HCAi
Department of Health Care Access and Information

Water Rationing Plan

March 27, 2025

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Seismic Compliance Unit

Recent / Upcoming HCAI Seismic Webinars

https://hcai.ca.gov/facilities/building-safety/resources/building-safety-construction-webinars/

PAST

- August 22, 2023 - NPC 5 Water rationing plan
- ……
- February 20, 2025 - Seismic Grant: Small and Rural Hospital Relief Program
- March 4, 2025 - Seismic compliance plan and delays beyond the 2030 deadline
- March 18, 2025 - NPC compliance

FUTURE

- March 27, 2025 - Water Rationing Plan
- April 2, 2025 - SPC compliance

NPC 5 Webinar and Water Rationing Plan

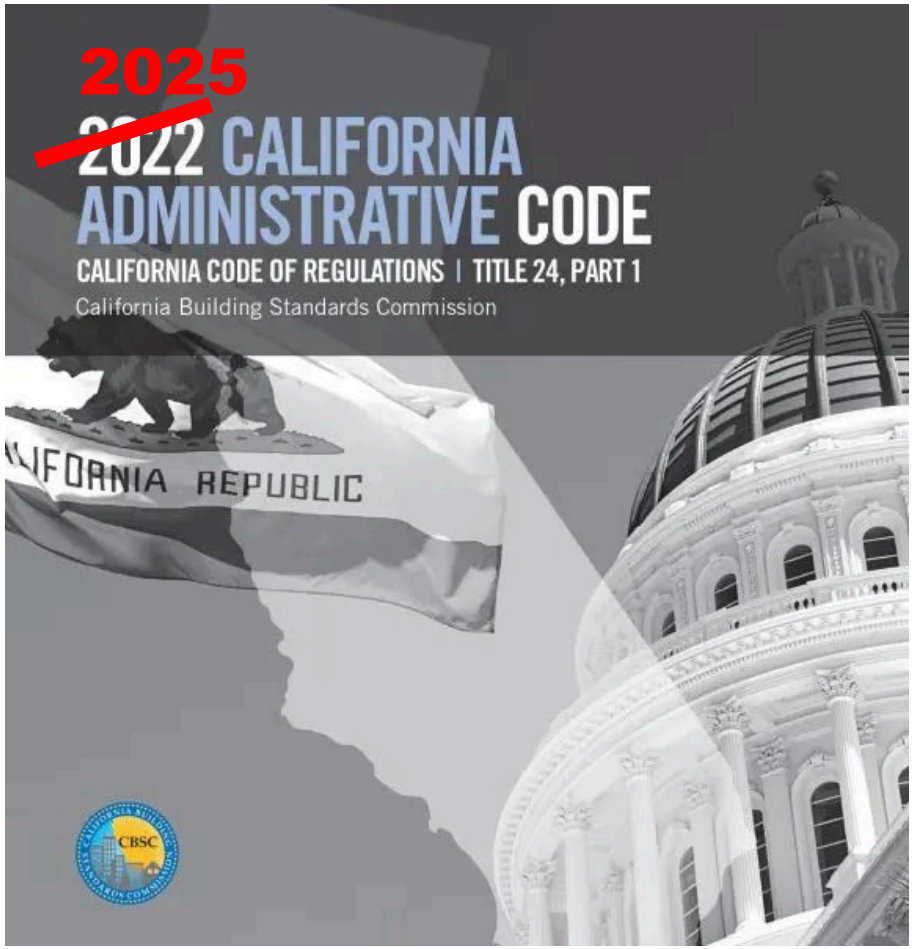
- For more detailed NPC 5 code requirements and evaluation report preparation, we recommend reviewing the previous webinar titled “NPC 5 Water Rationing Plan” presented on August 22, 2023

- *This webinar will provide a brief overview of the NPC 5 requirements and focus on the submitted evaluation reports, provide some examples, discuss strategies, challenges, and frequently asked questions related to the ongoing water rationing plans.*

2025 California Administrative Code

No change to NPC regulations

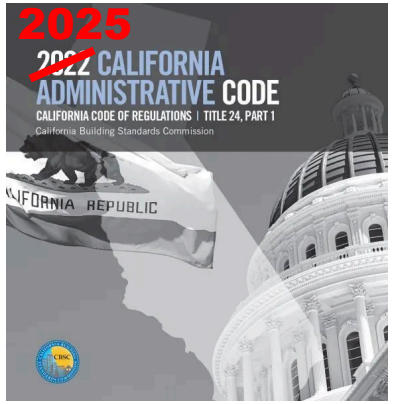
- Final Express Terms were filed with the Secretary of State on February 27, 2025
- Regulations will become effective on March 29, 2025 (30 days after filing).
- Presentation will cover the relevant upcoming changes in the 2025 California Administrative Code



- Note: The 2025 California Building Code is effective January 1, 2026.

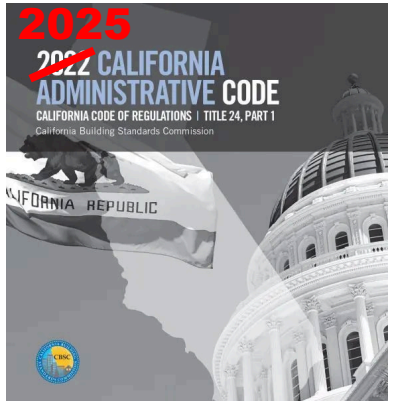
NPC 5
Deadlines

NPC 5 Compliance Timeframe



- For any general acute care hospital building to be used as a GAC hospital building after January 1, 2030:
  - **By January 1, 2024**, submit to the Office a complete nonstructural evaluation for each building up to NPC-4 / NPC-4D and NPC 5.
- For future removal from acute care service (RACS) building projects, the NPC 4/NPC 5 evaluation shall consist of a letter from the hospital (on hospital letterhead, signed by the Administrator/CEO) stating that BLD-xxxxx will be removed from acute

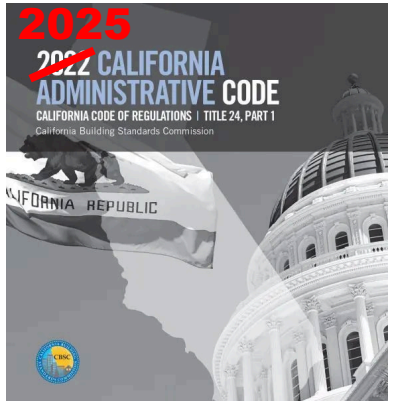
NPC 5 Compliance Timeframe



- For any general acute care hospital building to be used as a GAC hospital building after January 1, 2030:
  - **By January 1, 2026**, all general acute care facilities shall submit a compliance plan (2025 California Administrative Code Chapter 6, Section 1.4.5). Refer to PIN 80
  - **By January 1, 2026,** all eligible Hospitals seeking a delay shall submit a seismic compliance plan and delay application to HCAI. Refer to PIN 80 and AB869

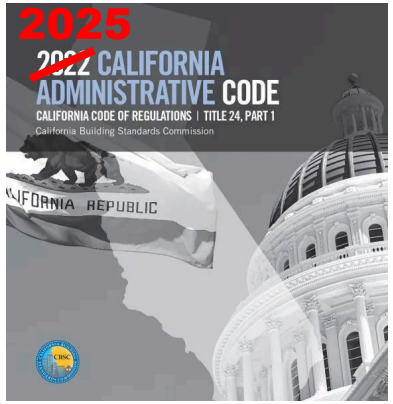
Recommend reviewing the previous webinar titled “Seismic compliance plan and delays beyond the 2030 deadline” presented on March 4, 2025, for more detail

NPC 5 Compliance Timeframe



- For any general acute care hospital building to be used as a GAC hospital building after January 1, 2030:
  - **By March 1, 2026**, submit to the Office construction documents ready for review by the Office (2025 California Administrative Code Chapter 6, Section 1.5.2.1.2)
  - **No change** in this deadline per AB869
- For future RACS building projects, the facility shall submit RACs construction project(s). If no construction is required for the removal of acute care services, then this step may be skipped.

NPC 5 Compliance Timeframe

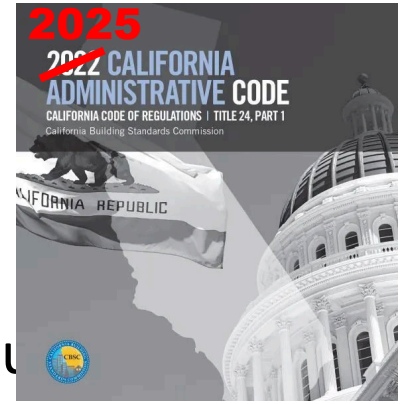


- For any general acute care hospital building to be used as a GAC hospital building after January 1, 2030:
  - **By March 1, 2028**, obtain a building permit to begin construction.

    Hospitals not meeting this deadline shall not be issued a building permit except for:
    - Seismic compliance
    - Maintenance
    - Emergency repairs

    See exceptions in 2025 CAC Chapter 6 Section 1.5.2.
  - **No change** in this deadline per AB869
- RACs building construction project(s) shall obtain building permit(s) by March 1, 2028

NPC 5 Compliance Timeframe



- For any general acute care hospital building to be used as a GAC hospital bu after January 1, 2030:
  - **By January 1, 2030**, or by the approved delayed date per AB869 (between 1/1/2030 and 1/1/2033) the GAC building shall achieve NPC-5 rating (i.e. finish construction, obtain a certificate of occupancy, and submit relevant upgrade request to seismic compliance unit).
- These timelines do not apply to compliant facilities (all general acute care buildings in a facility having SPC 3/4/4D/5 and NPC 5 ratings).

NPC 5 Requirements

Water tank

Fuel tank

Sewer tank

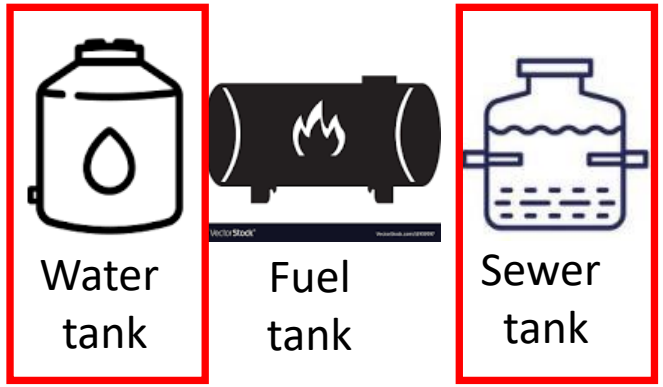
NPC 5 Building

- For NPC 5 rating, the building shall meet the minimum requirement of at least NPC 4 or NPC 4D in addition to the onsite supplies of water, wastewater, and fuel tanks.

January 1, 2030	NPC 5	The building meets the criteria for NPC "4" or NPC "4D" and onsite supplies of water and holding tanks for sewage and liquid waste, sufficient to support 72 hours emergency operations, are integrated into the building plumbing systems in accordance with the *California Plumbing Code*. An onsite emergency system as defined in the *California Electrical Code* is incorporated into the building electrical system for critical care areas. Additionally, the system shall provide for radiological service and an onsite fuel supply for 72 hours of acute care operation.

NPC 5 Compliance by 2030

- **An NPC-5-compliant Hospital Facility is capable to support 72 hours of emergency operations during widespread damage caused by a Major EQ.**
- What does being reasonably capable of providing services to the public after a disaster mean?
  - Water storage/water rationing plan
  - Waste water storage
  - Radiological service and fuel storage for emergency generator(s)
  - Utilities and systems anchored and braced (NPC 4 / 4D)
  - Structural Performance Category (SPC 3 or higher)



NPC 5 Code Requirements

- *CAC Chapter 6, Article 11, Table 11.1*
- *CAC Chapter 6, Article 1, §1.5.2*
- *CBC §1617A.1.40*
- *CPC §615.4*
- *CPC §727.1*
- *CEC Article 700.12*

NPC 5 Code Requirements

- *CPC 615.4.1 Exception*

Vendors and tanker trucks replenishment option after the first 24 hours

Exception: *With the approval of the Office and the licensing agency, hook-ups that allow for the use of transportable sources of potable water may be provided in lieu of 72 hours of on-site storage if a minimum onsite water supply of potable and industrial water is provided, sufficient to support 24 hours of operation, without replenishment based on the hospital's approved Water Conservation/Water Rationing plan. In no event shall the on-site water storage capacity be less than one tank with at least 5,000 gallons capacity. This emergency supply tank shall have fittings to allow for replenishment of the water supply from transportable water sources and a means to dispense water to portable containers in the event that normal water supply becomes unavailable.*

NPC 5 Application

Streamlined application process

The initial NPC 5 evaluation reports submitted required a separate project to be created for each building at the facility. All building-by-building existing NPC 5 evaluation projects have been consolidated into a single primary project.

When submitting any back check or response to comments in eSP, please use the primary project. Provide comment responses and reference the sections in the revised report.

The primary project number is the only open project as others are voided.

Streamlined application process

Provide a list of all buildings associated with the water rationing plan. All buildings planning to remain operational as GAC buildings need to be NPC 5 by 2030.

