

10 August 2022

[REDACTED]
[REDACTED]
Via email: [REDACTED]

Tēnā koe [REDACTED]

Your Official Information Act request, reference: HNZZ078 – Power supply at Waitakere Hospital

Thank you for your Official Information Act request received on 14 July seeking information about the power supply at Waitakere Hospital's Special Care Baby Unit (SCBU) from Te Whatu Ora Health New Zealand Waitematā.

Before responding to your specific questions, it may be useful to provide some context about our services. Waitematā is the largest and one of the most rapidly growing health districts in the country, serving a population of around 650,000 across the North Shore, Waitakere and Rodney areas. We are the largest employer in the district, employing more than 8,900 people across more than 80 locations.

In addition to providing care to our own resident population, we are the Northern Region provider of forensic mental health services and child rehabilitation services, plus the metro Auckland provider of child community dental services and community alcohol and drug services.

In response to your request, we are able to provide the following information:

I would like to request all the documents and communications regarding the power supply issues in the new Special Care Baby Unit (SCBU) at Waitakere Hospital.

The information in this request may be used in a story about how and when the issue was identified.

Since the power supply issue at Waitakere Hospital's SCBU was identified, detailed mitigations have been implemented by our Facilities team, electrical contractors and clinical services to enhance electrical supply to one of the main switch boards within the building that houses the unit.

These upgrades mean that the electrical supply is now operating at safe levels, allowing the new SCBU to open for use on 17 August.

As part of our commissioning process for the new SCBU, Waitematā's Chief Engineer notified our Facilities Services Director on 27 June that pre-commissioning testing indicated work was needed to ensure a stable, continuous supply of power to the new SCBU.

For the safety of babies in our care, our Hospital Services Director and General Manager Child, Women and Family Services were informed that the planned opening should be deferred to ensure the resilience of the unit's supporting infrastructure.

On 28 June, our Interim District Director was advised that the identified issues had likely occurred due to the additional load on the system over the past couple of years.

This added load stemmed from additional clinical equipment, laboratories demand, HVAC (heating, ventilation and air conditioning) demand and other sources in the Hughes building at Waitakere Hospital.

This sequence of events is outlined in the attached chain of emails – please refer **Attachment 1**.

A mobile phone number is redacted from an email signature under section 9(2)(a) of the Official Information Act to protect the privacy of an individual staff member. We have considered whether the public interest in releasing this information outweighs the need for individual privacy and have concluded that it does not.

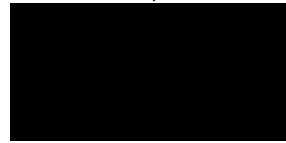
You have the right to seek an investigation and review by the Ombudsman of this decision. Information about how to seek a review is available at www.ombudsman.parliament.nz or freephone 0800 802 602.

I trust that this information is helpful.

Waitematā supports the open disclosure of information to assist community understanding of how we are delivering publicly funded healthcare. This includes the proactive publication of anonymised Official Information Act responses on our website from 10 working days after they have been released.

If you consider there are good reasons why this response should not be made publicly available, we will be happy to consider your views.

Nāku iti noa, nā



Mark Shepherd
Executive Director Hospital Services
Te Whatu Ora Health New Zealand Waitematā

TeWhatuOra.govt.nz

Private Bag 93-503, North Shore 0740

Waea: +64 9 486 8900

Te Kāwanatanga o Aotearoa
New Zealand Government

Subject: FW: Electrical Overload affecting SCBU & OIA background

Importance: High

From: Christopher Cardwell (WDHB)

Sent: Tuesday, 28 June 2022 1:26 pm

To: Andrew Brant (WDHB) <Andrew.Brant@waitematadhb.govt.nz>

Cc: Paul Bancroft (WDHB) <Paul.Bancroft@waitematadhb.govt.nz>

Subject: Electrical Overload affecting SCBU

Importance: High

New SCBU Commissioning and opening

A decision has been taken today with Mark Shepherd & Paula Seymour that opening the unit be deferred pending a review of electrical loads in the Hughs Building by Wednesday 6 July.

Current situation

The main switch board supplying the Hughs block (MSB2.1) has become overloaded. While circuit breakers have not yet failed, a pre-commissioning (for SCBU) review identified loads of up to 15% above the design tripping point on two circuits (22 and 13 Amps respectively).

With the additional load planned for SCBU and the proposed use of the old SCBU space we consider there is a high risk of an outage occurring affecting both the new SCBU facility and the Hughs building.

