

No: Y10-176

Title: System Equipment and Component Labeling

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To provide guidelines to establish and maintain a uniform and consistent labeling program for permanent identification of plant equipment, valves, instruments and piping at all Y-12 facilities.

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BWXT Y-12 LLC PROCEDURE BLUE SHEET

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Page: 1 of 1

This blue sheet applies to: Entire Manual or Procedures Specified Below

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This document has been reviewed and determined not to require an ADC or UCNI review in accordance with ES/PSO-1.

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Lockheed Martin Energy Systems, Inc.
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Page: 1 of 35

Y-12 Plant
Management Control

Subject: System Equipment and Component Labeling

[Approved Signatures and Dates on File]

Procedure Written by _____
Date

Approvals:

Functional Procedures Configuration Control Board Chairperson _____
Date

Functional Policy Coordinator _____
Date

Command Media Office _____
Date

This procedure has been reviewed by an Authorized Derivative Classifier and has been determined to be UNCLASSIFIED. This review does not constitute clearance for public release.

Name and Date

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Subject: System Equipment and Component Labeling

TABLE OF CONTENTS

PURPOSE 4

APPLIES TO 4

OTHER DOCUMENTS NEEDED 4

WHAT TO DO 5

A. Label Installation for New or Missing Labels 5

B. Label Deletion 9

C. System Labeling Deviations 10

D. Labeling Maintenance 11

RECORDS 11

SOURCE DOCUMENTS 12

APPENDIXES 12

A. Definitions 13

B. General Plant Standards for Labeling 14

C. Labeling Standards for the Fire Protection Systems 27

D. Label Request Form 30

E. Record of Installation 31

F. Labeling Discrepancy I.D. Form 32

G. Label Deletion Notice 33

H. System Labeling Deviation 34

I. Labeling Process Flowchart 35

Subject: System Equipment and Component Labeling

REVISION LOG

Revision Date	Description of Change	Page(s) Affected
3/11/98	<p>PMR-98-0024 Reformatted in accordance with Y10-135. Add Table of Contents and Revision Log. Increased the scope to include ENS/CAAS, Fire Suppression, and electrical systems. Deleted reference to ES-0.1-1, invoke ES-1.13-2 and ES-1.7-2. Delete Definitions for Safety Class Item and Safety Class Item Component. Delete the section (formerly VI.A.7) requiring red stars on labels for Safety Class Items. Delete the requirement for annual walkdown of all labels, substituting label checks when components are checked or operated by operators. Consolidated the General Plant Standards and examples into Appendix B. Added Standards for Fire Protection Systems. Added a requirement for a one-time verification and deviation approval. Added a form for the deviation survey and approval</p>	All

Subject: System Equipment and Component Labeling
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PURPOSE

To provide guidelines to establish and maintain a uniform and consistent labeling program for permanent identification of plant equipment, valves, instruments and piping at all Y-12 facilities. This procedure is intended to:

- enhance personnel safety and productivity
- Prevent personnel error and confusion when involved in plant operations and maintenance
- provide unique identification that should be used in such things as procedures, records, drawings, work control and training

APPLIES TO

All Y-12 personnel that operate, maintain or modify plant equipment, valves, instruments and piping. Components and equipment that are called out in technical procedures (defined in Y10-102, Technical Procedure Process Control) or in operator round sheets are specifically included as well as all new system construction, renovation, and modification. Deviations from this procedure for existing labeling shall be justified by documentation, defining the existing systems and its adequacy, and approved in accordance with the requirements of this procedure.

This procedure does not apply to buried or embedded system equipment/components and piping, to abandoned equipment/components, or to equipment/components not in service except as directed by operations management.

This procedure applies to electrical equipment used by the operator in the operation of or monitoring of system components. Other electrical equipment is excluded from this procedure.

Existing equipment/component labels shall be reviewed, using a graded risk-based approach, to determine their adequacy in achieving the intent of this procedure, or if full compliance with this procedure is necessary. Deviations from this procedure for existing labeling shall be justified by documentation, identifying deviations in the existing labels and justifying its adequacy.

The standards for labeling are included in Appendix B for general plant Structures, Systems and Components (SSC) and Appendix C for Fire Protection Systems. Standards for the Criticality Accident Alarm System and Emergency Notification System are contained in Engineering Standard ES-1.13-2, *Emergency Notification System*. Standards for electrical systems are contained in Engineering Standard ES-1.7-2, *Electrical System Identification Scheme*.

**OTHER DOCUMENTS
NEEDED**

- Engineering Standard ES-1.13-2, *Emergency Notification System*
- Engineering Standard ES-1.7-2, *Electrical System Identification Scheme*

Subject: System Equipment and Component Labeling

WHAT TO DO**A. Label Installation for New or Missing Labels****Label Requestor**

1. Complete a Label Request Form (Appendix D or equivalent) including each component requiring a label.
2. Submit the Label Request Form and a marked drawing copy to the Labeling Coordinator.
3. IF temporary labeling is desired, THEN inform Labeling Coordinator.

Labeling Coordinator

4. Review the Label Request form for accuracy and completeness.
5. IF temporary labels are to be installed, THEN perform the following:

- a. Have temporary labels fabricated.
- b. Provide temporary labels, Label Request Form and references to Label Installers.

Label Installers

- c. Apply the temporary labels, using the Label Request Form and references as a guide.
- d. Place a check mark (✓) on the Label Request Form in the YES column under TEMP LABEL INSTALLED for each label installed. (Appendix D or equivalent)
- e. Initial the INITIALS OF INSTALLER column of the Label Request Form for each label installed.
- f. Return Label Request Form and references to Labeling Coordinator.

Labeling Coordinator

6. Submit the Label Request Form and any other information to the Label Maker for fabrication of permanent labels.
7. When the permanent labels are received from Label Maker, inspect the labels for any discrepancies.
8. IF any discrepancies are found, THEN resolve the discrepancies with the Label Maker

Subject: System Equipment and Component Labeling

A. Label Installation for New or Missing Labels (cont.)

**Labeling
Coordinator**

9. Initiate a Record of Installation (Appendix E or equivalent) by completing SECTION 1 as follows:

SECTION 1		
BUILDING	9.a.	
SYS. DESIG.	9.b.	
DWG. / DATE	9.c.	
FILE NAME	9.d.	
REF. NO.	UNID	DESCRIPTION
9.e.	9.f.	9.g.

a. Enter the building number in which the permanent labels will be installed.

b. Enter the name of the system for which the permanent labels will be installed.

