BROWN&MASON

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Event 3
Blow Down Manual
DeNOx

Project Location: Centrale Gelderland
Hollandiaweg 11
6541 BL Nijmegen

Project Title: Centrale Gelderland Demolition Restart

Reference : C2002/BDM03/04.22

Signed:	Signed:
Compiled by [redacted] 5.1.2e	Approved by [redacted] 5.1.2e
Date	Date

Distribution:

- ENGIE — Client
- Brown & Mason Group Ltd — Contractor

Contents

1.0 Document Control – Revision Record

Rev	Date	By	Comment
v1	04/04/22	[redacted] 5.1.2e	Document issued
v2	19/04/22		Comments incorporated
v3	23/05/22		Comments incorporated

2.0 Scope

2.1 This Blow Down Manual (BDM) has been prepared to detail the procedures, management structure and control measures required to manage Explosive Demolition Event 3 at Energiecentrale Gelderland.

2.2 This plan seeks to apply Brown & Mason's health, safety, environmental and quality policies, and procedures, notwithstanding compliance with all applicable legislative requirements and contract conditions.

2.3 Our primary objective is zero accidents or incidents, environmental or otherwise, throughout the duration of the contract works.

2.4 The operations will be conducted in a manner which will uphold the principles of Brown & Mason's Health and Safety Policy so far as is reasonably practicable.

2.5 This manual has been developed with, and approved by, our Explosives Manager 5.1.2e The works will be supervised by 5.1.2e 5.1.2e

2.6 The adequacy of this manual will be reviewed at regular intervals throughout the works and revised as necessary.

3.0 Event arrangements

3.1 Assessment

3.1.1 Having analysed the structure and carried out a comparative risk assessment with regard to the feasibility of the use of explosives to affect a mode of collapse against the risk to personnel from working at height during hand demolition the DeNOx structure has been designated for explosive demolition.

3.2 Details

3.2.1 Details of the event are as follows:

Event No.	Event Description	Date
3	Explosive Demolition of the DeNOx structure	23/06/22

3.3 Management arrangements

3.3.1 The safety of personnel and third parties is of primary importance. This explosive event has been designed and planned to minimise risk, part of which planning includes an exclusion zone for the duration of the explosive event. The exclusion zone, as detailed in Appendix 1 combines best practice, relevant British and European standards and practical constraints such as existing site contours.

3.3.2 The Police, ODRN, Waterschap Rivierenland, Rijkswaterstaat, the City of Nijmegen and other interested stakeholders have been consulted with regard to this event via the blowdown preparation committee, described later in this document.

3.3.3 Local neighbours will be notified prior to the event by Brown & Mason and ENGIE.

3.3.4 All explosive work will be carried out by our qualified Explosive Engineering Team, under the supervision of [redacted] 5.1.2e [redacted] 5.1.2e in accordance with the current Codes of Practice and best practice.

3.3.5 Explosives will be delivered into an on-site store and charged on a daily basis for this event over a charging period of approximately 1week.

3.3.6 All Brown & Mason plant, equipment and temporary services will be removed or protected prior to the event.

3.3.7 On completion of the felling operation, the ‘all clear’ signal will be sounded as per the sequence of events. It is essential that no one moves towards the demolition area until the ‘all clear’ siren has sounded.

3.3.8 The actual date and time of the event will be recorded by the Explosive Event Controller. It should be noted that the control point time over-rides all others.

3.3.9 The timing of each felling operation will be agreed with all relevant stakeholders following any necessary liaison.

3.3.10 For detailed timing of the event please refer to the sequence of events contained in Appendix 3.

3.3.11 Once the structure has been felled, the resultant arisings will be processed using heavy duty 360º excavators and crushing plant.

3.4 Preventative measures for mitigating dust

3.4.1 In preparation for the blowdown of the DeNOx structure we will remove as much dust as is reasonably practicable and safe to do so, bearing in mind that it is not safe to enter the main ducts due to structural integrity concerns.

3.4.2 Where dust cannot be removed for safety reasons we will saturate the residual material with water applied via fire hoses. Access for saturation will be made from available safe access hatches in the outside of the ducts. The works will be conducted in accordance with a detailed method statement and risk assessment, which in turn will be supported by a structural assessment provided by our Engineering Director, as required.

3.4.3 The drop zone will be cleared of loose material and damped down with water sprays prior to the blowdown.

3.5 Dust suppression control measures

3.5.1 A dust suppressing system comprising water sprays and water bags has been developed and will be deployed and tested ahead of the proposed blowdown date (see appendix 9 for details). Testing of the system will be witnessed by both ENGIE and ODRN

3.5.2 The system comprises :

- Water sprays directed in the direction of the structure as a measure to control dust spread
- A water wall at the Waal Dock
- Water sprays from the top of the Boiler House
- Sacrificial water bags within the structure

3.5.3 It should be noted that the actual positioning of the dust control units will be agreed on the day of the blowdown with ODRN and Engie and will be based on prevailing weather conditions (eg, wind speed, direction, etc.).

3.5.4 The dust-suppressing system will be confirmed operational 15minutes prior to blowdown.

3.5.5 Brown and Mason will not initiate a blowdown of the DeNOx structure if the dust suppression system fails to operate. We have incorporated contingency plans into section 14 for such an eventuality.

3.6 Wind direction and weather

3.6.1 Even after exhaustive measures to remove dust and then to mitigate residual dust via damping down it is recognised that dust may be carried on the wind outside the site boundary. Wind direction and weather conditions are therefore of prime importance when considering potential dust nuisance to the local neighbours.

