

To: Hawai'i County Environmental Management Commission (EMC)  
From: Alan Fukamizu, Wastewater Operator (County of Hawai'i DEM) / UPW BU1 Chief Steward (Unit 168)  
Date: January 26, 2026  
Subject: Confined Space Evaluation and Classification — Bio Towers, Zoo and Kolea Pump Stations, and Primary Headworks

Aloha Chair and Commissioners,

I submit this written testimony to request EMC oversight and direction regarding confined space evaluation, classification, and entry controls at three Department facilities and areas: (1) the Hilo Wastewater Treatment Plant Bio towers, (2) Kolea and Zoo Underground Pump Stations, and (3) the Hilo Wastewater Treatment Primary Headworks Underground Pump Gallery. I am attaching the related internal email communications I previously drafted and sent/received on these locations. These emails document that I raised the need for a documented hazard evaluation, proper confined space classification, and, where applicable, reclassification only under the conditions allowed by the standard and with the required controls in place.

#### Why this is an EMC issue

Confined space hazards in wastewater facilities are predictable, recurring, and high-consequence. The County's safety position must be defensible on paper and in the field. The core issue is not whether a space "seems safe" informally; it is whether the Department has completed and implemented a documented confined space inventory, hazard evaluations, and entry procedures that match the actual hazards and the work being performed.

As a general matter, wastewater spaces may qualify as confined spaces if they are large enough to enter, have limited/restricted means of entry/exit, and are not designed for continuous occupancy. Many such spaces also qualify as permit-required confined spaces because they may contain or reasonably develop hazardous atmospheres (including oxygen deficiency and hydrogen sulfide), present engulfment/inflow hazards, contain mechanical/electrical hazards requiring lockout/tagout, or create rescue/egress risks due to configuration. When the Department uses reclassification or "alternate entry" concepts, those are not informal shortcuts. They require a hazard assessment, isolation of hazards, continuous control/verification (including atmospheric testing as applicable), and clear documentation that the conditions for reclassification are actually met.

#### Timeliness and employee safety communications

A critical part of confined-space compliance is the timely communication of hazard evaluations, classifications, and entry procedures to the employees assigned to perform the work. In my experience and as documented in the attached emails, key information has not been provided promptly, including written evaluations, copies of relevant memoranda/procedures, and the Department's basis for classifying or "reclassifying" confined spaces. Delays in providing safety-critical documents and clarifications increase the likelihood of inconsistent practices in the field

and prevent employees from verifying that entry conditions and controls are lawful, effective, and current.

By way of example, my request for written clarification on the Primary Building Lower Floor/Headworks confined-space approach was initiated on January 12, 2026, and the Department did not provide a copy of the January 9, 2026 “Temporary Safety Procedure” memorandum until January 26, 2026. I also have not yet received the written information previously requested for the pump stations and bio tower(s) referenced in this testimony. Because confined-space entry hazards are high-consequence, prolonged delays in responding to safety questions should be treated as a governance issue appropriate for EMC oversight.

#### Documentation provided and remaining compliance concerns

On January 26, 2026, the Department provided a copy of the January 9, 2026 “Temporary Safety Procedure – Primary Building Lower Floor Atmospheric Monitoring” memorandum and related confined-space materials. Based on those documents, the Department’s written approach appears internally inconsistent: it characterizes the space as permit-required while also describing “temporary reclassification” to non-permit based on passing atmospheric readings. In confined-space practice, classification is determined by whether hazards are present or can reasonably develop, and when a space is treated as permit-required, the entry program and documentation must reflect that designation; conversely, any reclassification or alternate entry approach must be supported by a documented hazard evaluation and the required certifications/controls. The documents provided do not reflect a complete, site-specific package demonstrating (a) the current hazard evaluation supporting classification, (b) the documented basis for reclassification/alternate entry if used, and (c) how hazardous energy isolation/lockout is addressed where mechanical/electrical hazards are present. These gaps reinforce the need for EMC oversight, a current inventory and hazard evaluations, clear interim entry controls, and timely provision of safety-critical information to employees.

#### Location-specific concerns

##### Hilo Wastewater Treatment Plant Bio Towers

The HWWTP bio towers involve structures and work areas that are large enough for entry, are not designed for continuous occupancy, and present restricted egress and rescue challenges depending on the task and access point. In wastewater practice, bio-tower-related maintenance commonly involves foreseeable hazards including potential atmospheric hazards (e.g., oxygen deficiency and hydrogen sulfide), fall hazards, and difficult rescue/retrieval conditions.

My attached emails document that the Department has not provided a current, written, site-specific package showing:

- the confined space identification and classification (non-permit vs permit-required);
- the basis for that classification (hazard assessment findings); and
- the controls required for entry (monitoring, ventilation, attendant/permit, retrieval/rescue provisions, and isolation/lockout as applicable).

### Kolea and Zoo Pump Stations

Pump stations routinely include spaces such as wet wells, valve vaults, and pits that present foreseeable confined space hazards including toxic/oxygen-deficient atmospheres, engulfment/inflow, and significant electrical/mechanical hazards. These are not theoretical risks; they are recognized hazards associated with lift station operations, inspection, cleaning, repairs, and troubleshooting.

My attached emails document that the confined space status and required controls for Kolea Pump Station are not clearly documented and communicated in a way that is consistent, auditable, and protective for employees performing the work. These pump stations are the Smith and Loveless Custom series, which is a legacy model. This station design is outdated and 23' underground. These models are normally treated in the industry as permit required confined spaces. These pump stations should have a current evaluation when the 23' ladder system and elevator was removed and replaced due to my documented concerns with the conditions of the equipment that was directly related to safe ingress and egress of the stations.

### Primary Headworks

Primary headworks typically carries the highest potential for hazardous atmospheres because it is at the front end of raw influent handling. Tasks around channels, pits, bar screens, and related structures often combine atmospheric risk with mechanical hazards and potential engulfment/inflow/drowning hazards, especially 1.5 stories underground in the pump gallery. If confined space evaluation, signage, monitoring requirements, and entry controls are incomplete or outdated, the risk of serious injury or fatality increases, and the County's position becomes difficult to defend. My attached emails document unresolved gaps in documented evaluation and control measures at the Primary Headworks.

### Relevance to the EPA Administrative Order on Consent (AOC)

The issues described above also intersect with the County's obligations under the EPA Administrative Order on Consent. Confined-space hazards, hazardous energy control (lockout/tagout), and documented entry procedures directly affect the Department's ability to safely operate, inspect, maintain, and repair wastewater facilities—especially pump stations and headworks infrastructure that may be implicated in compliance tasks, corrective actions, or performance requirements. If evaluations, classifications, and entry controls are incomplete, inconsistently applied, or not documented and communicated in a timely manner, this creates predictable risk to completing required operational work and maintaining defensible compliance records. For that reason, I request that EMC treat confined-space program documentation and hazard-control implementation as part of overall compliance readiness, including the Department's ability to demonstrate that work is performed safely, consistently, and with adequate documentation.

### **Requested EMC oversight actions and report-back**

I respectfully request that EMC direct the Department to take the following actions and provide a report-back to the Commission:

Confined Space Inventory (by facility and site):

Provide EMC and employees a current inventory identifying each confined space at the Zoo bio towers, Kolea Pump Station, and the Primary Headworks, including access points and the classification of each space.

Current written Hazard Evaluations Supporting Classification:

Provide written hazard evaluations that support the classifications, including the foreseeable hazards considered (atmospheric hazards, engulfment/inflow, configuration/egress, mechanical/electrical hazards, and any chemical hazards), and identify the date of the last evaluation and the responsible reviewer/approver.

Reclassification and "Alternate Entry" Documentation (where used):

Where the Department relies on reclassification or alternate entry, require a written basis showing the conditions are met, including isolation/lockout requirements and verification measures (including atmospheric testing/monitoring as applicable). Reclassification should not be used unless the hazards are eliminated or fully controlled as required by the standard.

Interim Controls Immediately (until the above is completed):

Implement interim risk controls and communicate them to employees, including: signage, restricting entry until evaluation/classification is complete, ensuring monitoring equipment readiness, ventilation capability where needed, and using permit entry procedures where required. Issue a written interim directive to affected crews identifying entry requirements by location (permit vs alternate vs no-entry) until the evaluations and classifications are completed.

Training and Rescue Capability:

Confirm that affected employees have current confined space training appropriate to their duties, and that the Department has appropriate rescue capability (equipment, procedures, and coordination) for the types of spaces involved at these locations.

Timeliness / Safety-Critical Response Standard:

Establish a written expectation that requests for confined-space classification, hazard evaluation documentation, entry procedures, and related memoranda will be responded to within a defined timeframe, given the direct impact on employee safety and field practices.

AOC Alignment / Compliance Readiness:

Provide EMC a brief written statement explaining how confined-space entry controls and documentation will be maintained for locations that support compliance work under the EPA Administrative Order on Consent, including how the Department will ensure safety controls do not impede timely completion of required operational work.

Deadline and Accountability:

Report back to EMC within a reasonable time with corrective actions completed, responsible parties assigned, and any remaining items with completion dates.

Attachments (Email Evidence of Notice and Ongoing Unresolved Risk)

Attachment : Hilo WWTP Bio Towers — email chain dated January 22, 2026

Attachment : Kolea and Zoo Pump Station — email chain dated January 11, 2026

Attachment : Hilo WWTP Primary Headworks — email chain dated January 10, 2026

Mahalo for your attention to this worker-safety and public-risk issue and for ensuring the Department's confined space program is documented, consistent, and defensible. Because these gaps also affect operational reliability and the County's ability to complete required wastewater compliance work under the EPA Administrative Order on Consent, I respectfully request EMC oversight, clear deadlines, and written accountability.

Respectfully,

Alan Fukamizu

Hilo Wastewater Treatment Plant Operator

UPW Unit 168 Chief Steward

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**Re: Subject: Confined Space Classification and Hazard Control – Primary Building Lower Floor**

9 messages

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**Alan Fukamizu** <fukamizu.alan@gmail.com>

Thu, Jan 22, 2026 at 1:23 PM

To: Craig Kawaguchi &lt;Craig.Kawaguchi@hawaiicounty.gov&gt;

Cc: Daniel Girvan &lt;Daniel.Girvan@hawaiicounty.gov&gt;, Meghan Fujiyama &lt;mfujiyama@upwhawaii.org&gt;, mayorsoffice@hawaiicounty.gov

Bcc: Alan Fukamizu &lt;fukamizu.alan@gmail.com&gt;

Craig,

Aloha. Following up because I haven't received the January 9, 2026 memorandum copy or a response since your January 14 note ("I'll check with Laude & Jason and get back to you tomorrow"). Today is January 22.

For visibility, I'm copying the Mayor's office because this concerns confined-space entry safety and there has not been a response or copy of the memo provided and the original email to you regarding this matter was initiated on January 12. As with my bio-tower email, I'm copying the Mayor's office because this is a serious confined-space safety matter and prior correspondence has not resulted in the requested memo or written clarification.

To answer your question from January 15: No — it's not a different request. My original request was for a copy of the January 9, 2026 memorandum ("Temporary Safety Procedure – Primary Building Lower Floor Atmospheric Monitoring") so I can understand and follow the entry requirements it sets.

After reviewing the memo language as it was described to operations staff, I also need clarification on one item within that same memo: if it contemplates any "temporary reclassification" to non-permit based solely on acceptable gas readings, please confirm how non-atmospheric hazards (pumps/valves/pressurized lines/suction forces) are being eliminated and secured prior to any such reclassification (including LOTO and verification as applicable). If those hazards are not eliminated, please confirm that the space will continue to be managed as permit-required for entry.

Because this involves confined space entry hazards in a wastewater environment, I consider this a serious safety matter requiring prompt written clarification.

Requested action items:

1. Please provide a copy of the January 9 memorandum.
2. Please provide a brief written response confirming the basis for any "reclassification" language and the specific isolation/LOTO controls that will be used before entry.

Thank you,  
Alan Fukamizu  
UPW Unit 168 Chief Steward

On Jan 15, 2026, at 12:56 PM, Alan Fukamizu <fukamizu.alan@gmail.com> wrote:

Craig,

No — this is not a new request. This is a follow-up to my January 10 and January 14 emails regarding the confined-space classification and hazard controls for the Primary Building Lower Floor.

