



Introduction

Within ongoing software modernization efforts, the International Data Centre (IDC) of the CTBTO Preparatory Commission initiated the development of a novel software application for the interactive analysis of radionuclide data.

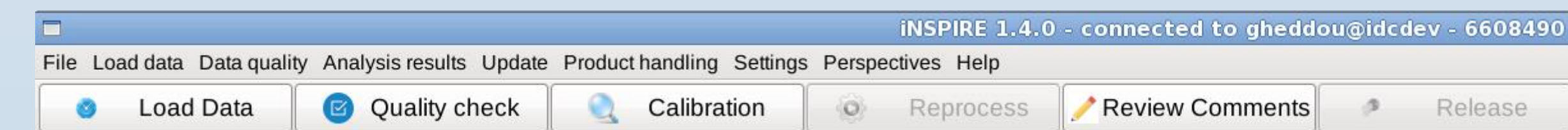
The new **iNtegrated Software Platform for the Interactive Radionuclide rEview** (dubbed **iNSPIRE**) is based on modern open source software development technologies. The overall goal is to progressively unify the software tools in use for all radionuclide monitoring technologies.

iNSPIRE is a single platform that will replace the tools Norfy, Saint2 and openSpectra in IDC Operations and in the NDC-in-a-Box software package for both particulate and noble gas data of the International Monitoring System (IMS).

The poster compiles the main features of the first upcoming release (Q3-Q4 2019) in both IDC and NDC-in-a-Box, which offers analysis functionalities for beta-gamma coincidence based noble gas data.

Workflow toolbar

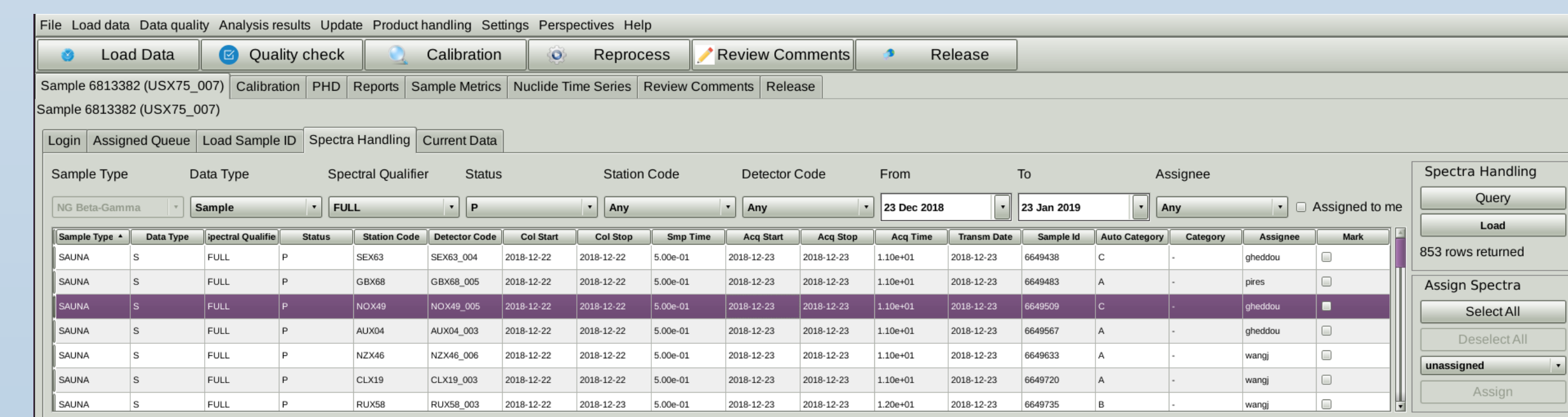
The workflow guides the user to perform the analysis in sequence: quality check after loading a sample, to perform the review, reprocess as appropriate and release the sample.



