

ReadyWhen Foundations Certificate Program

Food, Water & Sanitation

Event & Emergency Operations · Field-Ready Safety Training

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Section 1

Water Supply & Hydration

Potable Water · Water Buffalos & Refill Stations · Hydration as Life Safety
Daily Minimums · Heat Illness Recognition · Outage Planning



Water Buffalo

Multiquip WT5C – 500-gal potable trailer

- 250 to 2,000 gallon capacity
- Food-grade rated & sanitized
- Position uphill of sanitation



Event Refill Station

Quench Buggy – filtered dispensing

- Ideal for large crowds
- Reduces plastic waste
- Connect to buffalo or hydrant

Planning Minimums

FEMA / Red Cross Baseline

1 gal / person / day

Absolute minimum for drinking + sanitation

Heat/Labor: Increase to 2 gal/day

Buffer: Add 20-25% for unplanned demand

Key Supply Principles

- Must be food-grade rated and sealed during transport.
- Label all outlet taps clearly as "POTABLE".
- Track consumption hourly at multi-day events.

RECOGNIZE ESCALATION: Dehydration → Exhaustion → Stroke

HEAT STROKE

Body temp $\geq 104^{\circ}\text{F}$ / 40°C · Confusion, no sweating, hot dry skin

Call 911 immediately — cool with ice water, fan, wet towels

HEAT EXHAUSTION

Heavy sweating, weakness, cold/pale/clammy skin, fast/weak pulse

Move to cool area, loosen clothing, water + electrolytes, rest

EARLY DEHYDRATION

Thirst, dry mouth, dark urine, headache, fatigue

Drink water before you feel thirsty — thirst = already behind

HEAT STROKE = 911
DO NOT WAIT FOR IMPROVEMENT

Hydration as Life Safety

Hydration is an infrastructure system — plan it like power and sanitation

Event workers are highest risk: moving, in sun, often skipping breaks

Provide water stations within 300 ft of all work areas and crowd zones

Electrolytes matter in heat — plain water alone insufficient for heavy sweat

Buddy system: check on teammates every 30–45 min in heat above 90°F

Never ration water at an event — if supply is low, escalate immediately

Recognition Quick Reference

Urine color = fastest field test — pale yellow OK, dark amber = hydrate now

Confusion or stopped sweating in heat = Heat Stroke → 911

Alcohol and caffeine accelerate dehydration — double monitoring for staff

Children and elderly dehydrate faster — prioritize at family events

Section 2

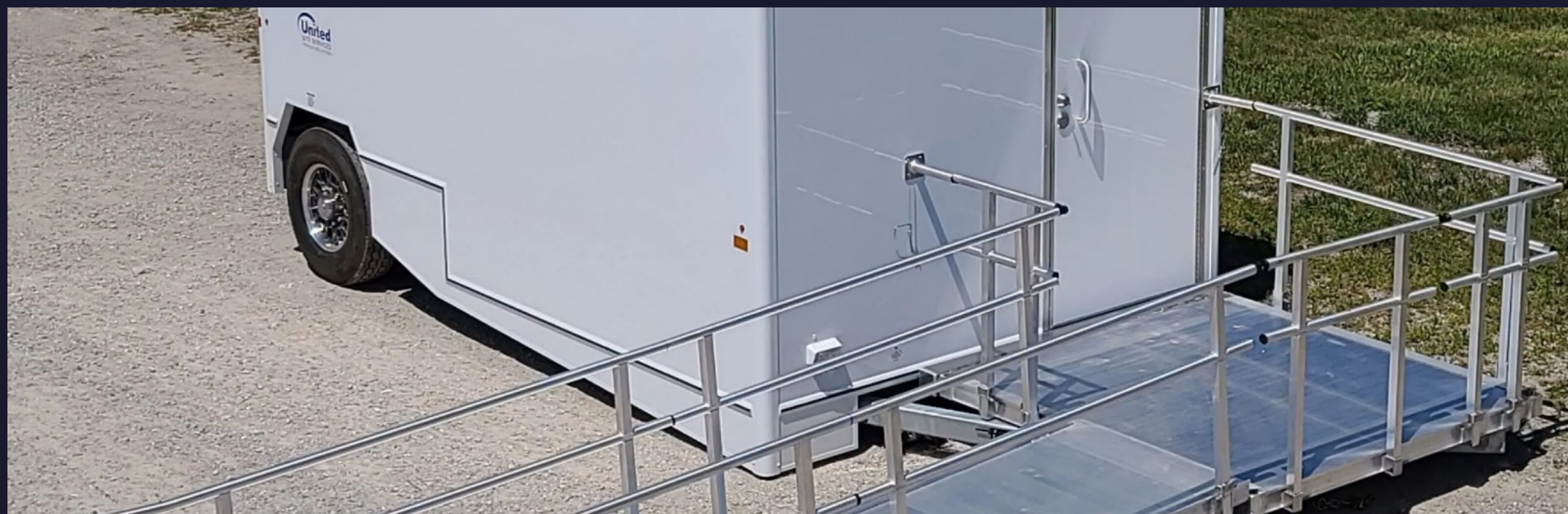
Portable Sanitation

Portable Toilets · ADA-Accessible Units · Restroom Trailers
Pump Trucks & Service · Placement & Ratios · Grey Water

Restroom trailer — self-contained flush units for mid-to-large events



United Site Services ADA restroom trailer — accessible, climate-controlled