The January 9 memorandum introduced a “reclassification” approach, so I am seeking confirmation of how mechanical and hydraulic hazards are being addressed under 29 CFR 1910.146 and 29 CFR 1910.147 before any reclassification is applied.

Because OSHA requires confined-space classifications, hazard evaluations, and energy-control procedures to be documented and made available to employees and their representatives, I am requesting confirmation of how these hazards are being eliminated or controlled for this space.

Because this involves employee safety and regulatory compliance, it is important that the classification and controls be clearly documented and understood by operators and the union.

Thank you,  
Alan Fukamizu  
UPW Unit 168 Chief Steward

On Jan 15, 2026, at 11:44 AM, Kawaguchi, Craig <[Craig.Kawaguchi@hawaiiicounty.gov](mailto:Craig.Kawaguchi@hawaiiicounty.gov)> wrote:

Aloha Alan,  
Is this a different request?

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Craig,

I am writing regarding the confined-space classification and entry procedures for the Primary Building Lower Floor (grit pump and primary pump gallery) as described in the January 9, 2026 memorandum.

Under OSHA’s Confined Space Standard (29 CFR 1910.146), a space is a Permit-Required Confined Space (PRCS) if it contains or has the potential to contain a hazardous atmosphere, an engulfment

hazard, or any other serious safety or health hazard, including mechanical, hydraulic, or process hazards.

The January 9 memorandum appropriately addresses atmospheric hazards through ventilation, testing, and continuous monitoring. However, it also states that the space may be “temporarily reclassified” as non-permit required if gas readings are within acceptable limits. OSHA permits reclassification under 29 CFR 1910.146(c)(7) only when all hazards within the space are eliminated, not merely controlled.

OSHA further requires under 29 CFR 1910.146(d)(3) that permit-required confined spaces be isolated and protected from the release of hazardous energy or material prior to entry. This requirement is linked to OSHA's Lockout/Tagout standard, 29 CFR 1910.147, which requires written procedures, isolation of energy sources, and verification of a zero-energy state when employees may be exposed to mechanical, hydraulic, electrical, or other hazardous energy.

The pump gallery contains non-atmospheric hazards such as active pumps, pressurized sewage lines, valves, and suction forces. These hazards are not addressed in the January 9 memorandum and cannot be controlled by ventilation or air monitoring alone. Unless these hazards are eliminated through isolation, lockout/tagout, depressurization, or equivalent energy-control measures, the space

continues to meet the definition of a permit-required confined space and must be managed under full PRCS procedures, including entry permits, an entry supervisor, an attendant, rescue provisions, atmospheric testing, and hazardous-energy control.

I am requesting confirmation of how mechanical and hydraulic hazards in the lower floor are being eliminated prior to any reclassification, or, if they are not eliminated, that the space be managed and entered as a permit-required confined space in accordance with 29 CFR 1910.146 and 29 CFR 1910.147.

This request is made to ensure employee safety and regulatory compliance.

Thank you, Alan Fukamizu  
UPW Unit 168 Chief Steward

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**Kawaguchi, Craig** <Craig.Kawaguchi@hawaiicounty.gov>

Thu, Jan 22, 2026 at 6:11 PM

To: Alan Fukamizu <fukamizu.alan@gmail.com>

Cc: "Girvan, Daniel" <Daniel.Girvan@hawaiicounty.gov>, Meghan Fujiyama <mfujiyama@upwhawaii.org>, Mayor's Office Executive <mayorsoffice@hawaiicounty.gov>, "Wallace, Tiffany" <Tiffany.Wallace@hawaiicounty.gov>

Howzit Alan,

There are 3 separate emails going. I wanted to summarize and confirm what's being requested. I'll speak with Laude tomorrow. Thank you.

**January 22, 2026**

- An evaluation of bio-towers must be done prior to reclassifying it.
  - Currently, the egress is restricted and showing potential PRCS hazards.
  - I went to the plant yesterday. Are these the yellow lockers, potential PRCS hazards?
- Valves and pumps that are hazards are not being locked/ tagged.
- **Corrective action:**
  - Complete an evaluation if WW wants to reclassify it.
  - Entry is "permit required" till an evaluation is done.
  - Lockout/ Tagout should be enforced for safety reasons.
  - Provide a written procedure/JHA for this task (entry steps, monitoring requirements, ventilation, rotating-arm LOTO, and ladder/fall protection controls as applicable).

## January 11, 2026

- Requesting confirmation of the current confined-space classification for the Zoo and Kolea Smith & Loveless underground sewage pump stations.
  - This includes the dry-well and valve gallery areas accessed by fixed ladders which required fall-protection PPE for entry.
- **Corrective action is to confirm:**
  - Are these spaces Permit-Required or Non-Permit Required confined spaces.
  - If its Non-Permit Required. Then provide written hazard evaluation documentation that show no hazardous atmosphere.
  - If it is Permit Required. Then provide certified signed documentation that identifies all hazards have been eliminated.

## January 10, 2026

- Regarding the confined-space classification and entry procedures for the Primary Building Lower Floor (grit pump and primary pump gallery) as described in the January 9, 2026 memorandum.
  - Requesting confirmation of how mechanical and hydraulic hazards in the lower floor are being eliminated prior to any reclassification, or, if they are not eliminated, that the space be managed and entered as a permit-required confined space in accordance with 29 CFR 1910.146 and 29 CFR 1910.147.

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Alan Fukamizu <fukamizu.alan@gmail.com>

Thu, Jan 22, 2026 at 8:33 PM

To: Craig Kawaguchi <craig.kawaguchi@hawaiicounty.gov>

Cc: Daniel Girvan <Daniel.Girvan@hawaiicounty.gov>, Meghan Fujiyama <mfujiyama@upwhawaii.org>, Mayor's Office Executive <mayorsoffice@hawaiicounty.gov>, Tiffany Wallace <Tiffany.Wallace@hawaiicounty.gov>

Bcc: Alan Fukamizu <fukamizu.alan@gmail.com>

Craig,

Mahalo for summarizing. Yes—there are three separate threads. To keep this clean and easy to close out, I'm confirming what's being requested for each item below.

**Because these matters involve confined-space entry and hazardous-energy control in a wastewater environment, they present potential serious safety hazards and potential OSHA non-compliance if classifications and controls are not documented and implemented correctly. I have been requesting the referenced memorandum(s) and written clarification since January 10–12. Please provide the requested documents and written responses below so operators and the union can follow the correct requirements.**

**Since the Hilo WWTW is operating under an EPA Administrative Order of Consent, ensuring safe, documented access to critical equipment is also a compliance issue. Confined-space classification, hazard evaluation, and LOTO controls directly affect our ability to perform timely inspections, maintenance, and corrective actions needed to prevent spills/bypasses and permit exceedances.**

January 10, 2026 – Primary Building Lower Floor (grit pump / primary pump gallery)

1. Please provide a copy of the January 9, 2026 memorandum (“Temporary Safety Procedure – Primary Building Lower Floor Atmospheric Monitoring”).
2. The space is being “reclassified” daily. **Please confirm which OSHA pathway** the County is using:

- 29 CFR 1910.146(c)(7) (reclassification to non-permit because all hazards are eliminated), or
- 29 CFR 1910.146(c)(5) (permit-required space using alternate procedures because the only hazard is an actual/potential hazardous atmosphere controlled by continuous forced-air ventilation and monitoring), or
- 29 CFR 1910.146(d) (full permit-required entry).

If the County is using (c)(7), please provide the written documentation showing all hazards are eliminated each day prior to entry—including how non-atmospheric hazards (pumps/valves/pressurized lines/suction forces/mechanical or hydraulic hazards) are eliminated through isolation/LOTO/depressurization and verification, as applicable. If those hazards are not eliminated, please confirm the space will not be treated as non-permit based solely on acceptable gas readings.

January 11, 2026 – Zoo and Kolea Smith & Loveless pump stations

1. Please confirm the current confined-space classification for the dry well and valve gallery areas accessed by fixed ladders.
2. If the County's determination is non-permit required, please provide the written hazard evaluation documentation supporting that classification.
3. If the determination is permit required, please provide the documentation identifying the hazards and required controls (including energy isolation/LOTO as applicable).
4. Because these are legacy stations with fixed-ladder access (approx. 23 ft), please also confirm what fall-protection controls apply during entry (e.g., ladder safety system/cage where applicable, or personal fall arrest), and that this hazard is addressed in the hazard evaluation and entry procedures.

January 22, 2026 – Bio-towers (confined-space evaluation, "reclassification," and task controls)

To clarify, the bio-tower area I'm referring to is the grated top-deck access walkway adjacent to/along the rotating distributor arm at the two tall concrete towers with access stairways (not the yellow lockers), and the associated entry/task area used to clean distributors and check rotating-arm oil level (including access using a portable ladder, as applicable).

I sent the following concerns earlier today and I'm incorporating them here for the record because they go directly to the County's use of the term "reclassification":

1. **Evaluation must occur before any "reclassification."** Under 29 CFR 1910.146(c)(1)-(2) the employer must evaluate the workplace to determine whether spaces are permit-required confined spaces and inform exposed employees. **"Reclassification" under 29 CFR 1910.146(c)(7)(i) and (c)(7)(iii) applies only after a space is determined to be a PRCS and only when all hazards are eliminated (not merely controlled)**, with the required written certification.
2. Current entry conditions show restricted egress and potential PRCS hazards. This task involves climbing down approximately 4.5 feet via a portable ladder to access the interior area. In wastewater structures there is known potential for hazardous atmospheres (O<sub>2</sub> deficiency, H<sub>2</sub>S, methane/LEL), and additional serious hazards from moving equipment, potential introduction of flow/energy, and potential engulfment hazards (e.g., sudden introduction of wastewater/sludge/flush flow, foam, or other

material that could surround or trap an employee).

3. Isolation without lockout/tagout is not hazard elimination. At times, valves and equipment may be isolated, but if pump/valve/energy sources are not secured with LOTO, hazards can be reintroduced without warning. That is not consistent with the hazard-elimination standard required for reclassification and places employees at unnecessary risk.

This area also presents additional hazards that need to be addressed in writing, including:

- Moving equipment hazard (rotating arm / unexpected movement);
- Slip hazard (wet grating / spray / foam);
- Fall protection / guarding concerns (restricted egress and chain barriers rather than a compliant guardrail system, as applicable);
- Engulfment hazard potential (unexpected introduction of flow/foam/material that could surround or trap an employee); and
- Energy control/LOTO for the rotating mechanism and any related equipment/valves before anyone enters or works in the arm path, as applicable.

In addition to electrical lockout, please address stored/residual energy and unexpected movement. Even with the drive motor locked out, distributor arms may move due to residual hydraulic load/imbalance, wind-vane effects, or remaining water weight in the arms. The written procedure/JHA should specify how residual mechanical/hydraulic energy is controlled (blocking/securing, drain-down if applicable, verification, and safe positioning) before anyone enters the arm path.

Requested corrective action for the bio-tower task:

1. Complete and document a confined-space evaluation for the bio-tower entry/task area **(29 CFR 1910.146(c)(1)–(2))**.
2. Until that evaluation is completed, treat the entry as permit-required and use appropriate controls (permit process, atmospheric monitoring/ventilation as needed, attendant/rescue planning).
3. Implement and enforce LOTO/secured isolation for any pump/valve/energy source that could introduce flow or motion during entry **(29 CFR 1910.147, including 1910.147(d)(6)** verification of isolation as applicable).
4. Provide a written procedure/JHA for this task (entry steps, monitoring requirements, ventilation, rotating-arm LOTO, residual/stored energy controls, engulfment prevention, and ladder/fall protection controls as applicable).

Thank you,,  
Alan Fukamizu  
UPW Unit 168 Chief Steward

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Alan Fukamizu <fukamizu.alan@gmail.com>

Fri, Jan 23, 2026 at 12:25 PM

To: Craig Kawaguchi <craig.kawaguchi@hawaiicounty.gov>

Cc: Daniel Girvan <Daniel.Girvan@hawaiicounty.gov>, Meghan Fujiyama <mfujiyama@upwhawaii.org>, Mayor's Office Executive <mayoroffice@hawaiicounty.gov>, Tiffany Wallace <Tiffany.Wallace@hawaiicounty.gov>

Bcc: Alan Fukamizu <fukamizu.alan@gmail.com>

Aloha Craig,

Following up on my reply email sent last night (8:33 PM), which responded to your email sent at 6:11 PM, regarding confined-space classification and entry procedures. In addition to the Primary Building Lower Floor (grit pump and primary pump gallery), this also applies to the Zoo Pump Station, Kolea Pump Station, and the Bio Towers.

