



VSC Resources request for the HL-LHC project, WP4

Date: 2020-10-28

Title Position/Task: Industrial Engineer or Mechanical Engineer

Project/Activity: WP#4

Starting Date: February 2021

Proposed programme

PJAS or equivalent

Description Project:

To extend its discovery potential, the LHC will need a major upgrade to increase its luminosity (rate of collisions) by a factor of 10 beyond its design value. The HL-LHC is the project that will develop the new technologies and be in charge of the design, production, installation and commissioning of the equipment required to reach this objective.

In the framework of the design of the vacuum system for the HL-LHC, the CERN Vacuum, Surface and Coating group is looking for an Industrial or Mechanical Engineer. The selected candidate will follow up the mechanical production, commissioning, vacuum validation of components and final installation of the Crab cavity in the SPS and prepare the work for the future upgrade during the Long-Shutdown 3 in the LHC machine. The TE-VSC involvement will be also on the layout definition, integration studies and validation and final layout database production.

Task:

The main tasks will be the following:

- Follow-up on the readiness of 3D designs and drawings for the needed components;
- Follow-up on SPS and LHC integration studies and final layouts;
- Definition of a complete bill of material per cryomodule as a function of the needed readiness date;
- Follow-up on HL-LHC WP4 schedule;
- Procurement of ancillaries and standard vacuum components for the cryomodules;
- Follow-up through the workshop and TE-VSC-DLM section the status of internal and external production;
- Organisation and follow-up of stocked material needed for the Crab Cavities project;
- Perform vacuum acceptance tests on the required components (e.g. beam screen, before and after coating); and produce technical reports about it;
- Follow-up of bare/jacketed & string assembly of the cavities in terms of leak tests and RGAs performed in SMA18, before and after cryostating;
- Prepare procedures for proper storage of components;
- Prepare procedures for installation of the cryomodules in the tunnel, both for SPS and LHC;
- Prepare procedures for the 'modus operandi' of the cryomodules, from a vacuum point of view, during operation and in case of intervention.
- Participate to the interventions in the SPS and LHC tunnel

Profile: Industrial Engineer

Experience: Master's degree or Bachelor in industrial engineer and/or mechanical engineering or similar. Experience in working with vacuum and UHV systems and or previous management of big projects.



Specific details: Candidates will be expected to possess a good working knowledge of either English or French and extremely proficient use of Spreadsheet and MS office in general. Knowhow of MATLAB or Python or 3D package in CATIA or similar code is a plus.

Approved by: GL and WPL

Budget code: 53698