

**HCAI**



# **NPC-5 WATER RATIONING PLAN**

Version 1.0

# **A5**

**FOR GENERAL  
ACUTE CARE  
HOSPITAL FACILITIES  
[OSHPD 1] Buildings**

**Advisory  
Guide  
Series**

August 17, 2022

## INTRODUCTION

The California Department of Health Care Access and Information (HCAI) – Facilities Development Division (FDD) has prepared this *Advisory Guide* to address frequently asked questions to HCAI and the California Department of Public Health (CDPH) as they relate to General Acute Care Hospital Facilities, or OSHPD 1 Buildings, in Nonstructural Performance Category 5 (NPC-5).

Specifically, Title 24 California Building Standards Code and Title 22 California Code of Regulations are applied. Although CDPH is currently in the process of revising Title 22, this *Advisory Guide* will be based on what is currently enforceable.

**Department of Health Care Access and Information (HCAI)**  
*has drafted this Advisory Guide in consultation with the  
California Department of Public Health (CDPH)*

## TABLE OF CONTENTS

	Page
I. BACKGROUND .....	1
II. CODE REFERENCE INDEX .....	2
III. SUBMITTAL INSTRUCTIONS AND TIMEFRAME REQUIREMENTS .....	5
 <i>APPENDIX A – [OSHPD 1] General Acute Care Hospital (GACH) WATER RATIONING PLAN .....</i>	 <i>A-1</i>
 <i>APPENDIX B – [OSHPD 1] General Acute Care Hospital (GACH) PLUMBING FIXTURES TABLE .....</i>	 <i>B-1</i>

## I. BACKGROUND

2019 California Plumbing Code Section 615.4 states that “*The emergency water storage capacity shall be computed based on an approved Water Conservation/Water Rationing Plan to provide for 72 hours of operation, accepted by the licensing agency.*” This *Advisory Guide* does not provide a comprehensive list, it only outlines commonly asked information by the Department of Health Care Access and Information (HCAI) and the California Department of Public Health (CDPH). Additional information should be provided to reflect building specific information where necessary.

### **NPC-5 Frequently Asked Code Questions**

Nonstructural Performance Category 5 (NPC-5) refers to the ability of a hospital facility to support 72 hours of emergency operations. The 2019 California Plumbing Code (CPC) has exceptions (see Sections 615.4 and 727.0) that allow much smaller holding tanks where alternate arrangements have been made for delivery of water or transportable means for sewage and liquid waste disposal. Where such exceptions are used, the arrangements require approval by HCAI and CDPH.

The NPC-5 requirement refers to both potable water as well as industrial/process water to operate hospital utilities and equipment to support 72 hours of emergency operations.

For a seismically separate building that has licensed patient beds, a minimum of 150 gallons of potable water per licensed bed shall be provided (2019 California Plumbing Code, Section 615.4) with additional industrial/process water to support 72 hours of emergency operation of the subject building. A new Central Utility Plant must provide water for 72 hours of emergency operation for itself and any other new buildings but not for the existing buildings on the campus, but nothing prohibits installation of larger tanks at the time of construction. The existing buildings remaining in the acute care inventory on January 1, 2030 will need to comply with the NPC-5 requirements by January 1, 2030.

The amount of water required is determined from the facility’s emergency operations plan and an associated Water Conservation/Water Rationing Plan to provide for 72 hours of operation. The water conservation/water rationing plan must also be accepted by the California Department of Public Health Licensing Division. Whereas there is a minimum volume of potable water per licensed bed, there is no minimum volume for industrial/process water in the California Plumbing Code. This volume is dependent on which utilities and systems the hospital facility intends to operate during an emergency. The Water Conservation/Water Rationing Plan must account for losses in the process water for closed loop heating and cooling systems.

CPC Section 615.4.2 requires the emergency supply of water be provided with sufficient pressure using gravity, pressure tanks or booster pumps. If booster pumps are provided, they are required to be connected to the emergency power supply system. CPC Section 615.4.2 applies even when the exception of CPC Section 615.4.1 is used to ensure that the emergency supply of water is delivered to the end point of usage at

sufficient pressure from the storage tank. The ability to dispense water to portable containers from the storage tank required in the exception of CPC Section 615.4.1 is to be considered a measure of last resort.

