My Life as a HIOSH Compliance Officer: Four Landmark Cases

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APEX
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Preserving the Health of Hawaii's Workforce

Death of Three Employees at Mauna Kea Observatory



Accident Details

On January 16, 1996, a fire broke out during construction activities of the Subaru telescope on the summit of Mauna Kea.

The fire was started when welding slag from a cutting torch contacted a wall with insulation material.

The short fire eventually self extinguished.

However, there were many casualties due to smoke inhalation, including three fatalities.



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ESDAY, JANUARY 17, 1996 2 SECTIONS — 20 PAGES

Three die in fire Japan observato

❑ Hospital officials say 16 others being treated for injuries

By Dave Smith
Tribune-Herald

Three people died in a fire that broke out yesterday afternoon in a telescope under construction atop Mauna Kea.

The fire in the Subaru observatory, a project of the government of Japan, began around 3:15 p.m., according to Kyoji Nariai at the Hilo office of the National Astronomical Observatory of Japan.

The three that died were construction workers. None of their identities were available last night.

Assistant Fire Chief Garfield Arakaki said the victims apparently succumbed to toxic fumes generated by burning insulation.

Reggie Agliam, a nursing supervisor at Hilo Medical Center, last night said a total of 16 other workers were transported to the hospital for treatment for smoke inhalation. All were in stable condition. Agliam said at least three were admitted for further treatment.

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Site Personnel

- Owner - The National Astronomical Observatory of Japan (NAOJ)
  - Prime Contractor – Mitsubishi Electric Corporation.
    - Prime-Sub Contractor - Coast Steel Fabricators
      - Sub Contractor on site :
        1. Kona Industries
        2. Isemoto Contracting
        3. Arakaki Mechanical
        4. JK Electric
        5. Billings, Montana Foam Insulation Contractor
        6. Alliance Mechanical Contractors

The Casualties

- The three workers that suffered fatalities were from Kona Industries
  - Marvin Arruda, 52, of Hilo
  - Ricky Del Rosario, 38, of Salt Lake
  - Warren Kip Kaleo, 36, of Makawao, Maui

- Sixteen others were treated for smoke inhalation

Types of Inspections

OSHA seeks to focus its inspection resources on the most hazardous workplaces in the following order of priority:

<u>Partial Inpections</u>

1) Imminent danger situations
2) Serious Injuries, Illnesses and fatalities
3) Worker Complaints
4) Referrals of Hazards
5) Follow-up Inspections

<u>General Scheduel Inspections</u>

6) Targeted inspections

Partial vs Full Inspection

Partial OSHA Inspection, Unprogramed

- **Scope:** Limited strictly to certain designated areas, specific equipment, individual processes, or items listed in a complaint, and ALWAYS include HAZCOM and LOTO.
- **Trigger:** Usually unprogrammed events, such as a specific employee complaint, a reported accident, or a targeted referral.
- **Expansion Rule:** A compliance officer can upgrade a partial inspection to a full, comprehensive inspection if they spot severe hazards in plain sight or gather concerning evidence during the walkaround.

Partial vs Full Inspection

Full/Comprehensive OSHA Inspection (Programed)

- **Scope:** Often called a "wall-to-wall" inspection, it is a thorough review of all potentially hazardous areas, machinery, and practices across the entire establishment.
- **Trigger:** Typically planned or programmed inspections aimed at high-hazard industries, general schedules, or specific national/local emphasis programs.
- **Duration:** Takes much longer to complete—sometimes lasting weeks or up to the full six-month statutory window OSHA has to investigate.

Inspection Activities

1. Preparation
2. Presentation of credentials
3. Opening Conference
4. Walk-around inspection
5. Employee interviews
6. Closing conference
7. Filling forms (including 1B form), and citations
8. Informal conference, within 15 days

Investigation Findings

- Insulating the the telescope mirror from temperatures at the summit of Mauna Kea was necessary.
- The foam insulation was composed of Methylene diphenyl diisocyanate (MDI) and polyglycol.
- At the time of the accident, the styrene fire retardant had not been applied to the foam insulation.

Investigation Findings

Important facts of MDI

- **Occupational Risks:** Most high-risk exposures occur in manufacturing, construction, and auto repair—particularly during the application of spray polyurethane foam (SPF) insulation, adhesives, sealants, and coatings.
- **Cured vs. Uncured State:** Once MDI-based polyurethane products are completely **cured**, they are generally stable and pose little-to-no exposure risk. Hazards are concentrated around **uncured** or liquid forms during mixing, spraying, or thermal processing.

