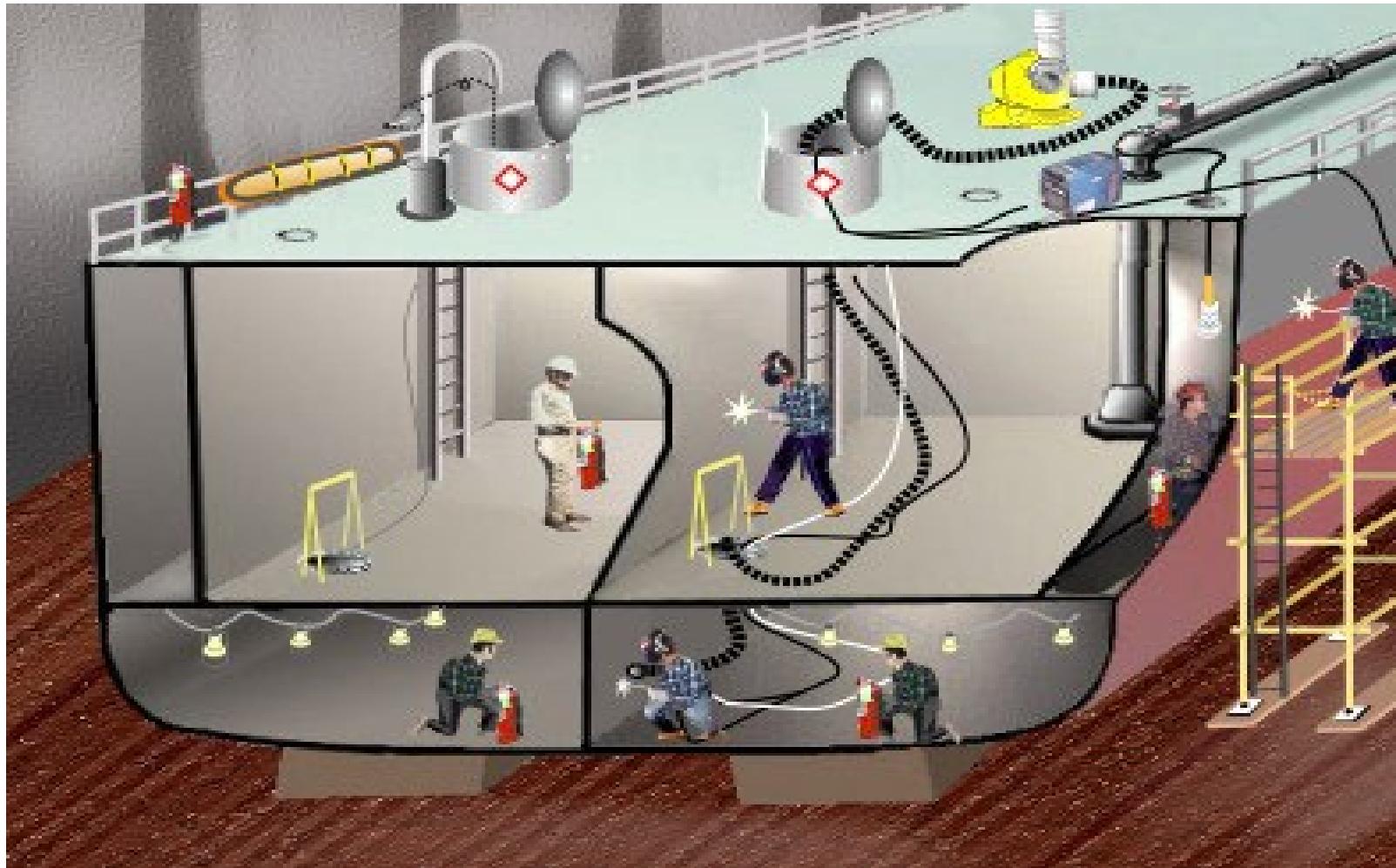


# Shipyard Employment

## Welding, Cutting and Heating - Subpart D

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# Welding, Cutting and Heating - Subpart D