3.6.2 The optimum situation from a dust propagation perspective is to carry out the blow down event with a medium to strong wind speed in a predominantly Southerly to South Westerly wind direction (see drawing C2002/BDM3/DSP2 in appendix 9) which would ensure that any airborne dust would be carried away from sensitive receptors. This we will plan for, however there are other weather conditions that would be equally advantageous but far more difficult to plan, for example heavy rain.

3.6.3 We would stress that our highest priority has to be the safety of all involved and that this event cannot be driven by weather alone. Whilst we can accommodate localised short term delays of a matter of days, we could not accept a situation where we had to wait for weeks for the optimum weather scenario, this could lead to deterioration in the structure and would have a detrimental effect on the installed explosives.

3.6.4 We have incorporated weather monitoring into section 12 and contingency plans into section 14 for such an eventuality. Please also refer to the Dust Suppression Plan in appendix 9 for predicted dust spread based on wind direction.

3.6.5 Any postponement will, of course, affect those stakeholders within the exclusion zone (notably DeKlok Logistics and the residential property on Sprengenweg). Close liaison will be maintained with the affected stakeholders and arrangements will be put in place to limit any inconvenience.

3.7 Decision making process

3.7.1 The blowdown committee, headed by the Event Controller, will be ultimately responsible for the final decision whether to proceed with the event.

3.7.2 The blowdown committee will include both ENGIE and ODRN, only on agreement between the parties will the countdown commence and the explosives subsequently detonated, representatives from both ENGIE and the ODRN will be present at the control point at all times and at any point in time have the authority to halt the event.

3.7.3 Hold points have been added to the ‘Sequence of Events’ to ensure that all parties agree to the decision to proceed. B&M will use an administrator to record the decision making process and to communicate with external

stakeholders through, or via agreement with, ENGIE. All decisions will be recorded in the 'Sequence of Events' please see attached, see section 13 for further details. Please also refer to appendix 10 - C2002/BDM3/FC1 Decision making process for DeNOx blowdown

4.0 Roles and Responsibilities

4.1 The explosive events planned for the project require the involvement of various personnel from each of the companies involved in the project (eg. ENGIE and Brown & Mason).

4.2 In addition, organisations outside the project (e.g., ODRN, Council, Police, etc.) may have, to varying degrees, involvement in the process via the blowdown preparatory committee.

4.3 Key roles with regard to the planning and execution of the explosive events planned for the project have been designated.

4.4 Key personnel for each role have been identified and a deputy for each specified in the event that the key person is unavailable during the process.

4.5 The key personnel are as follows:

4.5.1 **Explosive Event Controller**
The explosive event controller holds ultimate responsibility for the event. The explosive event controller is responsible for planning, coordination and stakeholder management of the event. The controller ensures, so far as is reasonably practicable, that the sequence of events is followed and that all safe systems of work as detailed within the blow down manual and specific method statement for the work are adhered to.

4.5.2 **Explosives Engineer**
The explosive engineer is responsible for delivery, installation, and safe detonation of explosive charges to affect the controlled collapse of each structure.

4.5.3 **Sentries**
Sentries report to the explosive event controller and are responsible for monitoring the exclusion zone. They will be dressed in white overalls and wear a red safety helmet. Each sentry will be issued with a radio and a flag (a light baton will be issued during low light/night-time conditions) for communication. Sentries will be instructed as to their duties and responsibilities by means of a pre-event briefing.

4.5.4 **Client**
The client, ENGIE, retain overall responsibility for the site but have contracted the services of Brown & Mason as Principal Contractor to maintain operational control and to carry out the safe demolition of structures at Gelderland Power Station.

The client is to designate individual(s) to sit on the blow down committee.

Brown & Mason and ENGIE to maintain security at the outer perimeter of the site.

5.0 Blowdown Committee

5.1 A Blowdown Committee will be formed from relevant interested parties.

5.2 Blowdown Committee personnel will attend the Control Point throughout each event to ensure complete and seamless liaison.

5.3 The Control Point includes the Firing Point, however due to operational constraints the Control Point and Firing Point may be separated as required on the day of the event by mutual agreement between the Explosive Event Controller and the Explosives Engineer.

5.4 Each party will provide their own method of communication with their personnel and relay this information to the Explosive Event Controller and Chairman of the Committee, to enable him to coordinate the event.

5.5 The parties/personnel required at the Control Point are as follows:

5.1.2e	Explosive Event Controller	Brown & Mason
5.1.2e	Explosives Engineer	Brown & Mason
5.1.2e	Explosives Engineer	Brown & Mason
5.1.2e	Explosives Engineer	5.1.2e
5.1.2e	Managing Director	Brown & Mason
5.1.2e	Project Director	Brown & Mason
5.1.2e	Project Manager	ENGIE
5.1.2e	Project Manager	ENGIE
5.1.2e	Project Leader Permits	ODRN
5.1.2e	Supervisory Authority / Asbestos specialist	ODRN

5.6 The Police will be fully consulted with regard to the proposed explosive event. They have carried out their own assessment regarding the level of involvement required.

5.7 Liaison with fire and ambulance services will be done via the Police.

5.8 The Waterschap Rivierenland, Rijkswaterstaat, NLR and Civil Aviation Authority will be consulted regarding the event.

5.9 Liaison with the local authorities is via Brown & Mason and ENGIE.

6.0 Blowdown Preparatory Committee

6.1 Through a blow-down preparation committee to be set up, important stakeholders are involved in the explosive demolition work to be carried out.