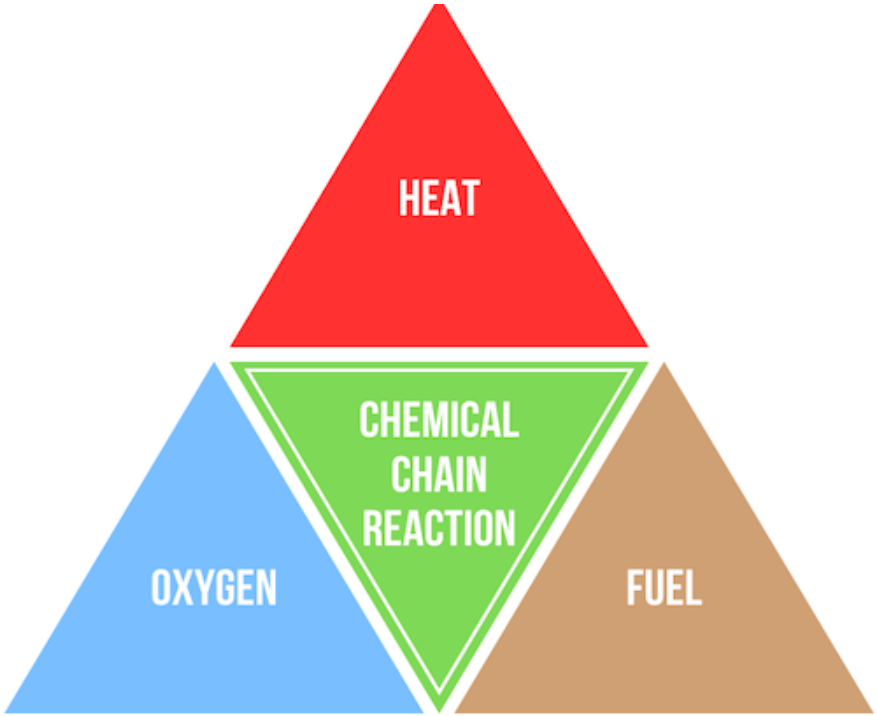




Investigation Findings

- There were three previous fires, at the Subaru site, related to the same foam insulation.
- Additionally, there was a fire during the construction of the Keck telescope, with the same prime-sub contractor and foam insulation.
- The possibility of a fire was discussed in the regular safety meeting and recorded in the minutes.
- ***The conclusion was that the prime-sub contractor was well aware of the hazard and steps for mitigation were not taken.***

Fire Tetrahedron



A fire needs four elements:

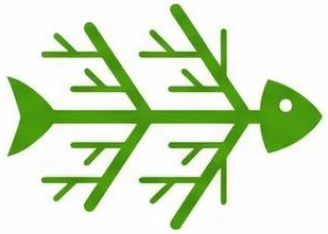
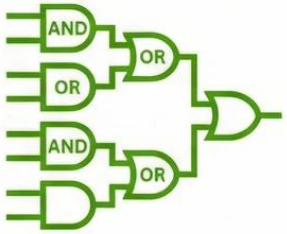
- Fuel - something that burns (wood, paper, gas, etc.)
- Heat - enough energy to ignite the fuel
- Oxygen - usually from the air
- Chemical chain reaction

Remove any one of these three, and the fire goes out.

Root Cause Analysis (RCA)

- A root cause is a fundamental, underlying, system-related reason why an incident occurred that identifies one or more correctable system failures.
- By conducting a root cause analysis and addressing root causes, an employer may be able to substantially or completely prevent the same or a similar incident from recurring.
- A successful root cause analysis identifies all root causes.
- There are often more than one.

Root Cause Analysis (RCA)

5 WHYS	FISHBONE DIAGRAM	FAULT TREE
		
Best for: straightforward incidents	**Best for:** complex multi-cause incidents	**Best for:** fatalities and systemic reviews
How: Ask Why repeatedly until reaching a fixable root cause	**How:** Map all possible causes across 6 categories	**How:** Boolean logic mapping failure combinations
Complexity: Simple	**Complexity:** Moderate	**Complexity:** Advanced

Basis of Violations

A violation has occurred and a citation can be if:

1. There is a known hazard
2. There is an exposure or potential of exposure
3. The employer has knowledge of the hazard
4. There is a relevant standard
5. There is a feasible means of abatement

The Investigation and Citations

Citations were issued to Coast Steel Fabricators Ltd was cited for several violations, including:

- Blocked stairway - 1926.1051(a)(3)
- Failure to develop implement, and maintain a written HAZCOM program - 29 CFR 1926.59(e)(1)
- Not developing a fire-prevention program - 1926.150(a)

Initial fines totaled $150,000.00

The Investigation and Citations

Five sub-contractors were also cited for non-willful violations.

