Task Scoring Guidelines (Operations & Maintenance)

For each factor the text above the dotted line is more related to operations tasks and text below the dotted line is more related to maintenance. However, either can be used for guidance when assigning scores.

	None (score 0)	Low (score 1)	Medium (score 2)	High (score 3)
How hazardous is the system involved?	Non-hazardous system (operations)	Small amount of low hazard / condition	Large amount of low hazard or small amount of high hazard	High amount of high hazard / condition
	Non-hazardous system (maintenance)	Task carried out after hazardous system has been proven hazard free	Actions taken to remove hazard, but some may remain	Work carried out whilst adjacent/related systems remain live
To what extent does the task involve the introduction of energy or an ignition source?	No ignition / energy sources	Low pressure or temperature rise	Medium pressure or temperature rise. Combustion engine.	High pressure or temperature rise
	No possibility of a flammable atmosphere	Electrical switching. Electrical equipment used.	Potential for sparks or hot surfaces	Flames
To what extent does the task involves changes to the operating configuration?	No change required	Simple valve changes (few valve moves)	Complex or multiple valve changes. Use of temporary connections	Complex and multiple valve changes. Use of temporary bypass line.
		Connect/dis-connect points designed for routine use (e.g. quick coupling, plug and socket)	Make/break small number of bolted joints	Complex assembly/disassembly. Multiple components.
What is the potential for error in performing the task?	Fully automated task	The potential for error cannot be rule out although there is no specific concern	There is a recognised possibility for error	There is a significant possibility of error Task requires constant vigilance.
	Very simple and errors would have no consequence	A 'normal' task	Complex task	Errors are likely to be unrecoverable No automated protection.
To what extent could the task affect performance of a safety system?	No systems overridden or defeated	Task involves a deviation from an original procedure or design.	Warning devices may be made inoperable (e.g. alarms, gauges, meters)	Trip systems overridden. Safety valves isolated.
	Fully automated layers of protection against major accidents	Simple response to alarm considered as a layer of protection (e.g. push button to trip machine)	Task to be performed to achieve a layer of protection	Task is considered the only layer of protection
	No safety system affected by task	May affect system calibration. Safety system may not operate as normal.	One of several layers of protection may be made inoperable	Multiple layers of protection may be made inoperable. Potential for common cause failure

Recommended actions checklist:

- Adds real value? (significant reduction in risk or cost; or improved operability);
- Based on sound engineering reasoning? (not just the loudest voice in the room);
- Consensus of the team?
- Intent is clear?
- Easy to understand? (even without the report);
- Includes detailed descriptions? (tag, P&ID or procedure numbers);
- Realistic?
- Give freedom to engineer? (whilst clearly defining the requirement).

Human Error Analysis (Task HAZOP)

General

- Omitted (not carried out);
- Incomplete;
- Performed on the wrong object;
- Mistimed (too early or late);
- Carried out at the wrong speed (too fast or slow);
- Carried out for the wrong duration (too long or too short);
- Performed in the wrong direction.

Actions

- Misaligned
- Too much or little force/effort.

Transmitting information

- Incorrect,
- Unclear or
- Ambiguous.

Receiving information

- Wrong data may selected
- Misinterpreted.

Performance influencing factors[1]

Job factors

J1 - Clarity of signs, signals, instructions and other information
J2 - System/equipment interface (labelling, alarms)
J3 - Difficulty/complexity of task
J4 - Routine or unusual
J5 - Procedures inadequate or inappropriate
J6 - Preparation for task (e.g. permits, risk assessments, checking)
J7 - Time available/required - Divided attention
J8 - Tools appropriate for task
J9 - Communication, with colleagues, supervision, contractor, other
J10 - Working environment (noise, heat, space, lighting, ventilation)
J11 – Access to worksite or equipment (including use of tools)

Person factors

P1 - Physical capability and condition
P2 - Fatigue (acute from temporary situation, or chronic)
P3 - Stress/morale
P4 - Work overload/underload
P5 - Competence to deal with circumstances
P6 - Motivation vs. other priorities

Organisation factors

O1 - Work pressures e.g. production vs. safety
O2 - Level and nature of supervision / leadership
O3 - Communication
O4 - Manning levels
O5 - Clarity of roles and responsibilities
O6 - Peer pressure
O7 - Consequences of failure to follow rules/procedures
O8 - Organisational learning (learning from experiences)
O9 - Organisational or safety culture, e.g. everyone breaks the rules

[1] Reference – www.hse.gov.uk/humanfactors/topics/pifs.pdf