6.2 Participants in the blow-down preparation committee will be invited to participate in consultations in good time, at least 1 month prior to initial consultation.

6.3 The aim of this committee is to inform important stakeholders in advance and to evaluate the work carried out afterwards.

6.4 During the committee meeting, Brown & Mason will provide all attendees with information including filled in blow down manual, results engineering blow down event, regarding the work to be carried out.

6.5 In addition to Brown & Mason and ENGIE, the Competent Authority (ODRN) and the police sit on the blow-down preparation committee by default. Rijkswaterstaat (RWS) and Waterschap Rivierenland will be invited by default to attend the committee meetings. In addition to the aforementioned members, the committee will be expanded to include relevant stakeholders. How the committee will be expanded will be determined on the basis of the expected impact of the explosive demolition work.

6.6 Work can only be started if there is agreement between the parties in the blow-down preparatory committee.

6.7 On the basis of the information provided by Brown & Mason, each member of the committee will have to take responsibility for any actions to be taken within his/her focus area.

6.8 In addition to being a member of the blow-down preparation committee, the Competent Authority (ODRN) will be present at every blow down event.

7.0 Stakeholder Management & Public Relations

7.1 Contact with stakeholders is carried out by ENGIE in collaboration with the Explosion Event Controller.

7.2 The Stakeholder Management Plan is included in Appendix 4.

7.3 The Explosive Event Controller monitors the plan and reports back on issues as part of coordination meetings.

7.4 Liaison with other businesses in the area surrounding the project is carried out through ENGIE and Brown & Mason. Brown & Mason will provide information to them for onward notification to interested parties.

7.5 Engie will notify basic details of the event (after discussion with B&M) to local news services approximately 1 week before the event to ensure, as far as possible, that all local stakeholders are aware of the event.

7.6 Security and public safety during the build-up to and during the event is paramount to ensure safety of all parties. Therefore, only minimal detail will be provided in press releases and to media etc. Additionally controls in the form of Brown & Mason marshals will be placed to control members of the public on the boundary of the site.

7.7 Contingency plans are in place for both explosive related delays to the event and also delays which may occur due to members of the public accessing the exclusion zone in the build up to the event.

7.8 Based on the expected impact of the blow down, ENGIE in collaboration with Brown & Mason and the standard members of the blow-down preparation committee will determine which stakeholders should be invited to the blow-down preparation committee or informed in advance regarding the explosive demolition work to be carried out.

7.9 With regard to the potential for complaints as a result of dust from further explosive demolition events we would, of course, defer to ENGIE for public relations communication.

7.10 To support ENGIE we would undertake to have in readiness a contractor on standby to provide cleaning services and a ready supply of car wash vouchers such that in the unlikely event that they are required we could agree a mutually acceptable rapid response.

8.0 Setting Standards

8.1 The works will be carried out in accordance with the project Construction Phase Plan, the relevant method statement, Vibrock's prediction report and all applicable legislation.

8.2 The works will be carried out safely in accordance with the recommendation of Bouwbesluit 2012 (section 1.7), 5.1.2f 5.1.2f 5.1.2e and WECG (Wet Explosieven voor Civiel Gebruik). 5.1.2f 5.1.2f

8.3 As members of the European Demolition Association (EDA) works are carried out in accordance with the requisite standards associated with this trade association.

8.4 Explosives Engineers will hold appropriate qualifications and experience.

8.5 Health and safety standards will comply with all relevant current statutory regulations which include, but are not limited to, that described within Brown & Mason's procedure – QM04 Evaluation of Compliance (Incorporating Register of Legislation for Environment, Health & Safety).

8.6 All permits and consents will be obtained from the relevant authorities prior to demolition.

9.0 Communication

9.1 The primary means for communicating during the sequence of events will be by site radios.

9.2 Brown & Mason will supply multi-channel radios to all relevant personnel during the event.

9.3 Channel 1 will be used throughout each event unless otherwise notified to the team on the day of the event during the event briefing.

9.4 Regular radio checks will be made throughout each event, as detailed in the sequence of events.

9.5 Radio dialogue is to be restricted to necessary communication only between control and Sentries, not point to point between Sentries. The procedure for radio communication is as follows:

Sentry - "Control this is position [one] call back"
Control - "Receiving"
Sentry - state message in clear methodical speech

9.6 In the event that a radio fails (nb! Technical malfunction, battery failure, etc.) the following procedure is to be followed:

- Sentry raises his radio in the air above head height to indicate that he has a radio problem
- Sentry's either side on noting the issue informs control of the issue
- Control arranges a replacement radio

9.7 Each sentry is be equipped with a Red & Yellow chequered flag (or a light baton for low light conditions). The flag (or light baton) is only to be raised in the event that the exclusion zone has been breached and there is a need to stop the event.

9.8 Action to stop the event

Sentry's can stop the event at any time should the need arise (eg, observing a person or persons breaching the exclusion zone etc). The procedure to stop the event is as follows:

- In the first instance the sentry will raise the incident to control via radio stating "Control this is Position [One] Stop, Stop, Stop".
- At the same time the Sentry will raise his flag (or light baton) Nb raising the flag (or light baton) will signal the Sentry either side and should either not hear the message due to a radio issue they will relay the message to control.
- The Sentry will then provide additional information, for example "There is a person/persons within exclusion zone". At this point raise your flag.

