

# 1. WhyDOSH3

## 1.1 Why Worker Safety and Health Protection?



### Notes:

This module will cover how the Division of Occupational Safety and Health or DOSH came about by outlining the history of occupational safety and health in the U.S. and in the state of Washington, and how we address worker protection through our laws, regulations and procedures.

## 1.2 One Arm Four Children



### Notes:

The development of the factory system in the U.S. led to many safety problems. The caption on this photo from the early 1900's reads "one arm and four children" This man lost his arm at his job, but since there was no worker's compensation benefits before 1911 in the U.S, he had to find a way to support his family minus

his left arm, a difficult thing to do in an age when manual labor was the prevalent way to make a living.

### **1.3 Child Labor**



#### **Notes:**

Child labor was very common in the late 1800's and early 1900's. The photo on the left of boys sorting coal was at a Pennsylvania mine company. The dust was so dense at times as to obscure the view and was inhaled by the boys often creating health problems years later. Note the man on the right standing over them with a stick. He was a kind of slave-driver, prodding or kicking them into obedience.

Regarding the young girl in the right photo, The foreman at that plant said, "She just happened in." But she was observed to be working steadily. The mills seemed full of youngsters who "just happened in" or "were helping a sister."

These photos were taken by Lewis Hine, a photographer who took his camera across America from 1908 to 1912 to photograph child labor.

## 1.4 Child Labor

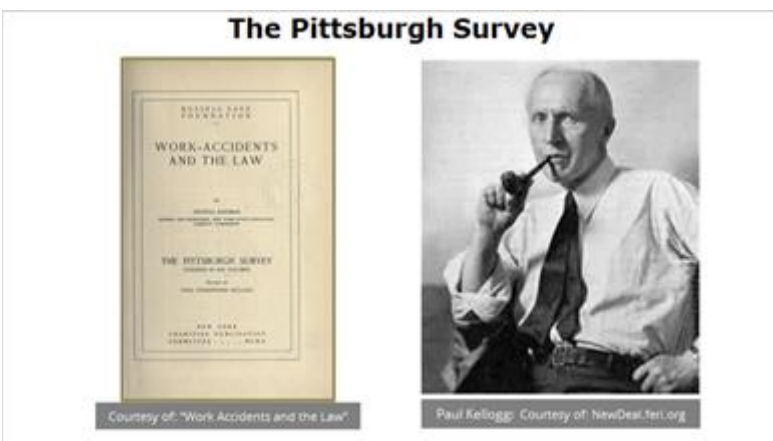


### Notes:

Some restrictions on children working in factories were implemented in some parts of the country before the Civil War. The first limited federal child labor laws were enacted in the early 1900's, but it wasn't until 1938 that minimum ages and hours of work were adopted by the federal government under the Fair Labor Standards Act.

L & I enforces current regulations on children and teenagers in the Employment Standards Division. This photo is from a textile mill in Georgia in the early 1900's - note the unguarded belt just inches from the young boy on the right.

## 1.5 The Pittsburgh Survey

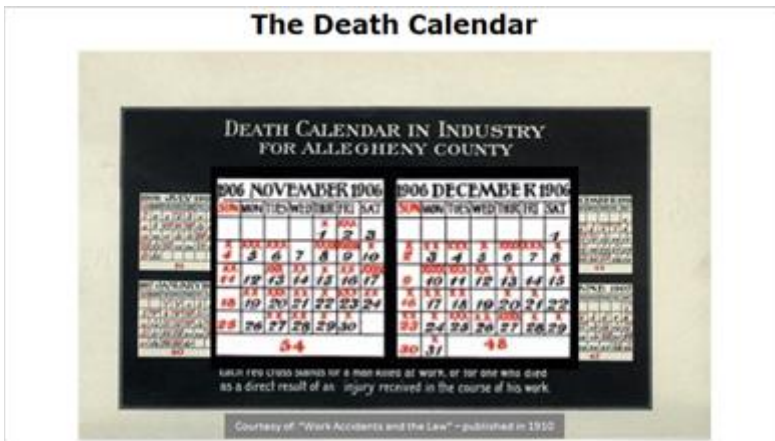


### Notes:

The first survey in this country of industrial accidents was done in Pittsburgh, home of numerous factories in

1906-1907. Records of fatalities were kept on a calendar hung on the wall. The complete study was published under the title “Work Accidents and the Law” and was directed by Paul Kellogg. The book was written by Crystal Eastman, a labor lawyer and activist who later co-founded the American Civil Liberties Union in 1921.

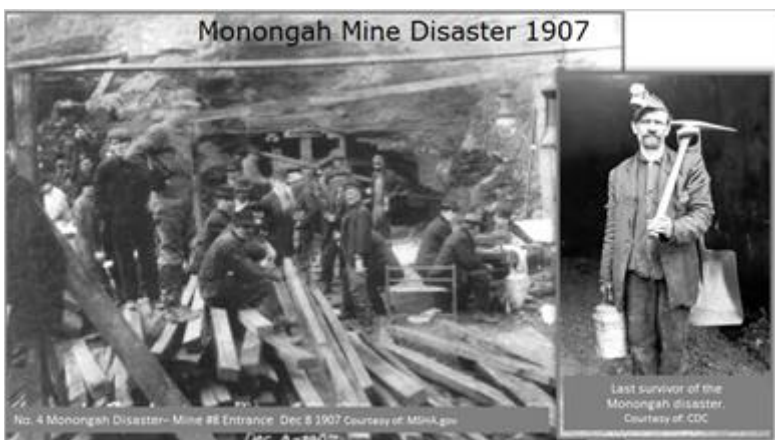
### 1.6 Calendar showing number of deaths a day.



#### Notes:

These astounding number of workplace fatalities was documented in the publication “Work Accidents and the Law” published in 1910. During this year-long study, 526 people were killed in these Pittsburgh factories and another 500+ were maimed by machinery - they lost fingers hands, arms, feet, legs, eyes or were otherwise disabled.

