



**The University of New Mexico**

Chemical & Nuclear Engineering  
209 Farris Engineering Center  
Albuquerque, NM 87131-1341  
Telephone (505) 277-5431  
FAX (505) 277-5433

August 24, 1995

Mr. Marvin Mendonca, Senior Project Manager  
Division of Reactor Program Management  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555-0001

Re: Docket 50-252  
TAC No. M92512

Dear Mr. Mendonca;

We are in receipt of your letter dated August 9, 1995 requesting additional information and clarification regarding the proposed changes in our technical specifications. We have reviewed the seventeen items in your letter and in response are submitting a new revision of the technical specifications with side bars (on the right of the page) indicating changes to the original tech specs approved with relicensing in 1986. In addition to the revised tech specs, there is a companion document which provides justification for each change indicated by a side bar. This is in direct response to item number 1 in your letter. For most of the remaining items in your letter, the original wording was retained and all lines were put into a consistent format.

Sincerely,

Robert D. Busch, Ph.D, P.E.  
Chief Reactor Supervisor, UNM AGN-201M Reactor

State of New Mexico  
County of Bernalillo

On this 24th day of August, 1995, Robert D. Busch  
personally appeared before me, who is personally known to me to be the signer  
of the above instrument, and he acknowledged that he executed it.

\_\_\_\_\_  
Notary Public

My commission expires 10-7-96

230067

9508290207 950824  
PDR ADOCK 05000252  
P PDR

A020  
11

Justification for revisions to the Technical Specifications for the UNM AGN-201M Reactor  
Docket No. 20-252, August 1995.

Some of the sentences in the technical specifications were rearranged and all the *musts* were replaced with *shall*s. Justifications for individual items denoted by sidebars are as follows.

1. Section 1.1.6, page 1.

The original tech specs incorrectly specified the slow insertion time as 20 to 25 seconds. Checks on the original documentation provided with the reactor in 1966 indicated the time for full insertion at slow speed was double that of the time for fast speed. Thus, section 1.1.6 was corrected to reflect a full insertion time of 80 to 100 seconds.

2. Section 2.1 - Basis, page 5 and Section 2.2 - Basis, page 6..

An average temperature rise per degree was found to be confusing and did not directly provide indication of the maximum core temperature to be expected in an accident. Thus, the core maximum delta T from the Safety Analysis Report was inserted in place of the average value.

3. Section 3.2.b, page 8.

The phrase, "as inferred from strip chart data taken at high recording speed." was removed to allow determination of the scram time from computer recorded data or other methods.

4. Section 3.2.d.4, page 8.

This sub paragraph was added as part of the changes to the trips for channels 2 and 3. The justification for all channel 2/3 changes follows their listing.

5. Section 3.2.g, page 9.

The limit on the shield water level was changed from 17.8 cm to 18 cm to better reflect the measurement ability of the water level. It was felt to be more reasonable to expect a measurement of the water level to be within plus or minus 1 cm rather than plus or minus 0.1 cm.

6. Section 3.2.h, page 9 and Section 3.2.i, page 9.

Wording was changed to indicate that an interlock should scram the reactor during operation as well as prevent reactor startup.

7. Section 3.2 - basis, page 9.

The third paragraph under basis for this section was changed to reflect the changes to the trips on the safety channels. Full discussion is included in the channel 2/3 changes below.

8. Section 3.2 - Table 3.1, page 10.

The table was revised to reflect the removal of the low power trips on channels 2 and 3 and the removal of the period trip on channel 2. The justification for these changes is discussed below.

Justification for changes 4, 7, and 8 - changes in safety channel trips:

Section 3.2 - We added a low level interlock on the safety and coarse control rods. This keeps these rods from being inserted if the power is below 50 microWatts. The new section 3.2.d.4 reads, "At any operating power below  $50 \times 10^{-6}$  Watts, none of the rods can be moved to a more reactive position." The intent of this is to allow for low power die away experiments without getting a low level trip on either of the two safety channels. This interlock is in concert with a change in Table 3.1 to the operating limits of Channels 2 and 3. We have removed the low level trips on Channels 2 and 3 replacing them with this low power interlock.

There were two original justifications for the low level trips on the safety channels. First, was to assure that there was a neutron source in the reactor for startup and that the channels were operational. This function will be taken through the pre-start check and the listing of initial neutron levels as the safety rods are inserted. The second justification was to avoid adding reactivity at low power levels where the neutron population might be too sparse and the fundamental mode not well established. This function is now handled through the low power interlock which denies the movement of any rod in a manner that would add reactivity to the reactor.