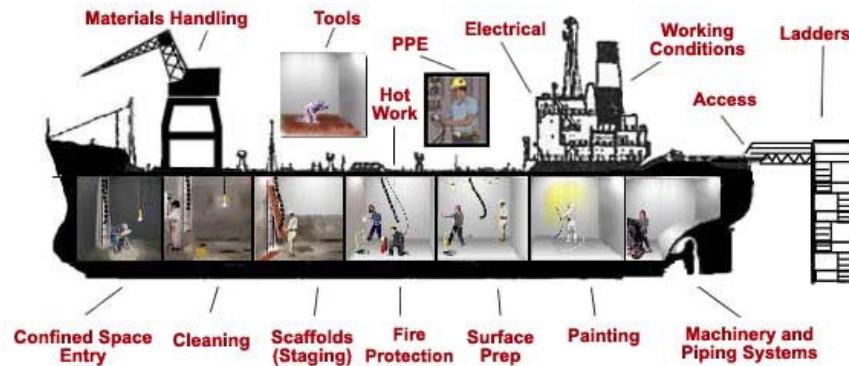
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- **1915.51** – Ventilation and protection in welding, cutting and heating
- **1915.53** – Welding, cutting and heating in way of preservative coatings
- **1915.54** – Welding, cutting and heating of hollow metal containers and structures not covered by 1915.12

# Welding, Cutting and Heating - Subpart D

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- **1915.55** - Gas welding and cutting
- **1915.56** – Arc welding and cutting
- **1915.57** – Uses of fissionable material in ship repairing and shipbuilding



# Mechanical Ventilation Requirements

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1915.51(b)(1)(i)

- Mechanical ventilation consist of either:
  - General mechanical ventilation systems
  - Local exhaust systems



# Mechanical Ventilation Requirements

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1915.51(b)(1)(ii)

- General mechanical ventilation sufficient capacity and arranged
  - Produce number of air changes necessary
    - » Maintain welding fumes and smoke within safe limits



# Mechanical Ventilation Requirements

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1915.51(b)(1)(iii)

- Local exhaust ventilation, freely movable hoods
- Placed by welder /burner close to work
- Sufficient capacity and arranged to remove fumes and smoke
- Keep concentration of fumes and smoke in breathing zone within safe limits



# Welding, Cutting and Heating in Confined Spaces

1915.51(c)(2)

- Means of access provided to confined space
- Ventilation ducts properly arranged



# Welding, Cutting or Heating of Metals of Toxic Significance

1915.51(d)(2)

- Local exhaust ventilation required or air line respirators
  - Metals containing lead
  - Cadmium-bearing/coated metals
  - Metals coated w/mercury-bearing metals
  - Beryllium-containing base or filler metals



# General Welding, Cutting, and Heating in Way of Preservative Coatings

1915.53(d)(1)

- Enclosed spaces
  - Toxic coatings stripped 4" from area of heat application

*Or*

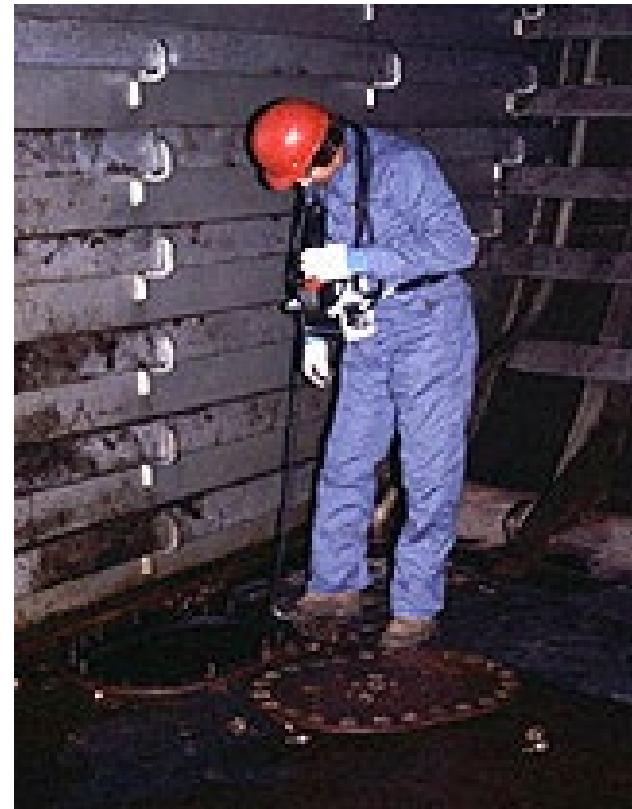
- Protected by air line respirators



# General Welding, Cutting, and Heating in Way of Preservative Coatings

1915.53(e)(1)

