TODD ENERGY PTW PCF Aids

PCF AIDS

Current CPTW manual version at date of PCF Aids revision		**Rev**: 11.3
Rev 1.0	**Issue Date:** 18/06/2024	**Authorised By:** PSM

The following tables and notes are for use in guiding the Permit Issuer (PI) and PICWS in determining the risk potential, controls and hazards associated with permitted tasks. These aids are intended to be displayed at or on the PCF counter/desk. These aids are only to be obtained from the Todd Energy PTW Manual Controlled Documents to ensure they are the current version.

Task Potential Consequence Categories
The Task Potential Consequence is categorised into 5 rankings and assigned a numeric value as follows:

SCORE	CLASS	SAFETY	ENVIRONMENT	PRODUCTION or PROPERTY
12-15	Disaster	Possible multiple fatalities, probable single fatality. Risk to all installation personnel.	Catastrophic Impact to Environment	Catastrophic Damage with possible complete plant destruction.
10-11	Very Serious	Possible single fatality, probable Serious Harm. Risk to personnel in the area of work.	Release outside the fence with intense long term (more than 12 months) damage to the environment and widespread impact.	Damage to essential equipment causing major economic loss or major loss of containment. Major damage to neighboring properties (Several houses destroyed).
7-9	Serious	Possible Serious Harm, probable LTI. Risk to person undertaking the work due to the environment in which the work is being performed.	Release outside the installation fence with intense local but short term (less than 12 months) damage to the environment.	Major operational upset, major damage to equipment (less than $500,000). Portion of facility destroyed, temporary total loss of production (3 months), significant damage to neighboring properties. (One house destroyed)
3-6	Important	Possible LTI, probable medical treatment risk to person undertaking the work if the method of performing the work is incorrect or if precautions other than those expected from trained personnel are applied?	Possible release within the installation fence with short term (less than 12 months) damage to the environment. Breach of Resource Consent.	Moderate operational upset, moderate damage to equipment (less than $50,000). Part of own premises, or minor damage to neighboring properties
1-2	Noticeable	Possible medical treatment or minor injury requiring First Aid. Tasks are non-hazardous for trained personnel.	No release or negligible damage to the environment.	Minor operational upset, minor damage to equipment (Less than $10,000). Minor damage to own premises.

Table 2: Derived Risk Assessment Scores.

AREA	AREA SCORE	TASK POTENTIAL CONSEQUENCE		Risk Assessment
High Hazard/ Zone 1	**3**	Disaster	Multiple fatalities Plant loss	**12 - 15**
Medium Hazard/Zone 2	**2**	Very Serious	Major plant damage Major fire/explosion Single fatality	**10 - 11**
Low- Hazard/Zone 3	**1**	Serious	Total S/D Major equipment damage Serious Harm injury/LTI's	**7 - 9**
Note: For Hot work, multiply the task consequence score with the Area score to arrive at a Risk Assessment Number *(see below)*.		Important	Reduced Production Equipment damage Medical treatment	**3 - 6**
		Noticeable	Minor equipment damage First aid	**1 - 2**

The **Risk Assessment Number** for hot work tasks is calculated by multiplying the **Area Score** and the **Task Consequence Score** together as shown in Table 2 below. The higher the Risk Assessment Number (darker shading), the more consideration should be given to alternative methods and controls.

For cold work tasks the **Risk Assessment Number** = the **Task Consequence score**.

Where a permit covers 2 or more tasks, each task shall be assessed, with the highest risk assessment outcome recorded on the permit.
Note: for a hot work permit, the risk assessment score may relate to some higher risk, cold work scope. In this case the Risk assessment score = Task Consequence score of the cold work scope. This score shall be used to determine the category of worksite presence.