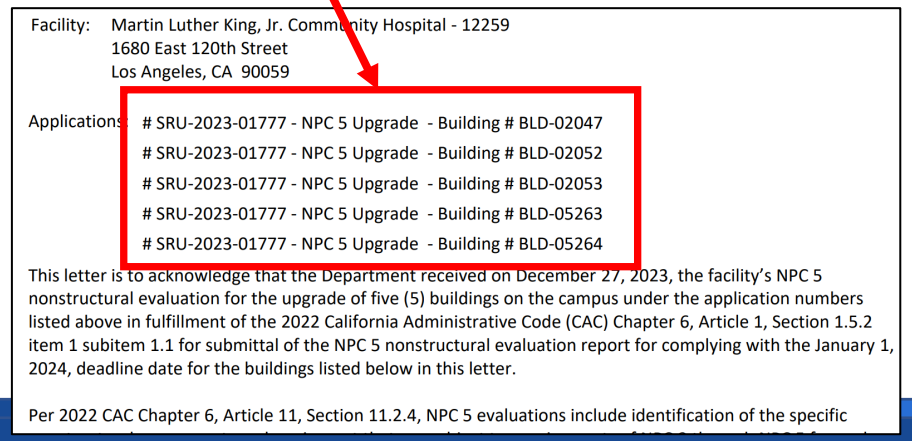
Also includes canopies, mechanical yards, tunnels, etc.

Date:	
Facility ID:	
Facility Name:	
Building Number(s):	BLD-xxxxx
Licensed Beds:	Per BLD-xxxxx
Building Area(s) (SF):	
HCAI Construction Project Number(s) (if any):	
HCAI SCU Project Number(s) (if any):	

Streamlined application process

DPOR or the facility can verify that all relevant buildings are included by using any of the listed steps below:

1. Related buildings in Accela
2. HCAI Facility Detail webpage
3. HCAI comment letter

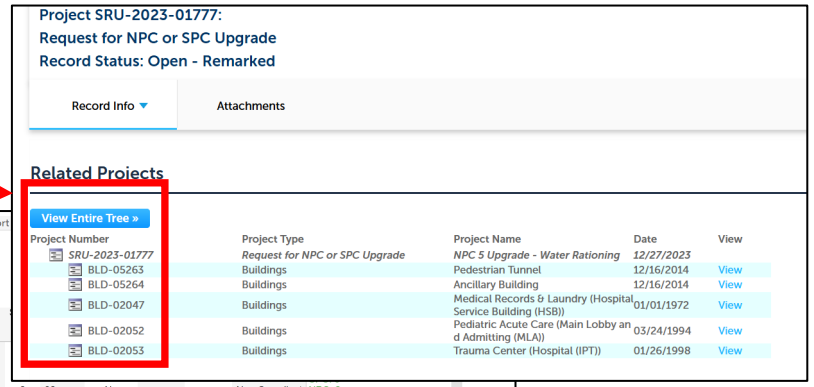


Facility: Martin Luther King, Jr. Community Hospital - 12259
1680 East 120th Street
Los Angeles, CA 90059

Applications:
SRU-2023-01777 - NPC 5 Upgrade - Building # BLD-02047
SRU-2023-01777 - NPC 5 Upgrade - Building # BLD-02052
SRU-2023-01777 - NPC 5 Upgrade - Building # BLD-02053
SRU-2023-01777 - NPC 5 Upgrade - Building # BLD-05263
SRU-2023-01777 - NPC 5 Upgrade - Building # BLD-05264

This letter is to acknowledge that the Department received on December 27, 2023, the facility's NPC 5 nonstructural evaluation for the upgrade of five (5) buildings on the campus under the application numbers listed above in fulfillment of the 2022 California Administrative Code (CAC) Chapter 6, Article 1, Section 1.5.2 item 1 subitem 1.1 for submittal of the NPC 5 nonstructural evaluation report for complying with the January 1, 2024, deadline date for the buildings listed below in this letter.

Per 2022 CAC Chapter 6, Article 11, Section 11.2.4, NPC 5 evaluations include identification of the specific



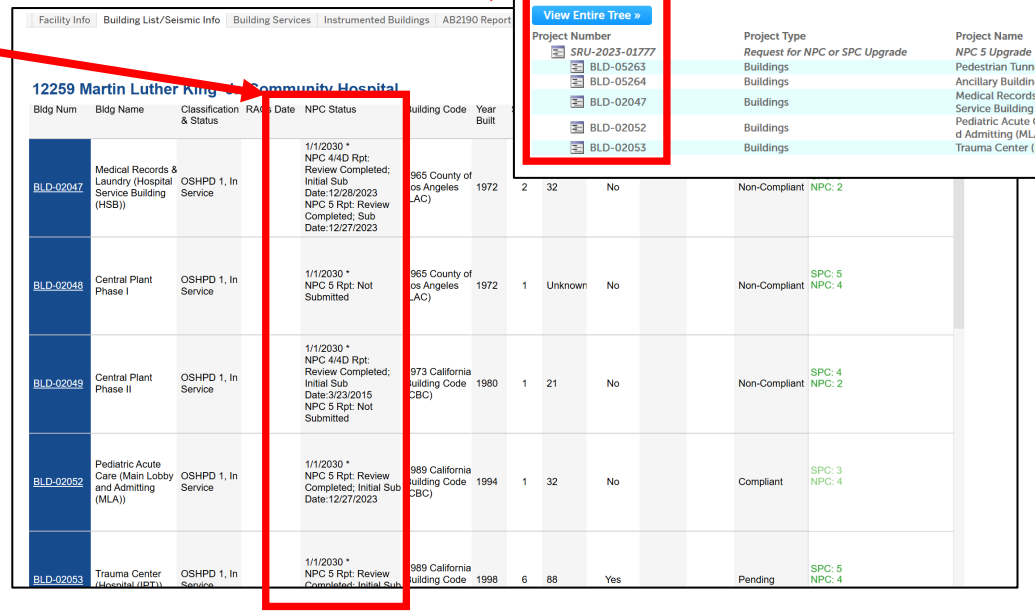
Project SRU-2023-01777:
Request for NPC or SPC Upgrade
Record Status: Open - Remarked

Record Info | Attachments

Related Projects

View Entire Tree »

Project Number	Project Type	Project Name	Date	View
SRU-2023-01777	Request for NPC or SPC Upgrade	NPC 5 Upgrade - Water Rationing	12/27/2023	
BLD-05263	Buildings	Pedestrian Tunnel	12/16/2014	View
BLD-05264	Buildings	Ancillary Building	12/16/2014	View
BLD-02047	Buildings	Medical Records & Laundry (Hospital Service Building (HSB))	01/01/1972	View
BLD-02052	Buildings	Pediatric Acute Care (Main Lobby and Admitting (MLA))	03/24/1994	View
BLD-02053	Buildings	Trauma Center (Hospital (IPT))	01/26/1998	View



Facility Info | Building List/Seismic Info | Building Services | Instrumented Buildings | AB2190 Report

12259 Martin Luther King ... Community Hospital

Bldg Num	Bldg Name	Classification & Status	RAC	Date	NPC Status	Building Code	Year Built					
BLD-02047	Medical Records & Laundry (Hospital Service Building (HSB))	OSHPD 1, In Service			1/1/2030 * NPC 4/4D Rpt: Review Completed; Initial Sub Date:12/28/2023 NPC 5 Rpt: Review Completed; Sub Date:12/27/2023	965 County of os Angeles LAC)	1972	2	32	No	Non-Compliant	NPC: 2
BLD-02048	Central Plant Phase I	OSHPD 1, In Service			1/1/2030 * NPC 5 Rpt: Not Submitted	965 County of os Angeles LAC)	1972	1	Unknown	No	Non-Compliant	SPC: 5 NPC: 4
BLD-02049	Central Plant Phase II	OSHPD 1, In Service			1/1/2030 * NPC 4/4D Rpt: Review Completed; Initial Sub Date:3/23/2015 NPC 5 Rpt: Not Submitted	973 California uilding Code CBC)	1980	1	21	No	Non-Compliant	SPC: 4 NPC: 2
BLD-02052	Pediatric Acute Care (Main Lobby and Admitting (MLA))	OSHPD 1, In Service			1/1/2030 * NPC 5 Rpt: Review Completed; Initial Sub Date:12/27/2023	989 California uilding Code CBC)	1994	1	32	No	Compliant	SPC: 3 NPC: 4
BLD-02053	Trauma Center (Hospital (IPT))	OSHPD 1, In Service			1/1/2030 * NPC 5 Rpt: Review Completed; Initial Sub	989 California uilding Code	1998	6	88	Yes	Pending	SPC: 5 NPC: 4

HCAI Department of Health Care Access and Information

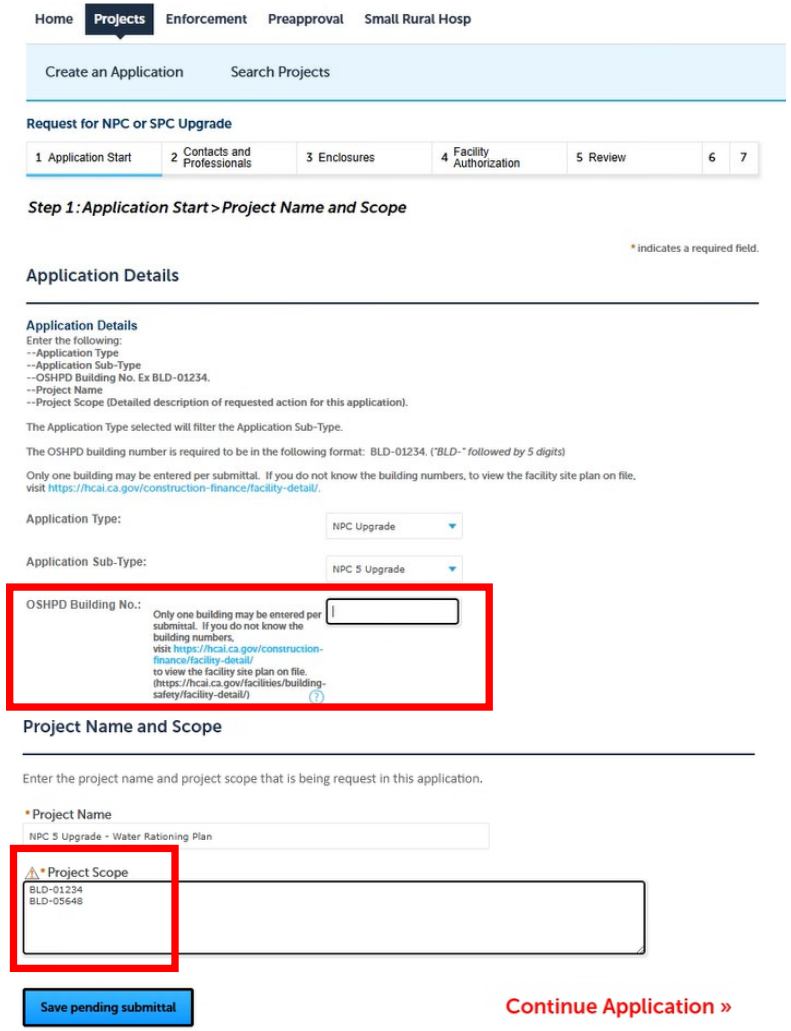
Streamlined application process

New seismic compliance project applications

https://hcai.ca.gov/facilities/building-safety/seismic-compliance-and-safety/seismic-application-process/

For new NPC 5 applications:

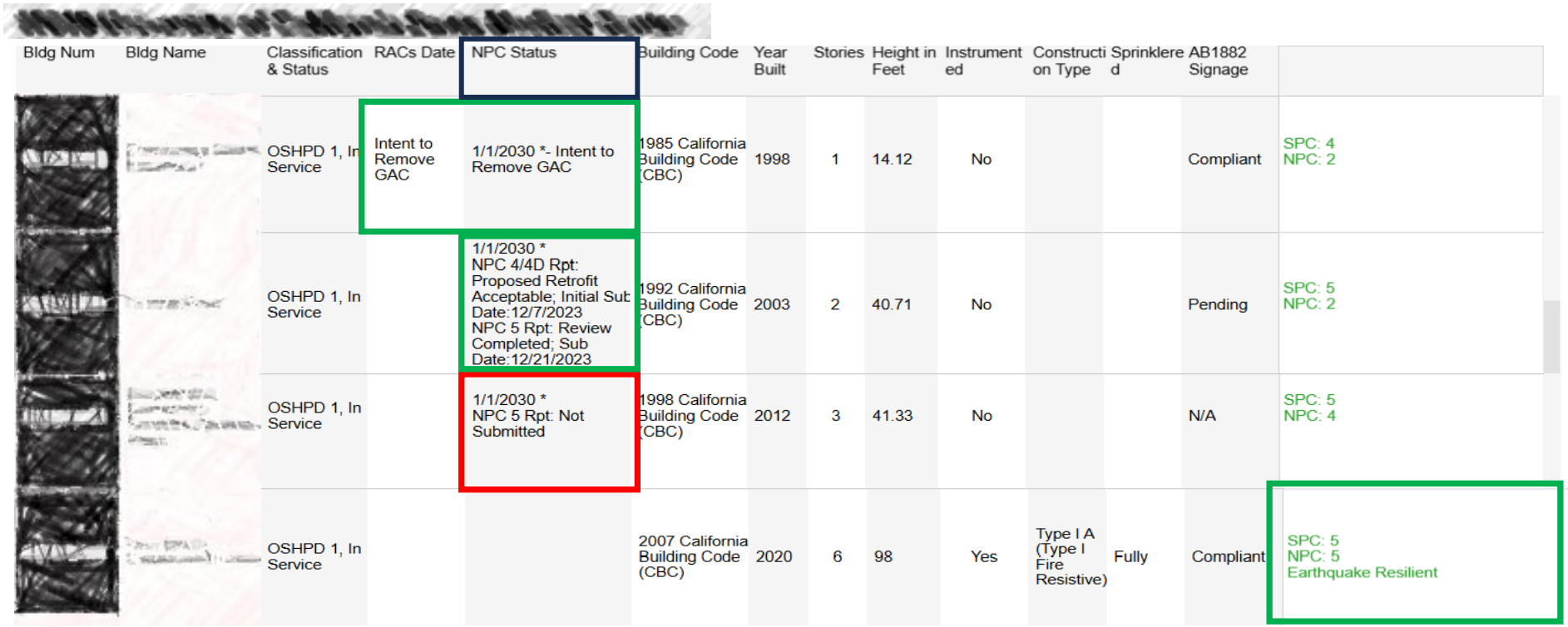
- Only one building input
- List other related buildings in the project scope or list them in the evaluation report
- We will assign the related buildings to the project



