10 CFR §2.206 Petition re: License Renewals

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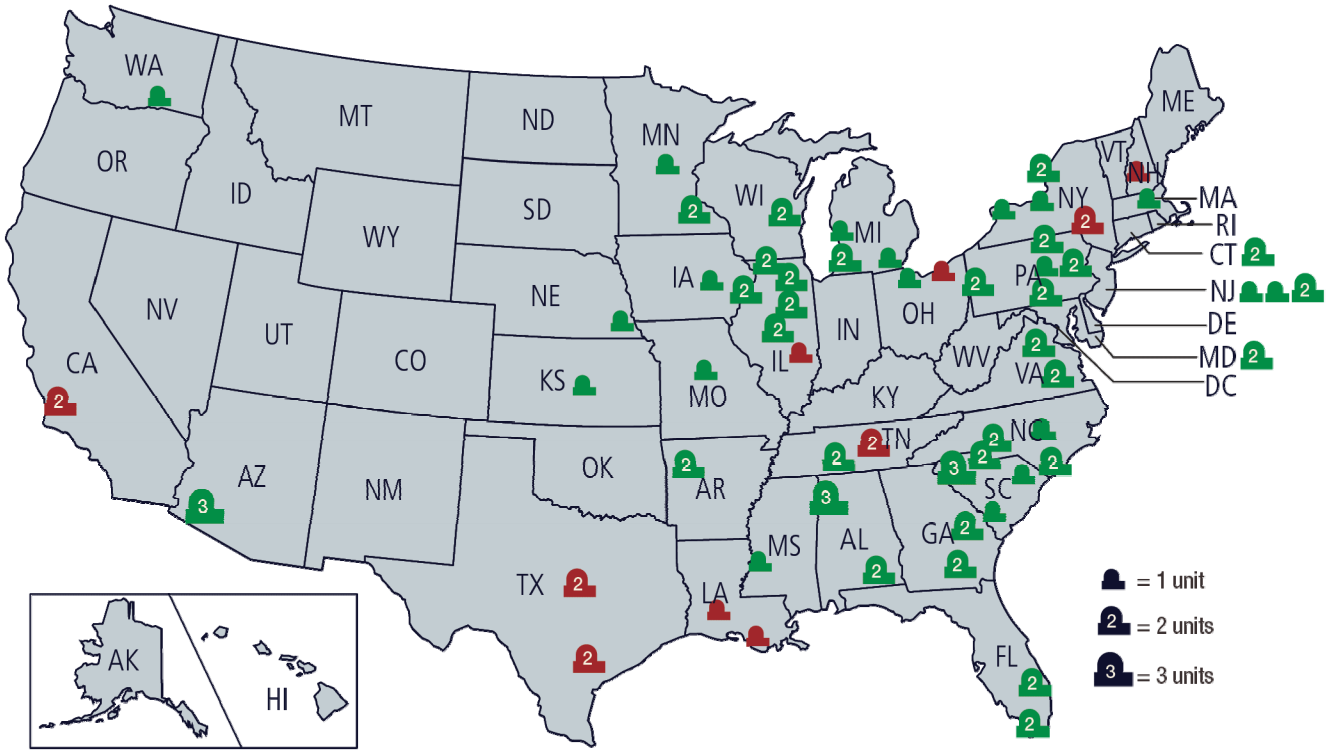
License Renewals Granted for Operating Nuclear Power Reactors



Licensed to Operate (99)

Original License (15) License Renewal Granted (84)

Note: The NRC has issued a total of 87 license renewals, three of these units have permanently shut down. Fort Calhoun nuclear power plant permanently shut down on 10/24/2016. Data is as of July 2017. For the most recent information, go to the Dataset Index Web page at *https://www.nrc.gov/reading-rm/doc-collections/datasets/*

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

Commercial Nuclear Power Reactor Operating Licenses — Expiration by Year, 2013–2055

2013 Indian Point 2 (entered renewal on September 29, 2013)
2015 Indian Point 3 (entered renewal on December 12, 2015)
2024 Diablo Canyon 1 and Waterford 3

….

2035 Watts Bar 1 (licensed 1996)
2049 Limerick 2, and Vogtle 2
2055 Watts Bar 2 (licensed 2015)

The Conowingo Dam, **opened in 1928**, is one of the largest non-federal hydroelectric dams in the U.S.

Conowingo's hydroelectric turbines are capable of generating up to **574.5 MW** of electricity.

The water behind the dam is used to cool Exelon's Peach Bottom Atomic Power Station.

Exelon operates the Conowingo Dam with a license from the Federal Energy Regulatory Comm (FERC).

