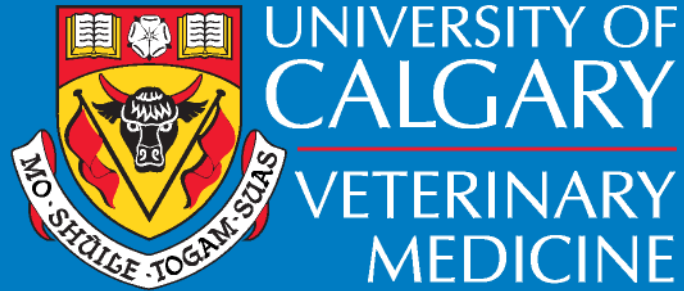


# Hazard Assessment & Control



Faculty of Veterinary Medicine



## **In the event of an emergency**

- **Primary exit is to the \_\_\_\_\_.**
- **Secondary exit is to the \_\_\_\_\_.**
- **Assembly point is at \_\_\_\_\_.**
- **Campus Security Emergency contact 220-5333.**
- **First aid locations at \_\_\_\_\_.**
- **First aid qualified personnel.**



# Presentation Learning Objectives

- ✓ Be familiar with key terminology pertaining to the *Hazard Assessment and Control* process.
- ✓ Be able to identify tasks and rank hazards in your work area.
- ✓ Be able to recognize control mechanisms in your work area.
- ✓ Complete a Hazard Assessment and Control form.



# Responsibilities

- Ultimately the responsibility for completing Hazard Assessments rests with the Dean / Director / Department Head or Supervisor of an area.
  - Managers / Dept heads can delegate this responsibility
- Hazard Assessments must be reviewed annually, or if any change in process or equipment occurs.
- All Hazard Assessments shall also be reviewed if an incident occurs to ensure that appropriate controls are in place.



# Hazard Assessment and Control

- ✓ A valuable part of a health and safety program is an effective method or system of identifying and controlling hazards in the workplace.
- ✓ A workplace hazard can be any activity (i.e. cutting), condition (i.e. -40 wind chill) or substance (i.e. formaldehyde) that has the potential to harm a worker.



## Occupational Health and Safety Code 2009 Part 2

### Part 2 Hazard Assessment, Elimination and Control

#### Hazard assessment

- 7(1) An employer must assess a work site and identify existing and potential hazards before work begins at the work site or prior to the construction of a new work site.**
- 7(2) An employer must prepare a report of the results of a hazard assessment and the methods used to control or eliminate the hazards identified.**
- 7(3) An employer must ensure that the date on which the hazard assessment is prepared or revised is recorded on it.**
- 7(4) An employer must ensure that the hazard assessment is repeated**
- (a) at reasonably practicable intervals to prevent the development of unsafe and unhealthy working conditions,**
  - (b) when a new work process is introduced,**
  - (c) when a work process or operation changes, or**
  - (d) before the construction of significant additions or alterations to a work site.**



# Legislative Requirements cont..

- **Worker participation? Required or a nice to have?**
- **Hazard elimination and control?**



# Risk Evaluation

The evaluation of any risk is dependent on the person's or group's perception and knowledge of that hazard and the associated consequence and, in turn, their experience of that or similar hazards.

Hazard perception is based on your experience with that hazard. Often based on this experience, different individuals will rank hazards vastly different in relation to severity and occurrence.