Refer to planning guide, "[Emergency Water Supply Planning Guide for Hospitals and Health Care Facilities](#)" by the Centers for Disease Control and Prevention (CDC) and American Water Works Association (AWWA). Atlanta: U.S. Department of Health and Human Services (DHHS); 2012, Updated 2019.

## II. CODE REFERENCE INDEX

This *Advisory Guide* is the result of a joint effort between various regulatory authorities. Consequently, references from a number of code sources are included. The items/requirements on the following pages are categorized into groups as color-coded below:

**RED** – Code Sections designated in red are direct building code requirements supported by Title 24, California Code of Regulations, California Building Standards Code (CBSC) including the California Building Code (CBC), California Electrical Code (CEC), California Mechanical Code (CMC) and California Plumbing Code (CPC).

**PURPLE** – Code Sections designated in purple are indirect code requirements as standards referenced by the CBSC. These include requirements associated with California Department of Public Health regulations Title 22 §70271, §70273, §70275, §70277, §70279 and §70481. Although not direct requirements, they are referenced by the CBSC and will need to be in compliance with those regulations prior to licensure by CDPH.

**BLUE** – Items designated in blue are strongly recommended items and/or practical support of submitted project programmatic requirements.

**BLACK** – Black text is generally provided for reference and context.

This *Advisory Guide* is to be used for reference only. Whereas it presents code information regarding key elements, this *Advisory Guide* shall not be considered a complete representation of all requirements. Compliance with applicable laws, regulations and codes are the responsibility of the design professional in charge, in accordance with California Administrative Code, Section 7-115.

## TITLE 24

### **615.4 [OSHPD 1] Emergency Water Supply.**

**615.4.1** For new acute care hospital buildings submitted after the effective date of this code, the hospital shall have an on-site water supply 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 water supply 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. See also California Building Code, Part 2, Section 1617A.1.40.

The emergency water storage capacity shall be computed based on an approved Water Conservation/Water Rationing Plan to provide for 72 hours of operation, accepted by the licensing agency. For acute care hospital facilities or buildings required to meet NPC-5, on-site water supply of not less than 150 gallons [567.9 L] [based on 50 gallons/day/bed for 72 hours] of potable water per licensed bed shall be provided. In no event shall the campus on-site water storage capacity be less than one tank with at least 5,000 gallons capacity.

The emergency supply 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.

**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.

**615.4.2** The emergency supply of water shall be provided at adequate pressure using gravity, pressure tanks, or booster pumps. Pumps used for this purpose shall be provided with electrical power from the on-site emergency power supply system.

### **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 onsite 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 1617A.1.40.*

**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.*

## TITLE 22

### § 70863. Water Supply and Plumbing.

(a) Water for human consumption from an independent source shall be subjected to bacteriological analysis by the local health department, State Department of Health or a licensed commercial laboratory at least every three (3) months. A copy of the most recent laboratory report shall be available for inspection.

### III. SUBMITTAL INSTRUCTIONS AND TIMEFRAME REQUIREMENTS

#### Submittal Instructions:

For existing buildings, please do not create a project in eSP. Submit an [Application for New Project \(OSH-FD-121\)](#) and any supporting documents to the HCAI/FDD Seismic Compliance Unit (SCU). Once SCU receives your submittal, a project will be created for you. Please click [here](#) for SCU submittal instructions.

For new buildings, please do not create a SCU project, please submit your water rationing plan document as part of a new building construction project. These reviews are performed by the appropriate region of the Building Safety Section of HCAI/FDD.

Both HCAI and CDPH approvals are required for water rationing plans. To help coordinate and expedite the review and approval, HCAI internally coordinates comments from CDPH, therefore, there is no need for applicants to contact CDPH regarding the water rationing plan.

#### Timeframe Requirements:

For any general acute care hospital:

- By **January 1, 2024**, the hospital owner shall submit to the Office a complete nonstructural evaluation up to NPC-4 or 4D and NPC-5, for each building.
- By **January 1, 2026**, the hospital owner shall submit to the Office construction documents for NPC-4 or 4D and NPC-5 compliance that are deemed ready for review by the Office, for each building that will continue to provide acute care services beyond January 1, 2030.
- By **January 1, 2028**, the hospital owner shall obtain a building permit to begin construction, for NPC-4 or 4D and NPC-5 compliance of each building that the owner intends to use as a general acute care hospital building after January 1, 2030.
- By **January 1, 2030**, the general acute care building shall achieve NPC-5 rating.



