IAEA
International Atomic Energy Agency

IAEA-HOTLAB PIE Database - Use and Management

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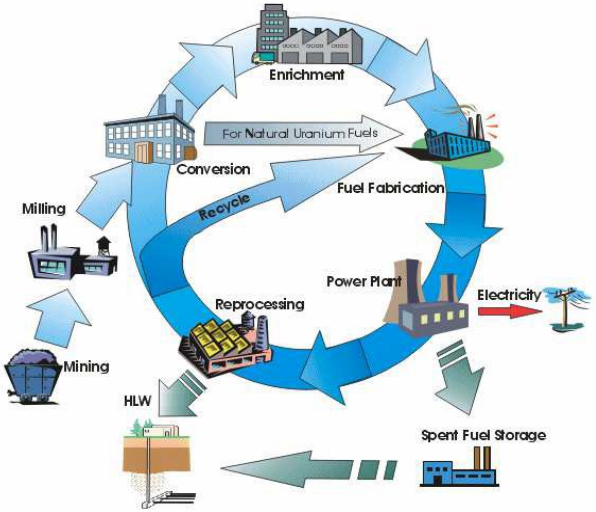
Purpose of Presentation

- To promote IAEA activities on databases related to nuclear fuel cycle facilities;

- To clarify the process for the use and modification of the PIE database.

INFCIS (Integrated Nuclear Fuel Cycle Information System)

- Designed as "one stop" resource for technical and statistical information about nuclear fuel cycle activities worldwide: http://inficis.iaea.org
- Includes:
  - World Distribution of Uranium Deposits Database (UDEPO),
  - World Thorium Deposits and Resources (ThDEPO),
  - Nuclear Fuel Cycle Information System (NFCIS),
  - Post Irradiation Examination Facilities Database (PIE),
  - Minor Actinide Property Database (MADB)
  - Nuclear Fuel Cycle Simulation System (NFCSS).

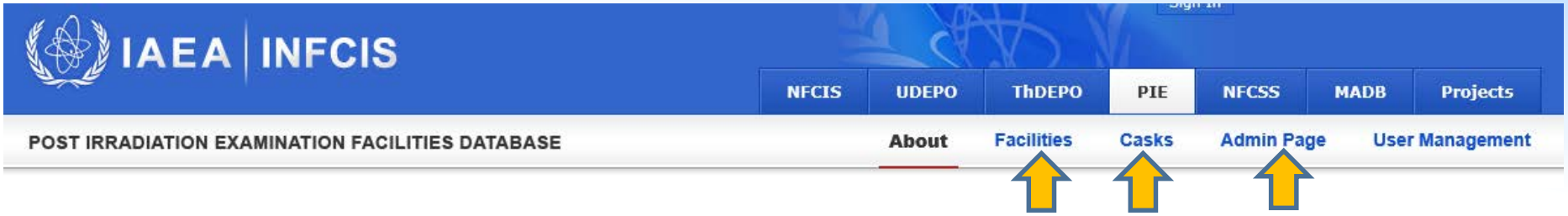


PIE Database – Why & How?

- To provide worldwide information on hot cell facilities for their efficient use under the circumstance of a large demand for fuel surveillance program, new material development, isotopes production, various nuclear applications, etc.

- IAEA's CRP to develop a PIE facilities catalogue (1996)
- Conversion of the catalogue into a database, and update through questionnaire distributed to Member States (2002/2003)
- HOTLAB project started under the 6th Euratom Framework Program (2004)
- Incorporation of the IAEA's database in INFCIS for on-line editing option
- HOTLAB Working Group opened to non-European countries (2007)
- Intergradation of HOTLAB PIE & transport casks catalogues in the IAEA PIE database (2007/2008)

PIE Database - Overview



- Catalogue of PIE facilities (42) + Casks (21)

- Each facility data includes tabs of:
  - General & cell characteristics
  - Acceptance information
  - Available NDE, DE and other techniques
  - Availability of rod re-fabrication & instrumentation
  - Available Storage and conditioning capabilities
  - Reference documents.
- All above information can be downloaded as a pdf file.

