RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

APR1400 Design Certification

Korea Electric Power Corporation / Korea Hydro & Nuclear Power Co., LTD

Docket No. 52-046

RAI No.:	**353-8372**
SRP Section:	**18 – Human Factors Engineering**
Application Section:	**NUREG-0711 Section 8.4.3 HFE Design Guidance for HSIs**
Date of RAI Issue:	**12/22/2015**

Question No. 18-83

Regulations: 10 CFR 52.47(a)(8) and 10 CFR 50.34(f)(2)(iii)

Regulatory guidance: NUREG-0700, Rev. 2, "Human-System Interface Design Review Guidelines,"

Section 1.1, “General Display Guidelines”

Evaluation: Section 1.1 contains general guidance and there were several criteria that were not addressed.

Question: Explain where the following guidance is captured within the style guide [APR1400-E-I-NR-14012, Rev. 0, "Style Guide"] (or other design guidance documents).

- 1.1-6 Levels of Abstraction – Displays should provide information at the levels of abstraction necessary to meet the operators' requirements relative to their task goals.
- 1.1-8 Understandability of Higher-Level Information – The methods by which lower-level data are analyzed to produce higher-level information and graphical elements should be understandable to users.
- 1.1-9 User Verification of Higher-Level Information – Operators should have access to the rules or computations that link process parameters and graphical features, and to an explanation of how the information system produces higher-level information.
- 1.1-10 Alert to Higher Level Displays – While viewing secondary (lower-level) displays, a perceptual (audible or visual) cue should be provided by the system to alert the user to return to the primary (higher-level) display if significant information in that display requires user attention.

- 1.1-13 Display of Future Status – The information system should support the user's ability to project future states of the system when this is required to safely operate the plant.
- 1.1-53 Display Area – Sufficient viewing area should be provided to display all important information so that repetitive transitions between displays are not required.
- 1.1-54 Predefined Displays – Predefined information groupings should be available.

Response

Section 2.1.1, “General Display Guidelines” of the Style Guide will be revised to address the general criterion for display, as indicated in the attachment associated with this response.

Impact on DCD

There is no impact on the DCD.

Impact on PRA

There is no impact on the PRA.

Impact on Technical Specifications

There is no impact on the Technical Specifications.

Impact on Technical/Topical/Environmental Reports

Technical report APR1400-E-I-NR-14012-P/NP, Rev.0, “Style Guide,” Subsection 2.1.1 will be revised, as indicated in the attachment associated with this response.

states it represents. These changes should result from explicit rules relating the physical form of the display and its meaning to the plant state represented.

w) Coherence Mapping - The characteristics and features of the display used to represent the process should be readily perceived and interpreted by the operator.

x) Salience Levels - The salience of graphic features should reflect the importance of the information.

y) Display of Goal Status - The information system should provide for global situation awareness (i.e., an overview of the status of all the operator's goals at all times) as well as supplying details about the current specific goal.

z) Analytical Redundancy - Analytical redundancy should be considered to help ensure the appropriateness of displayed values.

aa) Failure Recognition - Information system failure should be indicated.

bb) Navigational Links to Related Information - Navigational links to and from high-level and lower-levels of information and to reference and supporting information should be provided when needed for operator's tasks.

cc) Correspondence Between Screen and Document - When users will transfer data from hard copy documents, the screen layout should correspond to the hard copy in the order and grouping of data items. For this case, it is desirable that the displayed form look as much like the source document as possible.

dd) Display Failure Indications - Displays should be designed so that a loss of power or signal to the display or display circuitry is readily distinguished from the range of possible readings for the displayed parameter.

ee) Labels of Graphic Objects - The label for a specific graphic object (e.g., an icon) should be placed in close proximity to the graphical object.

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2.1.2 General Information Guidelines

a) Redundancy - Redundancy in the presentation of information items should be limited to cases where needed for backup or to avoid excessive operator movement. But, if redundancy gain effects are certain, the redundancy should be used. When the same message is expressed more than once, it will be more likely to be interpreted correctly (Redundancy gain). Specially, this will be particularly true if the same message is presented in alternative physical forms (e.g., tone and voice, voice and print, print and picture, color and shape) (Use multiple resources).

b) Grouping of Information in a Display - Information on a display should be grouped according to principles obvious to the user, e.g., by task, system, function, or sequence, based upon the user's requirements in performance of the ongoing task.

c) Demarcation of Groups - When information is grouped on a display, the groups should be made visually distinct by such means as color coding or separation using blanks or demarcation lines.

d) Display Information in Directly Usable Form - Information should be displayed to users in directly usable form consistent with the task requirements. For this, integral and configurable display formats should be considered.

e) Appropriate Use of Integral Displays - Integral Formats should be used to communicate high-level, status-at-a-glance information where users may not need information on individual parameters to interpret the display.

f) Appropriate Use of Configurable Displays - Configurable formats should be used when operators must rapidly transition between high-level functional information and specific parameter values.

