination; (ii) To prevent ingestion of food, milk and drinking water with contamination or possibly with contamination; (iii) To prevent use of commodities with contamination or possibly with contamination; (b) Prompt monitoring, sampling and analysis. (c) Use of pre-established operational criteria in accordance with the protection strategy (see para. 4.28(4)). (d) The means to enforce the restrictions. (e) Provisions to expand monitoring and assessment and actions beyond this distance if necessary. 	Overheidstaak
<p>5.78. Within the emergency planning zones and the inner cordoned off area, arrangements shall be made for monitoring the levels of contamination of people, vehicles and goods moving out of areas with contamination, in order to control the spread of contamination and, as applicable, for the purposes of decontamination in accordance with the protection strategy (see Requirement 5). These arrangements shall include the use of pre-established operational criteria in accordance with the protection strategy (see para. 4.28(4)) and shall take into consideration that some vehicles and items potentially with contamination, as well as members of the public and emergency workers, might have left these areas before the establishment of contamination control points and boundaries.</p>	Overheidstaak

GSR part 7 Hoofdstuk 4 (General Requirements); Hoofdstuk 5 (Functional Requirements) & Hoofdstuk 6 (Requirements for Infrastructure)	Wel of niet van toepassing voor COVRA
<p>5.79. Arrangements shall be made for access control and enforcing of restrictions for areas in which evacuations and relocations would be carried out within emergency planning zones, the extended planning distance and the inner cordoned off area, in accordance with the protection strategy (see Requirement 5). Returns to these areas for short periods of time shall be permitted if justified (e.g. to feed animals left behind) and provided that those individuals entering the area are:</p> <p>(a) Subject to controls and to dose assessment while in the area;</p> <p>(b) Instructed on how to protect themselves;</p> <p>(c) Briefed on the associated health hazards.</p>	Overheidstaak
<p>5.80. Arrangements shall be made to test methods of decontamination before their general use and to assess their effectiveness in terms of dose reduction.</p>	Overheidstaak
<p>5.81. For a transnational emergency in category IV, arrangements shall be made for taking early protective actions and other response actions as appropriate for areas beyond category V, including promptly conducting monitoring and assessment of contamination (a) of food, milk and drinking water and, as appropriate, of commodities other than food, and (b) of vehicles and cargoes that are likely to have contamination, with the aim of mitigating the consequences of a nuclear or radiological emergency and reassurance of the public. These arrangements shall include the use of pre-established operational criteria in accordance with the protection strategy (see para. 4.28(4)).</p>	Overheidstaak
<p>5.82. Monitoring in response to a nuclear or radiological emergency shall be carried out on the basis of a strategy to be developed at the preparedness stage as part of the protection strategy. Arrangements shall be made to adjust the monitoring in the emergency response on the basis of prevailing conditions.</p>	
<p>5.83. Arrangements shall be made to carry out retrospective assessment of exposure of members of the public in a nuclear or radiological emergency, and to make the results of these assessments publicly available. The assessments shall be based on the best available information, shall be put into perspective in terms of the associated health hazards (see para. 5.72) and shall be promptly updated in the light of information that would yield substantially more accurate results.</p>	Overheidstaak
<p>Requirement 15: Managing radioactive waste in an emergency</p>	
<p>The government shall ensure that radioactive waste is managed safely and effectively in a nuclear or radiological emergency.</p>	
<p>5.84. The national policy and strategy for radioactive waste management [19] shall apply for radioactive waste generated in a nuclear or radiological emergency, with account taken of paras 5.85 to 5.88.</p>	Overheidstaak
<p>5.85. The protection strategy (see Requirement 5) shall take into account radioactive waste that might arise from protective actions and other response actions that are to be taken.</p>	Overheidstaak