Example: Facilities

List of PIE Facilities

Go

Technique: Any | Technique Topics: Any | Country: All | Filter | Reset

Results 1-14 of 42

Country	Facility Name	#-of-DE Techniques	#-of-NDE Techniques
Argentina	CELCA	3	4
Belgium	LHMA - Laboratory for High and Medium Activity - SCK-CEN, Belgium	25	9
Belgium	SCK•CEN - Chemical and Radiochemical Measurements	3	2
Brazil	CTMSP - Hot Cell Pilot Laboratory	2	5
Canada	Chalk River Laboratories, AECL	16	7

PIE Facility Report

LHMA - Laboratory for High and Medium Activity - SCK-CEN, Belgium

General & Cell Charac. | Acceptance Info. | Techniques | Refabrication & Instrumentation | Storage & Conditioning | Reference Documents | Download PDF

General

Facility Name	LHMA - Laboratory for High and Medium Activity - SCK-CEN, Belgium	**IAEA Ref #**	1-PIE
Country	Belgium	**Last Update**	2009
Address	SCK-CEN / LHMA, Boeretang 200, B-2400 Mol Belgium aa		
Contact Person	A. Leenaers		
Second Contact Person	Dr. S. Van den Berghe		
Phone	+32 14 33 30 44	**Fax**	+32 14 32 12 16
Email	ann.leenaers@sckcen.be		
Web Address	http://www.sckcen.be	(Please notify us if you can not reach this web address!)	
Additional Information	http://www.sckcen.be/en/Our-Research/Research-facilities/LHMA-Laboratory-for-High-and-Medium-Activity		

Example: Facilities - Cont'd

General & Cell Charac. | Acceptance

General

- Facility Name
- Country
- Address
- Contact Person
- Second Contact Person
- Phone
- Email
- Web Address
- Additional Information

Cell Characteristics

- Purpose
- Gamma Activity Limit (Concrete) (TBq)
- Gamma Activity Limit (Steel) (TBq)
- Gamma Activity Limit (Lead) (TBq)
- Cell Atmosphere
- Largest Cell Width (m)
- Largest Cell Length (m)
- Largest Cell Height (m)

Acceptance Information

Acceptance Type	Rods and plates	Acceptance Condition	Dry
Transfer Mode	Horizontal		
Maximum Cask Weight (t)	28	Maximum Cask Length (m)	6
Max. Fissile Enrichment (%)	no limit	Max. Fissile Weight (kg)	
Failed Rod Acceptance	Yes	Protective Tube	No
Accepted Casks			
Comment			

Available Techniques

Technique	
TEM	Clad Creep Testing
Visual Examination	Inner Clad Inspection
X-ray Diffraction	Micro Hardness Testing
XPS	Length and Diameter
Retained gas measurement	Gamma Activity measurements
Optical Microscopy	Eddy Current Testing
SEM	Oxide Thickness
Image Analysis	X-Radiography
EPMA	Non-destructive Gas Release
Alpha-Beta Autoradiography	Other (Destructive Fission Gas Release measurement)
Density	Gas mass spectrometry
Open Porosity	Fracture Mechanic Testing
Tensile Testing	
Tube Burst Testing	

Example: Facilities - Cont'd

Refabrication and Instrumentation			
Refabrication Available?	Yes	**Desc.**	Max Rodlet Length, m: 1.5 A segment is cutted, the end pieces are defueled and cleaned and end caps are welded - whether or not equipped with sensors including a centerline thermocouple in which case a central hole is drilled in the fuel prior to the end cap weldings.
Instrumentation Available?	Yes	**Desc.**	Centerline thermocouple in which case a central hole is drilled in the fuel prior to the end cap weldings.
References			