1) Representation of Emergent Features: The display elements should be organized so that the emergent features that arise from their interaction correspond to meaningful information about the process or system, e.g., when the aspect of the system represented by the emergent is disturbed, the disturbance is visible in the emergent feature.

2) Levels of Emerging Features: The emergent features or patterns within the display should be nested (from global to local) in a way that reflects the hierarchical structure of the process.

3) Salience of Emerging Features: Each emergent feature should be clearly distinguishable for other emergent features and from information on individual parameters.

4) Reference Aids for configurable displays: A perceptually distinct reference aid should be provided in a configurable display to support operators in recognizing abnormalities in

ff) Levels of Abstraction – Displays should provide information at the levels of abstraction necessary to meet the operators' requirements relative to their task goals.

gg) Understandability of Higher-Level Information – The methods by which lower-level data are analyzed to produce higher-level information and graphical elements should be understandable to users.

hh) User Verification of Higher-Level Information – Operators should have access to the rules or computations that link process parameters and graphical features, and to an explanation of how the information system produces higher-level information.

ii) Alert to Higher Level Displays – While viewing secondary (lower-level) displays, a perceptual (audible or visual) cue should be provided by the system to alert the user to return to the primary (higher-level) display if significant information in that display requires user attention.

jj) Display of Future Status – The information system should support the user's ability to project future states of the system when this is required to safely operate the plant.

kk) Display Area – Sufficient viewing area should be provided to display all important information so that repetitive transitions between displays are not required.

ll) Predefined Displays – Predefined information groupings should be available.

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SRP Section:	**18 – Human Factors Engineering**
Application Section:	**NUREG-0711 Section 8.4.3 HFE Design Guidance for HSIs**
Date of RAI Issue:	**12/22/2015**

Question No. 18-84

Regulations: 10 CFR 52.47(a)(8) and 10 CFR 50.34(f)(2)(iii)

Regulatory guidance: NUREG-0700, various sections

Evaluation: Some sections of NUREG-0700 are reflected completely, in others it appears there has been selective use of the guidance. In many cases the staff was able to recognize redundancy/similarity with other criteria that supported the selective use of the criteria. In other cases we did could not determine the basis for omitting the guidance.

Question: Please provide a summary of the logic used to omit selected criteria from NUREG-0700. For example, criteria 1.2.4-9, "Coding Segmented Bar Charts," and 10 "Ordering Data in Segmented Bars"; and criteria 1.2.5-21, 22 and 23, deal with bar charts, curve graphs, and scatterplots. These display types appear to be used as there are numerous other criteria addressing their presentation yet these selective few are missing. Similarly, the following NUREG-0700 sections are not addressed:

- Hypertext – Criteria 2.5.1.2-13 through19
- Navigation features for large display pages – Section 2.5.1.3
- Automated actions – Section 2.5.7
- Managing information – Section 2.6

The staff is not advocating they be included. We would like to understand the methods you used for selecting criteria.

Response

The Style Guide was developed at the beginning of Advanced Power Reactor 1400 (APR1400) Nuclear Power Plant (NPP) design development project by human factors engineering (HFE) experts and provides the detailed HFE guidelines necessary for the human-system interface (HSI) system design, as described in Section 1.1 “Scope.”

At that time, NUREG-0700, NUREG/CR documents (i.e., NUREG/CR-5908, -6633, -6634, -6636, -6684, etc.), and other pertinent industrial guidelines (e.g., NASA-3000, MIL-STD-1472F, etc.), were used as base resources to develop the Style Guide. The HFE guidelines expected to be applied to the APR1400 HSI design are included in the Style Guide. The Style Guide is updated and maintained to reflect changes that may result from any Basic HSI test and evaluations, as well as any other tests, evaluations or HED resolutions that may occur throughout the APR1400 HFE program.

