

# Top Ten Reasons to Buy Thick Casks

Instead of Areva and Holtec Thin Canisters

Safety Features	Thin Canisters	Thick Casks
1. Thick walls	1/2" to 5/8"	up to 20"
2. Won't crack from marine environment		✓
3. Ability to repair		✓
4. Ability to inspect exterior of the canister		✓
5. Early warning before radiation leak		✓
6. ASME quality manufacturing certification		✓
7. Damaged fuel put in special sealed container		✓
8. Stored in concrete building		✓
9. Storage System licensed in U.S.	*	*
10. Market leader	U.S.	World

**1. Thick walls:** Edison is only considering thin wall welded canisters: Areva (5/8" thick) and Holtec (1/2" thick). Thick casks are about 9" to 20" thick. The French Areva forged steel thick casks are thinner than the German ductile cast iron casks. Thick casks use double bolted sealed lids and are the leading type sold in the rest of the world.

**2. Cracks:** The thin stainless steel welded canisters may crack within 30 years due to our marine environment. The thick German seamless ductile cast iron casks do not crack in storage and are coated with a special epoxy for additional environmental protection. More information is needed about the French TN forged steel casks.

**3. Repair:** Cracks cannot be repaired in thin canisters. Cask parts can be replaced. **A fuel pool is required to replace canisters and casks. Edison wants to destroy the fuel pools with no other adequate plans in place.**

**4. Inspect:** No technology exists to inspect the exterior of thin welded canisters for cracks or other corrosion. They may have some kind of a solution in a few years, but it will be limited. No seismic rating for cracked canisters.

**5. Early warning:** Thin canisters only have temperature monitoring and periodic manual inspection of radiation levels. That's too late. Thick casks have pressure monitoring in the lid. A pressure change is an early indirect warning of potential problems in the cask. Casks also have continuous remote radiation monitoring.

**6. ASME certificate:** Thin canisters do not have ASME certification (N3-stamp) and do not meet ASME standards. ASME is the industry standard setting American Society of Mechanical Engineers. Thick casks have ASME certification, ISO 9001 and other international quality certifications.

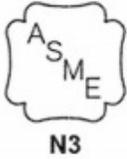
**7. Damaged fuel:** Fuel with damaged cladding is not sealed in the thin canisters. Holtec uses unsealed cans for damaged fuel. The new Areva canister does not use cans, only unsealed caps. San Onofre has 31 damaged fuel assemblies in the pools and 95 damaged fuel assemblies in thin canisters. None have addressed how to handle high burnup fuel assemblies that may degrade shortly after dry storage begins. HBF burned longer in the reactor.

**8. Concrete buildings:** The thick casks are stored in reinforced concrete buildings for additional environmental and other external hazards. The thin canisters are stored in thick concrete overpacks or casks; they provide some external protection and are the only protection from gamma and neutron radiation. The thick casks contain the gamma and neutron radiation without concrete overpacks.

**9. \*License:** New thin canister licenses are pending approval. The thick cask system vendors will not request an NRC license without a customer; the expensive licensing process takes 18 to 30 months. If Edison wants the casks, the vendor will apply for a license. The NRC has never turned down a license. Edison thinks the process may take longer, but fuel needs to cool in the pools for years. The thick casks have international storage and transport licenses and better manufacturing standards.

**10. Market leader:** The thin canisters are the market leader in the U.S. because utility companies based decisions on cost. The thick casks are the market leader in Europe and other countries because those countries will pay more for quality and safety.

**The NRC says waste may stay at San Onofre indefinitely, so we need better quality. Edison should let others bid.**



# CERTIFICATE OF AUTHORIZATION

The named company is authorized by the American Society of Mechanical Engineers (ASME) for the scope of activity shown below in accordance with the applicable rules of the ASME Boiler and Pressure Vessel Code. The use of the certification mark and the authority granted by this Certificate of Authorization are subject to the provisions of the agreement set forth in the application. Any construction stamped with this certification mark shall have been built strictly in accordance with the provisions of the ASME Boiler and Pressure Vessel Code.

COMPANY:

**Siempelkamp Nukleartechnik GmbH  
Siempelkampstrasse 45  
Krefeld 47803  
Germany**

SCOPE:

**Construction of Class TC transportation containments and Class SC storage containments at various locations certified by ASME**

AUTHORIZED: **December 21, 2012**

EXPIRES: **January 8, 2016**

CERTIFICATE NUMBER: **N-3416**

A handwritten signature in black ink, appearing to read 'Bryan A. Eiler'.

Vice President, Conformity Assessment

A handwritten signature in black ink, appearing to read 'Jaimin W. J.'.

Director, Conformity Assessment

