

NETWORK GAS SUPPLY EMERGENCY

EXERCISE 2008

Exercise Prelude

BRIEFING NOTES

Exercise Prelude Briefing Notes

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1. OVERVIEW

The Network Emergency Coordinator (NEC) is regularly required to carry out a full-scale simulation of a Network Gas Supply Emergency (NGSE). Following the exercise, a report is produced for the Health and Safety Executive (HSE) detailing the effectiveness of the emergency arrangements and highlighting key findings.

Exercise Prelude is this year's exercise and it will take place over 5th and 6th November 2008 during normal working hours. This briefing pack outlines the actions required by each exercise participant.

In Prelude the NEC will test the effectiveness of an industry response to an NGSE and the Emergency procedures specifically:

- The NEC Safety Case – Issue 6.1 (July 2008)
- T/PM/E/1 - Issue 7.3 (January 2007)
- T/PM/E/3/GNCC – Issue 11 (September 2008)

Participation in the exercise will also test communications and the wider industry emergency procedures of

- Gas National Control Centre (GNCC)
 - Network Emergency Management Team (NEMT)
- Distribution Network System Operators (DNSO)
 - Distribution Network Control Centre (DNCC)
 - Scotia Gas Network (SGN)
- Distribution Networks.
- Shippers.
- Supplementary Transporters.
- Storage Sites.
- Interconnector Operators.

Exercise Prelude should be used to test the effectiveness of each parties internal procedures and ensure that no conflict exists between these procedures and those detailed above.

During the Exercise all communications between participants will commence with “**Exercise Prelude**”.

Please also note that during the exercise the actual physical gas supply system and flows **will not be altered** in any way and the commercial regime will not be affected

Each party involved in Exercise Prelude should appoint an observer to oversee all parts of the exercise in which they are involved or alternatively a log keeper to keep records of each stage of the process. A report from each participant should be produced and sent to the GNCC Emergency Planning Team within a week of the exercises conclusion.

Should you have any questions relating to Exercise Prelude, the contact details for the National Grid, GNCC Emergency Planning Team can be found in Appendix 8.

Exercise Prelude Briefing Notes

NOTE: Where appropriate the Distribution National Control Centre (DNCC) and Scotia Gas Networks (SGN) control rooms are collectively named Distribution Network System Operators (DNSO) through out this document

2. CLASSIFICATIONS OF AN NGSE

There are three types of Network Gas Supply Emergency:-

- a. Critical Transportation Constraint
- b. Gas Deficit Emergency (Insufficient Supplies)
- c. Gas Deficit Emergency (Breach of GS(M)R Safety Monitor Emergency)

3. STAGES OF NETWORK GAS SUPPLY EMERGENCY

The five stages of the Network Gas Supply Emergency and the measures available are as follows: -

Stage 1 – Potential

- Maximisation of Primary System Linepack
- Maximisation of Secondary System Linepack
- Interruption of Exporting Systems
- VLDMC Emergency Interruption
- NTS Non-VLDMC Interruption
- Network Emergency interruption
- Public Appeal 1
- Review Storage Delivery - Breach of GS(M)R Safety Monitor Emergency only
- Admittance of Emergency Specification Gas

Stage 2 – Declaration

- National Grid's residual balancer actions are suspended on the OCM at the declaration of stage 2 if a Gas Deficit or Breach of GS(M)R Safety Monitor Emergency is declared.
- Maximisation of beach gas
- Maximisation of NTS Storage
- Public Appeal 1

Stage 3 – Firm Load Shedding

- Reduction from exporting systems
- VLDMC Firm Load Shedding
 - Category of consumers = > 50 mtpa
- Protected by isolation consumers request to turn off

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- Breach of GS(M)R Safety Monitor Emergency only
- Category of consumers = >2mtpa <50 mtpa
- Firm load shedding of end-users > 25,000 tpa
- Storage withdrawal for sites protected by Monitor
 - Breach of GS(M)R Safety Monitor Emergency only
 - Category of consumers = <25,000 tpa
- Public Appeal 1 & 2

Stage 4 – Allocation & Isolation

- Allocation of available gas across Distribution Networks
- Networks to utilise isolation plans to achieve requested reduction in demand, if necessary

Stage 5 – Restoration

- NEC requests start of restoration process
- Restoration plans implemented by Distribution Networks

4. THE EXERCISE

This year's exercise will be held over two days during normal working hours.

The following processes will be tested: -

4.1 Day One

A scenario will be provided to the Gas National Control Centre (GNCC), giving information regarding an incident(s) on the National Transmission System (NTS).

The scenario will require the following actions to be implemented.

Stage 1 Actions

Declaration of a Network Gas Supply Emergency – Gas Deficit (Insufficient Supplies)

Emergency interruption of consumers will be required as follows:

- ⇒ Primary Transporter will contact systems exporting gas from Great Britain
- ⇒ GNCC and the relevant DNSO will contact interruptible VLDMCs
- ⇒ Shippers will be required to contact their non-VLDMC interruptible consumers and provide to the relevant DNSO ½ hourly updates on progress

Stage 2 Actions

For the purposes of this exercise there will be no involvement of BERR or the Beach Terminals at Stage 2. If required APX will be notified of changes in status of the On the Day Commodity Market (OCM).

Stage 3 Actions

Firm Load Shedding

Firm load shedding will be required within affected Networks

- ⇒ The Primary Transporter will contact systems exporting gas from Great Britain
- ⇒ GNCC and the relevant DNSO will contact VLDMCs

4.2 Day Two

If necessary, the NEC will Declare a Network Gas Supply Emergency – Gas Deficit Breach of GS(M)R Monitor Emergency.

Stage 3 Actions

Distribution Networks will be required to contact a number of consumers using between 25,000 tpa and 50 mtpa to initiate firm load shedding.