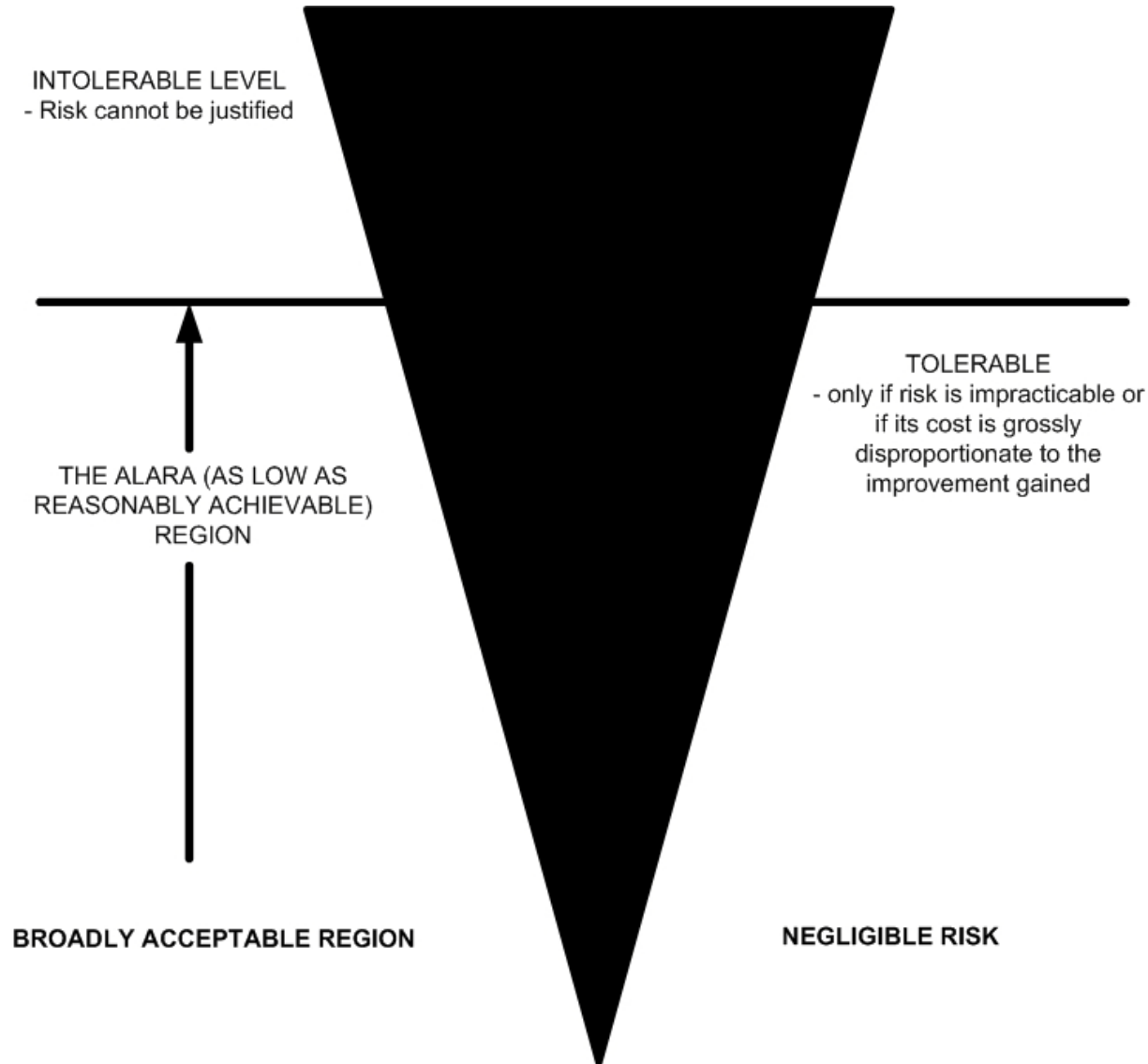
*\*\*Rationale for having both management and workers involved in the evaluation of the risk or hazard.*