**APPENDIX A**

**[OSHPD 1]  
General Acute Care Hospital (GACH)  
WATER RATIONING PLAN**

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

**Facility Key Map (From HCAI site) Indicate the Building(s) in Water Rationing Plan**

Facility key maps are available: <https://hcai.ca.gov/construction-finance/facility-detail/>

**Additional Documents Required:**

- Diagram showing the shutoff / redirection valve locations.
- Architectural Floor Plans showing services (optional).
- Supporting capacity calculations.

### Executive Summary

Please provide a brief explanation indicating provided capacity (gallons), anticipated emergency usage (gallons), and services that are affected.

### Water Usage under Normal Operating Conditions

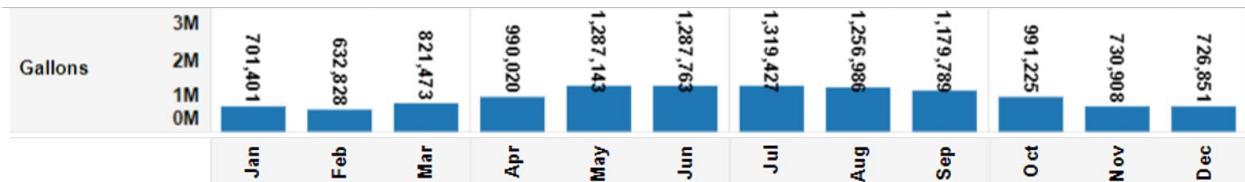
For New Buildings in design		Gallons per day
	Anticipated normal water usage (extrapolating from other similar existing buildings is acceptable.)	
For Existing Buildings		
	Wintertime minimum normal water usage	
	Summertime maximum normal water usage	

Below is an example from a facility-wide year-long water bill:

Feb: 632,472 gallons / 28 days = 22,588 gallons per day

July: 1,319,427 gallons / 31 days = 42,562 gallons per day

(Irrigation related usage can be excluded from the calculation if emergency water tank(s) are not connected to the irrigation network.)



### Source(s) of Emergency Water Supply:

Provide clear descriptions of facility’s water source(s)/supplier(s) (including utility and other source/supplier contact information) and supply main(s) and corresponding meter(s) for water entering the facility.

Primary Emergency Water Supply <sup>1,4</sup>	Capacity (Gallons)	Notes
Existing Water Tank(s)		
New Water Tank(s)		
Well(s) if any (daily average) <sup>2</sup>		
Other		

Secondary Emergency Water Supply (if any) <sup>3</sup>	Capacity (gallons)	Notes (indicate location)
Bottled Water		
Other Stored Water		

Footnotes:

1 Primary water supply— Provide capacity, location(s) and building numbers served.

2 Well(s) including tanks, pumps, etc.: Provide well study showing anticipated average output on a daily basis. Provide a statement documenting that water quality (and/or treatment) satisfies public health standards.

3 Secondary water supply—This may include bottled water suppliers or bulk water tanker services.

4 The building that houses pump, tanks, filtering equipment must be in HCAI jurisdiction

### Identify Water Uses in the Building(s)

Consider all equipment, processes, and materials that use water. (e.g., HVAC, water-cooled compressors, etc.)

Water Uses	Minimum Gallons per day
Plumbing Fixtures <sup>1</sup>	
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)	

Footnote 1: See Appendix B

## Water Quality

1. For new and/or existing tanks, indicate how water quality will be maintained.
2. Provide a plan that addresses treatment processes and water quality testing (if applicable).

## Water Replenishment / Tanker Trucks

1. Identify the connection locations that will allow for placement of the tanker truck. Clearly indicate which connections are for potable water and which are for non-potable / industrial water, if broken out separately. Indicate water tank(s) refill time (24, 48, 72 hours).
2. Name the company(ies) that have been contracted to provide tanker trucks to replenish water. Specify the date range for which the contract/agreement is valid.
3. Indicate how the contract will be monitored.
4. Provide information regarding the water use from the state drinking water authority, the public water utility, and possibly, the local emergency management agency.