9.9 A full rehearsal will be carried out prior to the event. This rehearsal will identify any possible radio "black spots" or visual obstructions between Sentries to enable sentry positions to be finalised. Each sentry will be given an ID number which will be noted on a checklist to be held by the Explosive Event Controller, on the day of the felling.

9.10 Police personnel will utilise their own radio systems. Liaison with Police will be maintained through the Explosive Event Controller at the Control Point.

9.11 Brown & Mason will liaise with Engie Security and the police as required.

10.0 Traffic Management

10.1 Road & Cycle Paths

10.1.1 The event falls under the Traffic Management Plan for the site with no external traffic management is required for this event.

10.1.2 The event will be coordinated with the Police and local authorities. Consultations will be held in advance with the Competent Authority and the police. In each case, the Safety Coordinator of the municipality of Nijmegen will be consulted.

10.1.3 Explosives will be delivered to the project by our specialised supplier, they will obtain all necessary permits, licences, etc. required in the Netherlands.

10.1.4 Liaison will be maintained between Brown & Mason and ENGIE during the event regarding Centrale Gelderland main site access route.

10.2 Pedestrian

10.2.1 The event falls under the Health & Safety Plan for the site with no external management required.

10.3 Water

10.3.1 No contamination is expected of the River Waal, the Maas-Waal kanaal, any water courses or surface water.

10.3.2 The exclusion zone includes the Waal Dock and therefore requires external river management, this will be planned in detail prior to the event and involve the close liaison with local authorities and stakeholders.

11.0 Exclusion Zone

11.1 The Exclusion Zone for the event is designed, by the Explosives Engineer, 5.1.2f

11.2 A drawing depicting the zone is developed with the cooperation of Brown & Mason and is approved by the explosives engineer prior to the event.

11.3 The Exclusion Zone for the event is shown on the on drawing C2002/BDM2/EZP001, contained in Appendix 1.

11.4 The Exclusion Zone boundary will be manned by Brown & Mason sentries with the assistance of the Police, all having direct and/or radio contact with the Explosive Event Controller at the Firing Point.

11.5 The exclusion zone includes DeKlok Logistics and the residential property on Sprengenweg, both of which will be evacuation during the event. Close liaison will be made with both DeKlok Logistics and the residents of the residential property.

11.6 The Exclusion Zone is a “no-go” area for all personnel. It is the Sentry’s duty to ensure that once the Exclusion Zone is established personnel do not enter the zone. Should encroachment occur the warning protocol will be initiated by the sentries:

Sentry to raise the incident to control via radio stating “Control this is Position [One] Stop, Stop, Stop” Then provide additional information, for example “There is a person/persons within control zone”. At this point the sentry will raise their flag.

11.7 The Explosives Engineer, located at the Firing Point, will be in direct contact with the Explosive Event Controller ensuring that the event can be stopped within a matter of seconds at any time up to the time of the blowdown.

11.8 If the zone is breached after the final 20 second long continuous warning siren has been sounded at T-1minute (i.e. within 40 seconds of the intended blowdown time) the sequence of events will begin again at an agreed time starting from the one minute continuous siren.

11.9 The exclusion zone will be in place and secured 1hr before the event time by Brown & Mason sentries.

12.0 Weather Monitoring

12.1 Weather in the month leading up to the event will be monitored daily using the forecast provided for the Gelderland area by the windfinder website :

https://www.windfinder.com/weatherforecast/nijmegen_gelderland_netherlands

12.2 Based on the weather forecasts a decision will be made whether to continue with the agreed blowdown date/time or reschedule it to a more favourable 'weather window'. These decision points will be as follows:

1) 7 days before the blowdown

2) 3 days before the blowdown

3) 1 day before the blowdown

4) Prior to commencing the sequence of events for the blowdown

5) At 15minutes before the blowdown

6) Prior to countdown for the blowdown

12.3 To aid the decision making process a weather station will be installed on site to provide site level weather data.

3.7.4 Weather conditions, in particular wind speed and direction, will be reviewed on the day of the event and close liaison will be maintained with representatives of the ODRN with regard to dust control arrangements.

3.7.5 The optimum situation from a dust propagation perspective is to carry out the blow down event with a medium to strong wind speed in a predominantly Southerly to South Westerly wind direction (see drawing C2002/BDM3/DSP2 in appendix 9) which would ensure that any airborne dust would be carried away from sensitive receptors. This we will plan for, however there are other weather conditions that would be equally advantageous but far more difficult to plan, for example heavy rain.

12.4 Certain adverse weather conditions can delay the event, notably:

- Thick Fog (fog could prevent line of sight for exclusion zone sentry's)
- High Winds (wind speeds in excess of the stated design parameter of 40mph (65kmh) would prevent the explosives engineer from making the final connections)
- Electrical Storm (lightning would prevent the explosives engineer from making the final connections)

12.5 Weather conditions will be recorded on the day of the event (i.e. wind direction & strength, visibility, etc.).

13.0 Management of Change

13.1 The event is managed by the Explosive Event Controller using the Sequence of Events (see appendix 3).

13.2 On the day of the blowdown the sequence of events provides a series of step by step hold points to ensure that every planned action is checked prior to moving forward.

13.3 Should, for any reason, an action not be able to be completed then the sequence will be paused until the circumstances have been resolved.

13.4 A course of action will be developed to resolve the reason for change and agreed between Brown & Mason, ENGIE and ODRN.

13.5 Any course of action will be put in writing prior to commencement.

13.6 To aid the management of change a number of 'standard' contingency plans have been developed to deal with possible scenarios which could occur.

