

# Explosives Storage and Emergency Preparedness

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## What's the bottom line?

Explosives are critical to getting resources needed for our infrastructure. Explosives are transported and stored across Washington every day.

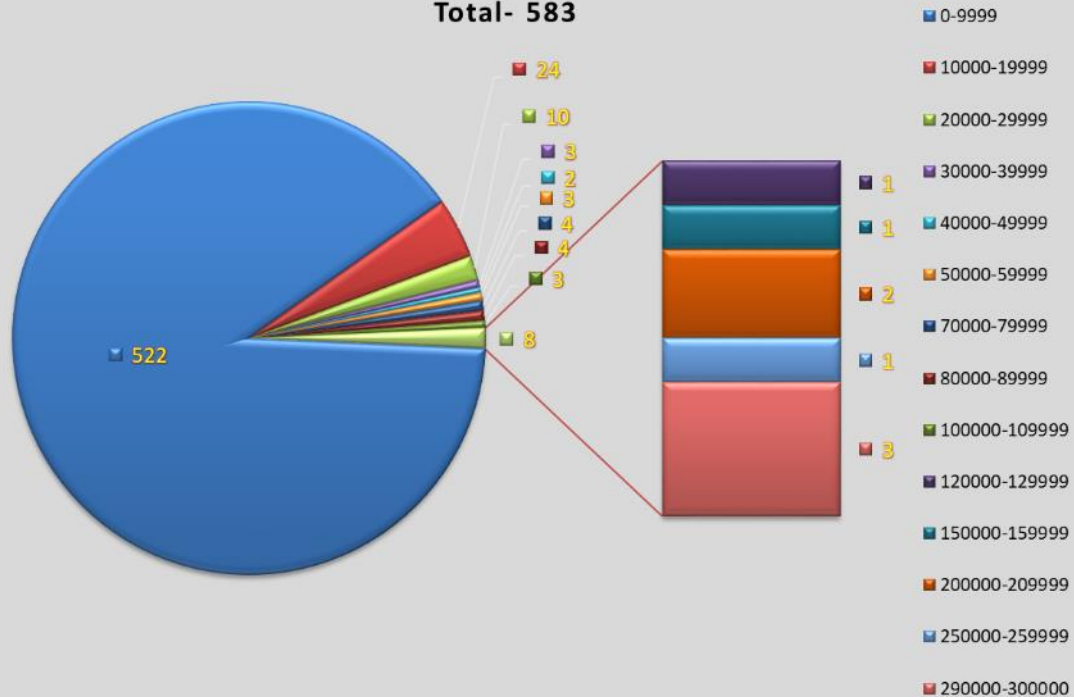
This means that the explosives we use are:

- Critical infrastructure
- Exposed to the same hazards we are
- Need planning to survive
  - Fires
  - Floods
  - Earthquakes



## How much is there in the state?

Magazines by Licensed Weight  
Total- 583



At least 6.5 million pounds are used annually in Washington for:

- Quarrying
- Mining
- Avalanche control
- Police public safety
- Utility emplacement
- Seismic studies
- Production of:
  - Airbags
  - Aviation safety devices

= almost 12 million pounds



## So why do we use them?

- *Speed, safety and economy*

Getting resources *without explosives* cost several times as in both time and money:

Example: Breaking 10,000 tons of rock

- A *small* quarry shot may take 1-3 days of drilling/loading and use 10,000lbs of explosives.
- Using a hydraulic breaker hammer excavator for the same amount could take weeks and the machine costs at least 3x as much for the *smallest size* (machines much more, low estimate)

