NRSC
NUCLEAR AND RADIATION SAFETY CENTER

NUCMAT Demonstration Meeting
Yerevan-Riyadh-Helsinki, 25 October 2017

NUCMAT

NUCLEAR MATERIALS DATABASE FOR SAFEGUARDS

Overview of v3.2

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www.nucmat.com

TÜVRheinland® CERT ISO 9001

Functional Layers

- Safeguards
  - Accounting for and reporting of nuclear materials in full compliance with the IAEA requirements
- Security
  - Interface between nuclear material accounting and protection of nuclear material
- Information Security
  - Sensitive data protection in multiuser environment against external attacks and inside threat

General Capabilities and Features

- Interface could be in any language supported by Windows operation system
- Can be easily user tailored to meet user needs
- Unlimited data entry terminals (web based technology allows remotely connect and work with NUCMAT in parallel with other users)
- Variable input format

Technical basis of NUCMAT

- Web based application (only freely available internet browsers like Google Chrome, Firefox, Internet Explorer are needed to run the program)
- Based on Microsoft SQL Server 2014 Express
- Development tool is Microsoft Visual Studio 2013
- There is no need of license fees and additional program tools – only MS Office
- Installation on Windows 7, 8, 10, Windows Server 2008 and 2012
- Installation on 32 and 64 bit computers
- Installation is simple – one click installation

I. SAFEGUARDS

Basis of NUCMAT

- NUCMAT was developed with taking into account requirement/rules of following documents:
  - The Structure and Content of Agreements between the Agency and States Required in Connection with the Treaty on the Non-proliferation of Nuclear Weapons, INFCIRC/153
  - Code 10 of General Part of Subsidiary Arrangements to the Agreement between Country and IAEA for the Application of Safeguards in Connection with the Treaty of the Non-proliferation of Nuclear Weapons
  - Format of Accounting Reports Submitted on Magnetic Medium or by e-mail (Fixed Code 10), IAEA
  - Nuclear Material Accounting Handbook, Services Series 15, IAEA, Vienna, May, 2008

Main Capabilities and Features

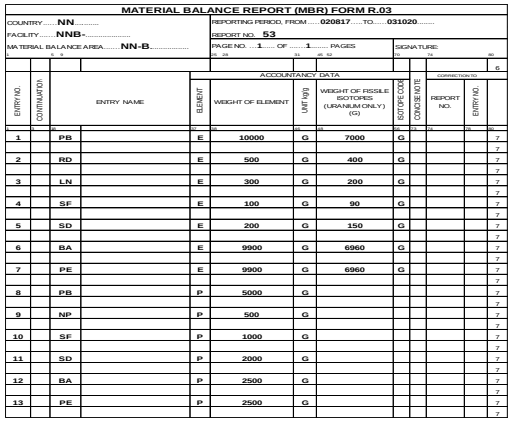
- Accounting of NM at all levels
  - State
  - LOF

Main Capabilities and Features

- Implementation of main inventory change processes of NM
- Calculation and update of inventory of NM of all types and categories
  - Source Material Accounting
  - Special fissionable materials accounting
- Calculation/closure of material balance of NM of all types and categories

Main Capabilities and Features

- Generation of all reports required by IAEA (Code 10 Format)
  - ICR
  - MBR
  - PIL



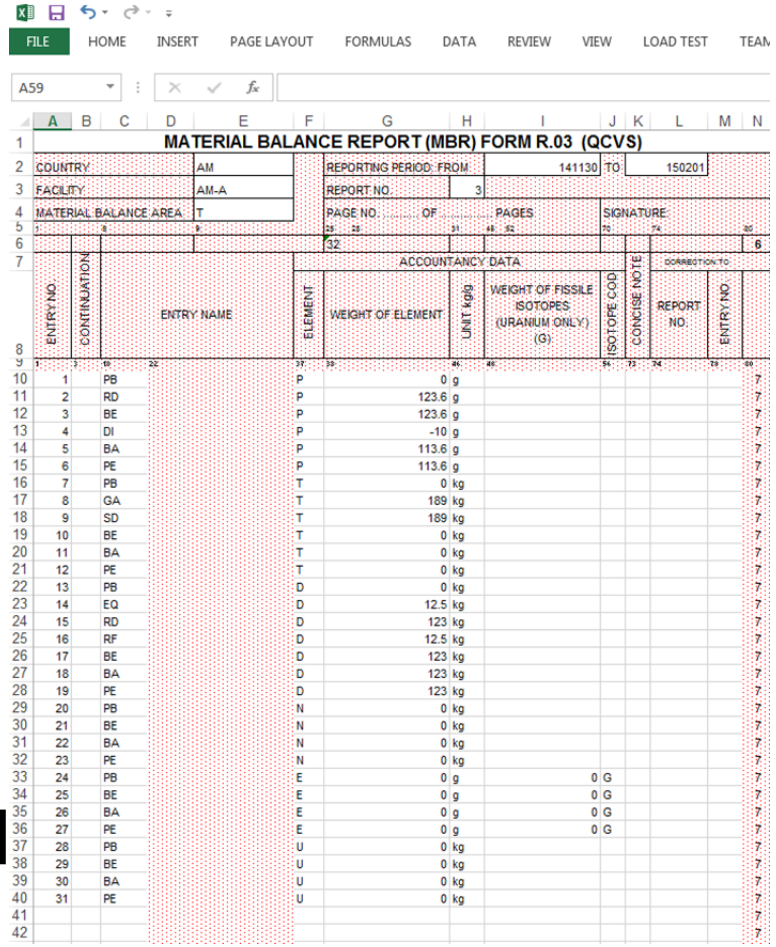
MATERIAL BALANCE REPORT (MBR) FORM R.03

COUNTRY.....NN.....
FACILITY.....NNB-.....
MATERIAL BALANCE AREA.....NN-B.....

REPORTING PERIOD, FROM .....020817.....TO.....031020.....
REPORT NO. 53
PAGE NO. ....1.... OF .....1..... PAGES
SIGNATURE

ENTRY NO.	CONTINUATION	ENTRY NAME	ACCOUNTANCY DATA: ELEMENT	WEIGHT OF ELEMENT	UNIT kg/g	WEIGHT OF FISSILE ISOTOPES (URANIUM ONLY) (G)	ISOTOPE CODE	CONCISE NOTE	CORRECTION TO: REPORT NO.	CORRECTION TO: ENTRY NO.	
1		PB	E	10000	G	7000	G				7
2		RD	E	500	G	400	G				7
											7
3		LN	E	300	G	200	G				7
											7
4		SF	E	100	G	90	G				7
											7
5		SD	E	200	G	150	G				7
6		BA	E	9900	G	6960	G				7
											7
7		PE	E	9900	G	6960	G				7
											7
8		PB	P	5000	G						7
											7
9		NP	P	500	G						7
											7
10		SF	P	1000	G						7
											7
11		SD	P	2000	G						7
											7
12		BA	P	2500	G						7
											7
13		PE	P	2500	G						7
											7

- Automatic Management of General Ledger
- Generation of additional reports like, LII for IAEA and local authorities inspections



FILE HOME INSERT PAGE LAYOUT FORMULAS DATA REVIEW VIEW LOAD TEST TEAM

A59

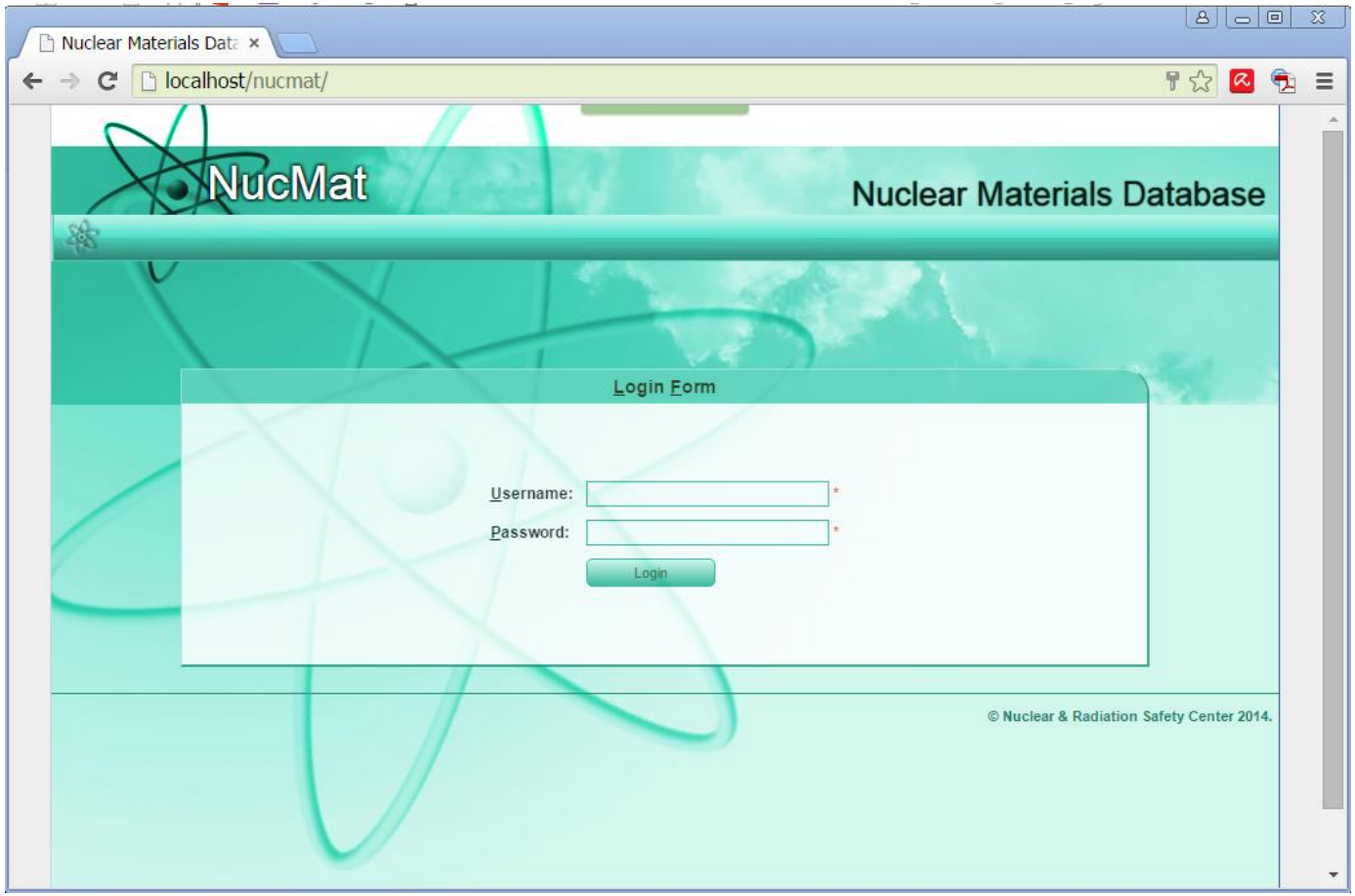
MATERIAL BALANCE REPORT (MBR) FORM R.03 (QCVS)

COUNTRY: AM
FACILITY: AM-A
MATERIAL BALANCE AREA: T
REPORTING PERIOD: FROM 141130 TO 150201
REPORT NO: 3
PAGE NO: ..... OF ..... PAGES
SIGNATURE

ENTRY NO.	CONTINUATION	ENTRY NAME	ACCOUNTANCY DATA: ELEMENT	WEIGHT OF ELEMENT	UNIT kg/g	WEIGHT OF FISSILE ISOTOPES (URANIUM ONLY) (G)	ISOTOPE CODE	CONCISE NOTE	CORRECTION TO: REPORT NO.	CORRECTION TO: ENTRY NO.	
1		PB	P	0	g						7
2		RD	P	123.6	g						7
3		BE	P	123.6	g						7
4		DI	P	-10	g						7
5		BA	P	113.6	g						7
6		PE	P	113.6	g						7
7		PB	T	0	kg						7
8		GA	T	189	kg						7
9		SD	T	189	kg						7
10		BE	T	0	kg						7
11		BA	T	0	kg						7
12		PE	T	0	kg						7
13		PB	D	0	kg						7
14		EQ	D	12.5	kg						7
15		RD	D	123	kg						7
16		RF	D	12.5	kg						7
17		BE	D	123	kg						7
18		BA	D	123	kg						7
19		PE	D	123	kg						7
20		PB	N	0	kg						7
21		BE	N	0	kg						7
22		BA	N	0	kg						7
23		PE	N	0	kg						7
24		PB	E	0	g		0	G			7
25		BE	E	0	g		0	G			7
26		BA	E	0	g		0	G			7
27		PE	E	0	g		0	G			7
28		PB	U	0	kg						7
29		BE	U	0	kg						7
30		BA	U	0	kg						7
31		PE	U	0	kg						7
											7
											7

