

## Request For Information – review of Freeze/ thaw incidents 19 March 2019

### Section A: Factual details of freeze/thaw events

***A1: Provide details of the impacts of events on your network / customers using the attached tables (please complete both sheets). We are requesting information from the period 14 February 2018 to 14 March 2018. Please specify on which dates your company considered it was managing events rather than business as usual (the end date should be no earlier than all customers being back on supply). If you consider it appropriate, you may extend the date range (eg to the start of February) and explain why additional dates are relevant. You may not reduce the date range.***

Please see attached tables. We were managing events from early morning to late afternoon on Saturday 03 March. After which we returned to business as usual (BAU).

On the morning of the 3<sup>rd</sup> March an increase was seen in the number of calls being received by our 24-hour Operations Centre. At 08:20hrs it was noted that the Portsmouth (Farlington) PRV, which supplies the whole of Portsea Island, had lost power and was not opening to meet the increasing early morning demand in the network. The power loss was because of a weather related issue experienced by our electricity provider.

The Portsmouth (Farlington) PRV was by-passed while we arranged for a mobile generator to be taken to site and power restored to the PRV. The valve was then able to open fully to ensure the demand was met. Once full power had been re-established, the normal levels of service to Portsea Island were restored.

The reduction of the level of service our customers received was also adversely affected by the rapid thaw that caused the night flows from our Farlington Reservoirs that supply Portsmouth and Hayling Island had increased from 330 to 500 l/sec. Levels of service was reinstated by 10:00hrs. Customers on Portsea Island had experienced a reduced level of service for 1.5 hours.

Once we were reassured there were no lasting effects from the power failure of the PRV, we returned to BAU in late afternoon on Saturday 03 March.

Section B outlines the proactive planning and preparation undertaken for the freeze thaw event. Whilst we saw an increase in burst mains, the numbers were not considered significant, and in essence the repair of these were treated as BAU.

***A2: Beyond the issues highlighted in Tables 1 and 2, please provide details of any further impacts your network or customers (by customer type) experienced that your company had to respond to?***

Other than the issues felt on 03 March, relating to the power failure of the PRV the only other issue was around wall mounted meter boxes. In the lead up to, and during, the freeze thaw event, we experienced a number of issues with frozen pipes in wall mounted meter boxes. This is outlined in Section C4.

***A3: Details of how responding to the incident impacted on your wider business's "business as usual" operations during the incident period. Where possible provide an indication of the scale and nature of these impacts.***

As the incident on 03 March was for a relatively short period, we do not feel the freeze thaw incident had any effect on our BAU operations. The number of broken mains experienced during the freeze thaw event, whilst higher than usual, was not considered significant, and were treated as BAU.

***A4: What have you judged to be the cause of the issues, particularly water supply interruptions, for your customers (by customer type) during this period? What factors were relevant?***

Both household and non-household customers were affected by reduced levels of service on Portsea Island for 1.5 hours on the morning of 03 March due to a power failure affected the Portsmouth (Farlington) PRV that serves the Island. The number of customers affected is shown in the attached tables.

The number of broken mains experienced during the freeze thaw event, whilst higher than usual, was not considered significant, and were treated as BAU. Both household and non-household customers experienced interruptions to supply during the repairs

### **Section B: Planning and Preparation**

***B1: How did your established processes for gathering intelligence and insight into the potential effects of forecast bad weather on your network help you prepare for the event? Did they highlight any particular risks and what did you do to mitigate these? (e.g. network preparation, communications with customers, increased engineering or call centre resources) Did you share these insights with other utilities?***

Portsmouth Water benefits from a significant body of industry knowledge provided by experienced staff occupying key roles. We already had prior knowledge of how the network reacts to freeze thaw events based on previous experience. In particular, the events of 2009/10 where an increase in demand was seen provided an insight into what could be expected. Whilst the number of burst mains and leaking stopcocks increases during the freezing event it is typically the thaw and in particular its rapidity that determines how badly the network will be affected. In addition, we also know that the thaw usually occurs in a west to east direction across our supply area. This means that if resources need to be deployed it will be the western areas that receives them before the east. This provides us with a basis for outline logistical planning upon which a more detailed approach can be based.

One of the lessons learnt from the 2009/10 winter event was the importance of keeping our customers regularly updated. After the 2009/10 event we made improvements on our communication via our website and also from messages on our 24-hour Emergency telephone number.