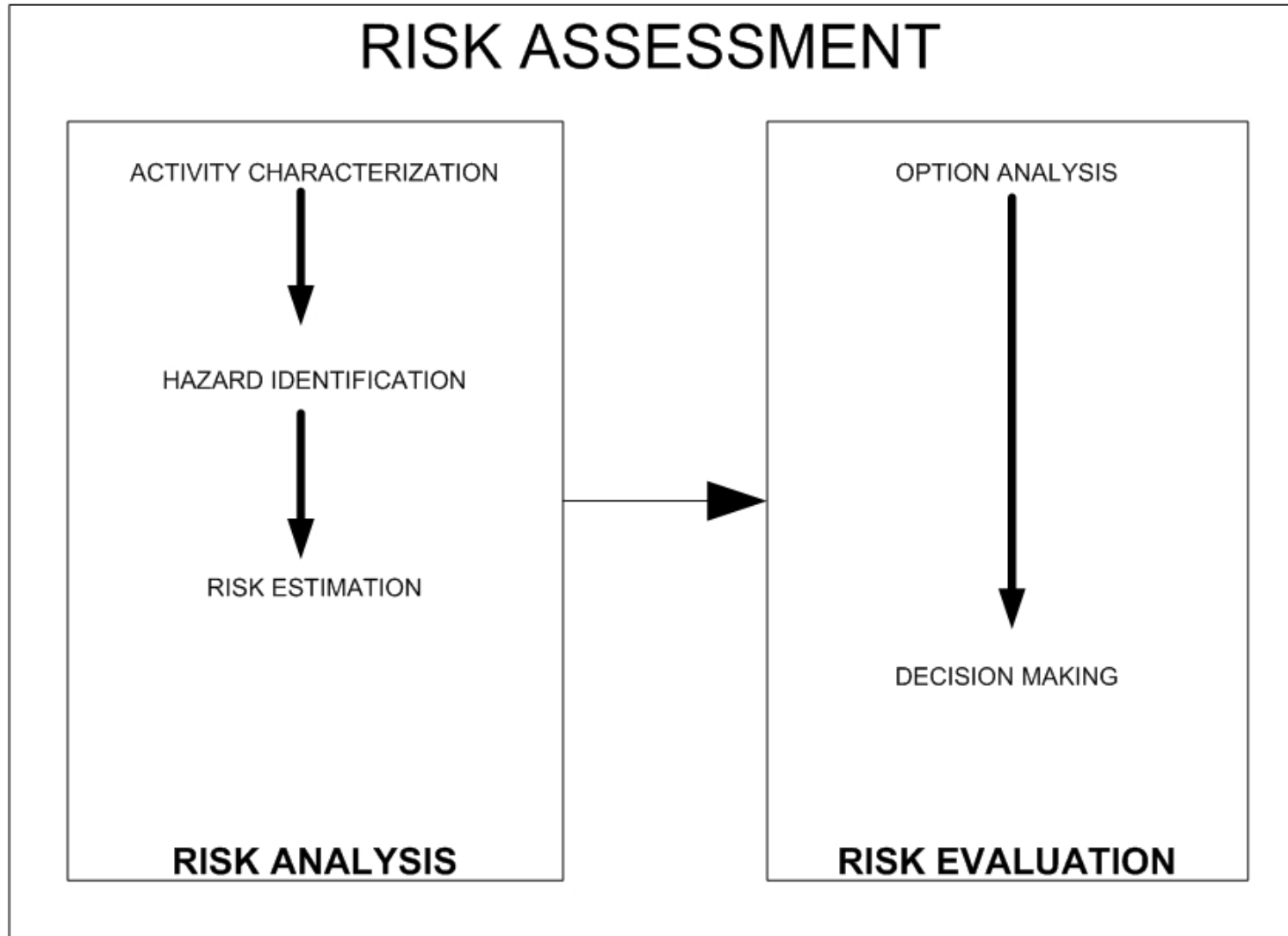


# Levels of acceptable risk

A risk is acceptable if it is perceived to be at a sufficiently low level that we do not look for further reduction or controls.



