

Dossiergegevens

Dossiernummer: W.Z20.106796.02
Adres: Hollandiaweg 11 te Nijmegen
Omschrijving: slopen CG bovengronds
Aanvrager: ENGIE Energie Nederland NV

Opmerkingen bij de aangeleverde stukken

D220762323 08/08/2022 Bijlage(n) niet openbaar melding ODRN

Report Concerning the Vibration Levels Associated with the Proposed Demolition of the Event 3 Structures at Gelderland Power Station, Nijmegen, Netherlands BROWN AND MASON GROUP LIMITED

R22.10976/7/1/DW

Date of Report: 05 August 2022

D220762324 08/08/2022 Bijlage(n) niet openbaar melding ODRN

Anson House
Schooner Court
Crossways Business Park
Dartford, Kent, DA2 6QQ
Event 3
Blow Down Manual
DeNOx, Boiler House & Turbine
Pedestal
Project Location: Centrale Gelderland
Hollandiaweg 11
6541 BL Nijmegen
Project Title: Centrale Gelderland Demolition Restart
Reference : C2002/BDM03/07.22

JvH *Algehele beschrijving van het proces. Aandachtspunten en veiligheidvoorschriften. Schattingen van de vliegastoot en hoe er mee om te gaan.*

D220761041 05/08/2022 D005 Design for the Demolition of the Boiler House and Turbine Pedestal

Site: Gelderland Central Power Station

Document No: C2002/MM/D005

Title: Design for the Demolition of the Boiler House and Turbine Pedestal using Controlled Explosives. Date: 5th August 2022

JvH *Bepaling van het eigen gewicht van de constructie. De mogelijkheid van snedes maken en boren van gaten voor aanbrengen van explosieven.*

D220761042 05/08/2022 R22.10976-7-1-DW rapport

Report Concerning the Vibration Levels Associated with the Proposed Demolition of the Event 3 Structures at Gelderland Power Station, Nijmegen, Netherlands BROWN AND MASON GROUP LIMITED

R22.10976/7/1/DW

Date of Report: 05 August 2022

Conclusies:

1. De daadwerkelijke bepaling van de trillingen is niet aangeleverd. Alleen de conclusies zijn aangeleverd en vergeleken met toelaatbare waarden uit de British Standard en de SBR Richtlijn Schade aan gebouwen
2. De conclusie van het rapport is dat binnen de gestelde normen wordt gebleven. Daarbij moet gezegd: de NL norm is strenger dan de Britse. (20mms-1 t.o.v. 50mms-1)
3. De optredende trillingen bij Klok Logistiek zullen maatgevend zijn. Dit is industrieel. De opgegeven eisen kloppen.

Vooropgesteld dat de bepaalde waarden kloppen (geen berekening) kan geconcludeerd worden dat binnen de gestelde normen en eisen wordt gebleven voor wat betreft trillingen.

5.1.2e

ODRN
11-8-2022

JvH

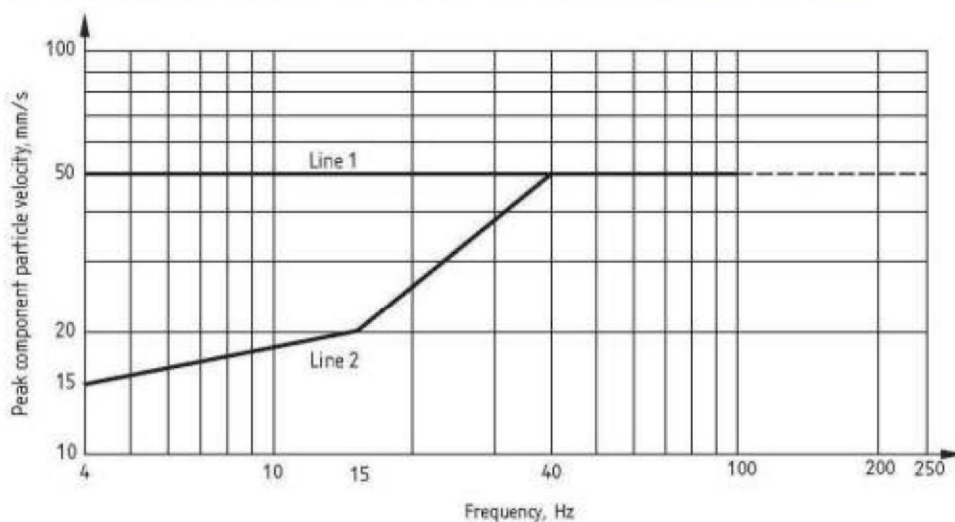
Te slopen onderdelen:

- i) DeNOx Steel and Concrete Structures*
- ii) Turbine Pedestal*
- iii) Boiler House*

British Standard 7385 gives guide values to prevent cosmetic damage to residential type property. Between 4 Hz and 15 Hz, a guide value of 15 - 20 mms⁻¹ is recommended, whilst above 40 Hz the guide value is 50 mms⁻¹. Industrial and commercial premises are assigned higher thresholds. These vibration criteria reconfirm those of the USBM

Line	Type of Building	Peak component particle velocity in frequency range of predominant pulse	
		4 Hz to 15 Hz	15 Hz and above
1	Reinforced or framed structures	50 mms ⁻¹ at 4 Hz and above	50 mms ⁻¹ at 4 Hz and above
	Industrial and heavy commercial buildings		
2	Unreinforced or light framed structures	15 mms ⁻¹ at 4 Hz increasing to 20 mms ⁻¹ at 15 Hz	20 mms ⁻¹ at 15 Hz increasing to 50 mms ⁻¹ at 40 Hz and above
	Residential or light commercial buildings		
Note 1 – values referred to are at the base of the building			
Note 2 – for line 2, at frequencies below 4 Hz, a maximum displacement of 0.6 mm (zero to peak) is not to be exceeded			

Volgens tabel boven 15 Hz. Onderstaande grafiek laat overgang zien.



D220751194 03/08/2022 Bijlage 32 AI maaiveld Hollandiaweg 11 te Nijmegen SAM 202101120-12 V1

D220752306 03/08/2022 AI maaiveld Hollandiaweg 11 te Nijmegen SAM 202101120-12_V1

SBR Richtlijn Trillingen Schade aan gebouwen



Overzicht grenswaarden voor de draagconstructie bij de indicatieve- en de beperkte meting volgens de SBR.

Categorie bouwwerk	Grenswaarde in mm/sec van een indicatieve meting bij het									
	Heien ($\gamma=1,5 \times 1,6=2,4$) op begane grondniveau					Trillen ($\gamma=2,5 \times 1,6=4$) op begane grondniveau				
	$\leq 10\text{Hz}$	20Hz	30Hz	40Hz	alle frequenties	$\leq 10\text{Hz}$	20Hz	30Hz	40Hz	alle frequenties
1 (beton, staal, hout)	8,3	10,4	12,5	14,6	n.v.t.	5	6,3	7,5	8,8	n.v.t.
2 (metselwerk)	2,1	3,1	4,2	5,2	n.v.t.	1,3	1,9	2,5	3,1	n.v.t.
3 (monument)	1,2	1,8	2,3	2,8	n.v.t.	0,8	1,1	1,4	1,7	n.v.t.
Trillingsgevoelige fundering	6,6	3,3	2,2	1,7	n.v.t.	4	2	1,3	1	n.v.t.

Categorie bouwwerk	Grenswaarde in mm/sec van een beperkte meting bij het									
	Heien ($\gamma=1,5 \times 1,4=2,1$) op begane grondniveau					Trillen ($\gamma=2,5 \times 1,4=3,5$) op begane grondniveau				
	$\leq 10\text{Hz}$	20Hz	30Hz	40Hz	alle frequenties	$\leq 10\text{Hz}$	20Hz	30Hz	40Hz	alle frequenties
1 (beton, staal, hout)	9,5	11,9	14,3	16,7	19	5,7	7,1	8,6	10	11,4
2 (metselwerk)	2,4	3,6	4,8	6	7,1	1,4	2,1	2,9	3,6	4,3
3 (monument)	1,4	2	2,6	3,2	3,8	0,9	1,2	1,6	1,9	2,3
Trillingsgevoelige fundering	7,6	3,8	2,5	1,9	n.v.t.	4,5	2,3	1,5	1,1	n.v.t.

De grenswaarde moet, om schade aan bouwwerken te voorkomen, groter zijn dan de grootste topwaarde van de trillingssnelheid gemeten in een meetpunt en -richting.



