



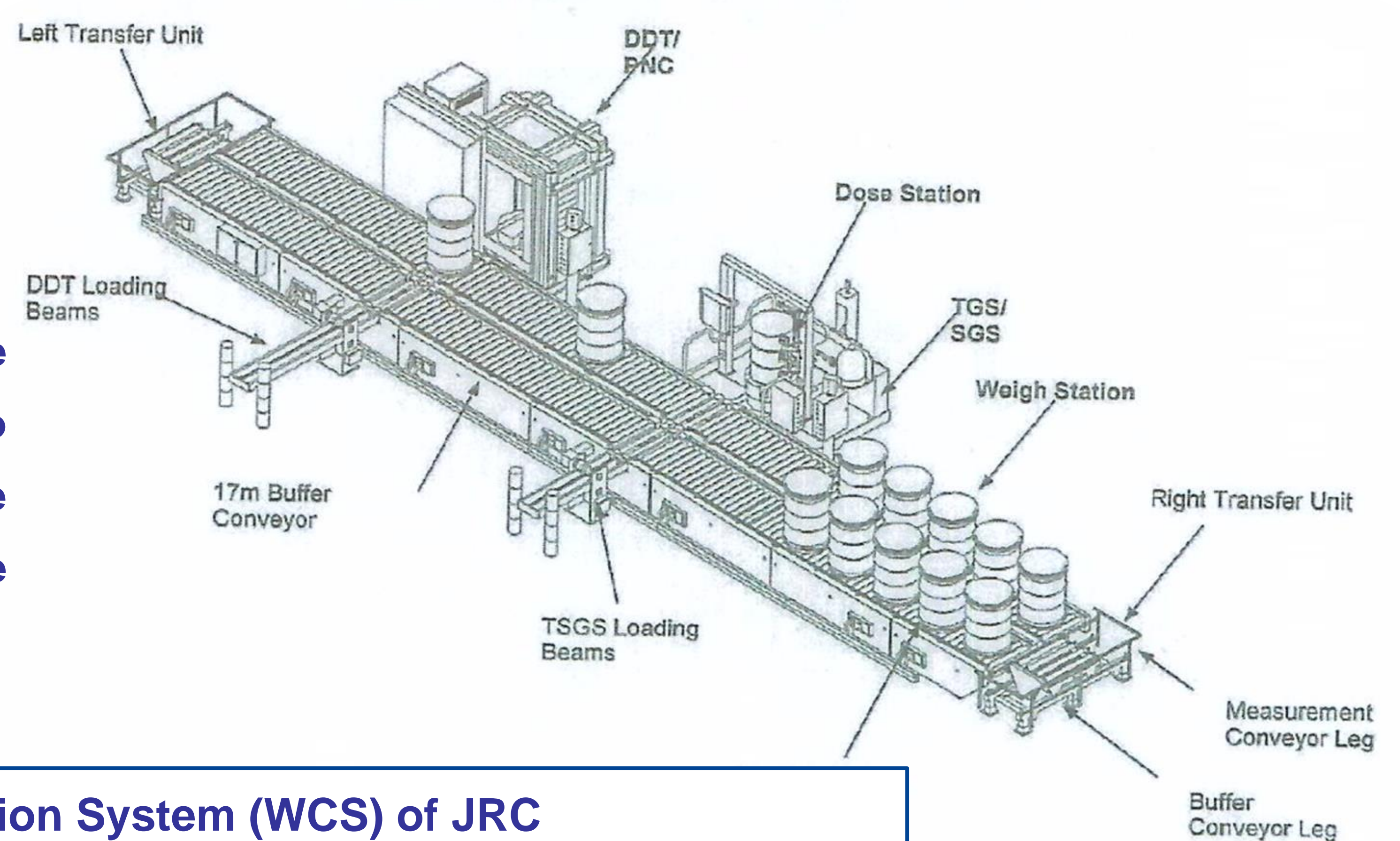
European
Commission

16ENV09 MetroDECOM II, work package 3: Validation of a waste characterisation system for low and intermediate level radioactive waste

Partners: JRC, ENEA

Objective

To develop a validated waste repository acceptance characterisation system for use on site with very low to intermediate level radioactive waste (VLLW to ILW). The assay system includes gamma scanning and active/passive neutron devices, and will be sensitive to fissile materials.