ADA accessible unit: required at every event · ~1 per 20 standard units minimum

Planning Ratios — PSAI / Industry Standard

Baseline: 1 portable toilet per 50 people per 4-hour block

8-hour event with 500 attendees = ~10 units ($500 \div 50 \times 1$ per 4hr block)

Increase 20–25% for alcohol service — consumption goes up significantly

Increase 10% if >50% women in attendance (longer average use time)

Multi-day events: add 10–15% for overnight accumulation between service

Cluster units near entry/exit and main stage — distant units get ignored and overflow

ADA & Accessibility

At least 1 ADA unit required — roughly 5% of total (1 per 20 standard)

ADA units must be on firm, level, accessible surface — not on grass

Locate near main activity — not tucked at far end of sanitation row

Restroom trailers: often preferable for ADA and family use

Verify ADA unit placement during site walk — not just on paper

Pump Trucks & Service — The Logistics Behind the Toilets

Ledwell vacuum truck — high-capacity tank for festival-scale service



Service Scheduling

Single-day event: order enough units so you don't need service during the show
Mid-event service disrupts the patron experience — smell and logistics both
Multi-day: service every morning before gates open — non-negotiable
Know your vendor's emergency response window — 2–4 hr is typical
Pump trucks need 10–12 ft clearance — confirm access route at site walk
Pre-position the vendor number in your radio tree — not buried in a contract

Best Enterprises service fleet — pump trucks at event scale



Vendor Relationships

Same rental ecosystem as power: United Site Services, Sunbelt, regional vendors
Service is often not included in unit rental — confirm in writing at booking
The vendor who services your festival is the same one you'll call after a flood
Build the relationship before you need it at emergency scale
For multi-day or disaster ops: pre-book service slots — don't assume availability

Service truck accessing units — schedule service before visible overflow

John To Go portable handwash unit — soap + water + towel dispensers at event



Requirements & Ratios

Ratio: 1 handwashing station per 2–3 portable toilet units at minimum

No running water + soap = health dept shuts down your food vendors, on the spot

Event-accessible units: gravity-fed tank (fresh) + grey water collection tank

Stations must have: soap dispenser, paper towels or air dryer, waste receptacle

Place adjacent to every toilet bank — not across the event site

A site walk every 2–3 hours catches problems before patrons do — make it routine

Satellite Industries portable unit — gravity-fed fresh water, separate waste tank



