



**LVis – a GUI for ORTEC’s GammaVision®
that simplifies TCS correction and
efficiency transfer using (M)EFFTRAN**

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ORTEC Overview

ORTEC was originally founded in 1960 by researchers from Oak Ridge National Labs to commercialize charged particle detectors

- **Headquarters:** Oak Ridge, TN with global sales and service offices
- **Employees:** 300+ worldwide
- **Core focus:** Ionizing radiation detection, identification and analysis instruments and systems
- **Ownership:** AMETEK, Inc., a leading global manufacturer of electronic instruments and electromechanical devices with sales of over \$4.0 billion



ORTEC Global Footprint



With distribution coverage across all non-direct countries...

GammaVision Overview

All-Inclusive High **and Low** Resolution Gamma Spectroscopy solution universally suited for large scale production labs, nuclear power plants, research and education, automated monitoring systems, and many other applications.

Key Benefits Theme:

- **Compatibility**
- **Process Efficiency**
- **Defendable Results**

Calibration

Quality Assurance

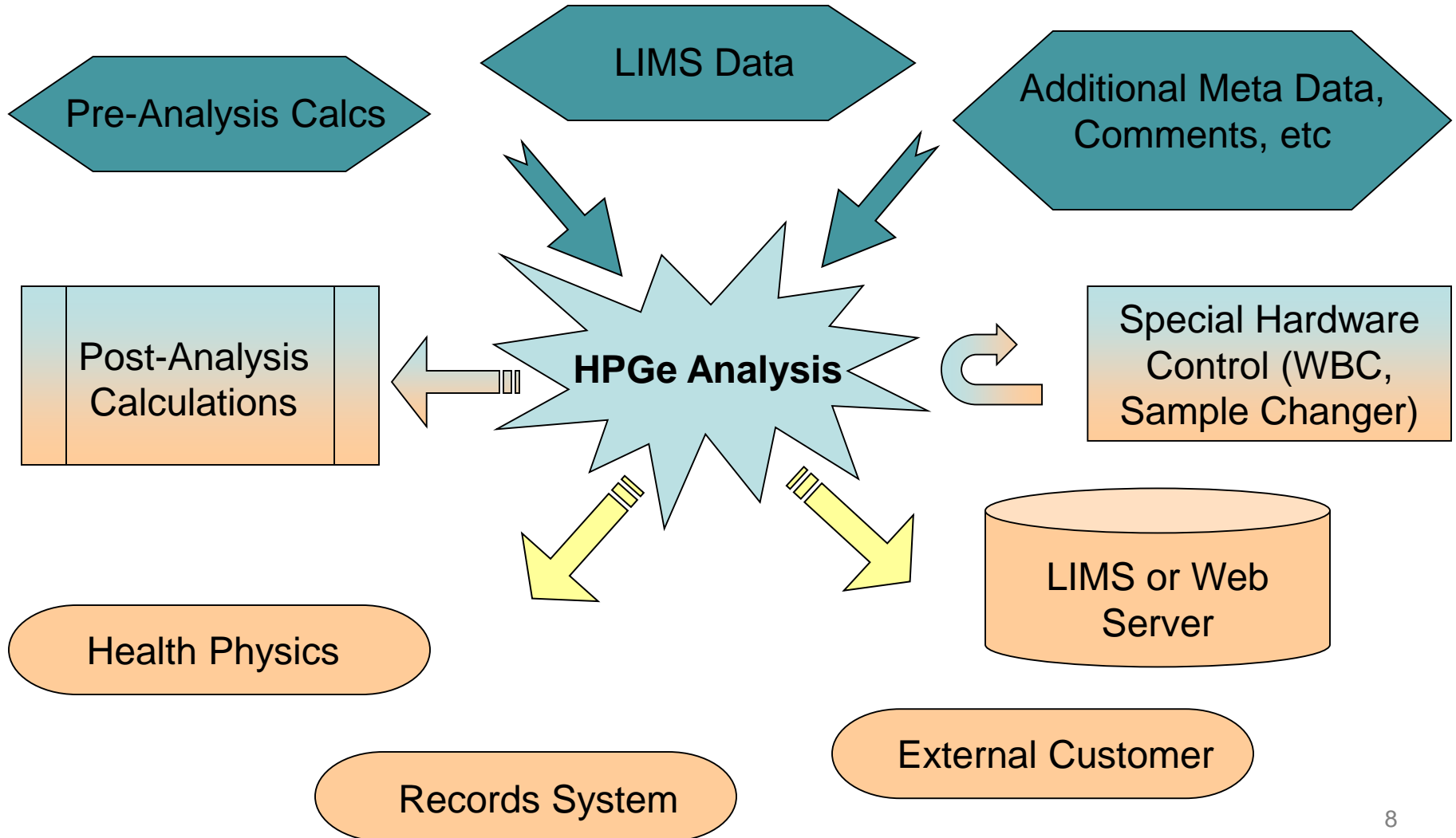
Universal Gamma Spectroscopy Solution!