NOTE: If more than one drawing was used, then each sheet of the Record of Installation should list only components shown on one drawing.

c. Enter the number and the latest revision date of the drawing used in the walkdown and labeling data collection, if any.

d. IF a computer database will be used to store labeling data, THEN enter the computer file name for the labeling data.

NOTE: The number sequence will continue from one page to the next for multiple-paged Records of Installation.

e. Enter a sequential whole number beginning with "1" for each component identifier in the system.

f. Enter the Unique Identification Number (UNID) from the Label Request Form.

g. Enter the description of the component(s) from the Label Request Form.

Subject: System Equipment and Component Labeling

A. Label Installation for New or Missing Labels (cont.)

Labeling Coordinator

10. Prepare a labeling package consisting of the following:

- Permanent Labels (and attachment hardware, if necessary)
- References, if any, showing where the labels are to be placed
- Record of Installation Form(s) with SECTION 1 completed

11. Provide labeling package to Label Installers.

Label Installers

12. Prior to installing labels, complete the top portion of SECTION 2 on the Record of Installation as follows:

SECTION 2	
INSTALLER	INITIALS
12.a.	12.b.

INST.	DATE
13.a.	13.b.

- a. Print your full name(s) and badge number(s).
- b. Enter your initials as they will appear on the INSTALLATION line.

13. Apply labels, using the references as a guide, and complete the lower portion of the Record of Installation as follows:

- a. Enter your initials after completion of label installation.
- b. Enter the date the label was installed.

14. Record any problems or discrepancies incurred in the COMMENTS Section of the Record of Installation.

15. WHEN label installation is complete, THEN return the completed Record of Installation and references to the Labeling Coordinator.

16. Discuss any problems or discrepancies encountered during installation with the Labeling Coordinator.

Subject: System Equipment and Component Labeling

A. Label Installation for New or Missing Labels (cont.)

**Labeling
Coordinator**

- 17. Resolve any problems or discrepancies encountered by the Label Installers during the installation AND enter a brief description of the discrepancy resolution in the COMMENTS section of the Record of Installation.
- 18. Assemble a Field Verification Team composed of a Subject Matter Expert (SME), procedure writer or supervisor, and other technical experts as deemed necessary.

**Field
Verification
Team**

- 19. Prior to verifying labels, complete the top portion of SECTION 3 on the Record of Installation as follows:

SECTION 3	
VERIFIER	INIT
19.a.	19.b.
VERIF	DATE
20.a.	20.b.

- a. Print your full name(s) and badge number(s).
 - b. Enter your initials as they will appear on the VERIF line.
- 20. Verify labels, using the references as a guide, and complete the lower portion of the Record of Verification as follows:
 - a. Enter your initials after completion of label verification.
 - b. Enter the date the label was verified.
 - 21. Record any problems or discrepancies encountered on Labeling Discrepancy ID form (Appendix F or equivalent).
 - 22. WHEN label verification is complete, THEN return the completed Record of Installation, Labeling Discrepancy ID form (if, applicable) and references to the Labeling Coordinator.
 - 23. Discuss any problems or discrepancies encountered during verification with the Labeling Coordinator.
 - 24. Resolve any problems or discrepancies encountered by the Label Verifiers during the verification, AND Document resolution of problems or discrepancies on Labeling Discrepancy ID form (Appendix F or equivalent).

**Labeling
Coordinator**

Subject: System Equipment and Component Labeling

A. Label Installation for New or Missing Labels (cont.)

**Labeling
Coordinator**

- 25. Sign and date the Record of Installation and Labeling Discrepancy ID form (if applicable).
- 26. IF a computer database is used for data storage, THEN enter labeling data into the labeling database for future reference or re-order.

NOTE: References used during installation or verification are not records and may be properly disposed of when no longer needed.

- 27. File the Label Request Form and Record of Installation Forms for retention as system labeling history information.

B. Label Deletion

Label Requestor

- 1. Initiate Label Deletion Notice (Appendix G or equivalent) by recording Building No., Area, and your signature on top portion of form.
- 2. List each permanent label UNID to be removed, the system name, and any associated procedure number.

**Shift Manager/
System Owner**

- 3. Authorize the label deletion by signing the Label Deletion Notice in the Removal Authorization block.

Label Requestor

- 4. Remove component labels authorized by the Shift Manager or System Owner.
- 5. Submit the completed Label Deletion Notice to the Labeling Coordinator.

**Labeling
Coordinator**

- 6. IF applicable, THEN update the labeling database by deleting the listed components.
- 7. Sign and date the Label Deletion Notice(s).
- 8. File Label Deletion Notice(s) for retention as system labeling history information.

Subject: System Equipment and Component Labeling
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C. System Labeling Deviations

NOTE: The purpose of the system label survey is to determine the adequacy of the labels in place: compare the labels to the appropriate requirements, justify any deviations, and approve the deviations. Whether or not all the components are required to be labeled is beyond the scope of the survey.

**Organization
Manager**

1. Direct a one-time survey of each applicable system (as defined in the "Applies To" section of this procedure).

**Labeling
Coordinator**

2. Prepare a System Labeling Deviation form (Appendix H or equivalent) for each system not in compliance with the labeling standard for that system.
- a. Fill in the system name, building or location, system designator used in the UNID, and number of components labeled.
 - b. If the system designator used is in compliance, then fill in Yes; otherwise No.
 - c. If the bar coding is used on the labels and uses the Code 39 industrial bar code symbology, fill in Yes; otherwise No.
 - d. If the building number is used in the label UNID, fill in Yes; otherwise No
3. Assemble a Field Verification Team composed of an SME, procedure writer or supervisor, and other technical experts as deemed necessary.