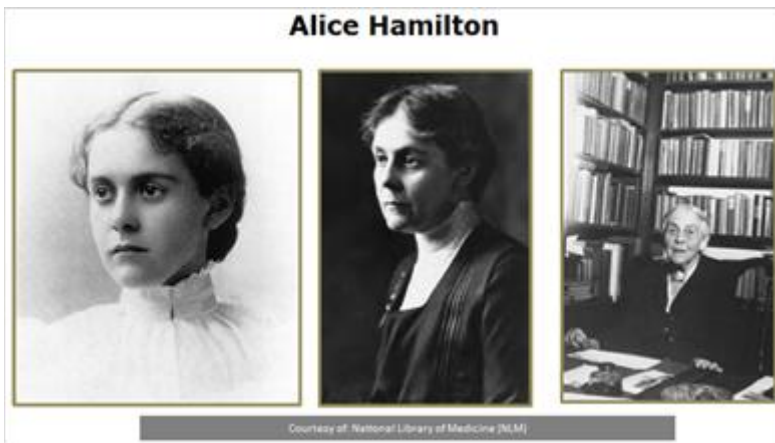
### 1.7 U.S. Coal Mine Disasters



**Notes:**

In the late 1800's and early 1900's, coal mines were one of the most hazardous occupations in the United States, with thousands of people working in these mines. In 1907, 3,242 people were killed in mines across the country. With those many deaths and mine disasters, the U.S. Bureau of Mines was created in 1910, but was given little power to enforce safety regulations. In addition the real cause of coal mine explosions and fires was not well understood at that time, so effective mine safety measures were slow in coming.

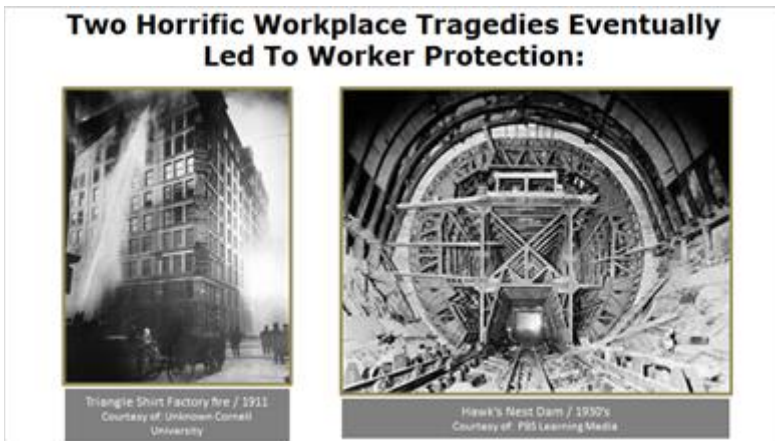
***1.8 Alice Hamilton – early studies on chemical health hazards***



**Notes:**

Alice Hamilton was born in 1869 and became interested in worker exposure to toxic chemicals after she became a physician. She worked with Jane Addams at the Chicago Hull House in early 1900's where she worked to improve the lives of the working poor and studied chemical exposures at work. In 1919 she was the first female professor hired at Harvard Medical School. Her publications showed the devastating effects of exposure to lead and other chemicals.

## 1.9 Two horrific workplace tragedies eventually led to worker protection:



### Notes:

These two events, the Triangle Shirtwaist Factory Fire in New York City and the construction of the Hawks Nest Dam in West Virginia, eventually led to the passing of a variety of laws and regulations on workplace health and safety over the course of several decades.

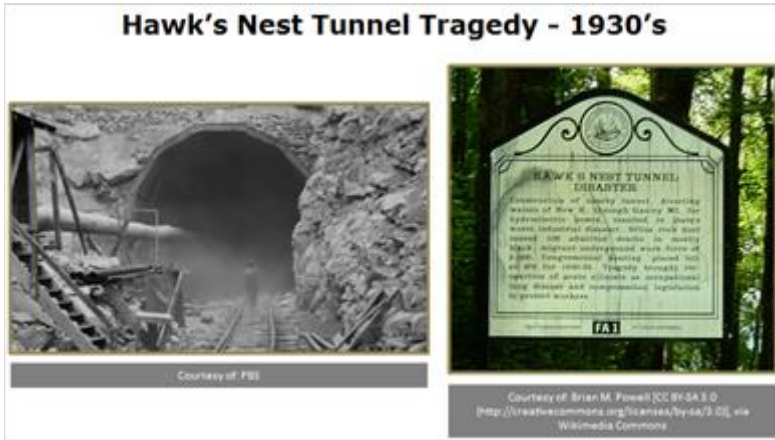
## 1.10 Triangle Shirtwaist Factory Fire



### Notes:

Near closing time on a Saturday afternoon a fire broke out in this garment factory on the 9<sup>th</sup> floor of this building in Manhattan. Most of the women working in this garment factory were recent immigrants to this country, and some were as young as 15 years old. Since most escape doors were blocked or locked, many of the women jumped out the windows rather than die in the fire. Besides this tragedy, the Triangle Shirtwaist company was a classic “sweatshop” with long hours, low pay, and poor work conditions.

## 1.11 Hawk's Nest



### Notes:

“Silicosis” is a scarring of the lungs caused by breathing dust high in quartz (silica). People become extremely short of breath and eventually suffocate. The following is from a book written about this tragedy: “The water tunnel was being cut through almost pure silica, and the dust was so thick that workers sometimes could see barely ten feet in the train headlights. Instead of waiting thirty minutes after blasting, as required by state law, workers were herded back into the tunnel immediately, often beaten by foreman with pick handles”.

According to the report: Increasing numbers of workers became progressively shorter of breath and then dropped dead on the job. The contractor Rhienhart-Dennis working for the Union Carbide company, contracted with a local undertaker to bury the workers in a field at fifty-five dollars per corpse. Three hours was the standard elapsed time between death in the tunnel and burial.