Therefore, descriptions of Section 2.3.4.2, “Scatter Plot and Trend Graph,” 2.3.4.4, “Bar Charts and Histograms,” and 2.3.4.5, “Segmented Curve Graphs” in the Style Guide will be revised to correspond to design changes, as indicated in the attachment associated with this response.

The following are responses to the individual items of the question, as posed above.

Response to Bullet 1:

Hypertext functions are not available to the operators in the control room; therefore, the related HFE guidelines were excluded in the Style Guide.

Response to Bullet 2:

Operators can project a picture displayed on the information flat panel displays (IFPDs) in the variable area of the large display panel (LDP). However, navigation functions for paging, scrolling, and zooming are not provided for the LDP; therefore, the related HFE guidelines were excluded in the Style Guide.

Response to Bullet 3:

Automated interface management features are not provided to control room operating crews. Therefore, the related HFE guidelines were excluded in the Style Guide.

Response to Bullet 4:

Document editing functions such as hyphenation by users, changing physical characteristics of text, tab controls, etc. are not available in the information processing system (IPS) and qualified indication and alarm system (QIAS) for the APR1400. Therefore, the related HFE guidelines were excluded in the Style Guide.

Impact on DCD

There is no impact on the DCD.

Impact on PRA

There is no impact on the PRA.

Impact on Technical Specifications

There is no impact on the Technical Specifications.

Impact on Technical/Topical/Environmental Reports

Technical report APR1400-E-I-NR-14012-P/NP, Rev. 0, “Style Guide,” Subsection 2.3.4.2, 2.3.4.4, and 2.3.4.5 will be revised, as indicated in the attachment associated with this response.

separated by at least one character space.

d) Data Field Separation - At least three character spaces should appear between the longest data field in one column and the rightmost label in an adjacent column.
e) Justification: Data Field Labels of Equal Length - When label sizes are relatively equal, both labels and data fields should be left justified. One space should be left between the longest label and the data field column.
f) Justification: Data Field Labels of Unequal Length - When label sizes vary greatly, labels should be right justified and the data fields should be left justified. One character space should be left between each label and the data field.
g) Highlight Active Data Entry Field - The current field to be entered should be highlighted.
h) Data Entry Cues - If appropriate, labels should be used to help cue the user as to the expected data entry.
i) Labeling Groups Data Fields - A field group heading should be centered above the labels to which it applies.
j) Data Field Group Separation - At least five character spaces should appear between groups of data fields.

2.3.4 Graphs

2.3.4.1 General Graph Guidelines

a) Orientation and Origin - If data are limited as positive number, the graph's origin should be in the lower left of the display. If the data range both positive and negative, the origin should appear in an intermediate position, dividing the axis in proportion to the anticipated ranging.
b) Interpreting Graphs - Graphs should convey enough information to allow the user to interpret the data without referring to additional sources.
c) Legend Ordering - If a legend must be displayed, the codes in the legend should be ordered to match the spatial order of their corresponding curves in the graph itself.
d) Old data Renewal - Old data points should be removed after some fixed period of time.

2.3.4.2 Scatter Plot and Trend Graph

a) Trending Time Intervals - Trend displays should be capable of showing data collected during time intervals of different lengths.
b) Multiple Trend Lines - When the user must compare data represented by separate curves, the curves should be displayed in one combined graph.
c) Grouping Scatter plots to Show Multiple Relations - When relations among several variables must be examined, an ordered group (matrix) of scatter plots should be displayed, each showing the relation between just two variables.

2.3.4.3 Flowcharts

d) Highlighting Scatterplots - If some plotted points represent data of particular significance, they should be highlighted to make them visually distinctive from others.

a) Logical Ordering
logical order.
b) Single Decision At Each Step - Only a single decision should be required at each step.
c) Consistent Ordering of Decision Options - When a flowchart is designed so that a user must make decisions at various steps, the available options should be displayed in some consistent order from step to step.
d) Availability of Supplemental Information - While flowcharts should display only the data immediately required by the user, more detailed data should be available with a single action.
e) Conventional Path Orientation - Flowcharts should be designed so that the path of the logical sequence is consistent with familiar orientation conventions.
f) Flowchart Symbol Set - There should be a standard set of flowchart symbols.
g) Consistency - Words and phrases used for the same purpose should be consistent throughout a flowchart, an application, and related applications.
h) Highlighting - Paths or portions of a flowchart that deserve particular attention should be highlighted.

