The modern, fast and easy to use risk analysis tool

Cloud Edition
BowTie Pro™ Incidents

Getting Started Guide

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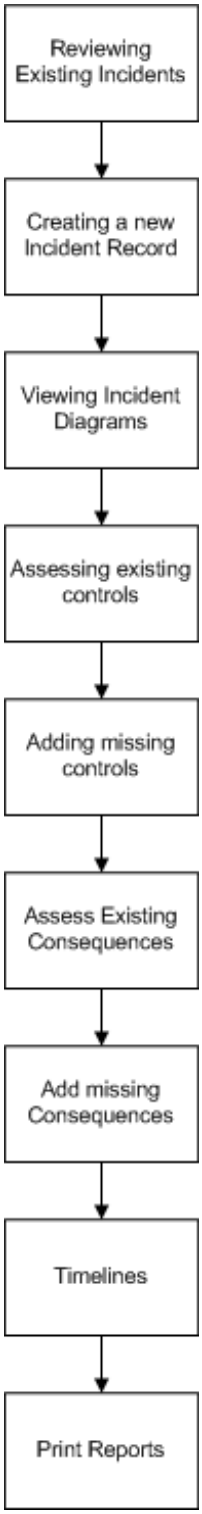
Introduction

Covered in this guide



BowTie Pro™ provides a visual representation of the risk assessment process that can lead onto other elements

One element of a company's safety management system will be a process for 'Incident Investigation, Analysis and Reporting' whose purpose is to identify why things went wrong so that they can be corrected and future losses and business interruptions prevented.

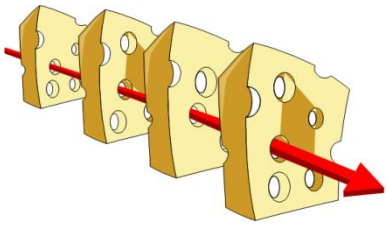
Most Incident investigation techniques deal with the chain of Events and the Controls that failed. Many Incidents occur on previously defined assessments created using BowTie Pro™.

BowTie Pro™ displays the 'cause and effect tree' as the combination of the **WHAT**, **HOW** and the **WHY** models. In one diagram, a Threat should be stopped from releasing the Hazard/Event, by one or more Controls/Barriers.

If this does not happen and the Hazard is released then potentially all the Consequences will occur if one or more Controls on each of the Controls on the right hand side of the diagram does not stop each of the Consequences.

The steps in this process start with an initial fact finding exercise followed by detailed investigation, testing, analysing facts and assumptions, and formulating corrective actions to improve the management system and organisational culture that allowed the Incident to occur.

A series of faults and Failed Controls lead to the "Event", via a specific Incident trajectory. The Consequences could have been more severe but, the Incident progression was stopped by an Effective Control. Incidents happen when people make errors and fail to keep the Controls functional or in place e.g. people doing the wrong thing or people not doing what they should do.



BowTie Pro™ Incidents utilises the Tripod Theory to allow the user to conduct Incident analysis either after or during the investigation itself. This enables investigators and analysts to systematically and comprehensively:

- ✓ Direct and refine their fact finding;
- ✓ Confirm the relevance of their fact gathering;
- ✓ Highlight avenues of investigation pointing to the identification of underlying causes.
- ✓ Identify and resolve any logical anomalies whilst the investigation is still active and
- ✓ Produce a definitive report

Reviewing the appropriate bowtie risk assessment associated with an Incident helps identify Controls in the Incident diagram and once the Incident is analysed this can be fed back into the bowtie diagram.

These methodologies enable a systematic and comprehensive process to be carried out and reviewing the appropriate bowtie risk assessment, associated with an Incident, will help identify Controls in the Incident investigation.