Reason for electrical overloading

Baseline assessment for the SCBU project electrical loading at MSB2.1 and the additional load for the new facility gave assurance that capacity was sufficient to meet demand in 2018/19.

A further review of the new SCBU facility electrical load based on design documents in 2022 indicated the assumptions for the new load remained unchanged.

It appears and will be confirmed, that further loading of MSB2.1 has occurred from additional new electrical demand. Additional load on the system over the past couple of years potentially stems from additional clinical equipment, Labs demand, HVAC demand and other sources in the Hughs building. These sources are being investigated.

Project impacts and assessments

We do not consider the new SCBU alone is the root cause rather part of a wider issue although the planned use of the former SCBU space appears to be quite intensive.

Risks

In the event MSB 2.1 circuit breakers trip :

To SCBU – potential power outage

To the wider Hughs building and facilities – potential power outage

Not affected as electrical supply is from separate MSB's – Theatres, ED, ADU, Piha

Auxiliary generation would be of no benefit as electricity can not pass though the open circuit breaker at MSB 2.1

Mitigations / Short term solutions

Obtaining additional supply (capacity) to meet demand from this MSB is not feasible in a short time frame

All short term options are being considered including:

- A. electrical load shedding between essential and non-essential power to potentially provide more essential supply to SCBU and critical areas
- B. reducing electrical load in high use plant (eg HVAC), reducing redundancy

- C. reducing electrical demand from areas in Hughs that could be moved elsewhere or supplied from alternative MSB's

Over the next week we will review and publish a hierarchy of options for MS/PS to review to determine prioritisation for potential load shedding of essential supply or other options to give confidence that opening the new SCBU will not impact overall electrical supply to the Hughs building.

Communications

We are framing the delay as a commissioning issue and the delay precautionary for safety reasons

The WIP / draft communique is copied below:

“Unfortunately the planned opening of the SCBU at Waitakere Hospital on 29th June has had to be delayed due to further work that may be required to ensure resilience of the supporting infrastructure. We are assessing the cause of the issues identified from our commissioning process and will set-a new date for the opening as soon as possible. We appreciate the significant inconvenience this may cause but feel that the safety of babies in our care is paramount and a short delay is the right option until we are confident the issues are resolved.”

Regards

Chris

From: Christopher Cardwell (WDHB)
Sent: Monday, 27 June 2022 4:36 pm
To: Paul Bancroft (WDHB) <Paul.Bancroft@waitematadhb.govt.nz>
Cc: Matthew Knight (WDHB) <Matthew.Knight@waitematadhb.govt.nz>
Subject: RE: WTH MSB2.1 Overload situation affecting SCBU
Importance: High

Hi Paul thanks for the thoughtful advice.

Option 1 appears our only short term scenario to enable SCBU to open.

- **Questions below in red.**

Will call to discuss & we should connect with Matt before the 10am meeting Tuesday.

Regards

Chris

From: Paul Bancroft (WDHB) <Paul.Bancroft@waitematadhb.govt.nz>
Sent: Monday, 27 June 2022 4:18 pm
To: Christopher Cardwell (WDHB) <Christopher.Cardwell@waitematadhb.govt.nz>; Nigel Cliffe (WDHB) <Nigel.Cliffe@waitematadhb.govt.nz>; Matthew Knight (WDHB) <Matthew.Knight@waitematadhb.govt.nz>
Subject: WTH MSB2.1 Overload situation effecting SCBU

Gents,

I have reviewed the snapshot figures collected by Allendale on Thursday of last week.

SITUATION

The main incomer is indicating a ~10-15% overload on two phases, and a phase imbalance differential ~30%.

Both issues are sub-optimal.

RED: 182A (22A overload)

WHITE: 173A (13A overload)

BLUE: 130A (within limits)

Worryingly the circuit breaker supplying MSB2.1 is rated at 160A and it is a wonder that it has not yet tripped. With the level of dependency SCBU has upon essential power we must address the fragility of the supply with utmost urgency, from my perspective I see we have three immediate options:

OPTION 1

Switch MCC-4 from essential to non-essential supply – this can easily be achieved by operating an existing changeover switch mounted on MSB2.1.

This would require a brief interruption of power to the loads listed below (MCC4).