Category of worksite presence
Depending on the nature of the work, its location and hazard, the requirement for the frequency and duration of presence at the worksite of the PICWS will differ. Using the Categories of Presence listed below, the Permit Applicant is to propose a category on the Permit form for approval from an Authorised Permit Signatory.
Category A: Continuous attendance of the PICWS, with signed transfer of responsibility when one individual is replaced by another. Work must stop when the PICWS is not present. A PICWS can only hold one category A permit at a time.
Category B: As with Category A, except that work may continue during short absences of the PICWS. The PICWS may additionally be responsible for a single Category C job. The PICWS must remain on the installation.
Category C: The PICWS is to be present at the start of the job and is then required to make periodic appearances at the worksite (at least every 3 hrs.). The PICWS can be responsible for several Cat C jobs simultaneously.

The PI should be guided by the Risk Assessment Number in approving the Category of Work-site Presence.
Refer to Risk assessment and control e.g., 1 to 5 = Cat C; 6 to 9 = Cat B; and 10 to 15 = Cat A.

Table 3: Risk Assessment Number

Hazardous Area Number	**3**	3	6	9	12	15	= RISK ASSESSMENT NUMBER
	2	2	4	6	8	10	
	1	1	2	3	4	5	
Consequence No	*X*	**1**	**2**	**3**	**4**	**5**	
	TASK SCORE						

	High Risk	Consider Alternatives
	Medium - High Risk	Hazard ID & Control (JHA's), Toolbox meetings, etc.
	Medium - Low Risk	
	Low Risk	Can be Verbal Permit

Table 4: Examples of Tasks and derived Risk Assessment Numbers

Task	Type	Zone (H, M or L)	Area Score	Task Score	Risk Assessment Number
Confined Space Entry – Non-Conforming	CW	-	-	15	15
Confined Space Entry – Conforming	CW	-	-	10	10
Rigging Work over live process	CW	-	-	10	10
Scaffolding > 1.8 meters	CW	-	-	10	10
Rigging Work	CW	-	-	8	8
Scaffolding < 1.8 meters	CW	-	-	4	4
Electrical work – de-energised.	CW	-	-	4	4
Repair work	CW	-	-	1	1
Naked flame	HW	M	2	5	10
Use of IC engines	HW	M	2	4	8
Sandblasting	HW	M	2	4	8
Heat -shrink work	HW	H	3	2	6
Vehicle entry on made-up roadway	HW	M	2	2	4

Table 5: General Guide for the use of Risk Assessment Numbers

Risk Assessment Number / Required Action	15, 12, 10	9, 8, 7	6, 5, 4	3, 2, 1
Don't do it	√ √ √			
Consider Alternatives or rescheduling of work	↕ √ ↕ √ ↕ √	√		
Job Hazard Analysis (JHA)	√ √ √	√ √ √	√ √ √	
Checklist	√ √ √	√ √ √	√ √ √	
Toolbox Meeting	√ √ √	√ √ √	√ √ √	√ √ √
ROS to authorise	√ √			
Consider ROS Involvement	↕ √	↕ √ ↕ √		
PI to authorise	√	√ √ √	√ √ √	√ √ √
Verbal Permit			√	√ √ √
Category of Work-Site Presence	A A A	B B B	B C C	C C C

↕ Either or, √ = Action required as per left hand column.