National Grid may request implementation of public appeal procedures but if requested no actual public appeals should take place as part of this exercise.

Stage 4 Actions

Allocation & Isolation

Distribution Networks will be advised of their allocation of gas under Stage 4.

Distribution Networks will be required to provide the NEC with details of how they would implement their isolation plans to achieve the required allocation and the timescales involved.

Stage 5 Actions

Restoration

Distribution Networks will be required to provide details to the NEC through their DNSO on restoration strategy and timescales / resources involved.

5. NEC INVOLVEMENT – NGSE

The NEC will request the primary transporter (National Grid, Gas National Control Centre (GNCC)) to take measures to balance the primary system under a gas deficit emergency. This will involve the formation of a Network Emergency Management team (NEMT).

The measures taken should reflect the NEC Safety Case and T/PM/E/1.

During the exercise the actual physical gas supply system and flows will not be altered in any way and the commercial regime will not be affected.

At the end of day one the NEC will issue an NEC 'update on Network Gas Supply Emergency' declaration to indicate that the exercise will be suspended until the following day.

At the end of day two the NEC will issue an NEC 'Declaration of the end of a Network Gas Supply Emergency' to indicate the Exercise is complete.

The NEC will make an assessment of how well the exercise is carried out by the primary transporter and all other parties involved.

6. DISTRIBUTION NETWORK SYSTEM OPERATORS.

System Operators of the secondary transporter networks will be notified of actions at each stage by GNCC.

During the exercise information should be disseminated to Distribution Networks, and their Supplementary Transporters and Shippers as required in line with E3 procedures.

Distribution Network System Operators should action and collate updates on the progress of: -

- Emergency Interruption
- Firm Load Shedding
- Isolation

Reporting

Following the exercise, produce a report detailing any problems or observations associated with each process that you were involved in and return it to the GNCC Emergency Planning Team. Contact details are provided in Appendix 8.

Please see appendix 7 for further guidelines on the reporting process.

7. SHIPPER RESPONSIBILITIES

7.1 Reporting

Responsibility

To produce a report for the NEC detailing any problems associated with each process that they are involved in.

7.2 Stage 1 - Emergency Interruption

Aim

The aim of this exercise is to establish:

- a) If an interruptible end-user can be contacted successfully
- b) If an interruptible end-user can stop using gas once contacted
- c) Timeliness and reporting accuracy

Responsibility

Once the NEC calls for Network interruption, Shippers will be required to contact their interruptible end-users to ask them whether or not they would be able to interrupt.

The number of required contacts will be specified during the exercise but could either be full Network interruption or partial Network interruption.

- If full interruption is called, Shippers should commence contact with end-users immediately and not wait for their portfolio to be issued.
- If partial Network interruption is called Shippers will be issued with details of which end-users in their portfolio to contact.

Emergency Interruption also includes cessation of any storage injection.

The T/PM/E/1 states that Shippers should be able to contact their entire interruptible portfolio within 1 hour of receipt of the notice to interrupt.

Shippers should make ½ hourly updates to the relevant DNSO advising them of the number of customers contacted so far and the reduction in demand that this represents.

Please see appendix 1 for further details.

All consumers must be advised that the call is part of Exercise Prelude and that actual interruption of the site is not required.

7.3 Stage 2 – Declaration

Actions:

Maximise terminal supplies

- You may receive from the GNCC **Shipper2a** form requesting that you maximise supplies from Terminals.
- A reply to OIC of Supply is required using **Shipper2a reply** form indicating how much additional gas could be delivered.
- Please provide further updates as appropriate.

Shippers are not required to take any physical actions.

7.4 Stage 2/3

Actions:

- You may receive from GNCC a **Shipper2b** form requesting maximisation of supplies from storage.

Again no physical actions are required.

7.5 Stage 3 – Firm Load Shedding

- The relevant transporter will issue a notification to Shippers of VLDMC load shedding (for info. only)

7.6 Stage 5 – Restoration

- The relevant transporter will issue a notification of the revocation of emergency measures in place (for info. only)

7.7 Reporting

Responsibility:

Following the exercise, produce a report detailing any problems or observations associated with each process that you were involved in and return it to the GNCC Emergency Planning Team. Contact details provided in appendix 8.

Please see appendix 7 for further guidelines on the reporting process.

8. DISTRIBUTION NETWORK RESPONSIBILITIES

All communications to and from Distribution Networks should be made through the relevant DNSO. For example, SGN should send communications to GNCC through the SGN Control room support team. The other Distribution Networks should reply to their system operator, DNCC, who will collate replies and communicate them to GNCC.

8.1 Stage 3 - Firm Load Shedding

Aim

The aim of the firm load shedding exercise is to establish:

- a) If a firm end-user can be contacted using emergency contact information
- b) If a firm end user can stop using gas once contacted
- c) Timeliness of Firm Load Shedding
- d) That processes are in place to enforce (physically isolate) load shedding, if required

Responsibilities

Once the GNCC requests that firm load shedding begin for those sites >25,000 tpa, the Networks will be required to start contacting the end-users in this category to request them to cease using gas.

The DN's will be requested to Firm Load Shed a percentage of their >25,000tpa load. This more accurately represents what would happen in a real emergency. However, we have no information on how many sites a DN would need to contact to deliver this load reduction.

The Distribution Network should contact **at least** 200 sites per LDZ even if this is in excess of the load requirement. This will enable a direct comparison to be made of Firm Load Shedding performance in previous exercises. A Distribution Network may use its discretion to continue contacting sites in an LDZ if the load reduction has not been met but in excess of 200 sites have been contacted.

Please provide feedback to GNCC through the relevant DNSO if the required load reduction has not been achieved, with an estimate of how long it would take to deliver the requested load reduction.