## 1.12 West Virginia Coal Mine Disaster

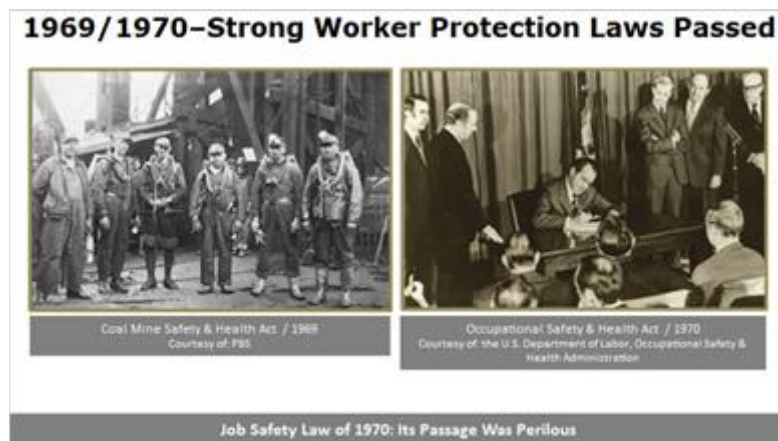


### Notes:

This mine disaster, which followed a 17 year period of no major mine catastrophes, was probably caused by a

combination of factors - not enough ventilation, inadequate control of methane gas and coal dust and inadequate air monitoring for methane. This disaster was the catalyst for the passage of long needed major changes in U.S mining safety laws. At that time, mines were regulated by the U.S. Department of Interior and the then Secretary, Stewart Udall referred to this disaster in conference on mine safety a month later and stated “.....the people of this country will no longer accept the disgraceful health and safety record that has characterized this major industry.” A year later the Coal Mine Safety & Health Act was passed by Congress.

### ***1.13 Strong Worker Protection Laws Passed***

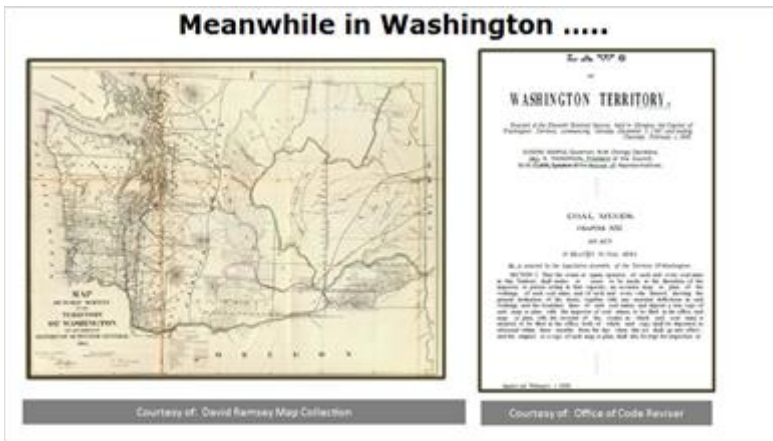


#### **Notes:**

The Coal Mine Safety and Health Act was passed in 1969, followed the next year by the Occupational Safety and Health Act to cover safety in workplaces other than mines. The details of how the OSHA law was adopted is found in the link at the bottom of the slide.



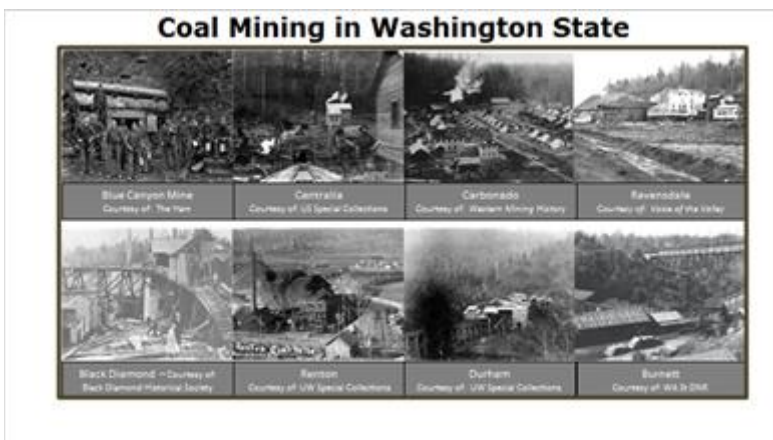
## 1.14 Meanwhile in Washington State.....



### Notes:

The preceding slides covered industries and events primarily in the eastern part of the U.S. But Washington Territory and later Washington State reflected similar appalling work conditions at the turn of century. In the 1880's, a number of new coal mines were opened and several existing coal mines in Washington were greatly expanded to meet the new demands for an energy and heat sources. As in the rest of the country, these mines were notoriously dangerous and unhealthy for the increasing number of workers employed in them, and in 1887 Washington Territory adopted the first mine safety regulations.

## 1.15 Coal Mining in WA



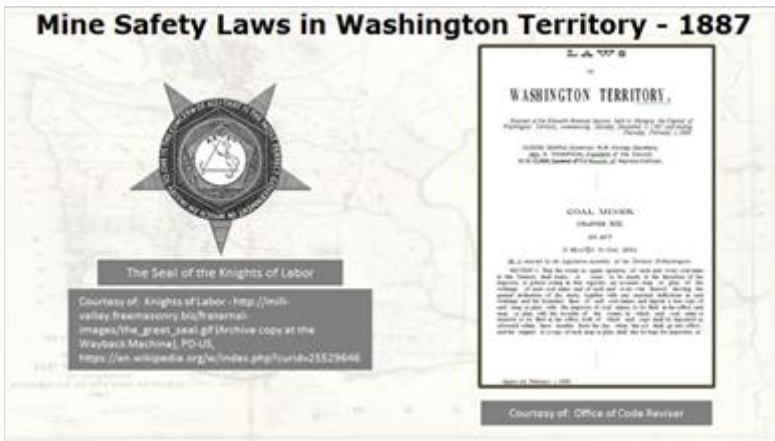
### Notes:

Before oil and hydroelectric dams, coal was the primary source of energy for the expanding needs of the industrial age and Washington state had and still has plenty of it. However, by the 1930's most of the mines

were shut down and the last underground mine at Ravensdale near Black Diamond was closed in 1975. Coal was mined by the open pit method at Centralia until 2006.

As stated earlier, like the rest of the country, coal mining in Washington state was extremely hazardous with large numbers of fatalities and frequent explosions and fires.