HCAI Department of Health Care Access and Information

NPC Status

Check current status at https://hcai.ca.gov/facilities/building-safety/facility-detail/



Bldg Num	Bldg Name	Classification & Status	RACs Date	NPC Status	Building Code	Year Built	Stories	Height in Feet	Instrumented	Construction Type	Sprinklered	AB1882 Signage	
[redacted]	[redacted]	OSHPD 1, In Service	Intent to Remove GAC	1/1/2030 *- Intent to Remove GAC	1985 California Building Code (CBC)	1998	1	14.12	No			Compliant	SPC: 4 NPC: 2
[redacted]	[redacted]	OSHPD 1, In Service		1/1/2030 * NPC 4/4D Rpt: Proposed Retrofit Acceptable; Initial Sub Date:12/7/2023 NPC 5 Rpt: Review Completed; Sub Date:12/21/2023	1992 California Building Code (CBC)	2003	2	40.71	No			Pending	SPC: 5 NPC: 2
[redacted]	[redacted]	OSHPD 1, In Service		1/1/2030 * NPC 5 Rpt: Not Submitted	1998 California Building Code (CBC)	2012	3	41.33	No			N/A	SPC: 5 NPC: 4
[redacted]	[redacted]	OSHPD 1, In Service			2007 California Building Code (CBC)	2020	6	98	Yes	Type I A (Type I Fire Resistive)	Fully	Compliant	SPC: 5 NPC: 5 Earthquake Resilient

Submitted Intent to RACS

Submitted NPC 4/4D and NPC 5 evaluation reports

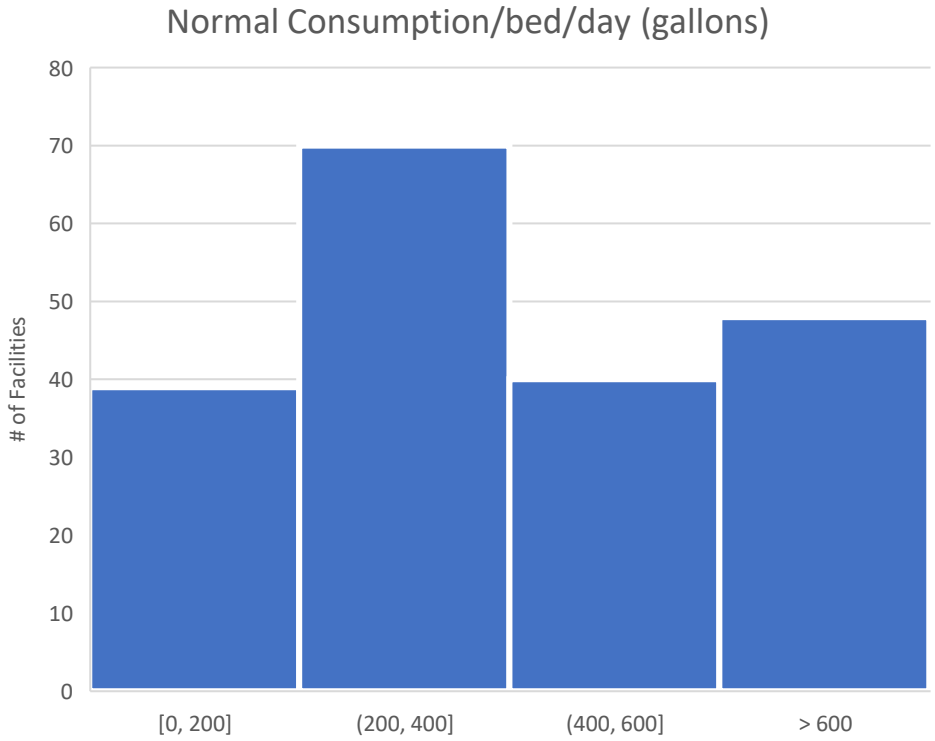
The submitted report did not address this building

Compliant building.

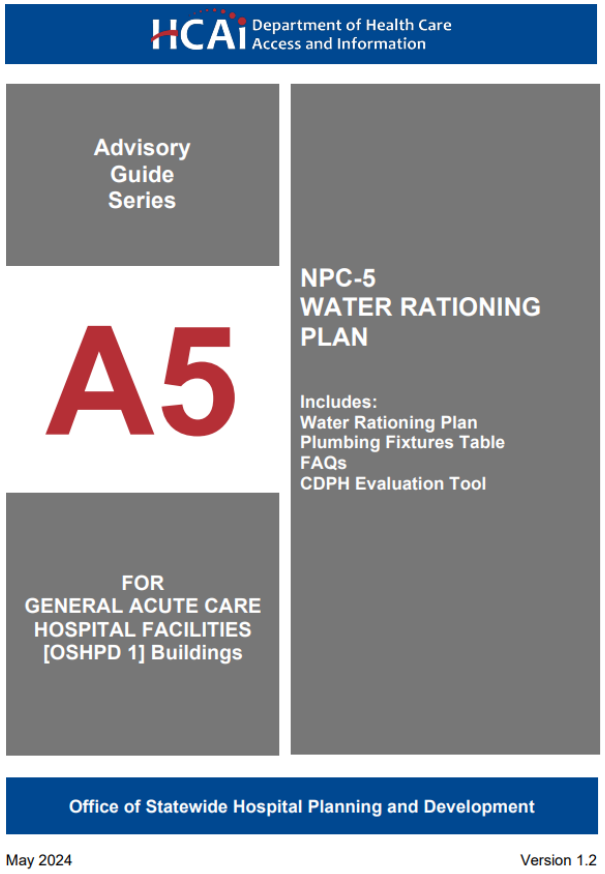
NPC 5
Water Rationing Plan

Big Picture – Why conserve?

- Water consumption is significantly larger than the code minimum of 50 gal/bed/day
- Lower usage is for typically remote rural, coastal, and/or air-cooled chillers.
- Higher usage is typically for large urban, inland, and/or facilities with water-cooled chillers in extreme temperatures.



NPC-5 Water Rationing Plan Guide - Update



- *Updated Guide May 2024 is available.*
  - *<u>NO NEW REQUIREMENTS</u>*
  - *Cooling equipment e-power discussion*
  - *Minor editorial*

NPC-5 Water Rationing Plan

Information Required:

- Existing water usage
- Executive Summary Indicating:
  - Existing water and wastewater storage (gallons),
  - Source(s) of emergency water supply
  - Additional proposed water and wastewater storage (gallons),
  - Anticipated emergency usage (gallons); and,
  - Water replenishment/tanker truck arrangements (if needed)
- Impacted services in the building(s)
- Calculations
  - Temperature control
  - Water uses in building(s)
  - Architectural Floor Plans (if needed to support calculations)

NPC 5
Water Rationing Examples

Water Rationing – Examples

Some water rationing plan examples

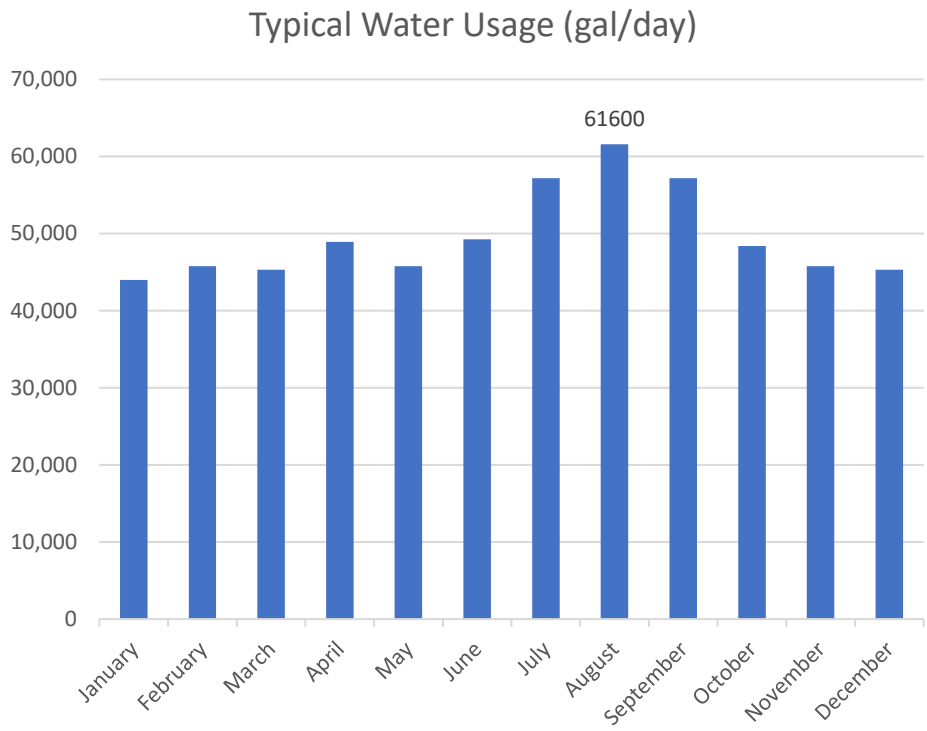
1. No water rationing
2. Limited water rationing
3. Significant water rationing through temperature control
4. Significant water rationing with a direct impact on services

Water Rationing – Example Scenario

Example scenario: A 120 licensed-bed campus. The existing water consumption is 61,600 gallons per day (maximum monthly average).

The minimum onsite tank requirement shall be based on the facility water rationing plan but not less than 5000 gallons or:

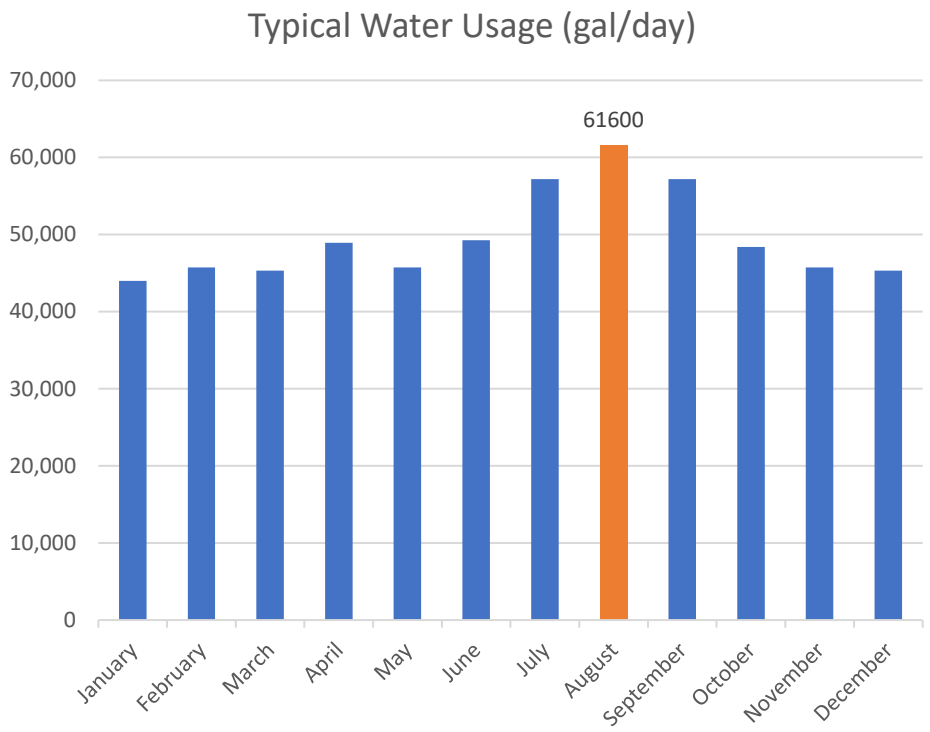
1. 50 gal * 120 bed * 3 days = 18,000 gallons
2. 50 gal * 120 bed * 1 day = 6,000 gallons with replenishment exception



Water Bill - Average or Maximum

- Provide most recent annual water bill(s) for the facility.
- Typical annual water bill contains water consumption on a monthly basis.
- Using average yearly monthly volume would underestimate water requirement for a peak month.

Note: Water consumption in the highest month is already an average over a whole month.