# Risk Assessment Flow - Analysis to Evaluation



# 7 Step Process for Conducting Hazard Assessment

## Identification and assessment

1. List tasks
2. List hazards associated to tasks
3. Determine existing controls
4. Rank hazards
5. Recommending additional controls where necessary

## Responsibility

6. Accountability and Ongoing Assessment



# What is a Hazard?

- A **Hazard** is a situation, condition, process, material or thing that may cause an injury or illness to a person.
- ✓ **Situation example – working alone**
- ✓ **Condition example – heat stress / wind chill**
- ✓ **Process example – operating the tissue digester @ CSB**
- ✓ **Material example – handling biohazardous material**



# Health Hazard

## Health Hazard:

- May produce serious and immediate (acute) health effects - *Example*
- May not be immediately apparent such as – hearing loss which is not noticed until it is well advanced – *Noise Induced Hearing Loss*
- May cause long term (chronic) health problems – *Sensitization to Formaldehyde*



# Ranking of Hazards Matrix

	1	2	3
Severity (S)	First Aid, Medical Aid and/or minor Property Damage	Lost time, Injury and/or significant Property Damage	Permanent Disability, Fatality and/or Major Property Damage
Probability (P) of Incident	Unlikely to occur	Could occur	Will occur if not attended to
Frequency (F) of Exposure	Rarely (<1/month)	Often (3x / week)	Every Day

**Severity (S) + Probability (P) + Frequency (F) = Total Risk**



# Hazard Ranking Totals

As a general guideline, a hazard ranking of:

- 7, 8 or 9 poses a serious risk
- 5 or 6 poses a moderate risk
- 3 or 4 poses a low risk

Risk ranking is simply a means of prioritizing the implementation of measures to control hazards. It is important to attend to the hazard, and not get 'wrapped up' in the numbers.



# Hazard Assessment example

1. List task or activity in question
2. Listing of hazards associated to tasks
3. Determining existing controls

IDENTIFICATION OF THE TASK / ACTIVITY	HAZARDS ASSOCIATED WITH THE TASK / ACTIVITY	EXISTING CONTROL MEASURES (ENG/ADM/PPE)
Field trip to rural farm	<ol style="list-style-type: none"><li>1. Medical emergency</li><li>2. Flat tire</li><li>3. Poor driving conditions</li><li>4. Injury while onsite</li></ol>	Describe any existing control measures. For example: <ul style="list-style-type: none"><li>- First aid kit brought along</li><li>- Spare tire available</li><li>- Cell phone available</li><li>- Main office aware of destination</li><li>- Check in system used</li></ul>

*All controls listed above are examples of Administrative controls.*





# Determining Existing Controls

For each hazard listed note the type of control measures in place to mitigate that hazard. Controls are categorized into three groups - Engineering, Administrative, PPE.

ENG = engineering control (e.g. fume hood)

ADM = administrative control (e.g. working alone process)

PPE = personal protective equipment (e.g. safety glasses)



# Types of Control Measures

Controls are used in hierarchy order (preference):

## **FIRST**

Engineering Controls (ENG) – to eliminate or control the hazard, this is the preferred method of control.

- *Example*

## **Second**

Administrative Controls (ADM)

- *Example*

## **Third**

Personal Protective Equipment (PPE) – These are the last line of control and the least effective\*.

- *Example*



# ENGINEERING CONTROLS

When a hazard is identified in the workplace, every effort should be made to eliminate it so that employees are not harmed and/or exposed.

Elimination may be accomplished by designing or redesigning a piece of equipment or process.

Below are engineering controls that can be used:

- Substitution
- Elimination
- Ventilation
- Isolation
- Process or design change



# ADMINISTRATIVE CONTROLS

A second approach is to control hazards through administrative directives.

This may be accomplished by rotating workers, which allows you to limit their exposure, or having workers work only in areas where no hazards exist during that part of their shift.



# PERSONAL PROTECTIVE EQUIPMENT

PPE includes a variety of devices and garments to protect workers from injuries.

PPE is the least desirable option to protect workers against hazards in the workplace.

Ideally the hazard is engineered out first negating the need for personal protective equipment.

Often a combination of engineering controls, administrative controls and PPE are required to adequately protect employees from workplace hazards.

Why?