14.0 Contingency Plans

14.1 Seven main scenarios arising from this type of operation are considered herein:

1. Postponement due to weather conditions
2. Failure of dust suppressing system
3. A total misfire
4. A partial misfire
5. A partial collapse leaving an unstable structure
6. A total collapse but in an unpredicted direction
7. Intruders

14.1.1 Postponement due to Weather Conditions

The optimum situation from a dust propagation perspective is to carry out the blow down event with a medium to strong wind speed in a predominantly Southerly to South Westerly wind direction, in the first instance the event will be plan for this eventuality.

The following procedure will be adopted in the lead up to the event:

1) Weather conditions will be monitored in the week leading up to the event, should the prevailing / projected wind direction be unfavourable then the event will be postponed to the next available time slot, where more favourable conditions are predicted. It should be noted that there are two available time slots on each workday (07:00hrs & 19:00hrs).

The following procedure will be adopted if weather conditions look favourable in advance, but deteriorate during the sequence of events:

1) All sentries will be instructed by the explosive event controller to maintain the exclusion zone.
2) The explosive event controller will, in cooperation with the explosives engineer and the committee, freeze the sequence of events at an agreed time.
3) Weather conditions will be monitored by the committee and a decision reached as to whether the event should be postponed or recommenced when it is agreed that the adverse condition has abated.

As noted earlier certain adverse weather conditions can delay the event, notably thick fog (due to preventing line of sight of exclusion zone sentries) and high winds, procedures as above will be used in these conditions.

14.1.2 Failure of dust suppressing system

A dust suppressing system has been developed and will be deployed for the event, should the system fail the following procedure will be adopted :

1) The sequence of events will be paused whilst the issue with the water system is resolved.
2) All sentries will be instructed by the explosive event controller to maintain the exclusion zone.
3) Only when such time as the water system is fully operational will the sequence of events be recommenced.

14.1.3 Total Misfire

A total misfire means that none of the explosives have been initiated.

The misfire situation will be assessed by our Explosives Engineer, 5.1.2e 5.1.2e and his team following a detailed inspection of the structure.

In the event of a total misfire, the following procedure will be adopted:

1) All sentries will be instructed by the explosive event controller to maintain the exclusion zone.
2) 5.1.2f
3)
4)
5)

6) The warnings described in the sequence of events will be sounded with the same time intervals between them and the circuit will be fired.

14.1.4 Partial Misfire

A partial misfire means that some of the explosives have been initiated. In the event of a partial misfire resulting in the structure failing to collapse, the following procedure will be adopted:

1) All Sentries will be instructed by the Explosive Event Controller to maintain the Exclusion Zone.

2)

3) 

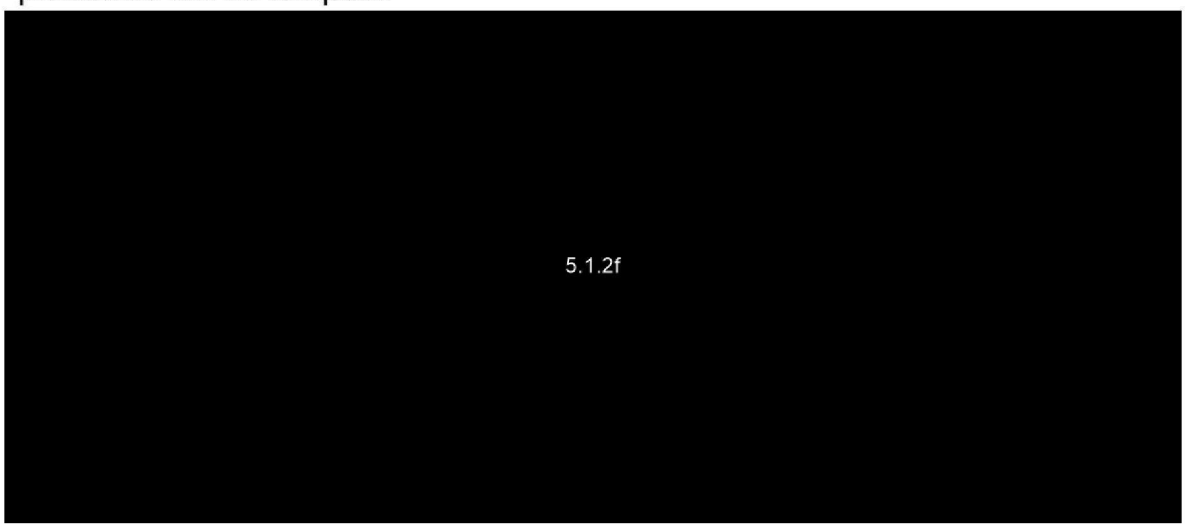
4)

5) The committee will be consulted regarding the Explosive's Engineers' findings.

6) The agreed actions will be documented in the form of a Method Statement and Risk Assessment prior to carrying out any further works.

14.1.5 Partial Collapse

In the event of a partial collapse leaving a dangerous structure, the following procedure will be adopted:



5) The next step will be dependent on the particular circumstances of the problem. In an event of this nature, an accurate assessment of the stability of the remaining structure would need to be carried out by the explosives engineer. A meeting between all parties involved with the blowdown

committee will be held to discuss and agree the way forward which could include re-charging with explosives and detonating at an agreed time or, if the use of explosives is not feasible, then utilising the major existing demolition plant currently on site (High reach machines, etc.).

6) The agreed actions will be documented in the form of a Method Statement and Risk Assessment prior to carrying out any further works.