2.3.4.4 Bar Charts and Histograms

a) General Bar Graphs - Bar graphs should be used for comparing a single measure across multiple entities, or for comparing samples of a variable at discrete intervals.
b) Labeling Single Bars - Each bar on the display should have a unique identification label.
c) Labeling Paired Bars - When bars are displayed in pairs, they should be labeled as a unit, with individual distinguishing labels for each bar.
d) Consistent Orientation of Bars - in a related series of bar charts, a consistent orientation of the bars (vertical or horizontal) should be adopted.
e) Highlighting - If one bar represents data of particular significance, then that bar should be highlighted.
f) Zero Reference on Deviation Bar Charts - The zero reference should be the center of the deviation bar chart.
g) Normal Range on Deviation Bar Charts - on a deviation bar chart, the range of normal conditions for positive or negative deviations should represent no more than 10 percent of the total range.
h) Indication of Magnitude for Deviation Bar Charts - The magnitude of each variable should be displayed when a deviation bar display is used as a primary display format for safety function parameters.
i) Bar Spacing - When data must be compared, bars should be adjacent to one another and spaced such that a direct visual comparison can be made without eye movement.

Insert "A" on the following page

2.3.4.5 Segmented Curve Graphs

a) Depicting Bands in Segmented Curve Graphs - All segments in a segmented curve graph should be related to the total value.
b) Ordering Data in Segmented Curve Graphs - The data categories in a segmented curve graph should be ordered so that the least variable curves are displayed at the bottom and the most variable at the top.
c) Labeling Curves - When multiple curves are included in a single graph, each curve should be identified directly by an adjacent label, rather than by a separate legend.
d) Coding to Distinguish Curves - Coding should be used when multiple functions are displayed in a single graph.
e) Display of Projected Values - Curves representing planned, projected, or extrapolated data should be distinctive from curves representing actual data.
f) Curve Averaging - Combining several individual curves into a single average curve should only be done when users do not need to know the pattern of individual curves or when curves differ on the basis of minor irregularities.

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2.3.4.6 Linear Profile Chart

a) Coding Linear Profile Charts - The area below the profile line should be shaded to provide a more distinguishable profile.
b) Labeling Linear Profile Charts - Labels should be provided along the bottom to identify each parameter.

2.3.5 Diagrams and Mimics

2.3.5.1 Diagrams

a) Large Diagrams -When a diagram is too large to view all at once, it should be presented in separate sections, with an overview that indicates the separate sections have consistent notation throughout the diagram provide an easy means for users to move among the sections.
b) Highlighting Portions of Diagrams - When portions of a diagram require special attention, those portions should be highlighted.
c) Component Identification - System components represented on mimic lines should be identified.
d) Line Points of Origin - All flow path origin points should be labeled or end at labeled components.
e) Line Termination Points - All flow path line destination or terminal points should be labeled or end at labeled components.
f) Directional Arrowheads - Flow directions should be clearly indicated by distinctive arrowheads.
g) Line Coding - Flow lines should be coded (e.g., by color and/or width) to indicate important

"A"

J) Coding Segmented Curve Graphs - The different bands of segmented curve graphs should be made visually distinctive by coding, such as by the texturing or shading of bands.
k) Labeling Segmented Curve Graphs - Where space permits, the different bands of segmented curve graphs should be labeled directly within the textured or shaded bands.

"B"

g) Coding Segmented Bar Charts - Segmented bars, in which differently coded segments are shown cumulatively within a bar, should be used when both the total measures and the portions represented by the segments are of interest.
h) Ordering Data in Segmented Bars - The data categories should be ordered within each bar in the same sequence, with the least variable categories displayed at the bottom and the most variable at the top.

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Date of RAI Issue:	**12/22/2015**

Question No. 18-87

Regulations: 10 CFR 52.47(a)(8) and 10 CFR 50.34(f)(2)(iii)

Regulatory Guidance: NUREG-0700

Question: Please address the following specific issues

- Brightness is used to differentiate information in several applications but the staff did not find any guidance as to the relative difference between bright and normal as suggested by NUREG-0700, Criterion 4.2.6.2-5 – Brightness levels for VDU displays.
- Style guide direction in section 5.3.4.2, “Alarm Control Type,” criterion a1 (automatic silencing) is contrary to NUREG-0700 Criterion 4.3.2-2 (manual silencing). Please provide the basis for the style guide direction. The style guide criterion says “after a specified time.” What time period is being used?
- Style guide criteria associated with character height (2.4.1.1 b and c) appear to be less than the guidance provided in NUREG-0700 (criteria 1.3.1-4, 1.6.2-2, and 6.3.2-9). Provide the basis for the Character heights specified in section 2.4.1.1 of the style guide.