GSR part 7 Hoofdstuk 4 (General Requirements); Hoofdstuk 5 (Functional Requirements) & Hoofdstuk 6 (Requirements for Infrastructure)	Wel of niet van toepassing voor COVRA
5.86. Radioactive waste arising in a nuclear or radiological emergency, including radioactive waste arising from associated protective actions and other response actions taken, shall be identified, characterized and categorized in due time and shall be managed in a manner that does not compromise the protection strategy, with account taken of prevailing conditions as these evolve.	Overheidstaak
5.87. Arrangements shall be made for radioactive waste to be managed safely and effectively. These arrangements shall include: (a) A plan to characterize waste, including in situ measurements and analysis of samples; (b) Criteria for categorization of waste; (c) Avoiding, to the extent possible, the mixing of waste of different categories; (d) Minimizing the amount of material unduly declared as radioactive waste; (e) A method for determining appropriate options for predisposal management of radioactive waste (including processing, storage and transport), with account taken of the interdependences between all steps as well as impacts on the anticipated end points (clearance, authorized discharge, reuse, recycling, disposal) [19, 20]; (f) A method of identifying appropriate storage options and sites; (g) Consideration of non-radiological aspects of waste (e.g. chemical properties such as toxicity, and biological properties).	Overheidstaak
5.88. Consideration shall be given to the management of human remains and animal remains with contamination as a result of a nuclear or radiological emergency, with due account taken of religious practices and cultural practices.	Overheidstaak
Requirement 16: Mitigating non-radiological consequences of a nuclear or radiological emergency and of an emergency response	
The government shall ensure that arrangements are in place for mitigation of non-radiological consequences of a nuclear or radiological emergency and of an emergency response.	
5.89. Non-radiological consequences of a nuclear or radiological emergency and of an emergency response shall be taken into consideration in deciding on the protective actions and other response actions to be taken in the context of the protection strategy (see Requirement 5).	
5.90. Arrangements shall be made for mitigating the non-radiological consequences of an emergency and those of an emergency response and for responding to public concern in a nuclear or radiological emergency. These arrangements shall include arrangements for providing the people affected with: (a) Information on any associated health hazards and clear instructions on any actions to be taken (see Requirement 10 and Requirement 13); (b) Medical and psychological counselling, as appropriate; (c) Adequate social support, as appropriate.	

GSR part 7 Hoofdstuk 4 (General Requirements); Hoofdstuk 5 (Functional Requirements) & Hoofdstuk 6 (Requirements for Infrastructure)	Wel of niet van toepassing voor COVRA
5.91. Arrangements shall be made to mitigate the impacts on international trade of a nuclear or radiological emergency and associated protective actions and other response actions, with account taken of the generic criteria in Appendix II. These arrangements shall provide for issuing information to the public and interested parties (such as importing States) on controls put in place in relation to traded commodities, including food, and on vehicles and cargoes being shipped, and on any revisions of the relevant national criteria.	Overheidstaak
5.92. Arrangements shall be put in place for any actions taken, beyond those emergency response actions that are warranted, by members of the public and by commercial, industrial, infrastructural or other governmental or non-governmental bodies to be, to the extent practicable, promptly identified and appropriately addressed. This shall include the designation of organization(s) with the responsibility for monitoring for, identifying and addressing such actions.	Overheidstaak
Requirement 17: Requesting, providing and receiving international assistance for emergency preparedness and response	
The government shall ensure that adequate arrangements are in place to benefit from, and to contribute to the provision of, international assistance for preparedness and response for a nuclear or radiological emergency.	
5.93. Governments and international organizations shall put in place and shall maintain arrangements to respond in a timely manner to a request made by a State, in accordance with established mechanisms and respective mandates, for assistance in preparedness and response for a nuclear or radiological emergency.	Overheidstaak
5.94. Arrangements shall be put in place and maintained for requesting and obtaining international assistance from States or international organizations and for providing assistance to States (either directly or through the IAEA) in preparedness and response for a nuclear or radiological emergency, on the basis of international instruments (e.g. the Assistance Convention [13]), bilateral agreements or other mechanisms. These arrangements shall take due account of compatibility requirements for the capabilities to be obtained from and to be rendered to different States so as to ensure the usefulness of these capabilities.	Overheidstaak
Requirement 18: Terminating a nuclear or radiological emergency	
The government shall ensure that arrangements are in place and are implemented for the termination of a nuclear or radiological emergency, with account taken of the need for the resumption of social and economic activity.	
5.95. Adjustment of protective actions and other response actions and of other arrangements that are aimed at enabling the termination of an emergency shall be made by a formal process that includes consultation of interested parties.	Hierbij wordt alleen gekeken naar ongevallen op het terrein van COVRA, die geen invloed hebben buiten het COVRA terrein en