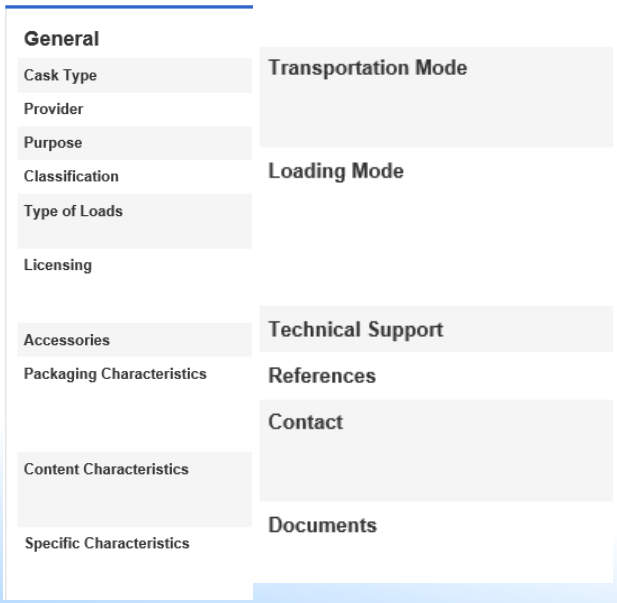
Storage and Conditioning			
Intermediate Storage	Yes	**Desc.**	In hot-cell (18 rods) / at BR2 storage pool.
Encapsulation for Reinsertion	Yes	**Desc.**	In guide tubes & with quality controls.
Encapsulation for Other	Yes	**Desc.**	For long term intermediate storage.
Connection to Reprocessing	No	**Desc.**	Cogema (France)
Connection to Long Term Storage	Yes	**Desc.**	NIRAS/ONDRAF - Belgium Institute for Nuclear Waste and Fissile Material
References			

Example: Casks

List of Casks

Results **1-10** of **21**

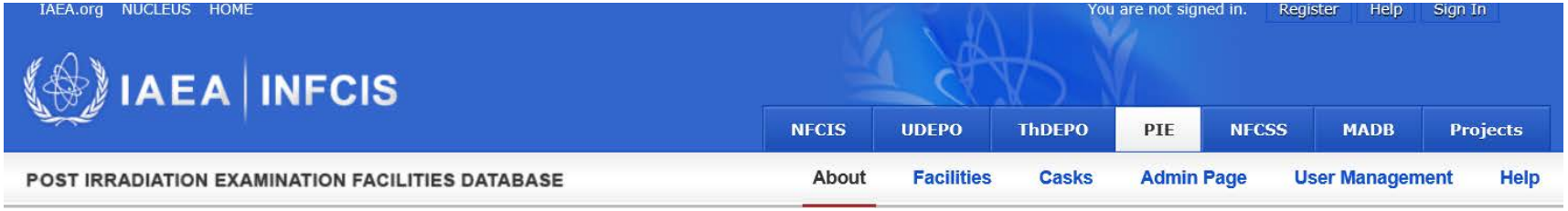
Cask Type	Cask Provider
AGNES Cask	LA CALHENE
BG 18	TRANSNUBEL
Croft GB2767B	CROFT
[illegible]	CROFT
CTB	CEA
IR 500	CEA
IU 25	CEA
NCS 45	NUCLEAR CARGO + SERVICE GmbH
PADIRAC RD15IIB	LA CALHENE



How to Access

1. Sign in the IAEA's portal site named NUCLEUS (https://www.iaea.org/resources/databases/nucleus)
   - Registration to NUCLUS is necessary;
   - For help send email to k.s.sim@iaea.org