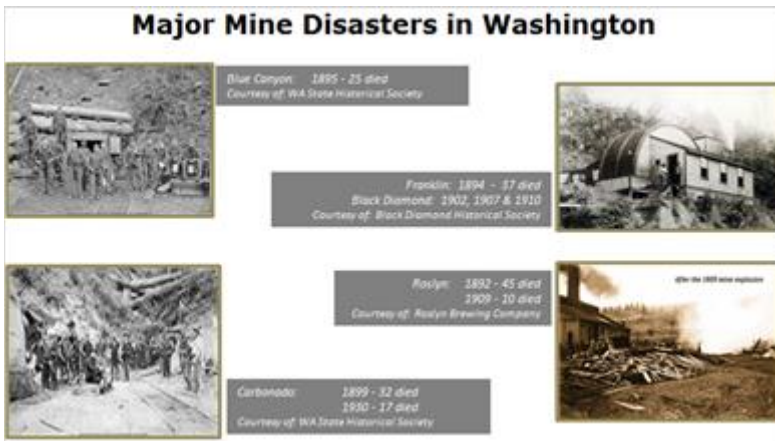
### 1.16 Washington Territory 1887



#### Notes:

During the late 1880's, there was much union activity in two largest coal mines in Washington - Roslyn and Newcastle. Roslyn miners associated with the Knights of Labor Union went on strike in August, 1888, which resulted in violence and led the mine company to bring an initial 50 and eventually 300 Black miners from the Midwest as strikebreakers. In response, the Washington Territorial Government adopted new mining laws modeled after an 1876 Colorado law, and included a number of safety clauses. These laws, which later were adopted by the newly formed state of Washington, did not have much effect since mine inspectors were given little enforcement power, and a number of mining disasters occurred in the years to follow.

## 1.17 Major Mine Disasters in WA



### Notes:

A number major coal mine disasters occurred in Washington state despite the fact that the state had several coal mine inspectors. At the Franklin Mine near Black Diamond, 37 miners died fighting a fire in the mine in 1894. In 1895, 23 miners perished in an explosion at the Blue Canyon Mine near Bellingham. At the Roslyn mine, 45 miners died in an explosion and fire in 1892 and this was the worst coal mine disaster in our state. Later in 1909, 10 more miners died in fire and explosion at the Roslyn Mine. A number of other mine catastrophes occurred in King County. Explosions and fires in occurred in 1899 in the Carbonado mine where 32 men died and again in 1930 where an explosion killed 17 miners, and three explosions and fires at the Black Diamond Mine in 1902, 1907 and 1910.

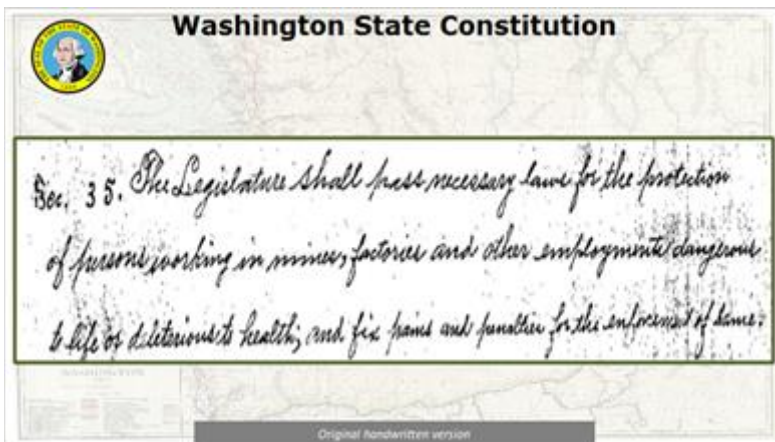
## 1.18 1889 Constitutional Convention



### Notes:

The Washington State constitutional convention was held in Olympia in July and August, 1889. Because of labor unrest in coal mines and other areas, the convention proposed several articles on coal mine inspections and safety, but in the end these were not adopted. Mr. Henry Lillis, a delegate from Pierce County, introduced a "Protection of Life" article at the Convention which addressed machine guarding in factories. This was modified to the language covering both mines and factories that still exists in the state constitution today. There was apparently little fanfare or debate on this particular article. Mr. Lillis was a former teacher and lawyer who also served on the Tacoma City Council and became Tacoma Fire Chief in 1890. He later moved to Las Vegas where he practiced law until his death in 1925.

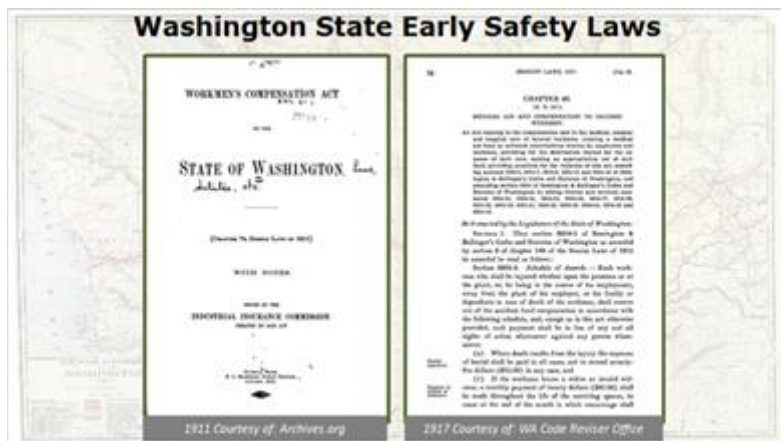
### 1.19 State Constitution Sec 35



#### Notes:

Washington state is one of two or three states in the union that includes worker health & safety in their state constitution. This Article provided the framework for the adoption of safety and health rules in mines and other workplaces in the state over many decades. This clause was successfully used over 100 years later in the early 1990's in a petition the Department to provide protection for farmworkers exposed to pesticides.

## 1.20 Washington State Early Safety Laws



### Notes:

It took some time for the new state Legislature to pass laws “for the protection of persons working in mines, factories and other employments dangerous to health”, and these early laws were very weak. In his report to the Legislature in 1901, the single Factory Inspector, William Blackman urged the Legislature to adopt a “factory inspection law since the existing law was, in his words “....weak, leaving the employer or manager to say when the machinery is in safe condition.” A strong labor movement in Washington state in the early 1900's and high rates of fatalities and injuries in both mining and logging led to Washington to be one the first states to adopt worker compensation laws in 1911. (Wisconsin was the first) This Workman's Compensation Act as it was called, was amended by the Medical Aid Act of 1917 and the State Safety Act in 1919 and was administered by the newly created Department of Labor & Industries.