GSR part 7 Hoofdstuk 4 (General Requirements); Hoofdstuk 5 (Functional Requirements) & Hoofdstuk 6 (Requirements for Infrastructure)	Wel of niet van toepassing voor COVRA
	<p>waarbij ook geen externe hulpverleners betrokken zijn.</p> <p>Zodra aan een van die criteria wordt voldaan, zal de overheid leidend zijn en zal COVRA volgen.</p>
<p>5.96. Arrangements for communication with the public in a nuclear or radiological emergency (see Requirement 13) shall include arrangements for communication on the reasons for any adjustment of protective actions and other response actions and other arrangements aimed at enabling the termination of the emergency. This shall include providing the public with information on the need for any continuing protective actions following termination of the emergency and on any necessary modifications to their personal behaviour. Arrangements shall be made, during this period, to closely monitor public opinion and the reaction in the news media in order to ensure that any concerns can be promptly addressed. These arrangements shall ensure that any information provided to the public puts health hazards in perspective (see para. 5.72).</p>	<p>Overheidstaak</p>
<p>5.97. The termination of a nuclear or radiological emergency shall be based on a formal decision that is made public and shall include prior consultation with interested parties, as appropriate.</p>	
<p>5.98. Both radiological consequences and non-radiological consequences shall be considered in deciding on the termination of an emergency as well as in the justification and optimization of further protection strategies as necessary.</p>	<p>Hierbij wordt alleen gekeken naar ongevallen op het terrein van COVRA, die geen invloed hebben buiten het COVRA terrein en waarbij ook geen externe hulpverleners betrokken zijn.</p> <p>Zodra aan een van die criteria wordt voldaan, zal de overheid leidend zijn en zal COVRA volgen.</p>
<p>5.99. The transition to an existing exposure situation or to a planned exposure situation shall be made in a coordinated and orderly manner, by making any necessary transfer of responsibilities and with the increased involvement of relevant authorities and interested parties.</p>	<p>Overheidstaak</p>

GSR part 7 Hoofdstuk 4 (General Requirements); Hoofdstuk 5 (Functional Requirements) & Hoofdstuk 6 (Requirements for Infrastructure)	Wel of niet van toepassing voor COVRA
<p>5.100. The government shall ensure that, as part of its emergency preparedness, arrangements are in place for the termination of a nuclear or radiological emergency. The arrangements shall take into account that the termination of an emergency might be at different times in different geographical areas. The planning process shall include as appropriate:</p> <ul style="list-style-type: none"> (a) The roles and functions of organizations; (b) Methods of transferring information; (c) Means for assessing radiological consequences and non-radiological consequences; (d) Conditions, criteria and objectives to be met for enabling the termination of a nuclear or radiological emergency (see Appendix II); (e) A review of the hazard assessment and of the emergency arrangements; (f) Establishment of national guidelines for the termination of an emergency; (g) Arrangements for continued communication with the public, and for monitoring of public opinion and the reaction in the news media; (h) Arrangements for consultation of interested parties. 	Overheidstaak
<p>5.101. Once the emergency is terminated, all workers undertaking relevant work shall be subject to the relevant requirements for occupational exposure in planned exposure situations [8], and individual monitoring, environmental monitoring and health surveillance shall be conducted subject to the requirements for planned exposure situations or existing exposure situations, as appropriate [8].</p>	
<p>Requirement 19: Analysing the nuclear or radiological emergency and the emergency response</p>	
<p>The government shall ensure that the nuclear or radiological emergency and the emergency response are analysed in order to identify actions to be taken to avoid other emergencies and to improve emergency arrangements.</p>	
<p>5.102. Arrangements shall be made to document, protect and preserve, in an emergency response, to the extent practicable, data and information important for an analysis of the nuclear or radiological emergency and the emergency response. Arrangements shall be made to undertake a timely and comprehensive analysis of the nuclear or radiological emergency and the emergency response with the involvement of interested parties. These arrangements shall give due consideration to the need for making contributions to relevant internationally coordinated analyses and for sharing the findings of the analysis with relevant response organizations. The analysis shall give due consideration to:</p> <ul style="list-style-type: none"> (a) The reconstruction of the circumstances of the emergency; (b) The root causes of the emergency; (c) Regulatory controls including regulations and regulatory oversight; 	<p>Op het moment dat het ongeval geen invloed heeft op de omgeving, heeft COVRA een leidende rol. Op het moment dat het ongeval invloed heeft op de omgeving zal de overheid hier een (leidende) rol in spelen.</p> <p>c) en g): overheidstaak</p>