Options for spectrum selection

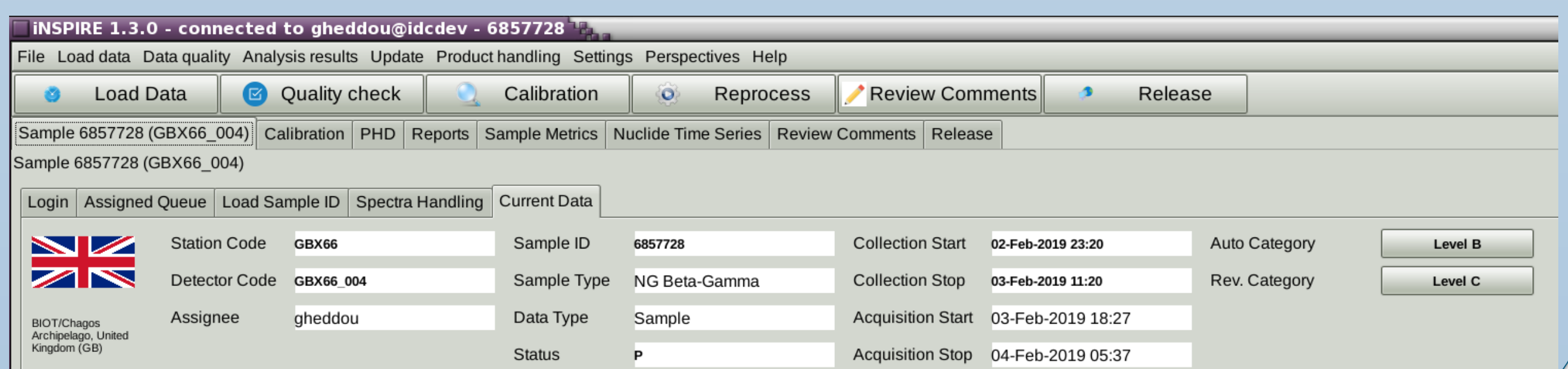
Three possibilities are available for selecting a spectrum to load:

- from the sample assignment queue,
- using the selection window to browse the database using relevant filters
- by entering a valid sample identification (SID) number



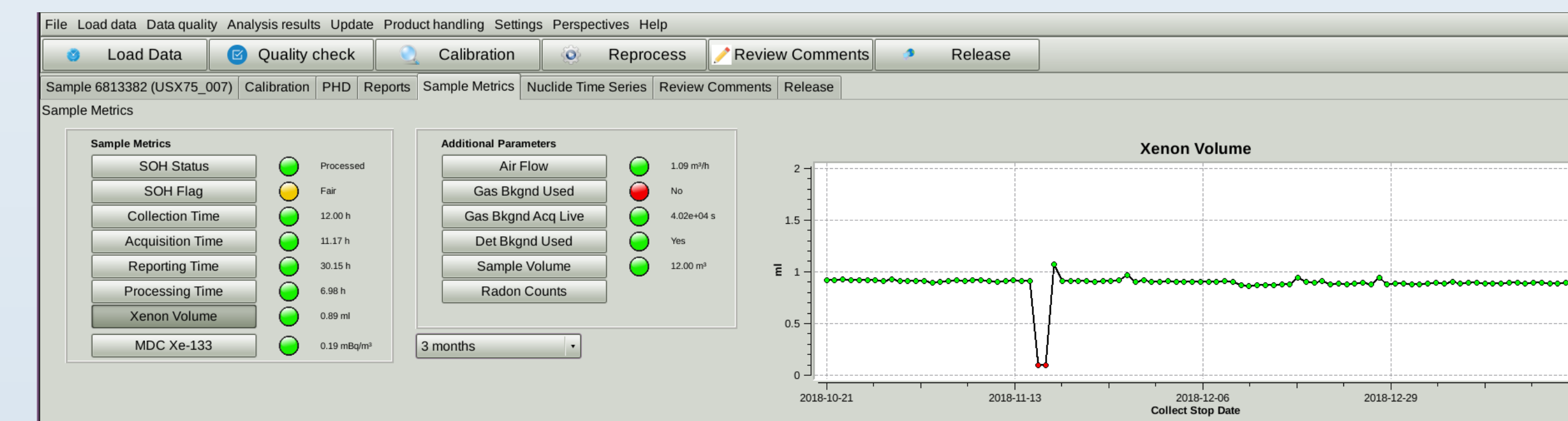
Spectrum information

This panel displays detailed information on spectrum identification parameters.