2. Go to INFCIS home page or https://infcis.iaea.org/, then click

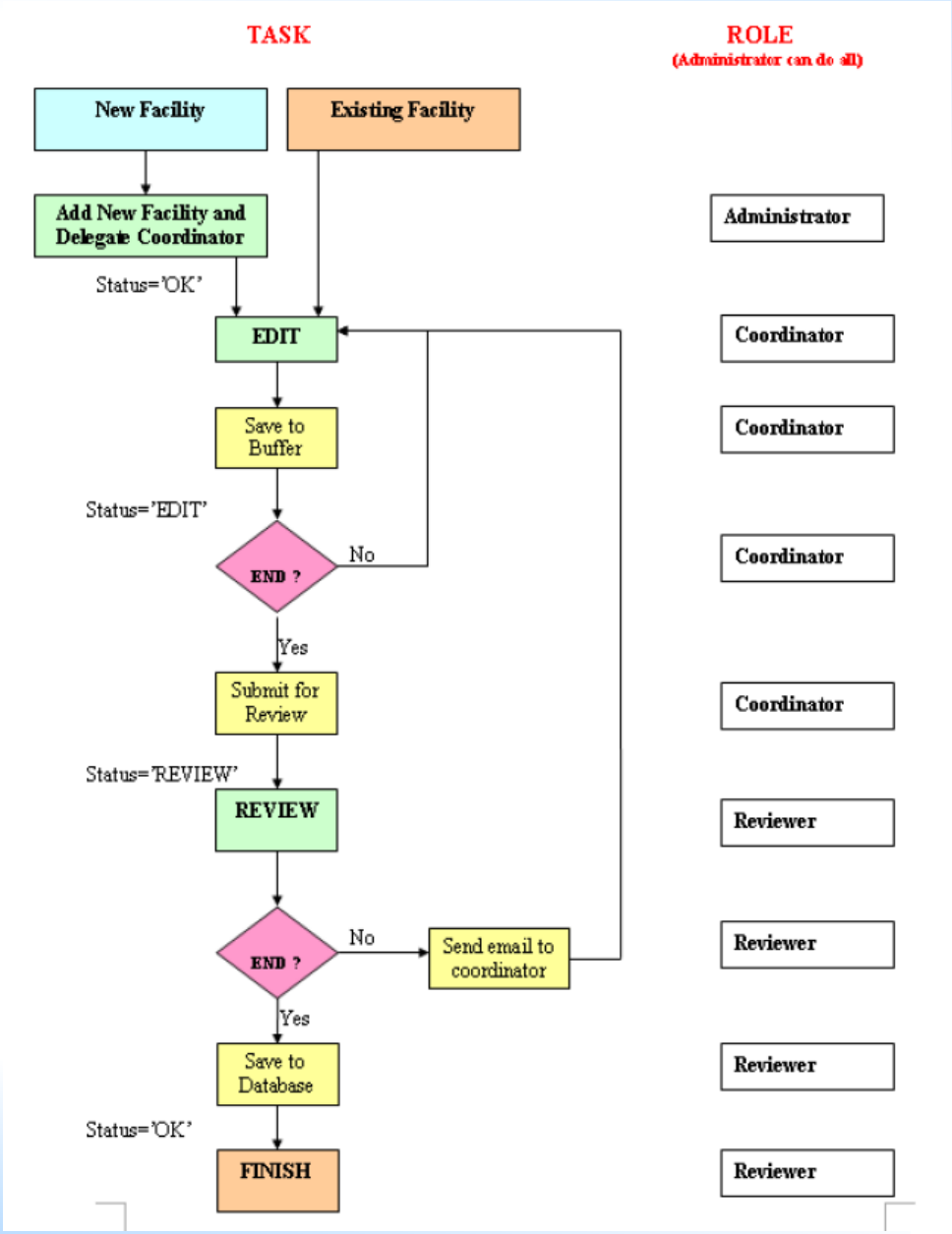


3. Click PIE and find data from the menu: FACILITIES, CASKS
4. To modify the data or add a new one, click ADMIN PAGE

How to Modify

- Accessed by: Administrator (IAEA), Coordinators, Reviewer
- Published – open to public or not
- Operation – Add/Delete by Administer only; Edit
- Data status – OK (red), Edit (blue), Review (green)
- For Coordinators: Registration first as the coordinator; send email to k.s.sim@iaea.org for assistance.

Steps for Data Modification



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Thank you!

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Coordinators

Currently registered coordinators:

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Ann Leenaers (Belgium)
Dider Gavillet (Belgium)
Christelle Nonon (France)
CNL commercial (Canada)

For new coordinators, please provide:

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Contact information
Affiliation/position/responsible facilities
Country