7) Items of heavy demolition plant will be available to be on site at the time of the blowdown in the unlikely event of a problem.

14.1.6 Total Collapse but in an Unpredicted Direction

Should the structures fall in a totally unpredicted direction, this would not put any lives at risk or cause damage to any third party property (nb! De Klok Logistics), due to the size of the exclusion zone.

14.1.7 Intruders

In the case of intruders identified within the exclusion zone prior to the event time, Brown & Mason's initial response will be for our personnel i.e. sentry/marshal to approach the intruders, determine their intent and request in the strongest possible terms to vacate the exclusion zone under escort by Brown & Mason personnel to a position outside the exclusion zone. Where intruders refuse to leave the exclusion zone will the Police be asked to intervene and take the necessary action.

Brown & Mason will then provide the Police any necessary assistance in removing the intruders or assist them in any other way they deem necessary to enable the event to proceed as planned. Should the event time be missed due to such a situation the event time will be reset in 30min intervals in liaison with other necessary stakeholders under the direct control of the event controller and the explosives engineer.

14.1.8 Contingency mitigation

To avoid the above misfire scenarios, each charge will be connected with sufficient redundancy to ensure that the structure collapses on detonation.

Emergency services will have already been briefed, via liaison with the Police of the operation so that any other possible emergency problems can be dealt with.

The Explosive Event Controller will be the responsible officer for the whole operation on the day assisted by personnel from Brown & Mason and the Police.

Should any delays to the original detonation time be necessary, there will be stated times for a delayed detonation at 30min intervals from the original time. All relevant parties will be informed by the Explosive Event Controller of any delays and the new timeline for the event.

Should the emergency services be required at any time then the Explosive Event Controller will request their attendance via the Police officers on site or directly by Brown & Mason. Security will be informed of their impending arrival by the Explosive Event Controller and instructed to open the security gates and await further instruction regarding the location and route for the emergency services.

15.0 Quality Assurance/Quality Control

15.1 Each event will be carried out in accordance with Brown & Mason's Health, Safety, Environment & Quality Management System Manual.

15.2 Confirmation of all drilling will be recorded and held on file prior to each event, see Appendix 7.

15.3 Confirmation of the placement of explosives and then protection measures will be recorded and held on file prior to each event.

15.4 The Blow Down Manual is to be approved by the Explosive Engineer prior to the first event.

15.5 The Exclusion Zone drawing and the sequence of events are to be approved by the explosive engineer prior to each event.

15.6 The Sequence of Events includes a column for confirmation of each step of the event by the Explosive Event Controller.

16.0 Security

16.1 The project falls within the boundary of the Centrale Gelderland Power Station.

16.2 The power station perimeter is demarked by a security fence.

16.3 The demolition project is contained within a secure perimeter fence, maintained by Brown & Mason.

16.4 Brown & Mason are to liaise with Security and other stakeholders as directed by the Police.

16.5 Brown & Mason carry out daily inspections of the project perimeter fence and have installed suitable signage to the fence advising of the potential dangers of unauthorised entry.

16.6 From the first delivery of explosives until the explosive demolition blowdown Brown & Mason will employ dedicated additional security guards to secure the explosives 24/7. This security is over and above the existing ENGIE 24/7 centrale security.

16.7 Project security manning levels are as follows:

Days - 1 Guard
Nights - 2 Guards

16.8 Explosive components will be delivered to site 'just in time' prior to charging. Only sufficient components will be delivered for that day's charging and will remain under the control of the explosives engineer prior to and during charging.

16.9 Explosives will be delivered to our Explosives Engineer on the project, he will record the delivery and be personally responsible for the explosives.

17.0 Training

17.1 Training for personnel is required to ensure awareness of the hazards, risks and precautions regarding explosive demolition and further to understand the residual risks and control measures required post explosive demolition.

17.2 Training falls into two categories of personnel on site, namely:

- Sentries
- Demolition Operatives

17.3 Training for Sentries takes the form of a site briefing and will include:

- Introduction
- Roles and Responsibilities
- Dress Code/Equipment Issue
- Sequence of Events
- Radio Procedure
- Action on Person Breaching Control Zone
- Conduct
- Question and Answer Session

17.4 Training for Demolition Operatives takes the form of a site briefing and will include the following:

- Identification of Products used
- Precautions Post Explosive Demolition

17.5 Records of training attendance will be retained in the site office.

18.0 Environmental Monitoring

The event will be monitored for key environmental impacts, the impacts having been assessed as potentially significant are:

- Air quality (Air Borne Dust)
- Vibration
- Air over Pressure (Noise)

All monitoring records will be held in Appendix 8 after the Blow Down

18.1 Air Quality (Air Borne Dust)

As a result of the explosive demolition of any structure, regardless of mitigation measures, air borne dust will be an environmental aspect. As such, ambient air testing to determine dust levels and composition produced during explosive demolition will be required. A specialist sub-contractor will be contracted to carry out this activity.

Work will be carried out within the limits on dust stated in the Environmental Management Plan (see Appendix 2 Dust Management Plan in the Environmental Management Plan).

18.2 Vibration

The impact of vibration caused by felling operations is the subject of detailed analysis and predictions prior to any explosive event and is contained in reports separate to this manual.

To corroborate predictions and provide empirical data regarding explosive demolition events, vibration monitoring will be carried out for each event. A specialist sub-contractor will be contracted to carry out this activity.

Work will be carried out within the action limits on vibrations stated in the Environmental Management Plan (see Appendix 3 Vibration Management Plan in the Environmental Management Plan).