Data quality flagging system

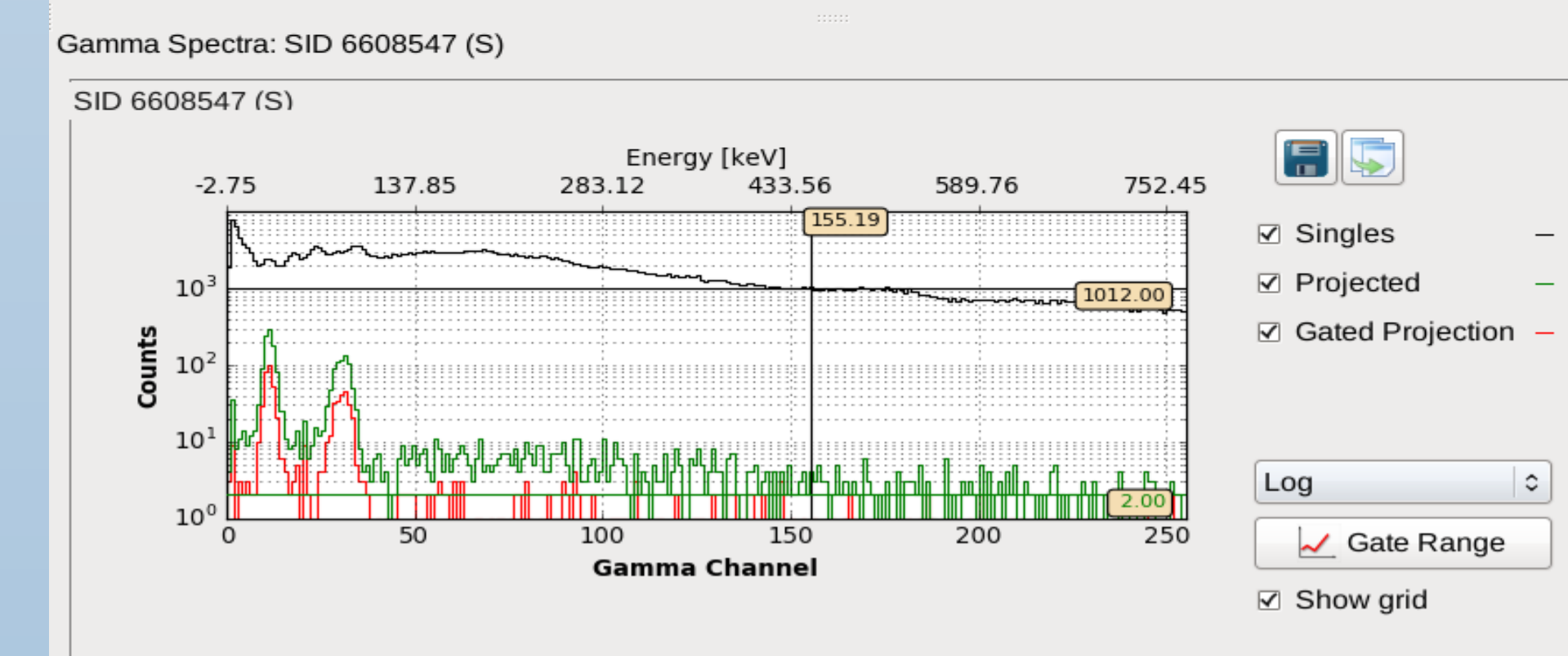
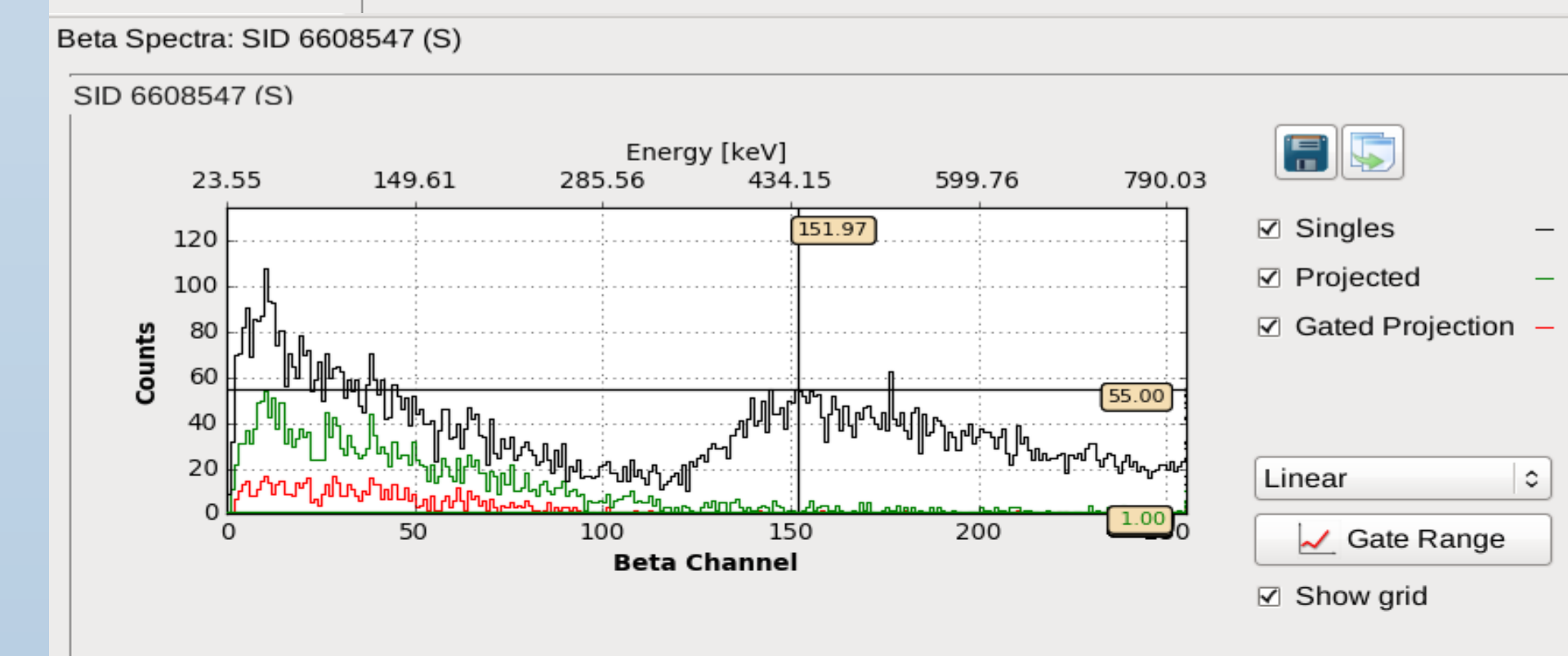
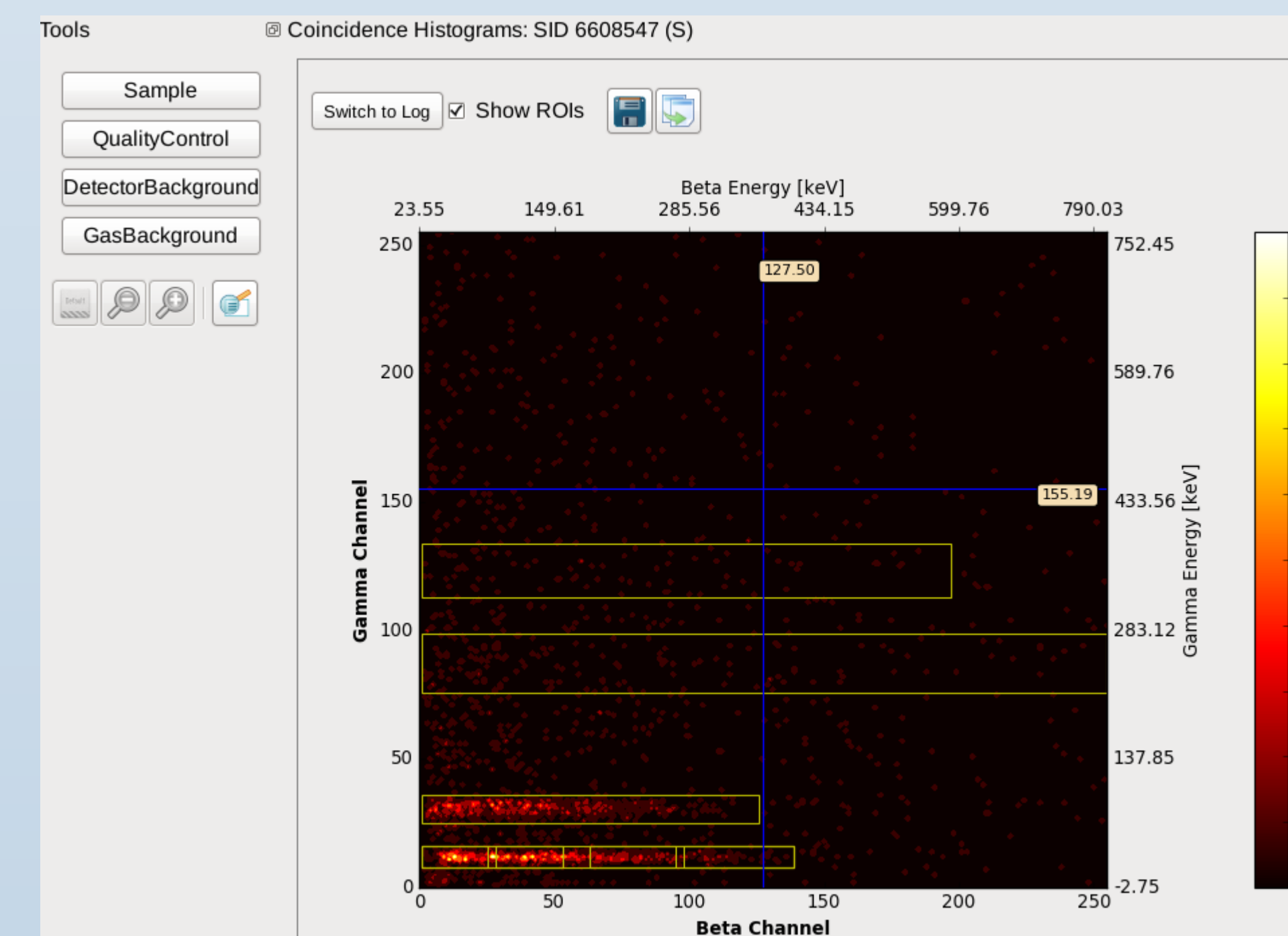
This panel shows Quality Control flags for FULL sample spectra. These sample metrics measure the spectral data quality from the CTBT verification value point of view. In case the sample reliability is seriously compromised, the sample in question has to be released without category.