Because this is a serious confined-space entry safety matter that affects how work is performed safely and in compliance, please provide—by return email by close of business (Monday, January 26, 2026)—either:

1. The written classification determination(s) and the current entry procedure/memo(s) for these locations (or the exact link/location to the official document(s)); **or**
2. Confirmation in writing that no such written determination/memo exists for one or more of these locations, and who is responsible for issuing it.

For visibility, I am copying the Mayor's Office due to the safety significance and the need for timely clarity and documentation on these issues.

For the record, I may include this correspondence and any response (or lack of response) in future Environmental Management Commission (EMC) testimony regarding confined-space safety and compliance. This is especially important given the facility's ongoing regulatory oversight, including the EPA Administrative Order on Consent (AOC), and the need for documented, consistent confined-space entry procedures to support safe access for routine maintenance, emergency response, and preventing equipment failures that can lead to spills or unauthorized discharges.

Thank you,  
Alan Fukamizu  
UPW Unit 168 Chief Steward

Craig,

Mahalo for summarizing. Yes—there are three separate threads. To keep this clean and easy to close out, I'm confirming what's being requested for each item below.

**Because these matters involve confined-space entry and hazardous-energy control in a wastewater environment, they present potential serious safety hazards and potential OSHA non-compliance if classifications and controls are not documented and implemented correctly. I have been requesting the referenced memorandum(s) and written clarification since January 10–12. Please provide the requested documents and written responses below so operators and the union can follow the correct requirements.**

January 10, 2026 – Primary Building Lower Floor (grit pump / primary pump gallery)

1. Please provide a copy of the January 9, 2026 memorandum (“Temporary Safety Procedure – Primary Building Lower Floor Atmospheric Monitoring”).

2. The space is being “reclassified” daily. **Please confirm which OSHA pathway** the County is using:

- **29 CFR 1910.146(c)(7) (reclassification to non-permit because all hazards are eliminated), or**
- **29 CFR 1910.146(c)(5) (permit-required space using alternate procedures because the only hazard**

is an actual/potential hazardous atmosphere controlled by continuous forced-air ventilation and monitoring), or

- **29 CFR 1910.146(d) (full permit-required entry).**

If the County is using (c)(7), please provide the written documentation showing all hazards are eliminated each day prior to entry—including how non-atmospheric hazards (pumps/valves/pressurized lines/suction forces/mechanical or hydraulic hazards) are eliminated through isolation/LOTO/depressurization and verification, as applicable. If those hazards are not eliminated, please confirm the space will not be treated as non-permit based solely on acceptable gas readings.

January 11, 2026 – Zoo and Kolea Smith & Loveless pump stations

1. Please confirm the current confined-space classification for the dry well and valve gallery areas accessed by fixed ladders.
2. If the County's determination is non-permit required, please provide the written hazard evaluation documentation supporting that classification.
3. If the determination is permit required, please provide the documentation identifying the hazards and required controls (including energy isolation/LOTO as applicable).
4. Because these are legacy stations with fixed-ladder access (approx. 23 ft), please also confirm what fall-protection controls apply during entry (e.g., ladder safety system/cage where applicable, or personal fall arrest), and that this hazard is addressed in the hazard evaluation and entry procedures.

January 22, 2026 – Bio-towers (confined-space evaluation, "reclassification," and task controls)

To clarify, the bio-tower area I'm referring to is the grated top-deck access walkway adjacent to/along the rotating distributor arm at the two tall concrete towers with access stairways (not the yellow lockers), and the associated entry/task area used to clean distributors and check rotating-arm oil level (including access using a portable ladder, as applicable).

I sent the following concerns earlier today and I'm incorporating them here for the record because they go directly to the County's use of the term "reclassification":

1. **Evaluation must occur before any "reclassification."** Under 29 CFR 1910.146(c)(1)–(2), the employer must evaluate the workplace to determine whether spaces are permit-required confined spaces and inform exposed employees. **"Reclassification" under 29 CFR 1910.146(c)(7)(i) applies only after a space is determined to be a PRCS and only when all hazards are eliminated (not merely controlled),** with the required written certification.
2. Current entry conditions show restricted egress and potential PRCS hazards. This task involves climbing down approximately 4.5 feet via a portable ladder to access the interior area. In wastewater structures there is known potential for hazardous atmospheres (O<sub>2</sub> deficiency, H<sub>2</sub>S, methane/LEL), and additional serious hazards from moving equipment, potential introduction of flow/energy, and potential engulfment hazards (e.g., sudden introduction of wastewater/sluice/flush flow, foam, or other material that could surround or trap an employee).
3. Isolation without lockout/tagout is not hazard elimination. At times, valves and equipment may be isolated, but if pump/valve/energy sources are not secured with LOTO, hazards can be reintroduced without warning. That is not consistent with the hazard-elimination standard required for reclassification and places employees at unnecessary risk.

This area also presents additional hazards that need to be addressed in writing, including:

- Moving equipment hazard (rotating arm / unexpected movement);
- Slip hazard (wet grating / spray / foam);
- Fall protection / guarding concerns (restricted egress and chain barriers rather than a compliant guardrail system, as applicable);

- Engulfment hazard potential (unexpected introduction of flow/foam/material that could surround or trap an employee); and
- Energy control/LOTO for the rotating mechanism and any related equipment/valves before anyone enters or works in the arm path, as applicable.

In addition to electrical lockout, please address stored/residual energy and unexpected movement. Even with the drive motor locked out, distributor arms may move due to residual hydraulic load/imbalance, wind-vane effects, or remaining water weight in the arms. The written procedure/JHA should specify how residual mechanical/hydraulic energy is controlled (blocking/securing, drain-down if applicable, verification, and safe positioning) before anyone enters the arm path.

Requested corrective action for the bio-tower task:

1. Complete and document a confined-space evaluation for the bio-tower entry/task area (**29 CFR 1910.146(c)(1)–(2)**).
2. Until that evaluation is completed, treat the entry as permit-required and use appropriate controls (permit process, atmospheric monitoring/ventilation as needed, attendant/rescue planning).
3. Implement and enforce LOTO/secured isolation for any pump/valve/energy source that could introduce flow or motion during entry (29 CFR 1910.147, including verification of isolation as applicable).

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**Kawaguchi, Craig** <Craig.Kawaguchi@hawaiicounty.gov>

Fri, Jan 23, 2026 at 6:53 PM

To: Alan Fukamizu <fukamizu.alan@gmail.com>

Cc: "Girvan, Daniel" <Daniel.Girvan@hawaiicounty.gov>, Meghan Fujiyama <mfujiyama@upwhawaii.org>, Mayor's Office Executive <mayorsoffice@hawaiicounty.gov>, "Wallace, Tiffany" <Tiffany.Wallace@hawaiicounty.gov>

Howzit Alan,

Got your emails and will have an answer for you by Wednesday at the latest. Thank you.

[Get Outlook for iOS](#)

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**From:** Alan Fukamizu <fukamizu.alan@gmail.com>

**Sent:** Friday, January 23, 2026 12:25:24 PM

**To:** Kawaguchi, Craig <craig.kawaguchi@hawaiicounty.gov>

**Cc:** Girvan, Daniel <Daniel.Girvan@hawaiicounty.gov>; Meghan Fujiyama <mfujiyama@upwhawaii.org>; Mayor's Office Executive <mayorsoffice@hawaiicounty.gov>; Wallace, Tiffany <Tiffany.Wallace@hawaiicounty.gov>

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**Alan Fukamizu** <fukamizu.alan@gmail.com>

Fri, Jan 23, 2026 at 7:58 PM

To: Craig Kawaguchi <Craig.Kawaguchi@hawaiicounty.gov>

Cc: Daniel Girvan <Daniel.Girvan@hawaiicounty.gov>, Meghan Fujiyama <mfujiyama@upwhawaii.org>, Mayor's Office Executive <mayorsoffice@hawaiicounty.gov>, Tiffany Wallace <Tiffany.Wallace@hawaiicounty.gov>

Bcc: fukamizu.alan@gmail.com

Craig,

Thank you for the quick reply.

I understand you said you'll have an answer by Wednesday. However, because this is a serious confined-space entry safety matter that affects how work is performed safely and in compliance, I'm maintaining the close-of-business

Monday, January 26, 2026 deadline stated below.

By COB Monday, please provide either:

1. The written confined-space classification determination(s) and the current entry procedure/memo(s) for the Primary Building Lower Floor, Zoo Pump Station, Kolea Pump Station, and the Bio Towers (or the exact link/location to the official documents); **or**

2. Written confirmation that no such written determination/memo exists for any of these locations, and who is responsible for issuing it.

If the documents are not currently available by Monday, then by Monday please at least confirm in writing whether they exist, where they are maintained, and the earliest date/time they will be provided.

Thank you ,  
Alan Fukamizu  
UPW Unit 168 Chief Steward

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**Laude, Christopher** <Christopher.Laude@hawaiicounty.gov> Mon, Jan 26, 2026 at 8:17 AM  
To: "fukamizu.alan@gmail.com" <fukamizu.alan@gmail.com>  
Cc: "Guinn-Lacy, Kahula" <Kahula.Guinn-Lacy@hawaiicounty.gov>, "Imamura, Jason" <Jason.Imamura@hawaiicounty.gov>, "Kawaguchi, Craig" <Craig.Kawaguchi@hawaiicounty.gov>, "Thomas, David" <David.Thomas@hawaiicounty.gov>

Aloha Alan:

In response to your email on January 23, 2026, the Safety Procedure SSP-2 for confined spaces and the current memo for the lower level of the primary building at Hilo Wastewater Treatment Plant are attached.

Procedure SSP-2 contains the confined space classification determinations for all wastewater division facilities and the entry procedures.

-Chris



Christopher Laude, PE  
TA Chief, Wastewater Division  
County of Hawaii - Department Environmental Management  
Claude@HawaiiCounty.gov  
808 961-8279

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2 attachments

Xerox Scan\_01262026075216.PDF

608K

 **Primary Building Temporary Air Quality Monitoring Procedure memo.pdf**  
355K

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**Guinn-Lacy, Kahula** <Kahula.Guinn-Lacy@hawaiicounty.gov> Mon, Jan 26, 2026 at 3:46 PM  
To: "Laude, Christopher" <Christopher.Laude@hawaiicounty.gov>  
Cc: "Imamura, Jason" <Jason.Imamura@hawaiicounty.gov>, "Kawaguchi, Craig" <Craig.Kawaguchi@hawaiicounty.gov>, "Thomas, David" <David.Thomas@hawaiicounty.gov>, "fukamizu.alan@gmail.com" <fukamizu.alan@gmail.com>

Good afternoon,

Alan contacted me to confirm receipt of the previous email.

Thank you,



**KAHULA GUINN-LACY**

Human Resources Program Specialist  
Department of Environmental Management  
County of Hawai'i  
Tel: 808.961.8445 | Fax: 808.961.8350  
[Kahula.Guinn-Lacy@hawaiicounty.gov](mailto:Kahula.Guinn-Lacy@hawaiicounty.gov)

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**From:** Laude, Christopher <Christopher.Laude@hawaiicounty.gov>  
**Sent:** Monday, January 26, 2026 8:18 AM  
**To:** fukamizu.alan@gmail.com  
**Cc:** Guinn-Lacy, Kahula <Kahula.Guinn-Lacy@hawaiicounty.gov>; Imamura, Jason <Jason.Imamura@hawaiicounty.gov>; Kawaguchi, Craig <Craig.Kawaguchi@hawaiicounty.gov>; Thomas, David <David.Thomas@hawaiicounty.gov>  
**Subject:** Re: Subject: Confined Space Classification and Hazard Control – Primary Building Lower Floor

Aloha Alan:

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**Alan Fukamizu** <fukamizu.alan@gmail.com> Mon, Jan 26, 2026 at 6:40 PM  
To: Craig Kawaguchi <craig.kawaguchi@hawaiicounty.gov>  
Cc: Daniel Girvan <daniel.girvan@hawaiicounty.gov>, Meghan Fujiyama <mfujiyama@upwhawaii.org>, Mayor's Office Executive <mayorsoffice@hawaiicounty.gov>

Craig,

For clarity and accountability, I am directing this correspondence to you as Deputy Director and requesting that you serve as the Department's point of contact on this confined-space compliance issue. Because Chris authored the January 9, 2026 memorandum, I am requesting review and written clarification at the Deputy Director level to ensure the Department's position is consistent with **SSP-2** and **OSHA 29 CFR 1910.146 / 1910.147**, and is not handled solely within the originating supervisory chain. For visibility, I am copying the Mayor's Office because this concerns confined-space entry safety; the original email to you on this matter was initiated on January 12, and a response with relevant information or a copy of the memorandum was not provided until January 26. In addition, I have not yet received the information previously requested regarding the pump stations and the bio-tower(s). As with my prior bio-tower and pump station correspondence—which potentially share these same discrepancies—I am copying the Mayor's Office for visibility due to the safety significance and the need for documented, timely clarification.