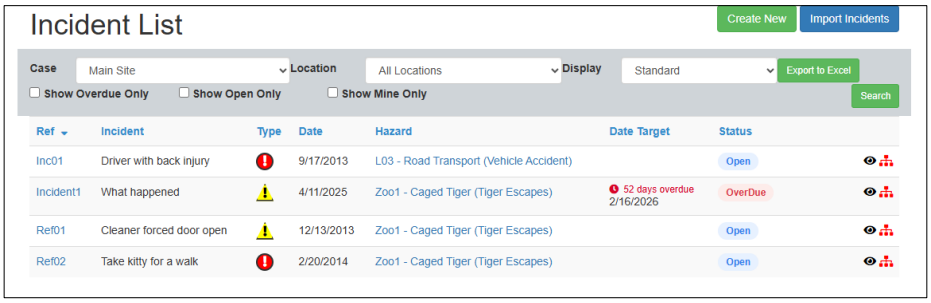
How to enable Bowtie Incident module

The Incident module is included in BowTie Pro Cloud Edition but needs to be enabled. This is performed in the "Overall Settings" within the Admin section by selecting "**Use Incident Module**"

Step 1 – Reviewing Existing Incidents

Open up the Incident Review Screen by selecting the "Incidents" option on the top bar

This will show the Incidents in a list.



From this screen it is possible to manage the Incidents. Running a report and exporting to Excel is described later in this document. The top bar allows the user to filter the incidents that as required and then to the right of the incident items there are two buttons to allow viewing of the overview tree view or the visual diagrams .

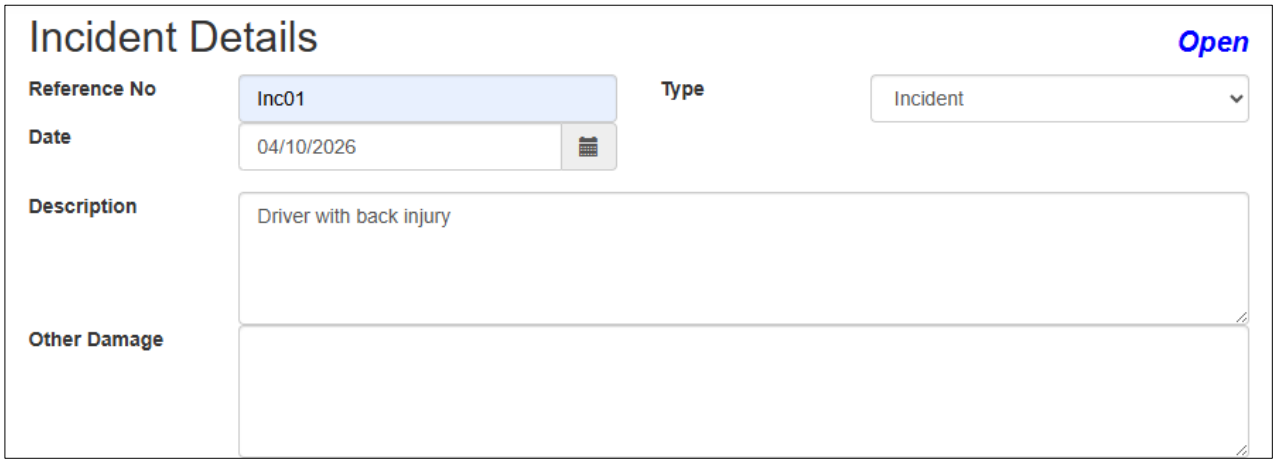
Items can be added using the "Create New" button at the top of the screen.

Step 2 – Creating a new Incident Record

1. Press the "Create New" button and select the bowtie diagram that is associated with the new incident.
2. This will open up the "Incident details" screen