## Emergency Wastewater Storage:

Primary Emergency Wastewater Storage <sup>1</sup>	Capacity (Gallons)	Notes
Existing Wastewater Tank(s)		
New Wastewater Tank(s)		
<i>Secondary Emergency Wastewater (if any)</i>		
Leak-proof bags <sup>2</sup>		
Location of leak-proof bags <sup>2</sup>		

Footnotes:

*1 There is no minimum size for the holding tank provided in Section 727.1, 2019 California Plumbing Code. The capacity shall be based on the Water Conservation/Water Rationing Plan required in Section 615.4.1. The purpose of the holding tank is to permit 72 hours of continuing operation if the external sewer connection is severed. Thus, HCAI does not have any requirements for connection of the holding tank to the existing sewer line; however, such connections should be made with sufficient valves to isolate the external sewer lines.*

*2 The exception to Section 727.1, 2019 California Plumbing Code permits use of leak-proof bags where adequate storage for such bags is provided and where storage facilities comply with the appropriate local health and environmental authorities' requirements, with the California Department of Public Health requirements for medical waste management, AND with requirements for location as well as enclosure. HCAI takes no objection for use of the parking lot or any other location for storing these bags if the storage location complies with the requirements of a lockable screen enclosure, floor, curb, drain connected to a sewer and supply of water*

**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)

**Identify Impacted Services in the Building(s)**

Identify services that may be impacted/restricted in the event of a water supply interruption and/or by the implementation of facility’s water rationing plan. For any services that are listed as Restricted or Impacted please provide detail on:

1. Any impacts to the service(s) that may be affected by the implementation of your Water Rationing Plan.
2. Reduction in capacity or services implemented by the Water Rationing Plan.
3. Applicable modifications to staff procedures.

List of Services	Building Number(s)	Fully Functional	Restricted or Impacted	N/A
<b>Basic</b>				
Medical & Nursing				
Surgical & Anesthesia				
Clinical Laboratory				
Radiological				
Pharmaceutical				
Dietetic				

List of Services	Building Number(s)	Fully Functional	Restricted or Impacted	N/A
<b>Supplemental</b>	<b>Building Number(s)</b>	<b>Fully Functional</b>	<b>Restricted or Impacted</b>	<b>N/A</b>
Emergency				
Intensive Care				
Outpatient				
Dialysis				
Therapy/Rehab				
<b>Support Services</b>	<b>Building Number(s)</b>	<b>Fully Functional</b>	<b>Restricted or Impacted</b>	<b>N/A</b>
Storage				
Morgue				
Administrative Space				
Central Sterile Supply & Infection Control				
Employee Dressing Rms & Lockers				
Housekeeping				
Laundry				
<b>Others: (please list)</b>	<b>Building Number(s)</b>	<b>Fully Functional</b>	<b>Restricted or Impacted</b>	<b>N/A</b>

## Further Considerations

### Pharmacy

1. Are there any impacts to compounding oral and IV clean rooms (cleaning, handwashing, and eyewash)?
2. Is handwashing/hand-hygiene available to pharmacy staff and at what frequency will hand hygiene be conducted?
3. How is the facility conducting sanitization of pharmacy and clean room(s)?
4. Are clean room scrub/sinks available for pharmacy staff?
5. Are oral suspension medications available for patients?
6. Is eyewash available?

### Dietetic

1. Is the disaster food a dehydrated product? If so, how much additional water is planned for rehydrating this food?
2. Has normal dietetic service water usage been determined? If there is a plan to reduce water usage in dietetic service, describe what the plan is and how the reduction is calculated.
  - a. Handwashing is required in food preparation, hand sanitizer cannot replace handwashing
  - b. How will food contact surfaces continue to be sanitized per safe food handling standards of practice?
  - c. Will cleaning routines be modified to save water?
3. If the plan includes the use of disposables, some warewashing may still be required, has this been included in the calculations for reducing water usage?
4. What is the plan for retail food service during an emergency and what water needs will be required for this?

### Life Safety Code

1. Does the Water Rationing Plan reflect the same Emergency Preparedness requirements as their Emergency Preparedness Program?
2. Do these two plans support each other/same intent, just one for 72 hours? Or 24 hours?
3. How will facility handle the water for the automatic sprinkler system?
4. How will the facility handle fire watch as an alternate process (if used)?

## APPENDIX B

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

Plumbing Fixture Calculation							
Fixture Type	Quantity	Water use		Duration	Use per day <sup>1</sup>	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