Spectrum displays

This view shows three different graphical representations of spectral data:

- Beta-gamma coincidence histogram;
- Beta spectra;
- Gamma spectra.



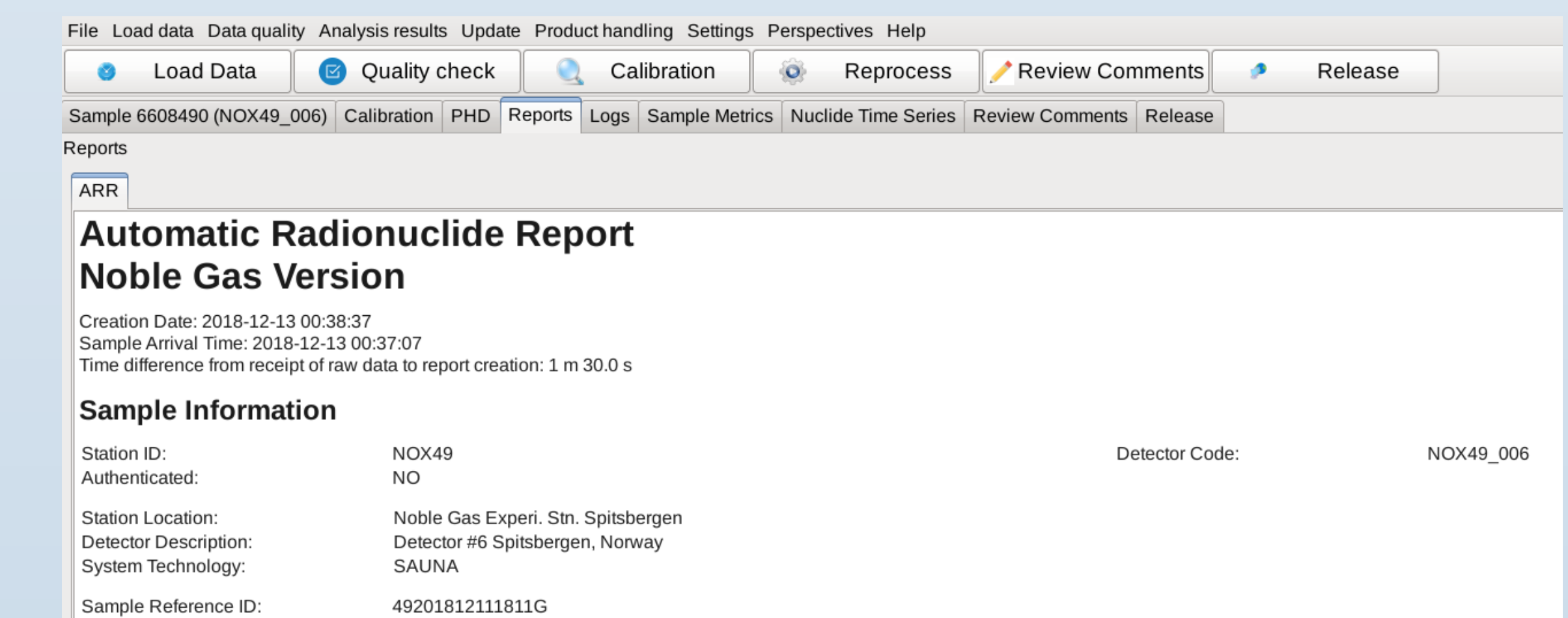
Analysis results

This view displays the ultimate analysis results at the level of xenon isotopes Xe-131m, Xe-133, Xe-133m and Xe-135 based on Net Count Calculation (NCC) method.

| Isotope Concentrations | ROI Counts | ROI Concentrations | | |
|------------------------|-------------|--------------------|-------------|----------|
| Ncc | Status | Concentration | Uncertainty | Lc |
| Xe-131 | Not present | 4.53e-02 | 3.63e-02 | 5.23e-02 |
| Xe-133 | Not present | -4.00e-02 | 2.51e-02 | 4.99e-02 |
| Xe-133 | Detected | 1.95e-01 | 5.18e-02 | 6.44e-02 |