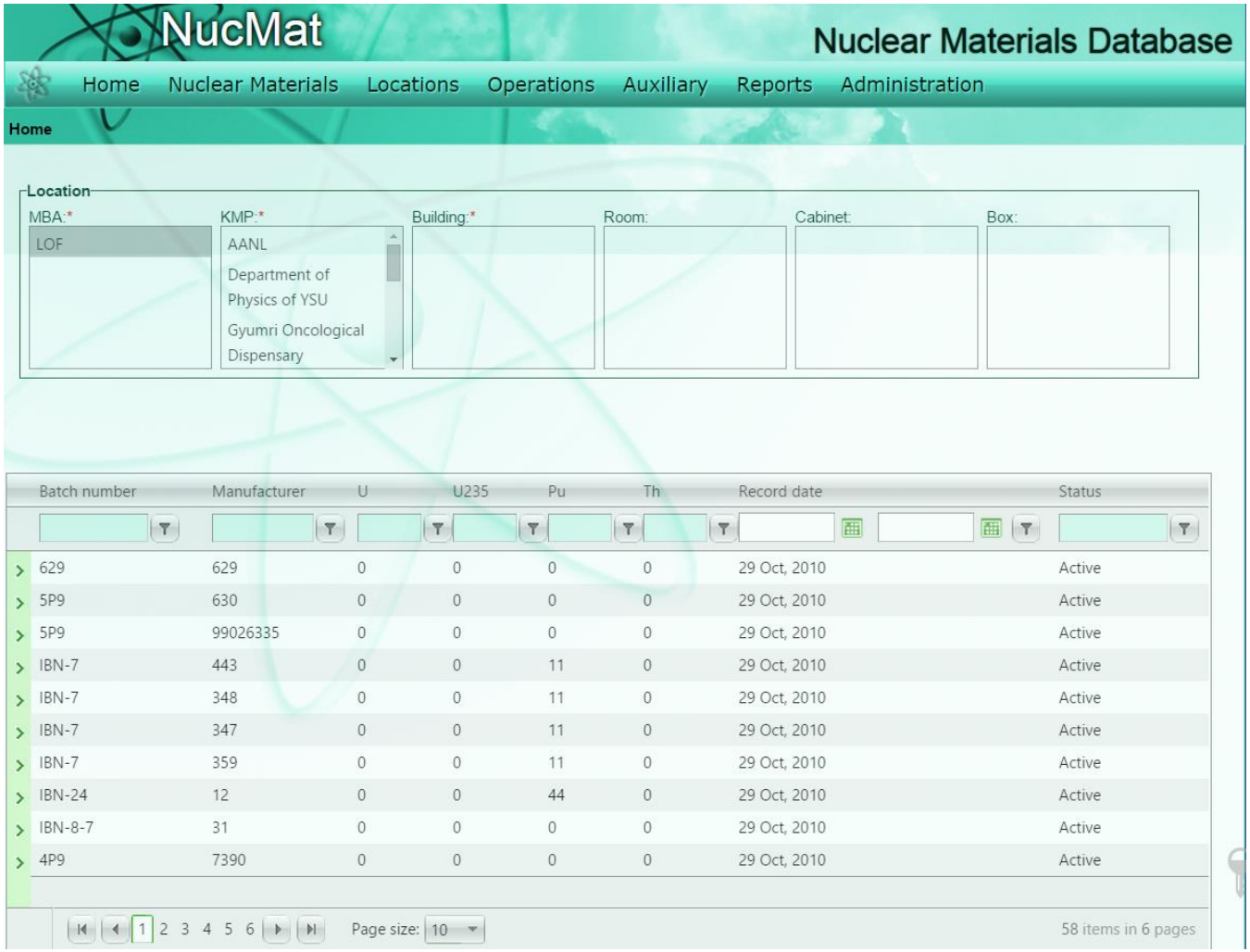
Access to NUCMAT

- Localhost/nucmat or server_address/nucmat



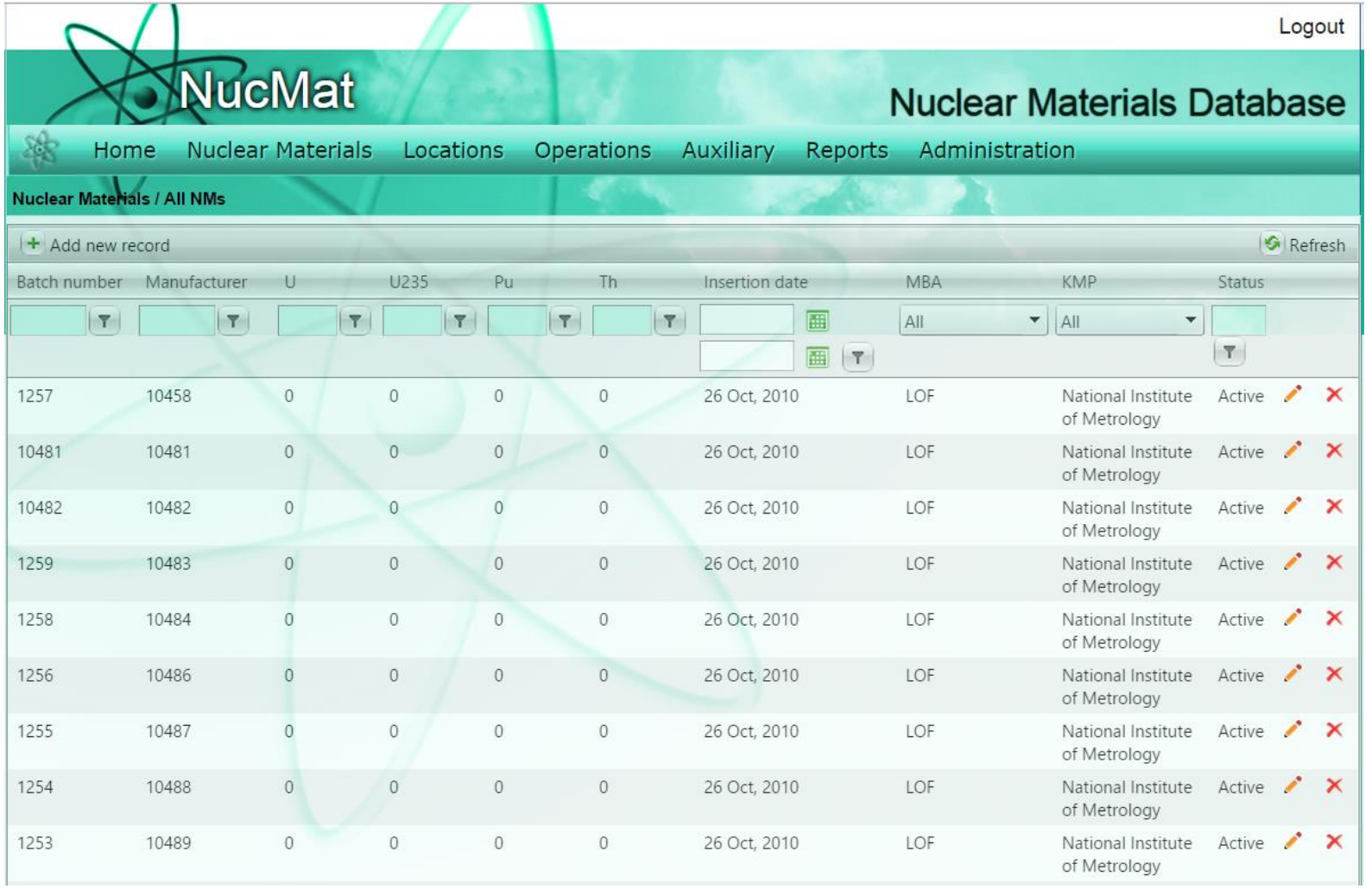
Browsing of Nuclear Materials

- Home menu:



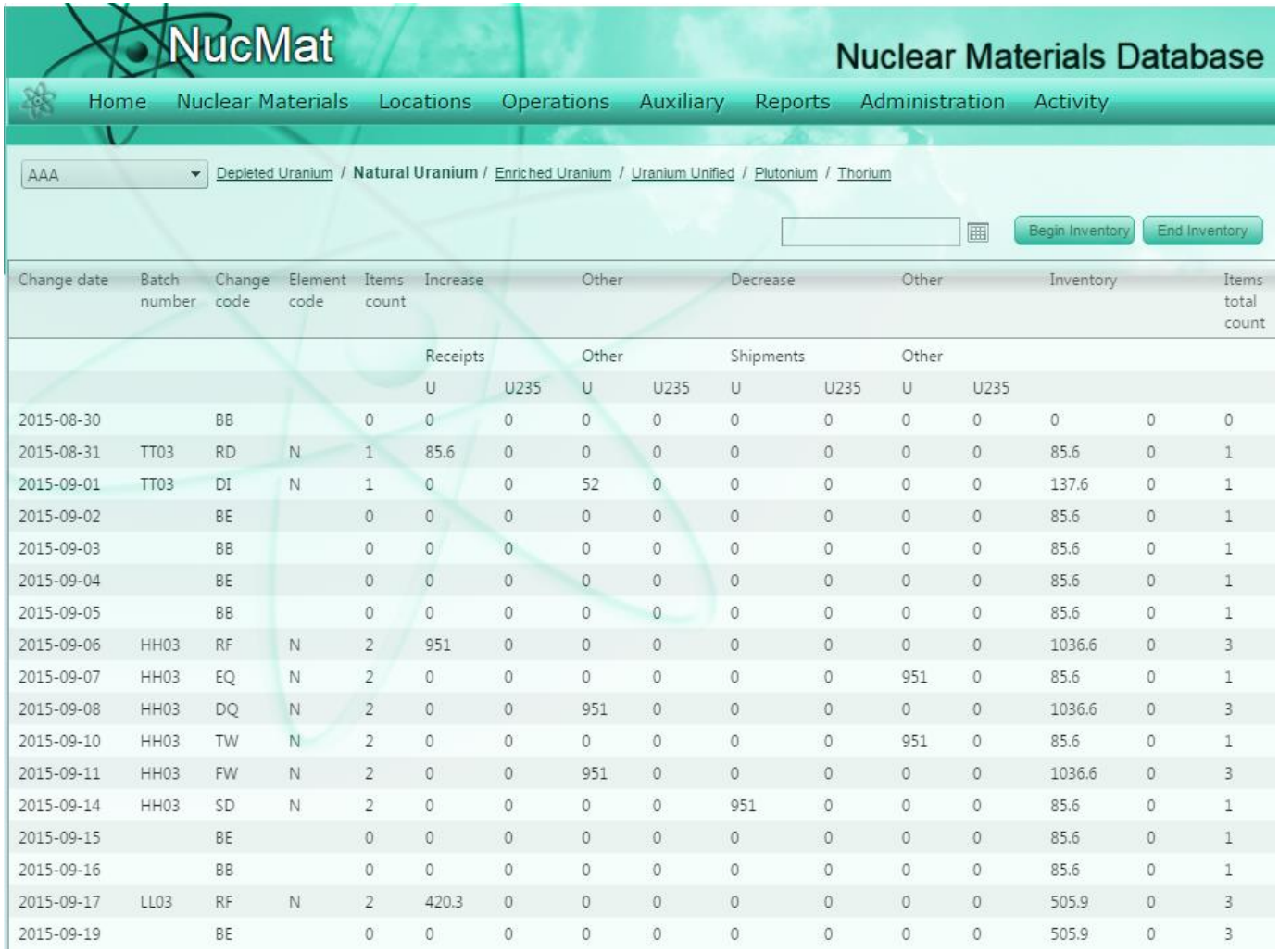
Browsing of Nuclear Materials

- Nuclear Materials menu:



Browsing of Nuclear Materials

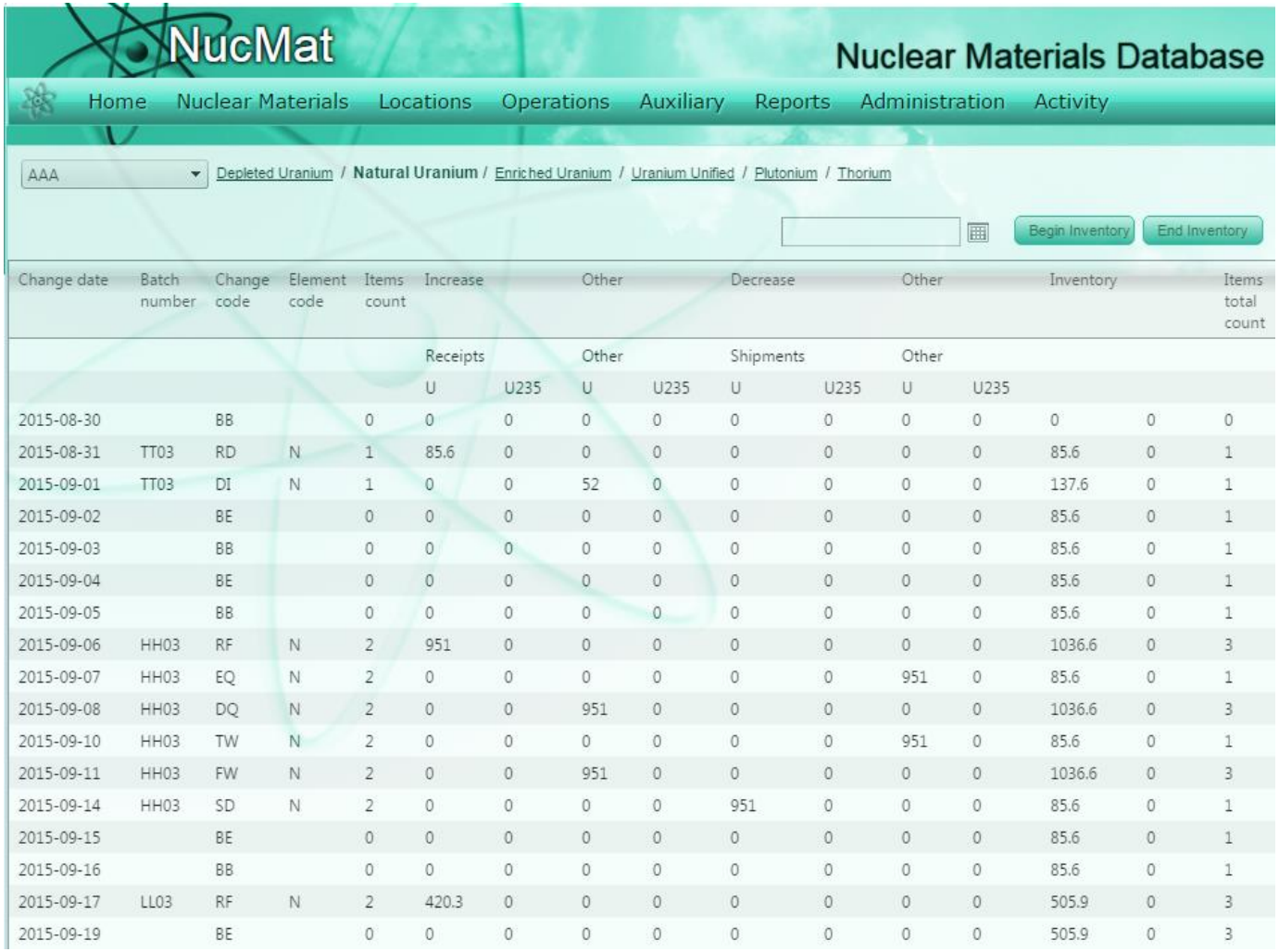
General Ledger (D, N, E, U):



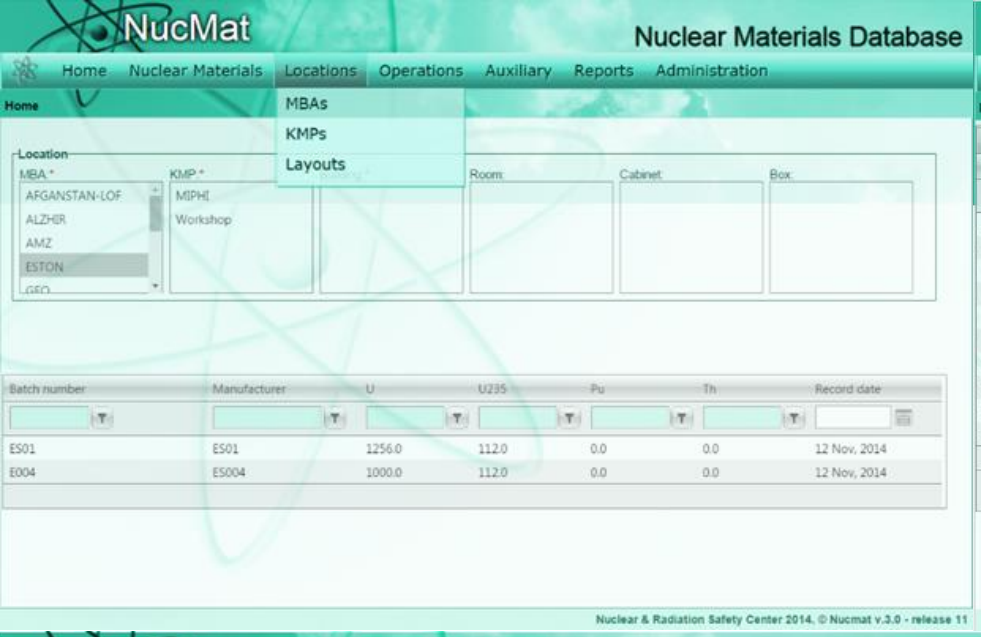
Change date	Batch number	Change code	Element code	Items count	Increase		Other		Decrease		Other		Inventory		Items total count
					Receipts		Other		Shipments		Other				
					U	U235	U	U235	U	U235	U	U235			
2015-08-30		BB		0	0	0	0	0	0	0	0	0	0	0	0
2015-08-31	TT03	RD	N	1	85.6	0	0	0	0	0	0	0	85.6	0	1
2015-09-01	TT03	DI	N	1	0	0	52	0	0	0	0	0	137.6	0	1
2015-09-02		BE		0	0	0	0	0	0	0	0	0	85.6	0	1
2015-09-03		BB		0	0	0	0	0	0	0	0	0	85.6	0	1
2015-09-04		BE		0	0	0	0	0	0	0	0	0	85.6	0	1
2015-09-05		BB		0	0	0	0	0	0	0	0	0	85.6	0	1
2015-09-06	HH03	RF	N	2	951	0	0	0	0	0	0	0	1036.6	0	3
2015-09-07	HH03	EQ	N	2	0	0	0	0	0	0	951	0	85.6	0	1
2015-09-08	HH03	DQ	N	2	0	0	951	0	0	0	0	0	1036.6	0	3
2015-09-10	HH03	TW	N	2	0	0	0	0	0	0	951	0	85.6	0	1
2015-09-11	HH03	FW	N	2	0	0	951	0	0	0	0	0	1036.6	0	3
2015-09-14	HH03	SD	N	2	0	0	0	0	951	0	0	0	85.6	0	1
2015-09-15		BE		0	0	0	0	0	0	0	0	0	85.6	0	1
2015-09-16		BB		0	0	0	0	0	0	0	0	0	85.6	0	1
2015-09-17	LL03	RF	N	2	420.3	0	0	0	0	0	0	0	505.9	0	3
2015-09-19		BE		0	0	0	0	0	0	0	0	0	505.9	0	3

