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Autore	Strobhar David A.
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Nota di contenuto	1. Introduction -- 2. Human information processing -- 2.1 Signal detection -- 2.2 Sensory memory -- 2.3 Short term memory -- 2.4 Mental models -- 2.5 Automation and response -- 2.6 Conclusion -- 3. Performance shaping factors -- 3.1 Conclusion -- 4. System demands/automation -- 4.1 Perspective -- 4.2 Control system impact -- 4.3 Alarms -- 4.4 Conclusion -- 5. Workload and staffing -- 5.1 Mental workload -- 5.2 Physical workload and staffing -- 5.2.1 Console staffing -- 5.2.2 Field operator workload and staffing -- 5.3 Conclusion -- 6. Interface -- 6.1 Content -- 6.2 Structure and organization -- 6.3 Workspace -- 6.4 Display objects -- 6.5 Layout -- 6.6 Conclusion -- 7. Selection and training -- 7.1 Selection -- 7.2 Training programs -- 7.3 Skill/knowledge requirements -- 7.4 Instruction -- 7.4.1 Training material -- 7.4.2 Training tools/systems -- 7.5 Conclusion -- 8. Job and organizational design -- 8.1 Tasks to be performed -- 8.2 Job rotation -- 8.3 Team performance -- 8.4 Consolidated control rooms -- 8.4.1 Unit operations -- 8.4.2 Personnel utilization -- 8.4.3 Work practices -- 8.4.4 Organization -- 8.4.5 Consolidation failure -- 8.5 Conclusion -- 9. Procedures/job aids -- 9.1 Upset analysis -- 9.2 Organization -- 9.3 Formatting -- 9.4 Job aids -- 9.5 Conclusion --

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Sommario/riassunto

It is only recently that Human Factors Engineering has been applied to the control of process plants in a systematic way, and only a little less recently that Human Factors has been applied at all. Plant control systems began with open control loops with humans watching dials and turning valves as needed. They moved to closed loop control, digital control and distributed control without thinking about how operators would use the tools or see the necessary view. We went from walls of panel mounted displays to tiny CRT screens with no thought that this might impact operations and safety, and we were, wrong.