Since 2009, the focus of our mains renewal strategy has been predominately on 3" & 4" cast iron mains laid post 1945 in clay soils. Approximately 1% of the total length of mains in our area of supply have been renewed each year. We believe this strategy has reduced the number of burst mains experienced during a severe winter event, such as the freeze thaw event experienced in early March 2018. Our mains renewal strategy over the last couple of decades has seen mains bursts reduce from 800no. to 300no. annually.

As a result of weather forecast predictions, approximately 10 days before the freezing weather, checks, led by the Engineering Director, were undertaken on stock levels of critical materials required for repair and maintenance activities.

The freeze element of the freeze thaw event meant that many of our customers saw a number of days (on the Tuesday, Wednesday and Thursday) with temperatures as low as -6°C. All key staff (Directors, Senior Managers and Supervisors) reviewed weather reports during that time to understand exactly when the thaw was likely to occur and how intense it was likely to be. It became increasingly apparent that the thaw was going to be intense; -6 to +6°C within 24 hours and so resources would be required during the weekend. The following actions were taken from Wednesday onwards to prepare the Company, its network and our customers for the rapidly rising temperatures predicted for the weekend.

- Much of the planned work to be undertaken on production, storage and network assets was suspended.
- Production staff ensured access to the sites was maintained. "snow socks" were fitted to some vans to ensure they could reach some of our more inaccessible sites.
- Distribution inspectors availability to work the weekend was identified
- Distribution gangs (direct labour) availability to the weekend was identified (4 gangs available if required)
- PW's infrastructure framework contractor's resources were identified. (6 gangs available if required)
- PWs supply pipe framework contractor's resources were identified. (2 gangs available if required)
- Staff availability for distribution planning and despatch work was identified.
- Customer service staff availability was identified. (14no. available if required)
- Key leakage staff were also identified who could work the weekend.
- The incident management team was formed on Friday, two meetings took place. The first was to determine if the preparations, already made, were adequate and list out additional key actions. The second meeting was to ensure the key actions had been covered.

Key materials stock related to both mains repairs and wall mounted meter boxes was reviewed. Stock levels for mains were adequate but stocks to repair wall mounted meters boxes had been severely depleted prior to the weekend. Our supplier had not made specific arrangements to make extra spare parts available and so on the Friday contact was made developers to enable us to borrow their stock to be used to undertake repairs. In addition our distribution teams developed a temporary pipework arrangement for the WMMBs to ensure customers supplies could be temporarily repaired.

The insight was not shared with other utilities, water companies, LRFs or council emergency planners prior to the incident. It was felt that all utilities, councils and emergency services were fully aware of the freeze thaw.

***B2: What impact, if any did your preparation have on your ability to handle the event? What role did your Executive take in preparing for these events.***

PRT's executive team were instrumental in ensuring the company was as prepared as possible for the event. They had oversight of their respective directorates and ensured senior managers were putting measures in place, approximately 10 days in advance, to provide a robust response to the rapidly changing weather. This was then brought together, on Friday 02 March, by the formation of a planning group consisting of members of the senior management team to provide a coordinated response to any potential event across the business, as a result of the freeze thaw. The group met twice on Friday 02 March with the meetings chaired by our Engineering Director to ensure governance was applied to the company's proposed response.

When the thaw began at 21:00hrs on Friday 02 March. The plans we had put in place meant that if a response was required the company was able to provide it. The failure of the electricity supply, because of a weather related issue experienced by our electricity provider, to a PRV that fed Portsmouth City was identified at 08:20hrs on Saturday morning. The incident management team had formed by 09:30hrs. This then dealt with the PRV failure, the increase in company contacts and the increase in bursts in a coordinated way. The preparations made on the Friday were then actioned with customer services, inspectors and gangs all being mobilised

Without the preparations, the company's response would have been inadequate to deal with the event.

***B3: What Emergency plans were in place and were they adequate to deal cope with the problems? Were those emergency plans appropriately enacted? If so, when?***

The company holds a number of emergency plans including the running of the incident response team. The Company Emergency Planning Manager ensures the Company's response is in line with emergency plan. He also ensures the minutes of the meetings are logged and the key actions identified. The key emergency plans used are listed below.