Improvised Handwashing — Field Protocol

No station available? (Emergency only) Use a water jug with a spigot, soap, and catch bucket

Minimum improvised setup: 5-gallon jug with spigot + liquid soap + paper towels

Catch all grey water in a bucket — never dump on ground at events

Hand sanitizer ($\geq 60\%$ alcohol) is supplement only — not a replacement

Critical: sanitizer is ineffective against norovirus and C. diff — soap required

Soap + running water = handwashing · Hand sanitizer alone is NOT sufficient

Grey Water & Liquid Waste — What Goes In Must Come Out

Grey water = all non-toilet liquid waste: rinse water, handwash, food prep runoff



Never dump grey water on the ground · Requires permitted disposal

What Is Grey Water?

Grey water: all liquid waste except toilet waste (which is black water)

Sources at events: handwash stations, food truck rinse, bar wash sinks, ice melt

Beer, beverages, and rinse water are grey water — often underplanned

Grey water becomes a contamination and slip hazard if unmanaged

Dumping grey water on the ground is a health dept violation — and it happens constantly

Sealed collection tank + permitted pump-out — same vendor as your toilets

Event-Scale Management

All food vendors must have an approved grey water collection tank or connection

Inspect grey water tank fill levels same schedule as toilet service

Grey water spill = health department violation + potential event shutdown

Identify nearest approved grey water disposal site before event day

In disaster/recovery operations: grey water planning is Day 1 critical path

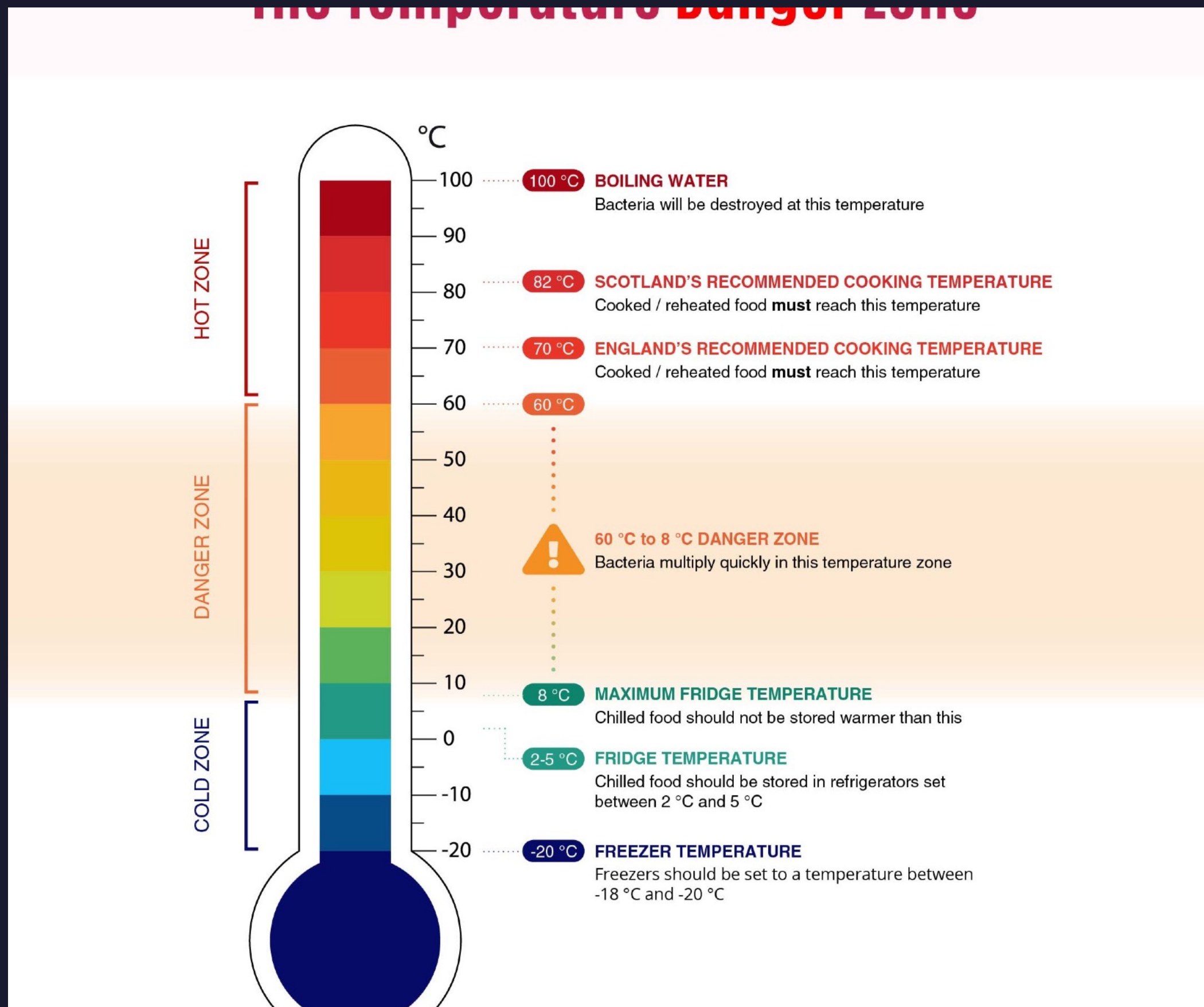
Section 3

Food Safety & Service

Temperature Danger Zone · TCS Foods · Cold Chain · Personal Hygiene
Temporary Food Service Permits · Supply Chain Disruption

Temperature Danger Zone – The Core of Food Safety

Danger Zone: 41°F – 140°F · Bacteria double every 20 minutes in this range



The Danger Zone (NYC FPC / FDA Food Code)

41°F – 140°F: the range where most pathogens grow rapidly

Never leave TCS food in the danger zone for more than 2 hours total

At 70°F–125°F: bacteria double every 20 minutes — illness-level counts in hours