- A written HAZCOM program to be maintained
- Fire prevention

Closing Conference

Held at the Hilo Hawaiian Hotel on April 23, 1996

- The Miranda rights were read to the employers.
- The findings were reviewed with the employers.
- The citations were discussed.
- Employers were told of their right and how to request an informal conference or contest citations within 15 working days.

Informal Conference

- Coast Steel agreed to the citations, and said they would not contest. An informal settlement agreement was made.
- Arakaki mechanical made the case that the general contractor had told them that the foam insulation was safe and contested their citation.

What is a Combustible Solid?

- **ASTM E136-94** test method may be used to characterize those materials which do not support combustion under the specified test conditions (750 C).
- It is commonly used to determine whether a material qualifies as **non-combustible** under OSHA and building codes.
- The test method measures the behavior of building materials, products, or assemblies when exposed to heat and flame inside a vertical tube furnace maintained at 750°C (1,382°F).
- Materials passing the test are permitted limited flaming, glowing and mass loss.

Types of Violation

- Willful Violations
- Serious Violations
- Other-Than-Serious Violations
- Repeated Violation
- Failure to Abate
- De Minimis Violation



Type of Violation	Penalty Amount
Willful	$5,000.00 (minimum) $70,000.00 (maximum)
Failure to abate	$7,000.00/day
Repeated offense	$70,000.00
Serious	$7,000.00
Other than serious	$7,000.00

Penalty Adjustment Factors in 1996

- **Size of Business:** Reductions of up to **70%** for small employers.
- **Good Faith:** Reductions of up to **25%** for companies with documented, proactive safety programs.
- **History of Violations:** A **10%** reduction if the company had a clean track record with no serious violations over the previous five years.
- **Gravity of Hazard:** Calculated based on the specific severity of potential injury and the probability that an accident would occur

Determining the Gravity of a Violation.

- The gravity of the violation is the primary consideration in determining penalty amounts.
- Gravity shall be the basis for calculating the basic penalty for serious and other-than-serious violations.
- To determine the gravity of a violation, the following two assessments shall be made:
  - The severity of the injury or illness which could result from the alleged violation.
  - The probability that an injury or illness could occur as a result of the alleged violation.

Severity Assessment

- **High Severity:** Death from injury or illness, permanent disability, or chronic/irreversible illnesses.
- **Medium Severity:** Injuries or temporary, reversible illnesses resulting in hospitalization.
- **Low Severity:** Injuries or temporary, reversible illnesses not requiring hospitalization and needing only minor supportive treatment.
- **Minimal Severity:** Applied to other-than-serious violations.

Probability Assessment

Probability is determined by evaluating operational conditions, including:

- Number of employees exposed to the hazard.
- Frequency and duration of employee exposure.
- Proximity of employees to the hazardous condition.
- Use of personal protective equipment (PPE) and adequacy of training.

Putting it All Together

Severity	Probability	Gravity
High	Greater	High
Medium	Greater	Moderate
Low	Greater	Moderate
High	Lesser	Moderate
Medium	Lesser	Moderate
Low	Lesser	Low

Affirmative Defense

These are the Three Common Affirmative Defenses

1. Unpreventable Employee or Supervisory Misconduct or “Isolated Event”
2. Impossibility or Infeasibility of Compliance
3. Greater Hazard

Negotiations

- 15 working days from the day you receive the citation to either pay, request an informal conference, or file a formal **Notice of Contest.**
- The **Informal Conference** is an informal meeting with OSHA to discuss citation items, reclassify violations, or negotiate fine reductions. Many settlements achieve a **30% to 40% reduction** in penalties here.
- If an employer cannot reach an agreement, they can formally contest the citation before the **Labor and Industrial Relations Appeals Board (LIRAB)**

Whistleblower Under Fire

The Complaint

- In October 1996, complaint was made to HIOSH concerning possible a lack of HAZWOPER training at the Kapolei Fire Station. Fire captains were having to respond to HAZWOPER events without the proper HAZWOPER training.



Opening Conference

- During the opening conference the management official told the inspector that he was the complainant.
- It is highly unusual for the complainant to be known by the management.

The Inspection

- A review of documents, including training records, was conducted.
- Employees were also interviewed.
- It was found that there was no evidence of HAZWOPER training for fire captains.

Citations issued

The HIOSH inspection resulted in three serious violations related to training, and $1625.00 in penalties.

1. 24 hours of training equal to the first responder operations level
2. Refresher training
3. Documentation of training

(A responder is an individual trained to contain, control, and stabilize emergencies involving uncontrolled releases or potential releases of hazardous substances.)