**Field
Verification
Team**

4. Survey each system, documenting the non-compliance of the labels in place, using the form provided by the Labeling Coordinator.
- a. Survey the labels on the system components and compare the labels format to the information provided by the Labeling Coordinator for system designator, optional building number, and optional bar code.
 - b. Survey the labels on the system components and compare to the label standard requirements on the System Labeling Deviation form (Appendix H or equivalent).
 - c. Record those label attributes in compliance with the standard requirements.
 - d. Summarize the label deviations from the label standard requirements.
5. Document any missing labels discovered during the course of the survey, using the Label Request Form (see Section A, step 1).

**Labeling
Coordinator**

6. IF any deviations are noted THEN
forward System Labeling Deviation form to System Owner/Operations Manager for resolution.

Subject: System Equipment and Component Labeling
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C. System Labeling Deviations (cont.)

- | | |
|---|--|
| System Owner/
Operations
Manager | 7. Provide justification for any deviations in the Resolutions column on the System Labeling Deviation form (Appendix H or equivalent). |
| | 8. Direct corrective action to resolve any deviations that are not approved AND document in the Resolutions column on the System Labeling Deviation form (Appendix H or equivalent). |
| Organization
Manager | 9. Approve resolution of any deviations for each system not in compliance with the appropriate labeling standard by signing the form. |
| Labeling
Coordinator | 10. Review, sign, and file the approved System Labeling Deviation form. |

D. Labeling Maintenance

- | | |
|---------------------------------|---|
| SME | 1. Check label condition and accuracy during walkdown of new and revised technical procedures and during the biennial review of these procedures, under Y10-102, <i>Technical Procedure Process Control</i> . |
| | 2. Document any missing or incorrect labels on a Labeling Discrepancy I.D. Form (Appendix F or equivalent). |
| | NOTE: Operations personnel should be constantly alert for missing and incorrect labels during system operation, shift turnover, rounds, equipment walkdowns, system alignment checks, and procedure validation. |
| Operations
Personnel | 3. WHEN missing or incorrect labels are found THEN document any missing or incorrect labels on a Labeling Discrepancy I.D. Form (Appendix D or equivalent). |
| RECORDS | <ul style="list-style-type: none"> • The completed Label Request Form shall be retained by the Labeling Coordinator or the Document Control Center for the life of the system labeled. • The completed Record of Installation and Labeling Discrepancy ID form (if applicable) shall be retained by the Labeling Coordinator or the Document Control Center for the life of the system labeled. • The completed Label Deletion Notice shall be retained by the Labeling Coordinator or the Document Control Center for the life of the system on which the labels were deleted. • The approved System Labeling Deviation form shall be retained by the Labeling Coordinator or Document Control Center for the life of the system or until the system is brought into full compliance with this procedure. • Working copies of pending forms, completed forms and approved deviations may be retained by the Labeling Coordinators and the system owner. These working copies may be destroyed when superseded or when no longer useful. |

Subject: System Equipment and Component Labeling
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- SOURCE DOCUMENTS**
- CM-43, *Guidance for Grading of Structures, Systems and Components*
 - ANSI/ISA-S5.1-1984, *Instrumentation Symbols and Identification*

APPENDIXES

- A. Definitions
- B. General Plant Standards for Labeling
- C. Labeling Standards for the Fire Protection Systems
- D. Label Request Form
- E. Record of Installation
- F. Labeling Discrepancy I.D. Form
- G. Label Deletion Notice
- H. System Labeling Deviation
- I. Labeling Process Flowchart

Subject: System Equipment and Component Labeling
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APPENDIX A
DEFINITIONS
Page 1 of 1

Component - A constituent part of a system; includes valves, instruments, pumps, motors, etc.; often used interchangeably with the term "equipment."

Equipment - An item within a system or associated with a system whose function is nonstructural or does not serve solely as a transport path for a plant utility and none of whose constituent parts are practical to tag.

Operating Diagram - An unscaled drawing, which may serve as a baseline for the equipment/component labeling task. Operating diagrams should be user-friendly, with major equipment/components drawn in proportion to their actual sizes and relative to each other's sizes whenever possible. Operating diagrams are NOT an engineered P&ID. They represent the "as-built" configuration of the system, showing the components normally operated and/or monitored by Operations. Operating diagrams may be converted to engineering drawings and serve as technical baseline drawings with the appropriate approvals and authorizations. Operating diagrams may be incorporated into operating procedures.

System - A collection of equipment and components designed to perform in unison to accomplish a specific result(s).

Subject: System Equipment and Component Labeling

APPENDIX B
GENERAL PLANT STANDARDS FOR LABELING
Page 1 of 13

GENERAL INFORMATION

An effective system labeling program is necessary for the reliable identification of plant system components to promote safe and efficient operation. Plant uniformity in system component labeling is an important element in the effort to provide a safe work environment. Effective labeling will enhance training effectiveness and help reduce operator and maintenance errors resulting from incorrect identification of facility equipment/components.

To remain effective, a labeling program must be an ongoing process. Maintenance activities involving removal or replacement of equipment may result in loss or misplacement of component labels. Spills, passage of time, or other environmental factors may cause labels to become damaged or unreadable. Equipment modifications may result in new label requirements. A means of providing temporary labels in a timely manner and of ensuring that permanently labeled components are periodically monitored is an important factor in maintaining a safe and efficient workplace.

