

## Worksite Protection Human Factors Toolkit – Instructions for Use

### Components of the Toolkit:

1. Report : *Worksite Protection Systems Analysis Toolkit*

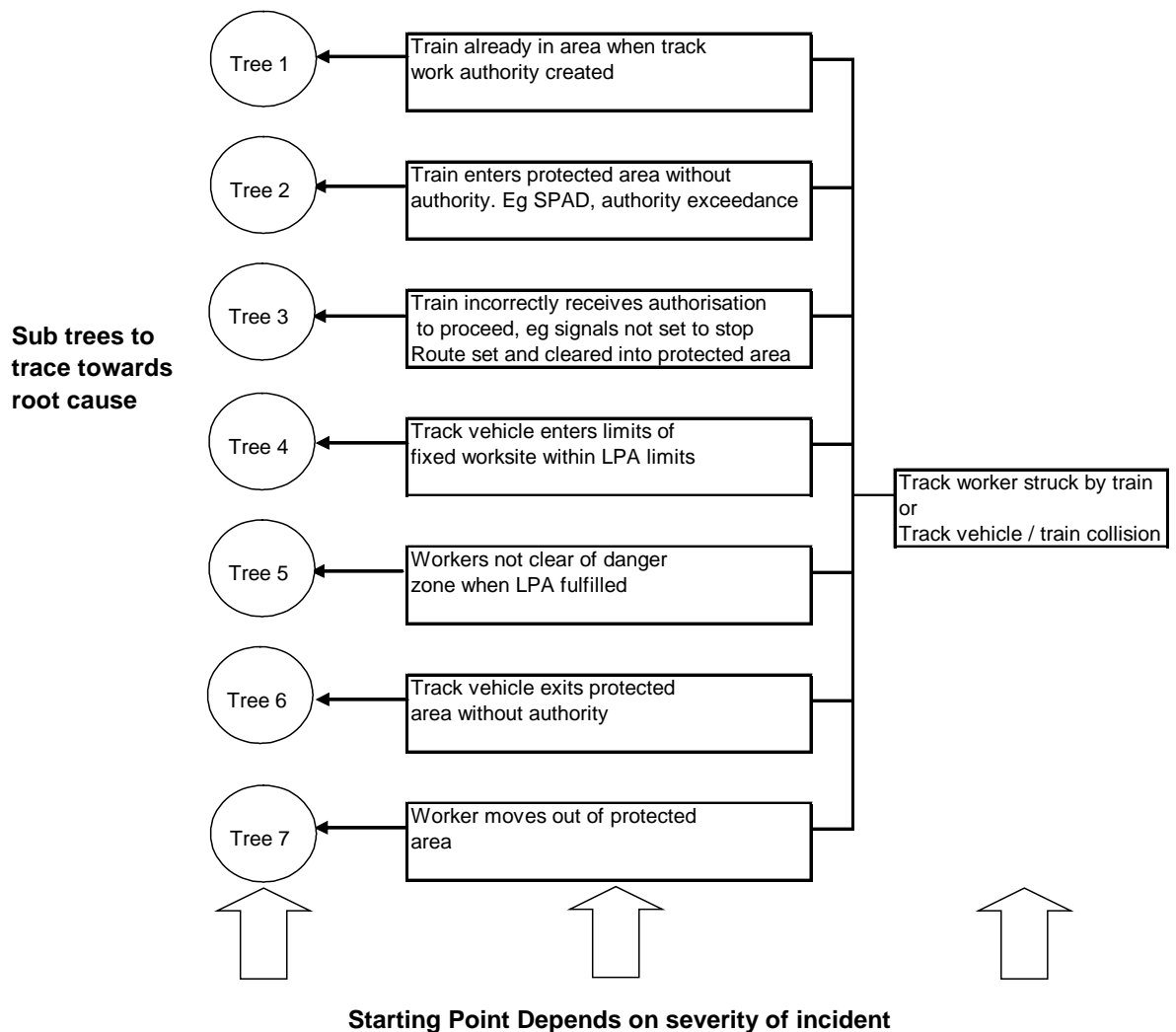
For each form of WSP (Lookout Working, CSB, TWA, TOA, LPA) the following materials are available:

2. Fault tree with main tree and various sub trees (Excel Workbook)
3. Human Factors (HF) checklist worksheet with tick-boxes at the end of each fault tree (part of the Excel workbook)