| Xe-135 | Not present | 2.37e-01 | 1.88e-01 | 2.90e-01 |

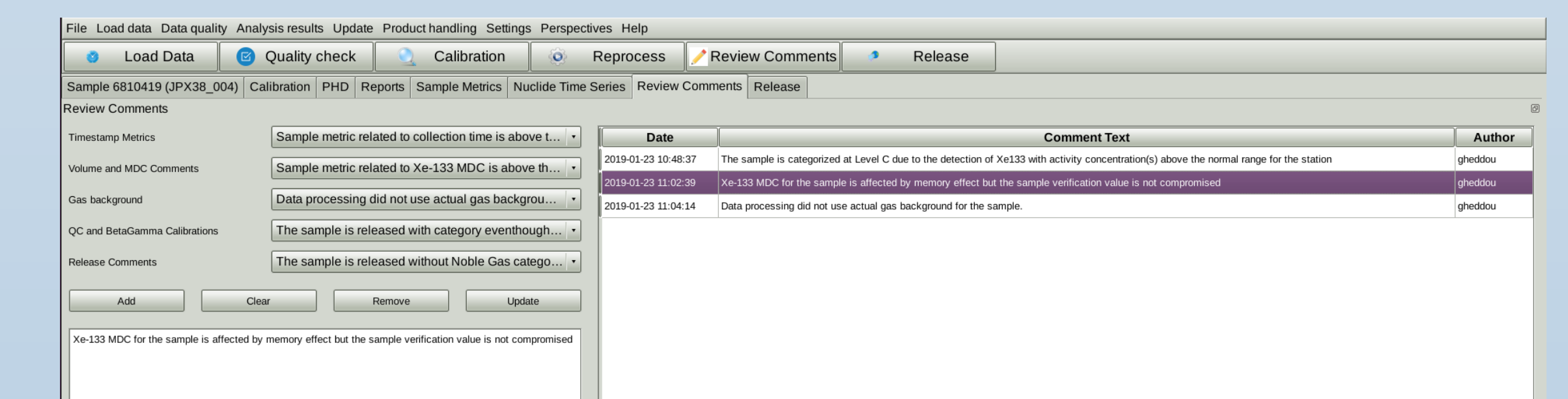
Automated and Reviewed Reports

Automated Radionuclide Report is available upon loading a sample spectrum. This contains automatic processing based results. In addition, final Reviewed Radionuclide Report (RRR) can be loaded for released sample spectra.



General comments editor

The GUI offers several lists of predefined comments applying to samples with specific properties. But the analyst is free to modify comments and/or write his/her own general comments.



Sample spectrum release

Three release options are available for sample spectra: (a) Release with category; (b) Release without category, (c) Labeling the spectrum as bad or duplicate, depending on the case.