- Competent person test atmosphere in enclosed space
  - Does not contain explosive vapors
  - Preservative coatings removed sufficient distance from heated area



# Welding, Cutting and Heating of Hollow Metal Containers and Structures

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1915.54(a)

- Hollow structures containing flammable substances
  - Filled with water or cleaned before hot work



# Welding, Cutting and Heating of Hollow Metal Containers and Structures

1915.54(b)

- Before heat applied to hollow structure
  - Vent opening provided



# Welding, Cutting and Heating of Hollow Metal Containers and Structures

1915.54(c)

- Before welding, cutting, heating or brazing on structural voids
  - Competent person inspect object
  - Test for flammable liquids or vapors if necessary



# Gas Welding and Cutting

1915.55(a)(1)

- Transporting, moving and storing compressed gas cylinders
  - Valve protection caps in place and secure



# Gas Welding and Cutting

1915.55(a)(2)

- Cylinders being hoisted
  - Secured on cradle, slingboard or pallet
- Not hoisted by magnets or chocker slings



# Gas Welding and Cutting

1915.55(a)(4)

- Cylinders transported by vehicle
  - Secured in position



# Gas Welding and Cutting

1915.55(a)(6)

- Before cylinders are moved
  - Firmly secured on special carrier
  - Regulators removed
  - Valve protection caps in place



# Gas Welding and Cutting

1915.55(a)(7)

- Suitable cylinder truck, chain or steadyng device
  - Keep cylinders from being knocked over while in use



# Gas Welding and Cutting

1915.55(b)(2)

- Cylinders placed where cannot become part of electrical circuit
- Electrodes not struck against cylinder



# Gas Welding and Cutting

1915.55(d)(3)

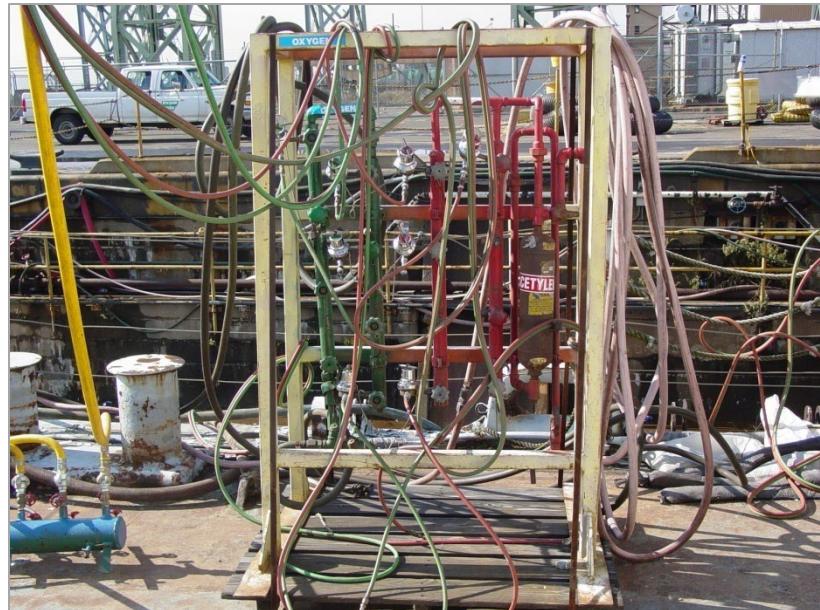
- Fuel gas used from cylinders through torches
  - Pressure reduced through suitable regulator
  - Regulator attached to cylinder valve



# Gas Welding and Cutting

1915.55(e)(1)

- Fuel gas and oxygen manifolds
  - Name of substance in letters at least 1" high
  - Painted on manifold or sign attached



# Gas Welding and Cutting

1915.55(e)(4)

- Fuel gas and oxygen manifolds
  - Header hose connections capped when not in use



# Gas Welding and Cutting

1915.55(f)(1)

- Fuel gas and oxygen hose easily distinguishable from each other
  - Color or surface characteristics
- Hoses not interchangeable