The **NET2R** form should be completed to provide an update on Firm Load Shedding progress to the relevant DNSO. This information will be collated and copied to the GNCC. This form is to be updated and sent hourly.

Please see appendix 2 for further details.

A Firm Load Shedding contact proforma sheet must be completed for every consumer that is contacted.

All customers must be advised that the call is part of Exercise Prelude and that they should not actually cease taking gas.

8.2 Stage 3 - Public appeal

Not being tested during exercise Prelude.

No actual Public Appeals should take place

8.3 Stage 4 - Isolation

Aim

To ensure that effective Isolation Plans are in place and can deliver the required load reduction in a timely manner.

Requirement

The GNCC will provide the relevant DNSO (DNCC & SGN) with an amount by which the Distribution Networks will need to reduce their demand.

The DNSO will inform the Distribution Networks of the percentage reduction that they need to make through isolation using **NET5**.

The Distribution Networks will need to use their isolation procedures to identify which sections of the network that they would isolate to achieve the given percentage.

The Network's reply to the NET5 form will be in two parts:

1. The networks will quickly reply using form **NET5Ra** (within 1 hour), including details of percentage and lead-time for isolation.
2. Then, within a further hour (within 2 hours of receiving NET5), the networks will send **NET5Rb** detailing more information including postcodes to be isolated.
3. Distribution Networks should ensure that replies are directed through their DNSO. SGN's replies will be sent direct to GNCC, other iDN replies will be sent via DNCC to GNCC.

The Networks will then issue a fax to the GNCC detailing their isolation requirements. This should identify the affected postcodes and estimate the required manpower that would be involved in order to achieve the reduction from the time requested.

Please see appendix 5 for further details.

No actual isolation will take place.

8.4 Stage 5 – Restoration

Aim

To ensure that appropriate staff within the GNCC, DNSO and the Distribution Networks are familiar with the restoration process.

To assess the manpower required and time it would take to restore sections of the Network after isolation has taken place.

Requirement

Once the GNCC sends the declaration to the Networks requesting restoration of supply, the Networks should calculate the time and manpower that would be required to restore supply. SGN should send written details direct to GNCC. The other iDNs should reply to DNCC which is then copied to GNCC. DNCC should reply regarding the rDNs direct to GNCC.

Please see appendix 6 for further information.

8.5 Reporting

Responsibility:

Following the exercise, produce a report detailing any problems or observations associated with each process that you were involved in and return it to the GNCC Emergency Planning Team. Contact details provided in appendix 8.

Firm Load Shedding data

Once the exercise is complete the Distribution Networks are to collate their Firm Load Shedding data, summarise by LDZ and by Shipper and send to the GNCC as displayed below:

LDZ	Shippers	Calls	Unsuccessfull Contacts	Can turn off gas	Cannot turn off gas	% Unsuccessfull Contacts	% Can turn off	% Cannot Turn off	SOQ (KwH) can turn off
Total									

Additionally, please provide details of an appropriate contact in your organisation that can field any Shipper queries etc. These details will be included in an appendix to the exercise Prelude report.

Please see appendix 7 for further guidelines on the reporting process.

9. SUPPLEMENTARY TRANSPORTER RESPONSIBILITIES

9.1 Stage 1 - Emergency Interruption

Once the GNCC has requested that Emergency Interruption needs to take place the DNs will contact their Supplementary Transporters to advise them of the situation and request them to reduce their interruptible SOQ (if applicable) by the same percentage as at the appropriate Network.

The Transporters should calculate the reduction and provide the appropriate DN with the Kwh figure that this reduction represents.

Please see appendix 1 for further details.

All customers must be advised that the call is part of Exercise Prelude and that they should not actually cease taking gas.

9.2 Stage 3 - Firm Load Shedding

Once the GNCC has requested Firm Load Shedding of end-users >25,000 tpa, the DNs will notify their Supplementary Transporters that they will also need to reduce their SOQ by the same percentage as at the appropriate Distribution Network.

The Transporters should calculate the reduction and provide the appropriate DN with the Kwh figure that this reduction represents.

To test their consumers contact details they should contact their consumers and provide hourly updates to the appropriate DN, on the amount of load shed by number of contacts made.

Please see appendix 2 for further details.

All customers must be advised that the call is part of Exercise Prelude and that they should not actually cease taking gas.

9.3 Reporting

Responsibility:

Following the exercise, produce a report detailing any problems or observations associated with each process that you were involved in and return it to the GNCC Emergency Planning Team. Contact details provided in appendix 8.

Please see appendix 7 for further guidelines on the reporting process.

10. INTERCONNECTOR OPERATOR RESPONSIBILITIES (BGE, IUK)

The Interconnectors will be notified of actions at each stage by GNCC. This section is only for operators, and relevant interconnector Shippers.

10.1 Moffat Interconnector:

Moffat Interconnector will receive a **BGE** form from GNCC requesting information on the breakdown of your firm load and whether a Voluntary Firm Load reduction is available/required. Please reply ASAP.

In stage 1:

- BGE Shippers will receive **BGE1** form declaring emergency interruption required, operators will be copied in on this fax.
- The BGE Shippers are asked to re-nominate interruptible load to zero **but for the purposes of this exercise re-nominations are not to be entered into Gemini.**

In stage 3:

- Moffat Interconnector will receive **BGE2** requesting a percentage reduction in their firm load.
- Note: This may be repeated if required during further stage 3 actions.

In stage 4 (Isolation):

- Moffat Interconnector may be requested to further reduce load as Distribution Networks in mainland Britain are being requested to isolate parts of their networks.

In stage 5:

- Moffat Interconnector will receive **BGE4** to revoke stages 1-4
- Moffat Interconnector will receive **BGE3** when the situation is resolved revoking Emergency Interruption.