## **Compliance Findings**

Areas: Headworks Building; Primary Facilities Building Lower Floor (Grit pump and Primary Pump Gallery)

Documents Reviewed:

Wastewater Division Safety Manual SSP-2 (Effective 1/22/02) — Confined Spaces

DEM Memorandum (Jan 9, 2026) — Temporary Safety Procedure – Primary Building Lower Floor Atmospheric Monitoring (**Jan 9, 2026 memo**)

### **Finding 1 — SSP-2 “Non-Permit” requires no potential for hazardous atmosphere**

SSP-2 definition:

“Non-Permit Confined Space: ...does not contain or, with respect to atmospheric hazards, have the potential to contain any hazard capable of causing death or serious harm.”

Issue: Passing meter readings demonstrate only current conditions. They do not establish the absence of potential for a hazardous atmosphere. A space cannot be treated as non-permit under SSP-2 if the potential for atmospheric hazards remains (e.g., ventilation loss, process changes, stagnation/stratification, intermittent releases, or other conditions that can cause hazards to develop).

### **Finding 2 — SSP-2 “Permit-Required” includes “contains OR has the potential to contain” a hazardous atmosphere (and other serious hazards)**

SSP-2 definition:

“Permit-required Confined Space: ...has one or more of the following characteristics:

Contains or has a potential to contain a hazardous atmosphere; or

Contains a material that has the potential for engulfing an entrant; or has an internal configuration such that an entrant could be trapped or asphyxiated...; or

Contains any other recognized serious safety or health hazard.”

Issue: If these spaces can become hazardous due to ventilation loss, process changes, stagnation/stratification, intermittent releases, or other recognized hazards, they remain permit-required under SSP-2 and **OSHA 29 CFR 1910.146**.

### **Finding 3 — The Jan 9, 2026 memo uses “test-OK → temporarily reclassify to non-permit,” which conflicts with SSP-2 and OSHA concepts**

**Jan 9, 2026 memo** states:

“Until the fan is repaired... the lower floor is a permit required space.”

“If testing indicates the space does not contain atmospheric hazards, then the space will be temporarily reclassified as non-permit required space.”

Issue: This approach converts classification based on “snapshot” readings and does not address the SSP-2 standard of potential to contain a hazardous atmosphere. In addition, the memo's twice-daily fixed-time testing (07:00 and 15:00) cannot verify acceptable entry conditions for entries occurring between those times; **OSHA 29 CFR 1910.146** expects pre-entry verification tied to the entry event and monitoring appropriate to conditions.

### **Finding 4 — If the space is PRCS, OSHA requires a PRCS entry program; monitoring alone is not a substitute**

The **Jan 9, 2026 memo** expressly describes the Lower Floor as a permit required space (PRCS). Under **OSHA 29 CFR 1910.146**, when a space is PRCS, entry must be conducted under a PRCS entry program (including required roles and safeguards such as entry authorization/permit elements, entry supervision, attendant functions,

rescue/emergency provisions, training, and required documentation).

**Issue:** The **Jan 9, 2026 memo** primarily relies on atmospheric monitoring, logging, and evacuation-on-alarm instructions. Monitoring and a log sheet do not substitute for the PRCS entry program elements required by **OSHA 29 CFR 1910.146** for PRCS entry.

**Finding 5 — If “reclassification” is being claimed, OSHA requires hazard elimination + written certification (1910.146(c)(7))**

Under **29 CFR 1910.146(c)(7)**, reclassification to non-permit is only valid when all hazards are eliminated and supported by written certification (date, location, signature, and basis), and the certification must be available to entrants.

**Issue:** Monitoring and ventilation are controls, not elimination. If loss of ventilation or changing conditions can make the space hazardous again, hazards were not eliminated and **1910.146(c)(7)** does not apply. As written, the **Jan 9, 2026 memo** does not document the hazard-elimination basis and certification required for reclassification.

**Finding 6 — If the intent is “alternate entry,” OSHA (1910.146(c)(5)) is the closest framework, but its criteria must be met and documented**

The **Jan 9, 2026 memo** requires meter verification/calibration, sets thresholds, requires logging, and requires continuous personal monitoring. That reads like an attempt to manage entry through atmospheric monitoring and ventilation-based controls.

**Issue:** If the Department intends to rely on monitoring + ventilation controls to permit entry without full PRCS permits, the only OSHA mechanism that resembles that approach is **29 CFR 1910.146(c)(5)**—and it applies only if: the only hazard is an actual or potential hazardous atmosphere; continuous forced-air ventilation controls the hazard; and required verification/monitoring and documentation are completed and maintained.

The **Jan 9, 2026 memo** does not establish these criteria, does not document the basis for them, and instead uses “temporarily reclassified as non-permit,” which is inconsistent with **29 CFR 1910.146(c)(7)** reclassification requirements.

**Finding 7 — SSP-2 identifies areas like grit chambers/pipe galleries as typical PRCS-type locations, consistent with treating these areas as PRCS absent documented elimination or documented 1910.146(c)(5) criteria**

SSP-2 notes typical PRCS-type areas include locations such as “enclosed grit chambers” and “pipe galleries,” among others.

**Issue:** This is consistent with treating these areas as PRCS unless the Department has a documented hazard evaluation showing hazards are eliminated (supporting **29 CFR 1910.146(c)(7)**) or the criteria and documentation for **29 CFR 1910.146(c)(5)** alternate procedures are met.

**Finding 8 — Hazard isolation / hazardous energy control (LOTO) must be addressed as part of PRCS hazard control; written procedures are required where hazardous energy exists**

Under **29 CFR 1910.146(d)**, the employer must implement measures necessary to identify and control hazards before and during entry (i.e., to ensure acceptable entry conditions are achieved and maintained). Where hazards include unexpected energization/start-up of equipment, release of stored energy, or uncontrolled process flow, OSHA’s hazardous energy control standard **29 CFR 1910.147** applies and requires a hazardous energy control program, including written energy-control procedures where required, training/authorization, and periodic inspections.

**Issue:** The **Jan 9, 2026 memo** addresses atmospheric monitoring but does not address hazard isolation / hazardous energy control relevant to pump galleries and grit/primary pump equipment (e.g., electrical, mechanical rotation, hydraulic/pneumatic energy, or process flow). To the extent these hazards exist, the entry framework must document how those hazards are controlled (including any applicable **29 CFR 1910.147** lockout/tagout procedures) and cannot be reduced to “non-permit” or “permit-lite” solely through passing atmospheric readings.

**Corrective Action Requested**

Please confirm in writing which OSHA pathway is being applied for these areas:

**29 CFR 1910.146(c)(7)** reclassification (hazards eliminated + written certification), or

**29 CFR 1910.146(c)(5)** alternate procedures (only atmospheric hazard; controlled by continuous forced-air ventilation; verification/monitoring + documentation), or

Full permit-required entry procedures under the PRCS program (**OSHA 29 CFR 1910.146**).

If the Department is treating the Lower Floor as PRCS (as the **Jan 9, 2026 memo** states), please provide the applicable PRCS entry procedure/program requirements being applied for these spaces (including the required roles, rescue/emergency provisions, and the required entry authorization/permit elements/documentation) under **OSHA 29 CFR 1910.146**.

Please revise the **Jan 9, 2026 memo** language to remove “temporarily reclassified as non-permit” unless the County is meeting **29 CFR 1910.146(c)(7)** hazard elimination + written certification requirements.

If the intent is to rely on monitoring/ventilation controls for entry without full PRCS permits, please align the procedure language and documentation to **29 CFR 1910.146(c)(5)** (as applicable), including documentation that the only hazard is atmospheric, that continuous forced-air ventilation controls the hazard, and that required verification/monitoring tied to each entry event is performed and recorded.

In addition, please provide the Department’s hazardous energy control (LOTO) program documentation applicable to these areas, including any required written **29 CFR 1910.147** energy-control procedures (as applicable), training/authorization records, and periodic inspection records, and identify how hazardous energy and process/flow hazards are isolated/controlled during any entry activities.

Because this guidance affects confined-space entry practices and employee safety for personnel currently assigned to these areas, please provide written clarification identifying which OSHA pathway is being applied—**29 CFR 1910.146(c)(7)** reclassification, **29 CFR 1910.146(c)(5)** alternate procedures, or full permit-required entry procedures under **OSHA 29 CFR 1910.146**—before these areas are treated as non-permit or otherwise downgraded based solely on passing atmospheric readings.

Although I am not currently on duty and not performing field work, I am providing this notice for purposes of accuracy, consistency, and compliance with SSP-2 and **OSHA 29 CFR 1910.146**. For the record, the “temporary reclassification to non-permit” approach described in the **January 9, 2026 memorandum** does not appear consistent with **OSHA 29 CFR 1910.146** reclassification requirements and does not document the SSP-2 hazard-elimination/certification basis needed to support a non-permit designation. Absent written clarification and documentation consistent with OSHA, these areas should be treated and managed as permit-required confined spaces under SSP-2 and **OSHA 29 CFR 1910.146**, or handled under a properly documented **29 CFR 1910.146(c)(5)** alternate procedures framework if (and only if) the criteria are met.

**Please also treat this message as a request that the Department preserve all records relating to the classification decision and implementation for these spaces, including but not limited to: hazard evaluations, ventilation/fan maintenance and repair records, monitoring logs, calibration/bump-test documentation, written certifications/verification forms, training/authorization records, hazardous energy control/LOTO program documents and procedures (29 CFR 1910.147), and any communications directing or approving reclassification or alternate entry procedures.**

Thank you,  
Alan Fukamizu  
UPW Unit 168 Chief Steward

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## Request for Confirmation of Confined Space Classification and Controls – Headworks Building

2 messages

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Alan Fukamizu <fukamizu.alan@gmail.com>

Sat, Jan 10, 2026 at 6:15 PM

To: Craig Kawaguchi <Craig.Kawaguchi@hawaiicounty.gov>

Cc: daniel.girvan@hawaiicounty.gov, Meghan Fujiyama <mfujiyama@upwhawaii.org>, Jordyn Onaga <jonaga@upwhawaii.org>

Bcc: fukamizu.alan@gmail.com

Aloha, I am requesting confirmation of the current confined-space classification for the primary headworks building (one story below grade) following the failure of the permanent ventilation blower.

I was advised that the space, which had previously been treated as non-permit required, has been reclassified and is presently being ventilated using portable air blowers at the entrances. For my records, please confirm:

- Whether the space is currently designated as a permit-required confined space under 29 CFR 1910.146(c)(1), or has been formally reclassified pursuant to 29 CFR 1910.146(c)(7);
- The basis for that determination, including whether the only hazards present are atmospheric and whether forced-air ventilation alone is being relied upon to control those hazards; and
- What controls are currently in place while the permanent ventilation system is out of service, including isolation and lockout of RAS and sludge pumps, atmospheric testing and continuous monitoring (1910.146(d)(5)), attendant and entry-supervisor provisions (1910.146(d)(6)), and rescue and emergency procedures (1910.146(d)(9)), as applicable.

This request is made solely to ensure clarity regarding the current safety and compliance status of the space during this period.

