CHECKLIST: DESIGN REVIEW CHECKLIST				
CRITERIA	**YES**	**NO**	**N/A**	**COMMENTS**
1. Does the acknowledgement of an alarm avoid inhibiting or slowing user response to the alarm condition?				
2. Are alarms limited to to situations requiring immediate intervention to prevent personnel injury, equipment damage, process disruption or product change?				
3. Are accesses designed so that the removal of any replaceable unit requires opening of only one access, unless the accesses are of the latched or hinged door type?				
4. Are all controls, levers, lights, and covers situated for safe access?				
5. Are all maintenance requirements defined?				
6. Can auditory warning signals be easily distinguished from process sounds at the work location?				
7. Are chairs and supports available to obviate unnecessary standing?				
8. Are connectors or controls spaced far enough from each other for hand gripping or manipulation by a tool?				
9. Are displays requiring precise and frequent reading placed between 1.270 m (50 inches) and 1.550 m (65 inches) above the standing surface?				
10. Are external and internal labels at test locations always visible and not covered by access panels?				
11. Do fasteners on the same equipment have similar styles and shapes of heads?				
12. Are hand and portable extinguishers furnished in accordance with NFPA 10, "Standard for Portable Fire Extinguishers?"				
13. Are instruments and controls properly placed in relation to each other?				
14. Are instruments, components and labels in full view, so as to avoid mistakes?				
15. Are labels, legends, placards, signs or markings, or a combination of these provided whenever it is necessary for personnel to locate and identify controls, displays, and equipment items?				
16. Are captive fasteners used where appropriate?				
17. Are non-skid treads, expanded metal flooring, or abrasive coatings provided on all surfaces which may be used for walking, climbing, or footholds?				
18. Are numbers, words, symbols and scale divisions of a size to suit the normal reading distance?				
19. Are requirements for noise control insulation properly specified?				
20. Are requirements for personnel protection during operations and maintenance been properly identified and PPE needs minimized?				
21. Are special purpose tools avoided to perform maintenance?				
22. Are the control devices arranged conveniently and for reasonably optimum use?				
23. Are the controls correctly designed in terms of shape, size, surface, force limits and material with regard to the required forces?				
24. Are the instruments well arranged and appropriate to the task?				
25. Are the light sources properly arranged?				
26. Are the weights of human lifted loads acceptable?				
27. Are extreme design conditions such as high or low temperature accounted for in the equipment?				

CHECKLIST: DESIGN REVIEW CHECKLIST				
CRITERIA	**YES**	**NO**	**N/A**	**COMMENTS**
28. Are any special design considerations associated with the handling and storage of materials accounted for in the equipment design?				
29. Are tool designs avoided that require operators to hold a very heavy tool in a precise position for long periods?				
30. Are tool designs avoided that require operators to hold and push a tool against a work surface or component in order to maintain contact pressure?				
31. Are transilluminated displays used to convey qualitative information requiring immediate action or immediate attention or maintenance/adjustment functions?				
32. Are warning lights/panels placed in the central part of the visual field?				
33. Are workplace layouts avoided that require operators to sit askew (in a twisted position) in order to watch a display and simultaneously operate some control (especially a foot control)?				
34. Are write-ups provided for complex operations on the computer control system?				
35. Are connectors which fit more than one line in the immediate area, causing mismatching, avoided?				
36. Can different parts, control knobs and tools be easily recognized by position and touch?				
37. Are inter-operator communications possible within the expected ambient noise?				
38. Have the access doors been designed so as not to cause injuries to the employees?				
39. Are the requirements of the maintenance task in terms of tool use, exertion of force, and depth of reach used to determine the dimensions of access ports?				
40. Do all openings in platforms have adequate handrailing and/or toe plate?				
41. Do lights, including those used in illuminated push buttons display equipment response and not merely control position?				
42. Do maintenance access locations force the repair person into a strained posture?				
43. Do the electrical equipment layout drawings show adequate space around the equipment for safe operation, access, egress, and maintenance?				
44. Do the work aids and training materials complement each other?				
45. Does the computer control system incorporate fail-safe concepts?				
46. Is the equipment designed to prevent unexpected startups or release of stored energy?				
47. Does the machine/equipment cause significant vibration and if so, will this effect the operator's performance?				
48. Is the noise controlled to prevent disturbance to the vigilance or mental effort?				
49. Are exposed edges or corners in contact with a user rounded and the surfaces smooth?				
50. Are fasteners on access covers easy to operate with gloved hands?				
51. Are all handwheel locations optimized?				
52. Has equipment handling hazardous fluids been designed so that it can be drained and purged prior to opening for repairs?				

