Rod control provider

System Description

Abstract
This document describes the system in charge of calculation an appropriate rod control insertion percentage. This is done by consuming services to fetch temperature and pressure data of the nuclear reactor, and depending on those levels output an insertion percentage.

Contents

1 Overview **3**

2 System Role **3**

3 Services **3**
3.1 Consumed Services 3
3.2 Produced Services 3

1 Overview

The rod control provider provides an endpoint for fetching data which includes the appropriate rod control insertion, which is based on the most recent temperature and pressure readings. The temperature reading will control the actual rod insertion value. The pressure reading will result in a ”pressure action” being computed, either no action or opening of a pressure relief system.

2 System Role

This system provides the rod service for other systems to consume. The rod insertion is not calculated ongoingly, it’s only calculated when a the service is being called upon. For the rod service to calculate a reasonable value for rod insertion and pressure action a temperature and a pressure reading is needed. The more recent readings, the better representation of the current reactor state which will result in a more accurate representation of the needed actions to be taken by the consumer.

3 Services

3.1 Consumed Services

3.1.1 Get latest temperature reading

Fetches the latest temperature reading, used to calculate rod insertion.

3.1.2 Get latest pressure reading

Fetches the latest pressure reading, used to calculate a needed action for the consumer.

3.1.3 Orchestration

This service is used to make it possible to consume the other services in the system-of-systems.

3.1.4 Service Registry

Register rod service for other systems to use.

3.2 Produced Services

3.2.1 Get latest rod insertion

Calculates rod insertion and returns it as a RodInsertionResponseDTO. For more information see the service description.

3.2.2 Get pressure action

Fetches most recent pressure reading and calculates appropriate action depending on the value.