Above 140°F: most pathogens begin to die — cooking kills, heat holding maintains

Below 41°F: growth slows dramatically — refrigeration preserves, does not kill

Thermometer is not optional — visual inspection cannot confirm safe temperature

TCS Foods – Temperature-Controlled for Safety

TCS = high-protein, high-moisture foods that support rapid pathogen growth

Meat, poultry, fish, eggs, dairy, cooked starches, cut melons, leafy greens

At events: TCS foods must be in refrigeration or active hot-hold at all times

No TCS food left in car trunks, on display at ambient temp, or in unshaded prep area

When in doubt, throw it out — food poisoning risk at mass events is mass casualty risk

Cold ≤ 41°F · Hot ≥ 140°F · Always verify with a calibrated thermometer

Temporary Food Facility permit — required before any food sales at public events



CS Portables standard handwash station — required adjacent to every food booth



Handwashing sink at vendor booth — running water required by health code

What You Need Before Day One

Temporary Food Facility (TFF) permit from local health department — apply 2–4 weeks out
Every food vendor needs individual permits — event organizer permit does not cover vendors
Booth must have: handwashing sink, food-grade surfaces, covered storage, thermometer
Approved water source identified — municipal hookup, water buffalo, or sealed jugs
Grey water collection plan submitted with permit application in most jurisdictions
Health inspector may show up unannounced on event day — be ready

Common Violations at Events

No handwashing sink or non-functional sink = immediate shutdown
TCS food at wrong temperature = product condemned + potential shutdown
No certified food handler on site during service hours
Food stored directly on ground or in contact with non-food-grade surfaces
Cross-contamination: raw and cooked stored together, same cutting board

Cold chain failure timeline — TCS food at event power outage

0-2 HRS Safe — food still within danger zone tolerance window

2-4 HRS Caution — TCS food approaching discard threshold.
Cool immediately or discard if not possible.

4+ HRS Discard — TCS food held above 41°F for 4+ hours total.
Do not serve. Do not taste-test.