Reporting

Following the exercise, produce a report detailing any problems or observations associated with each process that you were involved in and return it to the GNCC Emergency Planning Team. Contact details are provided in Appendix 8.

Please see appendix 7 for further guidelines on the reporting process.

REMINDER: For the purposes of this exercise no physical actions are required and re-nominations are not to be entered into the Gemini system.

10.2 Bacton Interconnector

In Stage 1:

- I(UK) Shippers will receive **IUK1** form declaring Emergency Interruption required. Operators will be copied in on this fax.
- The I(UK) Shippers are asked to re-nominate interruptible load to zero **but for the purposes of this exercise re-nominations are not to be entered into Gemini.**

In Stage 3:

- Bacton Interconnector will receive **IUK2** requesting reduced firm load by a percentage.
- Note: This may be repeated if required during stages 3 / 4.

In Stage 5:

- Bacton Interconnector will receive **IUK4** to revoke stages 1-4.
- Bacton Interconnector will receive **IUK3** when the situation is resolved, revoking Emergency Interruption.

11. ISLE OF GRAIN TERMINAL :

The site will be contacted at each stage by GNCC.

During Stage 1 Isle of Grain terminal may be contacted to ascertain what the maximum level of delivery to the NTS would be.

During Stage 2 Isle of Grain terminal may be contacted with a request to maximise supplies to the NTS.

For the purposes of this exercise no actual change in supply are required.

During Stage 5 you will be contacted to confirm that you could return to normal operation.

12. STORAGE SITE RESPONSIBILITIES

Storage Sites will be notified of actions at each stage by GNCC.

Stage 1 - Emergency Interruption

- Storage sites may receive **Storage1** form requesting Emergency Interruption of injection, in response please provide a revised nomination.
- Storage sites may receive **Storage2a** form that requests details of capability and current status. Please response within 30mins by faxing the completed form to GNCC.

Stage 2/3

- Storage sites may receive **Storage2b** form requesting a required export rate and time to commence delivery.
- Please provide new Storage Flow Nomination (SFN) to GNCC via fax.

Stage 5

- Storage sites will receive **Storage3** form to revoke Emergency Interruption.
- Storage can now return to normal operation.

No physical actions are required as part of the exercise.

13. REPORTING

The NEC is required to produce a report for the HSE and the Gas Industry on the outcome of Emergency Exercise Prelude.

This report will contain the views of all parties involved and will contain recommendations from the HSE and NEC on any improvements that are required to the process.

It is, therefore, important that all parties participating in Exercise Prelude produce a report detailing their observations and findings. Guidelines for producing an Exercise Report can be found in Appendix 7.

After the exercise has been completed it is critical that all parties submit their reports to the NEC as soon as possible as the NEC is required to produce a first full draft to the HSE within four weeks of the completion of the exercise.

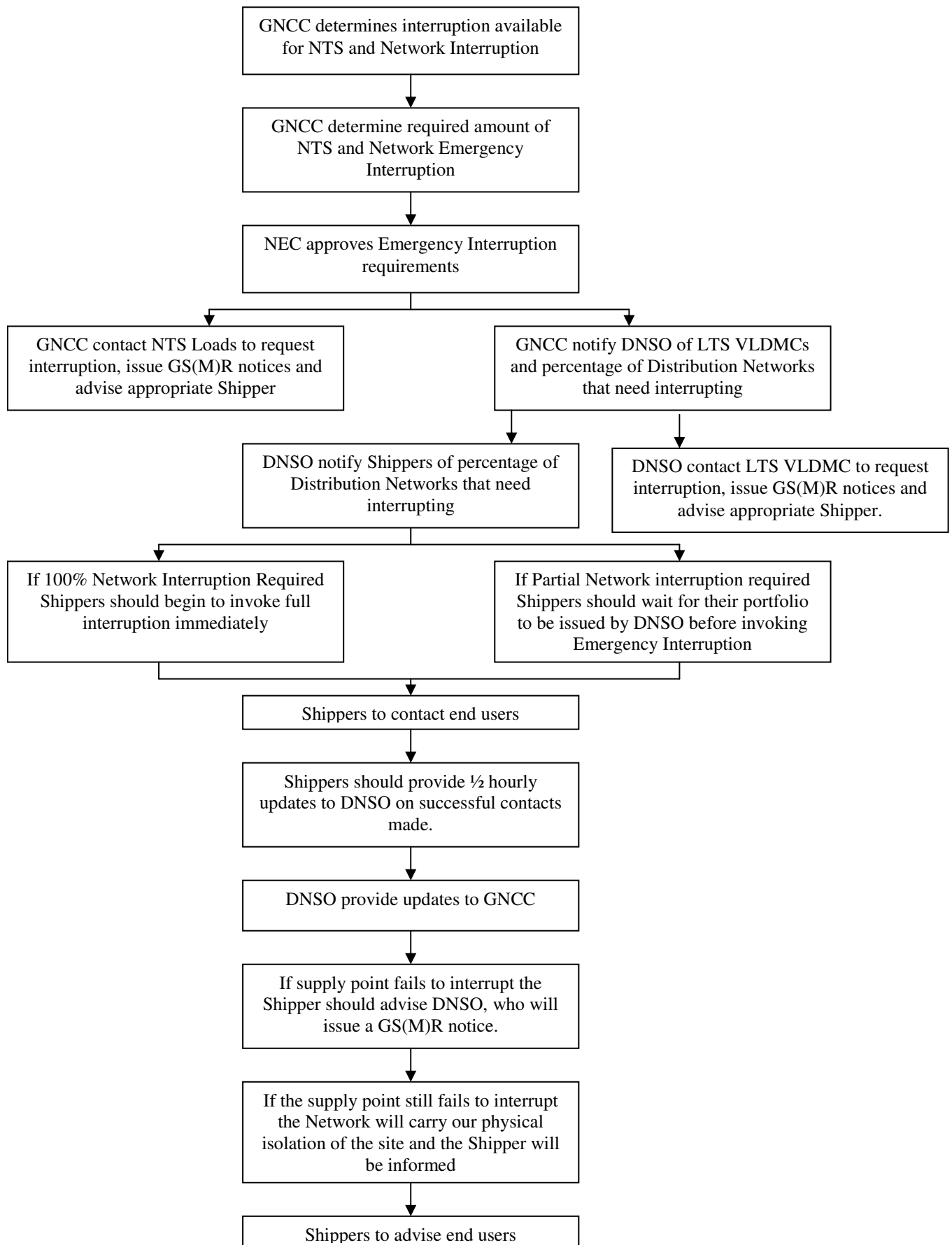
The report will be in two formats:

- Internal - Available to the NEC and HSE only. This report will contain all data and a full analysis of the performance of all parties involved in the exercise.
- External – Available to all other parties involved in the exercise. This report will contain overall summaries but not name specific participants of the process.

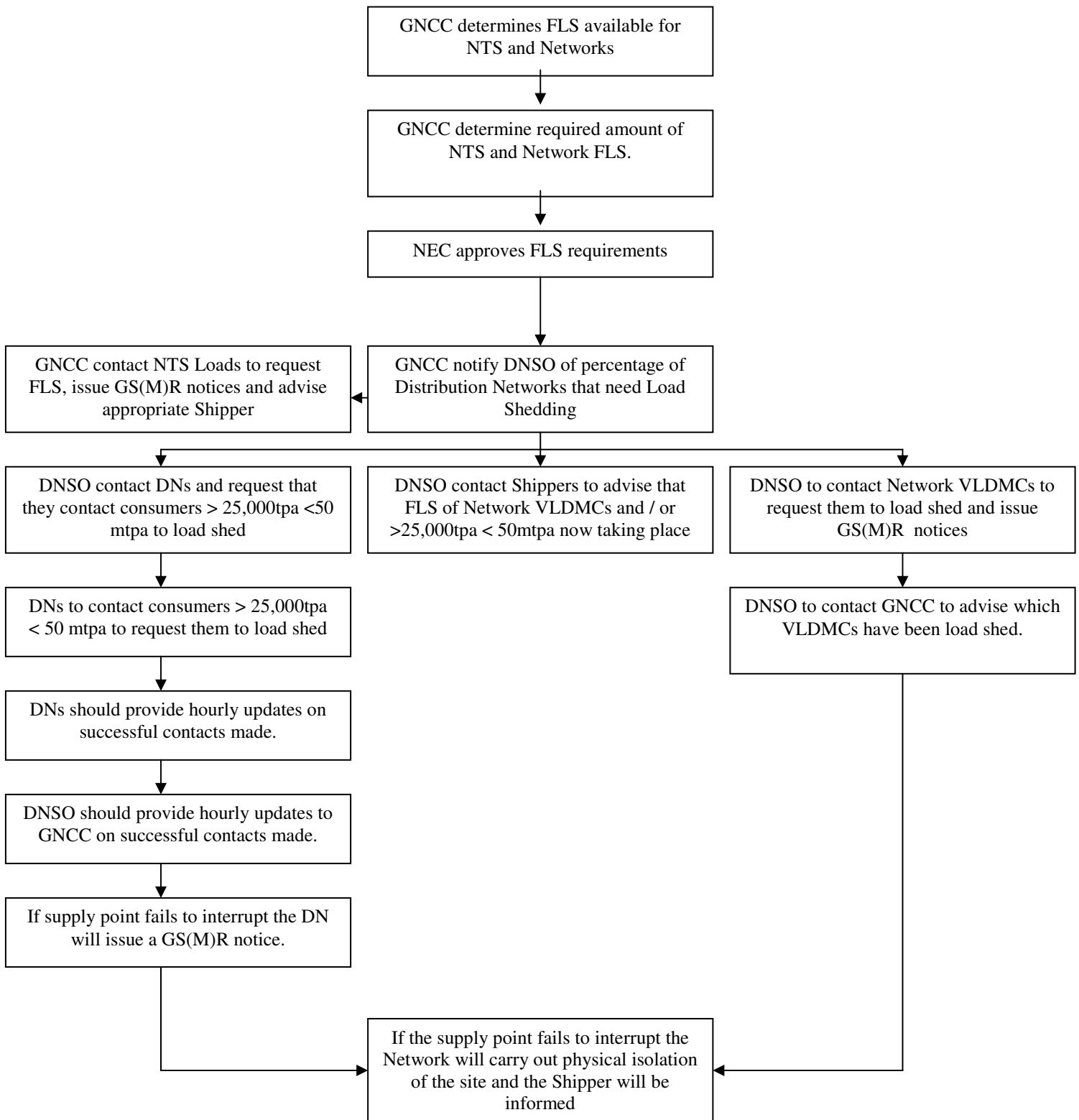
If specific parties wish to know their individual results they should send a request in writing to the GNCC Emergency Planning Team.

