ATTACHMENT A: LATENT CONDITIONS

FILENAME:	AttachmentA.doc	**Review Date:**	
Checklist/Rev. Date:	December 2, 1999	**Location:**	
Prepared by:		**Unit/Project:**	

Checklist Questions	Y/N/ NA	Justification/Examples
1. INDIVIDUAL:		
Experience/Knowledge:		
1.1 Do employees remain in each unit for a sufficient amount of time to develop the experience and knowledge base necessary to safely operate the unit and respond to emergencies?[1]		
1.2 Is there experience available for each of the different Safety Programs, including Human Factors?[1]		
1.3 Are workers knowledgeable of the type and magnitude of the hazards associated with their work?[1]		
1.4 Are the worker's knowledge, skills, and abilities adequate to perform the job safely? [7]		
1.5 Do operators have sufficient knowledge to safely operate or shutdown the unit in emergency situations where they must assume manual control?[1]		
Stress/Fatigue/Substance Abuse:		
1.6 Are emergency procedures presented in a clear, step-by-step format to reduce the "panic" factor during upset situations? [2]		
1.7 Does the facility attempt to minimize exposing operators to physical obstacles or discomforts for prolonged periods (e,g,. poor accessibility of equipment, narrow and/or low crawl space, etc.) during normal operation?[3]		
1.8 Are there jobs that are beyond employees' physical limits or safe physical limits (e.g., carrying equipment, that requires both hands, up stairs that are poorly lighted at night?[1&8]		
1.9 Are periods of sustained concentration shorter than one hour (including emergencies) (i.e., is there adequate staffing and backup to accommodate mental and physical breaks? [8&1]		
1.10 Does the facility enforce a drug and alcohol testing program?[1]		
Shiftwork:		
1.11 Is the length of a normal shift appropriate given the degree of alertness required and potential for operator fatigue [*consider number of manual adjustments required in a single shift, effect of rotating shifts*]?[2]		
1.12 Is the length of a shift during startup and turnaround appropriate given the degree of alertness required and potential for operator fatigue? [2]		

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Checklist Questions	**Y/N/ NA**	**Justification/Examples**
1.13 Are shift turnover periods sufficient to adequately communicate plant operating conditions from off-shift to on-shift personnel? [2]		
1.14 Are shift turnover communications maintained in an accessible log?[9]		
1.15 Are job turnover communications within shifts adequate? [1]		
1.16 Are job turnover communications between shift adequate? [1]		
1.17 Are job turnover communications between shift operations and first line supervisors and managers adequate? [1]		
1.18 Are job turnover communications oral, allowing discussions and questions? [1]		
2. ACTIVITY/TASK:		
Procedures:		
2.1 Are procedures readily available?[3]		
2.2 Does the facility ensure that only current, approved versions of procedures are available?[1]		
2.3 Do written procedures exist for normal operation?[4]		
2.4 Do written procedures exist for startup? [6]		
2.5 Do written procedures exist for shutdown? [6]		
2.6 Do written procedures exist for emergency operations? [6]		
2.7 Do written procedures exist for unique or critical operating or maintenance tasks such as catalyst regeneration, catalyst sulfiding, etc.? [6 & 8]		
2.8 Are procedures updated on a scheduled basis? [3]		
2.9 Are procedures certified as being current and accurate?[1]		
2.10 Are steps written in clear, concise sentences? [5]		
2.11 Is the procedure difficult to use? [1]		
2.12 Were the procedures originally prepared and are they periodically reviewed with line-management and the other employees responsible for performing the designated tasks? [2]		
2.13 Does each procedure have a unique and permanent identifier? [5]		
2.14 Is there a simple indexing method for choosing the required procedure? [5]		