Exelon's current license for the Conowingo was issued on August 14, 1980 and expired in September 2014.

FERC licenses last from 30-50 years. **Could Conowingo Dam operate until 2067?**

The nuclear safety criteria … have been established on the premise that:

a. *Those situations in the plant that are assessed as having a high frequency of occurrence shall have a small consequence to the public, and*

b. *Those extreme situations having the potential for the greatest consequence to the public shall be those having a very low frequency of occurrence.*

- ANSI/ANS-51.1-1983

Four categories, each of which is defined according to its expected frequency of occurrence.

Condition I, or Normal Operation: Operations that are expected frequently or regularly in the course of power operation, refueling, maintenance, or maneuvering of the plant **≥ 1/reactor-year**

Condition II, or Incidents of Moderate Frequency: Incidents, any one of which may occur during a calendar year for a particular plant **≥ 0/reactor-year**

Condition III, or Infrequent Incidents: Incidents, any one of which may occur during the lifetime of a particular plant **≥ 0/plant-lifetime**

Condition IV, Limiting Faults: Faults that are not expected to occur but are postulated because their consequences would include the potential for the release of significant amounts of radioactive material **= 0/plant-lifetime**

- ANSI/ANS-18.2-1973

In determining which systems are necessary to mitigate the effects of these postulated events, the classification system of ANSI-N18.2-1973 is utilized.

- Pg 15.0-13, Byron & Braidwood UFSAR, Rev 11 – Dec 2006

Thus, consistent with the philosophy and format of ANSI N18.2, the event is classified as a Condition III event. By definition "Condition III occurrences include incidents, any one of which may occur during the lifetime of a particular plant," and "shall not cause more than a small fraction of fuel elements in the reactor to be damaged...“

- Pg 15.4-13, Byron & Braidwood UFSAR, Rev 9 – Dec 2002

2. ANS-51.1/NI8.2-1973, "Nuclear Safety Criteria for the Design of Stationary Pressurized Water Reactor Plants.“

- References: Pg 15.5-8, Byron & Braidwood UFSAR, Rev 15 – Dec 2014

Frequency of Occurrence :

Condition I:	≥ 1/reactor-year	**normal operation**
Condition II:	≥ 0/reactor-year	**remedied by a shutdown**
Condition III:	≥ 0/plant-lifetime	**1/(40 yrs) > 1/(60 yrs)**
Condition IV:	= 0/plant-lifetime	**or NEVER**

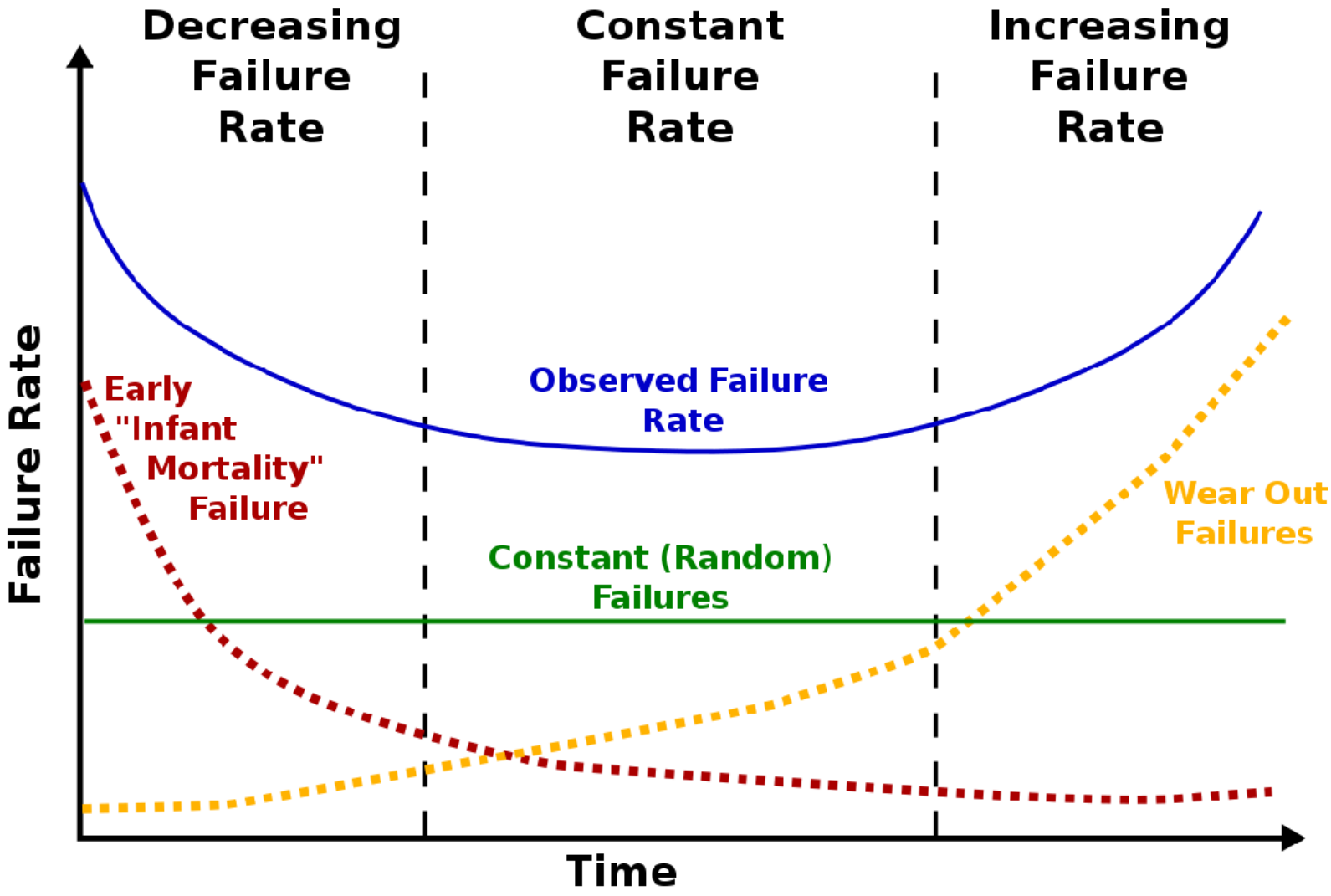
Current licensing basis (CLB) is the set of NRC requirements applicable to