Thank you, Alan Fukamizu

UPW Unit 168 Chief Steward

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**Kawaguchi, Craig** <Craig.Kawaguchi@hawaiicounty.gov>

Mon, Jan 12, 2026 at 1:42 PM

To: Alan Fukamizu <fukamizu.alan@gmail.com>

Cc: "Girvan, Daniel" <Daniel.Girvan@hawaiicounty.gov>, Meghan Fujiyama <mfujiyama@upwhawaii.org>, Jordyn Onaga <jonaga@upwhawaii.org>, "Wallace, Tiffany" <Tiffany.Wallace@hawaiicounty.gov>


Aloha Alan,

Got the email and will get the answers for you.

Thank you.

[Quoted text hidden]

Dept. of Environmental Mgm't. COUNTY OF HAWAII		Wastewater Division
<b>DIVISION SAFETY MANUAL</b>		
Subject: <b>CONFINED SPACES</b>		Procedure No.: <b>SSP - 2</b>
Effective Date: 1/22/02	Supersedes Procedure No./Date: SSP-2 dated 2/6/97	Page 1 of 21

Approved:  Date: 1/8/02  
Peter Boucher, Division Chief

- References:
- (a) HIOSH Std. 12-104-1, Change 22
  - (b) OSHA 1910.146, Permit Required Confined Space
  - (c) City and County of Honolulu, Department of Wastewater Mgmt. Procedure No. S-20, Confined Space Safety Standard Operating Procedure
  - (d) County of Maui, Wastewater Reclamation Division, Safety Guide No. 8, Confined Spaces
  - (e) DPW Wastewater Division Memorandum dated 2/23/94, Non-Permit Required Confined Space

### 1. Scope:

- a) This standard is intended to protect workers from toxic, explosive, or asphyxiating atmospheres and from possible engulfment from liquid or small particles. Rules for entering Confined Spaces are established by OSHA under reference (b) and are adopted and issued by the State of Hawaii Division of Occupational Safety and Health as reference (a).
- b) The written standard established by this Standard Safety Procedure (SSP) is intended to prevent unauthorized entry, to identify and evaluate confined space hazards, and to establish standard procedures and practices for safe entry, including testing and monitoring.
- c) In the event that Contractors are utilized for a Confined Space Entry, the procedures of Appendix F shall apply. See Definitions below for Contractors. Note that references (a) and (b) do **not** apply to employees of Construction firms. Confined Space requirements for employees of Construction firms is covered under a separate standard (OSHA 1926)

### 2. Definitions:

- a) **Confined Space:** A confined space is defined as an area which:
  - 1) Is large enough and so configured that an employee can bodily enter and perform assigned work; **and**
  - 2) Has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry); **and**
  - 3) Is not designed for continuous employee occupancy.
- b) **Non-Permit Confined Space:** A non-permit confined space is a Confined Space (as defined above) that does not contain or, with respect to atmospheric hazards, have the potential to contain any hazard capable of causing death or serious harm.
- c) **Permit-required Confined Space:** A permit required confined space is a Confined Space (as defined above) that has one or more of the following characteristics:
  - 1) Contains or has a potential to contain a hazardous atmosphere; **or**
  - 2) Contains a material that has the potential for engulfing an entrant; **or** Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section; **or**

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- 3) Contains any other recognized serious safety or health hazard.
- 4) Typical areas which would normally fall under Permit Required Confined Space requirements are sewer manholes, wet wells, vaults, enclosed grit chambers, sludge digesters, pipe galleries, etc. and pits or trenches having a depths greater than 4 feet.
- d) **Acceptable entry conditions:** Conditions that must exist in a permit space to allow entry and to ensure that employees involved with a permit-required confined space entry can safely enter into and work within the space.
- e) **Attendants:** An attendant is an individual stationed outside one or more Permit-Required Confined Space who monitors the authorized entrants and who performs all attendant's duties as specified within this Standard Safety Procedure.
- f) **Authorized Entrants:** Authorized entrants for a Permit-required Confined Space are personnel who have been authorized by the employer to enter a Permit-required Confined Space.
- g) **Blanking or Blinding:** The absolute closure of a pipe, line, or duct by the fastening of a solid plate (such as a spectacle blind or a skillet blind) that completely covers the bore and that is capable of withstanding the maximum pressure of the pipe, line, or duct with no leakage beyond the plate.
- h) **Contractors:** As used within this procedure, a Contractor shall mean any individual who is not employed by the County of Hawaii Wastewater Division. Note that County of Hawaii employees of different departments or divisions shall be considered as Contractors under this procedure. Entry into Confined Spaces by Contractors shall be as specified in Appendix F.
- i) **Double Block and Bleed:** The closure of a line, duct, or pipe by closing and locking or tagging two in-line valves and by opening and locking or tagging a drain or vent valve in the line between the two closed valves.
- j) **Emergency:** Any occurrence (including any failure of hazard control or monitoring equipment) or event internal or external to the permit space that could endanger the entrants.
- k) **Engulfment:** The surrounding and effective capture of a person by a liquid for finely divided (flowable) solid substance that can cause death by filling or plugging the respiratory system or that can exert enough force on the body to cause death by strangulation, constriction, or crushing.
- l) **Entry Permit:** The written document that is provided by the employer to allow and control entry into a permit space. Refer to Appendix E herein.
- m) **Entry Supervisors:** An entry supervisor is the person (such as a Wastewater Division Supervisor, lead person, or other person trained in the duties of an Entry Supervisor contained in this procedure and as assigned by a Wastewater Division Supervisor) responsible for determining if acceptable entry conditions are present at a Permit-Required Confined Space where entry is planned, for authorizing entry and overseeing entry operations, and for terminating entry as required by this Standard Safety Procedure.
- n) **Hazardous Atmosphere:** A hazardous atmosphere is an atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability to self-rescue (escape unaided from a Confined Space), injury, or acute illness from one or more of the following causes (see Appendix D).
  - 1) Flammable gas, vapor, or mist in excess of 10% of its Lower Flammable Limit (LFL);

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- 2) Airborne combustible dust at a concentration that meets or exceeds its Lower Flammable Limit (LFL). This concentration may be approximated as a condition in which the dust obscures vision of a distance of 5 feet or less.
  - 3) Atmospheres containing oxygen levels either less than 19.5% or oxygen levels greater than 23.5%.
  - 4) Atmospheres containing toxic gases in excess of PEL limits (hydrogen sulfide levels > 10 PPM).
  - 5) Any other atmospheric condition that is immediately dangerous to life or health.
  - 6) Note: Information, such as Material safety Data Sheets, published information, internal documents can provide guidance in establishing acceptable atmospheric conditions for air contaminants for which OSHA has not determined a dose or permissible exposure limit.
- o) Rescue Services: Rescue services means the personnel designated to rescue employees from Permit-Required Confined Spaces. Personnel providing Rescue Services must receive the same training as authorized entrants plus training in the use of personal protective and rescue equipment and in first aid, including CPR.
  - p) Immediately Dangerous to Life or Health (IDLH): Any condition that poses an immediate or delayed threat to life or that would cause irreversible adverse health effects or that would interfere with an individual's ability to escape unaided from a permit space.
  - q) Inerting: The displacement of the atmosphere in a permit space by a non-combustible gas (such as nitrogen) to such an extent that the resulting atmosphere is non-combustible (Note that this procedure produces an IDLH oxygen-deficient atmosphere).
  - r) Isolation: The process by which a permit space is removed from service<sup>3</sup> and completely protected against the release of energy and material into the space by such means as: blanking or blinding; removing sections of pipes; double block and bleed system; lockout or tagout of all sources of energy; or blocking or disconnecting all mechanical linkages.
  - s) Line Breaking: The intentional opening of a pipe, line, or duct that is or has been carrying flammable, corrosive, or toxic material; an inert gas; or any fluid at a volume, pressure, or temperature capable of causing injury.
  - t) Oxygen Deficient Atmosphere: An atmosphere containing less than 19.5% oxygen by volume.
  - u) Oxygen Enriched Atmosphere: An atmosphere containing more than 23.5% oxygen by volume.
  - v) Prohibited Condition: Any condition within a permit space that is not allowed by the permit during the period when entry is authorized.
  - w) Rescue Service: The personnel designated to rescue employees from permit spaces.
  - x) Retrieval System: A retrieval system means the equipment (including a retrieval line, chest or full body harness, and a lifting device or anchor) used for non-entry rescue of persons in the Permit Required Confined Space. The mechanical lifting device shall be a device designed for such purpose or shall be a device which has been approved by either the Superintendent or Division Chief.
  - y) Testing: The process by which the hazards that may confront entrants of a permit space are identified and evaluated.
3. **Training Requirements:**
- a) Training shall be provided to all employees whose work is regulated by the Standard Safety Procedure (SSP) to ensure employees have the required understanding, knowledge, and skills necessary for the safe performance of the duties established by this SSP. The training shall include information on the mode, signs or symptoms, and consequences of exposure to the hazards associated with entry into a Confined Space. The normal atmospheric hazards associated with employees of the Wastewater Division are summarized in Appendix D.

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- b) As a minimum, training shall be provided:
- 1) Before the employee is first assigned duties under this standard;
  - 2) Whenever there is a change in assigned duties for which the employee has not been previously trained;
  - 3) Whenever there is reason to believe that there are deviations from the Permit Required Confined Space procedures established under this SSP;
  - 4) Whenever there is reason to believe that there are inadequacies in the employee's knowledge or use of the procedures established under this SSP;
  - 5) Whenever there is reason to believe that the measures taken by the Permit-Required Confined Space program established by this SSP may not adequately protect employees from the hazards of entering a Permit-Required Confined Space.
  - 6) Whenever there is a change in permit space operations that presents a hazard about which an employee has not been previously changed.
- c) Employees providing Rescue Services shall receive training in First Aid and CPR and shall hold a valid certificate in First Aid and in CPR. In addition, these employees shall be trained and certified in the use of emergency breathing apparatus (SCBA or SAR). Employees providing Rescue Services shall practice making Permit Required Confined Space rescues at least once every 12 months by simulating rescue operations from actual permit spaces or from representative permit spaces.
4. **Review of Confined Space Program:**
- a) As a minimum the procedure established by this Standard Safety Procedure shall be reviewed annually using the canceled permits and shall be revised as necessary to ensure that employees participating in entry operations are protected from permit space hazards. Review of the program shall be conducted by the Wastewater Division's Safety Committee comprised of both management personnel and non-management personnel which have been selected by their fellow employees to be their work group representatives.
  - b) In addition to the above, the procedure shall be reviewed when there is reason to believe that measures taken under the Permit Required Confined Space program may not sufficiently protect the employees. Examples of circumstances requiring review of the program are:
    - 1) Any unauthorized entry of a Permit Required Confined Space
    - 2) Detection of a Permit Required Confined Space hazard which is not currently covered by the permit
    - 3) Occurrence of an injury or a near-miss during an entry in to a Permit Required Confined Space
    - 4) A change in the use or configuration of a Permit Required Confined Space
    - 5) Employee complaints regarding the effectiveness of the Permit Required Confined Space program
5. **Permit-Required versus Non-Permit Required Confined Space**
- a) In general a Confined Space shall be considered to be a Permit-Required Confined Space until such time that it can be established that the space poses no actual or potential atmospheric hazards.
  - b) If the Permit Required Confined Space poses no actual or potential atmospheric hazards and if all hazards within the space are eliminated without entry into the space, the Permit Required Confined Space may be reclassified as a Non-Permit Confined Space for as long as the non-atmospheric hazards remain eliminated. Appendix A herein may be used to facilitate classification of a Confined Space. Note that reclassification of a Confined Space from "Permit Required" to "Non-

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Permit Required” requires the approval of a Wastewater Division Supervisor, Superintendent, or Division Chief (Entry Supervisor cannot reclassify a permit space to a “Non-Permit” status).