Hardware Control

Automation

SUMMARY OF NUCLIDES IN SAMPLE					
Nuclide	Time of Count	Time Corrected	Uncertainty	Total	MDA
	Activity	Activity	counting	Activity	
	µCi/gm	µCi/gm	µCi/gm	µCi/gm	
I-131	2.2280E-04	2.2382E-04	3.5918E-05	3.9298E-05	5.758E-05
I-132	4.1326E-03	6.0666E-03	7.0728E-05	3.8410E-04	4.935E-05
I-133	2.7077E-03	2.8251E-03	3.9408E-05	1.8361E-04	3.244E-05
I-134	3.7678E-03	1.0316E-02	4.9634E-04	8.1167E-04	5.245E-04
I-135	4.8746E-03	5.713E-03	9.9592E-05	3.5708E-04	7.057E-05
W-187	3.4133E-04	5.5344E-04	3.9649E-05	5.1505E-05	0.000E+00
Ce-139	1.1116E-04	1.1119E-04	2.8234E-05	2.9213E-05	4.594E-05
Ce-141	<	5.6150E-05	5.6213E-05		
Ce-143	<	9.9265E-05	1.0196E-04		
Ce-144	<	2.2017E-04	2.2020E-04		

The Analysis is a Key Component but it may not be the “Complete Solution”



Why and wherefore!

Need for a software platform that is:

- Very intuitive – pre-configurable by admin
- Minimize data entry for lab personal
- Easy customized reporting (Crystal Reports, PDF, MS Office)
- Enhanced QA features
- Configurable for different applications and customer needs (sample changer, WBC, LIMS)
- Enhanced security, data integrity and traceability (user management, log files, audit trails)
- Support for 3rd party software (EFFTRAN)
- Automate post analysis calculations
- GUI for GammaVision (no new gamma spec software)

LVIS has left the building!

Configuration

- PGS 8866: 2018_08_25_1200_CaesiumFilter_2018_09_25_1719_AIX (Caesium Filter)
 - Caesium Filter
 - Iodine Filter
 - Bottle
 - Bottle CC
 - Quality Assurance
- PGS 7296
 - Caesium Filter
 - Iodine Filter
 - Bottle
 - Bottle CC
 - Quality Assurance
- PGS 3529: 2018_09_25_1708_CaesiumFilter_2018_09_25_1708_AIX (Caesium Filter)
 - Caesium Filter
 - Iodine Filter
 - Bottle
 - Bottle CC
 - Quality Assurance
- PGS 4745
 - Caesium Filter
 - Iodine Filter
 - Bottle
 - Bottle CC
 - Quality Assurance
- Buffer
- Reference Sources
 - F 1888
 - F 1889
 - F 1890
 - F 1891
 - F 1892
 - B 1893
 - B 1896
 - B 1897
 - B 1895
 - B 1894
- Currently open
 - PGS 8866: 2018_08_25_1200_CaesiumFilter_2018_09_25_1719_AIX (Caesium Filter)
 - PGS 7296
 - PGS 3529: 2018_09_25_1708_CaesiumFilter_2018_09_25_1708_AIX (Caesium Filter)
 - PGS 4745

PGS 8866: 2018_08_25_1200_CaesiumFilter_2018_09_25_1719_AIX (Caesium Filter)
Channel: 200 Energy: 49.85 keV Counts: 1
Start: 25/09/2018 17:20:12
Real time: 50 s
Live time: 50 s
Dead time: 0 %

PGS 7296
Channel: 200 Energy: 50.15 keV Counts: 23
Start: 25/09/2018 17:08:01
Real time: 1136 s
Live time: 1134 s
Dead time: 0 %