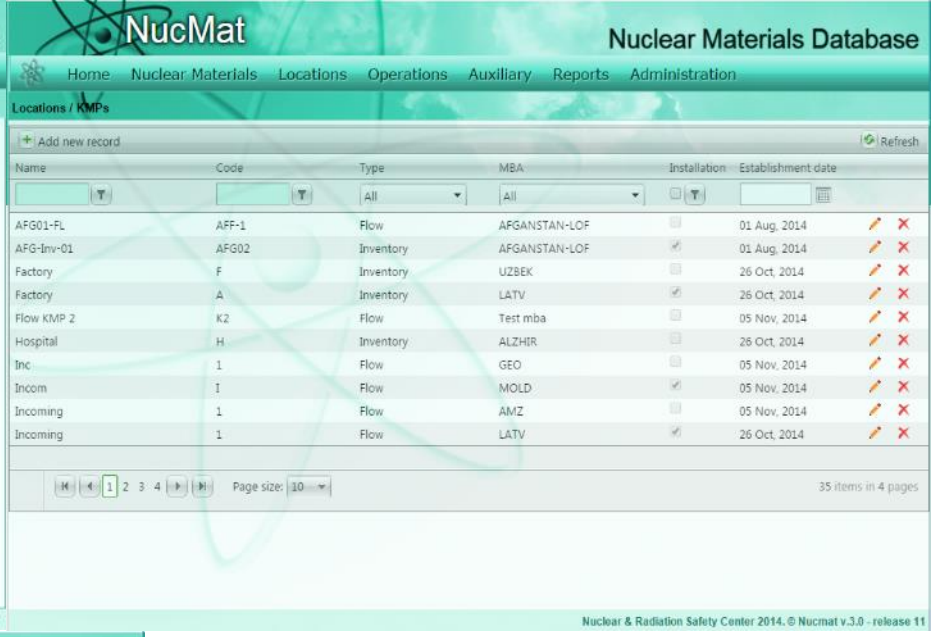
Browsing of Nuclear Materials

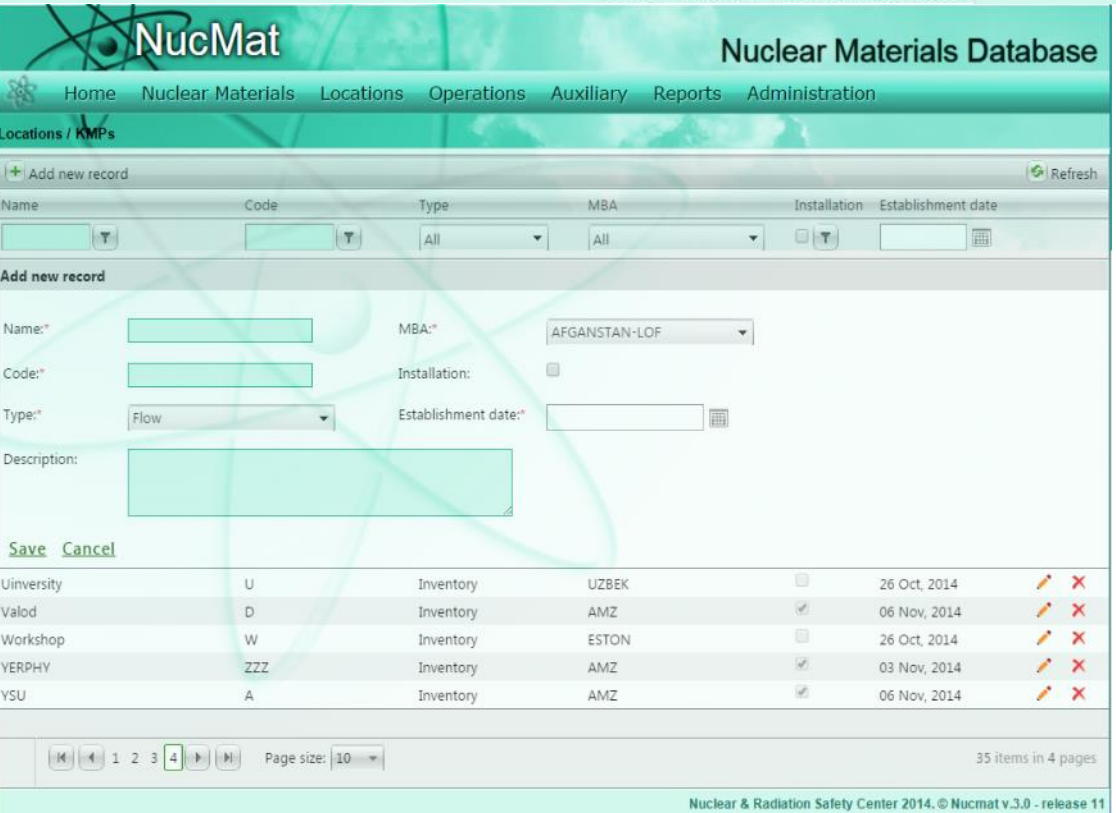
General Ledger (D, N, E, U):



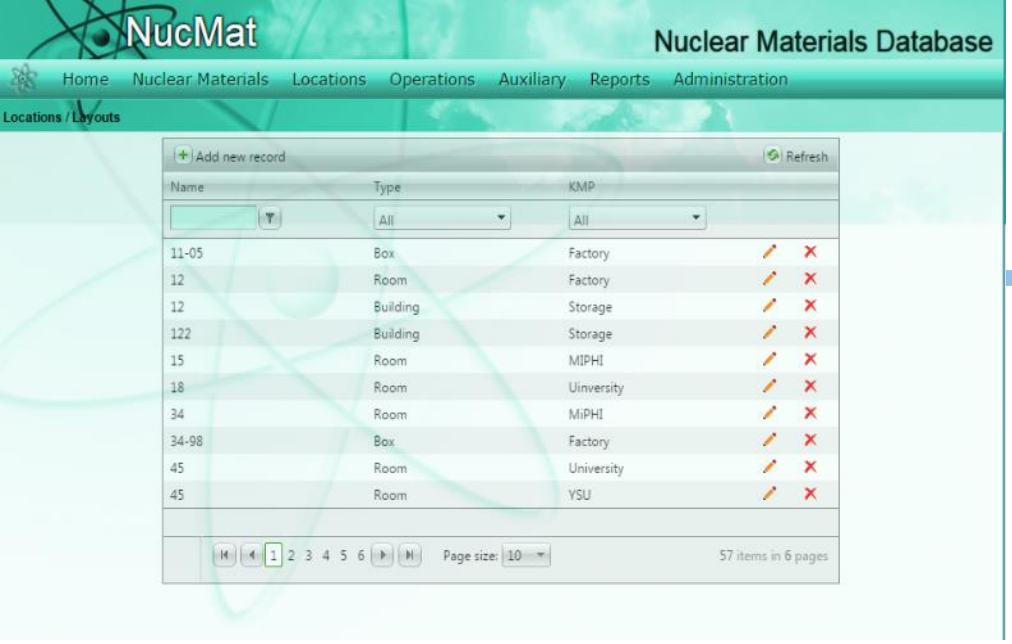
Change date	Batch number	Change code	Element code	Items count	Increase		Other		Decrease		Other		Inventory		Items total count
					Receipts		Other		Shipments		Other				
					U	U235	U	U235	U	U235	U	U235			
2015-08-30		BB		0	0	0	0	0	0	0	0	0	0	0	0
2015-08-31	TT03	RD	N	1	85.6	0	0	0	0	0	0	0	85.6	0	1
2015-09-01	TT03	DI	N	1	0	0	52	0	0	0	0	0	137.6	0	1
2015-09-02		BE		0	0	0	0	0	0	0	0	0	85.6	0	1
2015-09-03		BB		0	0	0	0	0	0	0	0	0	85.6	0	1
2015-09-04		BE		0	0	0	0	0	0	0	0	0	85.6	0	1
2015-09-05		BB		0	0	0	0	0	0	0	0	0	85.6	0	1
2015-09-06	HH03	RF	N	2	951	0	0	0	0	0	0	0	1036.6	0	3
2015-09-07	HH03	EQ	N	2	0	0	0	0	0	0	951	0	85.6	0	1
2015-09-08	HH03	DQ	N	2	0	0	951	0	0	0	0	0	1036.6	0	3
2015-09-10	HH03	TW	N	2	0	0	0	0	0	0	951	0	85.6	0	1
2015-09-11	HH03	FW	N	2	0	0	951	0	0	0	0	0	1036.6	0	3
2015-09-14	HH03	SD	N	2	0	0	0	0	951	0	0	0	85.6	0	1
2015-09-15		BE		0	0	0	0	0	0	0	0	0	85.6	0	1
2015-09-16		BB		0	0	0	0	0	0	0	0	0	85.6	0	1
2015-09-17	LL03	RF	N	2	420.3	0	0	0	0	0	0	0	505.9	0	3
2015-09-19		BE		0	0	0	0	0	0	0	0	0	505.9	0	3

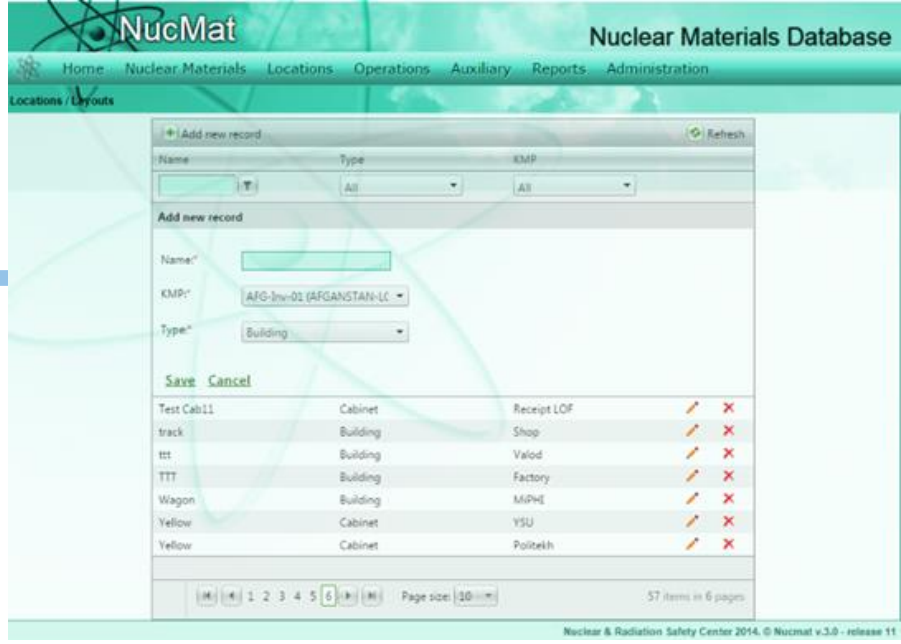


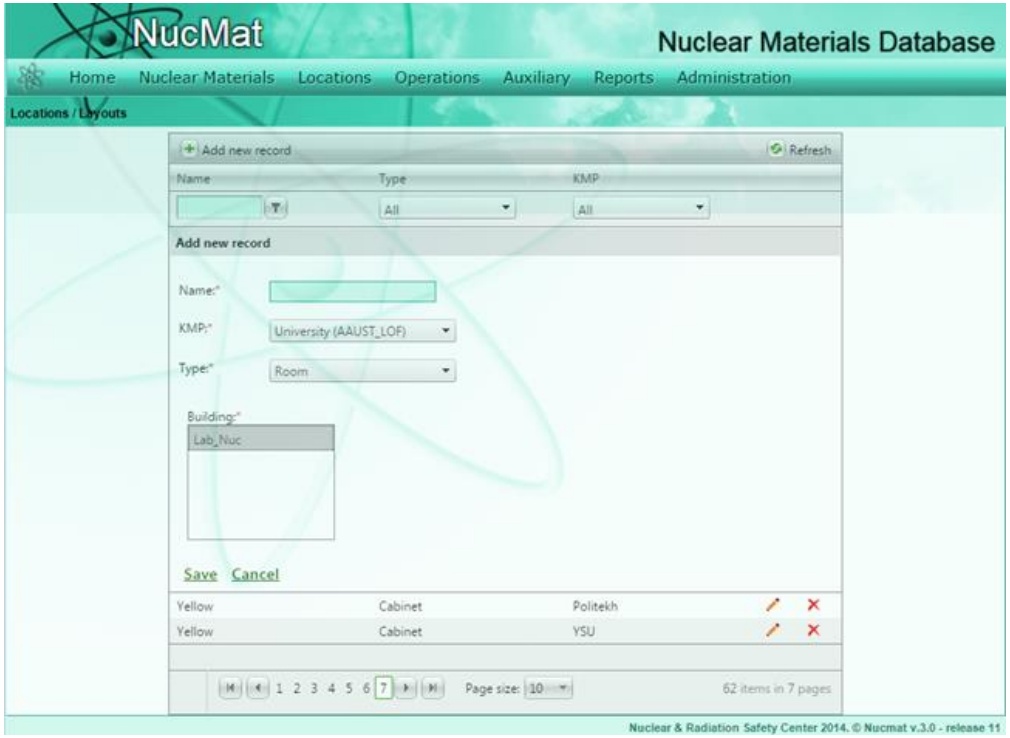




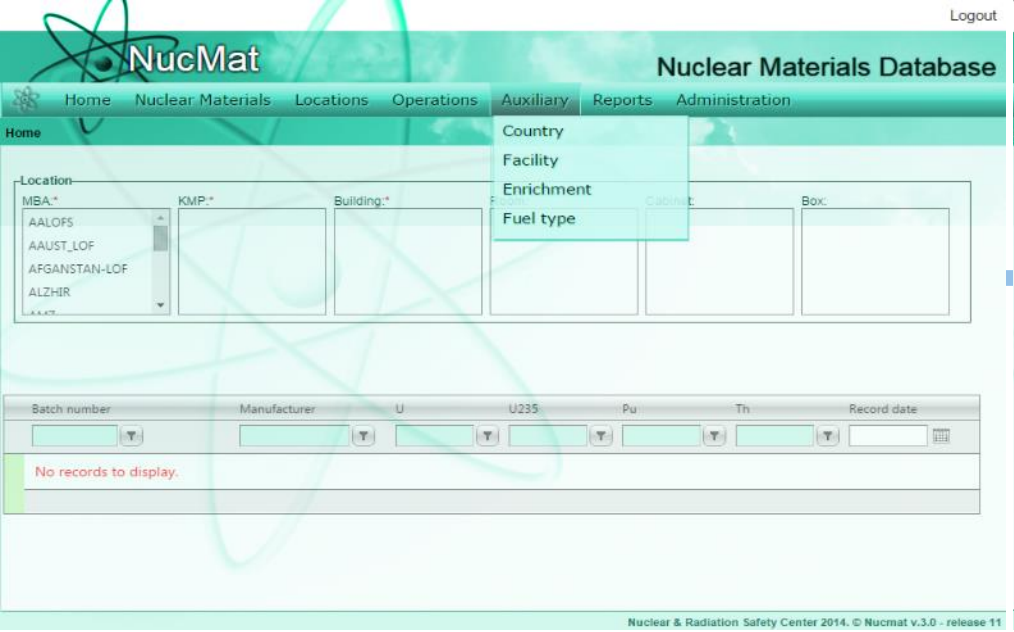
Development/ update of accounting infrastructure: Flow KMP