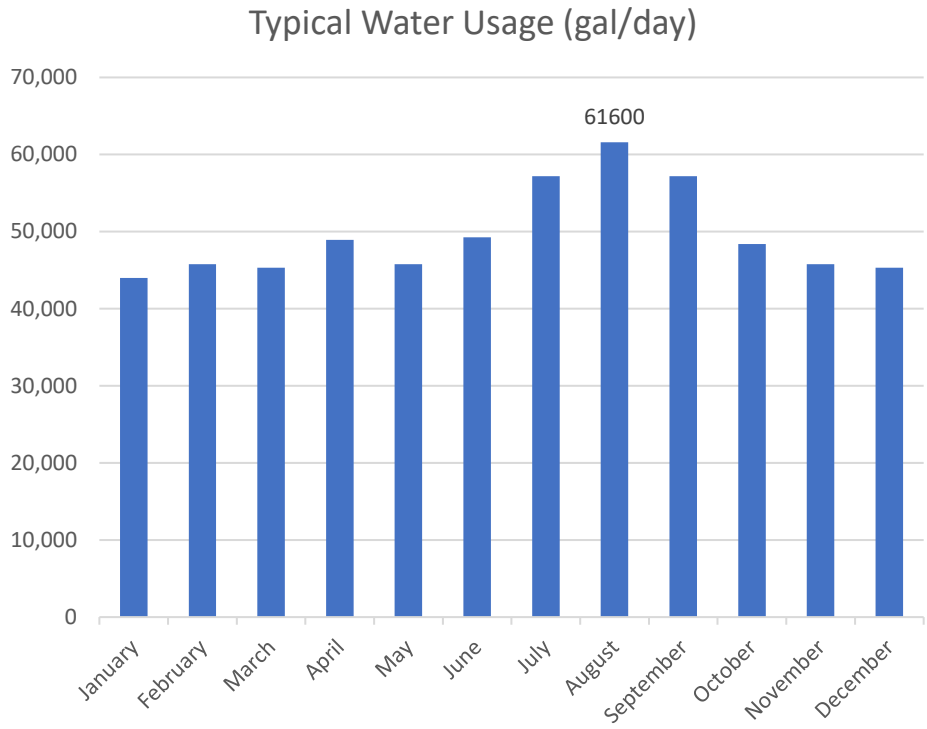
Maximum = 61,600 gallons per day
Minimum = 44,000 gallons per day
Average = 49,544 gallons per day

Example – 1 : No Water Rationing

- 72 hour onsite

Provide on-site water and wastewater tanks to sustain 72-hour emergency operations
= 61,600 gallons * 3 days = 184,800 gallons

Provide 205,000-gallon <u>water</u> and <u>wastewater</u> tanks (10-15% larger per manufacturer's recommendation)

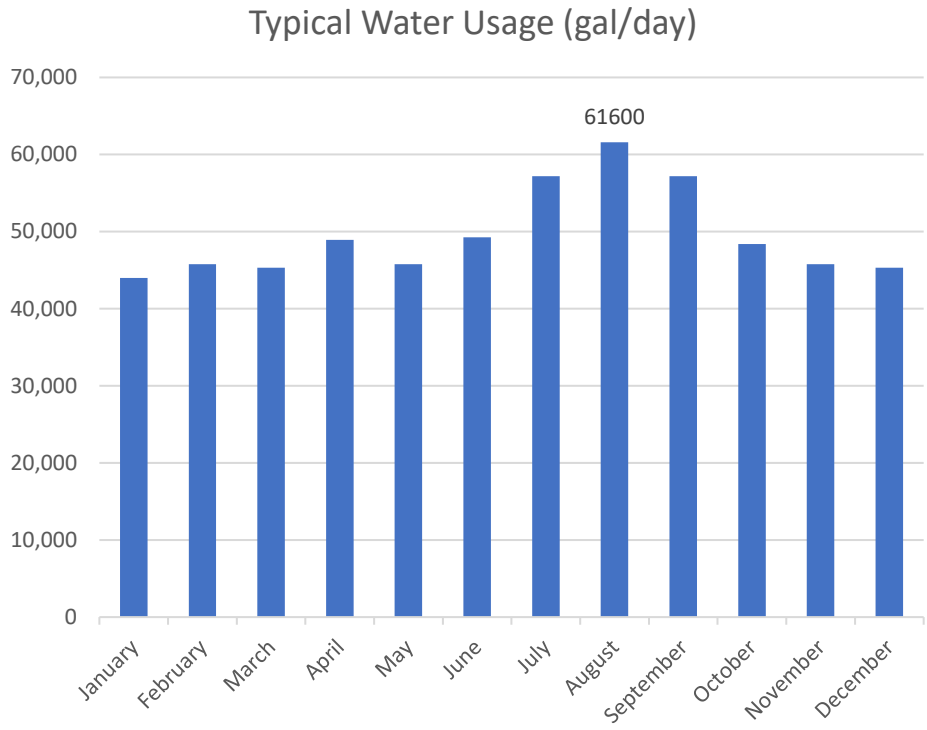


Example – 1 : No Water Rationing

- 24 hours + Vendors

Provide on-site water and wastewater to sustain 24-hour emergency operations with replenishment

The most common tanker truck size is 4,000 gallons. Limiting to a 2-hour refill frequency, maximum tanker truck delivery is limited to 48,000 gallons per day.

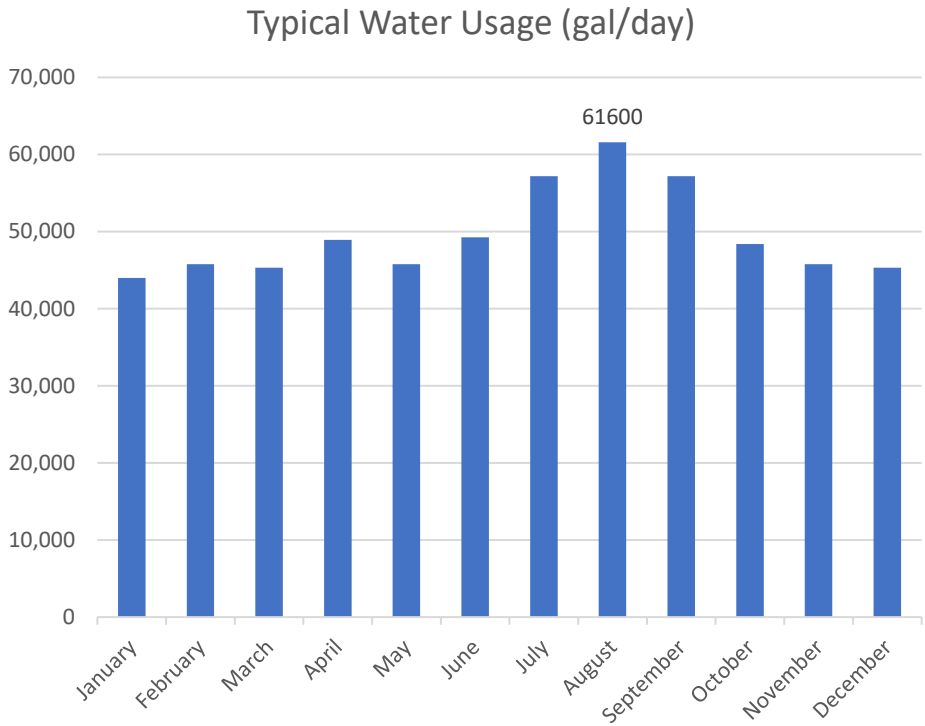


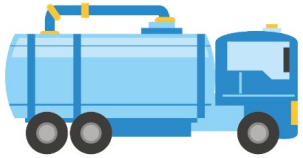
Example – 1 : No Water Rationing

- 24 hours + Vendors

Onsite tank size requirement
= 184,800 gallons – (vendor trucks)
= 184,800 gallons – 2*48,000
= 88,800 gallons (≥ 61,600)

Provide a 100,000-gallon water and wastewater tanks (10-15% larger per manufacturer recommendation)





Prior to the NPC 5 rating, water and wastewater tanker truck contracts required for to sustain a minimum of 72-hour emergency operation

Example – 1 : No Water Rationing

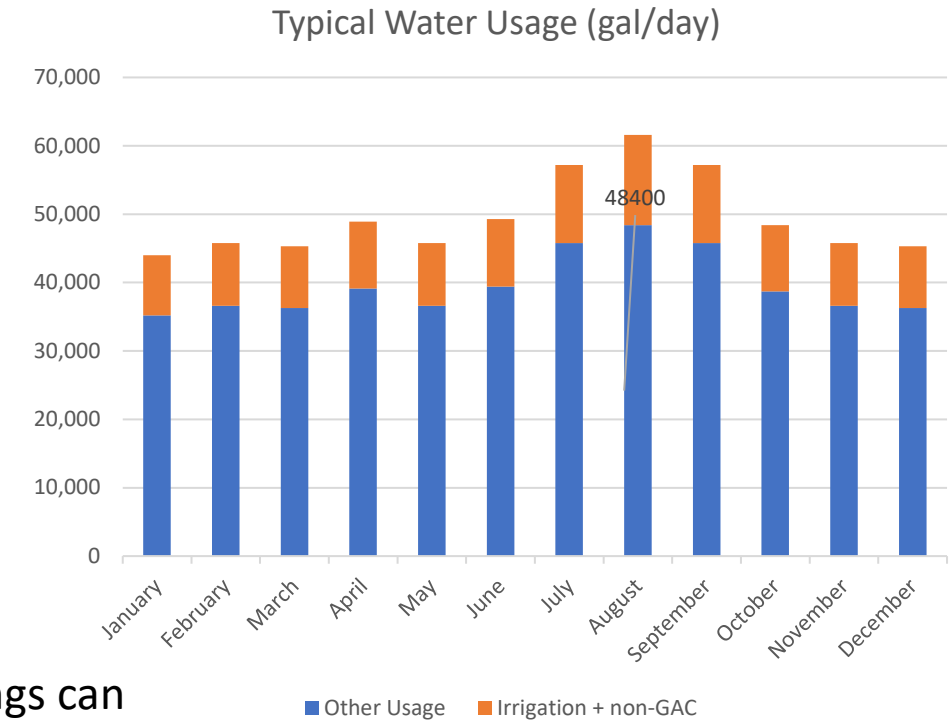
NPC 5 evaluation report shall indicate

- No water rationing proposed
- No impact on services

CDPH review is **not** required. HCAI review is **minimal**.

Example – 2 : Limited Water Rationing but no impact on GAC services

- Remove irrigation demand (verify irrigation is not through a separate water meter)
- Remove non-GAC building demand (not impacting services of GAC buildings)



Reduced water demand from 61,600 gallons to 48,400 gallons

Note:

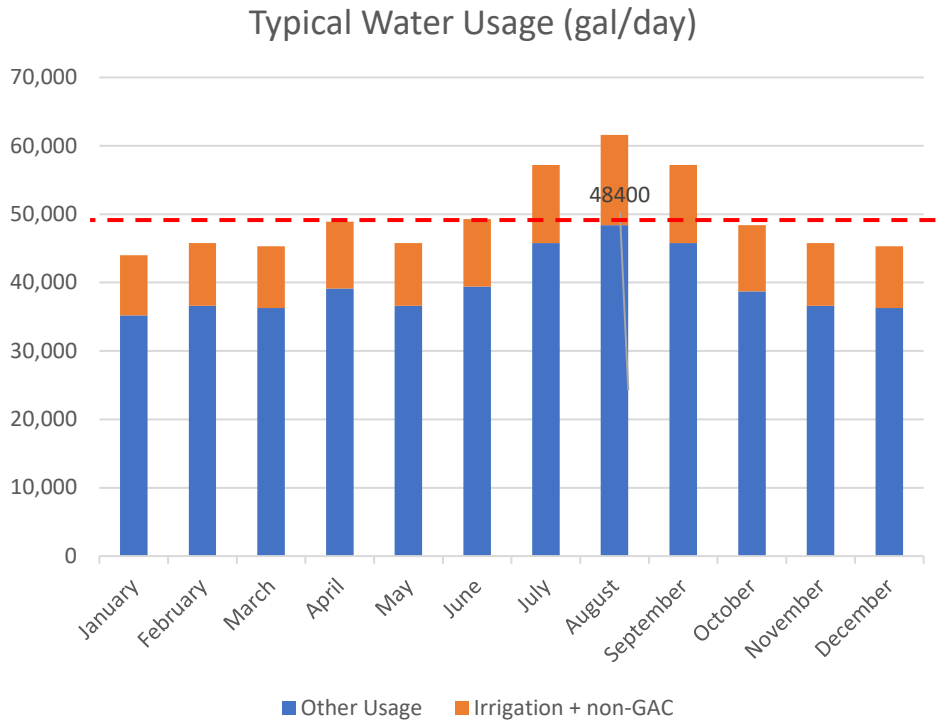
The water consumption between non-GAC versus GAC buildings can be estimated by FTEs, square footage, services provided, plumbing fixtures, etc. Due to the type of services provided, GAC buildings typically have higher water consumption per square foot compared to non-GAC buildings.