14. Appendices

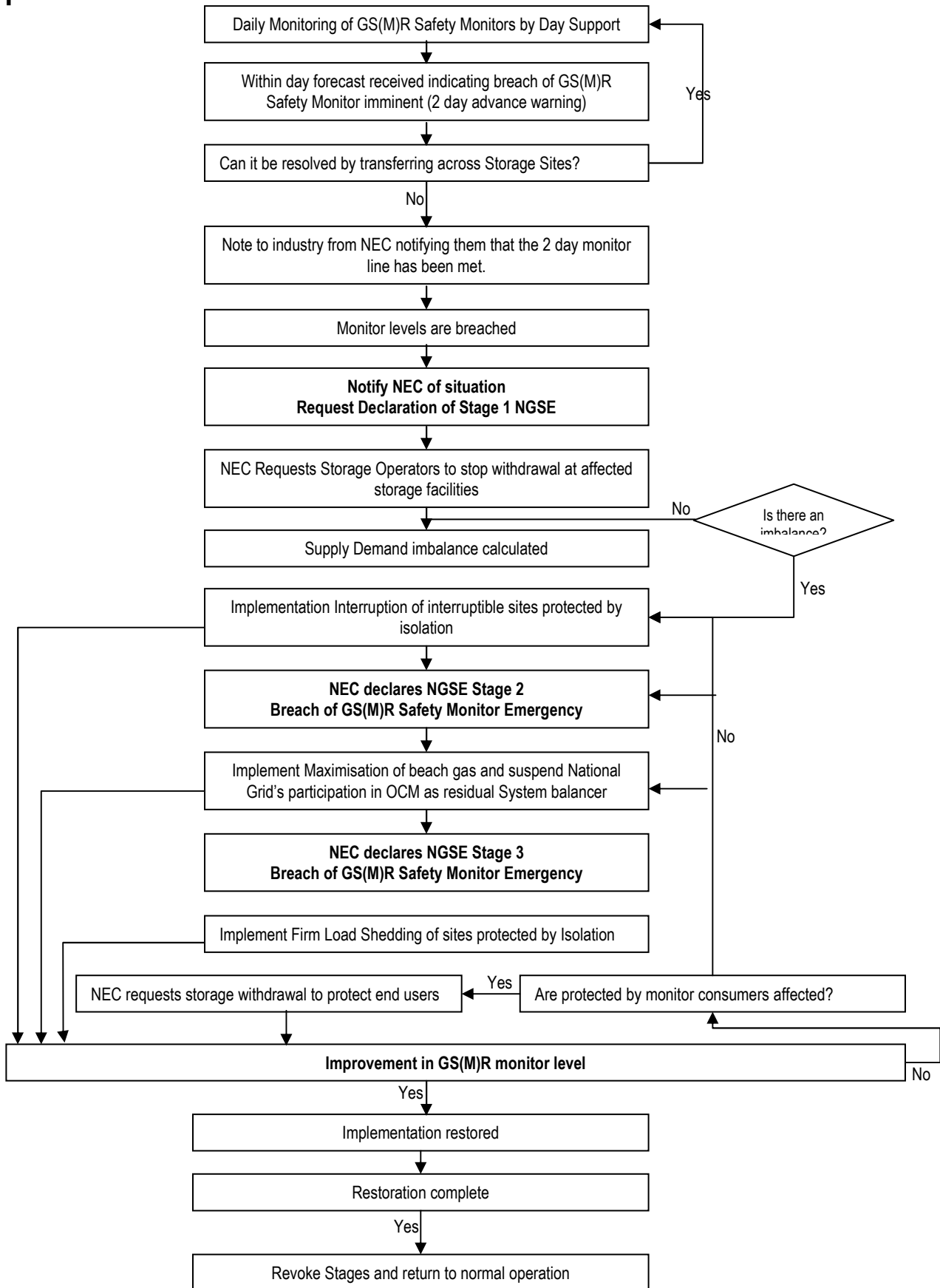
Appendix 1 – Flow chart detailing Emergency Interruption process



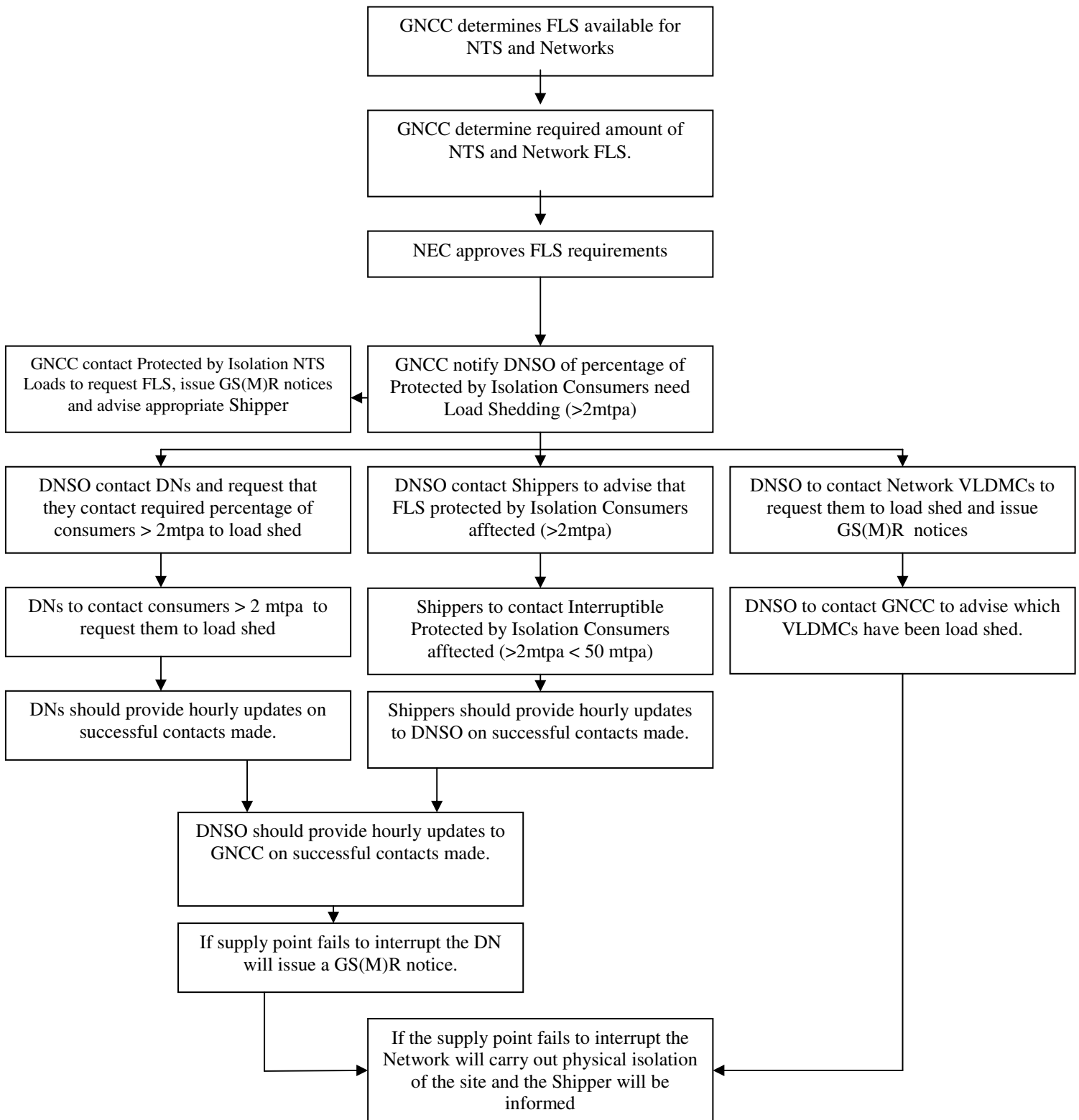
Appendix 2 – Flow chart detailing Gas Deficit – Insufficient Supplies Firm Load Shedding process