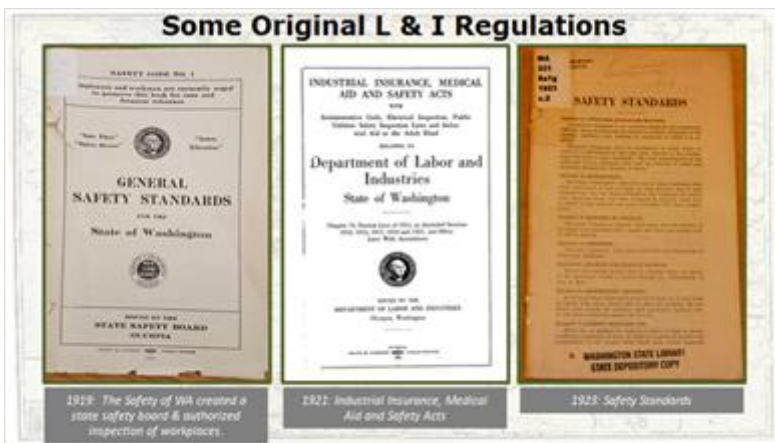
## 1.21 Imperial Powder Flash Fire



**Notes:**

This plant was built to supply explosives to the nearby Superior Coal Mine and began operation in April, 1911. The Washington State Industrial Insurance law became effect in October and was immediately tested by this tragedy a month later. The plant was completely destroyed by the fire and the young women were burned beyond recognition. No male employees were injured. The industrial insurance commission paid for burial expenses but did not have enough funds to provide their families with any more payments. Five of the young women were buried in an unmarked common grave, recently rediscovered. Although widely reported in 1911 in various newspapers, Terry Walker, a resident of Rochester, Washington has done research on the incident for several years which led to the recent stories in the Lewis county Chronicle newspaper.

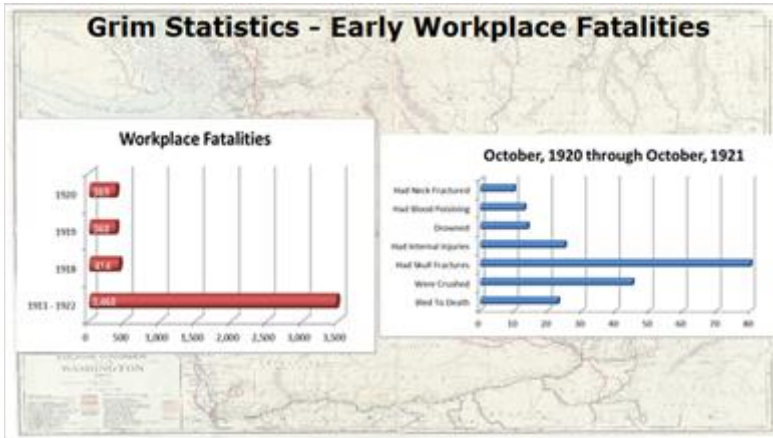
**1.22 Original L&I Regulations**



**Notes:**

The 1919 Safety Law created a state safety board and authorized inspection of workplaces. Two years later L & I was formed, taking over the duties of the State Hotel Inspector, State Mine Inspector, State Safety Board, Industrial Welfare Commission, Industrial Insurance Commission and the State Medical Board among others.

## 1.23 Grim Statistics



### Notes:

The source of this information is from the 1922 "First Report of the Department of Labor & Industries. These numbers reflect the fact that a large percentage and number people worked in the highly hazardous mining, logging and sawmill industries with very little safety measures taken. With the formation of L & I and safety inspections, the numbers began to drop.

## 1.24 Logging Fatalities & Injuries



### Notes:

Washington was heavily timbered and logging began as soon as White settlers arrived. Between 1890 and 1910, nearly 75% of all workers in the state were employed in the logging and lumber industry. Similar to coal mining, it was highly dangerous work and the high rates of fatalities and disabling injuries actually exceeded the casualties of the Spanish American War.

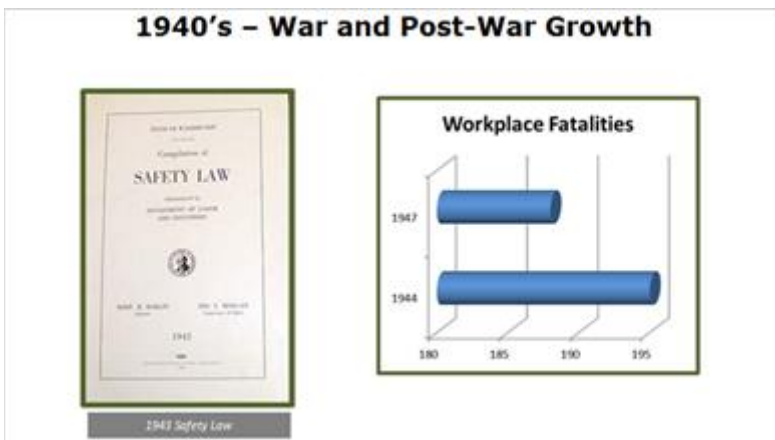
## 1.25 L&I Division Activities



### Notes:

The high rates of fatalities and injuries in logging and sawmills were mentioned in several L & I reports to the Legislature in the 1930's. Most of the safety inspection were concentrated in these industries. There were of course many other industries in the state, including several explosives manufacturers. In 1934, an explosion occurred at the Denn Powder company located in Hawks Prairie area of present day Lacey, killing 10 workers and injuring seven.