Example – 2 : Limited Water Rationing but no impact on GAC services

- 72 hour onsite

Provide on-site water and wastewater tanks to sustain 72-hour emergency operations
= 48,400 gallons * 3 days = 145,200 gallons

Provide a 160,000-gallon <u>water</u> and <u>wastewater</u> tank (10-15% larger per manufacturer recommendation)



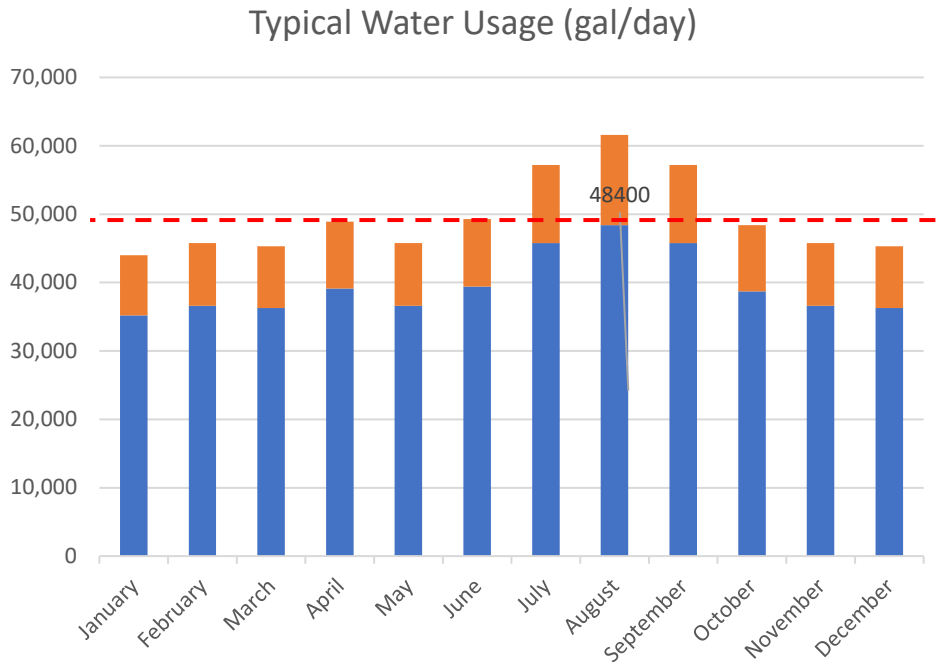
Example – 2 : Limited Water Rationing but no impact on GAC services

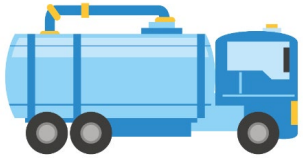
- 24 hours + Vendors

Onsite tank size requirement
= 145,200 gallons – (vendor trucks)
= 145,200 gallons – 2*48,000
= 49,200 gallons (≥ 48,400)

Provide a 55,000-gallon <u>water</u> and <u>wastewater</u> tank (10-15% larger per manufacturer recommendation)

Prior to the NPC 5 rating, water and wastewater tanker truck contracts required for to sustain a minimum of 72-hour emergency operation





Example – 2 : Limited Water Rationing but no impact on GAC services

NPC 5 evaluation report shall indicate

- No impact on services
- Water rationing limited to non-essential usage that can be temporarily shut-off during an emergency (part of facility emergency plan)

CDPH review is **not** required. HCAI review is **limited**.

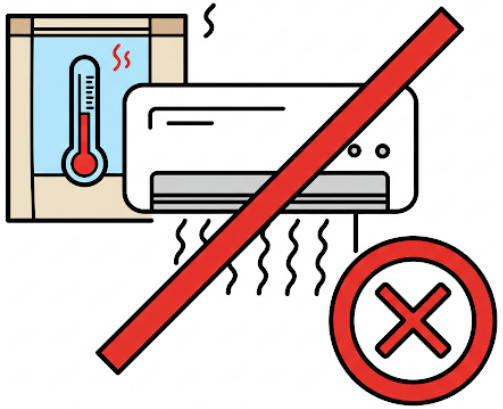
Example – 3 : Significant Water Rationing through Temperature Control

Inland facilities with water coolers and extreme weather have large industrial water usage

Strategy to conserve water used for temperature control.

At the minimum, the facility should provide industrial water to heat/cool/humidify:

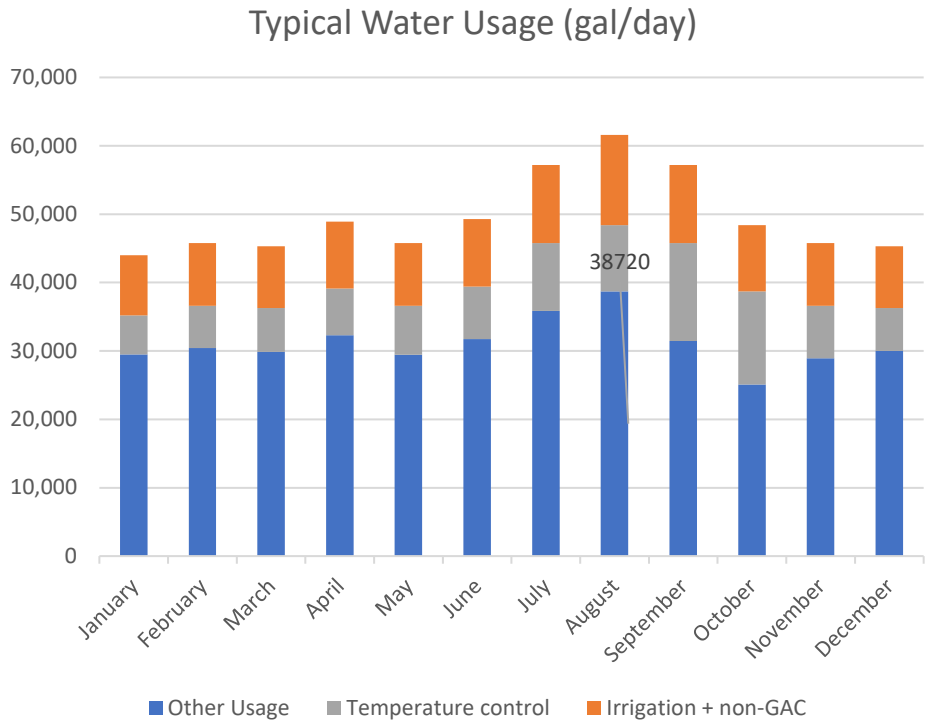
1. Operating Rooms
2. Temperature-sensitive drugs and medical supplies



Example – 3 : Significant Water Rationing through Temperature Control

1. Mechanical engineers could use 8,760 bin analysis (or other rational approaches) to estimate the water usage
2. Account for actual blowdowns and temperature on site when calculating water usage.
3. Stating “We assume 30% of water is used in cooling” under the report is not sufficient.

Reduced water demand to 38,720 gallons



Example – 3 : Significant Water Rationing through Temperature Control

When limiting cooling to certain regions to conserve water during an emergency, provide the following items for review:

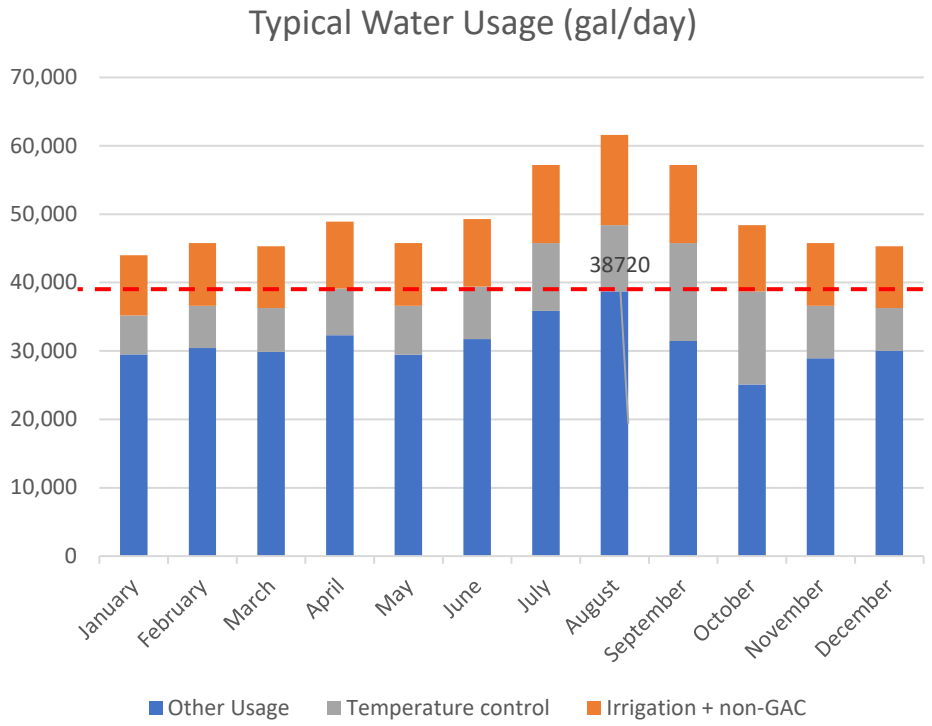
- Overall layout for chillers, cooling towers, and AHUs serving the rooms/departments
- Provide relevant equipment cutsheets to justify the minimum operable load
- Plan to show how the cooling units will shut-down (automation, re-ducting, etc.). List any required construction.

Example – 3 : Significant Water Rationing through Temperature Control

- 72 hour onsite

Provide on-site water and wastewater to sustain 72-hour emergency operations
= 38,720 gallons * 3 days = 116,160 gallons

Provide a 130,000-gallon water and wastewater tanks (10-15% larger per manufacturer recommendation)



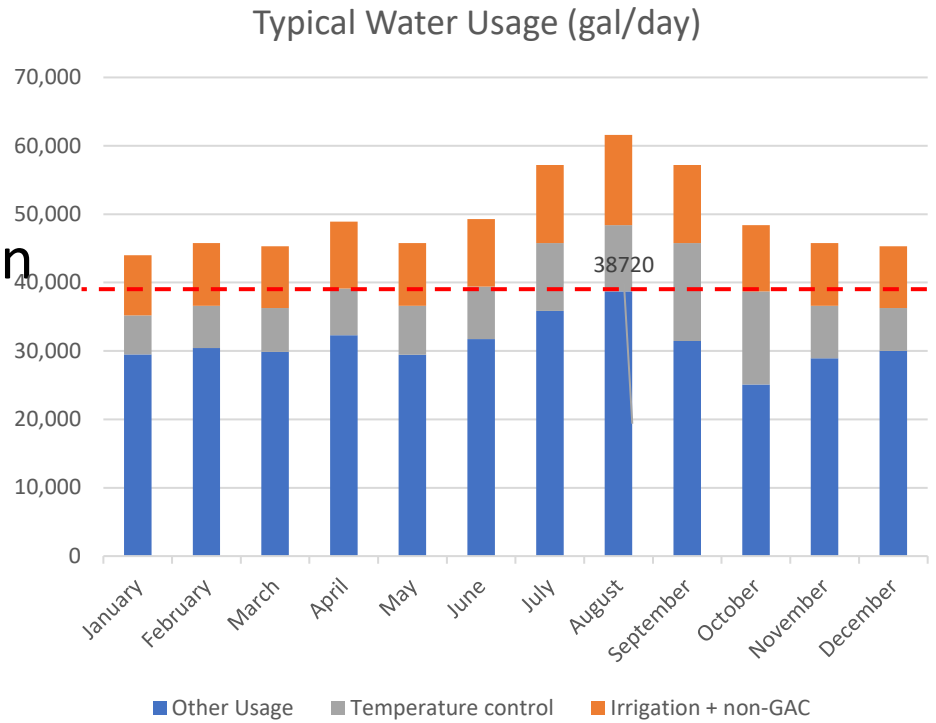
Example – 3 : Significant Water Rationing through Temperature Control

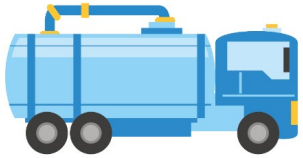
- 24 hours + Vendors

Provide on-site water and wastewater to sustain 24-hour emergency operations with replenishment = 38,720 gallons

Provide a 45,000-gallon water and wastewater tank (10-15% larger per manufacturer recommendation)

Prior to the NPC 5 rating, water and wastewater tanker truck contracts required for to sustain a minimum of 72-hour emergency operation





Example – 3 : Significant Water Rationing through Temperature Control

NPC 5 evaluation report shall indicate

- Identify the services where temperature control is impacted

CDPH review is minimal. HCAI review is **comprehensive**.

Note: With limited cooling, please address the plan for infection control for CDPH review.

List of Services	Functional Status[1]	Temperature Control[2]	Notes[3]	N/A
Basic				
Medical & Nursing				
Surgical & Anesthesia				
Clinical Laboratory				
Radiological				
Pharmaceutical				
Dietetic				
Supplemental				
Emergency				
Intensive Care				
Outpatient				
Dialysis				
Therapy/Rehab				
Support Services				
Storage				
Morgue				
Administrative Space				
Central Sterile Supply and Infection Control				
Employee Dressing Rooms & Lockers				
Housekeeping				
Laundry				
Others: (please list)				

[1] List if the service is fully functional (FF), partially functional (PF) or not functional (NF).
[2] List if service spaces are maintaining temperature/humidity range per 2022 CMC Table 4A.
[3] Provide additional information in notes for services partially functional or not maintaining temperature/humidity control.

Example – 4 : Significant Water Rationing with direct impact on GAC services

Some sites might require extreme water rationing using all possible water conservation measures due to space constraints, financial costs, etc.

This is not the same as the 50 gal/bed/day.

The amount of water required shall be determined from the facility's emergency operations plan and an associated Water Conservation/Water Rationing Plan to provide for 72 hours of operation

Example – 4 : Significant Water Rationing with direct impact on GAC services

Some examples below for direct water usage reduction:

1. Calculating emergency water usage by plumbing fixtures (based on FTE and departments etc.)
2. Limiting ORs
3. Limiting sterilizer runs
4. Limiting dialysis
5. Changing dietetic plans to use ready to eat meals
6. Limiting or transferring to another facility scheduled outpatient services
7. Limiting clinical laboratory and radiological services to emergency use only.