GSR part 7 Hoofdstuk 4 (General Requirements); Hoofdstuk 5 (Functional Requirements) & Hoofdstuk 6 (Requirements for Infrastructure)	Wel of niet van toepassing voor COVRA
(d) General implications for safety, including the possible involvement of other sources or devices (including those in other States); (e) General implications for nuclear security, as appropriate; (f) Necessary improvements to emergency arrangements; (g) Necessary improvements to regulatory control.	e) ligt buiten de scope van deze evaluatie.
5.103. Arrangements shall be made to enable comprehensive interviews on the circumstances of the nuclear or radiological emergency to be conducted with those involved.	
5.104. Arrangements shall be made to acquire (e.g. from the IAEA, from another State or from the manufacturer of relevant equipment) the expertise necessary to conduct an analysis of the circumstances of the nuclear or radiological emergency.	
5.105. Arrangements shall be made to take actions promptly on the basis of an analysis to avoid other emergencies, including provision of information to other operating organizations, as relevant, or to other States, directly or through the IAEA.	Overheidstaak
GSR part 7 Chapter 6 Uiteraard alleen die delen waar COVRA verantwoordelijk voor is.	Indien niet van toepassing voor COVRA is motivatie ingevuld of het is koptekst uit de IAEA guide
6. REQUIREMENTS FOR INFRASTRUCTURE	
GENERAL	
6.1. This section establishes the requirements for infrastructural elements that are essential to providing the capability for fulfilling the requirements established in Section 5 in accordance with the hazard assessment and the protection strategy.	Beschrijvende tekst
Requirement 20: Authorities for emergency preparedness and response	
The government shall ensure that authorities for preparedness and response for a nuclear or radiological emergency are clearly established.	
6.2. The authorities for developing, maintaining and regulating arrangements, both on the site and off the site, for preparedness and response for a nuclear or radiological emergency shall be established by means of acts, legal codes or statutes.	Overheidstaak
6.3. All of the functions specified in Section 5 shall be assigned to the appropriate operating organizations and to local, regional and national response organizations. The involvement of all these organizations in the performance of	Overheidstaak

GSR part 7 Hoofdstuk 4 (General Requirements); Hoofdstuk 5 (Functional Requirements) & Hoofdstuk 6 (Requirements for Infrastructure)	Wel of niet van toepassing voor COVRA
<p>these functions, or in support of their performance, shall be documented.⁵³ The documentation shall specify their roles, functions, authorities and responsibilities in emergency preparedness and response and shall assent to the authorities, roles and responsibilities of other response organizations. Conflicting or potentially conflicting and overlapping roles and responsibilities shall be identified and conflicts shall be resolved at the preparedness stage through the national coordinating mechanism (see para. 4.10).</p>	
<p>6.4. The authority and responsibility for making decisions on response actions to be taken on the site and off the site (see para. 5.7) and the authority and responsibility for communication with the public shall be clearly assigned for each phase of the response.</p>	<p>Alleen het on-site gedeelte is verantwoordelijkheid van COVRA</p>
<p>6.5. The emergency arrangements shall include clear assignment of responsibilities and authorities, and shall provide for coordination and for communication in all phases of the response. These arrangements shall include:</p> <ul style="list-style-type: none"> - Ensuring that for each response organization a position in the response hierarchy has the authority and responsibility to direct and to coordinate its response actions; - Clearly assigning the authority and responsibility for the direction and coordination of the entire response (see para. 5.7) and for the prevention and resolution of conflicts between response organizations; - Assigning to an on-site position the authority and responsibility for notifying the appropriate response organization(s) of an emergency and for taking immediate on-site actions; - Assigning to an on-site position the responsibility for directing the entire on- site emergency response (see paras 5.2 and 5.7). <p>These arrangements shall be such as to ensure that those personnel with authority and responsibility to perform critical response functions⁵⁴ in an emergency response are not assigned any other responsibilities in an emergency that would interfere with the prompt performance of the specified functions.</p>	
<p>6.6. The arrangements for delegation and/or transfer of authority shall be specified in the relevant emergency plans, together with arrangements for notifying all appropriate parties of the transfer.</p>	
<p>Requirement 21: Organization and staffing for emergency preparedness and response</p>	

⁵³ Typically, the involvement of operating organizations and local, regional and national response organizations is documented as part of the appropriate facility, local, regional and national emergency plans.