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2.15 Do the titles accurately describe the nature of the procedure?[6]		
2.16 Is there a mechanism for keeping place in a sequence of instructions, so that it can be returned to after an interruption or distraction? [4]		
2.17 Does a different person subsequently make an independent check that mandatory procedures have been carried out? [4]		
2.18 Is the last page of the procedure clearly identified?[5]		
2.19 Are temporary procedures clearly identified? [5]		
2.20 Is all information necessary for performing the procedure included or referenced in the procedure? [5]		
2.21 Do Cautions, Warning, and Notes stand out from procedure steps? [5]		
2.22 If more than one person is required to perform the procedure, is the person responsible for performing each step identified? [5]		
2.23 If the procedure must be performed by someone with a special qualification, are the required technical skill levels identified? [5]		
2.24 Do the procedures require "sign-offs" for critical steps or when completion of the procedure may require coordination with others (e.g., numerous shifts or operators)? [5]		
2.25 If the step contains more than two items, are they listed rather than buried in the text? [5]		
2.26 Are steps that must be performed in a fixed sequence identified as such? [5]		
2.27 Are operating limits or specifications written in quantitative terms (i.e., "normal operating range for temperature is 200 degrees F to 250 degrees F" as opposed to "normal operating range for temperature is +/- 25 degrees F from setpoint)? [5]		
2.28 Are calculations clear and easy to understand? [5]		
2.29 For complicated or critical calculations, is a formula or table included or referenced? [5]		
2.30 Do emergency operating procedures contain provisions for verifying: *conditions associated with an emergency (initiating conditions)? *automatic actions associated with an emergency? *performance of critical actions? [5]		

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2.31 When two or more procedures share a common sequence of operations, or working environment, do they contain checks that the operator is continuing to use the correct procedure?[4]		
2.32 Are the actual procedures used in the operator training programs?[4] (If no, go to question 2.31)		
2.33 If separate procedural training documents are used, are they consistent with the actual procedures? [4]		
2.34 Do the procedures contain enough detail to adequately enable a trained operator to perform all modes of operation? [6]		
2.35 Is equipment and instrumentation clearly labeled and are the equipment and instrument tag numbers used in the procedures? [6]		
2.36 Do procedures prevent changing alarm set points without proper review and authorization? [2]		
2.37 Are alarm changes (set point or priority) communicated to all affected employees? [2]		
2.38 Do procedures prevent changing process control system or safety shutdown system control or logic (software) without proper review and authorization? [2]		
2.39 Are process control system or safety shutdown system changes communicated to all affected employees? [2]		
2.40 Do operating procedures document the alarm set points? [2]		
2.41 Do the procedures specify the potential consequences if the alarm set points are exceeded (i.e., consequences of deviation)? [2]		
2.42 Do procedures require routine testing of critical alarms and safety shutdown systems, including primary elements or sensors, shutdown system control and logic, and final elements such as emergency isolation valves or equipment shutdown interlocks [*determine the need for on-line testing of safety shutdown systems*]? [2]		
2.43 Do operating crews communicate unusual equipment, control, or instrument status (bypassed or out of service) in writing? [2 &8]		
2.44 Are operating crews provided with written temporary operating procedures when equipment, controls, or instruments are bypassed or out of service? [2&8]		
2.45 Do procedures require verification that equipment, controls, or instruments that are deliberately disabled during operation (e.g., shutdown interlocks bypassed to allow testing) are placed back in service? [2&8]		