a specific plant and a **licensee's written commitments** for ensuring compliance with and operation within applicable NRC requirements and

the plant-specific **design basis** (including all modifications and additions to such **commitments over the life of the license**) that are docketed and in effect.

The CLB includes the NRC regulations contained in **10 CFR** parts 2, 19, 20, 21, 26, 30, 40, **50**, 51, 54, 55, 70, 72, 73, 100 **and appendices thereto**; orders; license conditions; exemptions; and technical specifications. (General Design Criteria are in 10 CFR §50, Appendix A)

- 10 CFR §54, Requirements for Renewal of Operating Licenses for Nuclear Power Plants


Decreasing Failure Rate
Constant Failure Rate
Increasing Failure Rate
Failure Rate
Time
Observed Failure Rate
Early "Infant Mortality" Failure
Constant (Random) Failures
Wear Out Failures

10 CFR §50.92, *Issuance of amendment*.

(a) *in determining whether an amendment to a license … will be issued to the applicant, the Commission will be guided by the* ***considerations which govern the issuance of initial licenses***
……
(c) *The Commission may make a final determination … that a proposed amendment to an operating license … involves no significant hazards consideration, if operation of the facility in accordance with the proposed amendment would not:*

(1) Involve a significant increase in the probability or consequences of an accident previously evaluated; or

(2) Create the possibility of a new or different kind of accident from any accident previously evaluated; or

(3) Involve a significant reduction in a margin of safety.

Licensees must show that ---

There is no significant increase in the probability of a Condition III event over the extended plant lifetime.

There is no significant reduction in a margin of safety, due to a Condition III event occurring over the extended plant lifetime.

Since the frequency of occurrence of a Condition III event is defined in terms of plant lifetime, the lengthening of the lifetime increases the events' probability and reduces the safety margin.

Management Directive 8.11, "Review Process for 10 CFR 2.206 Petitions“

Criteria for Rejecting Petitions Under 10 CFR 2.206

The petitioner raises issues that have already been the subject of NRC staff review and evaluation either on that facility, other similar facilities, or on a generic basis, for which a resolution has been achieved, the issues have been resolved, and the resolution is applicable to the facility in question. …. These requests will not be treated as a 2.206 petition unless they present **significant new information**.

Significant Information

The CLB for currently operating plants is largely based on deterministic engineering criteria. Consequently, there is considerable logic in establishing license renewal scoping criteria that recognize the deterministic nature of a plant's licensing basis. ….

PRA will not be used to justify poor performance in aging management or to reduce regulatory or programmatic requirements

Page 22468, Federal Register, Vol. 60, No. 88, May 8, 1995

New Information

Resolutions that have been achieved will be recorded in ADAMS (before any licenses are renewed ≈ 1993). These citations are necessary to close petitions that the NRC maintains have no new information.