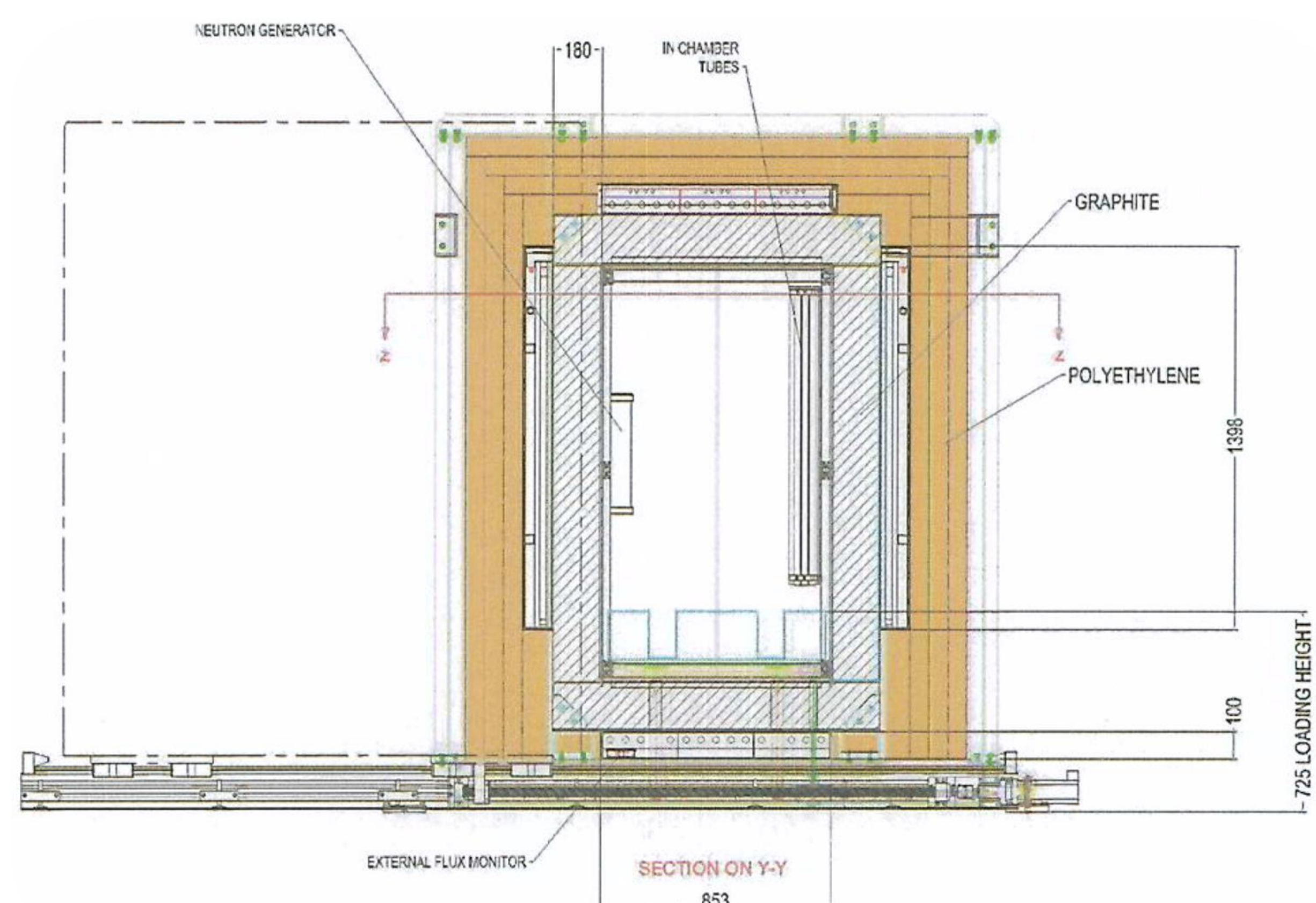
The Waste Characterisation System (WCS) of JRC

WCS installed at JRC Ispra site. The gamma and neutron measurement stations need to be taken into operation, characterised in terms of assay parameters, and assay methods developed and validated through campaigns on simulated and real rad waste.



Tomographic/ Segmented Gamma Scanner (TSGS)

The aim of this task is to characterise the newly refurbished gamma measurement station in terms of characteristic parameters for measurement of standard 220-litre waste drums. The measurement sequences and the analysis method will be developed. The measurement campaign will make use of simulated waste matrices and both radioactive and nuclear sealed sources of well-known content in order to determine reliable performance values.



Active/Passive neutron station

The presence of fissile materials in the waste requires an estimate of the alpha content of the waste item, as well as the fissile material content of the waste to be reported to nuclear safeguards authorities. This includes investigation of the assay performance of an active/passive neutron measurement station to establish what can be achieved in an industrial sized system for achieving validated declarations of fissile material content in standard waste containers.

Expected outcome

To develop a validated waste repository acceptance characterisation system for use on site with very low, low and intermediate level radioactive waste (VLLW, LLW and ILW). The assay will include gamma scanning and active/passive neutron measurements (sensitive to fissile materials) to complete the characterisation of the waste items. Analysis methods will be proposed and implemented as standard algorithms for both assay systems. Results will be reported in the work package deliverables, and in a Good Practice Guide based on the assay of real and simulated waste drums. The good practice guide will address lessons learned, performance values such as assay accuracy and precision, and propose design criteria for standard systems.

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