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2.46 Do procedures require control valve bypasses to remain closed during normal operation [*possible concern for loss of level during upset conditions if the bypass around an LCV is open*]? [2]		
2.47 Do procedures specify proper response to alarm indicators (e.g., lights, horns, or whistles) during emergency situations? [2]		
2.48 Can emergency procedures be implemented whether or not the operator knows what is wrong (i.e., are they "symptom" based rather than "event" based)? [4]		
2.49 Do procedures require that individuals perform multiple tasks simultaneously that practically cannot be performed? [1]		
2.50 Do operators have time to respond in an emergency and report, in accordance with the procedures, appropriately? [1]		
2.51 Is there a feedback communication loop in place to determine the effectiveness and understanding of the procedures? [1]		
2.52 Does management provide the necessary expertise to write procedures and to implement the procedures? [1]		
2.55 Do procedures or controls prevent a vacuum from occurring in vessels during steamouts, prior to the introduction of hydrocarbons during startup? [8]		
2.56 Do procedures or controls ensure air is adequately displaced before startup? [8]		
2.57 Do procedures or controls ensure water is not present during warm-up that could vaporize and cause an upset?		
2.58 Do procedures or controls address the opening of vessels to the atmosphere? [8]		
2.59 Do procedures address any materials, which will auto-ignite if exposed to the atmosphere? [8]		
Practices:		
2.60 Does the facility attempt to minimize hazardous or high risk work during night shifts (i.e., does facility management recognize that individuals have a tendency to be less alert during night/early morning hours and take special precautions)? [1]		
Conflicts Between Practice and Procedure:		
2.61 Are the procedures consistent with actual operating practices, particularly operating practices responding to emergency or upset conditions? [1]		

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Checklist Questions	**Y/N/ NA**	**Justification/Examples**
3. PHYSICAL ENVIRONMENT/WORKPLACE		
Process Design and Labeling:		
3.1 Are remote startup/shutdown switches clearly labeled and protected from inadvertent operation? [2]		
3.2 Are remote switches for different systems separated by sufficient distance to prevent operation of the wrong system during stressful situations? [2]		
3.3 Are shutdown switches and other controls required for emergency operation readily accessible to the operator from a safe location? [3]		
3.4 Are drain valves located to allow personnel to monitor levels while draining? [2]		
3.5 Are there adequate vents and drains available? [8]		
3.6 Are the engineering units of similar instruments consistent [*e.g., do the pump seal flush rotameters all display flow in either gpm or gph*]? [2]		
3.7 Are field instrument indicators routinely checked for accuracy? [2]		
3.8 Are field instrument ranges appropriate for the service [*e.g., avoid using a 0-2500 psig pressure gage on a 100 psig system*]? [2]		
3.9 Are control valves and associated instrumentation accessible for maintenance? [2]		
3.10 Is equipment (e.g., emergency control valves, ladders) accessible in an emergency? [8]		
3.11 Are operating ranges for process variables specified in the same engineering units as the instrument read-out or indicator (i.e., mental conversion of units is avoided)? [2]		
3.12 Are there enough indications and controls available to adequately place the plant in a safe and stable state, or safely shutdown the plant, in the case of an emergency? [6]		
3.13 Are all equipment labels (e.g., vessels, piping, valves, instrumentation, etc.) easy to read (clear and in good condition)? [2]		
3.14 Are all equipment labels correct and unambiguous? [2]		
3.15 Are all equipment labels located close to the items that they identify? [2]		
3.16 Do all equipment labels use standard terminology (e.g., acronyms, abbreviations, equipment tags, etc.)? [2]		
3.17 Are the equipment labels consistent with nomenclature used in procedures? [2]		

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Checklist Questions	**Y/N/ NA**	**Justification/Examples**
3.18 Are all components that are mentioned in procedures (e.g., valves) labeled or otherwise identified? [2]		
3.19 Do switch labels identify discrete positions (e.g., ON or OFF, OPEN or CLOSE)? [2]		
3.20 Are signs (e.g., emergency exit, restricted entry, etc.) clearly visible [*consider location and condition*]? [2]		
3.21 Are the signs easy to read [*consider letter size and color*]? [2]		
3.22 Are pipelines and electrical conduit clearly labeled at points where they become invisible (e.g., routed underground)? [2]		
Control Room/Panel Design:		
3.23 Are displays of process control instrumentation clearly identified? [3]		
3.24 If displays are shared with another unit, does it cause any problems at times? [3]		
3.25 Does the process control system console layout allow for rapid response to upset situations? [2]		
3.26 If required, does the process control system console layout allow for response by multiple personnel? [2]		
3.27 Do the process control system displays adequately present the process information [*consider the logical layout of process or equipment configuration information, consistent presentation of information, visibility of information from various work positions, and the logical linking of information between displays*]? [2]		
3.28 Do the process control system displays for similar equipment (e.g., parallel trains or similar equipment in series) present the information in a unique manner to avoid confusion? [2]		
3.29 Are alarms or signals clear and distinguishable? [8]		
3.30 Do the process control system displays provide feedback to operations personnel to confirm operator actions? [2]		
3.31 Does the feedback provide operators with logical information (e.g., is 100% valve output equivalent to valve wide open)? [2]		
3.32 When a control action has been made, is there a display to indicate that the required plant change has been made(i.e., it is misleading only to indicate that the control signal has been sent)? [4]		
3.33 Is it easy to work at or move past the control panel without accidentally altering any of the controls? [4]		