REQUIREMENTS

1. Permanent Labels

A. Label Format (see Figure 1 for an example)

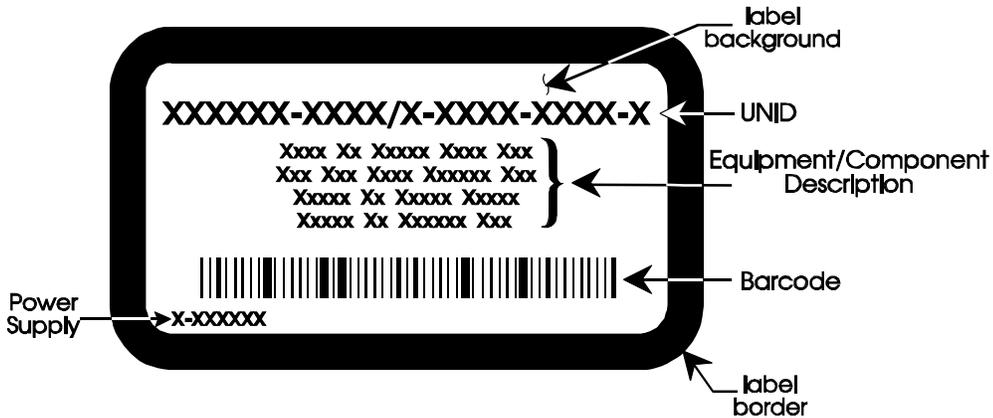


Figure 1

Subject: System Equipment and Component Labeling

APPENDIX B
Page 2 of 13

- 1) The first line of the label shall be the Unique Identification Number (UNID). All system component labels requiring a location identifier shall have a UNID assigned, consisting of a maximum of 25 characters and shall be arranged in sections as shown in Figure 2:

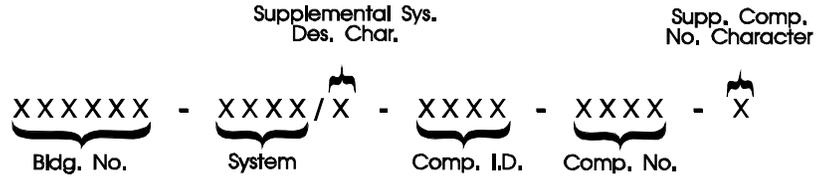


Figure 2

- a. The first section of the UNID is optional and shall designate the building in which the equipment is located and may contain up to six alphanumeric characters (e.g., 9212, 972316). While the building designation may be suppressed on the label for clarity, it should be included for all listing of equipment.
- b. The second section of the UNID shall designate the system. This designator shall uniquely identify the system in the building. The system designator may contain up to four alphanumeric characters. (See below for a list of some plant and area specific system designators established by Engineering.)
- c. The third section of the UNID shall be used, when necessary, to distinguish between redundant or parallel systems. This character may be alpha or numeric and shall be separated from the system designator by a solidus or forward slash (/).
- d. The fourth section of the UNID shall be the component/equipment identification. This designation shall be alpha only and should be a functional identification. The primary source for the component identification is ANSI/ISA-S5.1-1984, *Instrumentation Symbols and Identification*. (See Table 3 for a list of some frequently used component function identifiers).
- e. The fifth section of the UNID shall be the component number. This number may contain up to four alphanumeric characters, identical to that used on related system drawings.

Subject: System Equipment and Component Labeling

APPENDIX B
Page 3 of 13

- f. The sixth section of the UNID shall be used, when necessary, to distinguish between redundant components. This character may be alpha or numeric.
- 2) Below the UNID shall be the equipment/component description. This should be a concise and meaningful description of the function (noun name) of the item being identified. Common abbreviations may be used. This description may include up to four lines of characters.
 - 3) Below the equipment/component description shall be the bar code. The bar code is optional and, when used, shall conform to CODE 39 (also known as 3 of 9) industrial bar code symbology and shall embody, as a minimum, the UNID. The use of bar codes should be considered to facilitate automated data taking or maintenance tracking.
 - 4) Below the bar code, in the lower left corner where applicable, shall be the power supply designation. Power supply should be provided when the same person operates both the component and the power supply.
 - 5) Label background for all applications should be white.
 - 6) Label characters should be black for maximum contrast against the label background.

NOTE: Color coding should not be overused. Each color should have a unique, easily recognizable meaning.
 - 7) The use of color coded borders may be used to enhance rapid, reliable identification. Consider the use of color coding to differentiate between multiple units, systems, trains, etc. Color coded borders shall:
 - ! Be compatible with previously learned associations
 - ! Have only one meaning for each color or combination of colors
 - ! Be consistent within each work area from application to application

Subject: System Equipment and Component Labeling

APPENDIX B
Page 4 of 13

B. *Label Character Design*

- 1) UNID characters shall be **UPPER CASE** and in **PLAIN BLOCK** style.
- 2) UNID character height should be based on required viewing distance. The following table may be used as a guide in determining proper character height:

Maximum Viewing Distance	Minimum Character Height
Less than 28 in.	c"
4 ft.	¼"
6 ft.	d"
8 ft.	½"
10 ft.	e
12 ft.	f"
More than 12 ft.	1"

Table 1

- 3) Equipment/component description characters should be both upper and lower case.

C. *Label Assignment*

- 1) Components that are operated or monitored by operators (referenced in technical procedures or roundsheets) shall be considered for identification (labels). Other components may be labeled as required by facility management.

Subject: System Equipment and Component Labeling

APPENDIX B
Page 5 of 13

2) Labels may be assigned sequentially beginning at the system's scoped boundary or grouped by blocks of numbers to make the components easier to locate.

! All labels associated with the same component (e.g., a pump and the pump's on/off switch or instruments in a loop) may use the same sequential number with the respective component identifiers. Figure 3 illustrates an example.

XXX-F-200	XXX-TI-200-A	XXX-TI-200-B	XXX-TR-200
Heated Water	Tank F-200 Water	Tank F-200 Water	Tank F-200 Water
Tank	Temp. Indicator	Temp. Indicator	Temp. Recorder

Figure 3

3) Efforts should be made to incorporate any existing identification on equipment/components.

D. *Label Placement and Orientation*

1) Labels shall be located on or near the components being identified in a manner clearly associating the label with it's respective component. (examples of correctly placed valve labels are shown below)

2) Valves operated by reach rods, chains, or other remote operators, shall have an additional label installed at the operating device.

! If a valve is difficult to see from the operating location, the label shall indicate the OPEN and CLOSE direction for the chain, reach rod, or other remote operating device.

