

## Level 2 HITRA Form Guide

### Hierarchy of Controls

Most Effective



Least Effective

**Eliminate the hazard**  
Eliminate a hazard and completely eliminate the associated risk, i.e., conduct task else where, conduct the task during facility turn-a-rounds  
If this is not practical, try:

**Substitute the hazard with a lesser risk**  
Substitute something else (a substance, process, or practice) that has less potential to cause harm  
If this is not practical, try:

**Engineering controls**  
Use engineering controls to remove a hazard or place a barrier between the workforce and the hazard  
If this is not practical, try:

**Isolate the hazard**  
Contain the work environment or work process to interrupt the path between the workforce and the risk, e.g., insert blind flange, guards or barriers, set up temporary or permanent enclosures  
If this is not practical, try:

**Administrative controls**  
Reduce the risk by through training assuring competency of the workforce, the use of specialist personnel, changing rosters, close supervision, establish policies/standards or procedures such as permit policies  
If this is not practical, then:

**Personal protection equipment**  
When you can't reduce the risk in any other way, use personal protective equipment (gloves, goggles, etc.) as a last resort

**Figure 1 – Hazards Effect (HE) Table**

Hazard Effect Level	Health and Safety	Environment	Privilege to Operate	Equipment Damage, Business Value Lost
D	Multiple Fatalities	>1000 bbl (fluids) > 10,000 lb (Flammable Gases) > 200,000 lb (Flammable Liquids) > 200,000 lb (gas/vapors/solids)	Public outage Regional or prolonged media coverage or severe national coverage Actual or threatened loss of License to Operate for Asset Likely to lead to change of regulations	\$100m - \$0.5 billion
E	Fatal Injury Permanent Disability	100 < 1000 bbl (fluids) 1000 < 10,000 lb (Flammable Gases) 20,000 < 200,000 lb (Flammable Liquids) 20,000 < 200,000 lb (gas/vapors/solids)	Localized or limited "interest group" outrage Significant enforcement action against Asset	\$5m - \$100m
F	DAFWC Hospitalization Temporary Disability	1 < 100 bbl (fluids) 100 < 1000 lb (Flammable Gases) 2000 < 20,000 lb (Flammable Liquids) 4000 < 20,000 lb (gas/vapors/solids)	Prolonged local media attention	\$500k - \$5m
G	No DAFWC No Hospitalization OSHA Recordable	0.1 < 1 bbl (fluids) 10 < 100 lb (Flammable Gases) 200 < 2,000 lb (Flammable Liquids) 400 < 4000 lb (gas/vapors/solids)	Short term local media coverage Fines or other penalties to Asset	\$50k - \$500k
H	Simple First Aid	< 0.1 bbl (fluids) <10 lb (Flammable Gases) <200 lb (Flammable Liquids) <400 lb (other hazardous vapors/solids)	Short term complaints from neighbors	<\$50k

**Figure 2 - Hazard Effect vs. Probability Risk Matrix**

IMPACT LEVEL	Probability				
	1 Very Unlikely	2 Unlikely	3 Somewhat Likely	4 Likely	5 Very Likely
D	6	8	10	11	12
E	5	7	9	10	VH
F	4	6	8	9	11
G	3	5	7	8	H
H	2	L	M	7	8

5 Very Likely

The hazard effect will almost certainly occur

4 Likely

There is a good chance the hazard effect will occur

3 Somewhat Likely

There is a small chance the hazard effect will occur

2 Unlikely

It would be remotely possible for the hazard effect to occur

1 Very Unlikely

The hazard effect will almost certainly not occur

**Figure 3 – Approval Level Matrix**

Residual Risk Level	Minimum Level of Approval
Very High (VH)	10 to 12
High (H)	8 to 9
Medium (M)	6 to 7
Low (L)	1 to 5