- c) A list of Non-Permit Confined Spaces for the areas in the Wastewater Division is contained in Appendix B. This list was established by reference (e) upon completion of atmospheric testing of the facilities. Kapehu WWTP was classified as a Non-Permit Confined Space after testing of the atmosphere to verify that a non-hazardous atmosphere existed under normal conditions
- d) Areas established by either Appendix A or Appendix B as Non-Permit Confined Spaces shall be tested at the following minimum intervals to ensure that atmospheric hazards remain eliminated. Results of the atmospheric testing shall be documented in Appendix C and forwarded to the WTP Supervisor on a monthly basis.
  - 1) As a minimum, the areas classified as Non-Permit Confined Spaces shall be tested daily during initial entry to ensure that there have been no changes in atmospheric conditions which would require that the area be reclassified as Permit Required Confined Spaces. The daily test is not required to be performed if no entries are required during that particular day provided atmospheric tests are performed during the next entry into the Non-Permit Confined Space.
  - 2) In the event that a hazardous atmosphere exists continuous forced air ventilation shall be utilized. Personnel shall not enter the space until the forced air ventilation system has eliminated any hazardous atmosphere. In the event that continuous force air ventilation alone is not able to maintain a safe atmosphere the supervisor shall be immediately notified and the area shall be immediately classified as a Permit Required Confined Space.
  - 3) In the event that there are any changes in normal conditions (such as failure of the ventilation system or breaching of a fluid boundary), the supervisor shall be immediately notified and the area shall be reclassified as a Permit Required Confined Space until such time that that it can be reclassified as a Non-Permit Confined Space.

#### 6. Entry Into a Permit Required Confined Space:

- a) General Duties of Personnel Involved in a Permit Required Confined Space Entry:
  - 1) Authorized Entrants shall:
    - i) Be familiar with the hazards associated with entry into a Permit Required Confined Space including the mode, signs or symptoms, and consequences of the exposure.
    - ii) Be familiar with the proper use of safety equipment (such as monitoring equipment, ventilating equipment, communications equipment, personal protective equipment, rescue equipment, and any other equipment necessary for safe entry and exit) required for the Permit Required Confined Space Entry.
    - iii) Communicate with the attendant as necessary to enable the attendant to monitor the entrant status.
    - iv) Immediately alert the attendant and exit the Permit Required Confined Space in the event condition status changes to a prohibited conditions (high or low oxygen, high hydrogen sulfide, flammable vapors, etc.) or in the event any warning signs or symptoms of exposure occurs.



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- v) Immediately summon emergency services in the event that he determines that the authorized entrant may need assistance to escape from the Permit Required Confined Space. In this context Emergency Services is defined as the County of Hawaii Fire Department which can be reached by calling 911.
- vi) Removes unauthorized individuals who enter or attempt to enter the Permit Required Confined Space during entry operations or who otherwise interfere with the entry procedure.
- vii) Ensure that acceptable entry conditions are maintained, especially whenever responsibility for an operation is transferred (such as when an Attendant is replaced, etc.).
- viii) Ensure that adequate personnel are available for the Permit Required Confined Space Entry and that they have been properly trained for the entry. As a minimum three (3) people are required for the entry (Entry Supervisor, Attendant, and Authorized Entrant).
- ix) Terminate the entry and cancels the permit when the entry operations have been completed or whenever a condition that is not allowed under the entry permit arises in or near the Permit Required Confined Space.

**b) Pre-Entry Procedure:**

- 1) The Entry Supervisor shall identify and evaluate the hazards associated with entry into the Permit Required Confined Space and initiate the permit (Appendix E).
- 2) Ensure that all equipment required for entry into the Permit Required Confined Space (Retrieval System, gas monitors, cellular phone for communication, ventilation equipment, SCBA, etc.) are available and that sufficient personnel are available to perform the Permit Required Confined Space entry.
- 3) Control Mechanical and Electrical hazards by Lockout/Tagout of components in accordance with the Wastewater Division's Lockout/Tagout procedure.
- 4) Test atmospheric conditions in the Permit Required Confined Space to determine if acceptable entry conditions exist prior to entry. Testing of atmospheric conditions shall be performed in the following order since most combustible gas meters are oxygen dependent and will not provide accurate readings in an oxygen depleted atmosphere. Since some combustible gases and toxic gases are heavier than air and may lead to stratification, test the atmosphere in the permit space at the Top, Middle, and Bottom of the space when performing atmospheric testing. This preliminary testing establishes base line conditions prior to ventilation, if required, to establish the effectiveness of the ventilation system.
  - i) Test Oxygen levels to ensure that that it is has a minimum level of 19.5% by volume and a maximum level of 23.5% by volume (normal air contains approximately 21% oxygen). Atmospheres containing less than 19.5% oxygen requires the use of an SCBA or a Supplied Air Respirator (SAR). Entry into atmospheres containing oxygen levels in excess of 23.5% by volume is prohibited since an oxygen enriched atmosphere results in a highly flammable environment.
  - ii) Test for Combustible Gases to ensure levels do not exceed 10% LEL (lower explosive limit). If combustible gases are detected ventilate the area until the levels drop below 10% LEL. Continue ventilating the area to attempt to obtain a level of 0% LEL. Entry into the

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**Permit Required Confined Space is prohibited in environments containing combustible gases in excess of 10% LEL.**

- iii) Test for **Toxic Gases** (Hydrogen Sulfide (H<sub>2</sub>S)). **Hydrogen Sulfide levels shall be less than 10 ppm** (parts per million). If levels of Hydrogen Sulfide exceed the specified levels ventilate the area to reduce the levels to permissible limits. An SCBA or SAR will be required for entry in the event that levels cannot be lowered to permissible levels.
- 5) If the initial atmospheric testing of paragraph (4) above indicated that a hazardous atmosphere exists, **Ventilate** the permit space utilizing either a stationary or portable ventilation blower to prevent the accumulation of flammable or toxic gases and to ensure oxygen levels remain within specified limits. **Continuous ventilation is required** for entry into the permit space if the initial atmosphere test indicated that a hazardous atmosphere existed prior to ventilating.
- 6) **Re-test the atmospheric conditions** of the Permit Required Confined Space in accordance with paragraph (4) above. If the atmospheric tests indicate that there is no atmospheric hazard, the Permit Required Confined Space **may be reclassified as a Non-Permit Required Confined Space in accordance with Appendix A** by a Wastewater Division Supervisor, Superintendent, or Division Chief (**Entry Supervisor is not authorized to reclassify a Confined Space from "Permit Required" to "Non-Permit Required" status.** Testing per this paragraph is not required if the initial atmospheric test of paragraph (4) above indicated that there was no hazardous atmosphere.
- c) **Entry into a Permit Required Confined Space:**
- 1) The **Entry Supervisor** shall review the permit to verify that the appropriate entries have been made on the permit, that all tests specified by the permit have been conducted, and that all procedures and equipment specified by the permit are in place. Once he is satisfied that all permit requirements have been met he shall approve the permit allowing entry to begin.
  - 2) The **Authorized Entrant** shall don all protective equipment specified on the Confined Space Permit. Each Authorized Entrant shall use a full body harness with a retrieval line attached at the **center** of the back near shoulder level to facilitate non-entry rescue. In the rare case where use of a retrieval system would increase the overall risk of entry, use of a retrieval system may be waived by either a **Wastewater Division Supervisor, Superintendent or Division Chief** who shall annotate on the permit that a Retrieval System is not required and the reasons that use of the Retrieval System has been waived. The individual waiving the requirement shall also initial and date the permit. Note that the **Entry Supervisor is not authorized** to waive the requirement for a retrieval system.
  - 3) The **Attendant** shall attach the retrieval line to the full body harness of the Authorized Entrant. The retrieval line shall be attached to a mechanical lifting device to facilitate non-entry rescue. The retrieval line may be attached to a fixed point outside the Permit Required Confined Space in the event that a mechanical lifting device cannot be utilized. If a mechanical lifting device cannot be utilized, a minimum of two (2) additional personnel (besides the Entry Supervisor and Attendant) shall be immediately available to aid in retrieval of the Authorized Entrant.
  - 4) The **Authorized Entrant** shall maintain communications with the **Attendant**. In most cases communication can be maintained through voice and visual communication. If voice and visual communication cannot be maintained, communication shall be maintained using the two-way

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radio system (the Line Crew currently has 2 each radios and the Storekeeper currently has 1 each radio).

- 5) The Attendant shall continuously monitor the atmosphere and shall instruct the Authorized Entrant to exit in the event he detects a prohibited condition or behavioral effects of hazard exposure in an Authorized Entrant. As a minimum, periodic atmospheric test results shall be logged down at 15 minute intervals (minimum). Any indication of a hazardous atmosphere which resulted in the Authorized Entrant having to exit the permit space shall be indicated on the atmosphere log sheet.
- 6) The Attendant shall maintain an accurate count of Authorized Entrants including name of the Authorized Entrant(s).
- 7) The Attendant shall perform non-entry Rescue Services in the event that the Authorized Entrant is unable to exit the Permit Required Confined Space.
- 8) In the event that rescue of the Authorized Entrant is required, the Entry Supervisor shall immediately request assistance from the County of Hawaii Fire Department. In most cases, the Fire Department can be summoned by calling "911" on the cellular phone.
- 9) Upon completion of the entry, the Entry Supervisor shall cancel the entry permit and shall turn in a copy of the completed Permit to the Superintendent (OSHA requires that canceled Entry Permits be retained for a minimum of 1 year after the entry). Any problems encountered should be noted on the permit to allow appropriate revisions to the Confined Space Program.

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### APPENDIX A

#### RE-CLASSIFICATION OF A CONFINED SPACE FROM "PERMIT" TO "NON-PERMIT" STATUS

#### A.1 General:

A.1.1 References (a) and (b) allow Permit Required Confined Spaces to be reclassified as Non-Permit Required Confined Spaces for spaces which either contain no potential hazards or in spaces where all hazards can be eliminated. Refer to the Decision Flow Chart contained within this appendix to aid in determining whether a particular space can be reclassified to a Non-Permit Required Confined Space.

A.1.2 Only Wastewater Division Supervisors, the Superintendent, or the Division Chief are authorized to reclassify a Confined Space from a "Permit Required" to a "Non-Permit Required" status. Entry Supervisors are not authorized to reclassify a Confined Space to a "Non-Permit Required" status. The individual authorizing the reclassification shall document the basis for determining that all hazards in the space have been eliminated on the form contained within this appendix.

A.1.3 In the event that an initial entry is required to eliminate the hazard, the entry shall be considered as a Permit Required Confined Space entry until such time that the hazard has been eliminated and the space has been reclassified to a Non-Permit Required Confined Space.

A.1.4 In most cases for smaller jobs it will be more practical to make all entries as Permit Required Confined Space entries versus reclassifying the Confined Space per this appendix. For larger or extended jobs it may be more practical to reclassify the Confined Space.

Examples of areas which could be potentially reclassified as a Non-Permit Required Confined Space are the Secondary Clarifier Tanks, Chlorine Contact Tanks, Primary Setting Tanks, etc. after verification that all hazards have been eliminated.

A.1.5 In most cases Confined Spaces such as Sewer Manholes cannot be reclassified as Non-Permit Confined Spaces since it is usually not possible to completely isolate the space (sewage would still be flowing in the bottom of the manhole presenting a potential atmospheric and engulfment hazard).

#### A.2 Requirements for Reclassifying a Permit Space:

A.2.1 The Confined Space shall pose no actual or potential atmospheric hazards and/or all hazards within the space have been eliminated without entry into the Confined Space. The basis for reclassifying the Permit Space to a Non-Permit Required Confined Space shall be documented on the form contained within this appendix.

A.2.2 In the event that a hazardous atmosphere exists during initial testing, continuous forced air ventilation shall be utilized. Personnel shall not enter the space until the forced air ventilation system has eliminated any hazardous atmosphere. In the event that continuous force air ventilation alone is not able to maintain a safe atmosphere the area cannot be reclassified to a Non-Permit Confined Space.

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A.2.3 The procedures of paragraph 5 of the base procedure (Determination of a Non-Permit Confined Space versus a Permit Required Confined Space) shall be followed whenever entry into the reclassified space is required.

A.2.4 If hazards arise within the Confined Space after reclassification as a Non-Permit Confined Space, all entrants shall immediately exit the Confined Space and status of the Confined Space will be re-evaluated.

