Waste storage alternatives exist now that meet Coastal Act requirements

Donna Gilmore
SanOnofreSafety.org
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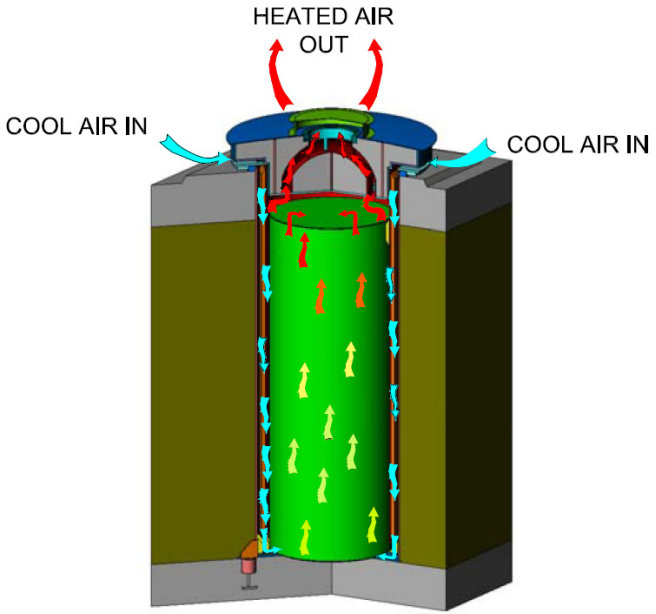
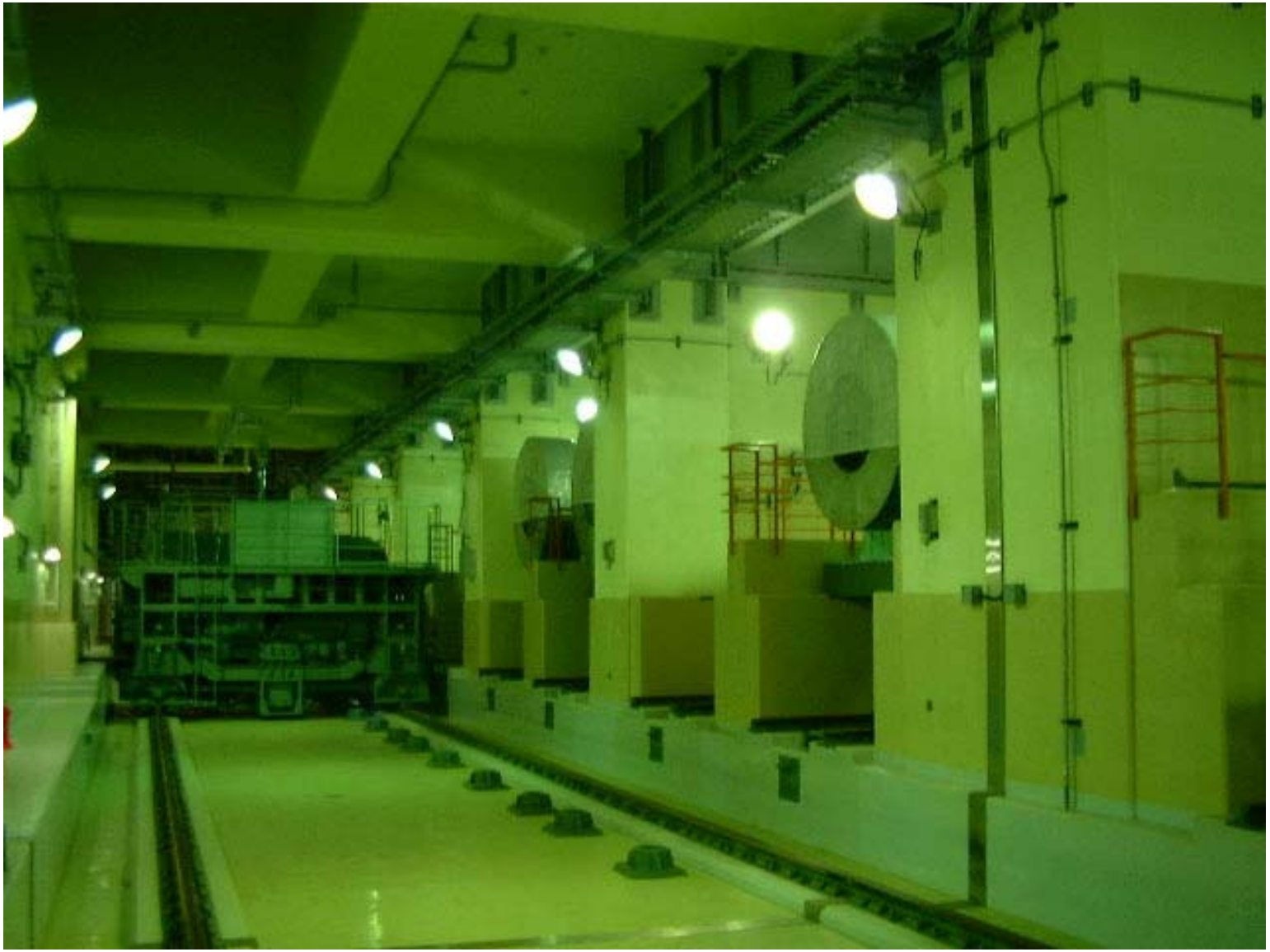
Holtec UMAX unproven



