

CLAIMS

1. A risk assessment device for performing risk assessment of a steam plant that includes at least one device group that includes a steam-utilizing device that utilizes steam, a piping system that is connected to the steam-utilizing device, and process devices that are provided in the piping system, the risk assessment device comprising:
 - a diagnosis result storage unit that accumulatively stores diagnosis results of a plurality of diagnoses regarding each process device that is provided in the steam plant to be assessed, in association with installation sites of the process devices;
 - a risk information calculation unit configured to calculate risk information regarding a likelihood of malfunction of a process device that is provided at a target installation site, based on diagnosis results regarding process devices that are and have been provided at the target installation site; and
 - a device group risk information calculation unit configured to calculate device group risk information regarding a likelihood of malfunction of a target device group among the at least one device group, based on the risk information regarding installation sites of respective process devices that constitute the target device group.
2. The risk assessment device according to claim 1, further comprising:
 - an arrangement relationship storage unit that stores, for each device group, an arrangement relationship between process devices that constitute the device group; and
 - a calculation method storage unit that stores a calculation method for calculating the device group risk information according to an arrangement relationship between process devices constituting the device group,
 - wherein the device group risk information calculation unit calculates the device group risk information regarding the target device group, using the calculation method that corresponds to an arrangement relationship between process devices constituting the target device group.
3. The risk assessment device according to claim 1 or 2, further comprising:
 - a device group information storage unit that stores, for each device group, device group information regarding a configuration of the device group; and
 - a determination unit configured to determine, with respect to the target device group, whether or not the diagnosis results accumulated with respect to each process device constituting the target device group satisfy a predetermined standard,
 - wherein, if it is determined by the determination unit that the standard is satisfied, the device group risk information calculation unit calculates the device group risk information based on the risk information regarding the installation sites of the respective process devices constituting the target device group, and
 - if it is determined by the determination unit that the standard is not satisfied, the device group risk information calculation unit acquires the device group risk information regarding another device group that has the device group information that matches or is similar to the device group information regarding the target device group at least to a predetermined degree, and for which it is determined by the determination unit that the standard is satisfied, and the device group risk information calculation unit takes the acquired device group risk information to be the device group risk information regarding the target device group.
4. The risk assessment device according to claim 3,

wherein the device group information storage unit stores, as the device group information, a kind of the steam-utilizing device that constitutes the device group and an arrangement relationship between process devices that constitute the device group.

5. A risk assessment system for performing risk assessment of a steam plant that includes at least one device group that includes a steam-utilizing device that utilizes steam, a piping system that is connected to the steam-utilizing device, and process devices that are provided in the piping system, the risk assessment system comprising:

- a diagnosis result storage unit that accumulatively stores diagnosis results of a plurality of diagnoses regarding each process device that is provided in the steam plant to be assessed, in association with installation sites of the process devices;

- a risk information calculation unit configured to calculate risk information regarding a likelihood of malfunction of a process device that is provided at a target installation site, based on diagnosis results regarding process devices that are and have been provided at the target installation site; and

- a device group risk information calculation unit configured to calculate device group risk information regarding a likelihood of malfunction of a target device group among the at least one device group, based on the risk information regarding installation sites of respective process devices that constitute the target device group.

6. A risk assessment method for performing risk assessment of a steam plant that includes at least one device group that includes a steam-utilizing device that utilizes steam, a piping system that is connected to the steam-utilizing device, and process devices that are provided in the piping system, the risk assessment method being performed by a computer, and comprising:

- a diagnosis result storing step of accumulatively storing diagnosis results of a plurality of diagnoses regarding each process device that is provided in the steam plant to be assessed, in association with installation sites of the process devices;

- a risk information calculation step of calculating risk information regarding a likelihood of malfunction of a process device that is provided at a target installation site, based on diagnosis results regarding process devices that are and have been provided at the target installation site; and

- a device group risk information calculation step of calculating device group risk information regarding a likelihood of malfunction of a target device group among the at least one device group, based on the risk information regarding installation sites of respective process devices that constitute the target device group.

7. A risk assessment program for performing risk assessment of a steam plant that includes at least one device group that includes a steam-utilizing device that utilizes steam, a piping system that is connected to the steam-utilizing device, and process devices that are provided in the piping system, the risk assessment program causing a computer to perform:

- a diagnosis result storing function of accumulatively storing diagnosis results of a plurality of diagnoses regarding each process device that is provided in the steam plant to be assessed, in association with installation sites of the process devices;

- a risk information calculation function of calculating risk information regarding a likelihood of malfunction of a process device that is provided at a target installation site, based on diagnosis results regarding process devices that are and have been provided at the target installation site; and

- a device group risk information calculation function of calculating device group risk information regarding a likelihood of malfunction of a target device group among the at least

one device group, based on the risk information regarding installation sites of respective process devices that constitute the target device group.