This would achieve the following main incomer readings:

RED: 146A (within limits)

WHITE: 146A (within limits)

BLUE: 102A (within limits)

These figures are more comfortable, however there still exists a significant phase imbalance differential ~25%.

The following loads would no longer be on Essential supply:

- *Assume this would mean that the HVAC / Hot water heating (?) in particular to these areas – 1 to 17 below would not have auxiliary electricity during any outage*
- *Could we, if the assumption above is correct, manually switch back but with a return to an overload risk – Red & White noted above?*
- *With reference to SCBU, assume the plant at 1, 3, 12,13, 15-17 is serving the current SCBU to be vacated – not new SCBU or is this false?*

MCC4

- i. AHU 4.1 - SCBU
- ii. AHU 4.2 - Rangatira
- iii. EF 4.1 - SCBU
- iv. EF 4.2 - Rangatira
- v. FCU B.1 -
- vi. FCU B.2 -
- vii. FCU b.3 - Child Mental Health Unit/
- viii. EF B.1 - Child Development
- ix. EF B.2 -
- x. 11 x Extract Pans General – B2W & B18W
- xi. 5 x Toilet extract Fans – B2W & B18W
- xii. SF – 1 - SCBU
- xiii. EF 1 & 2 – Negative Pressure Room Rangatira Ward
- xiv. Electric Heating Coil – 4.2.11 Rangatira Ward
- xv. 5 x High Wall Unit – SCBU
- xvi. 12 x FCU – SCBU
- xvii. SSF – 4.1 - SCBU

OPTION 2

Address the imbalance (by evenly distributing the loads between the other phases), however we will still be in an overload situation of ~5A – which could be tenable in the short term assuming the new SCBU loads are transferred/migrated from old SCBU and do not increase the sum total load. Unfortunately this would take time and would also require closer study to identify opportunities, eventually leading to the interruption of power when disconnecting and reconnecting the loads. Of note, the worst phase imbalance exists in the Laboratory distribution board.

OPTION 3

Selectively choose other loads supplied from MSB2.1 and isolate them, obviously this is sub-optimal as it leaves equipment out of action.

These areas include:

- Outpatients
- Child Mental healthAlliance Rangatira ward
- Te Henga Ward
- Piha ward
- SCBU
- Service tunnel

All of the above are relatively low loads and would not provide sufficient savings to be worthy of further investigation.

The following two areas however, do provide greater opportunities:

1. Laboratory
2. MCC5 – Plantroom 6

MCC5 breakdown of loads:

- | | | | |
|--------|--------------------------|----------------------------|------------------------------|
| i. | AHU 6 | outpatient/ | |
| ii. | RAF 6 | clinical records | |
| iii. | SF-1 – Laboratory/office | LGF | |
| iv. | 6. | TEF – B18W & BZW | |
| v. | 7. | LGEF – B18W & BZW | |
| vi. | 8. | HW Calorifier Primary | CIRC Pump |
| vii. | 9. | DHW Primary Heating Pump | 1 |
| viii. | 10. | DHW Primary Heating Pump 2 | B2W & B18W |
| ix. | 11. | DHW Return CIRC Pump | 1 |
| x. | 12. | DHW Return CIRC Pump | 2 |
| xi. | 13. | Rangatira HW calorifier | CIRC Pump – Rangatira |
| xii. | 14. | South Zone Heating Pump | 2 |
| xiii. | 15. | South Zone Heating Pump | 2 B2W & B18W |
| xiv. | 16. | North Zone Heating Pump | |
| xv. | | Snelgar/Healthwest BLDG | HW Arc Pump – B3W, B4W & B5W |
| xvi. | 18. | Supply fan GR Floor | B2W & B18W |
| xvii. | | Supply Fan LG Floor | |
| xviii. | 20. | FCU S3 | Laboratory |
| xix. | | FCU S4 | |
| xx. | | Controls – MCC5 | |

As mentioned above, the Laboratory presents the single worst case of phase imbalance and should be corrected regardless.

SUMMARY

Option 1 is the simplest and most expedient solution, option 2 provides the best medium term solution allowing for a long term fix to be developed (MSB2.1 replacement including capacity increase and supply cabling and MCCB upgrade).

Happy to discuss or clarify any points above.

Kind regards,
Paul

Paul Bancroft | Chief Engineer
Facilities Services Group | Waitematā DHB
(Normal office hours: 7:00-15:30 Mon-Fri)

paul.bancroft@waitematadhb.govt.nz

www.waitematadhb.govt.nz