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Checklist Questions	Y/N/ NA	Justification/Examples
3.34 Are emergency shutdown switches guarded against inadvertent operation [*consider location, switch operation, and guards or covers*]? [2]		
3.35 Are board-mounted shutdown switches or buttons sufficiently distinguishable/separated from alarm acknowledgment buttons to minimize inadvertent operation? [2]		
3.36 Are emergency isolation valves operable from the control room? [6]		
3.37 Can the operators or other personnel override automatically activated safeguards? [6]		
3.37.1Do(es) the control system(s) have test switch positions which allow bypass of safety features while performing test and calibration tasks? [6]		
3.37.2 If yes in 3.36.1, is there an indication available to the operators which shows that the control system is in a test mode and that the safety features are bypassed? [6]		
3.37.3 Is the test switch position administratively controlled? [6]		
3.38 Are the alarm indicators routinely tested? [2]		
3.39 Are control system display targets (touch screens) spaced adequately to prevent accidental operation? [2]		
3.40 Are the control system display symbols consistent and meaningful? [2]		
3.41 Are the control system display symbols standardized (i.e., consistent representation and common use of acronyms, abbreviations, and equipment tags)? [2]		
3.42 Do controls agree with strong population sterotypes for color (e.g., red means stop, green means run) and direction of movement (counterclockwise to open), etc.?[8]		
3.43 Can color blind, left-handed, etc. operators operate in the control room sufficiently?[8]		
3.44 Are critical alarms prioritized to alert operations personnel to upset situations that require immediate response? [2]		
3.45 Are alarms arranged, or otherwise coded, according to their level of urgency (i.e., is there an alarm priority system)?[4]		
3.46 Is the cause of "nuisance" alarms (repetitive alarms that operations personnel ignore or acknowledge without investigating) determined and repaired in a timely manner? [2]		
3.47 Are equipment "run" indicators (running lights or other process indicators) and valve position indicators provided at a continuously staffed location for critical equipment, valves, and instruments? [2]		

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3.48 Will the keys for locked control functions be readily available during an emergency? (The items in question are the control functions that are generally locked during normal operation but may be required during a plant upset) [3]		
3.49 Are calculations performed by operations personnel documented in a consistent manner and periodically checked for correctness? [2]		
3.50 Does the level of automation allow sufficient operator involvement so operators do not feel detached from the process, particularly during emergency situations where they must assume manual control?[1]		
3.51 Are instruments, displays, and controls promptly repaired after malfunction?[8]		
3.52 Is sufficient lighting provided in the control room during a loss of power to allow operators to perform emergency actions?[9]		
3.53 Is it easy to communicate with related groups of workers (i.e., upstream and downstream processes, below or above in hierarchy of decision making)?[4]		
Hardware:		
3.54 Are all the tools and equipment necessary to perform the routine and necessary tasks available? [2]		
3.55 Are the tools and equipment provided suited for the tasks being conducted? [2]		
3.56 Are all tools required for special tasks and emergency operations available? [2&8]		
3.57 If an instrument is unreliable, is there other information which is conveniently located and which can be used for cross-checking?[4]		
Safeguards:		
3.58 Does the location of emergency personal protective equipment (e.g., fire gear, SCBA, acid suits, etc.) allow for rapid access and use? [2]		
3.59 Does the location of first aid supplies allow for rapid access and use? [2]		
3.60 Are escape routes clearly labeled, lighted, and maintained clear of obstacles? [2]		
3.61 Is the personal protective equipment acceptable to the workers? [2]		
3.62 Does the facility provide support for cleaning, maintaining, and storing personal protective equipment? [2]		
3.63 Does the protective gear allow freedom of movement necessary to perform necessary tasks (routine and emergency)?[8]		