PGS 3529: 2018_09_25_1708_CaesiumFilter_2018_09_25_1708_AIX (Caesium Filter)
Channel: 200 Energy: 50.06 keV Counts: 51
Start: 25/09/2018 17:08:18
Real time: 2011 s
Live time: 2006 s
Dead time: 0 %

PGS 3529: 2018_09_25_1708_CaesiumFilter_2018_09_25_1708_AIX (Caesium Filter)
Channel: 200 Energy: 49.90 keV Counts: 19
Start: 25/09/2018 17:08:42
Real time: 601 s
Live time: 600 s
Dead time: 0 %

Login
Login name: ORTEC Service
Password:
Buttons: Login, Cancel

Log

Ready

Detector configuration

Detector details ✕

Crystal

X-tal material: Germanium

X-tal diameter [mm]:

X-tal length [mm]:

Bulletizing radius [mm]:

Top dead layer [mm]:

Side dead layer [mm]:

X-tal hole (cavity) diameter [mm]:

X-tal hole (cavity) length [mm]:

Housing

End cap material: Aluminium

End cap diameter [mm]:

End cap thickness [mm]:

Mount cup material: Aluminium

Mount cup thickness [mm]:

Window material: Aluminium

Window-to-X-tal gap [mm]:

Window thickness [mm]:

Window diameter [mm]:

X-tal Diameter

LVIS has left the building!

The screenshot displays the LVIS software interface with the following components:

- Configuration Tree (Left):** A hierarchical tree view showing system components such as Caesium Filter, Iodine Filter, Bottle, Bottle CC, Quality Assurance, and Reference Sources (F 1888, B 1891, etc.).
- Top-Left Plot (PGS 8866):** Channel: 200, Energy: 49.85 keV, Counts: 1. Start: 25/09/2018 17:20:12. Real time: 50 s, Live time: 50 s, Dead time: 0%.
- Top-Right Plot (PGS 7296):** Channel: 200, Energy: 50.15 keV, Counts: 23. Start: 25/09/2018 17:08:01. Real time: 1136 s, Live time: 1134 s, Dead time: 0%.
- Bottom-Left Plot (PGS 3529):** Channel: 200, Energy: 50.06 keV, Counts: 51. Start: 25/09/2018 17:08:18. Real time: 2011 s, Live time: 2006 s, Dead time: 0%.
- Bottom-Right Plot (PGS 4745):** Channel: 200, Energy: 49.90 keV, Counts: 19. Start: 25/09/2018 17:08:42. Real time: 601 s, Live time: 600 s, Dead time: 0%.
- Login Dialog (Center):** A dialog box with "Login name: ORTEC Service" and a "Login" button.
- Status Bar (Bottom):** Shows "Ready" and a "Log" button.

Reference / Calibration Sources

Marinelli details ✕

Container material: Polyethylene

Container diameter [mm]: 108

Container wall thickness [mm]: 1.2

Container hole diameter [mm]: 85

Container hole length [mm]: 38

The diagram illustrates a Marinelli container with a central detector. The container is filled with source material. Key dimensions are labeled:

- Container Diameter**: (includes both side walls)
- Source Filling Height**: (includes container bottom)
- Container Hole Diameter**: (does not include inner side walls)
- Container Hole Length**: (includes container bottom)
- Detector**: The central component.
- Container Walls**: (all walls & bottom are assumed to be of same thickness)

OK
Cancel

LVIS has left the building!

The screenshot displays the LVIS software interface. On the left is a configuration tree with the following structure:

- PGS 8866: 2018_08_25_1200_CaesiumFilter_2018_09_25_1719_AIX (Caesium Filter)
 - Caesium Filter
 - Iodine Filter
 - Bottle
 - Bottle CC
 - Quality Assurance
- PGS 7296
 - Caesium Filter
 - Iodine Filter
 - Bottle
 - Bottle CC
 - Quality Assurance
- PGS 3529: 2018_09_25_1708_... (highlighted in red)
 - Caesium Filter
 - Iodine Filter
 - Bottle
 - Bottle CC
 - Quality Assurance
- PGS 4745
 - Caesium Filter
 - Iodine Filter
 - Bottle
 - Bottle CC
 - Quality Assurance
- Buffer
- Reference Sources
 - F 1888
 - F 1889
 - F 1890
 - F 1891
 - F 1892
 - B 1893
 - B 1896
 - B 1897
 - B 1895
 - B 1894
- Currently open
 - PGS 8866: 2018_08_25_...
 - PGS 7296
 - PGS 3529: 2018_09_25_...
 - PGS 4745

