

# Survey Requirements of Transport and Storage Casks Manufacturing for Interim Storage in Switzerland

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**SVTI - Swiss Association for Technical Inspections** 

**Nuclear Inspectorate** 



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#### Content

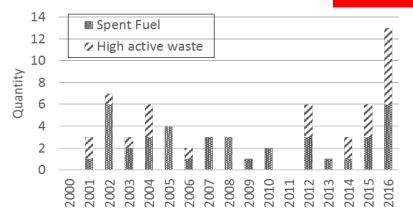


- 1. Actual Situation in Switzerland
- 2. Legitimation and Basis for SVTI Activities
- 3. Review of Manufacturing Documents
- 4. Inspections by Manufacturing and Testing
- 5. Review of QA Lifetime Records
- **6.** Aspects of SVTI-N Survey
- 7. Conclusion

#### **Actual Cask Situation in CH**



Design/Typ		Quantity
		stored + in fabrication
TN24G/GB	PWR	7+1
TN24BH/BHL	BWR	19+22
TN97L	BWR	9
TN52L	BWR	1
TN81CH	CSD-V	9+3
HAW20/28CG	CSD-V	5
HAW28M	CSD-V	2+4
Castor I-c-Diorit	spe	1
Total		53+3 <i>0</i>





#### **Legitimation – Legal Basis**





Transport- und Lagerbehälter für die Zwischenlagerung



- <u>Guideline ENSI-G05</u>: transport and storage casks for interim storage (issued 2008 replacing guideline HSK-R-52 issued 2003)
  - Package requirements for storage (e.g. aircraft crash, earthquake, temperature, dose, ciritcality, age effects)
  - Fabrication monitoring by future owner (NPP) and ENSI/SVTI including volume of fabrication documentation
  - Use and control during interim storage of the cask

#### **Legitimation – Legal Basis**





Bichtlinie für die schweizerischen Kemanlage

Ausgabe April 2008

**G05** 

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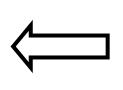
Survey of the manufacturing of the transport and storage casks for interim storage in Switzerland by a third-party organization.

### **Basis and Aim of Survey**





Storage Safety Analysis Report



Schweizerische Eidgenossenschaft Confédération suisse Confederazione Svizzera Confederaziun svizra

Approved by Swiss Authority (ENSI)

Basis for survey of qualification and manufacturing



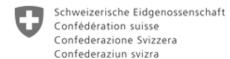
Third-party organisation

### **Basis and Aim of Survey**



# AIM:

Compliance assurance to Safety Analysis
Report of each cask
manufacturing



Approved by Swiss Authority (ENSI)



#### Basis for

Supervision Activities:

- 1) Before Manufacturing
- 2) During Manufacturing
- 3) After Manufacturing

on

### **Activities - before Manufacturing**



- Qualification of production processes (before series manufacturing)
  - → review of qualifications documents (for ex. WPQR)
  - reporting ENSI
- After successful qualification of production processes
  - review of the manufacturing documents for example:
    - quality plans for assembly, testing and manufacturing (Hold and Witness Points for mandatory inspections)
    - list of components and materials
    - drawings
    - welding specifications (WPS)
    - specifications for assembly and testing of casks, for ex.
       NDE, heat treatment, trunnions and hydrostatic tests

Manufacturer Designatio packaging Serial no.: Componer		g:					Drawing number:  Material:				urer:	nber-	- manu-	Explanations: M = manufacturer C = customer A = competent authority Entries: H = hold point W = witness point		
Con- Manufa		turing or	Applica	ins		pection by		Certification		Written proof	Confirmations		0-			
secu- tive no.		g step	documents		М	С	Α	SN EN		required	М	С	Α	Comments		Protocol no.
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Inspections by manufacturing and testing operations (spot-check concept)

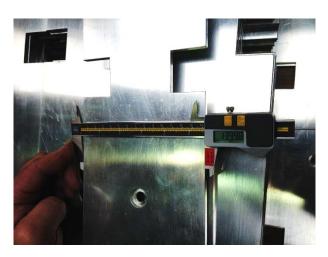


Mechanical tests (tensile, hardness and impact tests) of cask parts (related to mechanical integrity)

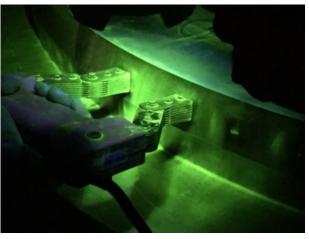


Control of the welding process of the welds with containment function





Dimensional and visual controls



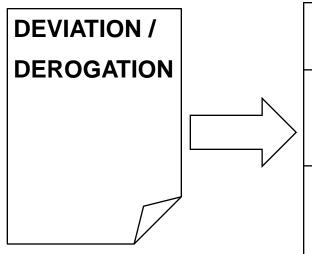
Non-destructive examinations after the heat treatment or post weld heat treatment



Resin pouring



Review of deviation reports related to detected non-conformances or required modifications (derogations)



Class 1	Non safety relevant	Only for information
Class 2	to accepted manufacturing documents	Reviewed and accepted by SVTI
Class 3	to approved Safety Analysis Report	Reviewed and approved by ENSI



→ Final inspection (each cask)







- → Hydrostatic test, Trunnions loading test, Leak tightness tests,
- Review of quality plans and final manufacturing documentation

#### **Activities - after Manufacturing**



- Review of QA Lifetime Records
  - → Review of the QA Lifetime Records at the manufacturers to check
    - → compliance with SAR
    - suitability for duplication and microfilming.



#### **Aspects of Survey**



- Product based survey
- → Each step in attended by SVTI qualified Inspector based on the requirements of our type A third-party certification.
- Each deviation and derogation is directly known and assessed.
- → Assurance of compliance to SAR of each cask

#### Conclusion



- → Each manufacturer and associated subcontractors of Transport and Storage Casks for Switzerland shall be familiar with the survey requirements of the Swiss Authorities ENSI.
- → That way, they can implement from the beginning on the measures to comply with these requirements.
- Doing so, the associated financial burden can be considered and also the delays on the delivery of the casks can be avoided.
- Because without casks for spent fuel there will be no dry storage waste management.

No cask in Switzerland is iterim stored without confirmed compliance to Safety Analysis Report by an authorized third party organisation