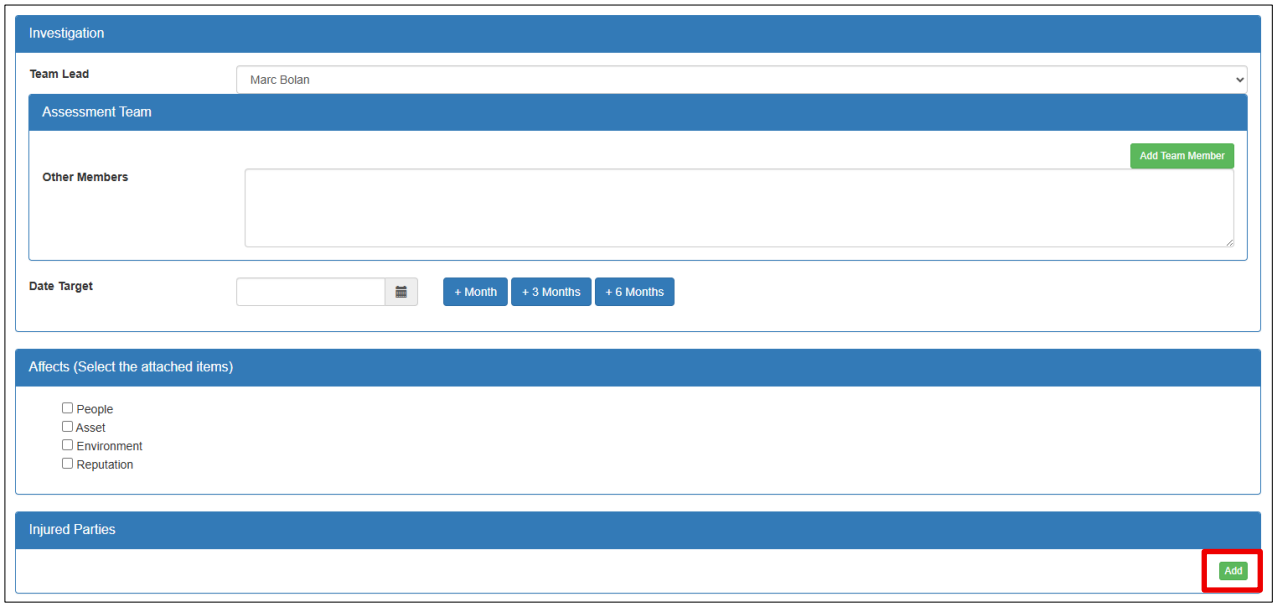
On the screen provide

- A reference number
- Select if it was an "Incident" or "near miss"
- The date when the Incident occurred
- Short Description of the Incident
- Optionally Other Damage can be added if appropriate



The next section allows the originating Threat and if the top event is released to be entered

- Select if it is a previously defined Threat or a new Threat
- Select the Threat that released the Incident or enter a description of the Threat if it is a new one
- Select if the Hazard that was released or if the combined effect of the Threat'sControls prevented the Hazard from being released



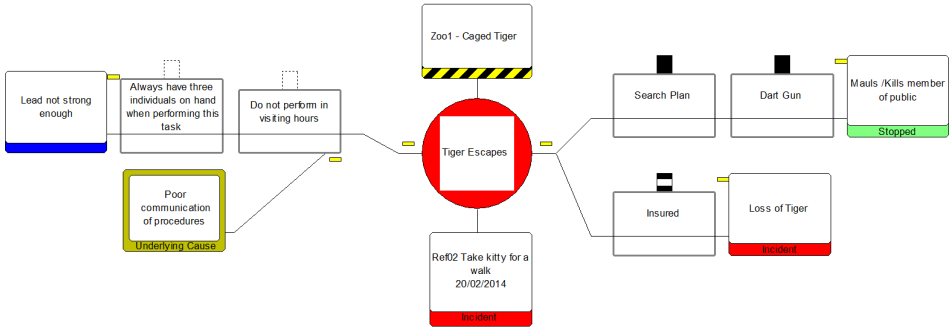
- The "Investigation" section provides details on the team that is investigating the Threat. This is optional at this stage

- Aspects of the matrix this Incident affects can be added if appropriate
- Optionally the Injured parties can be added using the “Add” button

Once we have completed these details press the “Save” button and you will be taken to the Incident Overview screen.