The main area contains four gamma spectra plots:

- Top Left:** PGS 8866: 2018_08_25_1200_CaesiumFilter_2018_09_25_1719_AIX (Caesium Filter). Channel: 200, Energy: 49.85 keV, Counts: 1. Start: 25/09/2018 17:20:12. Real time: 50 s, Live time: 50 s, Dead time: 0%.
- Top Right:** PGS 7296. Channel: 200, Energy: 50.15 keV, Counts: 23. Start: 25/09/2018 17:08:01. Real time: 1136 s, Live time: 1134 s, Dead time: 0%.
- Bottom Left:** PGS 3529: 2018_09_25_1708_... (highlighted in red). Channel: 200, Energy: 50.06 keV, Counts: 51. Start: 25/09/2018 17:08:18. Real time: 2011 s, Live time: 2006 s, Dead time: 0%.
- Bottom Right:** PGS 4745. Channel: 200, Energy: 49.90 keV, Counts: 19. Start: 25/09/2018 17:08:42. Real time: 601 s, Live time: 600 s, Dead time: 0%.

A 'Login' dialog box is overlaid on the plots, with the following fields:

- Login name: ORTEC Service
- Password: [Empty field]
- Buttons: Login, Cancel

The status bar at the bottom left shows 'Ready' and a 'Log' button.

Parameter Sets / Counting Routines

1 | Marinelli @ SimDet

User:

Live time preset: 20000 s 10000,3000

Filename (without): SimDet_\$\$_\$\$\$_\$-\$-\$

Sample description:

Category: Soil Samples

Location:

Add. Information:

Date of sample collection: 01/06/2011 12:00:00

Sample weight: -1 Unit: g

Filling height: 114.46 Unit: mm

Output: kg

Wet/Dry ratio: 1/x 1

Reference: 1

Counting geometry | Analysis | Corrections | Uncertainties | Reporting

Automatic analysis and report:

Create PDF

Open PDF

PDF to export folder (not if approval required)

Suppress export

Auto printout to:

Report templates:

- Standard LVis.rpt
- Standard LVis_englisch_neu.r
- Standard LVis_german.rpt
- Standard LVis_kurz.rpt
- Standard LVis_LOD.rpt

Validate gross count rate against QA background: ?

Save Cancel

Starting an acquisition!

The screenshot displays the AMETEK software interface for starting an acquisition. The main window shows a configuration tree on the left and two data plots on the right. A central dialog box titled "Caesium Filter @ PGS 7296" is open, allowing for the configuration of acquisition parameters. The dialog is divided into several sections: general information, counting geometry, and container details. The "Counting geometry" section is currently active, showing settings for the sample material (Cellulose), absorber (Aluminum), and various physical parameters like distance to endcap and absorber thickness. The "Container" section specifies the sample container as "Filter paper 14mm" and includes additional information about the sample source. The "Live time preset" is set to 3000 seconds, and the "Sampling date/time" is 26/09/2018 at 08:08:42. The "Sample volume" is 99 ml and the "Sample mass" is 1 Sample. The "Reference" is set to 1. The dialog also includes "Import" and "Export" buttons for the configuration. The background shows a configuration tree with various sample types like "Caesium Filter", "Iodine Filter", "Bottle", and "Quality Assurance". Two data plots are visible, showing "Counts" vs "keV" for different channels and energies.

LVis Measurement files

The screenshot displays the SimDet software interface with the following components:

- Main Window:**
 - User: ORTEC Service
 - Live time preset: 90002 s
 - Sample description: RV2006
 - Category: Soil Samples
 - Location: Sorge-Settendorf (Thüringen)
 - Add. Information: German Fed. Rad. Prot. Dept. - BFS RV VII-2006 Uwe Schkade; dose rate @ location: 300 nGy/h; PTB [Bq/kg]: Cs-
 - Counting geometry: Analysis Corrections Uncertainty
 - Backg. correction: BKG1_GEM35_63_55.pbc
 - Geometry correction: M-EFFTRAN
 - Correction library: M-EFFTRAN
 - Attenuation correction:
 - Decay correction since sample collection:
 - Decay correction during measurement:
 - True coincidence correction:
 - Random summing: 0
- Geometry correction Dialog:**
 - Title: Geometry correction
 - File: M-EFFTRAN
 - Created on 13/09/2012 11:58:42, last edit on 11/05/2016 09:22:17
 - Isotope list:
 - K-40 (1)
 - Th-234 (1)
 - Pa-234m (1)
 - Th-230 (1)
 - Ra-226 (1)
 - Pb-214 (1)
 - Bi-214 (1)**
 - 609.31 keV (1.0844)
 - 1764.49 keV (0.9989)
 - 1120.29 keV (1.0922)
 - 768.36 keV (1.1030)
 - 1377.67 keV (0.9813)
 - Uncertainty: 0 %
 - Description: SimDet (32-P20714B) M-EFFTRAN: 1 | Marinelli, Sand (115.00 mm, 1.19 g/cm³)
 - Buttons: Load, Add, Save, Print, Neutral, OK, Cancel
- Correction Library Editor Dialog:**
 - Title: Correction library editor
 - File: M-EFFTRAN
 - Isotope list:
 - K-40 (1)
 - Th-234 (1)
 - Pa-234m (1)
 - Th-230 (1)
 - Ra-226 (1)
 - Pb-214 (1)
 - Bi-214 (1)**
 - Buttons: Add, Remove, OK, Cancel
- Background Table:**

70.00	1.000E+000	9.402E-001	1.064E+000
100.00	1.000E+000	9.724E-001	1.028E+000
130.00	1.000E+000	9.792E-001	1.021E+000
200.00	1.000E+000	9.855E-001	1.015E+000
300.00	1.000E+000	9.874E-001	1.013E+000

LVis Material Editor

Materials ✕

Beryllium (1.85 g/cm³, 1*Be(Be:1))

Carbon Fibre (1.80 g/cm³, 1*C(C:1))

Copper (8.96 g/cm³, 1*Cu(Cu:1))

Polypropylene (0.91 g/cm³, 1*Polypropylene(C:3 H:6))

Water (1.00 g/cm³, 1*Water(H:2 O:1))

Aluminum (2.70 g/cm³, 1*Al(Al:1))

Teflon (2.20 g/cm³, 100*Polytetrafluoroethylene(C:2 F:4))

Potassiumchloride (1.98 g/cm³, 1*Potassiumchloride(Cl:1 K:1))

Cellulose (1.00 g/cm³, 1*Cellulose(C:12 H:20 O:10))

Stainless Steel (8.00 g/cm³, 1*C(C:1)+15*Cr(Cr:1)+75*Fe(Fe:1))

Stainless Steel Aluminium (5.00 g/cm³, 2*Aluminium(Al:1)+1*Stainl

Sand - high ore content (1.00 g/cm³, 20*Calziumoxid(Ca:1 O:1)+2

ABS (Detective endcap) (1.05 g/cm³, 10*CH(C:1 H:1)+1*N(N:1))

OK

Cancel

Import

Export

New

Edit

Delete

Material description ✕

Library

- Aluminium
- Aluminiumoxid
- B2O3
- Beton M
- CH
- CH2
- Calziumoxid
- Cellulose
- Eisenoxid
- Glas M
- Harz Polystyrol

Elements/molecules	Mass fractions
C	1
Cr	15
Fe	75
Mn	1
Ni	8

Material name:

Density [g/cm³]:

New

Edit

Delete

OK

Cancel

LVIS Library Editor

Library editor ✕

File:

(created on 04/09/2014 23:20:06, last edit on 26/04/2018 18:00:12)

- K-40 (1.25041e+009 Y)
- Co-60 (5.2711 Y)
- Ba-133 (10.5388 Y)
- Cs-137 (30.05 Y)
- Th-234 (24.1 d)
- Pa-234m (1.15833 min)
- Th-230 (75380 Y)
- Ra-226 (1600 Y)
- Pb-214 (26.916 min)
- Bi-214 (19.8 min)
- Pb-210 (22.23 Y)
- U-235D (7.04e+008 Y)
- Ac-227D (21.772 Y)
- Ac-228 (6.15 h)
- Ra-224 (3.631 d)
- Pb-212 (10.64 h)
- Bi-212 (1.009 h)
- Tl-208 (3.058 min)