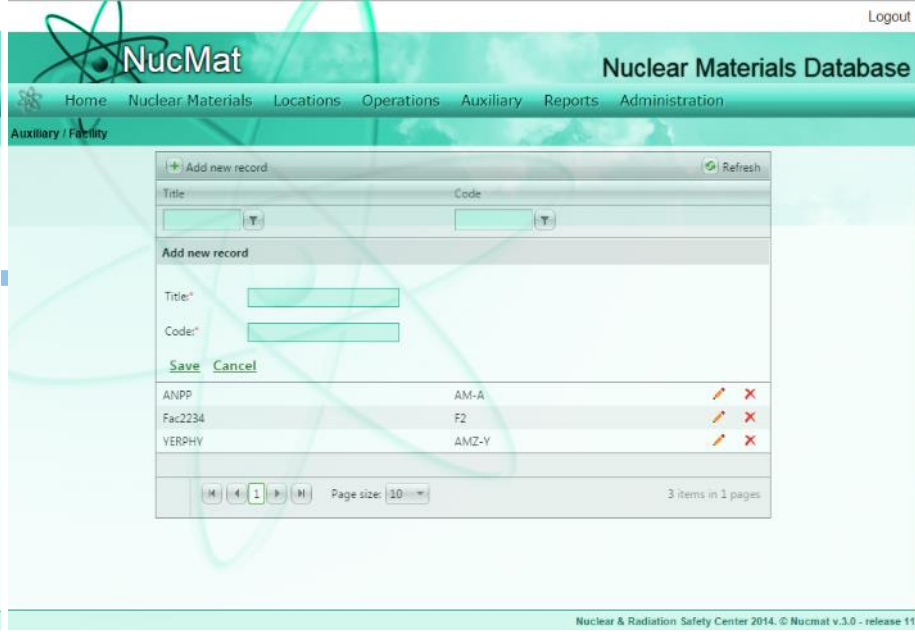


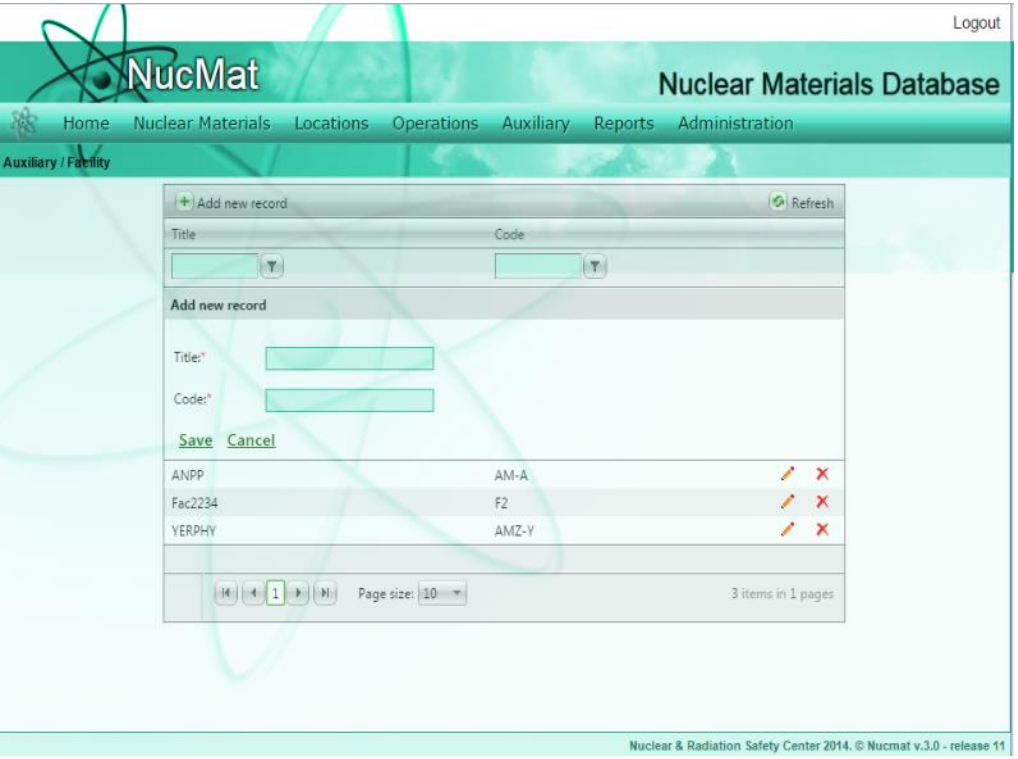




Development/ update of accounting infrastructure: Layouts

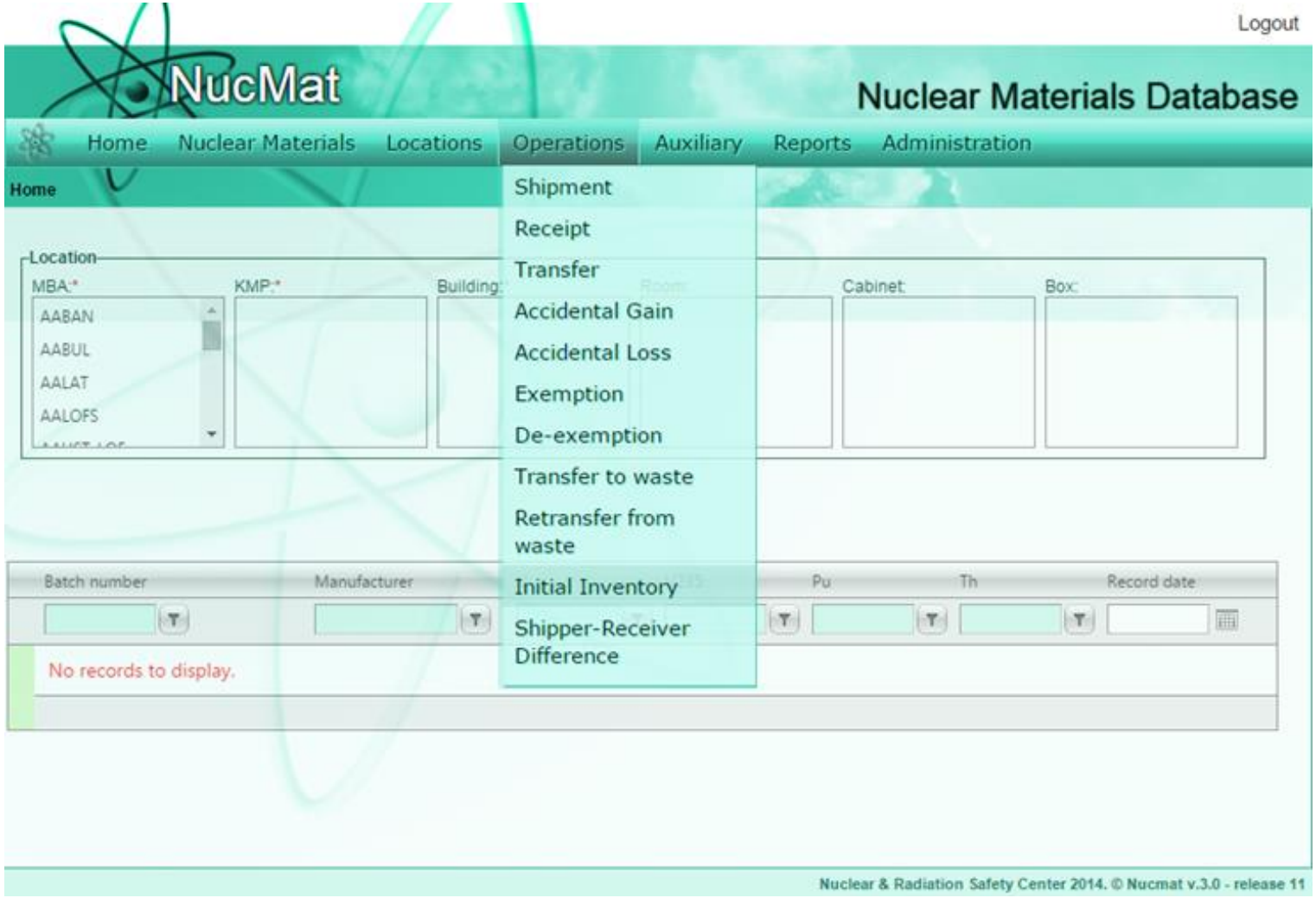




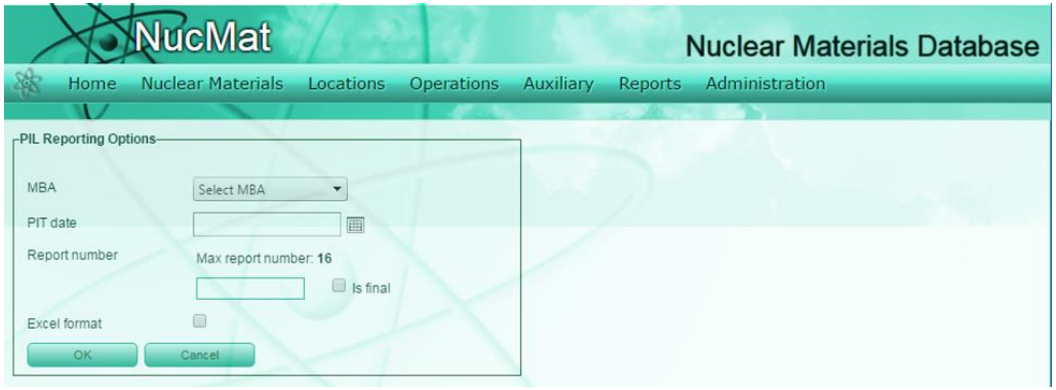


Development/ update of accounting infrastructure: Auxiliary information

Accounting for Nuclear Materials



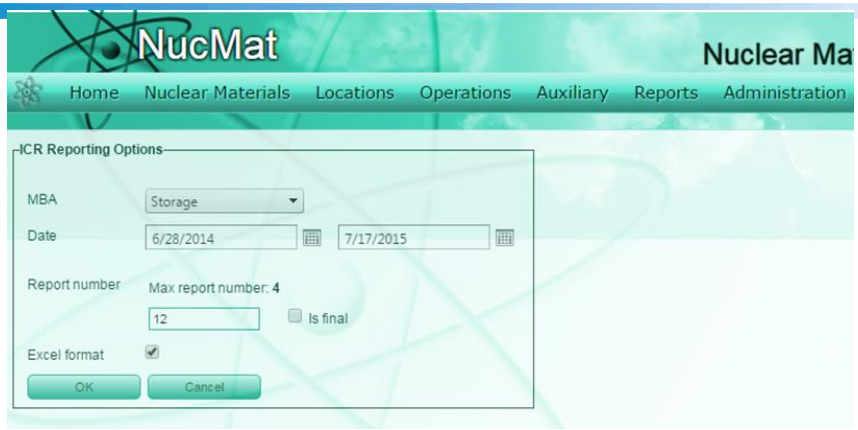
Generation of Reports: PIL



PHYSICAL INVENTORY LISTING (PIL) FORM R.02/c

COUNTRY Armenia						DATE 150717										
FACILITY Location outside Facility						REPORT NO. 16										
MATERIAL BALANCE AREA AM-Z						PAGE NO. 1 OF 9 PAGES					SIGNATURE					
						ACCOUNTANCY DATA								CORRECTION TO		
ENTRY NO	CONTINUATION	KMP CODE	NAME OR NUMBER OF BATCH	NUMBER OF ITEMS IN BATCH	MATERIAL DESCRIPTION	ELEMENT	WEIGHT OF ELEMENT	UNIT: kg/g	WEIGHT OF FISSILE ISOTOPES (URANIUM ONLY) (G)	ISOTOPE CODE	MESUR. BASIS	CONCISE NOTE	REPORT NO.	ENTRY NO.	
1	3	20	21	29	33	37	38	46	48	56	72	73	74	78	80	
1		KMP-A	4P9	1	QSOA	P	0	g			M				5	
2		KMP-A	5P9	1	QSOA	P	0	g			M				5	
3		KMP-A	629	1	QSOA	P	0	g			M				5	
4		KMP-A	CINP	1	VOAB	D	0.037	kg			M				5	
5		KMP-A	IBN-24	1	QSOA	P	44	g			M				5	
6		KMP-A	IBN-7	1	QSOA	P	11	g			M				5	

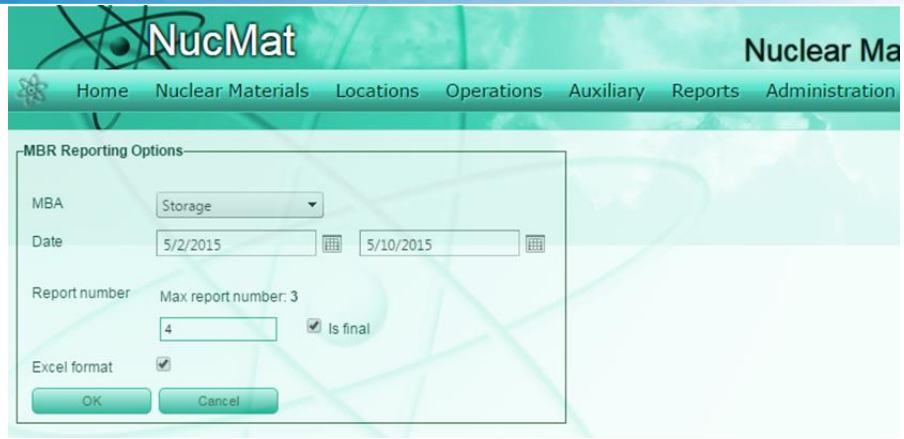
Generation of Reports: ICR



INVENTORY CHANGE REPORT (ICR) FORM R.01.1/c

COUNTRY Armenia									REPORTING PERIOD, FROM 140628				TO 150709							
FACILITY Location outside Facility									REPORT NO. 5											
MATERIAL BALANCE AREA S									PAGE NO. 1 OF 5 PAGES											
			MBA/COUNTRY							ACCOUNTANCY DATA							CORRECTION TO			
ENTRY NO	CONTINUATION	DATE OF INVENTORY CHANGE	FROM	TO	TYPE OF INVENTORY CHANGE	KMP CODE	NAME OR NUMBER OF BATCH	NUMBER OF ITEMS IN BATCH	MATERIAL DESCRIPTION	ELEMENT	WEIGHT OF ELEMENT	UNIT, kg/g	WEIGHT OF FISSILE ISOTOPES (URANIUM ONLY) (G)	ISOTOPE CODE	MESUR. BASIS	CONCISE NOTE	REPORT NO.	ENTRY NO.		
1	3	4	10	14	18	20	21	29	33	37	38	46	48	56	72	73	74	78	80	
1		150330	RUS	S	RF	1	75042	1	BQ1F	E	120685.74	g	4342.31	G	N				2	
2		150330	RUS	S	RF	1	75044	1	BQ1F	E	120644.32	g	4344.3	G	N				2	
3		150330	RUS	S	RF	1	75045	1	BQ1F	E	120650.48	g	4344.52	G	N				2	
4		150330	RUS	S	RF	1	75050	1	BQ1F	E	120721.79	g	4347.19	G	N				2	
5		150330	RUS	S	RF	1	75046	1	BQ1F	E	120670.58	g	4343.21	G	N				2	
6		150330	RUS	S	RF	1	75048	1	BQ1F	E	120793.06	g	4349.61	G	N				2	
7		150330	RUS	S	RF	1	75049	1	BQ1F	E	120610.76	g	4338.06	G	N				2	

Generation of Reports: MBR



MATERIAL BALANCE REPORT (MBR) FORM R.03

COUNTRY AAUSTRIA				REPORTING PERIOD, FROM 141026 TO 141118									
FACILITY				REPORT NO. 3									
MATERIAL BALANCE AREA ABN-Z				PAGE NO. 1 OF 5 PAGES					SIGNATURE				
				ACCOUNTANCY DATA						CORRECTION TO			
ENTRY NO	CONTINUATION		ENTRY NAME	ELEMENT	WEIGHT OF ELEMENT	UNIT, kg/g	WEIGHT OF FISSILE ISOTOPES (URANIUM ONLY) (G)	ISOTOPE CODE	CONCISE NOTE	REPORT NO.	ENTRY NO.		
1	3	18		37	38	46	48	56	73	74	78	80	
		PB		P	0.0	g						7	
		FW		P	449.1	g						7	
		RF		P	449.1	g						7	
		TW		P	449.1	g						7	
		BE		P	449.1	g						7	
		BA		P	449.1	g						7	
		PE		P	449.1	g						7	
		PB		T	0.0	g						7	
		DQ		T	4735.0	g						7	

Generation of Reports in MS Excel format, Checking with QCVS

FILE HOME INSERT PAGE LAYOUT FORMULAS DATA REVIEW VIEW LOAD TEST TEAM

R108

PHYSICAL INVENTORY LISTING (PIL) FORM R.02/c (QCVS)

COUNTRY	AM	DATE	150320
FACILITY	AM-Z	REPORT NO.	16
MATERIAL BALANCE AREA	AM-Z	PAGE NO. .... OF .... PAGES	SIGNATURE:

Row 6: 46 … 4

ENTRY NO.	CONTINUATION	KMP CODE	NAME OR NUMBER OF BATCH	NUMBER OF ITEMS IN BATCH	MATERIAL DESCRIPTION	ELEMENT	WEIGHT OF ELEMENT	UNIT kg/g	WEIGHT OF FISSILE ISOTOPES (URANIUM ONLY) (G)	ISOTOPE CODE	MEASUR BASIS	CONCISE NOTE	CORRECTION TO: REPORT NO.	CORRECTION TO: ENTRY NO.	
1		KMF	4P9	1	QSOA	P	0	g			M				5
2		KMF	5P9	1	QSOA	P	0	g			M				5
3		KMF	629	1	QSOA	P	0	g			M				5
4		KMF	CINP	1	VOAB	D	0.037	kg			M				5
5		KMF	IBN-24	1	QSOA	P	44	g			M				5
6		KMF	IBN-7	1	QSOA	P	11	g			M				5
7		KMF	IBN-8-7	1	QSOA	P	0	g			M				5
8		KMF	10481	1	QSOA	P	0	g			M				5
9		KMF	10482	1	QSOA	P	0	g			M				5
10		KMF	1215	1	QSOA	P	0	g			M				5
11		KMF	1216	1	QSOA	P	0	g			M				5
12		KMF	1217	1	QSOA	P	0	g			M				5
13		KMF	1218	1	QSOA	P	0	g			M				5
14		KMF	1219	1	QSOA	P	0	g			M				5
15		KMF	1220	1	QSOA	P	0	g			M				5
16		KMF	1221	1	QSOA	P	0	g			M				5
17		KMF	1222	1	QSOA	P	0	g			M				5
18		KMF	1223	1	QSOA	P	0	g			M				5
19		KMF	1224	1	QSOA	P	0	g			M				5
20		KMF	1225	1	QSOA	P	0	g			M				5
21		KMF	1226	1	QSOA	P	0	g			M				5
22		KMF	1227	1	QSOA	P	0	g			M				5
23		KMF	1228	1	QSOA	P	0	g			M				5
24		KMF	1229	1	QSOA	P	0	g			M				5

FILE HOME INSERT PAGE LAYOUT FORMULAS DATA REVIEW VIEW LOAD TEST TEAM

A59

MATERIAL BALANCE REPORT (MBR) FORM R.03 (QCVS)

COUNTRY	AM	REPORTING PERIOD: FROM	141130	TO	150201
FACILITY	AM-A	REPORT NO.	3		
MATERIAL BALANCE AREA	T	PAGE NO. .... OF .... PAGES		SIGNATURE:	

Row 6: 32 … 6

ENTRY NO.	CONTINUATION	ENTRY NAME	ELEMENT	WEIGHT OF ELEMENT	UNIT kg/g	WEIGHT OF FISSILE ISOTOPES (URANIUM ONLY) (G)	ISOTOPE COD	CONCISE NOTE	CORRECTION TO: REPORT NO.	CORRECTION TO: ENTRY NO.	
1		PB	P	0	g						7
2		RD	P	123.6	g						7
3		BE	P	123.6	g						7
4		DI	P	-10	g						7
5		BA	P	113.6	g						7
6		PE	P	113.6	g						7
7		PB	T	0	kg						7
8		GA	T	189	kg						7
9		SD	T	189	kg						7
10		BE	T	0	kg						7
11		BA	T	0	kg						7
12		PE	T	0	kg						7
13		PB	D	0	kg						7
14		EQ	D	12.5	kg						7
15		RD	D	123	kg						7
16		RF	D	12.5	kg						7
17		BE	D	123	kg						7
18		BA	D	123	kg						7
19		PE	D	123	kg						7
20		PB	N	0	kg						7
21		BE	N	0	kg						7
22		BA	N	0	kg						7
23		PE	N	0	kg						7
24		PB	E	0	g	0	G				7
25		BE	E	0	g	0	G				7
26		BA	E	0	g	0	G				7
27		PE	E	0	g	0	G				7
28		PB	U	0	kg						7
29		BE	U	0	kg						7
30		BA	U	0	kg						7
31		PE	U	0	kg						7
											7
											7

II. SECURITY

History of NM

- Tracking history of NMs

Batch number	Manufacturer	U	U235	Pu	Th	Record date
AAA05	AAB05	12456.23	1245.23	789.45	0	28 Oct, 2014
AAA06	AAB06	22456.23	3245.23	889.23	0	15 Nov, 2014

Batch number	U	U235	Pu	Th	Inventory code	Record date	KMP	Building	Room	Cabinet	Box
AAA06	-1000	-100	-10	0	DI	20 Nov, 2014	Radiology	North-I			
AAA06	22456.23	3245.23	889.23	0	DQ	15 Nov, 2014	Radiology	North-I			
AAA06	22456.23	3245.23	889.23	0	EU	14 Nov, 2014	Radiology	North-I			
AAA06	22456.23	3245.23	889.23	0	RF	28 Oct, 2014	Radiology	North-I			

History of NM

- Tracking history of NMs
  - All Information about nuclear material even after shipment, loss, exemption , transfer to waste is kept in the history of the nuclear material

KK04	KL04	146987.12	4567.12	100.98		31 Mar, 2017		Active
KK01	KL01	134090	3450	0	0	02 May, 2017		Active
DD03	DF03	325000	0			05 Apr, 2017		Inactive
DD04	DF04	325000	0			28 Mar, 2017		Inactive

Batch number	U	U235	Pu	Th	Inventory code	Record date	KMP	Building	Room	Cabinet	Box
DD04	325000	0	0	0	SD	28 Mar, 2017					
DD04	325000	0	0	0	RF	27 Mar, 2017	Pool	Rack			

Logs

- Inventory Logs

Username	Type	Code	Format	Batch number	Manufacturer	Date
admin	StartingPoint	EDT	Update	JJ01	JK01	09 Apr, 2017 15:30:40
admin	StartingPoint	DEL	Delete	DD02	DF02	09 Apr, 2017 15:24:40
admin	StartingPoint	DEL	Delete			09 Apr, 2017 13:03:08
admin	StartingPoint	EDT	Update	FF01	FG010202	09 Apr, 2017 12:55:00
admin	AccidentalLoss	EDT	None		KL01	09 Apr, 2017 09:29:00
admin	AccidentalGain	INS	None	KK04	KL04	09 Apr, 2017 08:54:49
admin	ReceiptDomestic	RD	Insert	KK03	KL03	09 Apr, 2017 08:52:42
admin	AccidentalGain	INS	None	KK02	KL02	09 Apr, 2017 08:50:16
admin	ReceiptDomestic	RD	Insert	KK01	KL01	09 Apr, 2017 08:48:25
admin	StartingPoint	DEL	Delete			09 Apr, 2017 08:43:25
admin	ShipmentDomestic	SD	Insert		DF04	08 Apr, 2017 02:04:27
admin	ShipmentDomestic	SD	Insert		DF03	08 Apr, 2017 01:58:39
admin	TransferOperation	TRAN	None		FG01	08 Apr, 2017 01:55:49
admin	TransferOperation	TRAN	None		DF03	08 Apr, 2017 01:51:30
admin	TransferOperation	TRAN	None		DF03	08 Apr, 2017 01:38:15
admin	AccidentalGain	INS	None	JJ06	JK06	08 Apr, 2017 01:31:33
admin	AccidentalGain	INS	None	JJ05	JK05	08 Apr, 2017 01:31:19

Logs

- Login/Logout

Logs

- Backup/Restore

Logs

- Reports

III. DATA SECURITY

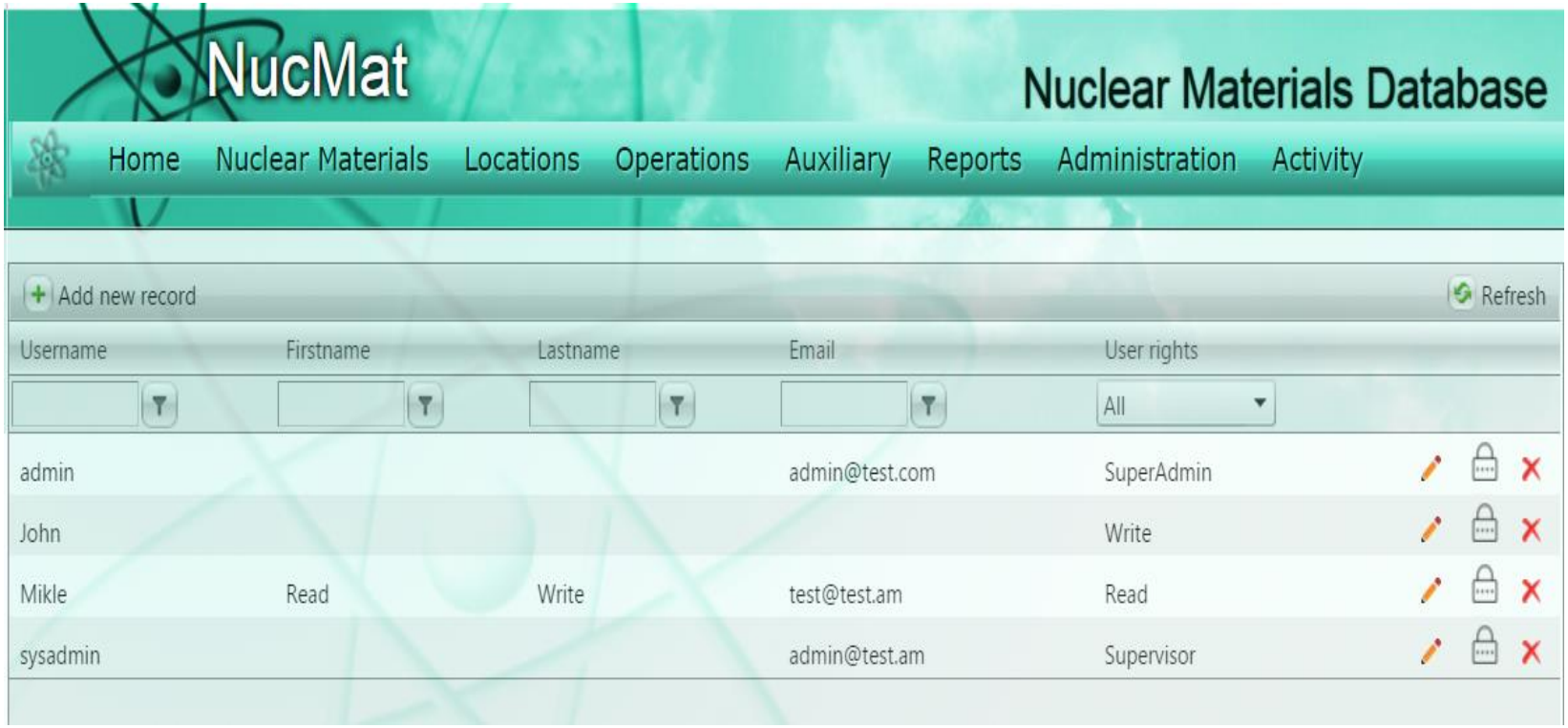
Secure Code

- Authentication and Authorization
  - Confirmation of the identity of a users
  - determination what user can and can't do within NUCMAT
- SQL Injection attacks
  - No SQL scripts can be passed (no use of string concatenation)
  - Using stored procedures and SQL parameters
- Script exploits
  - No possibility to post scripts: ASP.NET prevents users from typing most script code into a form field and posting it to the server.
- No use of cookies
- Use of "private" variables in the code instead of "public" variables

Users rights (1/2)

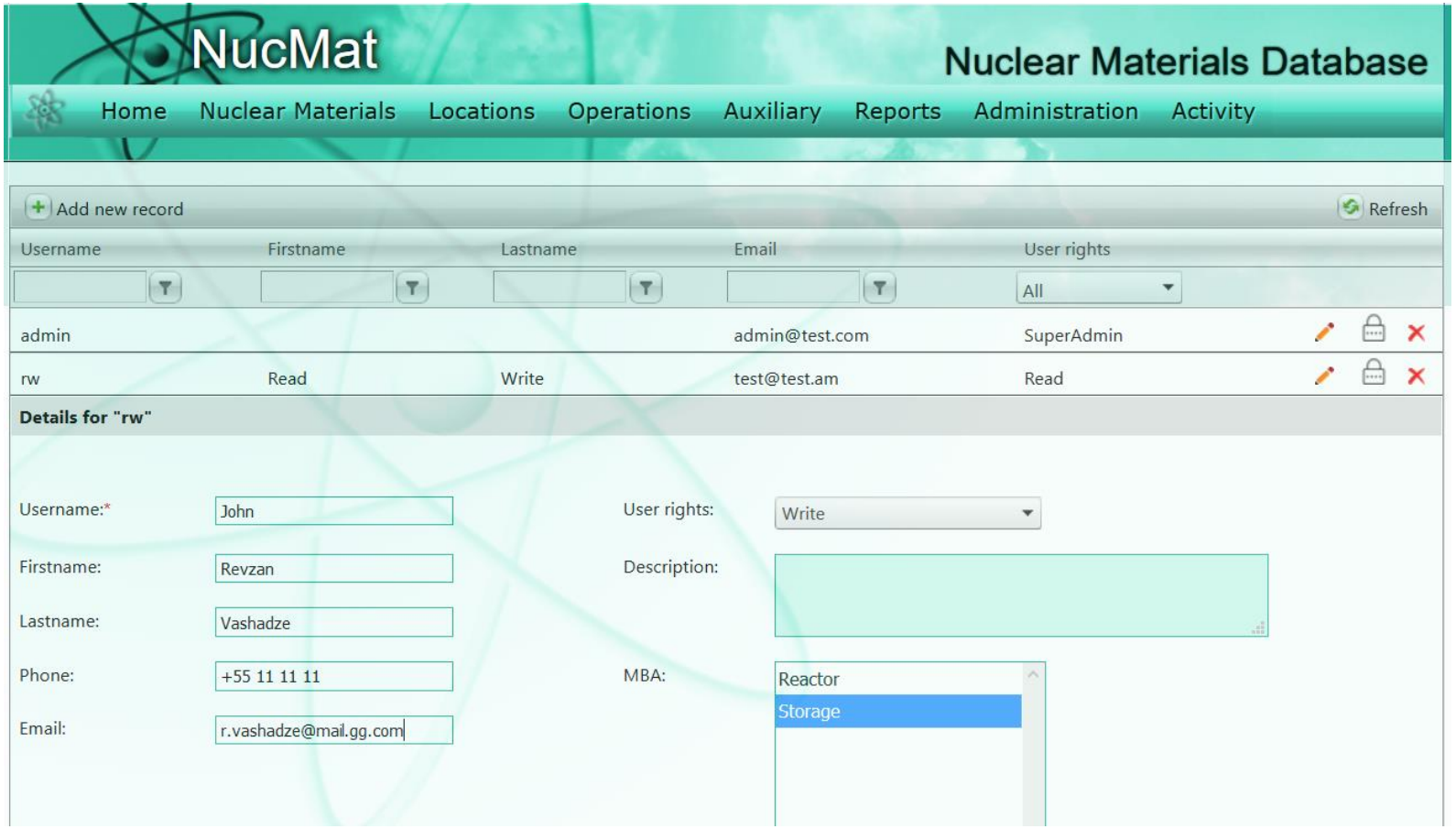
- Super-admin
  - Can do everything
- Supervisor
  - User management
  - Log browsing
  - Report generation
  - Browsing of nuclear material inventory
  - NO Inventory changes
- Write
  - Browsing of nuclear material inventory
  - Inventory changes
  - Report generation
  - NO access to Logs
  - NO access to user management
- Read
  - Browsing of nuclear material inventory
  - Report generation

Users rights (2/2)



Limited access

- Limited access to database: Access only to the MBA to which user have access granted



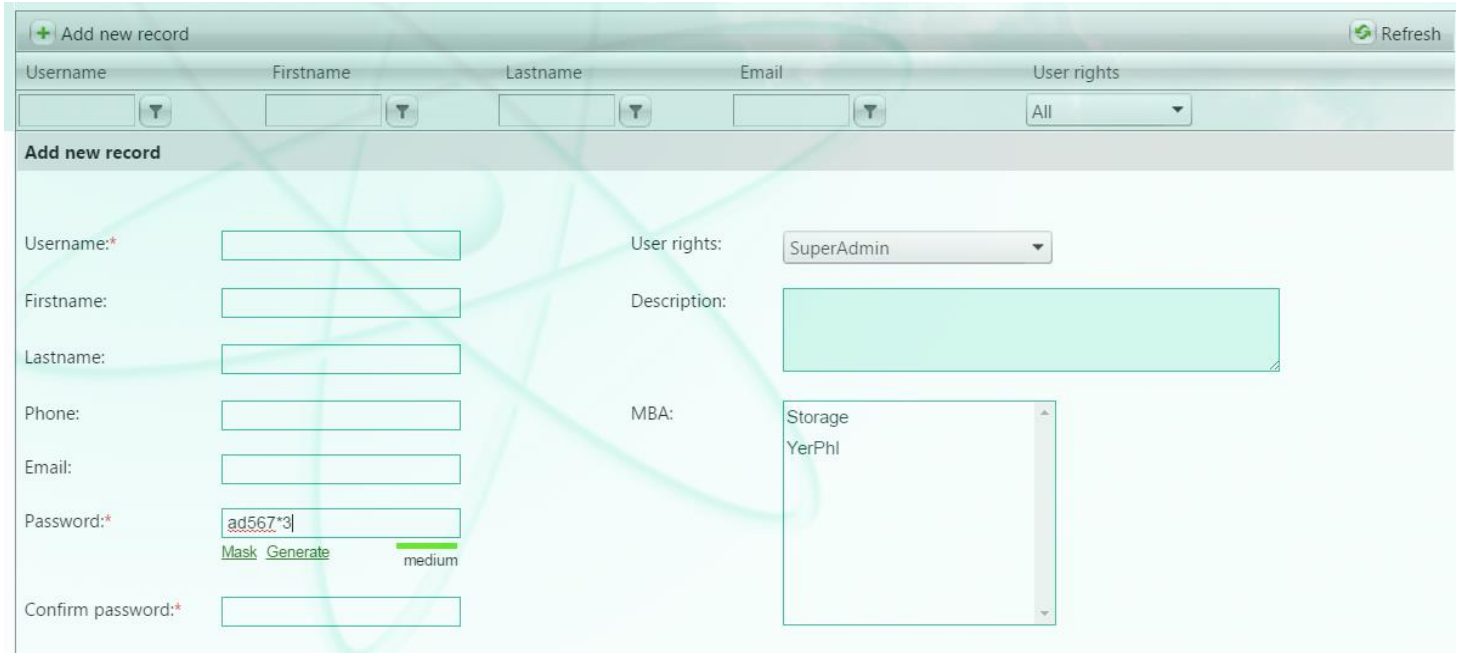
Password rules and requirements (1 / 3)

- NUCMAT randomly generated passwords
  - Minimal length – 13 symbols,
  - Shall not coincide with name of user,
  - Shall not have meaning,
  - Shall contain elements from ALL following symbols:
    - Upper case character(от A до Z),
    - Lower case character(a до z),
    - Main10 numbers (0–9),
    - Special symbols (for example, $, #, %).