Subject: System Equipment and Component Labeling

APPENDIX B
Page 6 of 13

- 3) Labels for chain-operated components should be attached to a small piece of tubing through which the chain passes, so the label always remains at the bottom of the chain loop.
- 4) If a label is approachable from both sides, the label should be printed on both sides.
- 5) Labels for components located above eye level should be positioned for greatest visibility.
- 6) Labels should be oriented horizontally, left to right, for legibility from a normal viewing posture.
 - ! If a label must be oriented vertically, the UNID should read from top to bottom as shown in Figure 4:

L
A
B
E
L

Figure 4

- ! Fire Extinguisher labels may rotated vertically to improve bar code readability.
- 7) Large equipment should be labeled in multiple locations, in close proximity to where workers will perform their tasks.
- 8) Labels SHALL NOT be attached in such a way as to interfere with operation of component.
- 9) Label placement SHALL NOT obscure manufacturer's labels.

Subject: System Equipment and Component Labeling

APPENDIX B
Page 7 of 13

E *Panel Labeling Specifics*

- 1) Panel label placement should be consistent on each panel (e.g., all labels above the component OR all labels below the component). Examples of correctly placed labels are shown below in figures 7, 8 and 9.

! IF spacing or positioning of the panel components is such that label placement cannot clearly show the association between label and panel component, THEN
tie lines or escutcheon plates should be used.

- 2) Information on control panels shall be consistent with the information on labels attached to the equipment being controlled.
- 3) Panels may not need a UNID assigned if the panel component being labeled meets the following criteria:

! The component location can be adequately conveyed by referring to the Panel UNID.

! The component and its relationship with the associated field component/equipment can be clearly communicated by a descriptive label only.

Examples of these may be pilot or position indicator lights, ON/OFF switches, and pushbuttons.

F. *Label Materials*

- 1) Labeling materials shall be compatible with their environment and made resistant to any expected adverse conditions such as exposure to acids, alkalies, oils, organics, ultraviolet light, extreme temperatures, and humidity.
- 2) Labels that must be read in dim light or during blackout conditions shall have a reflective film to enhance readability.

Subject: System Equipment and Component Labeling

APPENDIX B
Page 8 of 13

2. *Temporary Labels*

A. *Label Use*

Temporary labels should be used while awaiting permanent label installation. Temporary labeling shall be initiated with a Label Request Form, UCN-20211.

B. *Label Format*

Temporary labels shall, as a minimum, contain the UNID and the component description.

C. *Label Characters*

UNID Characters shall be **UPPER CASE** and in **PLAIN BLOCK** style.

D. *Label Placement and Orientation*

1) Temporary labels should be installed in the same location as is planned for the permanent labels.

2) Where practical, temporary labels should be oriented horizontally.

E. *Label Materials*

Environment and duration of installation should be considered when determining materials for temporary labels. Generally, laminated paper labels or laser-printable tear-resistant plastic materials are adequate.

Subject: System Equipment and Component Labeling

APPENDIX B
Page 9 of 13

NOTE: The following table contains some of the established system designators at the Y-12 Plant. Technical support should be consulted for verification of the correct system designator for each system.

System	System Designator
Aluminum Nitrate Recovery	ANR
Beaker Leaching Operation	BLO
Chemical Make-Up	CMU
Demineralized Water	MW
Destruction Distillation Units (4)	DD1 (-4)
Evaporator	EVAP
Fluid Beds (4)	FB1 (-4)
General Salvage Stream	GSS
HF Supply System	HFS
Instrument Air	YA or IA
Muffle Furnaces (2)	MF1 (-2)
Natural Gas	FG
Nitric Acid Distribution System	NAS
Organic Processing	ORP
Oxide Dissolver	OXD
Plant Air	A
Primary Extraction System (4)	PX1 (-4)
Process Chemicals	PA
Sulfate Removal System	SRS
Wet Vacuum System	WVS

TABLE 2 - SYSTEM DESIGNATORS

Subject: System Equipment and Component Labeling

APPENDIX B
Page 10 of 13

Note: The following table contains frequently used component function identifiers.

Component	Identifier	Component	Identifier
Power Indicator	JI	Flow Sight Glass	FG
Power Recorder	JR	Level Sight Glass	LG
Level Solenoid	LY	Temperature Transmitter	TT
Flow Indicator	FI	Level Indicating Switch	LIS
Differential Pressure Indicator	PDI	Flow Indicating Switch	FIS
Level Indicator	LI	Flow Transmitter	FT
Pressure Indicator	PI	Level Transmitter	LT
Temperature Indicator	TI	Temperature Control Valve (externally controlled)	TV
Level Alarm Low	LAL	Flow Regulator (self-activated)	FCV
Level Alarm High	LAH	Level Control Valve (externally controlled)	LV
Temperature Recorder	TR	Pressure Regulator (self-activated)	PCV
Flow Recorder	FR	Pressure Relief Valve	PSV
Level Recorder	LR	Hand Valve	HV
The following component identifiers are taken from ES-0.1-1 and are approved for use			
Furnaces, Calciners	B	Instrument Control Cabinet	K
Condensers, Coolers	C	Agitators, Grinders	L
Converters, Reactors	D	Dry Boxes, Hoods	R
Tanks, Receivers	F	Humidifiers, Dehumidifiers	AD
Filters, Centrifuges	G	Air Filters, Air Cleaners	AG
Pumps, Compressors	J	Fans, Blowers	AJ