Edit/insert nuclide ✕

Properties		Import settings	
Name:	<input type="text" value="Pb-214"/>	Limit Peak GpD:	<input type="text" value="0"/> % <input type="button" value="... from Lara web"/>
Halflife:	<input type="text" value="26.916000"/> <input type="text" value="Mins"/>	from:	<input type="text" value="10"/> keV <input type="button" value="... from Ortec library"/>
Uncertainty:	<input type="text" value="0.1634715"/> %	to:	<input type="text" value="3200"/> keV

LVIs – other nice to haves

LVIs Lab Journal
✕

Storage path: Remove filter

Start date and time of acquisition:

from 01/01/2016 17:00:39 to 01/01/2017 17:00:39

Date of last storage:

from 29/01/2018 00:00:39 to 25/09/2018 20:19:46

User: Category: CTS Alignment:

Parameter set: Detector:

File filter:

Type

all

Calibrations

QA measurements

Multi detector

Status

all

not archived

deleted

not approved

Search results: 262

Detector	Category	File name	Start	Last saved	CTS Alignment:	User:	Parameter set
Detector A	QA Efficiency Check	QAEff_170103-1151.lvm	2017-01-03 11:51	2017-01-17 19:15	Eu-152 point sour...	Marc Breidenbach	Efficiency
Detector A	QA Efficiency Check	QAEff_170103-1157.lvm	2017-01-03 11:57	2017-01-17 19:15	Eu-152 point sour...	Marc Breidenbach	Efficiency
Detector A	QA Efficiency Check	QAEff_170103-1224.lvm	2017-01-03 12:24	2017-01-17 19:14	Eu-152 point sour...	Marc Breidenbach	Efficiency
Detector A	QA Efficiency Check	QAEff_170103-1230.lvm	2017-01-03 12:30	2017-01-17 19:13	Eu-152 point sour...	Marc Breidenbach	Efficiency
Detector A	QA Efficiency Check	QAEff_170103-1236.lvm	2017-01-03 12:36	2017-06-29 10:43	Eu-152 point sour...	Marc Breidenbach	Efficiency
Detector A	QA Efficiency Check	QAEff_170103-1243.lvm	2017-01-03 12:43	2017-06-29 10:43	Eu-152 point sour...	Marc Breidenbach	Efficiency
Detector A	QA Efficiency Check	QAEff_170103-1249.lvm	2017-01-03 12:49	2017-06-29 10:43	Eu-152 point sour...	Marc Breidenbach	Efficiency
Detector A	QA Efficiency Check	QAEff_170103-1256.lvm	2017-01-03 12:56	2017-06-29 10:43	Eu-152 point sour...	Marc Breidenbach	Efficiency
Detector A	QA Efficiency Check	QAEff_170103-1302.lvm	2017-01-03 13:02	2017-06-29 10:43	Eu-152 point sour...	Marc Breidenbach	Efficiency
Detector A	QA Efficiency Check	QAEff_170103-1416.lvm	2017-01-03 14:16	2017-06-29 10:43	Eu-152 point sour...	Marc Breidenbach	Efficiency
Detector A	QA Efficiency Check	QAEff_170103-1427.lvm	2017-01-03 14:27	2017-06-29 10:43	Eu-152 point sour...	Marc Breidenbach	Efficiency
Detector A	QA Efficiency Check	QAEff_170103-1434.lvm	2017-01-03 14:34	2017-06-29 10:43	Eu-152 point sour...	Marc Breidenbach	Efficiency
Detector A	QA Efficiency Check	QAEff_170103-1441.lvm	2017-01-03 14:41	2017-06-29 10:43	Eu-152 point sour...	Marc Breidenbach	Efficiency
Detector A	QA Efficiency Check	QAEff_170103-1447.lvm	2017-01-03 14:47	2017-06-29 10:43	Eu-152 point sour...	Marc Breidenbach	Efficiency
Detector A	QA Efficiency Check	QAEff_170103-1454.lvm	2017-01-03 14:54	2017-06-29 10:43	Eu-152 point sour...	Marc Breidenbach	Efficiency
Detector A	QA Efficiency Check	QAEff_170103-1500.lvm	2017-01-03 15:00	2017-06-29 10:42	Eu-152 point sour...	Marc Breidenbach	Efficiency
Detector A	QA Efficiency Check	QAEff_170103-1507.lvm	2017-01-03 15:07	2017-06-29 10:42	Eu-152 point sour...	Marc Breidenbach	Efficiency

Open
Report
Select all

To archive
Delete

Thank You!

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