## 1.26 1940's



### Notes:

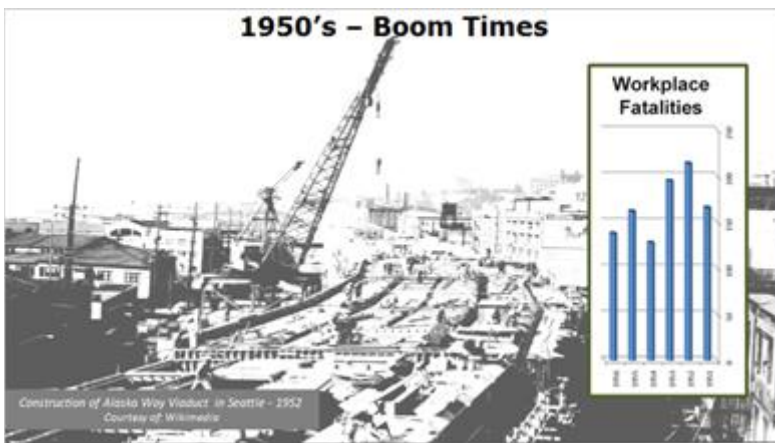
In 1947, the most frequent fatalities were from auto accidents, falling trees, limbs or snags, and electric shocks or burns. The high exposure to asbestos dust, still unrecognized in the 1940s as a health hazard, has led to 4000 plus L & I worker compensation claims filed for asbestos related diseases since the mid 1980's many from these workers who were exposed some 40 years earlier.



The introduction to the 1946/47 L & I Report to the Governor stated the following: “Basically it better and wiser to prevent the accident - and thereby to avert the cost both in medical aid and compensation - than to permit the accident to occur in the first place. And certainly from a humanitarian viewpoint, there can be no choice.

The solution lies in more adequate funds for safety work - funds sufficient for a comprehensive safety program pointed at one specific objective - to eliminate accident costs by eliminating accidents.”

### 1.27 1950's



#### Notes:

In 1956, the 138 fatalities out of about half a million workers compares to 371 fatalities out approximately 100 thousand workers in 1913. In 1951, the L & I Division of Safety published a report comparing the rate of serious injuries from 1925 to 1951. The rates dropped from about 430 per 100 thousand workers in 1925 to about 250 per 100 thousand workers in 1951. Clearly, inspections by L & I were making a difference, along with advances in knowledge on how to protect workers from various workplace hazards and the realization by industry that a reduction in workplace injuries led to a reduction in industrial insurance premiums.

Another interesting fact was the large number of safety inspections done in 1956 - over 34,000 which included 708 Red Tags (job shutdowns until hazards were corrected) done by about 30 inspectors. In those days, inspection reports were written at the jobsites and delivered directly to employers.

## 1.28 1960's



### Notes:

In the 1960's, more emphasis was given to chemical exposures of workers and air monitoring by industrial hygienists at workplaces became more common.

The U & I sugar factory was built in 1953 in Moses Lake, along with a similar plant in Toppenish and processed sugar beets grown in in eastern Washington. in 1963, 7 people were killed in an sugar dust explosion and 7 injured and the plant was badly damaged. It was repaired and continued to operate until 1979 when the sugar beet industry declined. Over 40 years later in 2005, a similar massive explosion occurred at Imperial Sugar in Georgia killing 14 and badly damaging that facility.

## 1.29 OSHA to L&I



### Notes:

We have the same responsibility and authority as federal OSHA and we are called a “state plan state”.. 23 states are in the country “state plan states” and include the other western states of Oregon, California, Utah, Nevada, Arizona, New Mexico, Wyoming and Alaska, but not Idaho, Montana or Colorado.

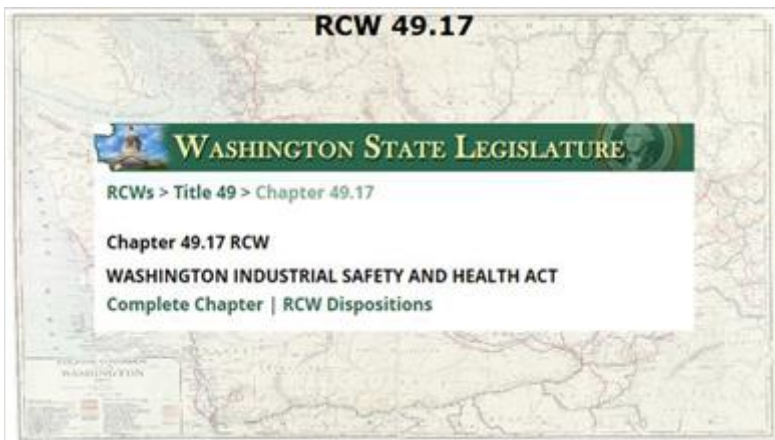
### **1.30 1973 WISHA Act**



#### **Notes:**

The federal law and our nearly identical state law, often called the WISHA, law clearly lays the responsibility for safety on the employer. The first paragraph is sometimes called the “safe place rule” or “general duty clause”

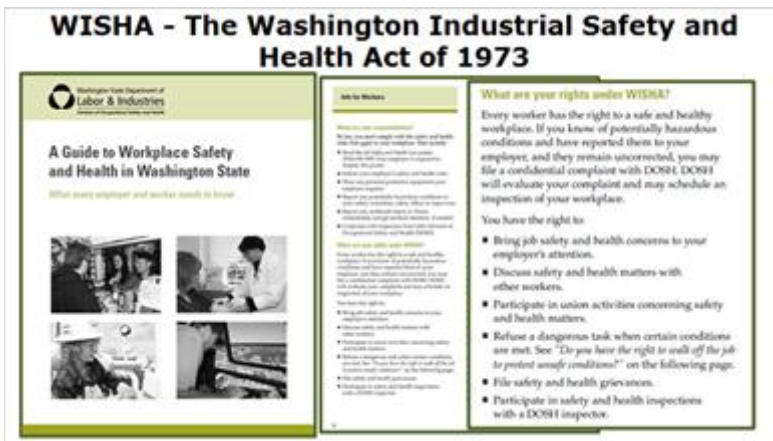
### **1.31 RCW 49.17**



#### **Notes:**

This is the authority the Division of Occupational Safety and Health has to write citations and assess penalties.