Password rules and requirements (2/3)

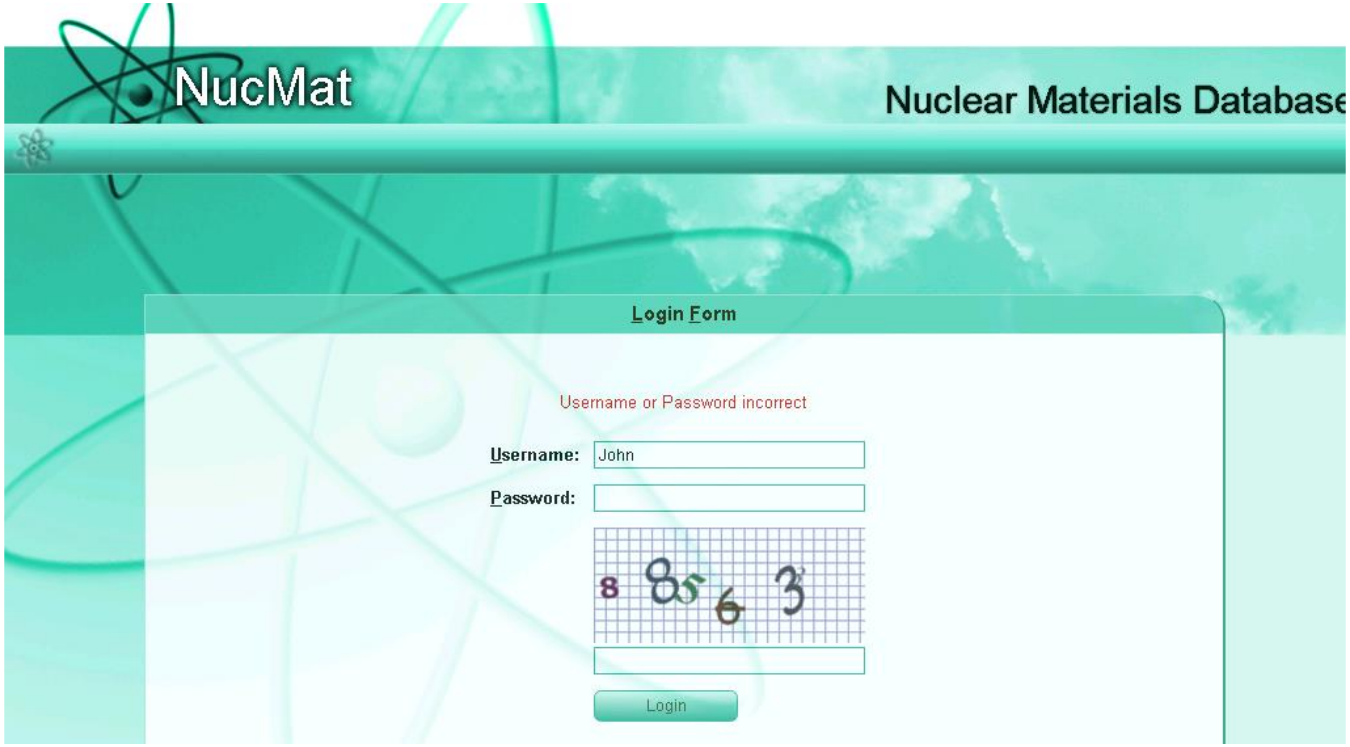
Password rules and requirements (3/3)

- User entered password
  - NUCMAT assess meeting with above mentioned requirement
  - Users are strongly recommended to use ONLY passwords that get “excellent” grade by NUCMAT



User Security Controls

- Protection against robot-attack:
  - CAPTCHA after 3 failed attempts
  - lock out after 10 failed attempts

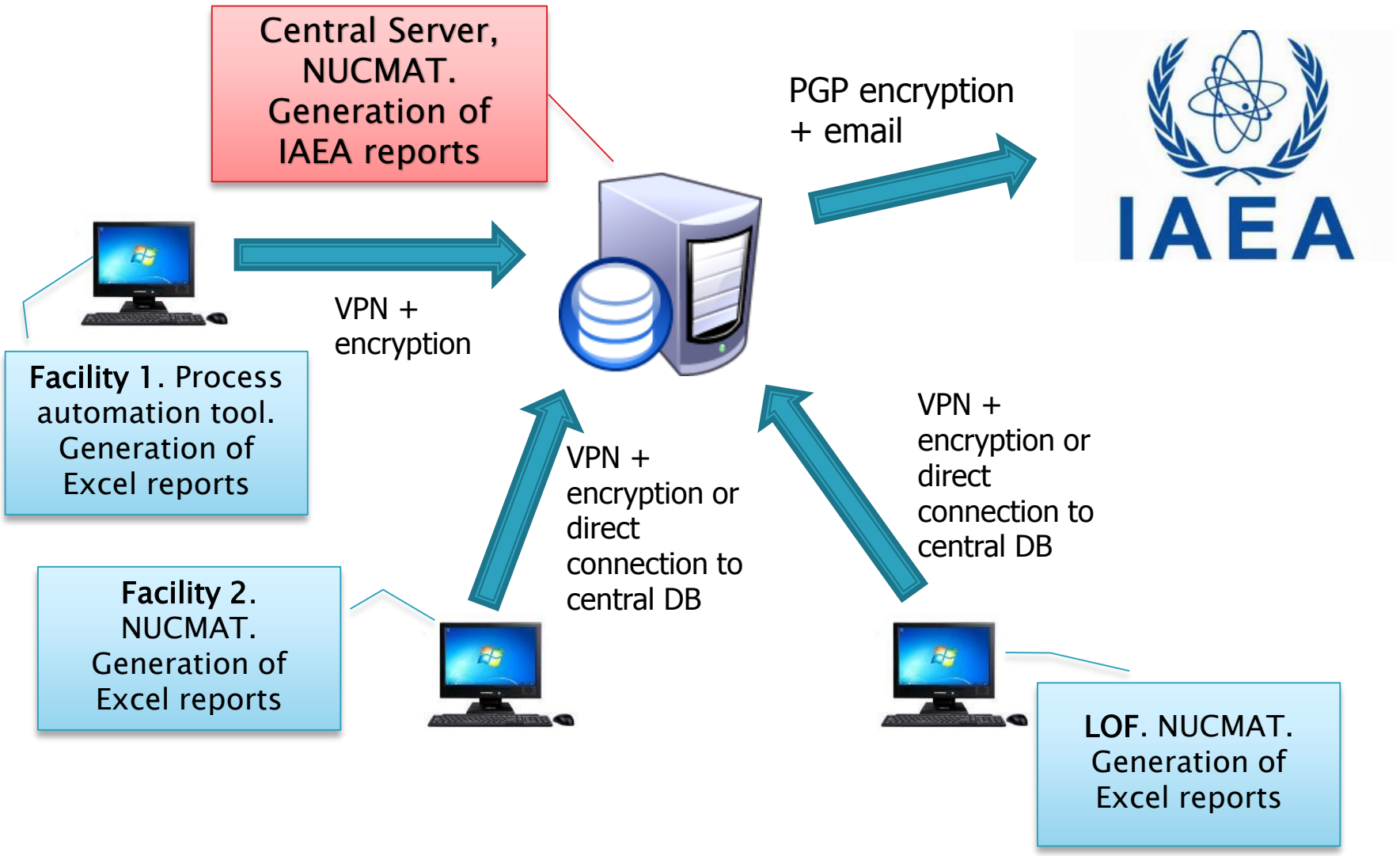


Independent assessment

- Independent Security Vulnerability Test Result
  - Overall – good
- Data Encryption

A Good security rating indicates that the capabilities or approach is the best option evaluated and aligns with industry best practices.

Deployment (example)

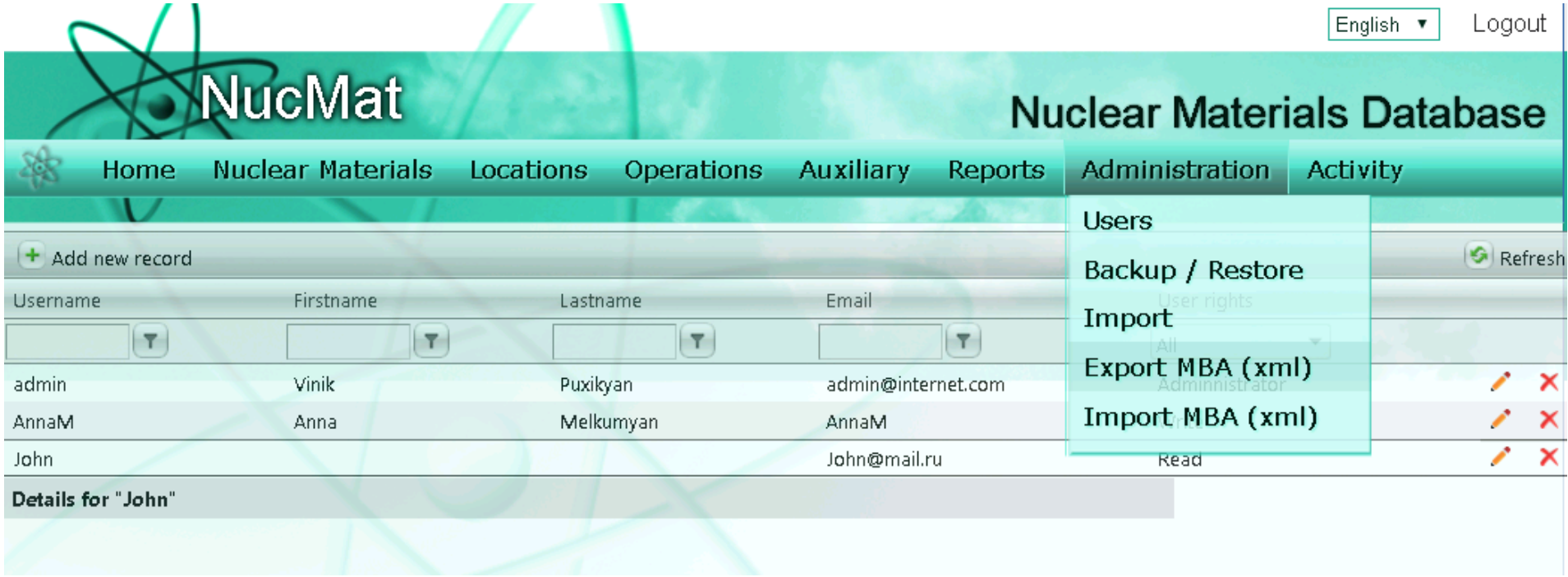


Communication of Inventory Data to State Authority

- stand alone use of the system is possible
- Automatic or manual data transfer from Facilities/LOFs to State Authority via VPN could be established as frequent as required

Export/Import MBA

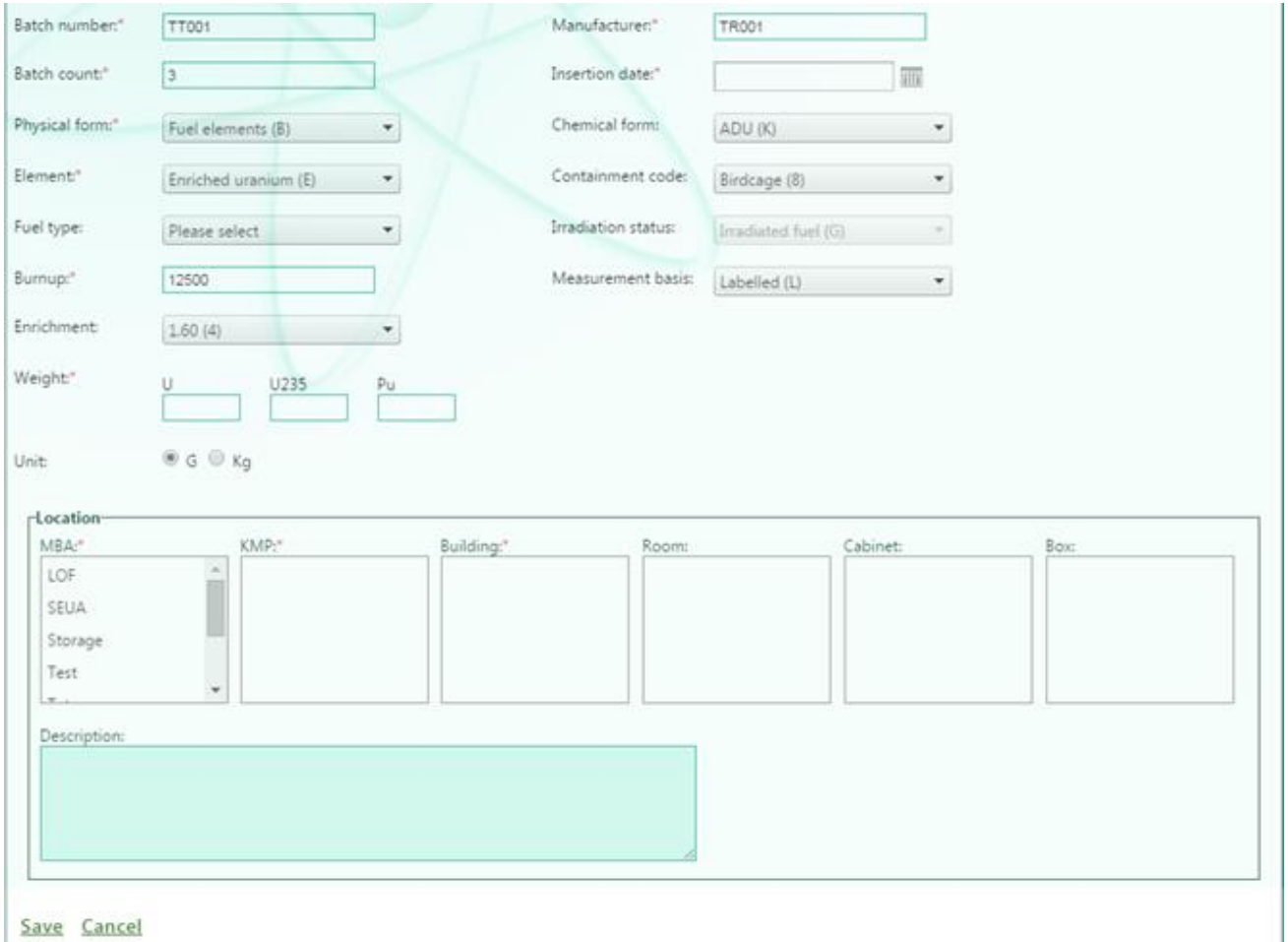
- Export import Facility and LOF information:



IV. QA/QC

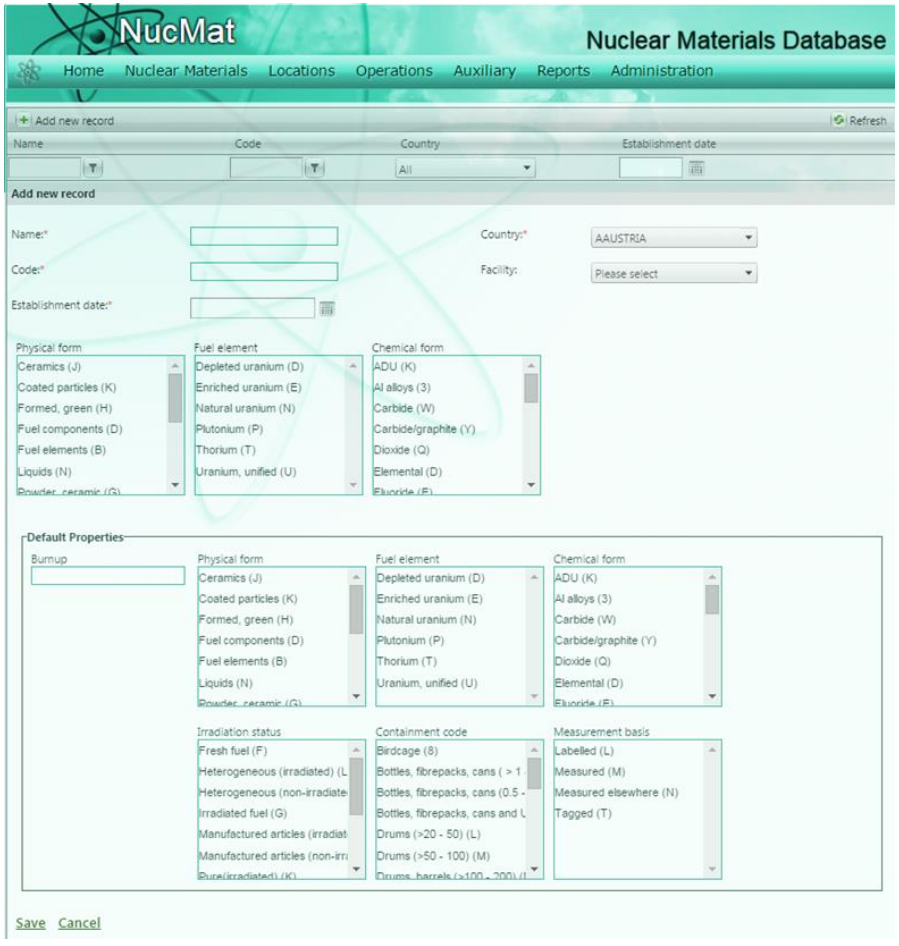
Error Detection During Input

- Preventing not allowed symbols:
  - Drop down lists, cross-references



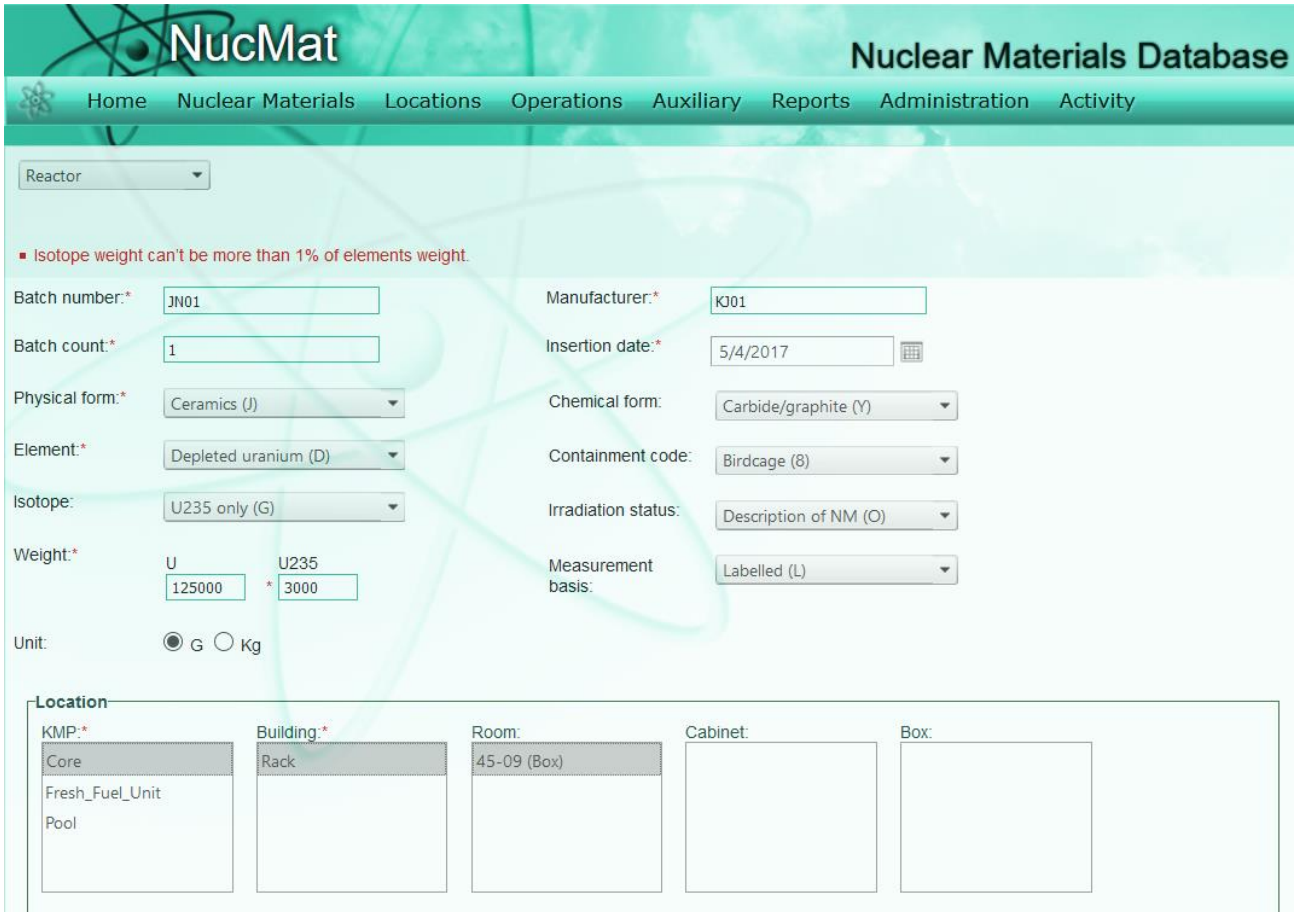
Error Detection During Input

- Preventing not allowed symbols:
  - Customization of the drop down lists



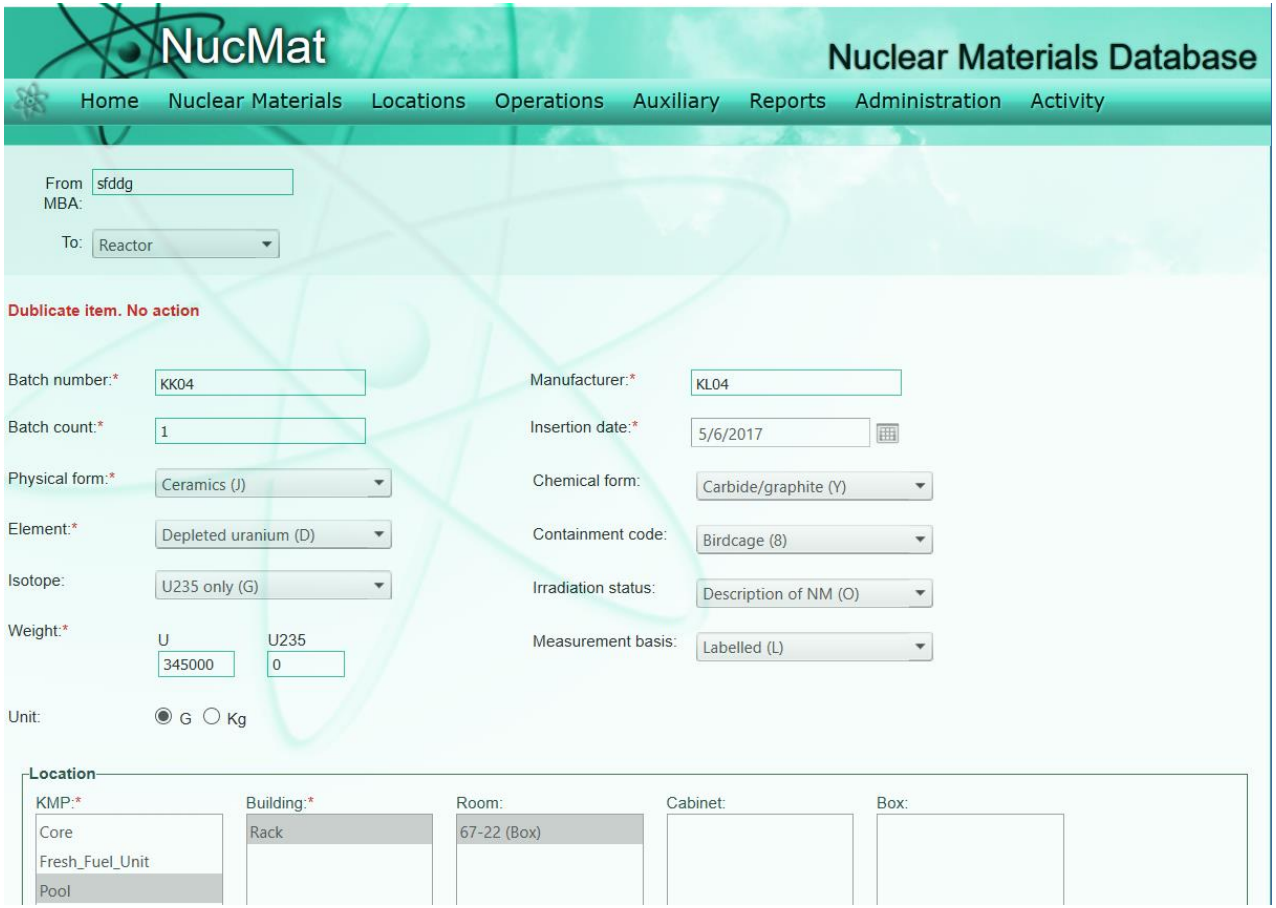
Error Detection During Input

- Preventing data falling out of acceptable range:

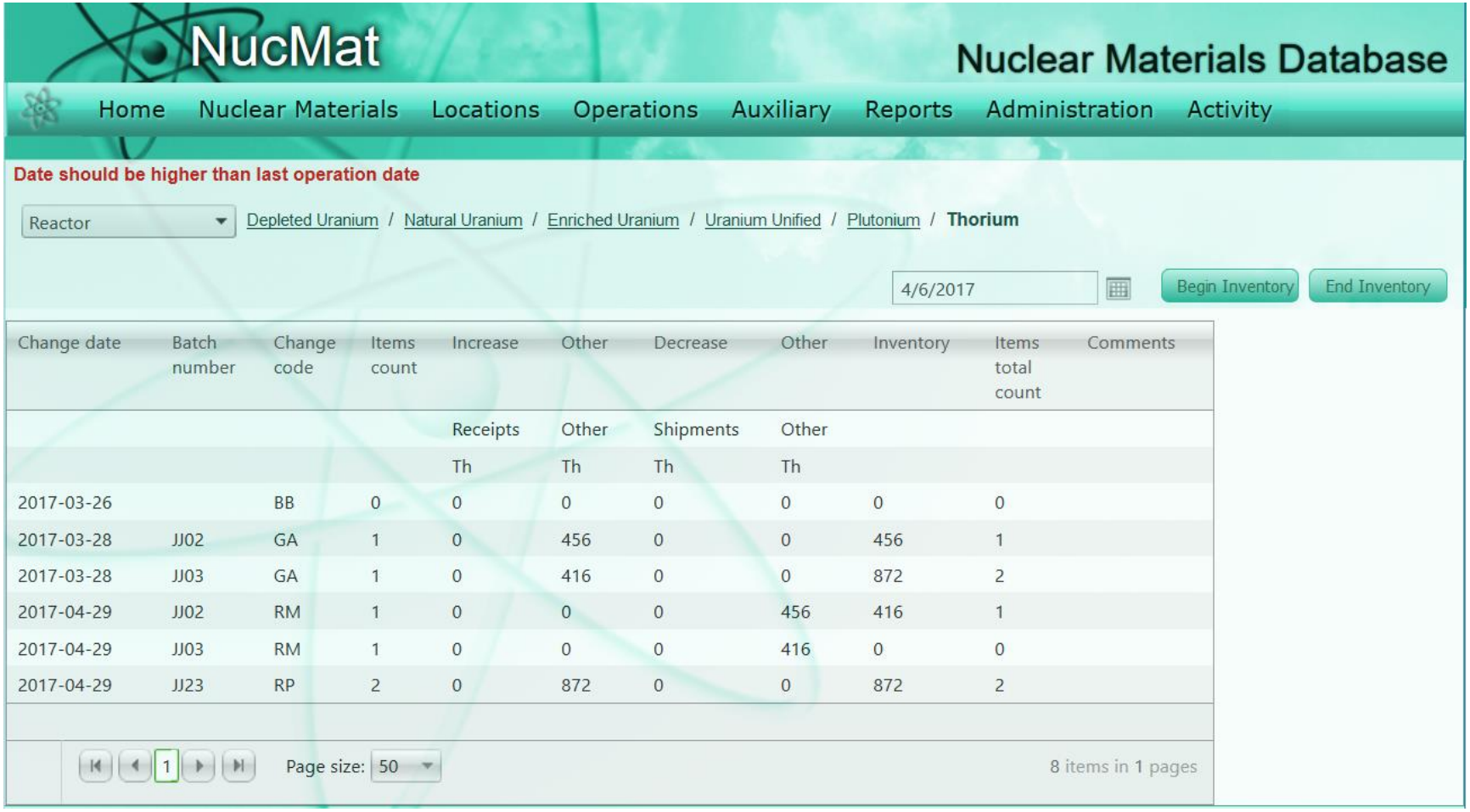


Error Detection During Input

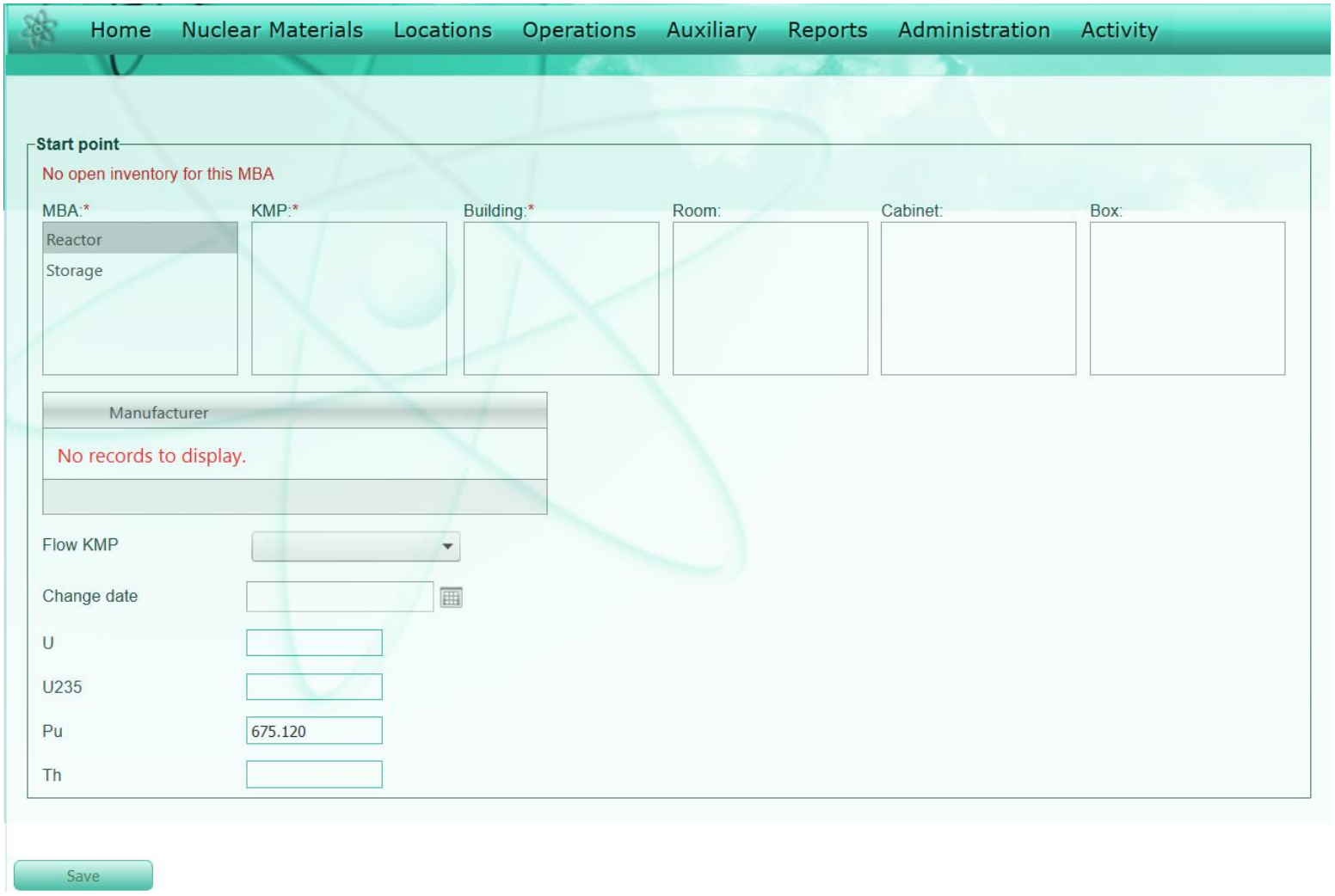
- Preventing duplicate serial number:

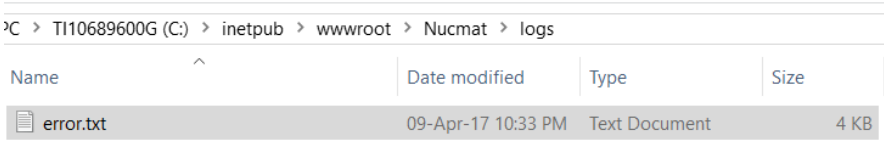


User notifications/warnings



User notifications/warnings





Error logging

- Activity error log

Name	Date modified	Type	Size
error.txt	09-Apr-17 10:33 PM	Text Document	4 KB

```
4/9/2016 10:33:01 PM | ExecuteReaderForOne (NM_Receipt) - Error 515, Level 16, State 2, Procedure InventoryActivity_Insert, Line 18, Message:
Cannot insert the value NULL into column 'InventoryChangeType', table 'NM2012.dbo.InventoryActivity'; column does not allow nulls. INSERT fails.
4/9/2016 10:33:01 PM | ExecuteReaderForOne (NM_Receipt) - Error 515, Level 16, State 2, Procedure InventoryActivity_Insert, Line 18, Message:
Cannot insert the value NULL into column 'InventoryChangeType', table 'NM2012.dbo.InventoryActivity'; column does not allow nulls. INSERT fails.
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Cannot insert the value NULL into column 'InventoryChangeType', table 'NM2012.dbo.InventoryActivity'; column does not allow nulls. INSERT fails.
```
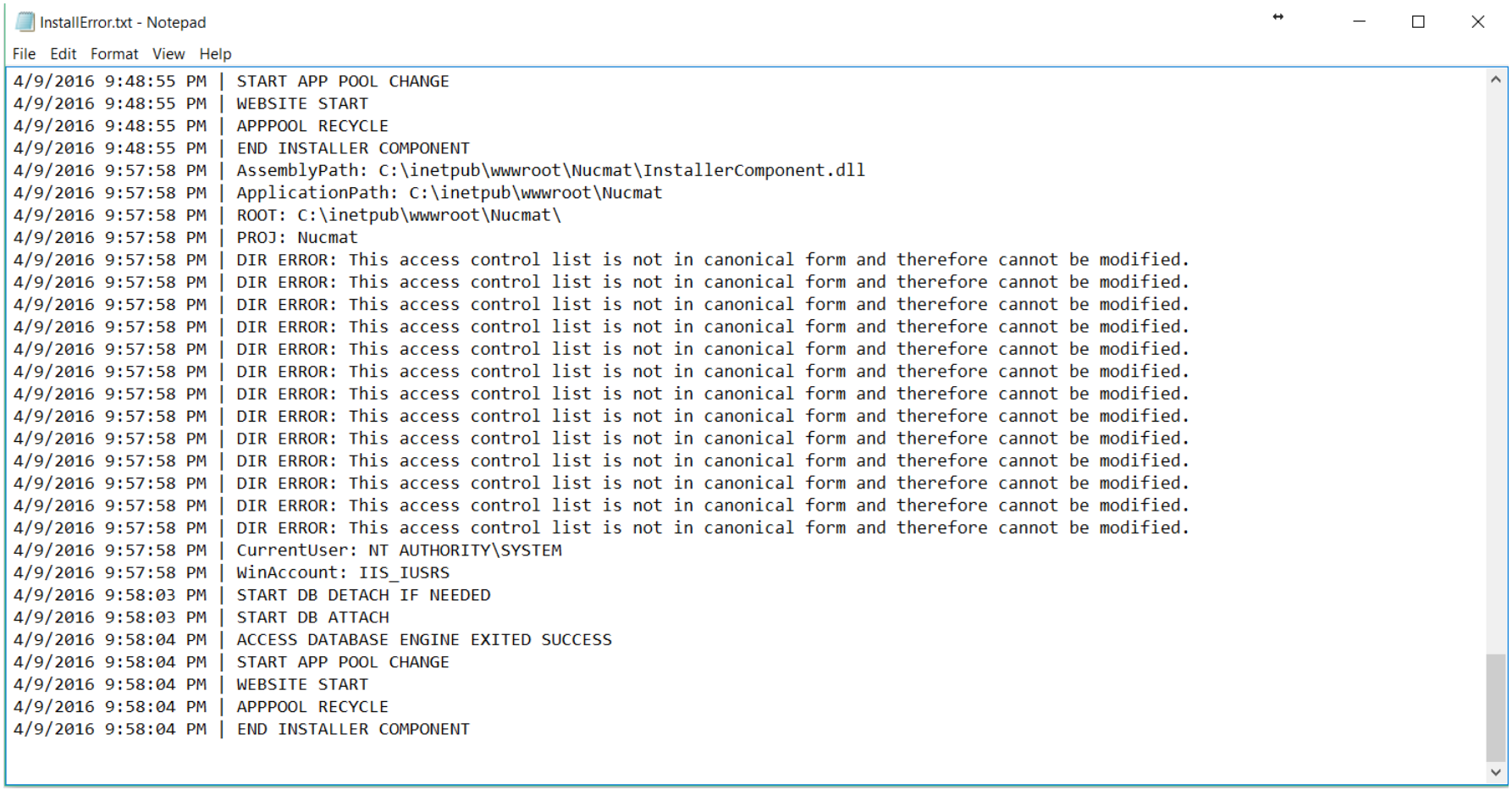

Error logging

- Install error log



```
4/9/2016 9:48:55 PM | START APP POOL CHANGE
4/9/2016 9:48:55 PM | WEBSITE START
4/9/2016 9:48:55 PM | APPPOOL RECYCLE
4/9/2016 9:48:55 PM | END INSTALLER COMPONENT
4/9/2016 9:57:58 PM | AssemblyPath: C:\inetpub\wwwroot\Nucmat\InstallerComponent.dll
4/9/2016 9:57:58 PM | ApplicationPath: C:\inetpub\wwwroot\Nucmat
4/9/2016 9:57:58 PM | ROOT: C:\inetpub\wwwroot\Nucmat\
4/9/2016 9:57:58 PM | PROJ: Nucmat
4/9/2016 9:57:58 PM | DIR ERROR: This access control list is not in canonical form and therefore cannot be modified.
4/9/2016 9:57:58 PM | DIR ERROR: This access control list is not in canonical form and therefore cannot be modified.
4/9/2016 9:57:58 PM | DIR ERROR: This access control list is not in canonical form and therefore cannot be modified.
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4/9/2016 9:57:58 PM | DIR ERROR: This access control list is not in canonical form and therefore cannot be modified.
4/9/2016 9:57:58 PM | CurrentUser: NT AUTHORITY\SYSTEM
4/9/2016 9:57:58 PM | WinAccount: IIS_IUSRS
4/9/2016 9:58:03 PM | START DB DETACH IF NEEDED
4/9/2016 9:58:03 PM | START DB ATTACH
4/9/2016 9:58:04 PM | ACCESS DATABASE ENGINE EXITED SUCCESS
4/9/2016 9:58:04 PM | START APP POOL CHANGE
4/9/2016 9:58:04 PM | WEBSITE START
4/9/2016 9:58:04 PM | APPPOOL RECYCLE
4/9/2016 9:58:04 PM | END INSTALLER COMPONENT
```
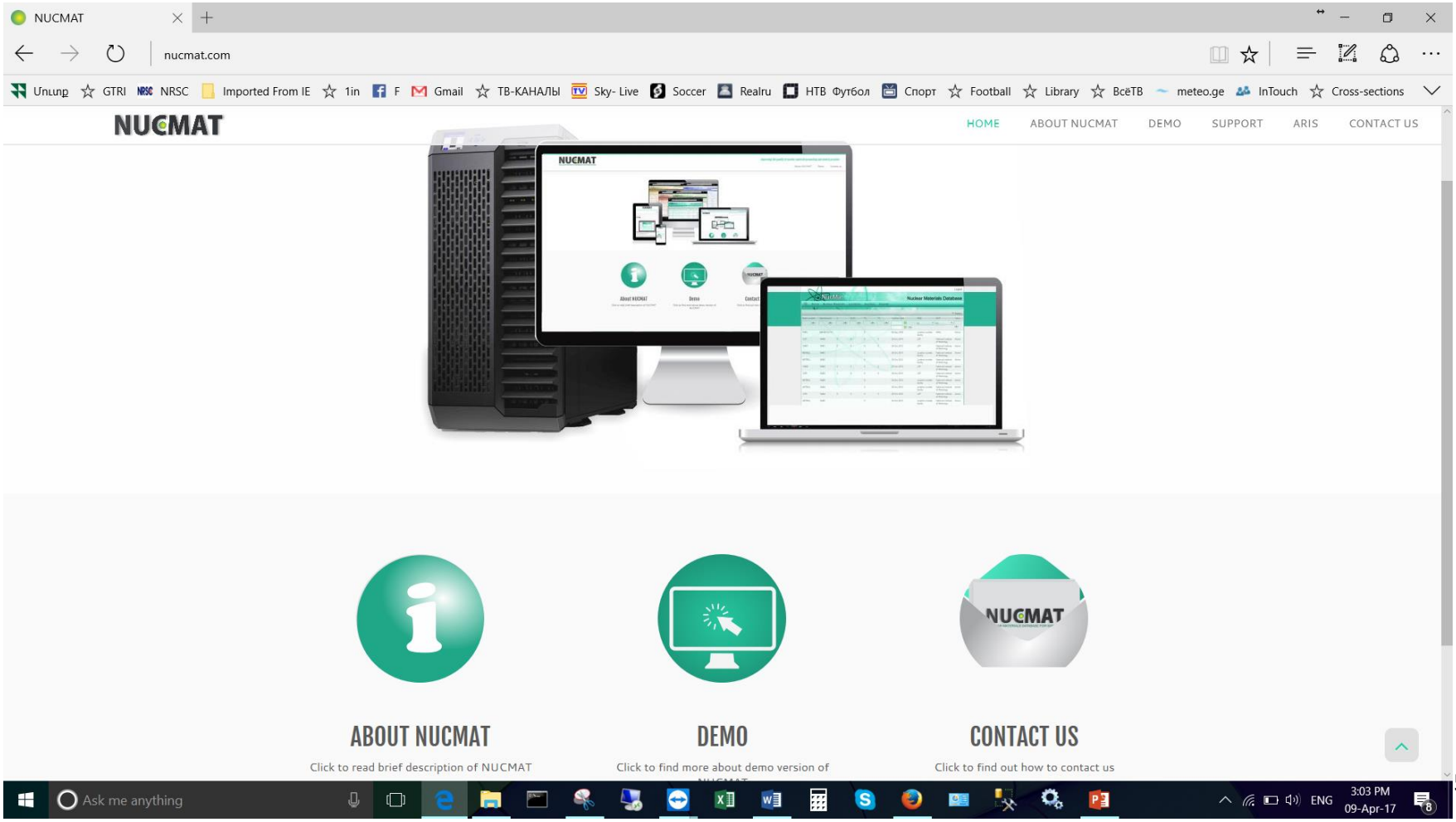

IV. Other Topics

User Support

Online help-desk through web-site



User Support

- User group of NUCMAT within US NRC Regulatory Partnership Program
- Annual User Meetings
  - Feedback/proposals from users
  - Action plan with priorities
- User trainings

Update of NUCMAT

- User initiatives
- Strategic development plan

- Release note
  - Bugs fixed
  - New features added
  - Installation
  - Requirements
  - First time installation

User Manual

NUCMAT

NUCLEAR MATERIALS DATABASE FOR SAFEGUARDS

USER MANUAL

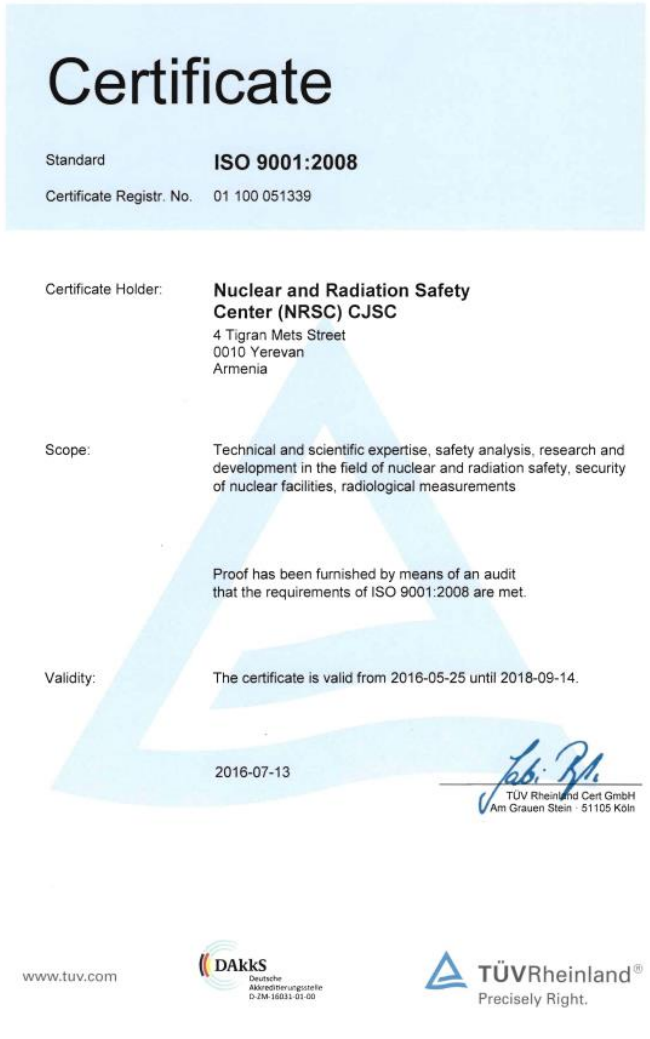
Version 3.2

Yerevan 2017

Contents

QMS system

- Process oriented QMS
- Core process
  - Development of Software Tools



Certificate

Standard ISO 9001:2008

Certificate Registr. No. 01 100 051339

Certificate Holder: Nuclear and Radiation Safety Center (NRSC) CJSC
4 Tigran Mets Street
0010 Yerevan
Armenia

Scope: Technical and scientific expertise, safety analysis, research and development in the field of nuclear and radiation safety, security of nuclear facilities, radiological measurements

Proof has been furnished by means of an audit that the requirements of ISO 9001:2008 are met.

Validity: The certificate is valid from 2016-05-25 until 2018-09-14.

2016-07-13

TÜV Rheinland Cert GmbH
Am Grauen Stein · 51105 Köln

www.tuv.com

DAkkS Deutsche Akkreditierungsstelle D-ZM-16031-01-00

TÜVRheinland®
Precisely Right.

Thank you!