Step3 – Viewing Incident Diagrams

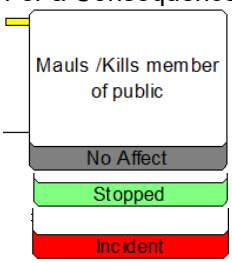
The incidents can be viewed either in the overview screen or the diagram screen. This can be done from the list screen by clicking the  to view the overview and  to view the diagram.



Just as in the bowtie diagram the Threat is on the left hand side, but in an Incident diagram there is only the Threat that was released listed. If the Hazard was released on the right hand side there are both the Consequences defined in the bowties but can also have Consequences that were previously unseen.

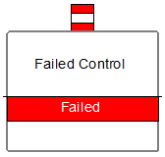
If Consequences are shown these are colour coded depending on their effect

For a Consequence there are four result options:



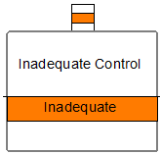
- **Not Affected** - This is the Consequence previously defined as not being an issue on this Incident
- **Consequence not reached** – The Consequence is appropriate on this Incident but a barrier stopped it from being reached
- **Consequence reached but a near miss** – This is when a barrier did not stop this issue but the listed Consequence eg explosion did not occur by chance
- **Consequence occurred** – The barrier did not stop the Event and the feared Consequence was experienced.

Between the Threats and Consequences should be Controls. In the case of existing Threats and Consequences, the Incident diagram will display all the Controls defined when building the bowtie. If there are Controls identified that were not defined in the bowtie these can also be added to the Incident diagram. The top of the Control denotes the effectiveness of the Control. These are as follows:



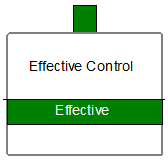
Failed

A Failed Barrier node is shown as letting the Hazard/Event or Threat to pass through a ‘gap’ in the Barrier.

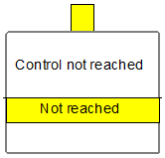


Inadequate

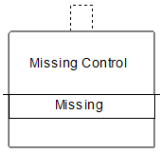
An Inadequate Barrier that it was in place but was inadequate for the intended role.



Effective
An Effective Barrier node represents a Barrier that did not fail and provided the successful containment of a Hazard/Event. It is used to model a 'Near Miss' or a branch of an Incident diagram where further injury, damage or loss was averted. There is no Immediate Cause, PreCondition or Underlying Cause nodes linked to it.



Control not reached
This is a barrier that was in place but was not tested because another Control was effective



Missing from the bowtie
A Missing Barrier node provides for cases where plans and procedures have specified a Barrier but investigation shows that none was established. There are no Immediate Causes for this type of Barrier and it is linked directly to an Underlying Cause.

Initially all Controls will be defined as failed. In the diagram left click on each Control in turn and select "Edit" to update the items.