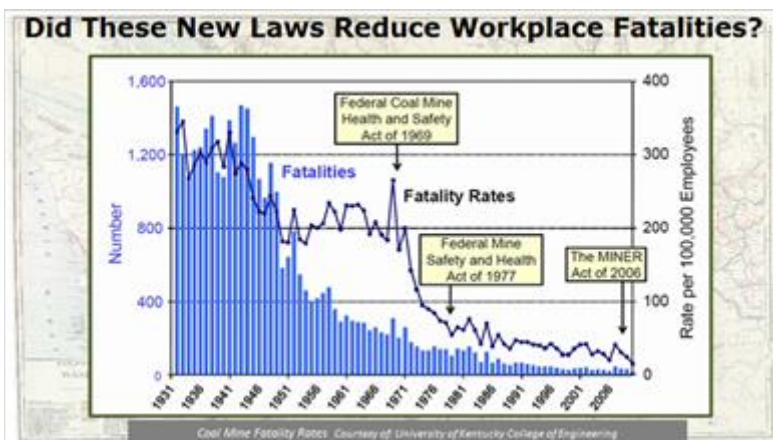
### 1.32 WISHA S&H Act



#### Notes:

In other words, an employee may be directed to do work which he or she knows is a health or safety risk, but will go ahead and do the risky work in fear of being fired rather than refusing to do so. In some cases the worker may not even be aware of the hazards, or only have vague knowledge. The employer has the “power of the paycheck” to coerce workers, so the employer is held responsible for job safety and health.

### 1.33 Laws Reduce Fatalities?

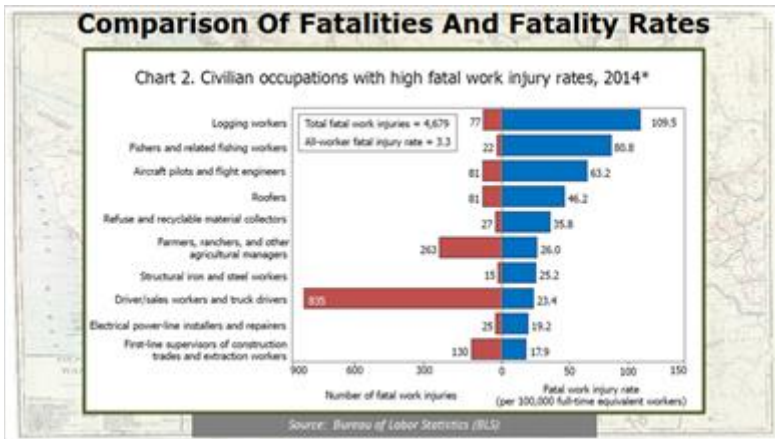


#### Notes:

After passage of the Coal Mine Health & Safety Act in 1969, fatalities in mines dropped drastically, and then leveled off as shown on the chart on the left. In 1913, it is estimated that over 23,000 people were killed on the job. By 1980 the

number of workplace fatalities had dropped to 7,400, to 5,400 in 1995 and to about 4500 in 2009 even though there are many more people in the workforce. So we can conclude that after the passage of the Coal Mine Health & Safety Act and the Occupational Safety and Health Act, both the total number and the rates of fatalities has been reduced dramatically.

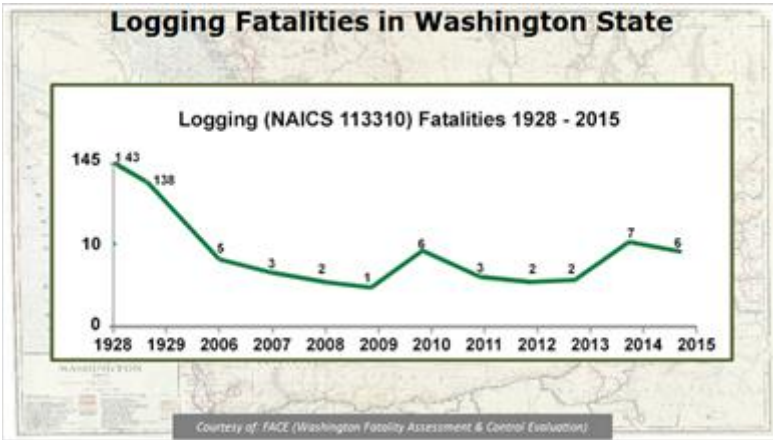
### 1.34 Fatalities & Fatality Rates



#### Notes:

This chart of fatalities for 2006 compares the number of fatalities to the rate of fatalities in the U.S. So even though construction had the highest number of fatalities, the rate was much less than agriculture, forestry and fishing and much less than mining. In 2006, large numbers of people worked in construction, a fairly hazardous job, so you would expect a larger number of workplace fatalities. But construction was and still is safer than mining.

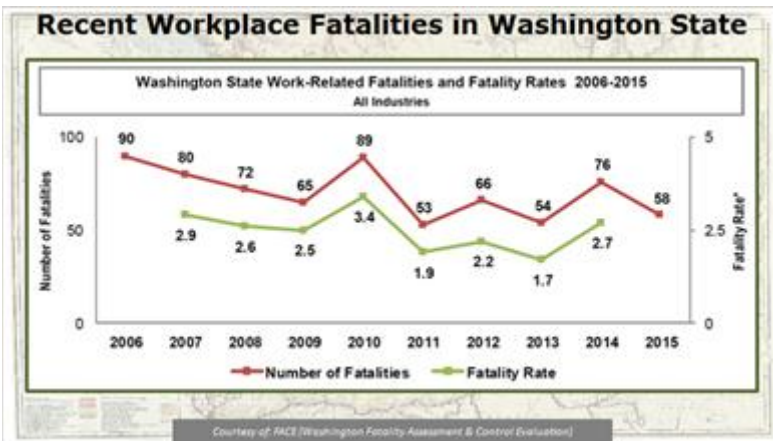
### 1.35 Logging Fatalities



#### Notes:

Lower numbers in 2007 and 2008 also reflect less logging activity than in the 1920's. Still the rates of logging fatalities is much, much less than in the 1920's

### 1.36 Recent Workplace Fatalities



#### Notes:

The most recent decline of Washington state fatalities may reflect the fact that there is less workplace activity because of the recent economic recession.