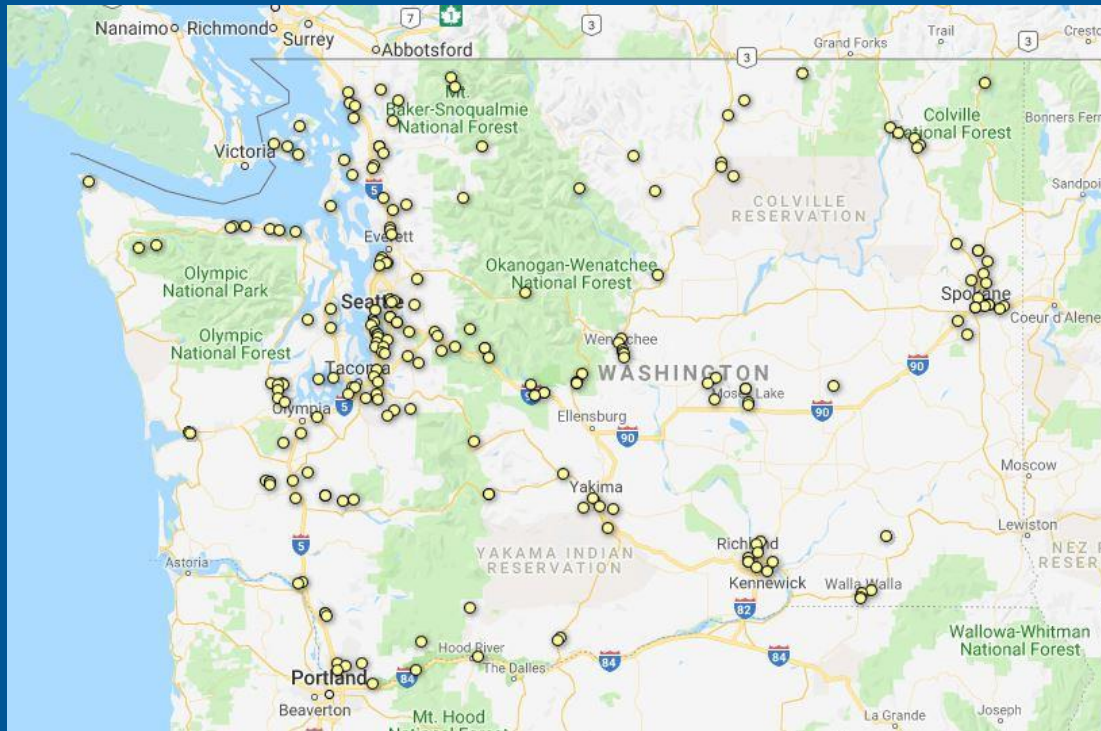


Bremanger, Norway  
68 tons explosives, 454 holes  
385m long, 20m high  
Produced 360,205 tons of rock





## Where is it concentrated?



Near population centers, but in places with space

Why?

Balancing Safety and Security -

Far enough away from people to be safe if there is a problem, close enough for the owners to keep an eye on it



## Is this a problem?

Yes and No.

Generally incidents are rare thanks to safety regulation. Consequences can be catastrophic when they occur

Nationally the trend for loss is growing- is this due to natural disasters?

### WA Incidences

- 2016- 0
- 2017- 0
- 2018- 1 fire, 2 break ins

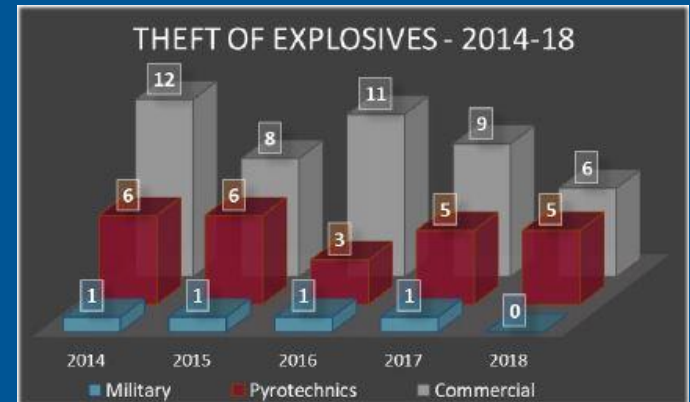


Figure 24. Explosives Theft Types, 2014-18

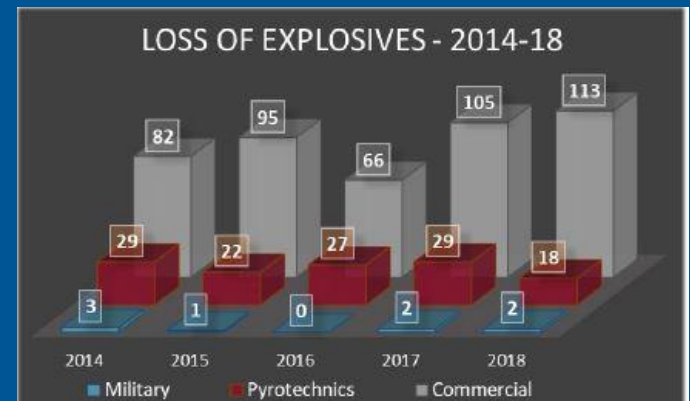


Figure 26. Explosives Loss Types, 2014-18



## Case Study- Boyd's Fire 2018



Who- Private Storage licensee

What- Magazines engulfed in wildfire

Where- Kettle Falls, WA

When- August 11, 2018

How much- 600 lbs high explosives





## Case Study- Boyd's Fire 2018



### Why (is this important)?

- The magazines were engulfed in the first day or so
- No detonation
- No firefighters hurt

### How?

- Magazine construction standards (WAC 296-52 Part E)
- Entry route marking warned responders (WAC 296-52-69060(4))





# The real question- Are we just lucky?

## Yes and No

- Yes
  - No coordination
  - Count on private licensee to notify
  - What about evacuees?
- No
  - Codes are based on experience
  - Fire/theft are primary causes for loss, so we engineer to protect from those hazards
  - Most licensees are VERY compliant





# What is our best way forward?

## Change code:

- From user reported to local fire authority; to
- Central reporting to all affected authorities

## Partner with agencies to use information better:

- Ensure fire response knows no-go areas
- Evacuation
  - Planning
    - Preset inspected areas (required by code)
    - Notification drills
    - Create safe routes
  - Execution
    - Notification redundancy
    - Secure sites
    - Return to normalcy







# What is the goal?







**Questions?**