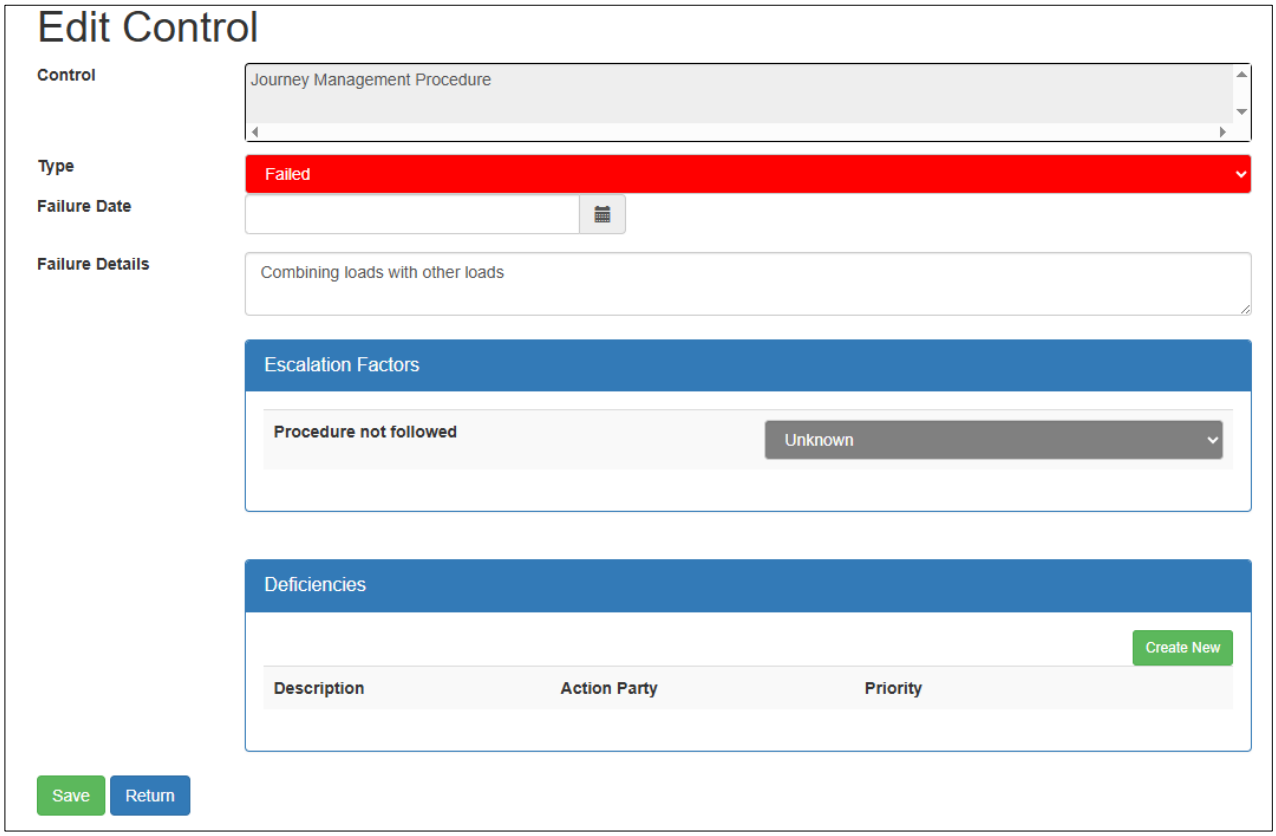
Step4 – Assessing existing Controls

When assessing the existing controls the Description of the Control comes through from the bowtie and is read-only on this screen.

On the Controls "Details" tab select the effectiveness of the Control in the "type" box.
Existing Controls can be:

- Failed
- Inadequate
- Effective
- Not Reached

If the type is "Inadequate" or "Failed", enter the date that the Control failed and a description of the failure if known

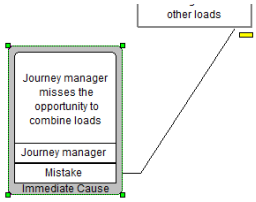


The next section allows “Escalation Factors” can be evaluated as either

- Influenced
- No Effect
- Unknown

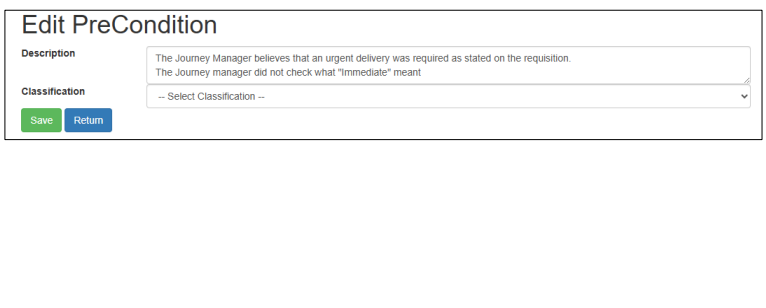
Finally any deficiencies can be added, exactly as can be added to Controls when building Hazards, to the control. Then save the updates.

