

# USE OF FIRE HAZARD ANALYSIS TO COST EFFECTIVELY MANAGE FACILITY MODIFICATIONS

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# CANADIAN REGULATIONS

Canadian Nuclear Safety  
Commission

- Nuclear Safety & Control Act
- CSA N393, Fire Protection for Facilities that Process, Handle or Store Nuclear Substances
- CSA N293, Fire Protection for Nuclear Power Plants



# **FIRE PROTECTION PROGRAM**

Fire Hazard Analysis

Change Control Process

# **FIRE HAZARD ANALYSIS**



# FIRE HAZARD ANALYSIS OBJECTIVES

- Sufficient Life Safety
- Adequate Fire Protection Systems
- Adequate Fire Protection Program
- Assess Emergency Response
- Protection of Radioactive and Hazardous Materials



# FIRE HAZARD ANALYSIS TASKS

Site Overview

External  
Hazards

Internal  
Hazards

Radioactive  
Materials

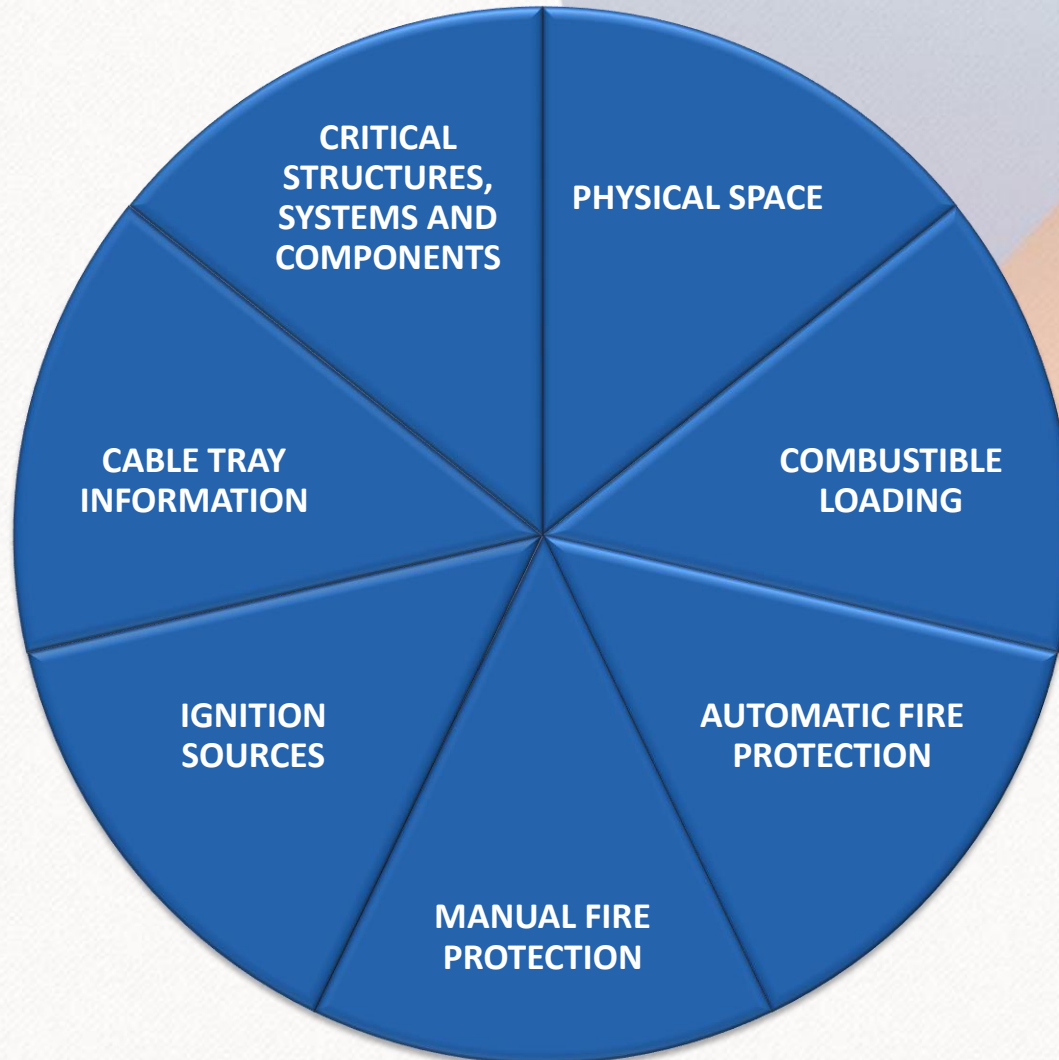
Fire  
Protection  
Program

Emergency  
Response

Control  
Measures

Defence-in-  
depth

# FHA DATA COLLECTION

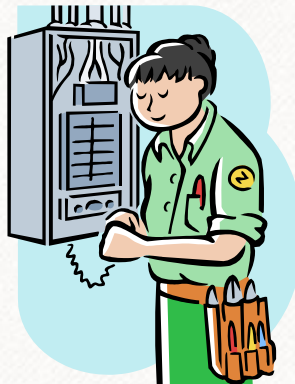
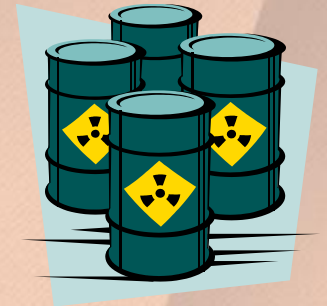


# **CHANGE CONTROL PROCESS**



# EXAMPLES OF CHANGE

- Occupancy
- Storage
- Fire Barriers
- Work Areas



# CHANGE CONTROL TASKS

Proposed Modification

1<sup>st</sup> Stage: Screening Assessment

2<sup>nd</sup> Stage: Detailed Assessment

Independent 3<sup>rd</sup> Party Review

Submission and Acceptance of AHJ

# STAGE 1 AND 2 CHANGE CONTROL ASSESSMENTS

## 1<sup>st</sup> Stage Screening Assessment

- Affect on design bases of fire protection systems.
- Affect on the fire protection goals, defence-in-depth, nuclear safety and life safety.

## 2<sup>nd</sup> Stage Detailed Assessment

- Nuclear Safety Systems
- Combustible Loading
- Ignition Sources Fire Suppression and Detection Systems
- Fire Barriers
- Fire Protection Programs
- Etc.