Response Levels

OSHA outlines five distinct emergency response levels under the Hazardous Waste Operations and Emergency Response (HAZWOPER) standard 29 CFR 1910.120(q)(6).

- **Level 1** - First Responder Awareness
- **Level 2** - First Responder Operations
- **Level 3** - Hazardous Materials Technician
- **Level 4** - Hazardous Materials Specialist
- **Level 5** - On-Scene Incident Commander (IC)

Discrimination Complaint

- As a result of the formal complaint to HIOSH, the employee faced retaliation.
- The response of the Fire Department was that they did not know who the complainant of the safety violation was, however the fire department brought up his name several times during the inspection.

Discrimination Complaint

HRS § 396-8(e)(3) No person shall discharge or in any manner discriminate against any employee because the employee has filed any complaint or instituted or caused to be instituted any proceeding under or related to this chapter, or has testified or intends to testify in any such proceeding, or acting to exercise or exercised on behalf of the employee or others any right afforded by this chapter

A *Prima Facie* Case of Retaliation

- The lawsuit was a case of discrimination, showing that:
  1. The employer KNEW that the complainant engaged in a protected activity.
  2. The employer subjected him to an adverse employment action;
  3. there is a causal link between the protected activity and the adverse employment action.
- Having established a prima facie case of discrimination, the burden shifts to respondent "to articulate a legitimate, non-retaliatory explanation for its decision."

Case Results

- The HIOSH enforcement officer has to then testified before the Hawaii Labor Relations Board.
- The testimony was that during the October 1996 inspection, upper management admitted to the HIOSH compliance officer that they knew who the complainant was.
- However upper management told the discrimination investigator that they had no idea who the complainant was.
- The complainant prevailed in this case.


St. Francis
HEALTHCARE SYSTEM OF HAWAII

The Investigation and Citations

On April 8, 1996, a partial inspection on St Francis Health Services in Liliha was conducted in response to employees' complaints to a lack of protection to exposure from patients infected with tuberculosis (TB). The staff was told NOT wear N95 masks, even while



treating an infected patient, as to not alarm other patients. This lead to multiple nurses becoming infected. Staff members were treated with isoniazid. At the time, of them were pregnant.

Environmental Controls in Healthcare Settings

Hospitals and clinics use specialized engineering controls to protect workers and patients:

- Negative-pressure isolation rooms that keep air from flowing out into hallways.
- N95 or HEPA respirators worn by healthcare staff.
- Ultraviolet germicidal irradiation (UVGI) and high-efficiency filtration systems to clean airborne particles.

Treating TB

TB treatment depends on whether you have an active disease or an inactive infection.

1. Active TB Disease Treatment
   - Standard 6-Month Regimen: This is the most common approach.
     - Intensive Phase (First 2 months): A daily combination of four primary first-line drugs: Isoniazid, Rifampin (or Rifampicin), Pyrazinamide, and Ethambutol.
     - Continuation Phase (Next 4 months): The patient continues taking only Isoniazid and Rifampinto eliminate any remaining dormant bacteria.
2. Inactive TB Infection Treatment
   - 3-Month Regimen (3HP): A weekly dose of Isoniazid and Rifapentine.

Medication Side Effects

- Minor Side Effects: Nausea, mild stomach upset, rashes, or a harmless orange coloration of urine, sweat, or tears.
- Serious Side Effects: Signs of liver injury (jaundice/yellowing of the eyes or skin, dark urine, severe abdominal pain, persistent vomiting), severe dizziness, or tingling/numbness in the hands and feet.

The Investigation and Citations

Because there is no standard relating to TB, the facility was cited under the General Duty Clause, where employers are required to keep their workplace free of **recognized** hazards that are likely to cause death or serious physical harm, even when no specific OSHA standard applies.

A single citation of $5,000 was issued.

General Duty Clause

The General Clause is used for enforcement when a workplace hazard causes or is likely to cause death or serious physical harm, and no specific OSHA standard already applies to that hazard. It states:

> *Each employer shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees.*
>
> *Sec. 5(a)(1) of the OSH Act*

When can the General Duty Clause apply?

1. The employer failed to keep the workplace free of a hazard.
2. The hazard was **recognized** (by the employer or the industry).
3. The hazard was likely to cause death or serious physical harm.
4. A feasible and useful method existed to correct or abate the hazard.

Severity	Probability	Gravity
High	Greater	High
Medium	Greater	Moderate
Low	Greater	Moderate
High	Lesser	Moderate
Medium	Lesser	Moderate
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The Settlement

- The investigation found that TB infection amongst staff had a high probability and high severity.
- The final fine was settled at half the initial $5,000
- St. Francis was required to present a seminar to other healthcare facilities to share what they learned.