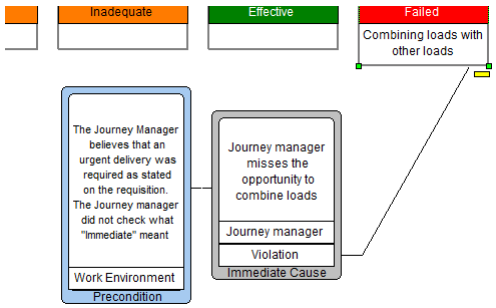
If a Control is “Inadequate” or “Failed” a single “Immediate Cause” can be entered. The menu on the diagram screen will have the option to add this item, if it does not already exist.



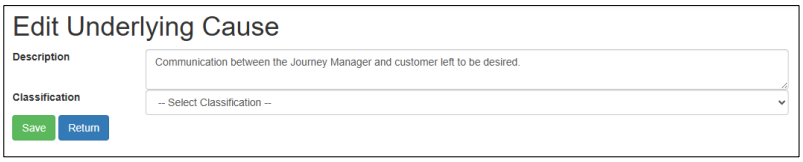
- The Immediate cause is in the top of the box and is what was done to make the Control fail. This is shown on the diagram below the control

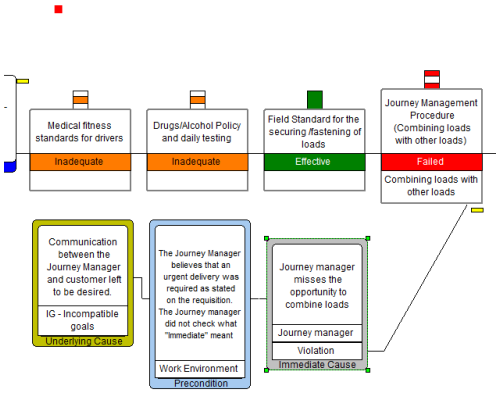
- There can be many “PreConditions” for the immediate cause, and these are added from the diagram by left clicking the Immediate Cause and selecting “Add PreCondition” or “Link existing PreCondition” from the popup menu.





- Each PreCondition can have many “Underlying Causes”. As with the PreConditions the Underlying Causes are shown on the diagram as boxes leading to the PreConditions that lead to the Immediate Cause





Step5 – Adding missing Controls

To add a Control that should have been in place but was not defined in the Hazard build, left click on the Threat and select “Add missing Control”

- The description of the new Control is mandatory.
- The Failure details can be entered if there are details to enter but this is optional
- The missing Control can only have Underlying causes not PreConditions of Immediate Causes.

Step6 – Assess Existing Consequences

The Consequences that were previously defined in the bowties will be listed on the right hand side if the Hazard is marked as being released.

To open up the Consequence left click on the item in the diagram and select Edit.

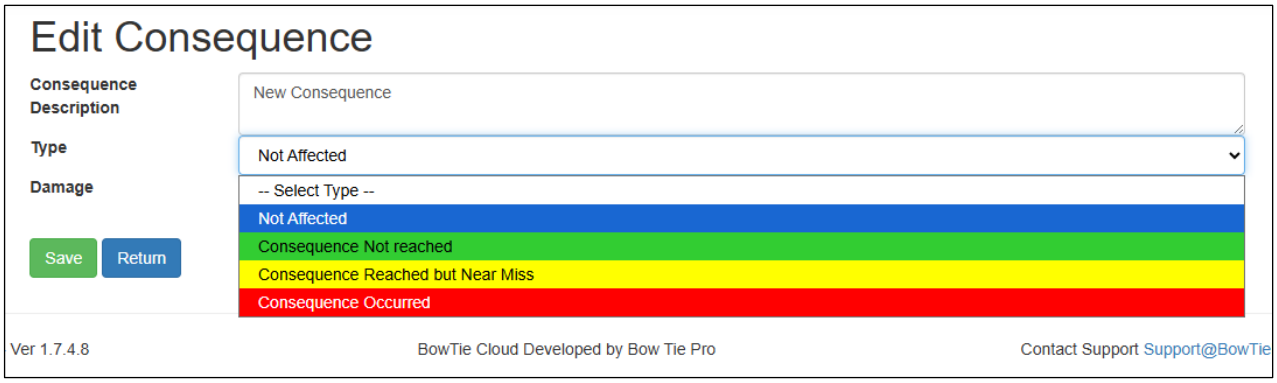
- The description will be read-only
- The Type is the effect. There are four options for the type