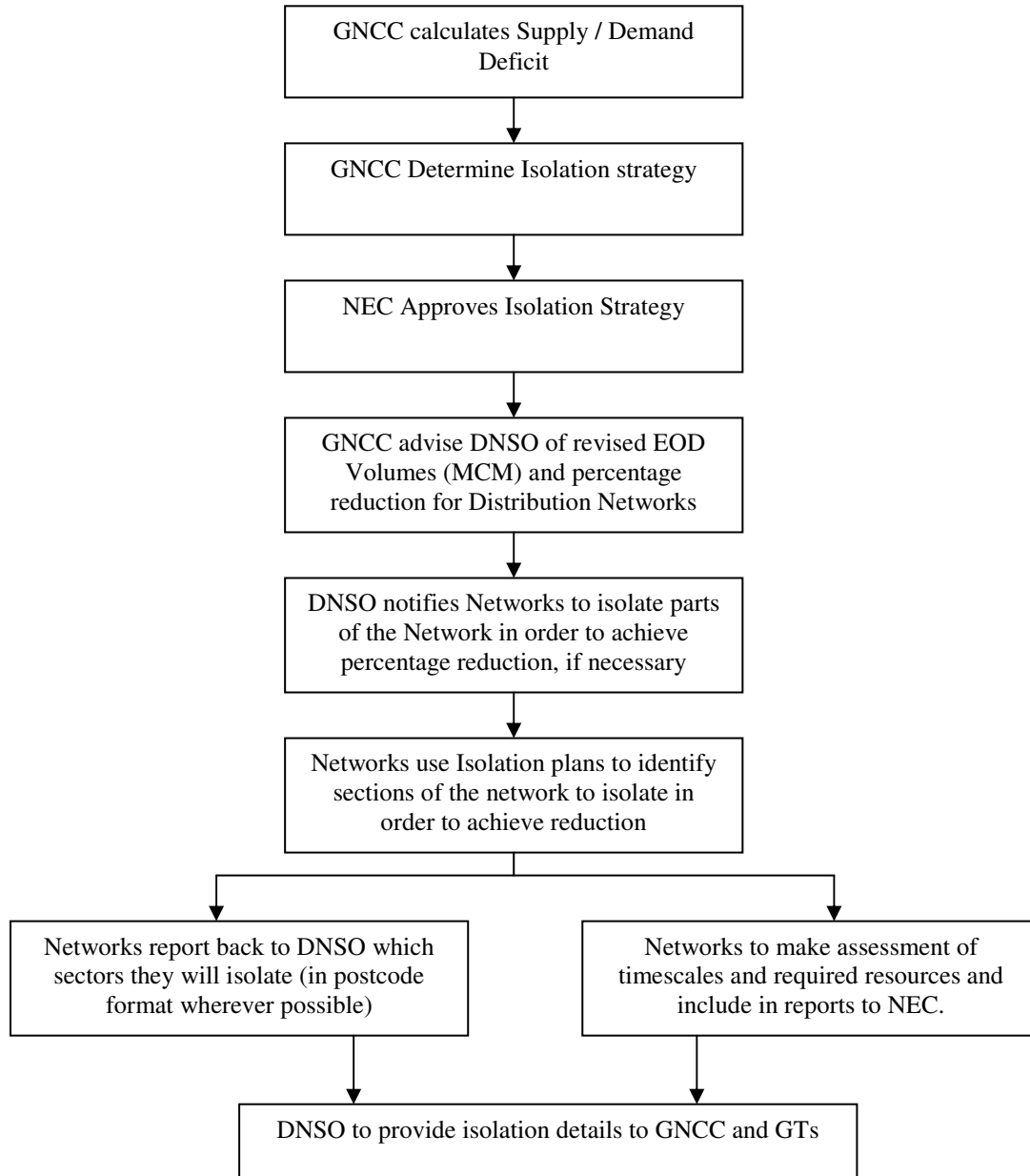
Appendix 3 – Flow chart detailing Gas Deficit – Breach of GS(M)R process