EMP 3.0 Emergency Plan: Distribution

This plan outlines the framework and required actions for dealing with the following

- A failure of a strategic main
- Widespread bursts during cold weather
- Valve failure
- Water quality problems following planned maintenance
- Chemical or microbiological contamination of the main

EMP 4.1 Event Reporting Log

EMP 4.3 Event Management Team Actions

EMP 4.4 Communication Team Actions

BCP 4.13 Business Continuity Plan for Severe Weather.

This plan provides support on the actions to take during

- Heavy Snow
- Severe Cold and Freezing Temperatures
- Flooding
- Excessive Windy or Stormy Weather

The plans were considered appropriate with each one being used when required. Safe travel by staff to and from work was invoked during the freeze with the others being used as soon as the Company stepped away from Business as Usual conditions. EMP 4.1, 4.3 and 4.4 were all used from Friday 2 March for the entirety of the incident.

***B4: What Training have your staff had for responding to severe weather events particularly freeze/thaw incidents?***

Distribution and Production Departments

- Emergency planning exercises.
- Driver training.
- Winter driving tool box talks.

- Wearing suitable PPE and thermal layers.
- Product specific training for dealing with defective apparatus affected by prolonged sub-zero temperatures.

All office based staff

- Email to all staff on Wednesday detailing the need to ensure commutes into and home from work are undertaken safely. Staff are asked not to put themselves at any unnecessary risk and should carry extra warm clothes, suitable shoes etc.
- Vigil kept of local conditions during working day and staff sent home early where deemed appropriate

***B5: What did you learn from previous incident management events, including through working with other water companies, local/ regional partners, emergency services or other service provider, and how is this reflected in your current processes.***

This event is reminiscent of winter events in 2009 and 2010. Those winters also had severe freeze thaw events, which saw significant but temporary increases in demand, 'spikes' in bursts and an increase in leakage. This experience meant the company had a level of expectation regarding the impact of the thaw on the network. This experience allowed us to prepare approximately 10 days in advance of the freeze thaw event, ascertaining resource availability and stock levels of critical items. Early preparation was particularly relevant because the rise in temperature was to occur during the weekend. This ensured we understood staff availability during 2-4 March. The company's supply/ demand balance was such that it was able to maintain supplies of up to a 40% increase over average distribution input. It was not anticipated that there would be a need to call for mutual aid. It was also anticipated that other water companies would be experiencing similar conditions and so the efficacy of mutual aid would be diminished.

Unless our customers were without water for a significant period of time where the delivery of bottled water became a reality we would not be contacting the LRFs, Council Emergency Planners or Hospitals, Schools and key businesses. These organisations would be preparing their own contingency plans of which loss water would be one. Our Company Emergency plans already highlight the requirement to notify customers and organisations during an incident. However, we would not notify them in advance of a problem occurring, or not, with their supply.

### **Section C: Incident Response.**

**C1: Provide details of your established processes for responding to issues during weather events, particularly late winter freeze/ thaw incidents (e.g. operational, governance, communications, working arrangements with other authorities through local/ regional partnerships). Were these processes effective during the incident? In your response, make clear the role of the Executive in any decision making within these processes.**

The Company's processes are set out in our emergency plan. These provide a framework for the Company to operate when not in a business as usual situation. The EMPs are designed not to be too prescriptive as it restricts the company's ability to react to events as they unfold. The plans that were followed were stated in our response to section B3 but cover notification to Customers, organisations, regulators and bodies. It also considers resources, equipment required to access sites. communications to staff etc.

The formation (meeting 1) of the incident management team at 09:30hrs on Saturday 03 March identified the extent of the event together with initial actions to restore supplies affected by the power failure to the Portsmouth (Farlington) PRV. During this time the Company's Managing Director was driving to the office. He attended meetings 2 and 3. He did not chair the meetings but took a governance role, by providing both challenge and support to the decisions being made. Minutes of each meeting together with key actions were documented.

The EMP prompts the team to consider who needs to be notified of the incident. Contact was made with Portsmouth City Council's Emergency planning officer, St James' hospital and West Sussex Emergency planning teams as well as the DWI, Councillors and MPs.

The EMP also defines the needs for managing communications with customers. The incident management team coordinated all messages for customers ringing the office, social media and website.