TABLE 1

Predicted Ground Vibration Levels

Location	Ground Vibration Level (mms ⁻¹)	
	Most Likely	Worst Case Scenario
VP1a. Warehouse (De Klok Logistiek) to the South of the Power Station	5.2	9.8
VP1b. Building to the East of De Klok	3.0	5.5
VP2. Bridge to the South-West of the Power Station	1.6	2.9
VP3. Residential receptors in Weurt to the North-West of the Power Station	0.9	2.0
VP4. Dock Wall - Waaldok	3.0	7.0
VP5. Building to the North-East of the Power Station	1.9	3.0

TABLE 2

Predicted Air Overpressure Levels

Location	Air Overpressure Level (dB)	
	Most Likely	Worst Case Scenario
VP1a. Warehouse (De Klok Logistiek) to the South of the Power Station	150	160
VP1b. Building to the East of De Klok	146	156
VP2. Bridge to the South-West of the Power Station	139	149
VP3. Residential receptors in Weurt to the North-West of the Power Station	137	147
VP4. Dock Wall - Waaldok	146	156
VP5. Building to the North-East of the Power Station	140	150

9.0 DISCUSSION OF VIBRATION PREDICTIONS

9.1 The worst case ground vibration and air overpressure levels associated with the demolition event are given in Tables 1 and 2 respectively. 9.2 At vibration prediction location VP1, the warehouse (De Klok Logistiek) to the South of the power station site, a most likely 5.2 mms-1 and a worst case 9.8 mms-1 is predicted. 9.3 Ground vibration of such magnitude is well within the criterion of 50 mms-1 for the prevention of cosmetic damage at industrial type structures from British Standard 7385:2:1993. 9.4 With reference to Dutch Standard: Damage from Construction 2017, the most conservative interpretation of the Standard for the equivalent building structure, Category 1, gives a vibration criterion of 20 mms-1. The predicted vibration levels at the structure comply with the relevant standards from the Netherlands and the United Kingdom. 9.5 Located adjacent to the warehouse is a building. At the property a most likely 3.0 mms-1 and a worst case 5.5 mms-1 is predicted. 9.6 At prediction location VP2, the bridge to the South-West of Power Station, a most likely vibration level of 1.6 mms-1 and a worst case level of 2.9 mms-1 is predicted. 9.7 Within the UK such a structure would be subject to a vibration criterion of 50 mms-1 from British Standard 7385:2:1993. The equivalent Dutch Standard would apply a vibration criterion of 20 mms-1 as the most conservative interpretation of the Directive. The predicted levels of vibration at the Bridge are therefore within the relevant criteria from Dutch and British Standards. 9.8 At prediction location VP3, the residential receptors in Weurt to the west of the site, a most likely 0.9 mms-1 and a maximum likely 2.0 mms-1 is predicted. 9.9 The maximum likely predicted vibration levels at the closest residential receptors are well below the most conservative interpretation from British and Dutch Standards where criteria of 15 mms-1 and 5 mms-1 would apply respectively for the prevention of hairline plaster cracking. 9.10 At prediction location VP4, the Dock Wall (Waaldok) to the North of the site, a most likely 3.0 mms-1 and a maximum likely 7.0

mms-1 is predicted. 9.11 A structure such as a Dock Wall would be subject to a vibration criterion of 50 mms-1 from BS 7385:2:1993 and classed as a category 1 structure from the Netherlands 2017 Damage from Construction Directive where the most conservative limit of 20 mms-1 would apply. 9.12 The worst case predicted ground vibration level of 7.0 mms-1 therefore complies with the relevant criteria. The predicted ground vibration level, assuming a frequency of 10Hz, equates to a vibration acceleration of 0.39 m/s², within the guidance value of 1 m/s² from the document R0-160188 Version 3 dated 9 September 2016. 9.13 Located to the North-East of the Power Station is a building, identified as VP5 on Figure 1. At this location, a most likely vibration level of 1.9 mms-1 and a worst case 3.0 mms-1 is predicted. Vibration of such magnitude is within the most conservative interpretation of the relevant Dutch Standard of 20 mms-1. 9.14 Air overpressure magnitudes of the order predicted have been regularly monitored with no damage being occasioned. The maximum predicted level for this event is in the range 150 to 160 dB at location VP1, the warehouse to the south of the Power Station.

Ontvangen documenten

(hier tabel uit My Corsa invoegen)

D-nummer	Ontv. datum	Betreft
D220762323	08/08/2022	Bijlage(n) niet openbaar melding ODRN
D220762324	08/08/2022	Bijlage(n) niet openbaar melding ODRN
D220761041	05/08/2022	D005 Design for the Demolition of the Boiler House and Turbine Pedestal
D220761042	05/08/2022	R22.10976-7-1-DW rapport
D220751194	03/08/2022	Bijlage 32 AI maaiveld Hollandiaweg 11 te Nijmegen SAM 202101120-12 V1
D220752306	03/08/2022	AI maaiveld Hollandiaweg 11 te Nijmegen SAM 202101120-12_V1

Opmerkingen