

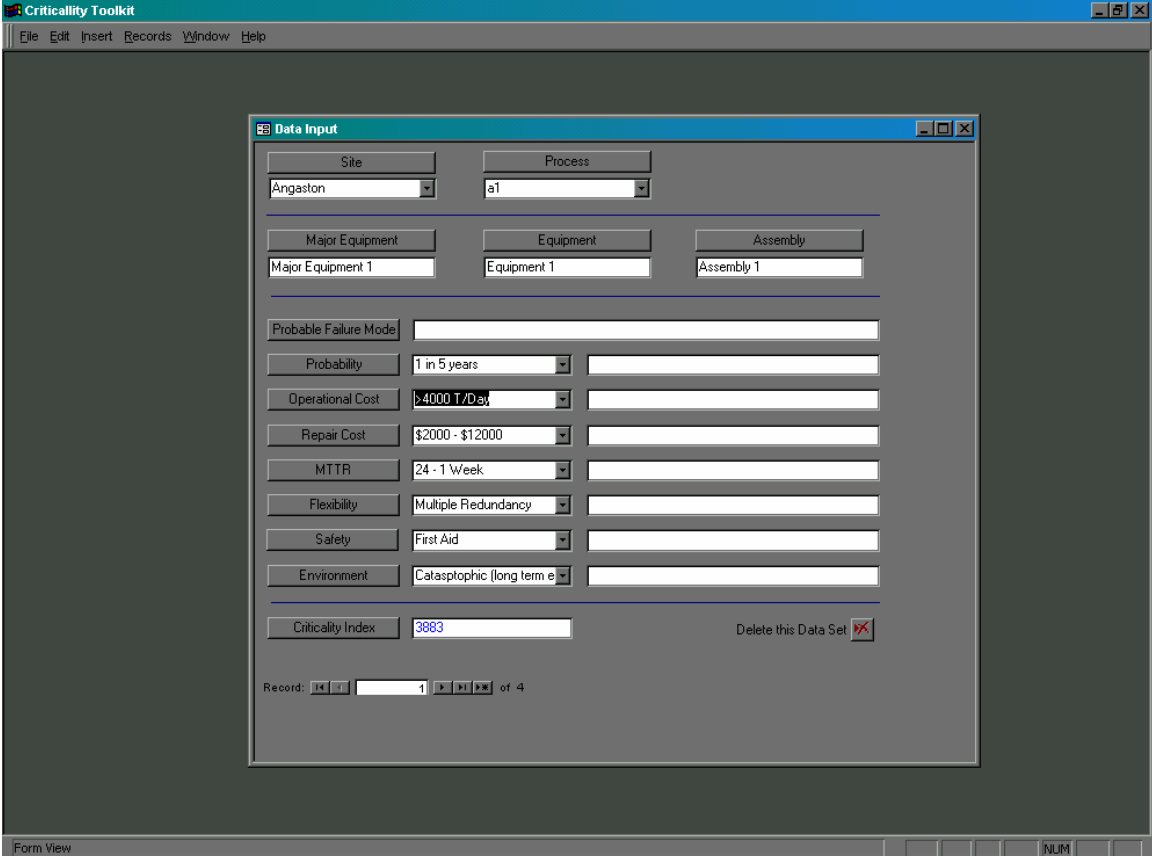
## THE PLANT CRITICALITY TOOLKIT

The Asset Partnership's Criticality Toolkit has been designed to provide a simple to operate, technically sound approach to developing a criticality profile for any industrial operation. It operates on the fundamental principle that plant criticality is the product of probability of failure occurrence and failure consequence.

Failure consequence has several components which are scored within the Toolkit:

- Operational impact of failure:
- Likely repair costs
- Mean time to repair
- Presence of built in redundancy
- Safety and environmental impact of failure

Specific scoring parameters are developed by the organisation commissioning the analysis so that each component is scored on an appropriate 'equivalent' basis. These bespoke scoring parameters are embedded in the Toolkit by The Asset Partnership.



The screenshot shows the 'Data Input' window of the Criticality Toolkit. The form contains the following fields and values:

Field	Value
Site	Angaston
Process	a1
Major Equipment	Major Equipment 1
Equipment	Equipment 1
Assembly	Assembly 1
Probable Failure Mode	
Probability	1 in 5 years
Operational Cost	>4000 T/Day
Repair Cost	\$2000 - \$12000
MTTR	24 - 1 Week
Flexibility	Multiple Redundancy
Safety	First Aid
Environment	Catastrophic (long term e
Criticality Index	3883

At the bottom of the form, there is a 'Delete this Data Set' button and a record indicator showing 'Record: 1 of 4'.

Figure 2: Criticality parameters within the Toolkit

Scoring operates on the principle of 'equivalence'. For instance, the losses incurred by an organisation through injury of one of its personnel would be equivalent to a particular loss of production. From a criticality perspective, environmental incidents are 'equivalent' to losses of production of a particular level or indeed a safety incident of a particular severity. This principle is explained in detail in the start-up workshop which precedes the criticality analysis process.

The Toolkit is designed to cater for easy report production, limiting the effort needed by the facilitator involved. A sample report is shown below.

**Criticality Order - All Sites and Processes**

Criticality Index	Site	Process	Major Equipment	Equipment	Assembly	Probability	Operational Loss	Repair Cost	MITR	Flexibility	Safety	Environment
76520	Angaston	a1	Major Equipment 2	Equipment 2	Assembly 2	120	80	30	120	0.01	0000	1250
3883	Angaston	a1	Major Equipment 1	Equipment 1	Assembly 1	3	80	4	48	0.01	2	1250
855	Angaston	a2	Major Equipment 1a	Equipment 1a	Assembly 1a	15	15	1	8	0.05	25	25
253	Angaston	a1	Major Equipment 4	Equipment 4	Assembly 4	1	1	0.1	3	1	0	250
183	Angaston	a1	Major Equipment 3	Equipment 3	Assembly 3	3	6	30	1	1	0	25

Figure 3: Sample Criticality report

Data may be exported to spreadsheet packages such as Excel to produce Criticality profiles for the operation.