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Work Environment:		
3.64 Is the lighting adequate in the unit [*consider local instrument panels, battery or plot limit valve manifold locations, equipment and valves requiring operation during emergency conditions, etc.*]? [2]		
3.65 Is the emergency lighting (light fixtures on the emergency power circuit) adequate in the unit? [2]		
3.66 Is the control room lighting adequate [*review direct and indirect lighting*]? [2]		
3.67 Is the control room emergency lighting (light fixtures on the emergency power circuit) adequate? [2]		
3.68 Are the control building air conditioning and pressurization adequate to protect the electronic instrumentation? [2]		
3.69 Are the control building air conditioning and pressurization adequate to prevent intrusion of toxics, flammables, or corrosive contaminants (if applicable)? [2]		
3.70 Are environmental conditions, such as humidity, satisfactory? [3]		
3.71 Can the HVAC system in the control room be isolated quickly from outside air? [6]		
3.72 Are employees protected from excessive heat and cold? [1] **NOTE:** "Excessive" to the point that it affects mental workload and cognitive ability as opposed to physical harm (e.g., "I am so hot I cannot concentrate")		
3.73 Are employees protected from excessive noise? [1] **NOTE:** "Excessive" to the point that it affects mental workload and cognitive ability as opposed to physical harm (e.g., "It is so loud I cannot concentrate")		
4. ORGANIZATION/MANAGEMENT		
Communications:		
4.1 Are the communications facilities between process units adequate for clear and uninterrupted communications during both normal and emergency situations [*e.g., telephone land lines, radio, computer network, and E-mail, and are systems redundant and/or secure*]? [2]		
4.2 Is communications equipment adequate for the number of persons or stations who must communicate with each other? [6]		

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4.3 Is the communication capability between operators, and between operators and the control room or other necessary locations adequate during normal operations and emergencies? [6]		
4.4 Are communications adequate to inform the worker of any hazards? [7]		
4.5 Are there good communication methods from upper management to line personal?[1]		
4.6 Are communications systems susceptible to electromagnetic interference during any operating mode of the plant? [6]		
4.7 Is there an environment of trust between on line workers and supervision, such that, feedback communications are used?[1]		
4.8 Are communications required at periodic intervals so that injured or incapacitated operators can be identified[6]		
Training:		
4.9 Are training requirements for the unit identified? [3]		
4.10 Are training methods developed? [3]		
4.11 Are process control operators and field operators cross-trained? [3]		
4.12 Are the effects of changes to process control operations clearly defined to the process control operator? [3]		
4.13 Does the operator training program cover all of the operating procedures and required operations, including emergency operations? [6]		
4.14 Is all training consistent with written procedures?[1]		
4.15 Is training given in the use of all job aids including procedures, and other ancillary and emergency equipment?[4]		
4.16 Are operating teams trained together in the transfer of information? [4]		
4.17 Are risks, penalties, and performance goals for both process and operator behavior emphasized during training? [4]		
4.18 Are operator training records up-to-date?" [3]		
4.19 Is there continuous and/or refresher training? [3]		
4.20 Is refresher training frequency adequate? [3]		
4.21 Does the facility assess the effectiveness of the training provided? [1]		
4.22 Are simulators used for teaching manual skills and fault handling? [4]		