Table 6: Examples of Task Consequence Scores for Typical Work

TYPE OF WORK:	TASK CONSEQUENCE No.
COLD WORK	
Confined Space Entry (non-conforming).	15
Use of certified personnel work baskets or man-riding winches.	15
Well servicing operations.	12
Complex lift.	12
Construction, overhaul, or repair work involving breaking into the containment of systems / equipment containing hazardous fluids (i.e., non-purged equipment).	10
Work that directly affects the operation of safety and/or emergency systems including generators and switchboards etc. other than for testing purposes.	10
Handling of hazardous substances, such as radioactive sources, toxic chemicals, pesticides, asbestos, mercury, vapour / benzene, contaminated materials and MMMF including their disposal and removal from site.	10
Live electrical work (excluding extra low voltage < 50VAC / <120VDC)	10
Work on top of equipment, in pipe racks, over the side or underneath installations, except on engineered platforms / scaffolds authorised for use.	10
Work at a height >1.8 meters above the floor/grating level, Including working from an EWP (ELEVATED WORK PLATFORMs)	10
Non-Routine lifts.	10
Cleaning operations using hazardous chemicals.	10
Confined Space Entry (conforming).	10
Rigging operations over or near live process equipment.	10
Rigging operations.	8
Rig skidding and relocation work.	8
Removal of handrails, gratings, hatches, and fixed ladders.	8
Pressure testing of plant and equipment.	8
Excavations that DO NOT involve a confined Space Entry (< 1.5m).	8
Routine lifts (with Hiab or crane)	7
Short-term isolation or inhibition of safety and/or emergency systems including generators and switchboards, etc. for testing purposes.	7
High Pressure Water Jetting/Water Blasting.	5
Spray painting.	5
Construction, overhaul, maintenance, or repair work in operational areas, not involving breaching the containment of systems containing hazardous fluids but having an operational impact.	5
Erection or dismantling of scaffolding <1.8m.	4
Sampling for Non-Routine Product Samples, Lab work, etc.	4
Non-destructive testing/examination (excluding radiography) using IS equipment, e.g., vibration monitoring, ultrasonic thickness checking.	4
Bleeding down of vessels containing hazardous substances to vent systems, drains or atmosphere.	4
Hand painting.	2
Gardening using hand-tools in designated garden areas.	1
Construction, overhaul, or repair work in operational areas, not involving breaching the containment of systems containing hazardous fluids and having no operational impact.	1

Table 6: Contd.

TYPE OF WORK	TASK CONSEQUENCE No.
HOT WORK 1	
Electrical Welding or Grinding	5
Work involving naked flames	5
Electrical Induction pre-heating/Stress Relieving	4
Use of heat shrink blowers	2
HOT WORK 2	
Internal combustion engines; generators, mowers, cranes, compressors etc.	4
Use of air or hydraulic powered metal cutting, chipping, needle guns and wire buffs.	4
Sand Blasting	4
Vehicle Entry within process boundary including designated formed roadways.	4
230 Volt and Battery Powered hand tools (drills, saws, sanders, etc.)	3
Opening live junction boxes	2
Use of non-certified electrical equipment (including cameras, meters, test instruments, etc.)	2
Manual De-scaling (Hammer and chisel)	1

Hot Work Controls:
Two important considerations for all Hot Work are the use of a **Safety Observer** and the need for **Atmospheric Testing**. The following table provides guidance.

Table 7: Hot Work Controls:

Risk Assessment Score	Safety Observer	Atmospheric Testing Frequency	Examples & Comments
15	Yes	Continuous	This could be welding in a high hazard area. **Consider alternatives such as designing out the need for the hot work or shutdown and isolate the process. If neither of these are possible then an engineered solution would be required.**
12	Yes	Continuous	Carrying out Electrical Induction pre-heating in a high hazard area. **Consider alternatives such as moving the operation to a safe area.**
9	PI Discretion	Continuous	Use of an electric power tool in a high hazard area. A Safety Observer may not be required, however an initial gas test followed by continuous monitoring would be appropriate.
8	Yes	Continuous	This could be running an IC engine in a medium hazard area. **Consider placing IC engine outside of hazardous area.**
6	No	Continuous	Opening live junction boxes in a high hazard area.
5	No	PI Discretion	This could be welding in a low hazard area. A safety observer may still be appropriate, however atmospheric testing is not required in most cases. Mercury vapour risk?
4	No	Continuous	Use of a heat shrink blower in a medium hazard area.
3	No	PI Discretion	Low risk e.g., use of a battery drill in a low hazard area.
2	No	PI Discretion	Low risk e.g., use of a camera in a low hazard area.

Gas testing for Hot Work will be specified by the PI. In the case of Sandblasting, an Earth Continuity Check is to be carried out at the start of work and after any relocation of the sandblasting equipment. The results will be recorded on the permit.

HAZARD ID

Consider the following Hazard examples when preparing your JHA and defining your consequences, controls / barriers, and recovery measures.