- San Onofre design not licensed
- Humboldt Bay uses thick casks
- Thin canisters can crack & leak
- Can't inspect, repair, maintain or monitor
  - Don't accept promises of future solutions -- vaporware
- Holtec president: Repairs cause corrosion
- Holtec warranty shorter than Coastal permit
  - 10 year for underground structure
  - 25 years for thin 5/8" thick canisters
  - 2 years for existing San Onofre canisters

German interim storage over 40 years

Fukushima thick casks in building

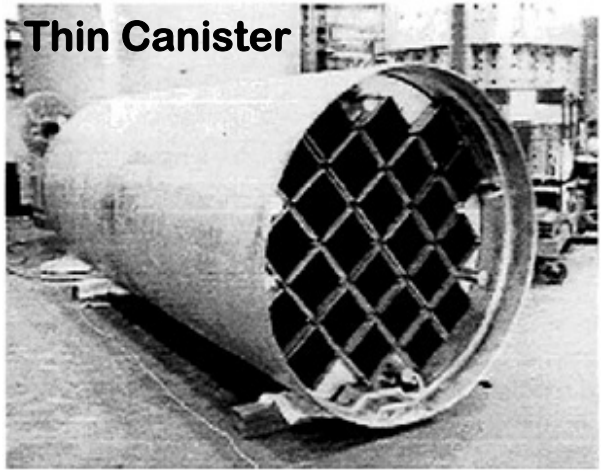


Evidence for potential leaks in coastal environment

- **Diablo Canyon proven to have conditions for cracking in two-year old canister**
- **Koeberg Nuclear Plant similar component leaked in 17 years**
- **NRC ignores aging issues in 20 year license**

Thick Casks meet Coastal Requirements

Safety Features	Thin canisters	Thick casks
Thick walls	1/2” to 5/8”	**Up to 20”**
Won’t crack		√
Ability to repair, replace seals		√
Ability to inspect		√
Early warning monitor		√
ASME **container** certification		√
Defense in depth (redundancy)		√
Stored in concrete building		√
Gamma & neutron protection	With concrete overpack	√
Transportable w/o add’l cask		√
Market leader	**U.S.**	**World**



Not addressed in CC report

	Loaded	May leak*
San Onofre	2003	8 years
Rancho Seco	2001	6 years
Humboldt Bay	2008	13 years
Diablo Canyon	2009	14 years

- **Most U.S. thin canisters in use less than 20 years****
  - Earliest: 1989 (Robinson, H.B., SC), 1990 (Oconee, SC), 1993 (Calvert Cliffs, MD)

* Assumes failure no earlier than 20 years

** Failure Modes and Effects Analysis (FMEA) of Welded Stainless Steel Canisters for Dry Cask Storage Systems, EPRI, Final Report, December 2013, Table 2-2