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4.23 Are the operators trained in diagnostic skills which will help them to cope in unfamiliar situations? [4]		
4.24 Is training provided in basic supporting skills such as chemistry, physics, and math?[1]		
4.25 Are hypothetical drills of emergency situations periodically performed, in accordance with established schedule?[7]		
4.26 Do hypothetical drills cover a variety of emergency situations (i.e., line failures, vapor releases, fires, spills, etc.?[1]		
Staffing/Overtime:		
4.27 Are staff levels (both size and experience) sufficient to handle routine and nonroutine duties that can be reasonably expected to occur during a shift? [2]		
4.28 Is an operator also an emergency responder (e.g., fire brigade member)? [3]		
4.29 Is there backup assistance when an operator emergency responder must respond to an emergency? [3]		
4.30 Can tasks requiring the operator to perform nearly simultaneous actions be accomplished without traveling large distances (e.g., switching unit rundown into an alternate rundown line, lighting furnace burners, etc.)? [2]		
4.31 Are sufficient tasks assigned during low activity operation to minimize the effects of boredom (e.g., possible loss of alertness)? [2]		
4.32 Are restrictions applied to employee overtime (e.g., employees are not allowed to work consecutive 12-hr. shifts)?[1]		
Worker Selection:		
4.33 Does the facility consider worker's skills and preferences in assigning people to jobs? [2]		
4.34 Are criteria for the choice of operator behavior clear?[4]		
4.35 Does the facility use results from job or tasks analysis as criteria for worker selection based on physical abilities, aptitudes, experience?		
Climate/Culture:		
4.36 Is a management philosophy that safety takes precedence over production adequately covered? [1]		

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4.37 Has the facility developed and implemented a "just" system for disciplining employees?(i.e., a blame-free atmosphere is unrealistic; however do employees feel that the discipline is fair)?[1]		
4.38 Are employees disciplined for taking risks to increase/maintain production without regard for safety?[1]		
4.39 Can operators resolve conflicts between productivity and safety?[4]		
4.40 Is there an attitude of non-penalization when an operator says there is a failure and there is not? [4]		
4.41 Is upper management's commitment to employee health and safety clear (do *sincere* policy statements exist that communicate this commitment?)[8]		
4.42 Have supervisors and workers been specifically told to err on the safe side whenever they perceive a conflict between safety and production?[2]		
4.43 Do workers understand they have the authority to shutdown unsafe operations or maintenance activities? [1&7]		
4.44 Do workers feel that unsafe operations or maintenance activities can be shutdown without fear of retaliation?[1 &7]		
4.45 Is the immediate supervision and instructions provided by first line supervisors adequate? [1]		
4.46 Is job planning by supervisors adequate? [1]		
4.47 Do the rewards and penalties for safety compare to those for production performance (i.e., equal rewards for safety performance and production)For example, do employees receive a company hat for safety rewards and substantial monetary rewards for production?[1&2]		
4.48 Have there been site goals and objectives established for the Safety Program elements at all levels of the organization?[1]		
4.49 Does the stationary source communicate their Incidents and Safety Program with their neighboring community? This includes working with Contra Costa Health Services in preparing for public meetings on the Safety Programs.[1]		
4.50 Does senior management promote the understanding of the different Safety Program elements, including Human Factors?[1]		
4.51 Are managers held accountable for their health and safety record? [2]		
4.52 Are members of management or facility units/department rewarded or penalized for good/bad performance (e.g., bonuses, delayed promotions) [2]		

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Management System:		
4.53 Are operators' individual responsibilities clearly defined? [3]		
4.54 Is there a team responsibility for operating a unit? [3]		
4.55 Does the facility consult with workers when there are changes in production and when improvements are needed for safer, easier, and more efficient work? [2]		
4.56 Has the facility established clear lines of accountability for the administration and enforcement of contract requirements? [2]		
4.57 Is there a clear line of authority and responsibility from the workers up through management? [1]		
4.58 Does senior management establish safety-related policies to promote a safe work environment? [9]		
4.59 Is senior management involved in the site wide prioritization of work? [7]		
4.60 Does senior management institutionalize the stop-work authority philosophy? [7]		
4.61 Is senior management aware of previous safety-related incidents? [7]		
4.62 Is senior management visibly involved in assessing safety-related policy implementation? [7]		
4.63 Does senior management use lessons learned/feedback from previous incidents to prevent future similar incidents? [7]		
4.64 Does senior management prohibit contract terms and conditions that are not consistent with safe working conditions (e.g., accelerated schedules, reduced quality requirements)? [7]		
4.65 Does middle management implement policy through plans and programs development? [7]		
4.66 Is middle management aware of the status of plans and program implementation? [7]		
4.67 When problems occur, does middle management request feedback on the nature of problems? [7]		
4.68 Does middle management have a system for monitoring and measuring organizational performance? [7]		
4.69 Is stop-work authority communicated to the organization from middle management? [7]		