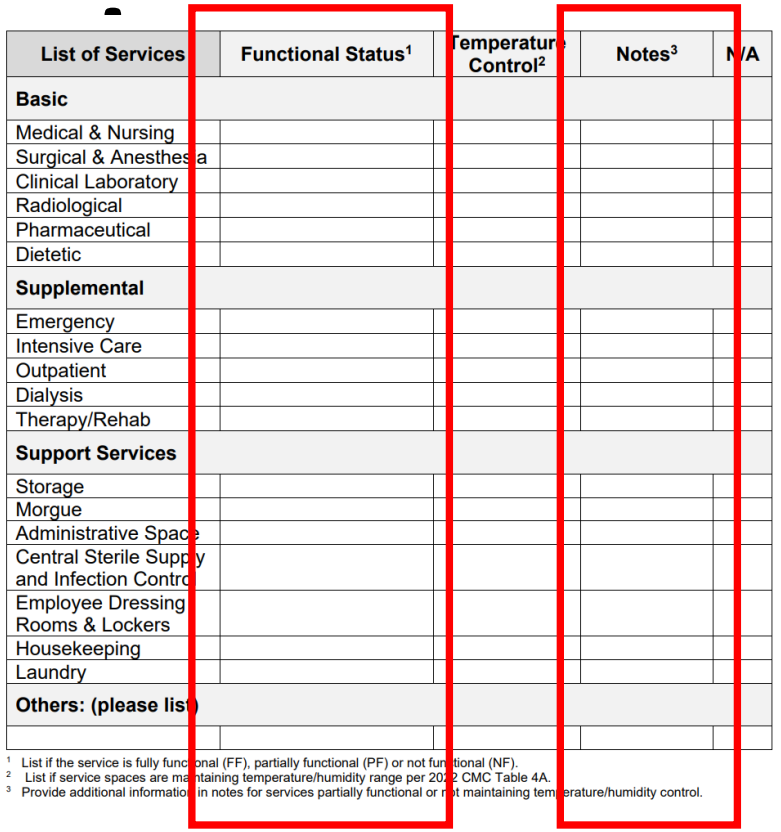
Example – 4 : Significant Water Rationing with direct impact on GAC se

Provide a detailed description

- Impact on all basic, supplemental, and support services with the proposed emergency operational plan.
- Reduction in capacity or services
- Modifications to staff procedures

Review the CDPH policy and procedure checklist to address all operational impacts.

CDPH and HCAI review are **<u>comprehensive</u>**



List of Services	Functional Status[1]	Temperature Control[2]	Notes[3]	N/A
Basic				
Medical & Nursing				
Surgical & Anesthesia				
Clinical Laboratory				
Radiological				
Pharmaceutical				
Dietetic				
Supplemental				
Emergency				
Intensive Care				
Outpatient				
Dialysis				
Therapy/Rehab				
Support Services				
Storage				
Morgue				
Administrative Space				
Central Sterile Supply and Infection Control				
Employee Dressing Rooms & Lockers				
Housekeeping				
Laundry				
Others: (please list)				

[1] List if the service is fully functional (FF), partially functional (PF) or not functional (NF).
[2] List if service spaces are maintaining temperature/humidity range per 2022 CMC Table 4A.
[3] Provide additional information in notes for services partially functional or not maintaining temperature/humidity control.

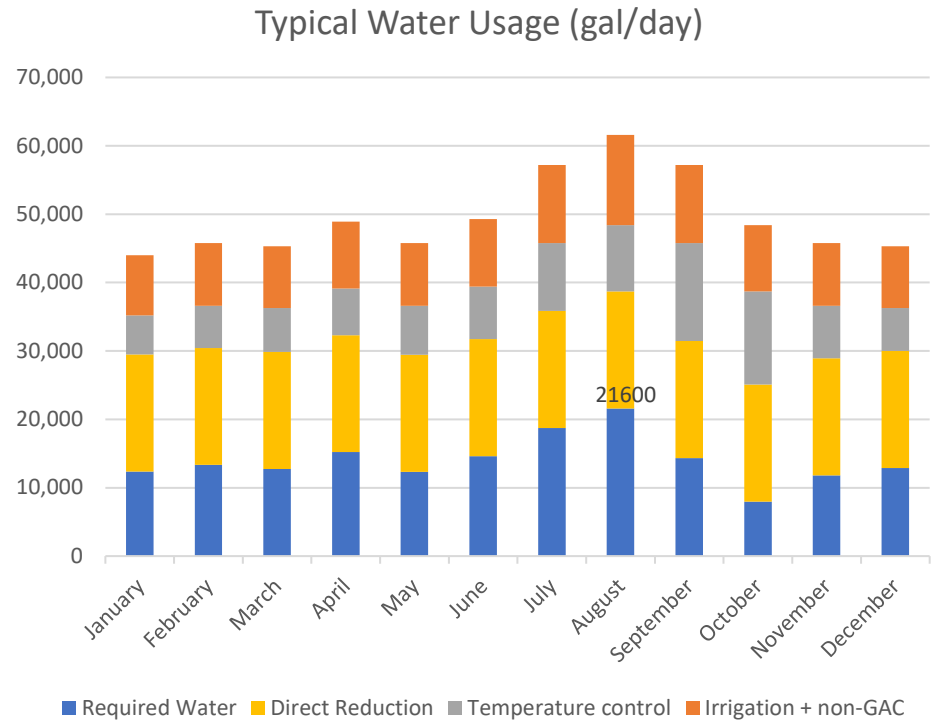
NOTE: The impact on service section in the report shall be completed by the facility representative accurately reflecting the proposed percent reduction of water normal use.

Example – 4 : Significant Water Rationing with direct impact on GAC services

Based on detailed water uses, reduced water demand = 21,600 gallons per day

Summary

- No water rationing = 61,600 gallons
- Limited water rationing = 48,400 gallons
- Water rationing through temperature control = 38,720 gallons
- Water rationing with direct impact on services = 21,600 gallons



Example – 4 : Significant Water Rationing with direct impact on GAC services

One day water requirement
= 21,600 gallons
One day wastewater requirement
= 19,000 gallons

[21,600 – 2,600 with no blowdowns as part of the emergency plan]

Water Uses	Estimated Normal Use	Emergency Use	Percent Reduction
Plumbing Fixtures	21,170	15,500	26%
Physical Plant	16,900	2,600	85%
Humidification	1,800	350	81%
Laundry	550		100%
Housekeeping / Infection Control	1,400	800	43%
Fire & Life Safety Systems	-		
Sterilization Equipment	1,880	1,200	32%
Clinical Lab	540	100	81%
Hemodialysis	1,450	150	85%
Kitchen / Dietary	700	100	85%
Pharmacy	1,450	800	45%
Drinking Water	560		100%
Irrigation	5,280		100%
Non-GAC buildings	7,920		100%
Total	**61,600**	21,600	

Example – 4 : Significant Water Rationing with direct impact on GAC services

- 72 hour onsite

Provide on-site water and wastewater tanks to sustain 72-hour emergency operations
Water = 21,600 * 3 days = 64,800 gallons
Wastewater = 19,000 * 3 days = 57,000 gallons
Provide a 72,000-gallon water and 65,000-gallon wastewater tank (10-15% larger per manufacturer recommendation)

Water Uses	Estimated Normal Use	Emergency Use	Percent Reduction
Plumbing Fixtures	21,170	15,500	26%
Physical Plant	16,900	2,600	85%
Humidification	1,800	350	81%
Laundry	550		100%
Housekeeping / Infection Control	1,400	800	43%
Fire & Life Safety Systems	-		
Sterilization Equipment	1,880	1,200	32%
Clinical Lab	540	100	81%
Hemodialysis	1,450	150	85%
Kitchen / Dietary	700	100	85%
Pharmacy	1,450	800	45%
Drinking Water	560		100%
Irrigation	5,280		100%
Non-GAC buildings	7,920		100%
Total	**61,600**	21,600	

Example – 4 : Significant Water Rationing with direct impact on GAC services

- 24 hours + Vendors

Provide on-site water and wastewater tanks to sustain 24-hour emergency operations with replenishment

Provide a 24,000-gallon water and 21,000-gallon wastewater tank (10-15% larger per manufacturer recommendation)

Water Uses	Estimated Normal Use	Emergency Use	Percent Reduction
Plumbing Fixtures	21,170	15,500	26%
Physical Plant	16,900	2,600	85%
Humidification	1,800	350	81%
Laundry	550		100%
Housekeeping / Infection Control	1,400	800	43%
Fire & Life Safety Systems	-		
Sterilization Equipment	1,880	1,200	32%
Clinical Lab	540	100	81%
Hemodialysis	1,450	150	85%
Kitchen / Dietary	700	100	85%
Pharmacy	1,450	800	45%
Drinking Water	560		100%
Irrigation	5,280		100%
Non-GAC buildings	7,920		100%
Total	**61,600**	21,600	

Prior to the NPC 5 rating, water and wastewater tanker truck contracts required for to sustain a minimum of 72-hour emergency operation

Water Rationing – Example Summary

Summarizing the four different water rationing approaches

Rationing Approach	None		Limited (non-critical)		Temperature Control		Direct Impact to Services	
72 hour or 24 hour onsite	72 hour onsite	24 hour + Vendor	72 hour onsite	24 hour + Vendor	72 hour onsite	24 hour + Vendor	72 hour onsite	24 hour + Vendor
Water Tank (gallons)	205,000	100,000	160,000	55,000	130,000	45,000	72,000	24,000
Wastewater Tank (gallons)	205,000	100,000	160,000	55,000	130,000	45,000	65,000	21,000
Vendor Replenishment / day (gallons)		48,000		48,000		38,720		21,600
Percent Water Rationing	None		22%		37%		65%	
CDPH Review	None		None		Minimal		Comprehensive	
HCAI Review	Minimal		Minimal		Comprehensive		Comprehensive	

Example - New Construction

For new buildings, water bills don't exist.

- Include all possible water usage in the building (e.g., plumbing, HVAC, sterilizers, dietic, dialysis, housekeeping, compressors, etc.
- Use the A5 guide to estimate water usage.

Water Uses	Minimum Gallons per day
Plumbing Fixtures[1]	
Physical Plant	
Humidification	
Laundry, if outsourced, are there adequate supplies on hand?	
Housekeeping / Infection Control	
Fire & Life Safety Systems	
Sterilization equipment	
Clinical Lab	
Hemodialysis	
Kitchen / Dietary	
Pharmacy	
Drinking Water	
Others (please list)	

[OSHPD 1]
General Acute Care Hospital (GACH)
PLUMBING FIXTURES TABLE

Plumbing Fixture Calculation							
Fixture Type	Quantity	Water use		Duration	Use per day[1]	Daily total	72 hr total
Water closet	(#)	1.28	flush	n/a	(#)	(#)	(#)
Urinal	(#)	(#)	flush	n/a	(#)	(#)	(#)
Handwash	(#)	(#)	minute	20 sec	(#)	(#)	(#)
Lavatory	(#)	(#)	minute	20 sec	(#)	(#)	(#)
Scrub Sink	(#)	(#)	minute	2 min	(#)	(#)	(#)
Process Sink	(#)	(#)	minute	tbd	(#)	(#)	(#)
Shower	(#)	1.5	minute	5 min	(#)	(#)	(#)
Clinical Sink	(#)	6.5	flush	n/a	(#)	(#)	(#)
Mop Sink	(#)	(#)	minute	tbd	(#)	(#)	(#)
Drinking Fountain	(#)	.25	minute	(30 sec)	(#)	(#)	(#)
Other							

1 – Use per day factored on occupant load in building

Example - New Construction

New building construction completion in an existing campus prior to 1/1/2030.

1. New building shall be NPC 5 prior to getting occupancy. If proposing vendors, these contracts also need to be in place.
2. Existing campus NPC 5 compliance shall be achieved by 1/1/2030.

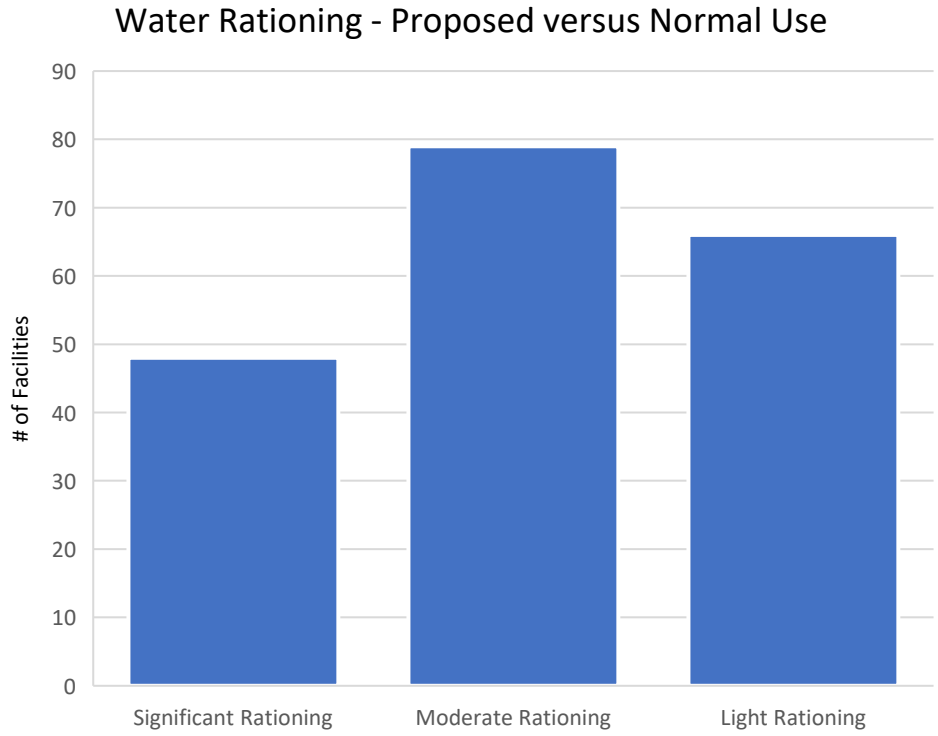
New building construction completion in an existing campus is after 1/1/2030.

