TREC in East Area
&
Radiation Monitoring System in East Area

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17/03/2022
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Guidelines

• Every material **leaving a beamline** has to be **traced in TREC** and **controlled by RP** (http://trec.cern.ch/)

• Every material **leaving a radiologically classified building** has to be **controlled by RP**
• Identify the material (traceability stickers) **before** installing in the beamline. **Trace reasonably** (i.e. do not use one code per screw)

• Do the request **well in advance**, with indication of the time when the material will be available for the measurement (measurement deadline). Use comments in TREC if needed

• Deposit the material in the Buffer Zone, if possible. Otherwise, call the RP Officer (**Meyrin**: 72504, **Prévesin**: 75252)

• **Sign the EDH** created by TREC, and **wait for the RPO signature** before leaving the building

• **Update the location** of your equipment when it has been transported
Layout of the East Area (EA)

• Secondary Beam lines (T9, T10 and T11)
  − 1 Buffer Zone available ★
  − TREC mandatory for equipment in beam lines*

• CHARM/IRRAD
  − 1 Buffer Zone available ★
  − TREC mandatory for equipment in beam lines*

* As depicted by red areas
RP Contacts


• Do not hesitate to contact the RPO of the concerned area

• Meyrin: +41227672504

• Préveskin: +41227675252
Reminders (often forgotten)

- The TREC code follows the equipment part until the end of his life
- Record your request in TREC
- Indicate a responsible person who is at CERN and available to sign in EDH
- Sign your EDH
- Wait until RPO signature before leaving
- In case of urgency, contact the RPO
- For specific cases, contact the RPO
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Radiation monitoring system

• Radiation monitoring system
  – ensures that radiation levels are compliant with the Radiological Area Classification
  – detect (and, if needed, terminate) degraded operation conditions

• Ambient dose equivalent rate averaged over a predefined time window
  – Typical time window length ≥ 90s (~2 PS super-cycles)

• Two alarm thresholds
  – Alert → visible and audible alert and sent to CCC
  – Alarm → visible and audible alarm and sent to CCC

• The actual alarm threshold settings are derived from the Radiological Area Classification Limits
  – Supervised Radiation Area – Low Occupancy: 15/30 µSv/h
  – Supervised Radiation Area – Permanent Workplace: 3/6 µSv/h
Radiation alarm displays

- **Continuous green light = NORMAL situation** (low radiation levels, system OK)
- **Flashing ORANGE light + WARNING SOUND** → Limit your stay in the concerned area
- **Flashing RED light + Audible ALARM** → Leave the concerned area calmly

17/03/2022
TREC and radiation alarms in East Area - EDMS 2717760
Radiation monitoring system at EA
Possible sources of EA radiation alarms

- Beam transport, steering and accidental beam losses
  - Primary beam impacting on T9 and TN targets (Target Area)
  - Primary beam along T8-IRRAD/CHARM beam line
  - Secondary beams along T9, T10 and T11-CLOUD beam lines
Recommended actions in case of radiation alarms in the EA

• In case of any alarm in a zone under your responsibility
  – Understand & remove the source of the alarm
  – CCC, beam line physicists, radiation monitoring data

• EA is a large building
  – You can safely stay in the EA if there is no radiation alarm in your vicinity
  – In case of doubt, please contact the responsible of the zone where the alarm occurs (via the CCC)
Questions?
Radiation at CERN

**Accelerator in operation:**
The interaction beam-matter generates stray radiation

**Accelerator stopped:**
The interaction beam-matter has made the matter radioactive (activation)

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Stray radiation

Stable matter

Beam

Stray radiation

Residual radioactivity (resulting)

Radioactive matter

No Beam
Ionising radiation in/around the accelerators

Accelerator in operation

Beam tunnel. Experimental hall

Primary beam

Experimental area:

Secondary beam
Ionising radiation in/around the accelerators

Accelerator in shut down

Beam tunnel:

Radioactive accelerator

Experimental area:

Experimental hall
Radiation Areas at CERN

Areas with risks due to ionizing radiation are classified as "Radiation Areas". Radiation Areas at CERN are clearly marked with yellow panels. Corresponding to the risk level, Radiation Areas are subdivided into:

"Supervised Radiation Areas“
(<15 μSv/h - low risks)

"Controlled Radiation Areas“
(elevated risks)

East Area is generally a Supervised Radiation Area due to prompt radiation levels.