By 09:45 on Saturday 3 March once supplies had been restored to customers in Portsmouth and demand was being met, the Company was able to concentrate on burst mains and leaking stopcocks. The company returned to a business as usual on Monday and the incident was formally closed after the 6<sup>th</sup> incident management meeting. The quick response to the incident, the organised approach and the closure on Monday all demonstrate the effectiveness of the team and the processes followed.

**C2: For this incident, please describe how your company went about deploying the resources to respond to the incident. In responding, please detail the scale of resource deployed and from which parts of the business and/or external resources (e.g. supply chain, local/ regional partners, business retailers) they were drawn.**

The preparations made in the preceding days, by the planning group, meant that when the incident management team formed at 09:30hrs on Saturday 03 March, a response was quickly implemented.

The incident management team consisted of 10 Senior managers and supervisors

The initial priority was to deploy 2 distribution inspectors to the PRV site to manually open the bypass valve restoring supplies to those affected in Portsmouth City.

Simultaneously Mechanical and Electrical maintenance staff were bringing a standby generator to the PRV location to restore power to the site. 8 Customer service staff were deployed to open up the call centre and respond to customers telephoning the company.

Out of the available 4 PRT gangs and 7 contracted gangs, 3 PRT and 3 contracted gangs were deployed to undertake repair activities, supported by 2 x grab lorries/drivers.

To support them 1 x supervisor, 3 x distribution admin staff, 3 x water quality samplers, 4 x leak detection staff and 6 inspectors used to fix stopcock and wall mounted meter box leaks as well as identify mains leaks were all deployed. 3 x independent plumbers were also employed to assist/advise on customer side issues.

Other than BAU out-of-hours staff, no additional Production operatives were required.

By 14:00 the number of leaks identified did not warrant the number of gangs available so some were sent home. In addition, some customer service staff were sent home because the calls received had reduced to relatively normal levels.

**C3 Provide details of how your company assessed the operational implications and prioritised its responses during the incident period.**

The prioritisation of the events were obvious once its extent was known. The order was based on customer need/ number of customers affected by a single issue and the largest potential risk to their supplies and the company, in-line with our Emergency Plan procedures.

Priority 1: Restore levels of service to 169,000 population affected by the PRV power failure and open up the customer service telephone lines to handle calls into the business. Dealing with this single issue quickly would leave the team and the business much better able to focus on the remaining issues.

Priority 2: Ensure production meets demand. Not increasing production as soon as possible could have resulted in significant customer outage later in the day. As this impact was foreseeable not to mitigate against it would have been a serious error of judgement.

Priority 3: Ensure find and fix teams are working effectively and that we have adequate numbers to reduce bursts on the network.

Priority 4: Identify and repair individual customer's stopcocks (prioritising special needs, the elderly and those with young babies) in a timely manner.

**C4 What challenges/ barriers did your company face in resolving problems that customers experienced? How did you overcome them?**

The key challenge faced by the company was the approximate 300 wall mounted meter box leaks experienced in the lead up and during the freeze thaw event.. Much of the work was undertaken by our inspectors and the preparations made in advance meant that only 4 customers were without water for more than 12 hours.

**C5: Provide details of how your company identified customers in vulnerable circumstances before, during and after the incident. What support was offered to these customers and how was it delivered?**

Whilst the company has its priority services register it admits that, much like the rest of the industry, it has not captured all customers who have a special requirements. The short duration associated with the PRV power failure meant that supplies were restored before alternative water was able to be deployed.

Our inspectors carried bottled water with them but during the incident on Saturday, the Company only received one call from a priority customer. Bottled water was delivered to their property.

**Section D: Communication and support**

***D1: How effective were your communication processes before, during and after this incident for each of the below:***

- a. Customers? (residential and business);***
- b. Customers in vulnerable circumstances and business customers for whom a water supply is critical (eg hospitals, schools)?;***

**c. Water retail businesses?; and**

**d. Wider stakeholders? (eg local authorities, other agencies, Government, Ofwat)**

We planned in advance to treat vulnerable customers in line with our emergency procedure. Our plan entails obtaining detailed & managing vulnerable and non-household customers for whom water supply is critical. However, as the incident was of a short duration, and principally was a loss of pressure, rather than supply, there was no requirement for us to implement plans for these customer groups.

**D2: What channels did you use for communication with customers and key stakeholders before, during and after the event? (eg local, regional or national news media, social media, e-mail, SMS, hard copy letter) What were your key messages at each stage? Please provide examples of your communications material with your submission.**

Prior to the freeze thaw event:

Information was provided to customers over the winter, via our website and Twitter, in preparing for winter.