18.3 Air Over Pressure (Noise)

The impact of air over pressure caused by felling operations is the subject of detailed analysis and predictions prior to any explosive event and is contained in reports separate to this manual.

To corroborate predictions and provide empirical data regarding explosive demolition events, air over pressure monitoring will be carried out for each event. A specialist sub-contractor will be contracted to carry out this activity.

Work will be carried out within the noise limits set out in the Environmental Management Plan, (see Appendix 1 Noise Management Plan in the Environmental Management Plan). It should be noted that explosive demolition events are short-lived and are therefore specifically excluded from these limit values.

18.4 **Asbestos**

Background Asbestos fibre monitoring will be carried out during the event to take measurements to confirm the absence of asbestos fibres in the air. A specialised approved subcontractor will be appointed to carry out this activity.

The limit value of 2000 fibres/m3 (CI < 0.3) will not be exceeded.

Brown & Mason will do everything reasonably expected to prevent emissions of asbestos fibres to the environment.

19.0 Ecology

19.1 Due regard will be paid to minimise any impact on the natural environment during all Brown & Mason operations. Explosive events on the project will have negligible impact on local ecology.

20.0 Public relations

19.2 With regard to the potential for complaints as a result of dust from further explosive demolition events we would, of course, defer to ENGIE for public relations communication.

19.3 To support ENGIE we would undertake to have in readiness a contractor on standby to provide cleaning services and a ready supply of car wash vouchers such that in the unlikely event that they are required we could agree a mutually acceptable rapid response.

21.0 References

20.1 This Blow-Down Manual should be read in conjunction with the following Brown & Mason documents:

- The Project Health & Safety Plan (VGM)
- Health, Safety, Environment & Quality Policy and Procedures Document
- Integrated Management System Manual

20.2 In addition, this manual should be read in conjunction with all applicable preparation and demolition method statements.

20.3 The works will be carried out in accordance with:

22.0 Appendices

1) Exclusion Zone Plans
2) Exclusion Zone Sentry Registers
3) Sequence of Events
4) Stakeholder Management Plan
5) Key Personnel Register
6) Event Briefings
7) Quality Control Checklists
8) Monitoring Records
9) Dust Suppression Plan
10) Decision making process flowchart

Appendix 1

Exclusion Zone Plan

Deze pagina's zijn reeds openbaar of niet openbaar. Voor de reden verwijzen wij u naar het woo-besluit en de inventarislijst.

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Appendix 2

Exclusion Zone Sentry Register

Explosive Event Sentry Register

Gelderland Power Station

Event 3 : Explosive Demolition of the DeNOx

Date : To be advised

Position	Name	Comment
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
ST		Search team
NE		Non-essential personnel monitoring

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Appendix 3

Sequence of Events

Sequence of Events

Centrale Gelderland Power Station

Event 3 : Explosive Demolition of the DeNOx

Date : Weekday, to be discussed and confirmed

Time : 07:00hrs / 19:00hrs, to be discussed and confirmed

Sequence of Events for the day of the event :

Time	Description of check				Check
04:30hrs	Works commence onsite				
	Weather check				
	Wind direction :		Wind speed :		
	Final B&M engineering inspections				
05:00hrs	Blow Down Committee meeting				
05:15hrs	Event briefing				
	Control point operational				
	Sentries despatched to take up positions				
	Vibration monitors to be placed and switched on				
	Evacuation of site commences				
	Sentries and Marshals in position on exclusion zone boundary				
06:00hrs	**Exclusion Zone in Force**				
	Radio check				
	Internal site security sweep of exclusion zone commences (B&M)				
	Confirm De Klok is clear of personnel				
	Confirm property on Sprengenweg is clear of personnel				
	Confirm Solar PV is clear of personnel				
06:30hrs	Radio check				
	Environmental monitors to be switched on				
	Cameras in place and turned on				

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Sequence of Events

06:30hrs	Water sprays turned on				
	Confirm evacuation complete and exclusion zone secure				
	Check wind direction and speed				
	Wind direction :		Wind speed :		
06:45hrs	Final check with designated responsible persons confirming that the event can proceed				
	Signature :				
	Name :	5.1.2e	5.1.2e	5.1.2e	
	Organisation :	B&M	ENGIE	ODRN	
	Radio check				
06:55hrs	20 second continuous warning siren				
	B&M confirm to explosives engineer that all personnel clear of zone				
06:59hrs	10 second continuous warning siren				
06:59hrs 50sec	10 second count down commences (last 5 seconds silent over radio)				
07:00hrs	**Blow Down Event**				
07:00hrs 30sec	Radio check				
07:05hrs	Site inspection by explosives engineer				
07:15hrs	Explosives engineer confirms site safe to control point				
07:15hrs	**Exclusion zone lifted**				
	10 second intermittent all clear siren				
	Sentries return to site office for debriefing				
	Vibration monitors to be switched off and collected				
	Debris pile stabilisation if required				
07:30hrs	Environmental monitors to be switched off and returned				

Sequence of Events

Management of change :

Signature :			
Name :	5.1.2e	5.1.2e	5.1.2e
Organisation :	B&M	ENGIE	ODRN

Comments (Inc. feedback, learning points, etc.) post blowdown :

Explosives Event Controller	**Explosives Engineer**
Signed :	**Signed** :
Name : 5.1.2e	**Name** : 5.1.2e
Date :	**Date** :

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Appendix 4

Stakeholder Management Plan

Stakeholder Management Plan

Gelderland Power Station

Event 3 : Explosive Demolition of the DeNOx

Date :