# **FHA AND CHANGE CONTROL INTEGRATION**



# FHA AND CHANGE CONTROL INTEGRATION

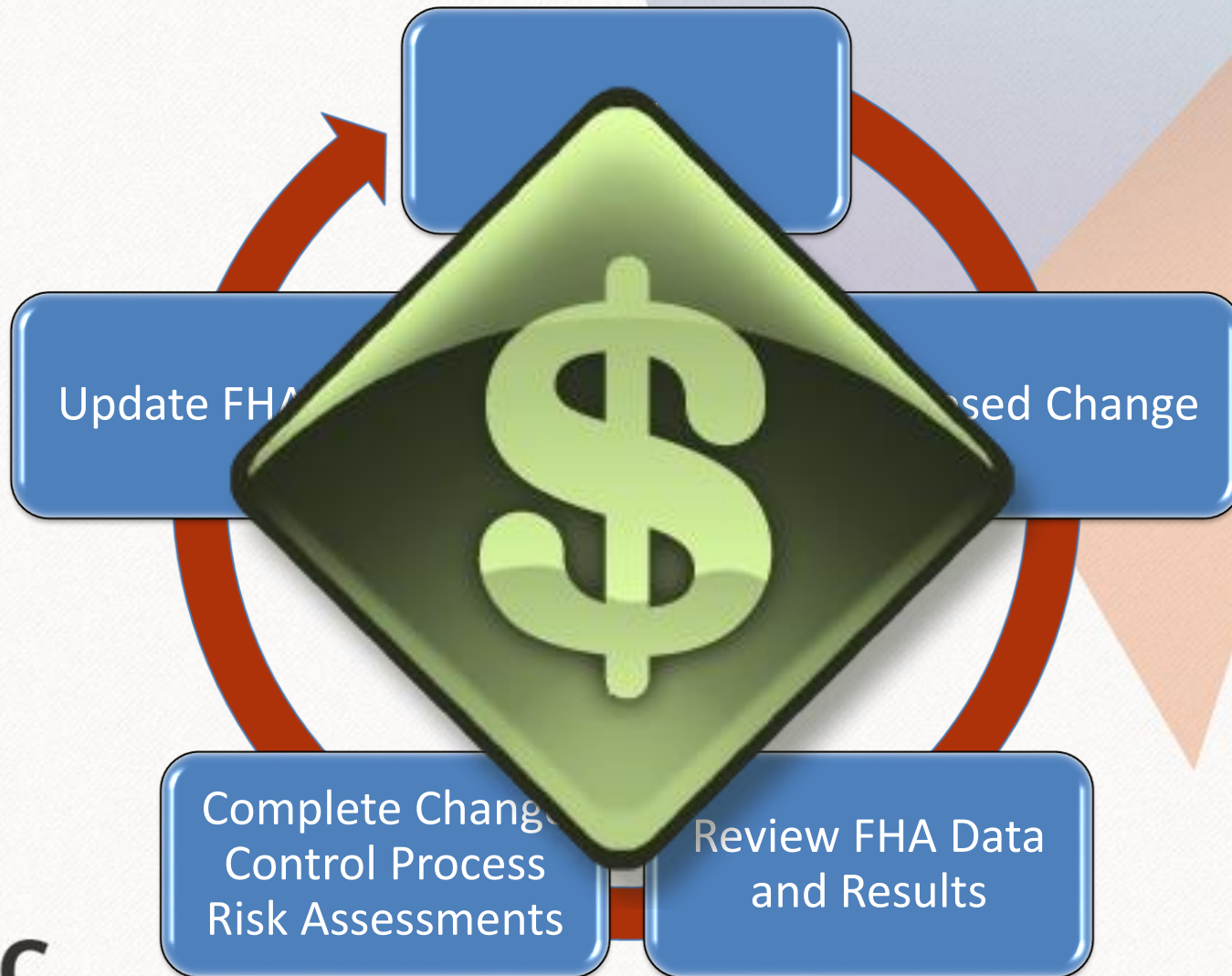
FHA



CHANGE CONTROL



# FHA AND CHANGE CONTROL INTEGRATION





# STORAGE CHANGE

Can the storage in R1-200 be increased?