Hawaiian Sun





Hawaiian Sun Products

On February 2, 1995 a programmed inspection of Hawaiian Sun Products was conducted.

The inspection resulted in one willful violation, under the noise standard; five serious violations for abrasive wheels, lock-out-tag-out, and the storage and handling of containers and portable tanks; three other than serious citations were also issued.



Hearing Loss and the Four Ps

The "Four Ps" of hearing loss (especially common in noise-induced or general audiology contexts) describe key characteristics of how hearing damage develops and how it can be managed:

- **Progressive**
- **Painless**
- **Permanent**
- **Preventable**




10kHz
1kHz

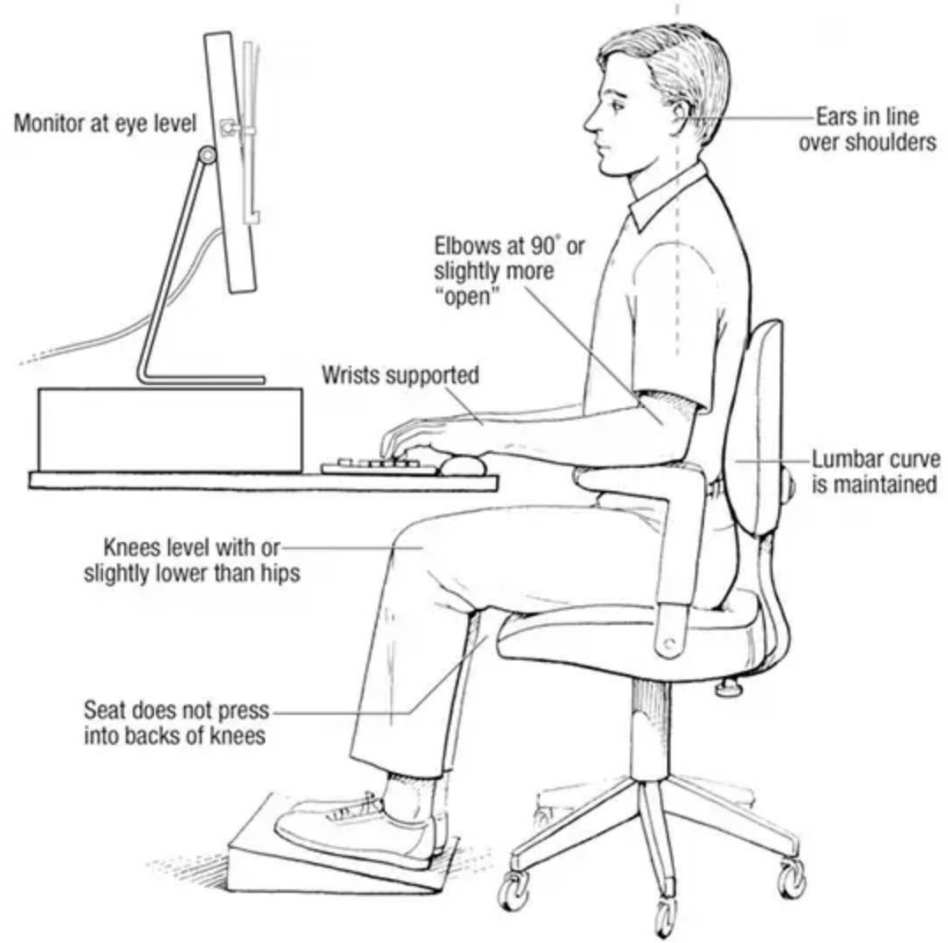




Other Observations Made

- During the inspection, it was also noted that there were possible ergonomic issues with macadamia nut chocolate manufacturing.
- It was suggested to the employer that the spring could cut to reduce the resistance of the scooper.
- ***Inspections aren't always about citations but about creating a safe working environment.***

Reducing Risk for Carpel Tunnel Syndrome



- Reduce the force and relax your grip
- Take short, frequent breaks
- Watch your form
- Improve your posture
- Change your computer mouse

A Compliance Officers Main Objective

A compliance officers enter a workplace with the primary intention of ensuring employee safety and health, rather than simply issuing fines.

While their role requires them to enforce regulations and document violations, their ultimate goal is to work with employers to eliminate workplace hazards and prevent injuries.

“If you don’t look for it, you won’t find it.

If you don’t find it, you don’t think you have a problem.

If you don’t think you have a problem, you don’t do anything about it”.

Bruce Dixon, M.D. Director,
Allegheny Co. Health Dept.