Organisation	Contact	Contact Details	Comments
Tier 1 – Statutory **Bodies**			
Tier 2 – Local businesses			
Tier 3 – Local liaison			

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Stakeholder Management Plan

Organisation	Contact	Contact Details	Comments
Tier 4 – Media			

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Appendix 5

Key Personnel Register

Explosive Event
Key Personnel Schedule

BROWN&MASON

Role	Name	Contact No.	Company
Event Controller	5.1.2e	+44 5.1.2e	B&M
Explosive Engineer	5.1.2e	+44 5.1.2e	B&M
Explosive Engineer	5.1.2e	+44 5.1.2e	B&M
Explosive Engineer	5.1.2e	+31 6 5.1.2e	5.1.2e
Managing Director	5.1.2e	+44 5.1.2e	B&M
Project Director	5.1.2e	+44 5.1.2e	B&M
Project Manager	5.1.2e	+31 5.1.2e	B&M
Project Manager	5.1.2e		Engie
Project Manager	5.1.2e	-	Engie
Project Leader Permits	5.1.2e	-	ODRN
Supervisory Authority / Asbestos specialist	5.1.2e	-	ODRN
Community Agent	5.1.2e	-	Police

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Appendix 6

Event Briefing

INTERNAL TRAINING SYLLABUS
TOOLBOX TALK

Site : Energiecentrale Gelderland **Date** :

Trainer : 5.1.2e **Signature** :

TITLE/SUBJECT:	**Explosive Demolition**
	Event 3
	DeNOx

Start Time		**Finish Time**		**Duration**	

POINTS COVERED

- Introduction
- Roles and responsibilities
  - Explosive Event Controller
  - Explosives Engineer
  - Sentries
  - Monitoring personnel
  - Police
  - Client
  - Others
- Sentry Dress code/equipment issue
  - Red Safety Helmet (marked with individual sentry number)
  - Hi Viz vest (marked 'Sentry')
  - White Disposable Overall
  - Safety Footwear
  - Safety Glasses
  - Warning Flag
  - Site Radio
- Sequence of Events

POINTS COVERED

- Radio Procedure:

  Channel 1 will be used over the radios

  Radio checks will be conducted as per the sequence of events by the event controller, the communication procedure for this is as follows :

  - **Control** “Position [one] radio check”
  - **Sentry reply** “Position [one] all clear” or state problem.

  Should a Sentry find his radio not working, he is to attract the attention of next Sentry by holding up his radio to indicate that there is a radio problem and that they should inform control that the radio is inoperative. **Note! DO NOT wave flag at this time**

  Radio dialogue is to be restricted to necessary communication only between control and Sentries, not point to point between Sentries, the procedure for which is as follows :

  - **Sentry** - “Control this is position [one] call back”
  - **Control** - “Receiving”
  - **Sentry** - state message in clear methodical speech

- Action on Person breaching exclusion zone :
  - You are not Police officers do not attempt to stop or detain anyone, raise the incident to control via radio stating “Control this is Position [One] Stop, Stop, Stop” Then provide additional information, for example “There is a person/persons within exclusion zone”. At this point raise your flag
  - Radio is primary means of communication, if your radio is down then the Flag is to be used as a signal to stop the event. Adjacent Sentry are to report by radio on seeing a flag raised and its location

POINTS COVERED

- Conduct:
  - Remember you are representing Brown and Mason
  - Be courteous to third parties, general public, etc.
  - Maintain a professional image

Questions?

FEEDBACK/COMMENTS:

INTERNAL TRAINING SYLLABUS - TOOL BOX TALK
ATTENDANCE SIGNATURE SHEET

Site : Energiecentrale Gelderland **Date** : _____

Site Manager : _____ **SHE Manager** : _____

TITLE/SUBJECT:	**Explosive Demolition**
	Event 3
	DeNOx

All operatives **listed & signed** below attended the above toolbox talk held on site

NAME	SIGNATURE	NAME	SIGNATURE

Appendix 7

Quality Control Checklists

Deze pagina's zijn reeds openbaar of niet openbaar. Voor de reden verwijzen wij u naar het woo-besluit en de inventarislijst.

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Structural Pre-Weakening Quality Control Checklist

Contract No.		Project		Sheet No.	Page **1** of **1**
MSD No.		MSD Title			

Cut No.	Location	Type of Cut	Setting out checked by	Signed	Date	Cut checked by	Signed	Date	Comments

I confirm that the works listed above have been completed in accordance with the relevant method statement and that the pre-weakening works may now commence down to the next level :

Name		**Designation**		**Signature**		**Date**	

Concrete Drilling
Quality Control Checklist

BROWN&MASON

Contract No		Project		Sheet No.	Page **1** of **1**
MSD No		MSD Title			

Date	No of Holes Drilled	Name	Signature	Comment

I confirm that the works listed above have been completed in accordance with the relevant method statement							
Name		**Designation**		**Signature**		**Date**	

Explosives Installation
Quality Control Checklist

BROWN&MASON

Contract No.		Project		Sheet No.	of
MSD No.		MSD Title			

Column No.	Level	Charge Type	Charge Weight	Checked by	Signed	Date	Comments

I confirm that the explosives installation works listed above has been completed in accordance with the relevant method statement :							
Name		**Designation**		**Signature**		**Date**	

Appendix 8

Monitoring Records

Appendix 9

Dust Suppression Plan

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C2002/BDM3/FC1

Decision making process for DeNOx blowdown