⁵⁴ Critical response functions are functions that must be performed promptly and correctly in order to classify, declare and notify an emergency, to activate an emergency response, to manage the response, to take mitigatory actions, to protect emergency workers and to take urgent protective actions on and off the site

GSR part 7 Hoofdstuk 4 (General Requirements); Hoofdstuk 5 (Functional Requirements) & Hoofdstuk 6 (Requirements for Infrastructure)	Wel of niet van toepassing voor COVRA
<p>The government shall ensure that overall organization for preparedness and response for a nuclear or radiological emergency is clearly specified and staffed with sufficient personnel who are qualified and are assessed for their fitness for their intended duties.</p>	
<p>6.7. The organizational relationships for preparedness and response for a nuclear or radiological emergency and interfaces between all the response organizations shall be established.</p>	
<p>6.8. The positions responsible within each operating organization and response organization for performance of the response functions specified in Section 5 shall be assigned in the emergency plans and procedures. The positions responsible in each operating organization, in each response organization and in the regulatory body for the performance of activities at the preparedness stage, in accordance with these requirements, shall be assigned as part of the routine organizational structures and shall be specified, as appropriate, in the emergency plans and procedures.</p>	
<p>6.9. Personnel who are assigned to positions in all operating organizations and response organizations to perform the functions necessary to meet the requirements established in Section 5 shall be qualified and shall be assessed for their initial fitness and continuing fitness for their intended duties.</p>	
<p>6.10. Appropriate numbers of suitably qualified personnel shall be available at all times (including during 24 hour a day operations) so that appropriate positions can be promptly staffed as necessary following the declaration and notification of a nuclear or radiological emergency. Appropriate numbers of suitably qualified personnel shall be available for the long term to staff the various positions necessary to take mitigatory actions, protective actions and other response actions.</p>	
<p>6.11. For a site where multiple facilities in category I or II are collocated, an appropriate number of suitably qualified personnel shall be available to manage an emergency response at all facilities if each of the facilities is under emergency conditions simultaneously (see para. 5.4).</p>	Niet van toepassing
<p>Requirement 22: Coordination of emergency preparedness and response</p>	
<p>The government shall ensure that arrangements are in place for the coordination of preparedness and response for a nuclear or radiological emergency between the operating organization and authorities at the local, regional and national levels, and, where appropriate, at the international level.</p>	
<p>6.12. Arrangements shall be developed, as appropriate, for the coordination of emergency preparedness and response and of protocols for operational interfaces between operating organizations and authorities at the local, regional and national levels, including those organizations and authorities responsible for the response to conventional emergencies and to nuclear security events (see paras 4.3, 4.10, 6.3 and Requirement 6). The arrangements shall be clearly documented and the documentation shall be made available to all relevant parties.</p>	Overheidstaak

GSR part 7 Hoofdstuk 4 (General Requirements); Hoofdstuk 5 (Functional Requirements) & Hoofdstuk 6 (Requirements for Infrastructure)	Wel of niet van toepassing voor COVRA
Arrangements shall be put in place to ensure effective working relationships among these organizations, both at the preparedness stage and in an emergency.	
6.13. When several different organizations of the State or of other States are expected to have or to develop tools, procedures or criteria for use in the response to an emergency, arrangements for coordination shall be put in place to improve the consistency of the assessments of the situation, including assessments of contamination, doses and radiation induced health effects and any other relevant assessments made in a nuclear or radiological emergency, so as not to give rise to confusion.	Overheidstaak
6.14. Arrangements shall be made to coordinate with other States in the event of a transnational emergency any protective actions and other response actions that are recommended to their citizens and to their embassies in order either to ensure that they are consistent with those recommended in other States, or to provide an opportunity for them to explain to the public the basis for any differences (see para. 5.73).	Overheidstaak
6.15. Arrangements shall be made to ensure that States with areas in category V are provided with appropriate information for developing their own preparedness to respond to a transboundary emergency and that appropriate coordination across national borders is in place. These arrangements shall include: (a) Agreements and protocols to provide information necessary to develop a coordinated means for notification, classification schemes and criteria for taking and for adjusting protective actions and other response actions; (b) Arrangements for communication with the public; (c) Arrangements for the exchange of information between decision making authorities.	Overheidstaak
Requirement 23: Plans and procedures for emergency response	
The government shall ensure that plans and procedures necessary for effective response to a nuclear or radiological emergency are established.	
6.16. Plans, procedures and other arrangements for effective emergency response, including coordinating mechanisms, letters of agreement or legal instruments, shall be made for coordinating a national emergency response. The arrangements for a coordinated national emergency response: - Shall specify the organization responsible for the development and maintenance of the arrangements; - Shall describe the responsibilities of operating organizations and other response organizations; - Shall describe the coordination effected between these arrangements and the arrangements for response to a conventional emergency and to a nuclear security event.	Overheidstaak
Consideration shall be given in these plans, procedures and other arrangements to the need to protect information that might be confidential.	