- FSSA Screening?
- Combustible Limits?
- Fire Barriers?
- Protection System Design?



# TEMPORARY WORK AREA

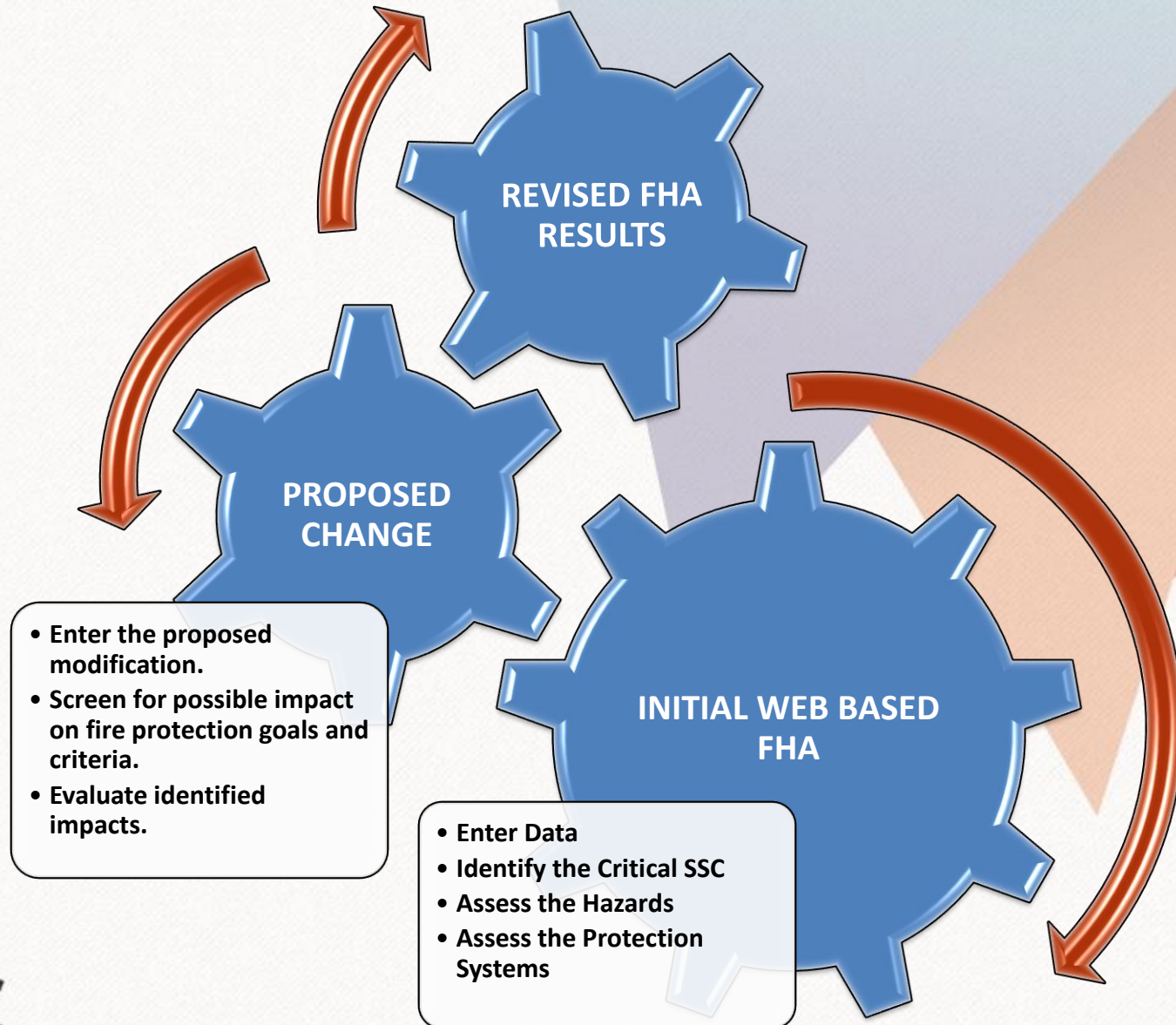
Can this area be used for a welding station?