TABLE 3 - COMPONENT FUNCTION IDENTIFIERS

Subject: System Equipment and Component Labeling

APPENDIX B
Page 11 of 13

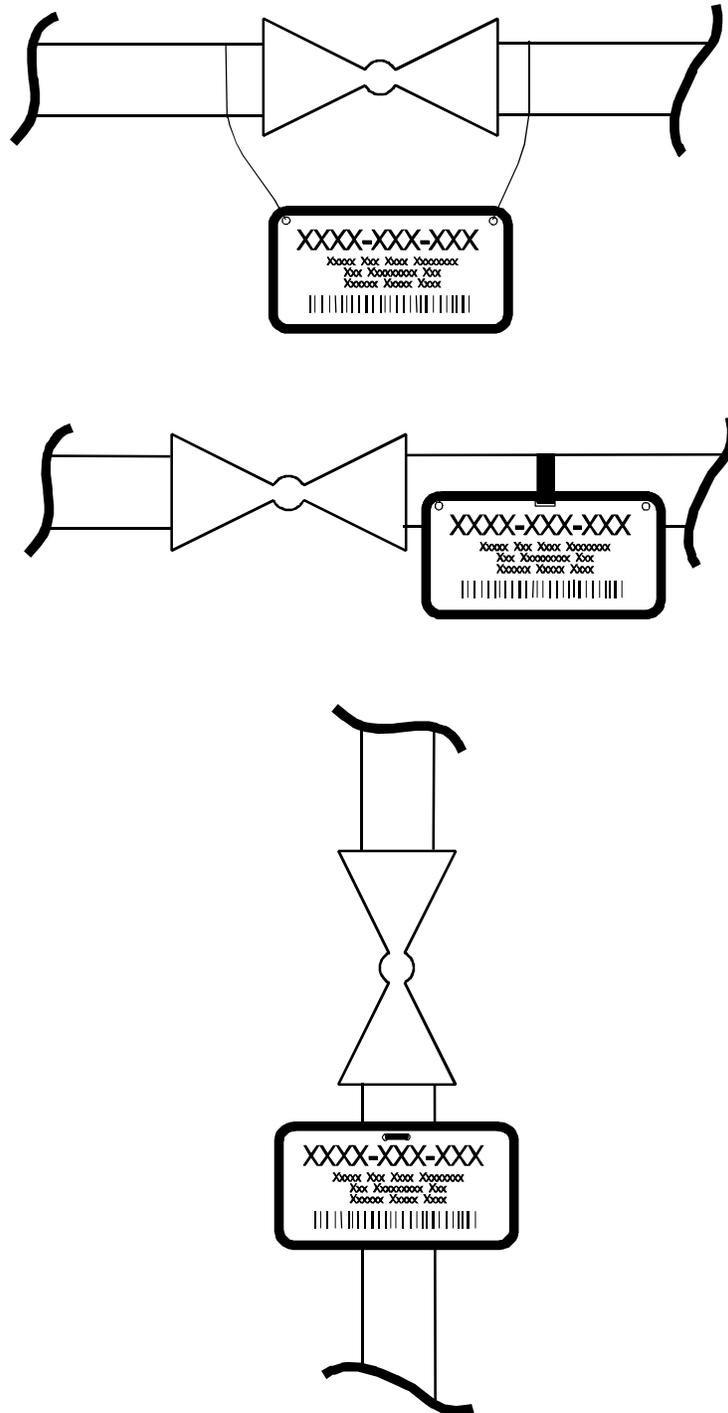


FIGURE 6 - VALVE LABELING EXAMPLES

Subject: System Equipment and Component Labeling

APPENDIX B
Page 12 of 13

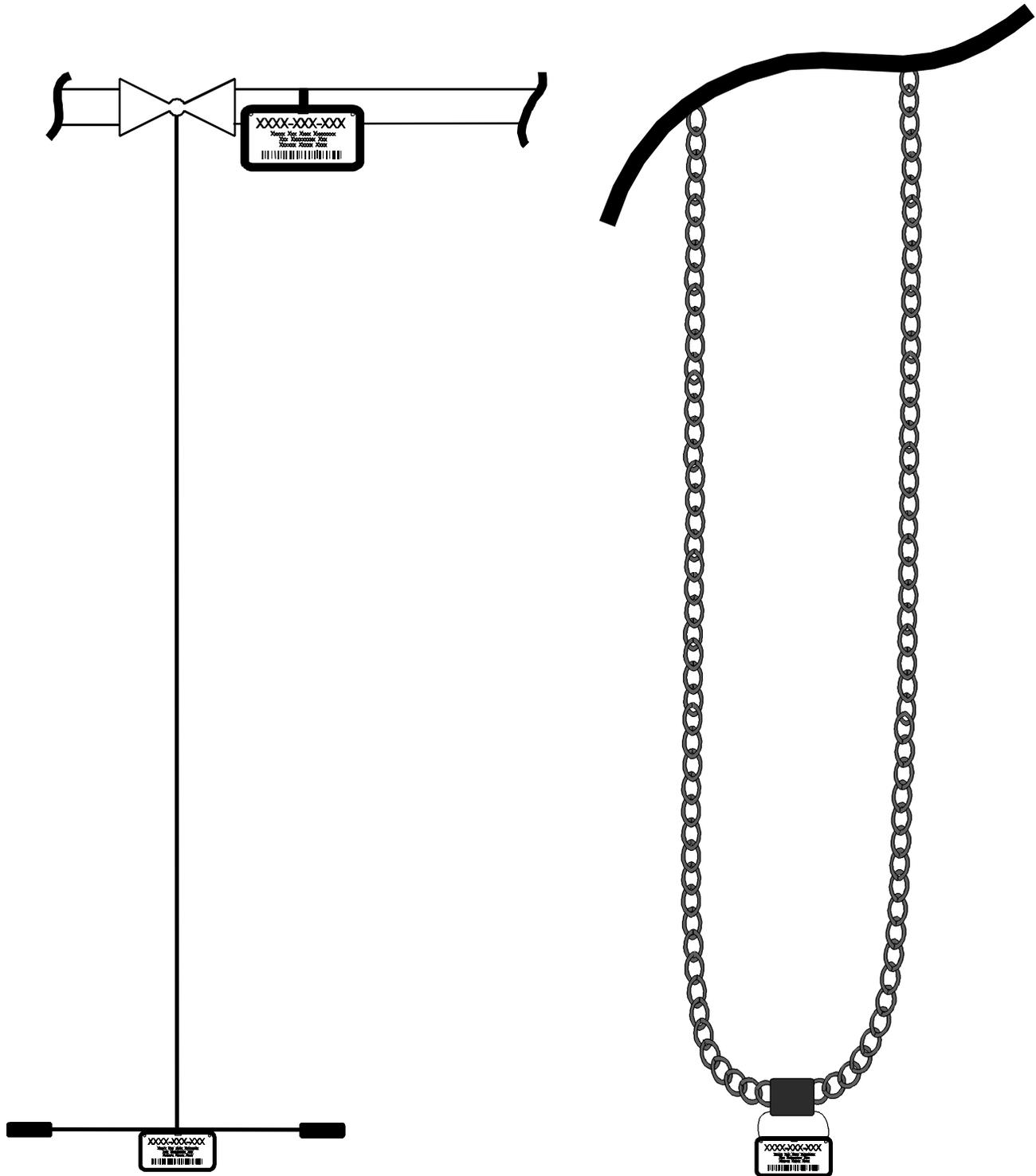


Figure 7 - REMOTE OPERATOR LABELING EXAMPLES

Subject: System Equipment and Component Labeling

APPENDIX B
Page 13 of 13

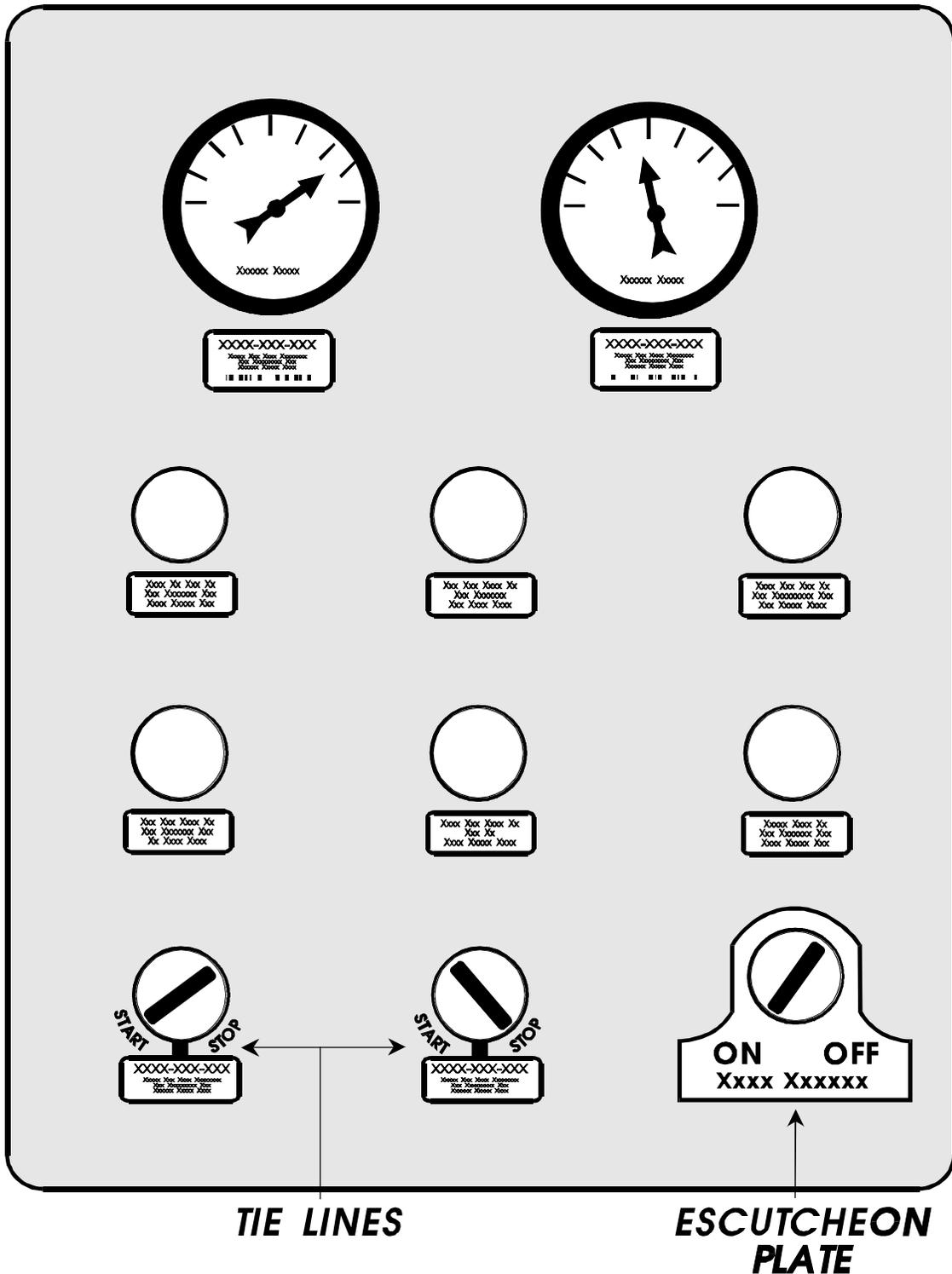


Figure 8 - PANEL LABELING EXAMPLE

Subject: System Equipment and Component Labeling
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APPENDIX C
 LABELING STANDARDS FOR THE FIRE PROTECTION SYSTEM
 Page 1 of 3

GENERAL INFORMATION

An effective system labeling program is necessary for the reliable identification of Fire Protection Systems components to promote safe and efficient operation. Plant uniformity in component labeling for these systems is an important element in the effort to provide a safe work environment. Effective labeling will enhance training effectiveness and help eliminate operator and maintenance errors resulting from incorrect identification of components.

To remain effective, a labeling program must be an ongoing process. Maintenance activities involving replacement of components may result in loss or misplacement of component labels. Time, abuse or environmental factors may cause labels to become damaged or unreadable. Equipment modifications may result in new label requirements. A means of providing temporary labels in a timely manner and of ensuring that permanently labeled components are periodically monitored is an important factor in maintaining a safe and efficient workplace.

REQUIREMENTS

The Fire Protection System label shall comply with the requirements of Appendix B, General Plant Standards for Labeling, except for labeling format. Use the following label format for these systems.



Figure 1

1. Labels have no borders, black block lettering and white background
2. The LCO code is used only on labels of components in systems that impact Limiting Conditions of Operation (LCO Systems) for the facility.
3. The noun description should be a concise and meaningful description of the function (noun name) of the item being identified. Common abbreviations may be used. This description may include up to four lines of characters.
4. An optional bar code may be used. The bar code, if used, appears above the noun description.
5. Each component labeled shall have a unique identification number. This number consists of up to nineteen alphanumeric characters, subdivided into five sections. Sections are separated by a hyphen.

