the Commission will, in addition to ap-
plying the standards set forth in §50.40,
consider whether the proposed activi-
ties will serve a useful purpose propor-
tionate to the quantities of special nu-
clear material or source material to be 
utilized.

[73 FR 44620, July 31, 2008]

§ 50.43. Additional standards and pro-
visions affecting class 103 licenses 
and certifications for commercial 
power.

In addition to applying the standards 
set forth in §§50.40 and 50.42, para-
graphs (a) through (e) of this section 
apply in the case of a class 103 license 
for a facility for the generation of com-
mercial power. For a design certifi-
cation under part 52 of this chapter, 
only paragraph (e) of this section ap-
plies.

(a) The NRC will:

(1) Give notice in writing of each ap-
plication to the regulatory agency or 
State as may have jurisdiction over the 
rates and services incident to the pro-
posed activity;

(2) Publish notice of the application 
in trade or news publications as it 
deems appropriate to give reasonable 
notice to municipalities, private utili-
ties, public bodies, and cooperatives 
which might have a potential interest 
in the utilization or production facility; and

(3) Publish notice of the application 
once each week for 4 consecutive weeks 
in the FEDERAL REGISTER. No license 
will be issued by the NRC prior to the 
giving of these notices and until 4 
weeks after the last notice is published 
in the FEDERAL REGISTER.

(b) If there are conflicting applica-
tions for a limited opportunity for such 
license, the Commission will give pre-
ferred consideration in the following 
order: First, to applications submitted 
by public or cooperative bodies for fa-
cilities to be located in high cost power 
areas in the United States; second, to 
applications submitted by others for 
facilities to be located in such areas; 
third, to applications submitted by 
public or cooperative bodies for facili-
ties to be located in other than high 
cost power areas; and, fourth, to all 
other applicants.

(c) The licensee who transmits elec-
tric energy in interstate commerce, or 
sells it at wholesale in interstate com-
merce, shall be subject to the regu-
latory provisions of the Federal Power 
Act.

(d) Nothing shall preclude any gov-
ernment agency, now or hereafter au-
thorized by law to engage in the pro-
duction, marketing, or distribution of 
electric energy, if otherwise qualified, 
from obtaining a construction permit 
or operating license under this part, or 
a combined license under part 52 of this 
chapter for a utilization facility for the 
primary purpose of producing electric 
energy for disposition for ultimate pub-
lic consumption.

(e) Applications for a design certifi-
cation, combined license, manufac-
turing license, or operating license 
that propose nuclear reactor designs 
which differ significantly from light-
water reactor designs that were li-
censed before 1997, or use simplified, in-
herent, passive, or other innovative 
means to accomplish their safety func-
tions, will be approved only if:

(1)(i) The performance of each safety 
feature of the design has been dem-
onstrated through either analysis, ap-
propriate test programs, experience, or 
a combination thereof;

(ii) Interdependent effects among the 
safety features of the design are ac-
ceptable, as demonstrated by analysis, 
appropriate test programs, experience, 
or a combination thereof; and

(iii) Sufficient data exist on the safe-
ty features of the design to assess the 
analytical tools used for safety anal-
yses over a sufficient range of normal 
operating conditions, transient condi-
tions, and specified accident sequences, 
including equilibrium core conditions; or

(2) There has been acceptable testing 
of a prototype plant over a sufficient 
range of normal operating conditions, 
transient conditions, and specified ac-
cident sequences, including equili-
brum core conditions. If a prototype 
plant is used to comply with the test-
ing requirements, then the NRC may 
impose additional requirements on 
siting, safety features, or operational 
conditions for the prototype plant to 
protect the public and the plant staff
§ 50.44 Combustible gas control for nuclear power reactors.

(a) Definitions—(1) Inerted atmosphere means a containment atmosphere with less than 4 percent oxygen by volume.

(2) Mixed atmosphere means that the concentration of combustible gases in any part of the containment is below a level that supports combustion or detonation that could cause loss of containment integrity.

(b) Requirements for currently-licensed reactors. Each boiling or pressurized water nuclear power reactor with an operating license on October 16, 2003, except for those facilities for which the certifications required under §50.82(a)(1) have been submitted, must comply with the following requirements, as applicable:

(1) Mixed atmosphere. All containments must have a capability for ensuring a mixed atmosphere.

(2) Combustible gas control. (i) All boiling water reactors with Mark I or Mark II type containments must have an inerted atmosphere.

(ii) All boiling water reactors with Mark III type containments and all pressurized water reactors with ice condenser containments must have the capability for controlling combustible gas generated from a metal-water reaction involving 75 percent of the fuel cladding surrounding the active fuel region (excluding the cladding surrounding the plenum volume) so that there is no loss of containment structural integrity.

(3) Equipment survivability. All boiling water reactors with Mark III containments and all pressurized water reactors with ice condenser containments that do not rely upon an inerted atmosphere inside containment to control combustible gases must be able to establish and maintain safe shutdown and containment structural integrity with systems and components capable of performing their functions during and after exposure to the environmental conditions created by the burning of hydrogen. Environmental conditions caused by local detonations of hydrogen must also be included, unless such detonations can be shown unlikely to occur. The amount of hydrogen to be considered must be equivalent to that generated from a metal-water reaction involving 75 percent of the fuel cladding surrounding the active fuel region (excluding the cladding surrounding the plenum volume).

(4) Monitoring. (i) Equipment must be provided for monitoring oxygen in containments that use an inerted atmosphere for combustible gas control. Equipment for monitoring oxygen must be functional, reliable, and capable of continuously measuring the concentration of oxygen in the containment atmosphere following a significant beyond design-basis accident for combustible gas control and accident management, including emergency planning.

(ii) Equipment must be provided for monitoring hydrogen in the containment. Equipment for monitoring hydrogen must be functional, reliable, and capable of continuously measuring the concentration of hydrogen in the containment atmosphere following a significant beyond design-basis accident for combustible gas control and accident management, including emergency planning.

(5) Analyses. Each holder of an operating license for a boiling water reactor with a Mark III type of containment or for a pressurized water reactor with an ice condenser type of containment, shall perform an analysis that:

(i) Provides an evaluation of the consequences of large amounts of hydrogen generated after the start of an accident (hydrogen resulting from the metal-water reaction of up to and including 75 percent of the fuel cladding surrounding the active fuel region, excluding the cladding surrounding the plenum volume) and include consideration of hydrogen control measures as appropriate;

(ii) Includes the period of recovery from the degraded condition;

(iii) Uses accident scenarios that are accepted by the NRC staff. These scenarios must be accompanied by sufficient supporting justification to show that they describe the behavior of the reactor system during and following an accident resulting in a degraded core.