# Gas Welding and Cutting

1915.55(f)(3)

- Hoses carrying fuel gas and oxygen
  - Inspected at beginning of each shift

- Defective hose removed



# Gas Welding and Cutting

1915.55(g)(1)

- Clogged torch tip openings
  - Cleaned with suitable cleaning wires, drills

*or*

- Other devices designed for purpose



# Gas Welding and Cutting

1915.55(g)(2)

- Torches inspected at beginning of each shift
  - Leaking shutoff valves
  - Hose couplings
  - Connections
- Defective torches not used



# Gas Welding and Cutting

1915.55(g)(3)

- Torches lit from friction lighter or approved devices



# Gas Welding and Cutting

1915.55(h)

- Oxygen and fuel gas pressure regulators
  - Proper working order while in use



# Arc Welding and Cutting

1915.56(a)(2)

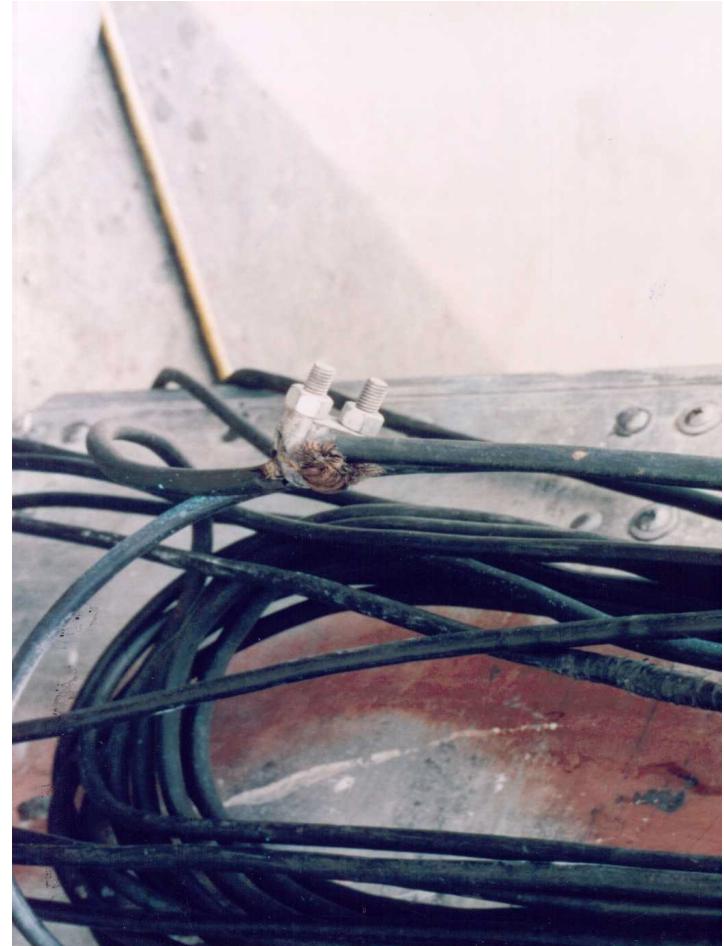
- Current carrying parts through portion of holder
  - Fully insulated against maximum voltage



# Arc Welding and Cutting

1915.56(b)(2)

- Cable free from repair or splices
  - Minimum distance of 10' from cable end



# Arc Welding and Cutting

1915.56(b)(3)

- Connections or spliced lengths of cable
  - Substantial insulated connectors
  - Capacity equivalent to cable used



# Arc Welding and Cutting

1915.56(d)(1)

- Electrode holders left unattended
  - Electrodes removed
  - Electrode holder not make contact with employees or conducting objects



# Arc Welding and Cutting

1915.56(e)

- Welding and cutting operations shielded whenever practicable
  - Noncombustible or flame-proof screens



# Uses of Fissionable Material

1915.57(a)

- Exposure to sources of ionizing radiation
  - Provisions of Nuclear Regulatory Commission (10 CFR Part 20) apply



# Uses of Fissionable Material

1915.57(b)

- Activity involving radioactive material
  - Performed by competent person specially trained
    - » Proper and safe operation of equipment



# Thank You For Attending!

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Questions?

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**www.nclabor.com**



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