CHECKLIST: DESIGN REVIEW CHECKLIST				
CRITERIA	**YES**	**NO**	**N/A**	**COMMENTS**
53. Has personnel contact with hot surfaces and moving mechanical parts been prevented by proper guards, shielding, insulation or other means?				
54. Has the equipment been designed to make the diagnosis of faults easy?				
55. Has the equipment been planned so that probable repairs can be carried out with the minimum of delay?				
56. Has the equipment been supplied with adequate instructions for maintenance and repair?				
57. Has the vendor provided information on supplied equipment including equipment hookup procedures?				
58. Have all assembly sequences and manufacturing steps been identified and reviewed by manufacturing personnel?				
59. Have all lifting/tailing lugs been specified for equipment expected to be removed during maintenance activities?				
60. Have all tanks, vessels, and hoppers been reviewed for access ladders and platforms with rails and toe boards?				
61. Have all tanks, vessels, and hoppers been reviewed for relief valve locations?				
62. Have appropriate power supplies (AC or DC) been provided for essential services such as egress lighting, navigational aids, and fire and gas detection systems?				
63. Have disconnecting means for motors and appliances been legibly marked or identified to indicate their purpose unless arranged so that the purpose is obvious?				
64. Have disconnecting means for motors and appliances been legibly marked or identified to indicate their purpose unless arranged so that the purpose is obvious?				
65. Have emergency shutdown switches been provided and accessible to allow for a safe shutdown?				
66. Have equipment items and bypasses needed for safe startup / shutdown / maintenance been included?				
67. Have facilities for the collection and disposal of human biological waste been provided?				
68. Have headroom clearances been defined for platforms, stairways, ladders, gates, egress routes, and personnel access areas for operation and maintenance?				
69. Have stairs, ladders and handrailing been provided in accordance with OSHA (or other appropriate governing regulations) with respect to size, proper locations, dimensions and details?				
70. Have the drawings been checked for safe test and sample point locations?				
71. Have the interfaces between grade and step-downs and between platforms, walkways, and other personnel access areas been reviewed to eliminate small abrupt differences in elevation (typically 2" to 4") to minimize potential tripping hazards?				
72. Have the locations of critical valves and/or controls been identified?				
73. If the operator is standing, can foot control be avoided?				
74. Is a favorable work posture promoted by the location of instruments, workplaces and controls?				

CHECKLIST: DESIGN REVIEW CHECKLIST				
CRITERIA	**YES**	**NO**	**N/A**	**COMMENTS**
75. Is equipment located so that all routine maintenance can be performed safely?				
76. Is free floor space of at least 1220 in (4 feet) provided in front of each console?				
77. Is maintenance access limited by too small openings or tight component packaging?				
78. Is the area safe from inadequate aisle way width?				
79. Is the area safe from trip/slip hazards?				
80. Is the artificial lighting bright enough during day and night working conditions?				
81. Is the equipment likely to be operated partly or exclusively by females?				
82. Is the existing equipment design the result of tradition - or has it been planned from the start with the operator in mind?				
83. Is the operation of each control device compatible with common human stereotype response tendencies?				
84. Is the range of movement of grips and handles correct?				
85. Is the workplace system or item adequately designed for convenient maintenance and repair, including individual components?				
86. Is there adequate clearance for reaching individual parts that need to be maintained, repaired or replaced?				
87. Locate access ports so that the operator can monitor necessary displays while making adjustments				
88. Provide access ports that are easy to remove - if possible hinge the covers				
89. Provide stops so that people will not pinch their fingers as they slide a door open or close to access parts. At least 1.5" of clearance is needed to provide finger protection.				
90. Warnings should be designed, constructed and located so as to indicate or announce an impending or present hzard by visual or audible means				
91. Which type of display will give information most quickly and with the minimum of ambiguity?				
92. Will air circulation and ventilation be provided?				
93. Will there be radiation and ionization hazards, or any other harmful waves/rays in the electro-magnetic spectrum, which requires protection for the operators?				
94. Will there be vibration of mechanical origin, shock loading, and ride motion due to movement across uneven terrain from which operators will require protection?				