Subject:

CONFINED SPACES

Procedure No.:

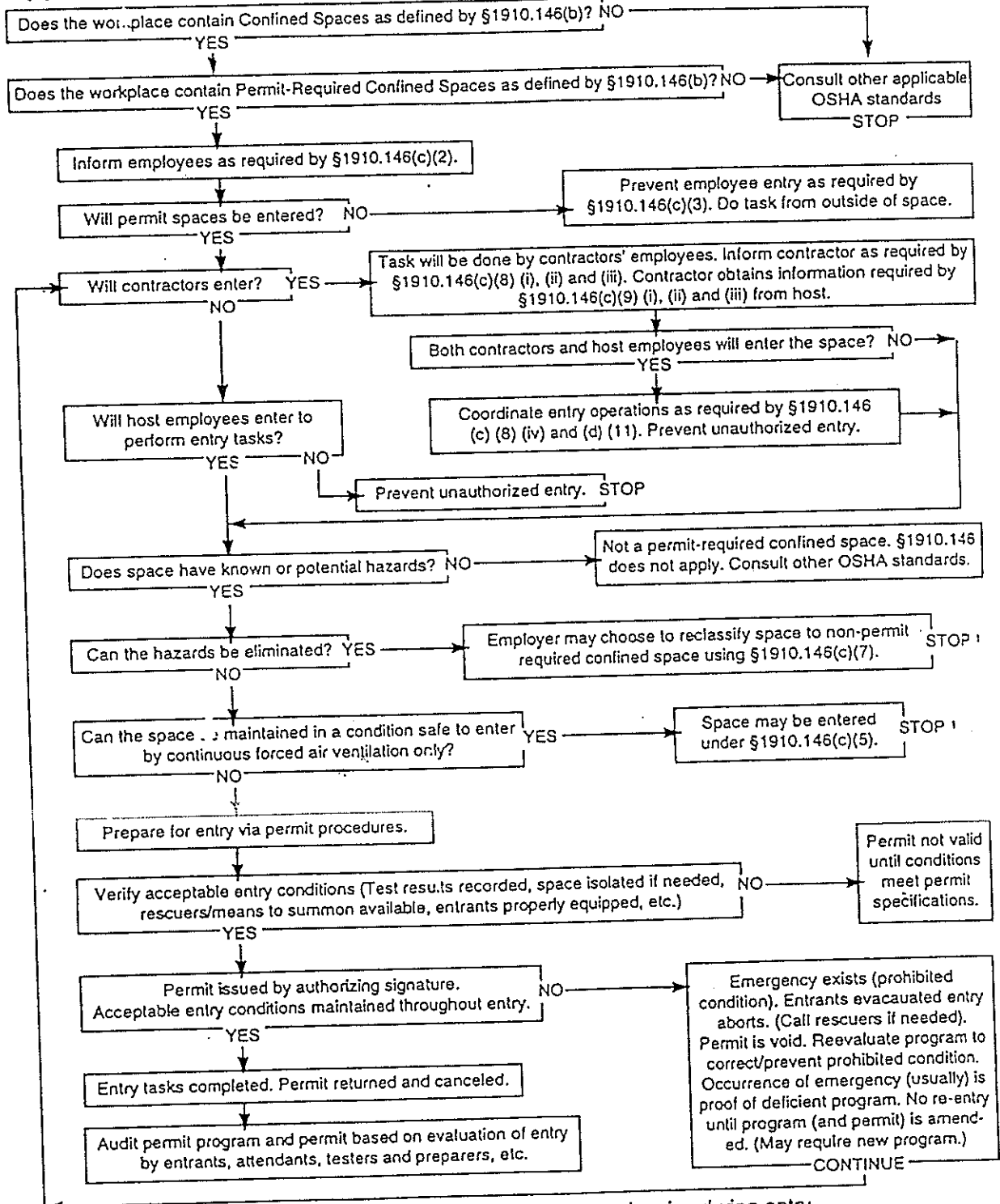
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Appendix A - Permit-Required Confined Space Decision Flow Chart



<sup>1</sup> Spaces may have to be evacuated and re-evaluated if hazards arise during entry.

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APPENDIX A

**RECLASSIFICATION OF CONFINED SPACE FROM A  
"PERMIT REQUIRED" TO A "NON-PERMIT REQUIRED" CONFINED SPACE**

Name/Location of Confined Space:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Hazard	YES	NO	N/A
All actual or potential Mechanical Hazards eliminated (Pumps or lines positively secured or Locked Out or Tagged Out) and equipment secured from movement or Locked Out or Tagged Out			
Electrical equipment disconnected or Locked Out or Tagged Out			
Sources of flammable gas or toxic gas eliminated or continuous forced ventilation utilized.			
Atmospheric Monitoring verifies a safe atmosphere as specified below:  Oxygen Levels between 19.5% to 23.5% Flammable Gas less than 10% LEL Hydrogen Sulfide less than 10 PPM			

Remarks:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Authorize Reclassifying Permit Required Confined Space to a Non-Permit Required Confined Space

\_\_\_\_\_  
Signature/Date/Title

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**APPENDIX B**  
**NON-PERMIT REQUIRED CONFINED SPACES**

**B.1 General Notes Regarding Non-Permit Required Confined Spaces:**

- B.1.1 Refer to "Definitions" contained in paragraphs 2 and 5 of the base procedure.
- B.1.2 Note that "Non-Permit Required Confined Spaces" are basically "Permit-Required Confined Spaces" which have been reclassified from a "Permit-Required" to a "Non-Permit Required" status after all hazards have been eliminated. Reference (e) previously established the following areas as "Non-Permit" spaces after completion of testing to establish baseline conditions.
- B.1.3 Areas within the following list shall be atmospherically tested during daily during initial entry. Refer to paragraph 5.d of the base procedure.
- B.1.4 In the event of any changes in normal conditions (failure or ventilation system, etc.), the areas listed below shall be immediately exited and the area shall be reclassified as a Permit-Required Confined Space. Refer to paragraph 5.d(2) of the base procedure.

<b>EAST HAWAII WASTEWATER FACILITIES</b>	
Hilo SPS	Bottom Level
Wailoa SPS	Middle and Bottom Levels
Kolea SPS	Pump Chamber
Banyan SPS	Pump Chamber
Onekahakaha SPS	Pump Chamber
Paukaa SPS	Control Room
Pua SPS	Middle and Bottom Level
Hilo WWTP	Primary Facility pump gallery and bottom floor of Digester Pump Room
Kapehu WWTP	Control Room Building
Kulaimano WWTP	Bottom Level of Pump Room
Papaikou WWTP	Bottom Level of Pump Room

<b>WEST HAWAII WASTEWATER FACILITIES</b>	
Emma SPS	Top and Bottom Level
Project 19 SPS	Pump Chamber
King Kam SPS	Top and Bottom Level

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APPENDIX C  
NON-PERMIT REQUIRED CONFINED SPACE LOG SHEET  
DAILY TESTING

C.1 General:

C.1.1 This log sheet shall remain posted at the entrance to each Non-Permit Required Confined Space listed in Appendix B. All employees entering the Non-Permit Required Confined Space shall verify that atmospheric testing has been accomplished previously that day prior to entry and that a hazardous atmosphere does not exist. In the event that atmospheric testing indicates that a hazardous atmosphere exists OR in the event that there are any changes in normal conditions (such as failure of the ventilation system or breaching of a fluid boundary), the area shall be reclassified as a Permit Required Confined Space and the immediate supervisor shall be immediately notified. See paragraph 5 of base procedure.

Date	Gas	Limits	Reading	Signature	Remarks
	Oxygen	19.5% min 23.5% max			
	Hydrogen Sulfide	10 ppm			
	Flammable Gas	10% LEL			
	Oxygen	19.5% min 23.5% max			
	Hydrogen Sulfide	10 ppm			
	Flammable Gas	10% LEL			
	Oxygen	19.5% min 23.5% max			
	Hydrogen Sulfide	10 ppm			
	Flammable Gas	10% LEL			
	Oxygen	19.5% min 23.5% max			
	Hydrogen Sulfide	10 ppm			
	Flammable Gas	10% LEL			
	Oxygen	19.5% min 23.5% max			
	Hydrogen Sulfide	10 ppm			
	Flammable Gas	10% LEL			
	Oxygen	19.5% min 23.5% max			
	Hydrogen Sulfide	10 ppm			
	Flammable Gas	10% LEL			
	Oxygen	19.5% min 23.5% max			
	Hydrogen Sulfide	10 ppm			
	Flammable Gas	10% LEL			

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APPENDIX D  
NORMAL ATMOSPHERIC HAZARDS FOR WASTEWATER SYSTEMS

D.1 General:

D.1.1 The normal atmospheric hazards associated with work on Wastewater systems are oxygen (O<sub>2</sub>) deficiency, flammable gases (largely but not limited to methane), and toxic gases such as hydrogen sulfide (H<sub>2</sub>S). This appendix provides information on the general effects of oxygen deficiencies, flammable gases, and hydrogen sulfide gases. Refer to MSDS sheets for additional information.

D.2 Oxygen Deficient Atmosphere:

Oxygen Content (% by Volume)	Potential Effects and Symptoms at atmospheric pressures
21%	Normal oxygen content in air
19.5%	Minimum permissible oxygen level without SCBA or SAR
15-19%	Decreased ability to work strenuously. May impair coordination and may induce early symptoms in persons with coronary, pulmonary, or circulatory problems
12-14%	Respiration increases in exertion, pulse increases, impaired coordination, perception, and judgment
10-12%	Respiration further increases in rate and depth, poor judgment, lips turn blue
8-10%	Mental failure, fainting, unconsciousness, ashen face, blueness of lips, nausea, and vomiting
6-8%	100% fatal if over 8 minutes
4-6%	Coma in 40 seconds, convulsions, respiration ceases, death
All values are approximate and will vary based on the individual's health and level of physical activity (information from Industrial Hygiene News, July 1989 and reference ( c ))	

D.3 Flammable Gas Atmosphere:

D.3.1 The lowest concentration at which a gas can ignite is called its Lower Explosive Limit (LEL) or is sometimes referred to as the Lower Flammable Limit (LFL). Both values are the same. The gas is not flammable at concentrations below 100% LEL.

D.3.2 OSHA defines an atmosphere containing in excess of 10% LEL of flammable gases or vapor as a hazardous atmosphere. As noted in paragraph 6.b(4), entry into Confined Spaces with atmospheres containing combustible gases in excess of 10% LEL is prohibited.

D.3.3 The major hazard of atmospheres with gas concentrations in excess of 10% LEL is the possibility of ignition of the gas, especially in a Confined Space.

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D.4 Toxic Gases:

D.4.1 The major toxic gas which would be encountered during a Confined Space entry for the Wastewater Division is hydrogen sulfide (H<sub>2</sub>S) which is a natural byproduct of decomposing sewage.

D.4.2 Hydrogen sulfide has a "rotten egg" smell and is heavier than air therefore it tends to collect at the bottom of Confined Spaces. Hydrogen sulfide also has the ability to "desensitize" or "paralyze" your sense of smell therefore relying on your sense of smell (versus a gas detector) is not an acceptable means of detecting the gas. Desensitization of your sense of smell could expose you to high concentrations of the gas without realizing it and could result in deadly consequences.

D.4.3 The Occupational Safety and Health Administration (OSHA) has determined that the Permissible Exposure Level (PEL) of hydrogen sulfide gas is 10 PPM (parts per million). The PEL is the concentration level of a substance to which an individual can be exposed to for eight (8) hours a day with no adverse health effects.

Concentration	Effects and Symptoms	Exposure Duration
<1-30 ppm	Odor detectable	Seconds
10 ppm	Permissible Exposure Level (PEL)	8 hours
30ppm	Loss of sense of smell begins	Varies
50-100 ppm	Mild eye and respiratory irritation	1 hour
100-150 ppm	Eye irritation, cloudy vision, headache, dizziness, nausea. Sense of smell deadened within minutes.	0.5 hour
200-300 ppm	Severe eye and respiratory irritation. Increasing dizziness, headache, and nausea.	0.5 hour
300-1000 ppm	Dizziness, difficulty breathing, loss of consciousness, fluid buildup in lungs, death. Sense of smell may be lost within one breath.	Minutes
> 1000 ppm	Unconsciousness, sudden death.	Minutes

All values are approximate and vary based on the individual's health and level of physical activity.