1. New building shall be NPC 5 prior to getting occupancy.
2. Existing campus NPC 5 compliance shall be achieved by 1/1/2030.
3. If required tanks for whole campus are part of the new construction, the tank construction need to be completed and the existing buildings need to get NPC 5 rating by 1/1/2030

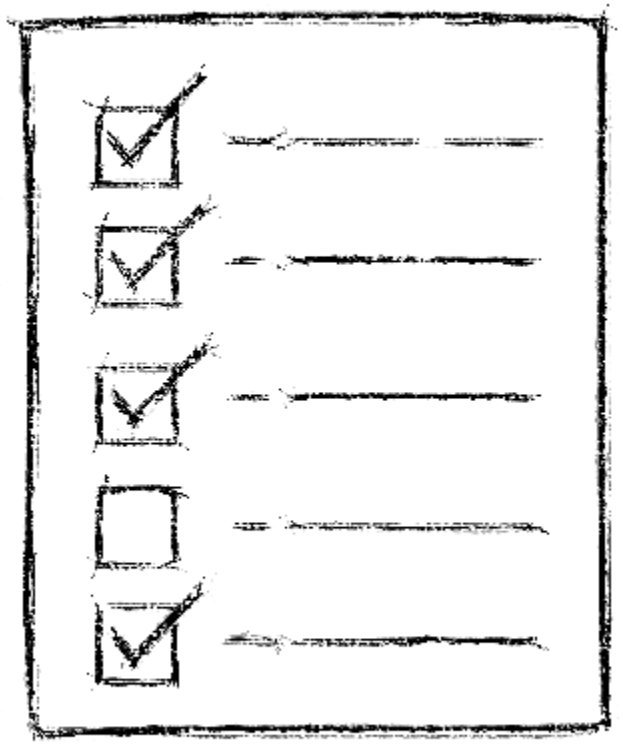
Water Rationing – Current Proposals

Based on the submitted (not yet approved) evaluation reports

Lower and higher outliers might get revised

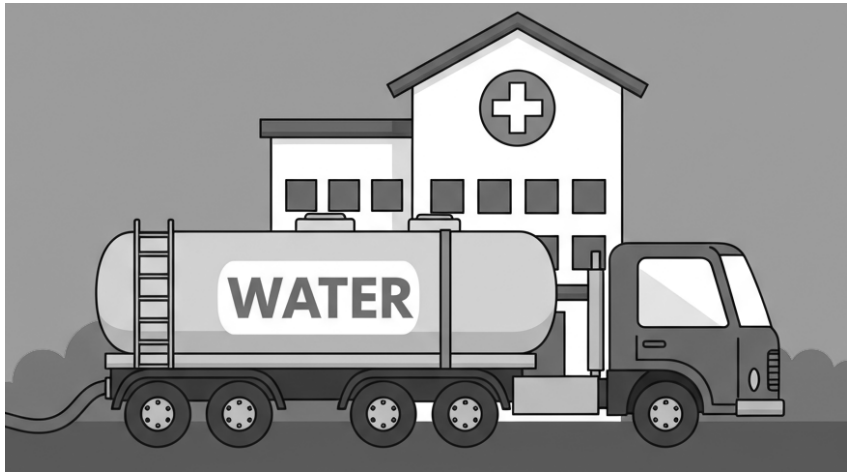


Other items to consider



Vendors / Tanker trucks

1. Identify the connection locations that will allow for the placement of the tanker truck.
2. Indicate water tank(s) refill time or wastewater tank(s) removal time.
3. Consider increasing storage capacity if truck proposed frequency is under 2 hours. A typical tanker truck size is 4,000 to 6,000 gallons
4. Recommend due diligence prior to submitting this as a proposed solution.



Vendors / Tanker trucks continued…

5. Name the company(s) and contact person that have been contracted to provide tanker trucks to replenish water. Specify the quantity of water/wastewater and the date range for which the contract/agreement is valid.
6. Indicate how the contract will be monitored.
7. Contract needs to be in place prior to NPC 5 rating.

Wastewater tanks

When the connection of the wastewater tank is provided to the existing sewer line, then such connections should be made with sufficient valves to isolate the holding tank from the external sewer lines in an emergency

For wastewater collection, multiple onsite tanks might be required depending on the layout, since wastewater is typically through gravity discharge.

Wastewater tanks

Wastewater tanks may be smaller in size than water tanks due to:

- Water loss from evaporation (cooling towers)
- Water consumption for services that don’t discharge water in sewage

CPC, Section 727.0, Exception

A minimum size of 24 hour for holding tank is required to match the minimum 24 hour on-site water tank requirement. Beyond 24 hours, additional leak proof bags may be included to provide 72 hours of on-site capacity as recommended under this guide per CPC §727.1.

Bagging of waste

For wastewater volume **calculation purposes,** bagging of staff and patient toilets of human waste is not permitted as a reduction strategy for wastewater storage. Provide wastewater storage for flushing staff & patient toilets as required per Title 22 CCR 70863(h).

The CPC 727.1 exception is written for bags intended to be used where the waste system (flushing) is still in operation, as it will collect waste from downstream of all fixtures.

727.0 [OSHPD 1] Emergency Sanitary Drainage.

727.1 *For new acute care hospital buildings submitted after the effective date of this code, the hospital shall have an on-site holding tank[s] to store sewage and liquid waste sufficient to operate essential hospital utilities and equipment in the acute care hospital building, to support 72 hours of continuing operation in the event of an emergency. Any general acute care hospital in operation after January 1, 2030 shall have an on-site holding tank[s] to store sewage and liquid waste sufficient to operate essential hospital utilities and equipment in the acute care hospital buildings on the campus with an SPC-3, SPC-4, or SPC-5 rating, to support 72 hours of continuing operation in the event of an emergency. The emergency waste holding capacity shall be based on the Water Conservation/Water Rationing Plan required in Section 615.4.1. See also California Building Code, Part 2, Section 1616A.1.42.*

Exception: *Hook-ups that allow for the use of transportable means of sewage and liquid waste disposal may be provided instead of on-site storage if the hospital has a plan for storage of sewage and liquid waste. This plan may include the use of leak-proof bags if adequate storage of these and other bags of waste are provided. These storage facilities shall comply with the appropriate local health and environmental authorities' requirements, California Department of Public Health requirements for medical waste management, and comply with the following minimum requirements:*

(a) Location[s]. *Location[s] shall be provided for waste collection and storage with sufficient space based upon the volume of projected waste and length of anticipated storage.*

(b) Enclosure[s]. *Lockable room[s] or lockable screened enclosure[s] of adequate capacity to store the quantity of waste anticipated shall be provided for the washing and cleaning of containers and for the storage of sewage and waste water.*

The room[s] or screened enclosure[s] shall include the following:

1. *Floor and curb. A sealed concrete floor or other approved impervious flooring with a curb and with a drain connected to the sewer.*
2. *Water. Steam or hot water and cold water supplies in accordance with the California Plumbing Code.*

Essential Power Requirement

Essential electrical power shall be provided for the cooling equipment necessary to maintain temperature and humidity for a minimum of one operating room and other spaces as identified in the functional program

2025 California Mechanical Code

- ***321.3*** *Cooling equipment necessary to maintain temperature and humidity listed in Table 4-A for a minimum of one operating room and other spaces as identified in the functional program.*

NPC-5 Water Rationing Plan for General Acute Care Hospital Facilities May 2024
Advisory Guide Series – A5

Temperature (Heating/Cooling)

If the facility is planning on limiting (or temporarily shutting down) heating/cooling, what services will be affected?

How will facility monitor and maintain adequate humidity, temperature, and air pressure?

List of Services to be affected by heating/cooling modifications from normal day to day operations	Building Number(s)

During periods of power outages essential electrical power is to be provided for the cooling equipment necessary to maintain temperature and humidity for a minimum of one operating room and other spaces as identified in the functional program.

Based on CDPH discussions, CDPH recommends at a minimum, the facility should provide industrial water to heat/cool/humidify:

1. Operating Rooms
2. Temperature sensitive drugs and medical supplies.

Water rationing plan shall also include infection control measures for CDPH licensing and certification review.

For cooling/humidification units serving these spaces not connected to essential power, HCAI recommends (not requires) having alternate power source arrangements to maintain design temperatures per 2022 CMC Table 4-A.

On-Site Water Wells

- Location of the well.
- Is the well owned and operated by the facility? Nearby wells or wells not owned by the facility will be reviewed on a case-by-case basis.
- Is the intent to use the city water supply and have a well for emergency use only? How will the transfer to well water be transitioned?

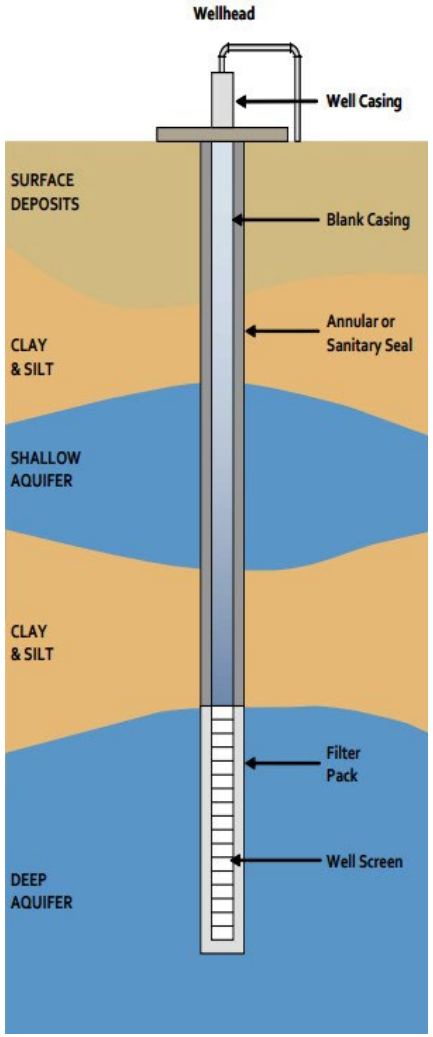


Image from California Department of Water Resources

On-Site Water Wells continued…

- How will the well water quality be ensured before usage if the proposal is to use this as potable water? Refer to CDC guidelines listed here: https://www.cdc.gov/drinking-water/safety/guidelines-for-testing-well-water.html.
- The onsite water storage tank shall be a minimum of 5,000 gallons or 50 gallons * # of bed. For wells used only under emergency, what is the transition time to convert from typical water source to well water? The initial tank size shall accommodate this minimum onsite water requirement for continued operations.

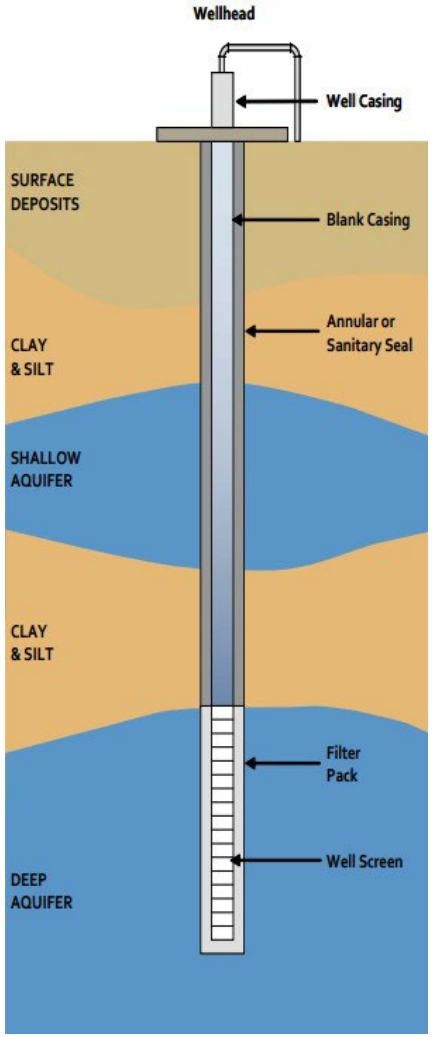


Image from California Department of Water Resources

On-Site Water Wells continued…

- Is the pump connected to e-power? The building that houses the pump, and filtering equipment must be under HCAI jurisdiction.
- Provide analysis showing the maximum gpm usage during a day compared to typical gpm from a well. The water tank design shall be able to accommodate this difference in flow.

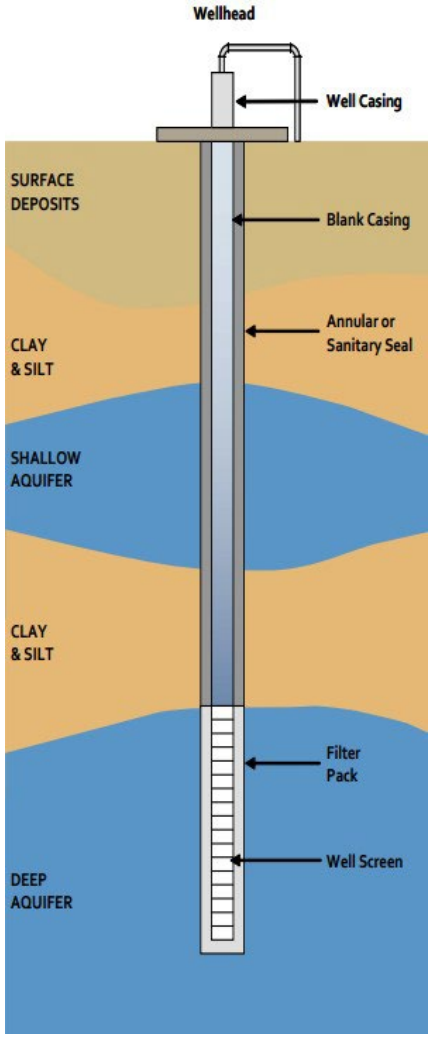
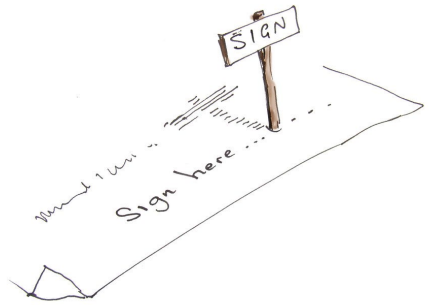


Image from California Department of Water Resources

Stamping and signing

- Facility representative signature is required on all reports
- A facility representative can submit a water rationing plan without a design professional of record when the water rationing report does not reduce usage through calculations.
- NPC 5 fuel calculation requirement requires a licensed design professional stamp and signature.