- Not Affected
- Consequence not reached
- Consequence reached but a near miss
- Consequence occurred

- The description of the actual details can also be entered if appropriate

Step7 – Add missing Consequences

If there are Consequences that were not envisaged in the bowtie build these can be added by left clicking on the Hazard ball and selecting "Add Missing Consequence". This will open up a screen identical to the existing Consequence but the description is editable and mandatory.

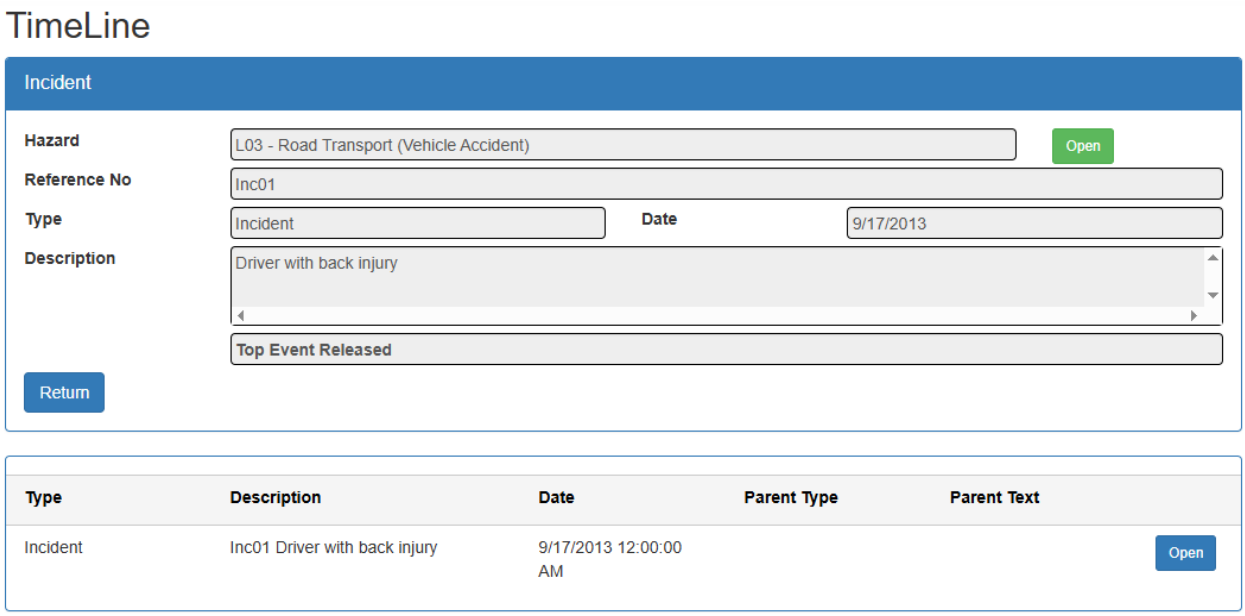


Step 8 – Timelines

The timeline lists all the dates in a particular Incident. This can be a good tool to identify why an Incident occurred. All the dates are listed in order regardless of the type. The dates are defined on the:

- **Immediate Causes** – The date of the immediate cause that the will lead to the Control failure
- **Controls** – Failure dates
- **Incident** – When the Incident occurred.
- **Incident** – Submission of the report dates.

To open up the screen right click the "Timeline" button from the Incident Overview screen



Step 9 –Print Reports

As with the incidents there are a range of reports that can be run from the incident overview screen plus there are reports on the reports section.