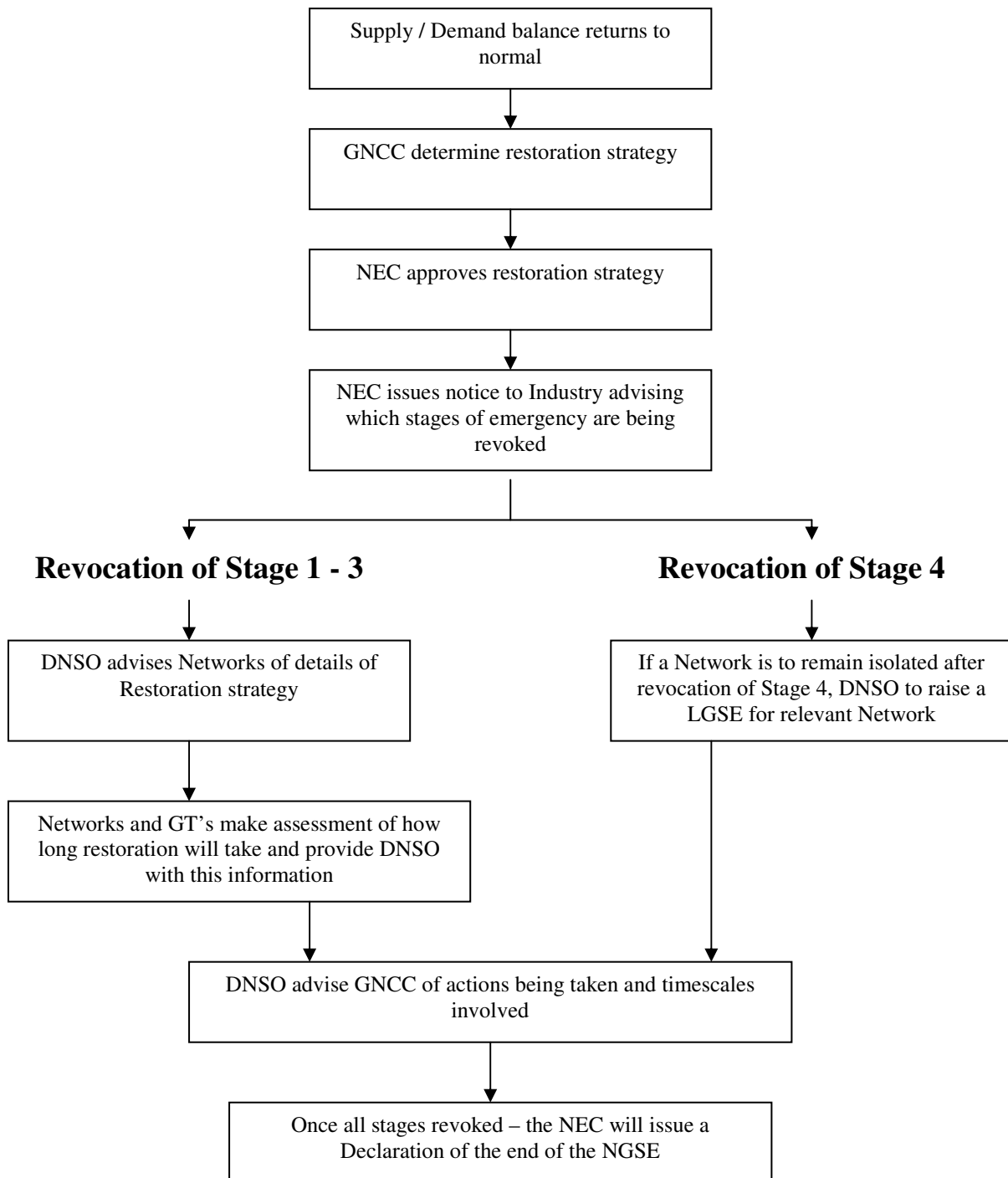
Appendix 4 – Flow chart detailing Gas Deficit – Breach of GS(M)R process Load shedding process



Appendix 5 – Flow chart detailing Isolation process



Appendix 6 – Flow chart detailing Restoration process



Appendix 7 - Guidelines for producing a report on Exercise Prelude

Each party involved in Exercise Prelude should, where possible, appoint an observer to oversee all parts of the exercise in which they are involved or alternatively a log keeper to keep records of each stage of the process.

A report should then be produced and sent to the GNCC Emergency Planning Team (see appendix 8) within a week of the exercise itself.

The GNCC Emergency Planning Team will use your comments to produce an overall report for the HSE on how the Emergency Procedures were implemented and will need to include any problems that are encountered during the exercise and any actions that may be required as a result.

The following guidelines are for use by the Observers/Log Keepers for Exercise Prelude.

The report should clearly identify which party you represent, each stage of the emergency that you were involved in and its associated comments.

On the following page you will find a report proforma for use during the Exercise.

The following is a list of things that should be observed/reported on during each stage of the exercise: -

Whether the correct procedures were adhered to during the each stage.

Whether the notification method was correct according to the procedures.

Whether the information provided in any correspondence was legible and easy to understand.

Whether there was any confusion over what actions were required.

Whether or not there were enough people to implement the procedures required.

If the equipment was suitable for the job – was there enough equipment.

Ascertain the time taken to calculate the information required.

Ascertain whether the speed of response from the parties involved was reasonable.

If the Systems (including spreadsheets etc) were suitable for purpose.

You may also wish to include any recommendations that you may have to improve any part of the Emergency process

Report Proforma

Name of Observer:

Representing (Shipper name, NMU, transporters name, etc):

Stage of Emergency:

Process:

Observations:

Recommendations for Improvement to process:

Appendix 8 - National Grid, GNCC Emergency Planning Team contact details

Should you have any queries regarding Exercise Prelude, please contact us on the numbers below: -

Paul Youngman – Emergency Planning Manager (GNCC)

Tel: 01926 654151

E-Mail: Paul.Youngman@uk.ngrid.com

or

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