Our main vehicles of communication during the freeze thaw event were the following :

24 hour emergency line into our Operations Centre

Website and Twitter updated informing customers how to deal with frozen pipes.

Customer Service Call centre – incoming calls following power failure to PRV

Regular Website updates and effective use of social media i.e twitter, following power failure to PRV– see note below as an example of our communication statements.



**No Water / Low Pressure**

Temperatures have increased from -8 to +8 that has caused ground movement and multiple pipe bursts in the Portsmouth and Southsea area. This has caused a number of issues of no water and low pressure.

We have made operational changes which should help increase pressures and return supplies to the areas affected and we are continuing to pin point and repair pipes. It may be necessary to isolate localised areas while repairs are being made.

We apologise for any inconvenience

We sent a number of general tweets during the incident but responded to every personal tweet into our account. We also followed up to every tweet after the incident was over.

- *Impressions 88K – overall number of times users saw the tweets*
- *5.1K people actually engaged with our messages / replies to customer tweets by either reading, retweeting or liking – you could argue previously the majority would have tried to telephone*

- *We responded and followed up to all 226 individual customers who contacted us via twitter both when tweet received and later in the day to check they were now okay and had water or pressure back.*
- *Media who used our tweets included*
  - *The News, BBC Radio Solent, Wave 105, Sam FM, The Breeze*
- *Also involved 2 MP's who retweeted our messages*
- *Ports City Council and Council Leader plus other councillors all helped with retweeting our messages*

Interviewed by Local newspaper who also put our twitter updates on their online pages of their website.

On the Monday 05 March we updated both our twitter information and contacted local MP's informing them of the current position. The information is shown below and was e-mailed to local MP's:

***"Water Resources update – Portsmouth Water"***

***You will no doubt be aware in the media of a number of issues regarding water resources in the south east and midlands as a result of a rapid rise in temperature causing a large number of bursts.***

***Whilst we had an issue with our customers in Portsmouth receiving low pressure as a result of a high number of bursts on Saturday morning this was resolved very quickly (by midday) and no further issues arose over the weekend apart from some isolated bursts. The key for us was that we had prior knowledge of the potential increase in temperature and had resources on standby in case this caused an increase in bursts. This preparation helped us reduce the time customers had either no water or reduced pressure.***

***In terms of our water resources we are in a stable position.***

***Please do not hesitate to contact me if you have any questions***

We also conducted a survey of those that contacted us asking us about how we communicated and if there were areas we could improve.

We communicated with Retailers asking them to engage with their customers on checking for customer side leaks.

We received only one customer complaint as a result of the freeze thaw period.

Due to ongoing reports of customer side leakage, we are planning to engage with metered household customers, via email, to encourage them to undertake leakage checks on their property.

***D3: How did you proactively engage with customers (by customer type) before, during and after the event?***

'Preparing for Winter' information was regularly sent out via Twitter and available on our website throughout the winter period. See D2 with regard to our engagement during and after the event.

***D4: What processes do you have in place for managing properties that are vacant, void or difficult to access (eg businesses that are closed at weekends) in the event of a major incident?***

Given the increase we have seen in leakage, we targeted businesses where exposed pipes are likely to be present, such as caravan parks, regardless of the property or site being void or occupied.

Approximately 7 visits were undertaken and had there been signs of large water losses, the supply would have been turned off with the necessary communication taking place with the customer or written communication left if void. There were follow up visits to the caravan parks in the week following the freeze thaw incident to check that leaks were being repaired.

***D5: What ongoing support after the incidents have you put in place, in particular for customers in vulnerable circumstances?***

Given the short term duration of the event, there was no required follow up activities for vulnerable customers. However, had the problems been sustained, we would have communicated with vulnerable customers appropriately, in line with our emergency plans.

**Section E: Impact on customers and compensation arrangements**

***E1: Provide details of how you will identify which customers (by customer type) are entitled to compensation.***

No compensation was due to customers as a result of the thaw event, as principally customers experienced a loss of pressure, not water supplies. However, the sustained cold weather did result in four customers having frozen pipes meaning they were without water for over 12 hours, and these customers (3 HH, 1 NHH) have been paid compensation in line with our GSS policy.