Subject: System Equipment and Component Labeling

APPENDIX C
Page 2 of 3

- a. The first section is the seven character building number...
b. The second section (indicated by TTT in figure 1) is the system type code...
c. The third section (indicated by DDD in figure 1) is three alphanumeric characters...
d. The fourth section is three alphanumeric characters that identify the component function...
e. The fifth section is three numerals that, with the component function code, uniquely identifies the component within the system.

Table with 6 columns: System Type, Code, System Type, Code, System Type, Code. Lists various equipment types and their corresponding codes such as Antifreeze loop (AF#), Building (BLD), Fire Alarm (FIR), etc.

Table 1 - SYSTEM TYPE CODES

Subject: System Equipment and Component Labeling
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APPENDIX C
Page 3 of 3

<u>COMPONENT</u>	<u>CODE</u>	<u>COMPONENT</u>	<u>CODE</u>
Accelerator	ACC	Pipe	PIP
Air Cylinder	ACY	Portable Fire Extinguisher	PFE
Alarm Retard Chamber	ARC	Pump, Booster	PMP
Battery Charger	CHG	Pump, Excess Pressure	XPP
Battery, Station	BAT	Regulator	REG
Box Decoder	BXD	Reset Button	RSB
Circuit, Damper Control	DPC	Respirator, Face Mask	RFM
Circuit, Door Closer Control	DRC	Self Contained Breathing Apparatus	SBA
Circuit, Heat Detector Controller	HDC	Strainer	STR
Circuit, Interlock	ILK	Switch, Air Pressure	APS
Circuit, Smoke Detector Controller	SDC	Switch, Bypass	BPS
Coke Can, Fire Suppressant	COK	Switch, Low Temperature	LTS
Compressor, Air	AIR	Switch, Tamper Alarm	TMP
Connection, Fire Department	FDC	Switch, Test	STS
Detector, Duct Smoke	DSD	Switch, Water Flow	WFS
Detector, Heat Actuated Device	HAD	Switch, Water Pressure	SWP
Detector, Heat, Line-type (Protect-O-Wire)	HDW	Tank, Air Receiver	ART
Detector, Heat, Spot-type	HDT	Tank, CO2	COT
Detector, Smoke, Ionization	ISD	Tank, Dry Chemical	DCT
Detector, Smoke, Photoelectric	PSD	Valve, Air Supply	ASV
Electrical Disconnect	DCS	Valve, Alarm Line	ALV
Fire Damper	SKD	Valve, Alarm Test	ATV
Fire Door	FDR	Valve, Backflow Preventer	BFV
Fire Hose	HSE	Valve, Ball Drip	BDV
Gamewell Master Box	MBX	Valve, Bypass	BPV
Gauge, Air Pressure	APG	Valve, Check	CKV
Gauge, System Pressure	SPG	Valve, Condensate Drain	CDS
Gauge, Water Supply Pressure	WSP	Valve, Cross Connect	CCV
Hangar, Fire Extinguisher	EXT	Valve, Cut Off	COV
Hazardous Material Suit	HMS	Valve, Drain	DRV
Hydrant	HYD	Valve, Inspector's Test	ITV
Notification, Bell	BEL	Valve, Main Drain	MDV
Notification, Horn/Strobe	HNS	Valve, Manual Trip	MTV
Notification, Water Motor Gong	WMG	Valve, Orifice Restriction	ORV
Panel, CO2 Control	COP	Valve, Post Indicating	PIV
Panel, Zone Card Control	ZCD	Valve, Priming/Fill	PRV
Panel, Dry Chemical Control	DCP	Valve, Relief	RFV
Panel, Firecycle Control	FCP	Valve, Riser Supply	RSV
Panel, Heat Detector Control	HDP	Valve, Sectional Control	SCV
Panel, Loop Controller	LCT	Valve, Solenoid Operated	SOV
Panel, Smoke Detector Control	SDP	Valve, System Alarm	SAV
Personal Alert Safety System	PAS	Valve, Wall	WIV
		Valve, Water Main Control	WMV

Table 2 - COMPONENT CODES

Subject: System Equipment and Component Labeling

APPENDIX F
LABELING DISCREPANCY I.D. FORM
Page 1 of 1

System Name _____ Dwg. No. _____

Page of

UNID	DISCREPANCY	RESOLUTION

Verification Team Representative Date

Labeling Coordinator Date

UCN-20215

(EXAMPLE)

Subject: System Equipment and Component Labeling

APPENDIX H
SYSTEM LABELING DEVIATION
Page 1 of 1

System Name _____ Building/Location _____
 SYSTEM _____ System designator in compliance (Y/N) _____
 DESIGNATOR _____ Bar coding used and in compliance (Y/N) _____
 No. of components labeled _____ Building number used in the UNID (Y/N) _____

Verification Team Survey results

Sat.	Requirement	Appendix B reference	Deviation	Resolution/Justification for deviation. Attachments may be used.
	1. Label Format for UNID and bar code	1.A.1) & 3)		
	2. Equipment/Component description	1.A.2)		
	3. Power supply listed	1.A.4)		
	4. White background & black lettering	1.A.5) & 6)		
	5. Appropriate color coded borders	1.A.7)		
	6. UNID is Upper Case/Block characters	1.B.2)		
	7. UNID character size	1.B.2) & Table 1		
	8. Label on or near component	1.D.1)		
	9. Special label placement requirements	1.D.2), 3), 4), & 5)		
	10. Label orientation correct	1.D.6)		
	11. Multiple labels in place if required	1.D.7)		
	12. Label does not interfere with operation	1.D.8)		
	13. Label does not obscure manufacturer's label	1.D.9)		
	14. Panel Label requirements	1.E		
	15. Label materials appear compatible	1.F.1)		
	16. Reflective label used if required	1.F.2)		

Verification Team Leader _____ Label Coordinator review _____

Organization _____ Approved by/date _____ / _____

Subject: System Equipment and Component Labeling

APPENDIX I
LABELING PROCESS FLOWCHART
Page 1 of 1