GSR part 7 Hoofdstuk 4 (General Requirements); Hoofdstuk 5 (Functional Requirements) & Hoofdstuk 6 (Requirements for Infrastructure)	Wel of niet van toepassing voor COVRA
<p>6.17. Each response organization shall prepare an emergency plan or plans for coordinating and performing their assigned functions as specified in Section 5 and in accordance with the hazard assessment and the protection strategy.</p> <p>An emergency plan shall be developed at the national level that integrates all relevant plans for emergency response in a coordinated manner and consistently with an all-hazards approach.</p> <p>Emergency plans shall specify how responsibilities for managing operations in an emergency response are to be discharged on the site, off the site and across national borders, as appropriate. The emergency plans shall be coordinated with other plans and procedures that may be implemented in a nuclear or radiological emergency, to ensure that the simultaneous implementation of the plans would not reduce their effectiveness or cause conflicts. Such other plans and procedures include:</p> <ul style="list-style-type: none"> (a) Emergency plans for facilities in category I and for areas in category V; (b) Security plans and contingency plans [9, 10]; (c) Procedures for the investigation of a nuclear security event, including identification, collection, packaging and transport of evidence contaminated with radionuclides, nuclear forensics and related activities [11]; (d) Evacuation plans; (e) Plans for firefighting. 	Overheidstaak
<p>6.18. The appropriate responsible authorities shall ensure that:</p> <ul style="list-style-type: none"> (a) A 'concept of operations'⁵⁵ for emergency response is developed at the beginning of the preparedness stage. (b) Emergency plans and procedures are prepared and, as appropriate, approved for any facility or activity, area or location that could give rise to an emergency warranting protective actions and other response actions. (c) Response organizations and operating organizations, as appropriate, are involved in the preparation of emergency plans and procedures, as appropriate. (d) Account is taken in the content, features and extent of emergency plans (e) of the results of any hazard assessment and any lessons from operating experience and from past emergencies, including conventional emergencies (see paras 4.18–4.26). (f) Emergency plans and procedures are periodically reviewed and updated (g) (see paras 6.36 and 6.38). 	Overheidstaak

⁵⁵ A concept of operations is a brief description of an ideal response to a postulated nuclear or radiological emergency, used to ensure that all those personnel and organizations involved in the development of a capability for emergency response share a common understanding.

GSR part 7 Hoofdstuk 4 (General Requirements); Hoofdstuk 5 (Functional Requirements) & Hoofdstuk 6 (Requirements for Infrastructure)	Wel of niet van toepassing voor COVRA
6.19. The operating organization of a facility or for an activity in category I, II, III or IV shall prepare an emergency plan. This emergency plan shall be coordinated with those of all other bodies that have responsibilities in a nuclear or radiological emergency, including public authorities, and shall be submitted to the regulatory body for approval.	
6.20. The operating organization and response organizations shall develop the necessary procedures and analytical tools to be able to perform the functions specified in Section 5 for the goals of emergency response to be achieved and for the emergency response to be effective.	
6.21. Procedures and analytical tools shall be tested under simulated emergency conditions and shall be validated prior to initial use. Any arrangements for the use of analytical tools early in an emergency response for supporting decision making on protective actions and other response actions shall be made in due recognition of the limitations ⁵⁶ of such analytical tools and in a way that would not reduce the effectiveness of response actions. These limitations shall be made clear to, and shall be recognized by, those responsible for decision making.	
Requirement 24: Logistical support and facilities for emergency response	
The government shall ensure that adequate logistical support and facilities are provided to enable emergency response functions to be performed effectively in a nuclear or radiological emergency.	
6.22. Adequate tools, instruments, supplies, equipment, communication systems, facilities and documentation (such as documentation of procedures, checklists, manuals, telephone numbers and email addresses) shall be provided for performing the functions specified in Section 5. These items and facilities shall be selected or designed to be operational under the conditions (such as radiological conditions, working conditions and environmental conditions) that could be encountered in the emergency response, and to be compatible with other procedures and equipment for the response (e.g. compatible with the communication frequencies used by other response organizations), as appropriate. These support items shall be located or provided in a manner that allows their effective use under the emergency conditions postulated.	
6.23. For facilities in categories I and II, as contingency measures, alternative supplies for taking on-site mitigatory actions, such as an alternative supply of water and an alternative electrical power supply, including any necessary equipment, shall be ensured. This equipment shall be located and maintained so that it can be functional and readily accessible when needed (see also Safety of Nuclear Power Plants: Design (SSR-2/1) [18]).	Niet van toepassing