***E2: Provide details of the automatic GSS payments, including any payment penalties, you expect to pay (or already have paid) to customers (by customer type) as a result of the incident period and the total value associated to these payments.***

Four GSS payments were made to customers, who had frozen wall mounted meter boxes, and were without water for 12 hours. Three household customers who each received a £30 payment and one non-household customer who received a £50 payment.

***E3: Provide details of any further compensation you will be providing to customers beyond automatic GSS payments and how the level of compensation was calculated relative to the disruption customers experienced. In doing so please provide details of the numbers of customers (by customer type) you expect to receive this and the total value associated to these payments.***

There have been no further compensation payments provided to customers beyond the GSS payments.

***E4: Provide details of how long you anticipate the process of compensating all affected customers will take and the methods by which the compensation will be paid (eg automatic, cheque). Will there be an application process for any elements of compensation? If so, please describe the process.***

Other than the GSS payments already made there is no compensation outstanding, as a result of the freeze thaw event.

**Section F: Reflection and lessons learnt**

***F1: Provide details of what you considered to work well and what you considered to need future improvement for your company and why in relation to:***

***a) Identifying and repairing supply interruptions and actions taken to prepare the supply and network system;***

Since 2009, the focus of our mains renewal strategy has been predominately on 3" & 4" cast iron mains laid post 1945 in clay soils. Approximately 1% of the total length of mains in our area of supply have been renewed each year. We believe this strategy has reduced the number of burst mains experienced during a severe winter event, such as the freeze thaw event experienced in early March 2018.

As a result of weather forecast predictions, approximately 10 days before the freezing weather, checks, led by the Engineering Director, were undertaken on stock levels of critical materials required for repair and maintenance activities.

If PRT have been impacted more by the thaw we would have struggled to manage the logistics associated with alternative water. Mutual aid would not have been an option because other companies would have had their resources fully allocated. Our contract for bottled water, written in collaboration with SES has been progressing for a number of months but will now be expedited with a higher prioritisation.

***b) Communicating activities to customers/stakeholders (by customer/stakeholder type);***

We felt we had learnt lessons of previous events and communicated well with customers during the event.

Further Proactive cold weather comms, to those that were issued, & more info on website regarding how to thaw frozen or burst pipes might have helped mitigate the Company against the high demand seen on Sunday 04 March. It may have also helped to communicate proactively with customers susceptible to leakage during winter events (caravan parks etc).

***c) Identifying and supporting the needs of customers in vulnerable circumstances;***

Vulnerable customers were identified but, due to the relatively short period of reduced levels of service on Portsea Island, no further action was taken.

Vulnerable customers were prioritised when reporting a frozen wall mounted meter box.

We received no complaints from vulnerable customers during the period.

***d) Having the appropriate governance processes in place.***

PRT's executive team were instrumental in ensuring the company was as prepared as possible for the freeze thaw event. They had oversight of their respective directorates and ensured senior managers were putting measures in place, approximately 10 days in advance, to provide a robust response to the rapidly changing weather. This was then brought together, on Friday 02 March, by the formation of a planning group consisting of members of the senior management team to provide a coordinated response to any potential event across the business, as a result of the freeze thaw. The group met twice on Friday 02 March with the meetings chaired by our Engineering Director to ensure governance was applied to the company's proposed response.

On the day of the PRV power failure, our Managing Director attended two of the three incident meetings. He did not chair the meetings but took a governance role, by providing both challenge and support to the decisions being made.

***F2: What were the biggest constraints to your company doing more, faster to respond to issues customers faced?***

We believe we responded swiftly to the event of the PRV power failure. Although we had increased Repair and Maintenance resources on stand-by, the relatively low volume of broken mains means the repairs were treated as BAU.

Upon receiving the first few customer calls, of reduced levels of service at 0820 on 03 March 2018, our out-of-hours call centre escalated the event to a Senior Manager. This resulted in the Incident Team convening at 0930, and the levels of service being restored by 1030.

The cause of the fault to the PRV was due to loss of electricity supply from the electricity supplier so the PRV remained at its night setting as early morning demand increased. It required the electricity supplier to attend the local substation to restore the supply.

Proactive notification of electrical supply loss from our telemetry did not work therefore delaying our awareness time. We have been aware of this risk and have already completed an options appraisal of our large flow compensated PRV's, and have an ongoing project that will deliver an upgrade to the system to an Uninterrupted Power Supply (UPS).