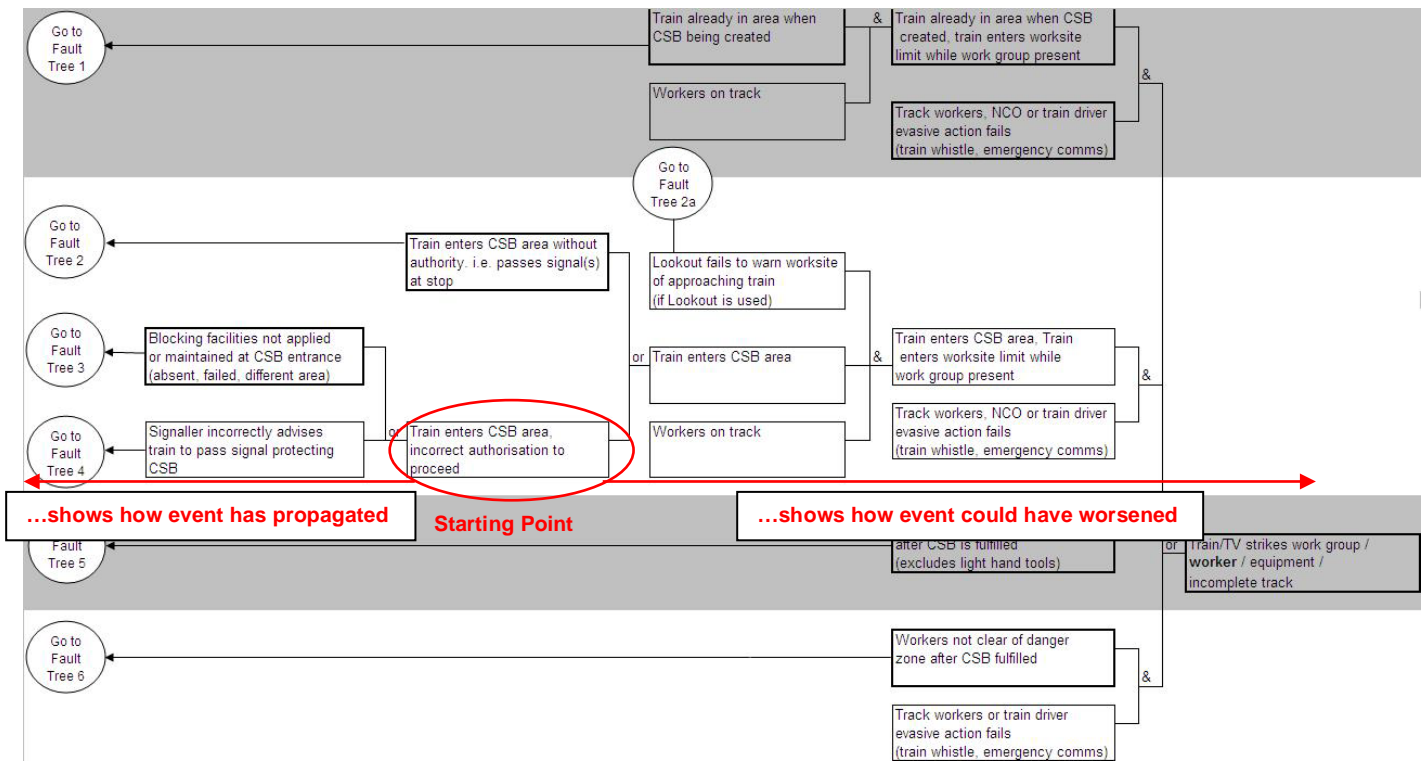
Step 1	Select the form of worksite protection relevant to the incident/case e.g. if you are dealing with an incident that happened while using CSB, this will be your relevant WSP form
Step 2	Open the associated (e.g. CSB) Fault Tree (Excel workbook) and ensure you are on the “Main Tree” sheet which provides the starting point (see Figure 1).
Step 3	<p>Start looking at the right hand side of the fault tree. You will see the top event (e.g. <i>train strikes workgroup/equipment</i>) on the very right and various pathways to the left that can lead up to this top event.</p> <p>Identify the incident/scenario outcome you are interested in within the fault tree (e.g. <i>train enters CSB area while workgroup is present</i>). This is the starting point for the investigation (see Figure 2) and represents the extent to which the incident has progressed. Generally, the more serious the incident, the closer it will be to the top event.</p> <p><i>Note, that with some lower level incidents which haven't progressed that far, you might not find them in the main tree but need to go to the relevant sub-tree.</i></p> <p><b><i>In any case it is recommended that you study the main tree first so that you get a good understanding of different failure pathways for different types of incidents.</i></b></p>
Step 4	<p>Once you have identified the relevant incident/scenario outcome, trace the incident backward in the fault trees (from right to left) until you reach the end of the fault tree - the “base event”.</p> <p><i>Note, when there are &amp;-gates you will end up with more than one base event.</i></p> <p><i>The base events are colour coded to quickly identify the role affected.</i></p>
Step 5	Once arrived at the “base event” it is essential to understand why this has occurred (see Figure 3).The Human Factors Checklist provides a list of the most commonly found factors that

	contribute to decreased human performance. Where little is known why the base event occurred, the investigation should look those issues covered by the checklist. This will ensure a systems approach is taken.
Step 6	Fill in the "Role" from the identified base events in the field(s) provided at the top of the columns (e.g. PO, NCO), identify any relevant contributing factors and tick the applicable fields.  <i>Note, that the identification of contributing factors should be based on evidence (interviews, observations, documents, etc.)</i>

**Figure 1: Simplified Main Tree with links to Sub Trees**



**Figure 2: Example for starting point within fault tree**



**Figure 3: Fault tree and Human Factors checklist**

