

## **C. IDENTIFICATION SYSTEM**

### **ENABLING OBJECTIVES:**

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| 5.9  | State how equipment is identified in the station and on flowsheets.            |
| 5.10 | Describe how piping systems are coded and why.                                 |
| 5.11 | Given a flowsheet, with legend, locate components specified by the instructor. |

This section describes the general approach for identifying equipment both in the station and on flowsheets.

### **EQUIPMENT IDENTIFICATION**

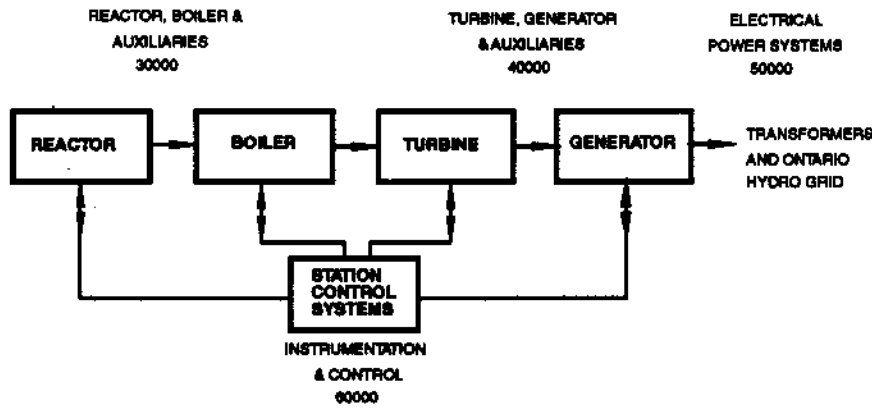
A standardized numbering system called the Uniform Subject Index (USI)<sup>8</sup> has been adopted as our system of identification. This is supplemented in the field by colour coding<sup>9</sup> and tagging, and on drawings (flowsheets) by equipment symbols. Although in principle USI is identical in all our stations, it does vary in detail from station to station. USI specifies all of the equipment and most operations in the station.

The USI is sub-divided into Divisions. Figure 5.4 shows how some of these divisions relate to station systems.

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<sup>8</sup> Also known as the System Classification Index (SCI).

<sup>9</sup> Colour coding is used to distinguish between units.



**Figure 5.4**  
**Equipment Numbering Divisions**

The complete set of Divisions are:

- Division 0 General Project
- Division 1 Site and Improvements
- Division 2 Buildings, Structures and Shielding
- Division 3 Reactor, Boiler and Auxiliaries (or Enriching at BHWP)
- Division 4 Turbine, Generator and Auxiliaries (or Finishing at BHWP)
- Division 5 Electric Power Systems
- Division 6 Instrumentation and Control
- Division 7 Common Processes and Services
- Division 8 Construction Indirects

Each division is further subdivided as shown below. A five digit number allows us to specify an individual component of any system in our plants. An example from Division 4 illustrates the structure of USI.

Division	<b>40000</b>	Turbine, Generator and Auxiliaries
Major System	<b>42000</b>	Condensing System
System	<b>42100</b>	Main Condensing System
Sub-System	<b>42120</b>	Condenser Extraction System
Components	<b>42121</b>	Ejectors
	<b>42122</b>	Vacuum Pumps
	<b>42123</b>	Valves
	<b>42128</b>	Pipe Supports
	<b>42129</b>	Piping

It should be noted that below the system level, the numbering system may be changed to suit particular station needs.

## **FIELD IDENTIFICATION**

In the field, the USI number and a brief written description is found either printed on the equipment or on a tag attached to the equipment. Where more than one component of the same kind (eg. valves) is contained within a sub-system, a special device code is provided in place of the component digit in the USI. This code consists of a descriptive letter (P for pump, V for valve, etc) and a unique number. For example, 42123 which indicates any valve in the condenser air extraction system could be changed to 4212-V2 or 4212-V15 to indicate a specific valve in the system.

## **PIPING**

For quick identification, piping is colour coded to indicate the type of fluid it contains. Also, an arrow is attached showing the direction of flow. Colours commonly used are:

Air	Blue
Heavy Water	Pink
Light Water	Green
Steam	Silver (Aluminum)
Oil	Yellow
Gases	Brown
Bldg. Heating	White
Drains & Sewage	Black
Fire Protection	Red
Vacuum	Purple
Chemicals	Orange

## **FLWSHEETS**

Each station maintains a complete set of system drawings called **flowsheets**. The flowsheets are graphical representations of the systems using standard symbols to represent equipment and devices. The flowsheets are labelled using the USI system and the equipment and device code labels on the flowsheets are identical to the codes used in the field. Interrelationships between systems are indicated by reference to other flowsheet numbers. Complete sets of flowsheets and the legend of symbols are maintained by the records section of the station.