- FSSA Screening?
- Fire Barriers?
- Protection system design?





# WEB BASED FHA DATABASE



# CONCLUSION

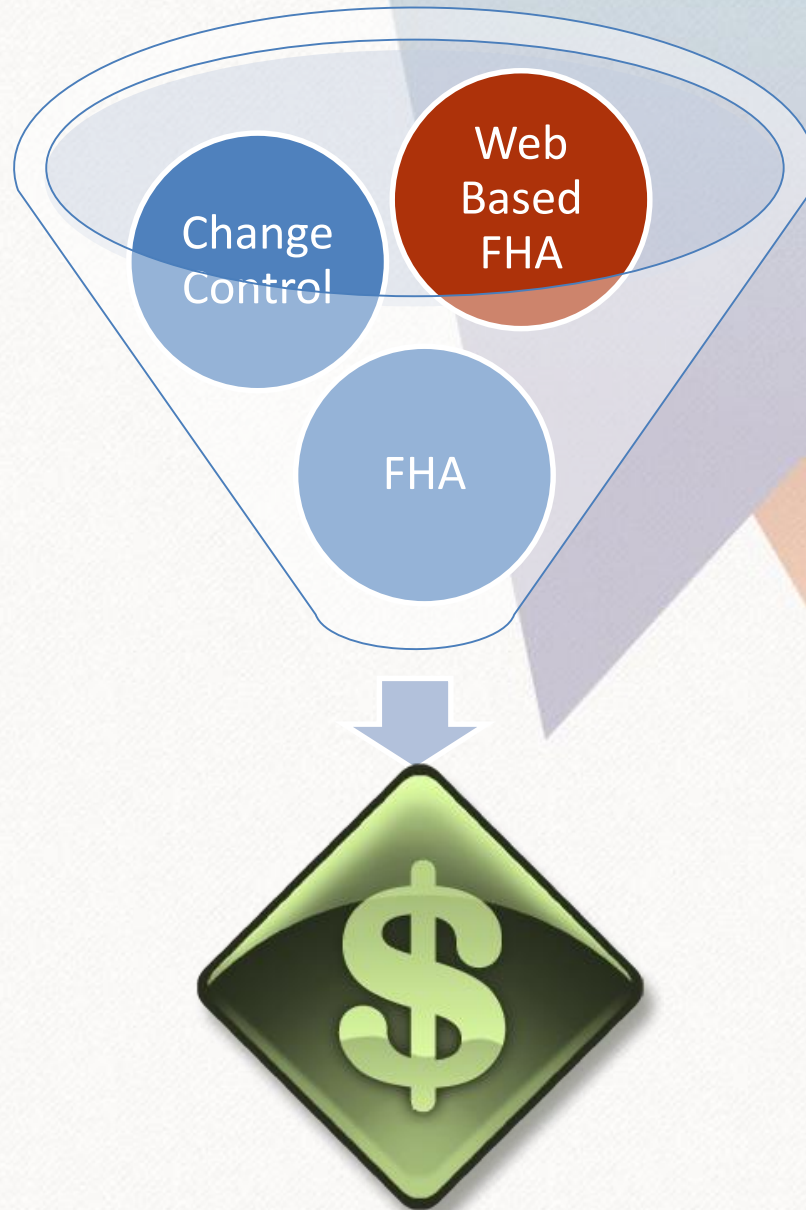
FHA



Change  
Control



# CONCLUSION





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