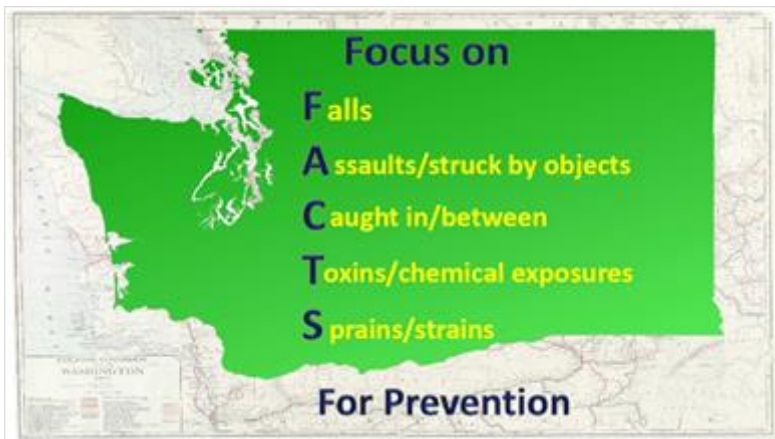
## 1.37 Why Do We Still Need



### Notes:

The 2009 fatalities numbers are the lowest ever. In 1980 U.S. workplace fatalities numbered 7,405. Still, in 2009, about 12 people are killed on the job in the U.S. each day. In the last 5 years a number of workplace explosions have occurred, typically in refineries, chemical plants or workplaces with combustible dust, resulting in multiple deaths. The three listed on this slide had the greatest number of casualties.

## 1.38 Focus On FACTS



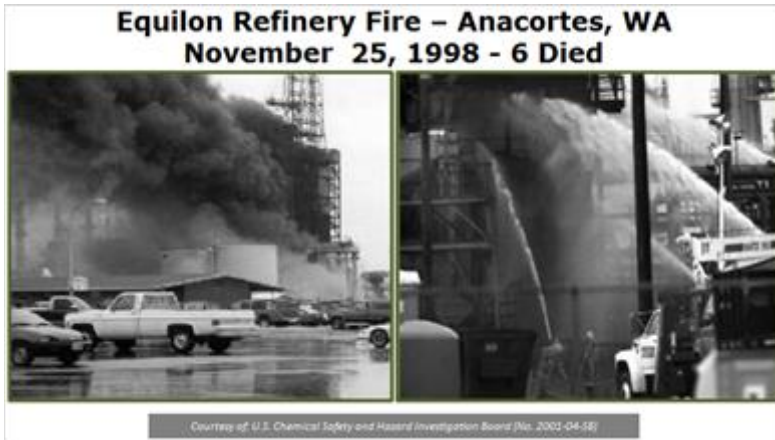
### Notes:

Fatalities include traffic accidents, falls from heights, run over by vehicles, caught in machinery and logging accidents. Amputations are often from fingers or limbs being caught in machinery. Many fractures are from fall from ladders. Sprains and strains are related to ergonomics - awkward posture, repetitive motion, heavy lifting. About 2500 claims are also received yearly for chemical exposure - but usually some acute effect from corrosive liquid splashes or exposure to ammonia, chlorine or carbon monoxide. Over 5000 claims per year are filed for hearing loss. There are likely more actual injuries and illnesses for which claims are never filed.

In addition to these statistics and numbers, Washington has had two catastrophic explosions in the two oil

refineries in Anacortes in the last 11 years - one in 1999 and one in 2010

### 1.39 Equilon Refinery Fire



#### Notes:

The Equilon Refinery fire marked the worst industrial catastrophe since the Department of Labor & Industries began enforcing the Washington Industrial Safety and Health Act more than 26 years earlier. It was exceeded this year at the Tesoro Refinery explosion.

### 1.40 Tesoro Refinery Explosion



#### Notes:

Both this refinery and the Equilon refinery were cited for not complying with the Process Safety Management Regulations adopted by OSHA and DOSH in 1992. These regulations require among other things that chemical



plants and refineries conduct thorough hazard evaluations of their facilities, develop procedures to maintain the integrity of process equipment and conduct inspections and tests of this equipment.

### **1.41 DOSH Consultation**



#### **Notes:**

There is an alternative to waiting for an inspection - an employer can call our Consultation section and request a safety and health survey.

#### **Derek Schauer, Director of Operations - Superfeet**

For me the idea of “Oh Shoot, we’re going to have L&I inspectors in here, was a little bit scary at first. But once you bring them in and you realize that people from L&I are really the same as us, they just want to be ergonomic and safer and happier.

#### **Jeremy Fanning, Process Engineer - Cascades Sonoco**

They will help you, they are there and the key is just reaching out. Some people are really scared and think that all they’re going to do is come in tell you everything you are doing wrong and wanna fine you if you’re not doing something right, if you don’t fix it. But, for us that wasn’t the case and I feel like that’s an unfair statement.

## 1.42 Additional Resources



### Notes:

For anyone interested in doing further research on the history of safety and health and the Department of Labor and Industries and its earlier predecessors, numerous reports and documents are available at the State Library located in Tumwater and at the L & I library at L & I headquarters, also in Tumwater. Additional documents can likely be found at the State Archives located in Olympia. The Journal of the Washington State Constitutional Convention of 1889 which is the official recorded minutes of that convention, is also available at the Washington State Library.

## 1.43 Exit



### Notes:

WHY WORKER SAFETY AND HEALTH PROTECTION? Protecting Employees From Injuries and Illnesses On The Job. THANK YOU!

## RESOURCES

<a href="#">Center for Disease Control and Prevention</a>
<a href="#">Cornell University</a>
<a href="#">Creative Commons</a>
<a href="#">David Rumsey Map Collection</a>
<a href="#">History Matters</a>
<a href="#">Mine Safety and Health Administration (MSHA)</a>
<a href="#">National Archives</a>
<a href="#">National Library of Medicine (NLM)</a>
<a href="#">Occupational Safety &amp; Health Administration (OSHA)</a>
<a href="#">Office of Code Reviser</a>
<a href="#">Olympia Historical Society &amp; Bigelow House Museum</a>
<a href="#">PBS LearningMedia</a>
<a href="#">Roslyn Brewing Company</a>
<a href="#">Seattle P-I (Newspaper)</a>
<a href="#">The Ham (Newspaper)</a>
<a href="#">University of Washington Digital Library</a>
<a href="#">Washington State Department of Natural Resources</a>
<a href="#">Washington State Historical Society</a>
<a href="#">Washington State Secretary of State</a>
<a href="#">Western Mining History</a>
<a href="#">Wikimedia</a>
<a href="#">Wikipedia</a>