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**APPENDIX E - PERMIT REQUIRED CONFINED SPACE - ENTRY PERMIT**

Date and Time Issued: \_\_\_\_\_ Date and Time Expires: \_\_\_\_\_

Job Site: \_\_\_\_\_

Equipment No.: \_\_\_\_\_ (N/A if no equipment number)

Work to be Performed: \_\_\_\_\_

Entry Supervisor \_\_\_\_\_ Attendant: 1) \_\_\_\_\_ 2) \_\_\_\_\_

Authorized Entrant: 1) \_\_\_\_\_ 2) \_\_\_\_\_ 3) \_\_\_\_\_

Stand-by Personnel: 1) \_\_\_\_\_ 2) \_\_\_\_\_ 3) \_\_\_\_\_

1. Initial Atmospheric Check

Time	_____	
Oxygen	_____	%
Flammable Gas	_____	% LEL
Hydrogen Sulfide	_____	PPM

Tester's Signature \_\_\_\_\_

2. Mechanical/Electrical Isolation (without entry)

Pumps or lines blinded, disconnected, blocked, and/or valves Locked Out or Tagged Out, mechanical equipment secured from movement or Locked Out/Tagged Out?	( ) Yes	( ) No	( ) N/A
Electrical equipment disconnected or Locked/Tagged Out?	( ) Yes	( ) No	( ) N/A
3. Retrieval System staged and in good working condition (tripod, harness, lifeline)?	( ) Yes	( ) No	( ) N/A
4. Respiratory Equipment (SCBA or SAR) Immediately Available?	( ) Yes	( ) No	( ) N/A
5. Ventilation System, Communication Equipment, Ladders Staged?	( ) Yes	( ) No	( ) N/A
6. Area Isolated and Barriers, Traffic Signs Installed, Adequate lighting provided (explosion proof lighting if LEL > 10%)?	( ) Yes	( ) No	( ) N/A
7. Authorized Entrant, Attendant, Entry Supervisor, and Rescue Personnel successfully completed required training and training current?	( ) Yes	( ) No	( ) N/A
8. Additional Safety Equipment (as specified below) available:	( ) Yes	( ) No	( ) N/A

9. If the initial atmospheric test indicated a hazardous atmosphere existed start ventilation blower, allow to run for several minutes, and re-perform the atmospheric test. Indicate "N/A" if the initial test indicated a safe atmosphere (blower not required if initial atmospheric test was satisfactory).

Time	_____	
Oxygen	_____	% > 19.5%
Flammable Gas	_____	% < 10%
Hydrogen Sulfide	_____	PPM < 10 PPM

Tester's Signature \_\_\_\_\_

10. \_\_\_\_\_ Authorize Entry Into Confined Space  
Entry Supervisor Signature

11. Continuously Monitor Atmosphere and Record Every 15 minutes

	Time						
Oxygen	19.5%- 23.5%						
Flammable Gas	< 10% LEL						
Hydrogen Sulfide	< 10 PPM						

Use Attached Table as Required for Entries with duration exceeding 105 minutes

12. \_\_\_\_\_ Cancel Permit-Required Confined Space Entry  
Entry Supervisor Signature



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**APPENDIX F**  
**CONTRACTORS ENTERING WASTEWATER DIVISION CONFINED SPACES**

**F.1 General:**

F.1.1 See paragraph 2 of base procedure for the definition of a Contractor.

F.1.2 References (a) and (b) require that the host employer (in this case the County of Hawaii Wastewater Division) exchange information with Contractors whenever a Permit Required Confined Space Entry is required by the Contractor to enable a safe entry. It is not the intent that the Wastewater Division enforce Confined Space entry requirements for Contractors working under their own Confined Space Program, however, in the event that it is observed that the Contractor's procedures results in an unsafe condition, the Wastewater Division Supervisor shall be immediately notified and he shall discuss entry procedures with the Contractor. In the event that the Contractor continues to perform work in an unsafe manner, the Superintendent or Division Chief shall be immediately notified.

F.1.3 In the event that Contractors are required to perform work that involves a Confined Space entry (Permit Required Confined Space and/or Non-Permit Required Confined Space) the Wastewater Division Supervisor shall:

- a. Advise the Superintendent that a Confined Space Entry will be required by a Contractor.
- b. Inform the Contractor that the work area contains a Confined Space and that entry is allowed only through a Confined Space program meeting the requirements of references (a) and (b). In most cases, Contractors should have their own Confined Space Programs.
- c. Inform the Contractor of the factors that make the work area a Confined space and advise the Contractor of the hazards associated with working within the Confined Space.
- d. Inform the Contractor of any special precautions or procedures that are used by the County of Hawaii Wastewater Division in the Confined Space where the Contractor will be working.
- e. In the event that the Contractor is required to enter a Permit Required Confined Space but is not qualified to do so (no Confined Space Program, no training in use of SCBA, SAR, etc.) the Contractor shall be prohibited from making the entry.

Dept. of Environmental Mgmt.		COUNTY OF HAWAII	Wastewater Division
<b>DIVISION SAFETY MANUAL</b>			
Subject:		Procedure No.:	
CONFINED SPACES		SSP - 2	
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F.1.4 In cases where the Contractor will be working with County of Hawaii Wastewater Division personnel in a Confined Space, the Wastewater Division Supervisor in charge of the facility shall coordinate entry operations. Note that the Division Supervisor is not required to perform the duties of the Entry Supervisor but is responsible for coordinating the entry operations and to be aware of the entry operation (the role of Entry Supervisor may be delegated by the Division Supervisor).

F.1.5 At the conclusion of the Confined Space Work, the Wastewater Division Supervisor in charge of the facility will discuss with the Contractor any hazards that developed or were created by the Contractor's work during entry operations.



**DEPARTMENT OF ENVIRONMENTAL MANAGEMENT**  
**WASTEWATER DIVISION**

COUNTY OF HAWAII – 345 KĒKŪANĀO‘A ST., STE 41– HILO, HI 96720  
HILO (808) 961-8338 FAX (808) 961-8644

**MEMORANDUM**

Date: January 9, 2026

To: All Operations and Maintenance Personnel

Via:

From: Christopher S. Laude, PE – T/A Division Chief

Subject: Temporary Safety Procedure – Primary Building Lower Floor Atmospheric Monitoring

**1. PURPOSE**

This memorandum establishes a temporary mandatory safety protocol for the **Primary Facilities Building Lower Floor** (Grit pump and primary pump gallery). This procedure is effective immediately due to the mechanical failure of the sludge pump gallery side **Exhaust Fan**.

Until the fan is repaired and full engineering control redundancy is restored, the lower floor is a permit required space. If testing indicates the space does not contain atmospheric hazards, then the space will be temporarily reclassified as non-permit required space.

**2. MANDATORY PROCEDURES**

Effective immediately, the following steps must be completed and documented:

**A. Equipment Calibration and Fresh Air Setup Before Entering the building:**

- **Function Test (Bump Test):** Ensure the 4-gas monitor (LEL, H<sub>2</sub>S, CO, O<sub>2</sub>) is bump-tested and calibrated according to manufacturer specs.
- **Fresh Air Setup:** Turn the monitor on in a "clean air" environment (outside the facility) to ensure the sensor reads **20.9%** and other gases read **0**.

**B. Twice-Daily Atmospheric Testing: A qualified person must test the atmosphere using a calibrated 4-gas monitor at:**

- **07:00 (Pre-shift/Entry)**
- **15:00 (Post-shift/Closing)**

### 3. SAFETY THRESHOLDS (GO/NO-GO)

If the monitor alarms at any point during testing, **DO NOT ENTER**. The following levels are the maximum allowable for entry:

Gas Type	Acceptable Range	Alarm Action
<b>Oxygen (O<sub>2</sub>)</b>	19.5% – 23.5%	Evacuate if below 19.5%
<b>Combustibles (LEL)</b>	< 10%	Evacuate immediately
<b>Hydrogen Sulfide (H<sub>2</sub>S)</b>	< 10 ppm	Evacuate immediately
<b>Carbon Monoxide (CO)</b>	< 35 ppm	Evacuate immediately

### 4. DOCUMENTATION AND LOGGING

A dedicated log sheet shall be kept at the entrance. Each entry shall include:

- **Date and Time:** (07:00 and 15:00).
- **Tester Name:** The person performing the check.
- **Gas Readings:** Exact numerical values for **H<sub>2</sub>S**, **LEL**, **O<sub>2</sub>**.
- **Fan Status:** Note that the sludge pump gallery side fan is **OUT OF SERVICE**, and that the supplied air ventilation fan is operational.
- **Signature:** Verification that the space is "Safe for Entry."  
**Documentation:** Record all readings on the **Atmospheric Monitoring Log** located at the entrance. Personnel must sign off that the space is "Safe for Entry" based on the established thresholds (**O<sub>2</sub>** > 19.5%, **H<sub>2</sub>S** < 10ppm, **LEL** < 10%).

### 5. CONTINUOUS MONITORING REQUIREMENT:

**All personnel entering the lower floor must wear a personal 4-gas monitor at all times.**

### 6. HAZARD ADVISORY

Be alert for the accumulation of:

- **Hydrogen Sulfide (H<sub>2</sub>S):** Heavy gas; likely to settle near the floor or piping.
- **Carbon Monoxide (CO):** Light gas; likely to accumulate near the ceiling.

### 7. EMERGENCY PROTOCOL

If any monitor (fixed or personal) enters alarm state, or if the remaining operational fan fails:

1. **EVACUATE** the lower floor immediately.
2. **NOTIFY** the Shift Supervisor.
3. **SECURE** the entrance with "Do Not Enter" tape until additional testing indicates safety thresholds are achieved.

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Authorized By: Christopher Laude

Title: T/A Division Chief

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**Confined Space Classification – Smith & Loveless Sewage Pump Stations**

2 messages

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**Alan Fukamizu** <fukamizu.alan@gmail.com>

Sun, Jan 11, 2026 at 7:34 PM

To: Craig Kawaguchi &lt;Craig.Kawaguchi@hawaiicounty.gov&gt;

Cc: daniel.girvan@hawaiicounty.gov, Jordyn Onaga &lt;jonaga@upwhawaii.org&gt;, Meghan Fujiyama &lt;mfujiyama@upwhawaii.org&gt;

Bcc: fukamizu.alan@gmail.com

Aloha,

I am requesting confirmation of the current confined-space classification for the Zoo and Kolea Smith & Loveless underground sewage pump stations, including the dry-well and valve gallery areas accessed by fixed ladders approximately 20–23 feet below grade and requiring fall-protection PPE (harness and SRL) for entry.

These stations contain active centrifugal sewage pumps, influent piping, valves, and associated mechanical and hydraulic systems. Although the permanent ventilation system is operational, these spaces are currently being treated as non-permit-required confined spaces.

For my records, please confirm the following:

- Whether these spaces are designated as Permit-Required Confined Spaces pursuant to 29 CFR 1910.146(c)(1), or are being treated as non-permit-required confined spaces following the employer's evaluation under 29 CFR 1910.146(c)(1);
- The basis for that determination, including whether any hazards other than atmospheric (such as mechanical, hydraulic, engulfment, or fall hazards associated with the 20–23-foot vertical ladder) are present;
- If the spaces are being treated as non-permit-required, please provide the written hazard evaluation required by 29 CFR 1910.146(c)(1) documenting that no hazardous atmosphere, no engulfment hazard, and no other recognized serious safety

or health hazards exist; and

- If the spaces are instead being treated as reclassified under 29 CFR 1910.146(c)(7), please provide the signed certification required by 29 CFR 1910.146(c)(7)(iii) identifying how all hazards — including atmospheric, mechanical, hydraulic, engulfment, and the 20–23-foot vertical fall hazard — have been eliminated.

This request is made solely to ensure clarity regarding the current safety and regulatory compliance status of these pump station spaces.

Thank you, Alan Fukamizu

UPW Unit 168 Chief Steward

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**Kawaguchi, Craig** <Craig.Kawaguchi@hawaiicounty.gov>

Mon, Jan 12, 2026 at 1:42 PM

To: Alan Fukamizu <fukamizu.alan@gmail.com>

Cc: "Girvan, Daniel" <Daniel.Girvan@hawaiicounty.gov>, Jordyn Onaga <jonaga@upwhawaii.org>, Meghan Fujiyama <mfujiyama@upwhawaii.org>, "Wallace, Tiffany" <Tiffany.Wallace@hawaiicounty.gov>

Aloha Alan,

Got your email and will get the answers for you.

Thank you.

[Quoted text hidden]