HUMAN FACTORS CHECKLIST

Item No.	Question	Response	Recommendations
I. Housekeeping and General Work Environment			
1	Are adequate signs posted near maintenance, cleanup, or staging areas to warn workers of special or unique hazards associated with the areas?		
2	Are adequate barriers erected to limit access to maintenance, cleanup, or staging areas?		
3	Are working areas generally clean?		
4	Are provisions in place to limit the time a worker spends in an extremely hot or cold area?		
5	Is noise maintained at a tolerable level?		
6	Are alarms audible above background noise both inside the control room and in the process area?		
7	Are normal and emergency lighting sufficient for all area operations?		
8	Is there adequate backup power for emergency lighting?		
9	Is the general environment conducive to safe job performance?		
II. Accessibility/Availability of Controls and Equipment			
1	Are adequate supplies of protective gear readily available for routine and emergency use?		
2	Are workers able to perform both routine and emergency tasks safely while wearing protective equipment?		
3	Is emergency equipment accessible without presenting further hazards to personnel?		

Item No.	Question	Response	Recommendations
II. Accessibility/Availability of Controls and Equipment (continued)
4	Is communications equipment adequate and easily accessible?		
5	Would others quickly know if a worker is incapacitated in a process area?		
6	Are the right tools (including special tools) available and used when needed?		
7	Is the workplace arranged so that workers can maintain a good working posture while performing necessary movements to conduct routine tasks?		
8	Is access to all controls adequate?		
9	Can operators/maintenance workers safely perform all required routine/emergency actions, considering the physical arrangement of equipment (e.g., access to equipment, or proximity of tasks to rotating equipment, hot surfaces, hazardous discharge points)?		
10	Are valves that require urgent manual adjustments (e.g., emergency shutdown) easily identifiable and readily accessible?		
III. Labeling
1	Is all important equipment (vessels, pipes, valves, instruments, controls, etc.) legibly, accurately, and unambiguously labeled?		
2	Does the labeling program include components (e.g., small valves) that are mentioned in the procedures even if they are not assigned an equipment number?		
3	Has responsibility for maintaining and updating labels been assigned?		

Item No.	Question	Response	Recommendations
III. Labeling (continued)			
4	Are emergency exit and response signs (including wind socks) adequately visible and easily understood?		
5	Are signs that warn workers of hazardous materials or conditions adequately visible and easily understood?		
IV. Feedback/Displays			
1	Is adequate information about normal and upset process conditions clearly displayed in the control room?		
2	Are the controls and displays arranged logically to match operators' expectations?		
3	Are the displays adequately visible from all relevant working positions?		
4	Do separate displays present similar information in a consistent manner?		
5	Are automatic safety features provided when a process upset requires rapid response?		
6	Are automatic safety features provided when a process upset may be difficult to diagnose due to complicated processing of various information?		
7	Are the alarms displayed by priority?		
8	Are critical safety alarms easily distinguishable from control alarms?		
9	Is an alarm summary permanently on display?		
10	Are nuisance alarms corrected and redundant alarms eliminated as soon as practical to help prevent complacency toward alarms?		

Item No.	Question	Response	Recommendations
V. Controls			
1	Is the layout of the consoles logical, consistent, and effective?		
2	Are the controls distinguishable, accessible, and easy to use?		
3	Do all controls meet standard expectations (color, direction of movement, etc.)?		
4	Do the control panel layouts reflect the functional aspects of the process or equipment?		
5	Does the control arrangement logically follow the normal sequence of operation?		
6	Can operators safely intervene in computer-controlled processes?		
7	Can process variables be adequately controlled with the existing equipment?		
8	Do operators believe that the control logic and interlocks are adequate?		
9	Does a dedicated emergency shutdown panel exist? If so, is it in an appropriate location?		
VI. Workload and Stress Factors			
1	Is the control room always occupied (i.e., assigned duties do not require the control room operator to be absent from the control room)?		
2	Are the number and frequency of manual adjustments required during normal and emergency operations limited so that operators can make the adjustments without a significant chance of mistakes as a result of overwork or stress?		

Item No.	Question	Response	Recommendations
VI. Workload and Stress Factors (continued)			
3	Is the number of manual adjustments during normal operations sufficient to avoid mistakes as a result of boredom?		
4	Have the effects of shift duration and rotation been considered in establishing workloads?		
5	Is the number of extra hours an operator must work if his or her relief fails to show up sufficiently limited so that worker safety is not adversely affected?		
6	Is the number of hours an operator or maintenance worker must work during startup or turnarounds sufficiently limited so that worker safety is not adversely affected?		
7	Can additional operators (e.g., from other areas or from off site) be called in quickly to help during an emergency?		
8	Is the staffing level appropriate for all modes of operation (normal, emergency, etc.)?		
VII. Procedures			
1	Do written procedures exist for all operating phases (i.e., normal operations, temporary operations, emergency shutdown, emergency operation, normal shutdown, and startup following a turnaround or after an emergency shutdown)?		
2	Are safe operating limits documented, providing consequences of deviating from limits and actions to take when deviations occur?		
3	Are procedures current (i.e., are they revised when changes occur)?		

Item No.	Question	Response	Recommendations
VII. Procedures (continued)			
4	Do operators believe that the procedure format and language are easy to follow and understand?		
5	Are the procedures accurate (i.e., do they reflect the way in which the work is actually performed)?		
6	Is responsibility assigned for updating the procedures, distributing revisions of the procedure, and ensuring that workers are using current revisions of the procedures?		
7	Are temporary notes or instructions incorporated into revisions of written operating procedures as soon as practical?		
8	Do procedures address the personal protective equipment required when performing routine and/or nonroutine tasks?		
VIII. Training (Employees and Contractors)			
1	Are new employees trained in the hazards of the processes?		
2	Do operators and maintenance workers receive adequate training in safely performing their assigned tasks before they are allowed to work without direct supervision?		
3	Does operator and maintenance worker training include training in appropriate emergency response?		
4	Do operators practice emergency response while wearing emergency protective equipment?		

Item No.	Question	Response	Recommendations
VIII. Training (Employees and Contractors) (continued)			
5	Do operators practice emergency response during extreme environmental conditions (e.g., at night or when it is very cold)?		
6	Are periodic emergency drills conducted?		
7	Are emergency drills witnessed by observers and critiqued?		
8	Does a periodic refresher training program exist?		
9	Is special or refresher training provided in preparation for an infrequently performed operation?		
10	When changes are made, are workers trained in the new operation, including an explanation of why the change was made and how worker safety can be affected by the change?		
11	Are operators and maintenance workers trained to request assistance when they believe they need it to safely perform a task?		
12	Are operators and maintenance workers trained to report near misses as part of the incident investigation program?		
13	Are operators trained to shut down the process when in doubt about whether it can continue to operate safely?		