POWER RESTORED Do not assume food is safe. Check every item with a thermometer. When in doubt, throw it out.

"When in doubt, throw it out" — food poisoning at mass events = mass casualty

Cold Chain at Events

Cold chain = unbroken refrigeration from source to point of service
Break the chain anywhere and TCS food starts its 2-hour discard clock
Common breaks: delivery vehicle too warm, ice runs low, generator trips
Have a thermometer log — spot-check coolers every 1–2 hours
Designate a food safety lead with authority to call discards
Never serve food that staff tasted and thought "seemed okay"

Supply Chain Resilience

Events are dependent on just-in-time delivery — one delay cascades
Shelf-stable alternatives: canned goods, UHT dairy, retort meals for backup
Ice is perishable infrastructure — first thing to run out in a heat wave
Vendor cancellation contingency: have a backup contact for every critical supply
Resilience hub operations: plan for 72-hour self-sufficiency in shelf-stable food

Proper handwashing — 5 steps, 20 seconds minimum

- 1 Wet hands with clean running water (warm or cold)
- 2 Apply soap — lather backs, between fingers, under nails
- 3 Scrub for at least 20 seconds (sing "Happy Birthday" twice)
- 4 Rinse thoroughly under clean running water
- 5 Dry with clean towel or air dryer — turn off tap with towel

Sick workers must stay home · Bare-hand contact with RTE food: prohibited

When Hands Must Be Washed

Before handling food or putting on gloves
After touching face, hair, phone, or money
After handling raw meat, poultry, or seafood
After using the toilet or leaving restroom area
After taking out trash, cleaning, or handling chemicals
After coughing, sneezing, or blowing nose
After any break — even if gloves were worn

Bare-Hand Contact Rule

Ready-to-eat food cannot be touched with bare hands — gloves or utensils required
Ready-to-eat: anything served without further cooking (salads, bread, fruit, garnishes)
Gloves are not a substitute for handwashing — wash before putting on gloves
Change gloves between raw proteins and ready-to-eat foods
Sick workers (vomiting, diarrhea, jaundice) must be excluded from food service

Section 4

Emergency & Resilience

Water Outage Recovery · Legionella Risk · Shelf-Stable Planning
Venue as Resilience Hub · Vendor Relationships as Infrastructure

6-step flush protocol — recommission building water after extended outage

1	VERIFY UTILITY RESTORATION Confirm municipal pressure is restored and water quality notice has been lifted before starting
2	REMOVE AERATORS & SCREENS Pull aerators from all faucets before flushing — prevents contaminants from being trapped
3	FLUSH COLD LINES FIRST Start lowest floor, work upward. Open all outlets. Run until temperature and clarity stabilize
4	FLUSH HOT WATER SYSTEM Drain and refill water heater. Flush all hot lines. Verify hot water reaches $\geq 140^{\circ}\text{F}$ at tap
5	FLUSH SPECIALTY FIXTURES Ice machines, drinking fountains, eyewash stations — drain, sanitize, and refill separately
6	REINSTALL AERATORS & TEST For high-risk facilities: Legionella testing before occupancy. Maintain flush log for records

Legionella grows at $77\text{--}113^{\circ}\text{F}$ ($25\text{--}42^{\circ}\text{C}$) in stagnant pipes — flush is life safety

Why This Matters

Chlorine depletes in stagnant pipes — water may be unsafe even after utility restores
Legionella pneumophila thrives at $77\text{--}113^{\circ}\text{F}$ in stagnant warm water
Venues closed 2+ weeks after flood, power outage, or emergency are high-risk
Flush protocol applies to: hotels, arenas, convention centers, schools, hospitals
Do not simply turn water on and assume it is safe — flush systematically first

High-Risk Venue Checklist

Closure > 2 weeks: mandatory flush protocol before any occupancy
Hot water heater temp below 120°F : drain, sanitize, refill, reheat to $\geq 140^{\circ}\text{F}$
Cooling towers: separate protocol — consult engineer before startup
Document the flush: date, duration, temperatures, who performed
Large/complex facility: formal Water Management Program (WMP) required
Post-flush Legionella testing recommended for high-risk populations