Shut off /redirection valves

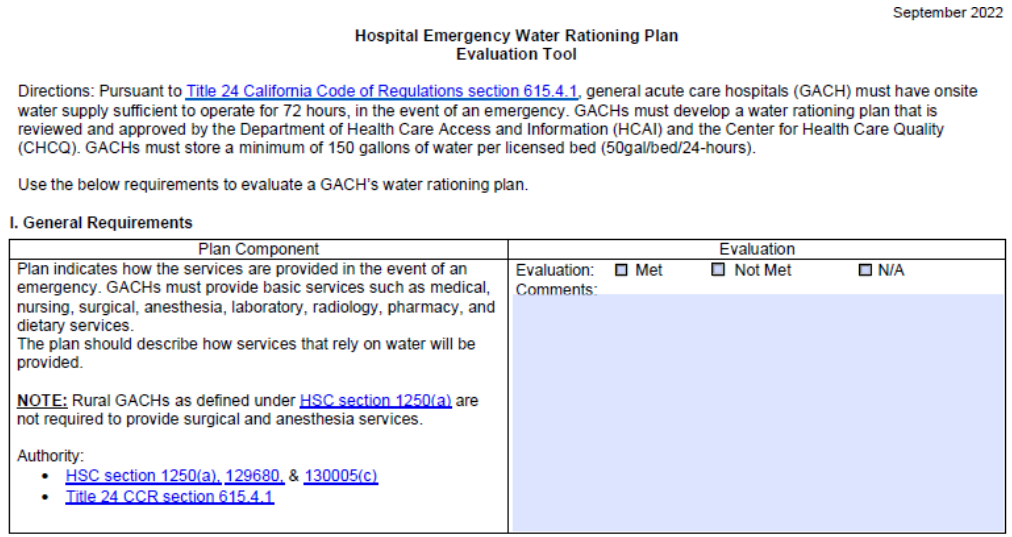
1. Valves to isolate
   - Irrigation
   - Non-GAC buildings
   - Non-critical processes
2. Valves to isolate the holding tank from the external sewer lines in an emergency
3. Isolate hospital potable line from contaminated main while tank in service
4. The fill line should be disabled in case of tank contamination
5. Plan to identify what valves should be closed and their location.
6. Automatic processes will need to be shut off or valved off so that the water supply is conserved

Additional items

- Potable cooling units are not an acceptable method for cooling in the first 24 hours.
- For existing tanks on-site, provide the HCAI project number, and relevant pages from construction documents showing the connection to the buildings. Clarify if the pumps are on e-power. Existing water tanks without HCAI project numbers will be reviewed on case-by-case basis.
- For issues related to self-declared rating, please reach out to Patrick.Rodgers@hcai.ca.gov or seismiccomplianceunit@hcai.ca.gov
- Bottled water if used under the water rationing plan shall be located in a compliant GAC building.
- Provide fire watch or include water requirements for fire sprinklers

CDPH – Review

- Impact on services not required if services are listed as fully functional
- The evaluation report might not be submitted to CDPH for review if the impact on services is not clearly stated in the report, which might result in a delay in review
- The CDPH checklist is included in the revised A5 Guide as a reference. There is no need to submit this checklist to HCAI or CDPH
- Checklist covers the following items:
  - General Requirements
  - Facility Equipment
  - Infection Prevention Measures
  - Medical Services
  - Nutrition Services
  - Pharmaceutical Services



September 2022

Hospital Emergency Water Rationing Plan
Evaluation Tool

Directions: Pursuant to Title 24 California Code of Regulations section 615.4.1, general acute care hospitals (GACH) must have onsite water supply sufficient to operate for 72 hours, in the event of an emergency. GACHs must develop a water rationing plan that is reviewed and approved by the Department of Health Care Access and Information (HCAI) and the Center for Health Care Quality (CHCQ). GACHs must store a minimum of 150 gallons of water per licensed bed (50gal/bed/24-hours).

Use the below requirements to evaluate a GACH's water rationing plan.

I. General Requirements

Plan Component	Evaluation
Plan indicates how the services are provided in the event of an emergency. GACHs must provide basic services such as medical, nursing, surgical, anesthesia, laboratory, radiology, pharmacy, and dietary services. The plan should describe how services that rely on water will be provided. **NOTE:** Rural GACHs as defined under HSC section 1250(a) are not required to provide surgical and anesthesia services. Authority: • HSC section 1250(a), 129680, & 130005(c) • Title 24 CCR section 615.4.1	Evaluation: ☐ Met ☐ Not Met ☐ N/A Comments:

Typical comments from CDPH

1. Measures taken to provide a safe and comfortable environment for patients and staff in those areas that won't have space cooling during a Water Emergency (e.g. ICU, NICU, Emergency Department).

2. What infection control measures will be in place? Terminal cleaning and specialized cleaning shall be addressed

3. How will cleaning of the Operating Rooms occur between procedures the water availability is very limited.

4. During a Water Emergency, how will dialysis services continue?

5. Will the pharmacy have the capability to provide enough water for oral suspensions, IV medications, and medications that require reconstitution during a Water Emergency?

Typical comments from CDPH (continued...)

6. How does the hospital plan to keep medications stored in areas at appropriate temperatures for the duration of the emergency

7. Please provide a plan for temperature control in pharmacy compounding rooms.

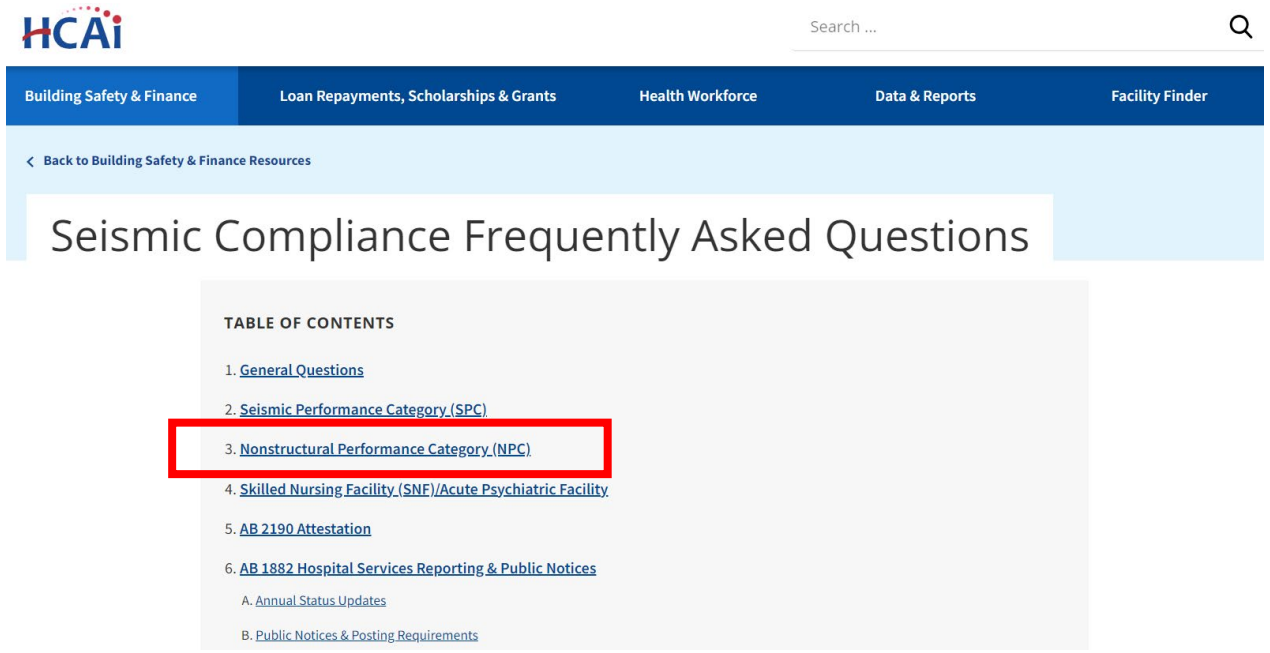
8. To want extent will Clinical Laboratory Services be available, and will the minimum requirements of Title 22 [Title 22, Section #’s 70243(b)/70243(c)] be met during a Water Emergency?

9. How is ice provided from a sanitary source

10. When limiting hygiene or shower/bath for patients provide alternate measures to ensure that personal hygiene needs are met.

NPC frequently asked questions (FAQs):

https://hcai.ca.gov/construction-finance/resources/seismic-faqs/#NPC



NPC 5 - FAQs

Refer to https://hcai.ca.gov/facilities/building-safety/resources/seismic-faqs/ for typical FAQ's

- FAQ 14 - Do hospital facilities need to meet the requirements of NPC 5 now?
- FAQ 15 - Is NPC 5 a campus-wide designation (like NPC 2) or a seismically separate building designation?
- FAQ 16 - Is a hospital facility required to have storage tanks for 72 hours of water, sewage and liquid waste? The required tanks are too big and our site does not have the room for placement of such tanks.
- FAQ 17 - Does the NPC 5 requirement of 72 hours of water refer to potable water only? Is industrial water or (process) water to operate hospital utilities included in this storage requirement?
- FAQ 18 - Does the facility have to comply with Section 615.4.2 of the 2022 California Plumbing Code even when using the exception in Section 615.4.1?
- FAQ 19 - Per Section 727 of the 2022 California Plumbing Code, can the facility store the sewage and liquid waste in a 5,000-gallon tank? Does this tank need to be connected to a sewage line?

NPC 5 - FAQs continued…

Refer to https://hcai.ca.gov/facilities/building-safety/resources/seismic-faqs/ for typical FAQ's

- FAQ 20 - Can we use bladder tanks to store sewage and wastewater in the parking lot?
- FAQ 21 - For NPC 5 evaluations, is the on-site emergency fuel storage requirement based on 96 hours or 72 hours? Are the fuel storage requirements based on fuel consumption of the generators at rated capacity or the actual load for the facility? Does the fuel storage requirement apply to N configuration only?
- FAQ 23 - What are the NPC 4 and NPC 5 evaluation deadlines and requirements for buildings that will be removed from acute care service by the January 1, 2030 deadline?
- FAQ 31 - Where can I find the California Department of Public Health Licensing and Certification All Facility letter (AFL 23-21)?
- FAQ 32 - Are calculations for sizing of emergency generator fuel tanks for 72 hour minimum run time required to be submitted as part of the January 1, 2024, NPC 5 evaluation?
- FAQ 35 - If the NPC 5 submittal is part of a package submitted by a licensed design professional, does it need to be sealed and signed by a licensed design professional?

Typical Summary

At the end of the comment letter, the future proposed work is summarized briefly.

Based on the submitted report, the brief scope of work to be completed prior to the NPC-5 upgrade is summarized below:

1. The report is prepared for xx licensed beds.
2. The evaluation report requires the installation of the following items as part of the NPC-5 upgrade for the campus:
    - xx-gallon water tank(s).
    - xx-gallon wastewater tank(s).
    - xx-gallon fuel tank(s).
3. The construction project(s) shall address connections for the distribution of the above items to all in-scope buildings and as required for continued operations for buildings in emergencies.
4. The construction project(s) shall address the following requirements: Emergency supply of potable and industrial water must be provided with sufficient pressure. If booster pumps are needed for this purpose, then the booster pumps must be connected to the emergency power supply. The building that houses pumps, tanks, and filtering equipment must be in HCAI/OSHPD jurisdiction. If a connection of the wastewater holding tank is provided to the existing sewer line, then such connections should be made with sufficient valves to isolate the holding tank from the external sewer lines in an emergency.
5. The evaluation report requires vendors for water and wastewater for continued operations within the first 72 hours. These contracts need to be finalized with the name and contact information provided to HCAI prior to the NPC-5 rating. For any new construction, these contracts shall be in place prior to completion of construction instead of 2030.
6. If revisions are made to the water rationing evaluation report, the updated report shall be submitted for HCAI and CDPH review.
7. Confirm that the changes proposed in the water rationing plan will be reflected in the facility emergency preparedness plan when implemented.

Proposed Retrofit Acceptable

After the resolution of comments on the NPC 5 evaluation report, a proposed retrofit acceptable letter with a typical summary will be issued.

The HCAI Seismic Compliance Unit project (SRU-20xx-xxxxx project) will remain open as “Proposed Retrofit Acceptable”. The project will close out once the construction is completed with the region and the design team submits a response (reconciliation report) with all relevant documents/projects showing NPC 5 compliance per the original proposal under the SRU project.

HCAi
Department of Health Care Access and Information

Questions?
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