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FILENAME:	AttachmentA.doc	**Review Date:**	
Checklist/Rev. Date:	December 2, 1999	**Location:**	
Prepared by:		**Unit/Project:**	

Checklist Questions	Y/N/ NA	Justification/Examples
4.70 Is middle management involved in the development and implementation of corrective actions? [7]		
4.71 Does lower management ensure that required procedures are developed and kept current to assure a safe work environment? [7]		
4.72 Does lower management implement required programs for worker safety? [7]		
4.73 Is lower management aware of problems regarding procedure implementation and compliance? [7]		
4.74 Is lower management involved in the work planning, control, and execution process? [7]		
4.75 Does lower management have a system for eliciting feedback on work-related hazards? [7]		
4.76 Does lower management have a system for identifying and disseminating work process lessons learned? [7]		
4.77 Does lower management define stop-work authority for first line supervisors and their staff? [7]		
4.78 Does lower management take timely corrective actions when problems occur or are identified? [7]		
4.79 Are the first line supervisors' work instructions adequate to allow the work to be performed safely? [7]		
4.80 Are required procedures provided or communicated to the worker by supervision? [7]		
4.81 Do first line supervisors provide the required training to the worker? [7]		
4.82 Do first line supervisors discuss job hazards with workers prior to starting work? [7]		
4.83 Do first line supervisors define stop-work authority for workers? [7]		
4.84 Do first line supervisors confirm the readiness to perform work prior to the execution of work? [7]		
4.85 Do first line supervisors provide the worker with the proper tools and equipment to perform the work safely? [7]		
4.86 Do first line supervisors provide feedback to management on prior incidents and/or safety concerns? [7]		
4.87 Do first line supervisors implement timely corrective actions based on previous incidents? [7]		

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Checklist Questions	Y/N/ NA	Justification/Examples
4.88 Are Safety Program elements discussed in management meetings on a periodic basis?[1]		
4.89 Does senior staff establish detailed Safety Program goals for management with specific objective and goals, and tracks management involvement in workplace safety meetings, audits, and related activities?[1]		
4.90 Does management periodically review the Safety Program management system for continuing appropriateness, adequacy and effectiveness?[1]		
4.91 Does senior staff participate in specific Safety Program initiatives/programs?[1]		
4.92 Is the senior staff is held accountable for their health and Safety Program record?[1]		
4.93 Does senior staff ensure that there is expertise available in each of the different Safety Program elements, including Human Factors?[1]		
4.94 Does senior staff allocate time and resources for the different Safety Program elements?[1]		
4.95 Has management been assigned overall responsibility to oversee compliance for the Safety Program?[1]		

[1] CCHS
[2] EQE PHA Checklist: Human Factors, developed for and used by Chevron and Tosco (1996)
[3] MRC Human Factors Review Checklist (1994)
[4] Primatech Human Factors Checklist (1994)
[5] Guide to Reducing Human Error In Process Operation, Short Version (1985)
[6] CCPS, Guidelines for Writing Effective Operating and Maintenance Procedures (1996)
[7] U.S. Department of Energy workbook for Conducting Accident Investigations, Revision 1, November 21, 1999
[8] RRS Engineering Human Factors Checklist (1999)
[9] AcuTech (1999)
[10] CMA's A Manager's Guide to Reducing Human Errors (1990)

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