Five FWS capability pillars of a venue-as-resilience-hub

POTABLE WATER

Water buffalos + municipal backup
1 gal/person/day minimum — plan 72-hr supply

FOOD DISTRIBUTION

Shelf-stable reserves + vendor network
Cold chain plan + generator backup for refrigeration

SANITATION

Portable toilet fleet + pump truck contract
Handwash stations + grey water collection

WASTE MANAGEMENT

Grey water, solid waste, and biohazard protocols
Environmental compliance = community trust

VENDOR NETWORK

Same rental ecosystem as events: Sunbelt, United Rentals,
regional sanitation vendors — relationships before the emergency

Event infrastructure = disaster infrastructure · Build both simultaneously

The Resilience Hub Concept

Festivals and large venues already manage water, food, and sanitation at scale

These same systems can pivot to serve a neighborhood during a disaster

Cooling/warming center + water distribution + food staging = community hub

"5% for Preparedness": small upfront investment in planning creates 13:1 ROI vs. recovery

Vendor relationships built for events are the same vendors called after a disaster

72-Hour Self-Sufficiency Planning

Water: minimum 3 gallons/person × headcount for 72 hours

Food: shelf-stable, no-cook meals for 72 hours per anticipated population

Sanitation: portable toilet fleet + 2 service runs pre-booked

Power: generator capacity to maintain refrigeration + lighting

Communication: who calls Sunbelt at 2am? Who has the pump truck number?

Document it before you need it — the emergency is not the time to plan



KEY TERMS	
TCS Food	Temperature-Controlled for Safety — requires strict temp management
Grey Water	Non-toilet liquid waste — handwash, food prep, rinse water
Water Buffalo	Trailer-mounted potable water tank, 250–2,000 gallon
Danger Zone	41°F–140°F — bacteria double every 20 min in this range
Legionella	Pathogen growing in stagnant warm water (77–113°F) — flush protocol required
PSAI Ratio	1 portable toilet per 50 people per 4-hour block — industry baseline

Water Outage Protocol

WATER OUTAGE

- Notify event director and health official immediately
- Deploy water buffalo or bottled water to all critical zones
- Suspend any food prep requiring running water — health code requires it
- Notify all food vendors — document exact time of failure
- Increase hand sanitizer stations; communicate soap+water down
- Contact utility for estimated restore time — communicate when you have real info, not rumors
- Switch drinking supply to sealed bottled or potable bulk water
- Track vendor impacts in writing — time, duration, actions taken

Sanitation Failure Protocol

SANITATION OVERFLOW / FAILURE

- Close affected units — post "Out of Service" signage immediately
- Contact pump truck vendor — request emergency service call
- Redirect attendees to nearest functional units on-site
- If >25% of units down: notify event director and health dept
- Document time of failure and number of units affected
- Grey water spill: isolate, absorb (kitty litter or sand), notify health
- Establish handwashing alternative if portable sinks are also down
- Log vendor response time and actions for after-action report

Document everything — time, action, who was notified · Vendor contacts must be pre-loaded before event day

Food, Water & Sanitation — Key Takeaways

Water

1 gal/person/day minimum — more in heat
Quantity before quality in a shortage
Flush before occupying after any outage
Legionella risk is real — protocol matters

Sanitation

1 unit per 50 people per 4-hour block
~5% ADA — on firm accessible surface
Order enough units — don't plan around mid-event service
Grey water never goes on the ground

Food Safety

41°F–140°F = Danger Zone — no exceptions
2-hour rule for TCS food out of temp
Soap + running water — sanitizer is backup
When in doubt, throw it out

External Credential: Complete the [NYC Food Protection Course](#) or [IHS Food Handler Training](#) as your baseline food safety credential. This deck supplements — not replaces — that certification.