# SUMMARY OF CONTROL HIERARCHY

Most effective

## **Elimination or substitution**

- Change the process to eliminate human interaction
- Elimination of pinch points
- Automated material handling

## **Engineering controls (safeguarding)**

- Barriers
- Interlocks
- Presence sensing devices

More effective

## **Awareness means**

- lights & beacons
- signs & alarms
- beepers
- labels

Less effective

## **Training and procedures (administrative controls)**

- training
- job rotation
- safe job procedures
- inspections and audits

Least effective

## **Personal Protective Equipment**

- safety eyewear
- hearing protection
- fire proof clothing
- respirators



# Step Four – Hazard Ranking

Once the hazards have been identified and the existing controls (if any) are listed, it's time to rank the hazards in order to determine if further mitigation is required to reduce the hazards to an acceptable level. The risk matrix below is used to generate ranking for severity, probability and frequency.

	1	2	3
<b>Severity (S)</b>	First Aid, Medical Aid and/or minor Property Damage	Lost time, Injury and/or significant Property Damage	Permanent Disability, Fatality and/or Major Property Damage
<b>Probability (P) of Incident</b>	Unlikely to occur	Could occur	Will occur if not attended to
<b>Frequency (F) of Exposure</b>	Rarely (<1/month)	Often (3x / week)	Every Day



# Hazard ranking continued

Using the risk matrix generate values for the four hazards associated with the ***“Field Trip to Rural Farm”*** activity.

HAZARDS ASSOCIATED WITH THE TASK / ACTIVITY	EXISTING CONTROL MEASURES (ENG/ADM/PPE)	HAZARD RANKING (S+P+F= TOTAL) Severity = 1-3 Probability = 1-3 Frequency = 1-3 Total = 3-9
<ol style="list-style-type: none"> <li>1. Medical emergency</li> <li>2. Flat tire</li> <li>3. Poor driving conditions</li> <li>4. Injury while onsite</li> </ol>	<p>Describe any existing control measures and indicate the type (Engineering, Administrative or PPE). For example:</p> <ul style="list-style-type: none"> <li>- First aid kit brought along</li> <li>- Spare tire available</li> <li>- Cell phone available</li> <li>- Main office aware of destination</li> <li>- Check in system used</li> </ul>	<ol style="list-style-type: none"> <li>1. Medical emergency = <b>1+2+1=4</b></li> <li>2. Flat tire = <b>1+1+1=3</b></li> <li>3. Poor driving conditions = <b>1+2+1=4</b></li> <li>4. Injury while onsite = <b>1+2+1= 4</b></li> </ol>





# Recommended Controls – additional mitigation to reduce hazard ranking

After ranking the various hazards using the risk matrix, if the total value is high ( $\geq 7$ ) additional controls may be needed. The recommended controls cell can be used to note these additions.

\*\* For new processes or equipment the control measures for the various hazards may not be in place.

<b>HAZARD RANKING (S+P+F= TOTAL)</b> Severity = 1-3 Probability = 1-3 Frequency = 1-3 Total = 3-9	<b>RECOMMENDED CONTROLS</b> <b>Utilizing hierarchy of controls</b>
<ol style="list-style-type: none"><li>1. Medical emergency = <math>1+2+1=4</math></li><li>2. Flat tire = <math>1+1+1=3</math></li><li>3. Poor driving conditions = <math>1+2+1=4</math></li><li>4. Injury while onsite = <math>1+2+1=4</math></li></ol>	If the total hazard ranking is still too high after considering the existing control measures, additional controls should be implemented to reduce the risk to the employee.



# Accountability and Update

If additional controls are needed, the *Accountability & Update* column is used to note responsible departments and any timelines for the changes.

## **ACCOUNTABILITY & UPDATE**

Responsible departments and timelines established for implementation of the recommended controls can be entered in this cell.



# Overview



# Hazard Assessment and Control example from your work area

1. As a group, decide on a work activity to conduct a hazard assessment.
2. Follow the steps on the *Hazard Assessment & Control* form.
3. Discuss as a group.



# Assistance and other Notables

**Veterinary Medicine EHS Consultant:**

***Shaun Laughlin (403-220-7021)***

**EHS main office , MSC**

**Hazard assessments to be filed with EHS and on Vet Med's shared drive.**

**Questions/Comments?**