⁵⁶ An example of such limitations is that the timing and magnitude of radioactive releases in an emergency at a nuclear power plant that would warrant taking precautionary urgent protective actions and urgent protective actions off the site before, or shortly after, a radioactive release may not be predictable. In addition, the radioactive release could occur over several days, resulting in complex deposition patterns off the site.

GSR part 7 Hoofdstuk 4 (General Requirements); Hoofdstuk 5 (Functional Requirements) & Hoofdstuk 6 (Requirements for Infrastructure)	Wel of niet van toepassing voor COVRA
<p>6.24. Emergency response facilities or locations to support an emergency response under the full range of postulated hazardous conditions shall be designated and shall be assigned the following functions, as appropriate:</p> <ul style="list-style-type: none"> (a) Receiving notifications and initiating the response; (b) Coordination and direction of on-site response actions; (c) Providing technical and operational support to those personnel performing tasks at a facility and those personnel responding off the site; (d) Direction of off-site response actions and coordination with on-site response actions; (e) Coordination of national response actions; (f) Coordination of communication with the public; (g) Coordination of monitoring, sampling and analysis; (h) Managing those people who have been evacuated (including reception, registration, monitoring and decontamination, as well as provision for meeting their personal needs, including for housing, food and sanitation); (i) Managing the storage of necessary resources; (j) Providing individuals who have undergone exposure or contamination with appropriate medical attention including medical treatment. 	<p>a – d: COVRA e – h: Overheidstaak i – j: COVRA</p>
<p>6.25. For facilities in category I, emergency response facilities⁵⁷ separate from the control room and supplementary control room shall be provided so that:</p> <ul style="list-style-type: none"> (a) Technical support can be provided to the operating personnel in the control room in an emergency (from a technical support centre). (b) Operational control by personnel performing tasks at or near the facility can be maintained (from an operational support centre). (c) The on-site emergency response is managed (from an emergency centre). <p>These emergency response facilities shall operate as an integrated system in support of the emergency response, without conflicting with one another's functions, and shall provide reasonable assurance of being operable and habitable under a range of postulated hazardous conditions, including conditions not considered in the design.</p>	<p>Overheidstaak</p>

^{57 39} Emergency response facilities may be collocated (i.e. these functions may be performed from a single emergency response facility or location) provided that it is ensured that they do not conflict with each other in performing their specified functions and provided that they are separated from the control rooms.