The TN®24 Cask Family

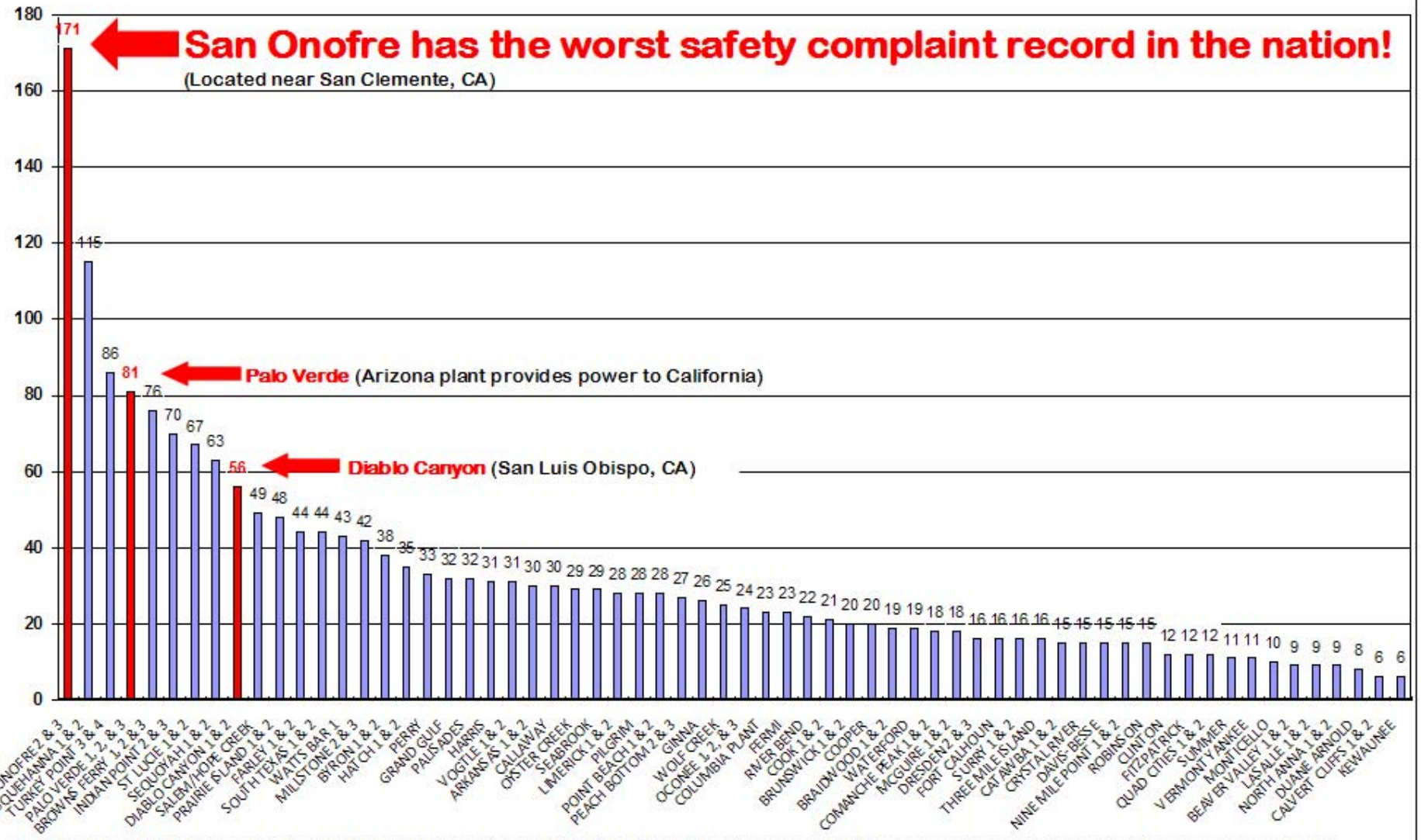
Packaging	Number of fuels	Burn-up (MWd/tU)	Cooling time (years)	Enrichment (%)	Country
TN 24 D	28 PWR	36 000	8	3.4	B
TN 24 DH	28 PWR	55 000	7	4.1	B
TN 24 XL	24 PWR	40 000	8	3.4	B
TN 24 XLH	24 PWR	55 000	7	4.3	B
TN 24 SH	37 PWR	55 000	5	4.25	B
TN 24 G	37 PWR	42 000	10	3.81	CH
TN 24 (F1*)	37 BWR	33 000	4	3.2	J
TN 24 E	21 PWR	65 000	5	4.65	G
TN 32	32 PWR	45 000	7	4.05	US
TN 40	40 PWR	45 000	10	3.85	US
TN 24 P	24 PWR	33 000	5	3.5	US
TN 52 L	52 BWR	55 000	mini 2.5	4.95	CH
TN 24 SWR	61 BWR	70 000	mini 5.5	5.0	G
TN 68	68 BWR	45 000	7	4.4	US
TN 97 L	97 BWR	35 000	10	4.0	CH
TN 24 BH	69 BWR	50 000	6	5.0	CH
TN 24 (F1*)	52 BWR	33 000	4	3.2	J
TK 69	69 BWR	40 000	10	3.2	J
TN 24 ER	32 BWR (Th)	13 700	40	5.2	I

TN INTERNATIONAL

Safety Complaints from On-Site Employees & Contractors

U.S. Nuclear Power Plants

2007 to 2012 (6 years)



The **Nuclear Regulatory Commission** (NRC) refers to these complaints as "**Allegations from On-Site Sources**" (current/former power plant employees/contractors and anonymous allegers). These are reports of impropriety or inadequacy of NRC-related safety or regulatory concerns. One allegation report may contain multiple allegations; however, the NRC counts it as one allegation in these statistics (Note: A concern about a safety-conscious work environment (SCWE) problem at a facility is an important allegation. However, a Notice of Violation cannot be issued, because there is no applicable NRC regulation.) There are 64 U.S. nuclear power plants & 104 reactors. Plants with multiple reactors are noted.

Source: www.nrc.gov/about-nrc/regulatory/allegations/statistics.htm

SanOnofreSafety.org

Donna Gilmore
SanOnofreSafety.org
dgilmore@cox.net