Response

Response to Bullet 1:

Section 5.3.3.1, “General Visual Display Subsystem Design Guidelines,” of the Style Guide will be revised to address the brightness levels of the alarm VDU, as indicated in Attachment 1 to this response.

Response to Bullet 2:

Manual silencing has been provided in Section 5.3.3.3 d) “Acknowledged Alarms” of the Style Guide. Additionally, Section 5.3.4.2, “Alarm Control Type” criterion a1) automatic silencing is provided under off-normal conditions where high alarm density exists.

Section 5.3.4.2 a) “Silence Controls” of the Style Guide will be revised to specify the amount of time during which an auditory signal will persist before automatic silencing, as indicated in Attachment 2 to this response. For an unacknowledged alarm which automatically turns off after an interval of time, a reminder tone is initiated to alert the operator to the continued presence of an unacknowledged alarm as required by Section 5.3.2 j) ‘Reminder Audible Signals’ of the Style Guide.

Response to Bullet 3:

The character heights in the Style Guide are based on Criterion 5.2.5.2.1, “Character height (i.e., > 10 minutes of visual angle from the longest anticipated viewing distance),” in MIL-STD-1472F (1999), and the confirmation of legibility in the Shin-Kori 3&4 training simulator.

The 11 minutes of character height for the large display panel (LDP) and 12 minutes of character height for Information Flat Panel Displays (IFPDs) are legible at the maximum viewing distances of 22 feet 0.8 inches and 2 feet 8.15 inches, respectively.

Impact on DCD

There is no impact on the DCD.

Impact on PRA

There is no impact on the PRA.

Impact on Technical Specifications

There is no impact on the Technical Specifications.

Impact on Technical/Topical/Environmental Reports

- Technical report APR1400-E-I-NR-14012-P/NP, Re.0, “Style Guide,” Subsection 5.3.3.1 will be revised, as indicated in Attachment 1 to this response.
- Technical report APR1400-E-I-NR-14012-P/NP, Re.0, “Style Guide,” Subsection 5.3.4.2 will be revised, as indicated in Attachment 2 to this response.

operating area.

g) Auditory Signal Discriminability - Each audio signal should be unambiguous and easily distinguishable from every other tone in the control room.

h) Audio Pattern Codes - If sequences of tones are used to represent information, the patterns should be easily recognizable.

i) Intensity Coding - Coding of auditory signals by intensity (loudness) should not be used. Auditory signals should capture operator's attention without unduly startling them (i.e., alerts should interrupt, not disrupt, attention).

j) Reminder Audible Signals - If the tone associated with an unacknowledged alarm automatically turns of after an interval of item, a reminder tone should be presented to alert the user to the continued presence of an unacknowledged alarm.

5.3.3 Visual Display Subsystem

5.3.3.1 General Visual Display Subsystem Design Guidelines

a) Display Functions - The alarm display should support the operator's ability to rapidly discern:
   1) Priority (e.g., urgency for operator action and importance to plant safety),
   2) Distinct alarm states: new, acknowledged, and cleared,
   3) The first-out alarms for reactor trip,
   4) The need to access other displays to verify or clarify the alarm state, and
   5) The difference between alarms which can be canceled through ongoing corrective actions (i.e., by operations personnel) and alarms that require significant maintenance intervention.

b) Coordination of Alarm Alerting and Informing Functions - When alarm alerts are displayed separately from detailed alarm information, the design should support the operator in making rapid transitions between alerts and detailed information.

c) Presentation of Alarm Priority with Detailed Alarm Information - When alarm alerts are displayed separately from detailed alarm information, the detailed alarm information display should provide an indication of the priority and status of alarm condition.

d) Use of Spatially-Dedicated, Continuously-Visible Displays - Spatially-dedicated, continuously-visible (SDCV) alarm displays should be considered for:
   1) USNRC Regulatory Guide 1.97 Category 1 parameters,
   2) Alarms that require short-term response by the operator,
   3) Main alarms used by operators in diagnosing and responding to plant upsets, and
   4) Main alarms used by operators to maintain an overview of plant and system status.