GSR part 7 Hoofdstuk 4 (General Requirements); Hoofdstuk 5 (Functional Requirements) & Hoofdstuk 6 (Requirements for Infrastructure)	Wel of niet van toepassing voor COVRA
6.26. Arrangements shall be made for performing appropriate and reliable analyses of samples ⁵⁸ and measurements of internal contamination for the purposes of emergency response and of health screening, as appropriate. Such arrangements shall include the designation of laboratories that would be operational under postulated emergency conditions.	
6.27. Arrangements shall be made to obtain appropriate support from organizations responsible for providing support in conventional emergencies for logistics and communication, for social welfare and in other areas.	Overheidstaak
Requirement 25: Training, drills and exercises for emergency preparedness and response	
The government shall ensure that personnel relevant for emergency response shall take part in regular training, drills and exercises to ensure that they are able to perform their assigned response functions effectively in a nuclear or radiological emergency.	
6.28. The operating organization and response organizations shall identify the knowledge, skills and abilities necessary to perform the functions specified in Section 5. The operating organization and response organizations shall make arrangements for the selection of personnel and for training to ensure that the personnel selected have the requisite knowledge, skills and abilities to perform their assigned response functions. The arrangements shall include arrangements for continuing refresher training on an appropriate schedule and arrangements for ensuring that personnel assigned to positions with responsibilities in an emergency response undergo the specified training.	
6.29. For facilities in category I, II or III, all personnel and all other persons on the site shall be instructed in the arrangements for them to be notified of an emergency and of their actions if notified of an emergency.	
6.30. Exercise programmes shall be developed and implemented to ensure that all specified functions required to be performed for emergency response, all organizational interfaces for facilities in category I, II or III, and the national level programmes for category IV or V are tested at suitable intervals. These programmes shall include the participation in some exercises of, as appropriate and feasible, all the organizations concerned, people who are potentially affected, and representatives of news media. The exercises shall be systematically evaluated (see para. 4.10(h)) and some exercises shall be evaluated by the regulatory body. Programmes shall be subject to review and revision in the light of experience gained (see paras 6.36 and 6.38).	Overheidstaak
6.31. The personnel responsible for critical response functions shall participate in drills and exercises on a regular basis so as to ensure their ability to take their actions effectively.	

⁵⁸ Arrangements for analyses could include, for example, arrangements for performing analyses of environmental and biological samples as well as analyses of other samples taken from the facility for the purpose of assessing its operational status.

GSR part 7 Hoofdstuk 4 (General Requirements); Hoofdstuk 5 (Functional Requirements) & Hoofdstuk 6 (Requirements for Infrastructure)	Wel of niet van toepassing voor COVRA
6.32. Officials off the site who are responsible for making decisions on protective actions and other response actions shall be trained and shall regularly participate in exercises. Officials off the site who are responsible for communication with the public in a nuclear or radiological emergency shall regularly participate in exercises.	Overheidstaak
6.33. The conduct of exercises shall be evaluated against pre-established objectives of emergency response to demonstrate that identification, notification, activation and response actions can be performed effectively to achieve the goals of emergency response (see para. 3.2).	
Requirement 26: Quality management programme for emergency preparedness and response	
The government shall ensure that a programme is established within an integrated management system to ensure the availability and reliability of all supplies, equipment, communication systems and facilities, plans, procedures and other arrangements necessary for effective response in a nuclear or radiological emergency.	
6.34. The operating organization, as part of its management system (see Ref. [14]), and response organizations, as part of their emergency management system, shall establish a programme to ensure the availability and reliability of all supplies, equipment, communication systems and facilities, plans, procedures and other arrangements necessary to perform functions in a nuclear or radiological emergency as specified in Section 5 (see para. 6.22). The programme shall include arrangements for inventories, resupply, tests and calibrations, to ensure that these are continuously available and are functional for use in a nuclear or radiological emergency.	
6.35. The programme shall also include periodic and independent appraisals against functions as specified in Section 5, including participation in international appraisals ⁵⁹ .	
6.36. Arrangements shall be made to maintain, review and update emergency plans, procedures and other arrangements and to incorporate lessons from research, operating experience (such as in the response to emergencies) and emergency exercises.	
6.37. The operating organization and response organizations shall establish and maintain adequate records in relation to both emergency arrangements and the response to a nuclear or radiological emergency, to include dose assessments, results of monitoring and inventory of radioactive waste managed, in order to allow for their review and evaluation. These records shall also provide for the identification of those persons requiring longer term medical actions, as necessary, and shall provide for the long term management of radioactive waste.	
6.38. The operating organization and response organizations shall make arrangements to review and evaluate responses in actual events and in exercises, in order to record the areas in which improvements are necessary and to ensure that the necessary improvements are made (see Requirement 19).	

⁵⁹ Examples of international appraisals include those organized by the IAEA, such as Emergency Preparedness Review (EPREV) missions

GSR part 7 Hoofdstuk 4 (General Requirements); Hoofdstuk 5 (Functional Requirements) & Hoofdstuk 6 (Requirements for Infrastructure)	Wel of niet van toepassing voor COVRA
6.39. Relevant international organizations shall review and update their applicable standards and guidelines and their relevant arrangements in emergency preparedness and response on the basis of research and lessons from the response to actual emergencies and in emergency exercises.	Overheidstaak