Table 8: Hazard Examples:

HAZARD	HAZARD
• Inadequate Competency	• Adjacent operations
• Ergonomics	• Communications/ awareness
• Nipping/Pinching	• Safety system isolation
• Physical	• Product spills
• Noise	• Chemicals
• Visibility	• Biological/Toxic materials
• Lighting	• Corrosive materials
• Temperature	• Chemical reaction
• Rain	• Combustion Product
• Wind	• Pressure/Gas release
• Access/Egress	• Fatigue
• Confined space	• Stress
• Weight	• Non-routine task
• Height	• Flying particles
• Obstacles	• Loose materials
• Airbourne contaminants	• Health
• Hydraulics	○ Diabetic
• Crane operation	○ Asthma
• Rotating equipment	○ Medication
• Electrocution	○ Disability
• Electrical supply	○ Allergies
• Trapped Energy / Pressure	

Table 9: Job Hazard Analysis
JHA – JOB HAZARD ANALYSIS

WHAT – IS A JHA?
A JHA (previously known as a WSHA or Bowtie) is one of the tools that form the Company work control process (Hazard & Effect Management Process). The JHA is used at Task level, identifying, and assessing the hazards of each element of a task and defining appropriate controls and recovery measures to Eliminate or Minimize (E /M) the hazard.

WHEN – DO WE NEED TO HAVE A JHA?
All jobs and activities require a JHA. A JHA is required to be completed on the appropriate form. This may require a new JHA, or it may be acceptable to use a Generic JHA. (Refer to the Rules adjacent). Can be embedded into an approved SOP.

WHO – COMPLETES THE JHA?
All people directly involved with the task, led by the Permit Applicant or PICWS for the job, should complete the JHA. If it is not practicable to have everyone involved in the development of the JHA, then it must be reviewed by the entire work group during the Toolbox meeting prior to commencing work.

HOW – IS A JHA DONE?
A JHA should be compiled by a team of people familiar with all aspects of the task to be performed, identifying the steps, hazards, and solutions for eliminating or minimizing the hazards by way of controls.

CONTENT – WHAT'S IN A JHA?
The main components of a JHA, are the identification of the each step of the Tasks associated with the job, identifying the Hazards of each Task step, Identifying the Consequences (who/what may be harmed -People, Environment, Asset), select appropriate controls and or barriers to mitigate the consequences, select recovery measures that will limit the consequences and finally identify the Responsible party for ensuring the requirements are in place and job can continue to the next step.

RULES:

Generic JHA's – ***are only acceptable for repeat tasks where the hazards of the job do not change or the environmental conditions on the day are not a factor***. They are usually repeat tasks carried out by the same team or individuals. Examples of when Generic JHA's may be used, include vehicle entry, blasting/painting in designated areas, product sampling for specific samples (not sampling in general), slick line wireline operations, pigging of a specific pipeline (not pigging any or all lines), PM's such as a specific filter change, lube changes, conditioning monitoring, small pump servicing, visual inspections etc.

A Reviewing and Approving– Shall be undertaken by the PICWS for ALL jobs as part of the preparation of the JHA. The AT is to review and approve the JHA prior to Permit Issue for all jobs with a risk score of 5 and above. The PI is to review and approve the JHA prior to Permit Issue for all jobs with a risk score of 10 & above. For all jobs with a risk score of 12 & above, the ROS is required to review and approve the JHA prior to Permit Issue.

Shaded Boxes –E= Eliminate, M= Minimise Column– Where the PICWS is confident and able, they should complete the information required in the two shaded boxes of the JHA form. Where they are not confident to do so, these should be completed by the PICWS together with the PI after discussion.

Hazard Notes – Hazards identified must include Hazards of the day.
For each Hazard identified, at least one control/barrier should be put in place to mitigate the Hazard.

A JHA is now compiled directly in the Todd Energy online electronic permitting system known as 'PermitMe.' There is a template in place to provide the framework and format. A 'JHA Library' is also accessible in the 'New Permit Request' section, as a starting point for some of the most common hazards and controls on the Todd Energy sites. It is expected that the JHA library items will be modified by the Permit Applicant when compiling the permit to ensure the job tasks, hazards, and controls are specific and tailored to the job at hand.