e) Alarm Coding Consistency - Coding (e.g., flash-rate and color coding) conventions should be consistently applied throughout alarm displays (e.g., on tiles and on VDUs).

f) Multi-Unit Alarms - Alarms for any shared systems in multiple-unit plants should be duplicated in all control rooms.

g) Coding Effectiveness - The coding scheme used by the alarm system should assure rapid detection and interpretation by the operators under all control room operating conditions.

h) Visual Coding for Alarms - Visual coding should be used to direct operator attention to alarms and to indicate their status.

i) Redundant Coding Dimensions - Redundant codes (e.g., fast flashing or bright) should be used for alarms that require rapid operator action.

k → j) Color Detectability - Low-intensity (e.g., dark red) indications in the periphery of the visual field should be avoided where color coding is used, since they may not be readily detected.

l → ~~k~~) Spatial Coding - Spatial coding may be used to indicate alarm importance.

m → ~~l~~) Suppressed Visual Codes - If the visual coding used to indicate alarm status is automatically suppressed or delayed during high alarm volume conditions or the presence of more important alarms, they should be automatically presented after the more important alarms have been addressed.

5.3.3.2 Display of High-Priority Alarms

a) Importance/Significance - Alarms that have higher importance or greater safety significance should be given greater priority in their presentation than less important or significant alarms.

j) For VDU displays, the bright state should be at least 100 percent brighter than the normal state

references to alarm response procedures should be provided.

5.3.3.6 Organization of Alarms

a) SDCV Alarm Displays
   1) Functional Grouping of Alarms - Alarms within a display should be grouped by function, system, or other logical organization.
   2) Separation of Functional Groups - Alarm functional groups should be visually distinct from one another.
   3) Group Labels - System/functional groups should be clearly delineated and labeled such that the operating crew can easily determine which systems have alarms that have not yet cleared and which system is affected by a particular incoming alarm.
   4) Logical Arrangement of Alarms - Alarms should be ordered to depict naturally occurring relationships.
   5) Alarm Display Identification Label - Each group of alarm displays should be identified by a label above the display.

b) Alarm Message Lists
   1) Listing by Priority - Lists of alarm messages should be segregated by alarm priority with highest priority alarms being listed first.
   2) Message Listing Options - In addition to priority grouping, operators should have the capability to group alarm messages according to operationally relevant categories, such as function, chronological order, and status (unacknowledged, acknowledged/active, cleared).
   3) Message Overflow - Alphanumeric alarm messages that overflow the first page of alarm messages should be kept on subsequent alarm pages.

5.3.4 Operator Response Subsystem

5.3.4.1 General Alarm Control Design Guidelines

a) Provisions for Control Functions - Separate controls should be provided for silence, acknowledgment, reset (acknowledging an alarm that has cleared and returning it to normal).
b) Distinct Coding of Control Functions - Alarm system controls should be distinctively coded for easy recognition.
c) Consistent Layout of Control Group - Each set of alarm system controls should have the functions in the same relative locations.
d) Defeating Controls - Alarm system control designs should not allow the operator to defeat the control.
e) Access to New Undisplayed Alarms - A VDU-based alarm system should provide rapid access to any new alarm messages that are not shown on the current display.

5.3.4.2 Alarm Control Type

(e.g., 10 seconds every minute) until all new or cleared alarms are acknowledged.

a) Silence Controls
   1) Automatic Silencing - Auditory signals should be silenced automatically without manual operation after a specified period of time.
b) Acknowledge Controls
   1) Effect of Acknowledge Function - An alarm acknowledgement function should terminate the flashing of an alarm and have it continue at steady illumination until the alarm is cleared.
   2) Acknowledgement Locations - Acknowledgement should be possible only from locations where the alarm message can be read.
   3) Acknowledgement of Alarm Messages - Non-SDCV alarms should only be acknowledged when the alarm message is on the screen.
c) Reset Controls
   1) Effect of Reset Function - The reset function should place the alarm system in an unalarmed state after an alarm has cleared.
   2) Appropriate Use of Manual Reset - A manual reset sequence should be used where it is important to explicitly inform operators of a cleared condition that had once been deviant.
   3) Appropriate Use of Automatic Reset - An automatic reset sequence should be available