In addition to removing the low level trips from Channels 2 and 3, we have also removed the period trip from channel 2. The justification for this was that if the reactor was on a period of 5 seconds or less from whatever change in the system, it would take less than 35 seconds to increase from 1 milliWatt to 6 Watts, which is our high level trip setting. For very short periods, this time would be on the order of seconds and the trip response would be overshadowed by the high level trip setting. We believe that the period trip was an unnecessary, redundant safety function whose function is still redundantly covered through the high level trips of the two safety channels. We have also had many problems calibrating this trip and in keeping the signal to noise level high enough for routine operation.

We also removed the trip on channel 3 at 5% of the range. As most of the new meters are autoranging, the trip will be superfluous. I am not sure of the original justification of the 5% trip, but have discussed it with our RSAC and they don't see any safety issues involved with removing it.

9. Section 3.3.c, page 11 and Section 3.3 - Basis, page 11.

The doses were changed to effective dose equivalents to correspond to changes in 10 CFR 20.

10. Section 4.2 - Specification, page 14.

The items listed were re-ordered so that those requiring daily or operational surveillance were listed before those requiring annual surveillance.

11. Section 4.2.f, page 14.

The channel test of the seismic interlock has been changed from semi-annually to annually. This is to be consistent with the rest of the interlocks whose tests are performed annually. We could find no reason to separate surveillance requirements on the seismic interlock from those on the other interlocks.

12. Section 4.2.g, page 14.

With the removal of some trips for channels 2 and 3, this surveillance requirement was changed removing, "The period, count rate, and ..." phrase from the requirements. This was done since there were no longer a period meter nor was the count rate meter a safety channel.

13. Section 4.3 - Specification, page 15.

The visual inspection of the reactor for water leakage was changed from annually to prior to each startup. This made more sense as the water in the tank is a personnel shield and should be checked prior to each startup.

14. Section 5.1.e, page 17.

The last sentence was changed from, "may contain fueled or unfueled polyethylene." to "may contain polyethylene with or without fuel." It was felt that the new phrase was clearer.

15. Section 5.2, page 18.

This section was reworded to indicate that unused fuel is stored in the laboratory source room and that the source room shall be secured when not in use. A literal interpretation of the previous wording would have prevented entrance into the source room at any time.

16. Section 6.1, page 19.

Figure 1 on page 20 was changed to reflect the current organization of the university and organizational name changes.

17. Section 6.1.1, page 19 and Section 6.1.2, page 19.

These sections were reworded to make them consistent in format with the rest of the 6.1 subsections.

18. Section 6.1.2, page 19.

In May of 1995, the UNM College of Engineering changed its name to the UNM School of Engineering. This name change is reflected throughout the revised document but is flagged here as this is the first place it occurs.

19. Section 6.1.4, page 21.

The Committee on Radiological Control changed its name to the Radiation Control Committee. This name change is reflected throughout the revised document but is flagged here as this is the first place it occurs.

20. Section 6.1.5, page 21.

The Radiological Safety Officer title has been changed to Radiation Safety Officer to be in line with common practice. T This name change is reflected throughout the revised document but is flagged here as this is the first place it occurs.

21. Section 6.1.6, page 21.

To more accurately reflect its function, the name of the Reactor Safeguards Advisory Committee was changed to the Reactor Safety Advisory Committee. This name change is reflected throughout the revised document but is flagged here as this is the first place it occurs.

22. Section 6.1.9, page 22.

The sentences were changed from a negative to a positive to indicate when a Reactor Supervisor shall be present and when his or her location shall be known.

23. Section 6.1.13.a.1, page 23.

The old Technical Specifications assumed that a Reactor Operator meant any operator holding an NRC license. To make this requirement clearer, the phrase "or Reactor Supervisor" was added.

24. Section 6.1.13.a.4, page 23.

This section refers to paragraphs 1 and 2, but in the original document, it was not clear which were paragraphs 1 and 2. The revision now numbers the subsections within section 6.1.13.a to specifically identify each of the four paragraphs with a unique number. This is in direct response to item 13 in your letter of August 9, 1995.

25. Section 6.2, page 23.

The old Technical Specifications assumed that a Reactor Operator meant any operator holding an NRC license. To make this requirement clearer, the phrase "Reactor Supervisors or" was added.



26. Section 6.3, page 24.

The old tech specs had the nuclear engineering department chairman responsible for training. With the current organization of the department, there is a chair of chemical and nuclear engineering who is responsible for appointing the reactor administrator. It was felt that the reactor administrator (who may or may not be that the department chair) was closer to that the reactor operations and as such should be responsible for directing training.

27. Section 6.4.4, page 25.

That the old tech specs incorrectly identified section 6.1.5 as denoting that the authority of that the RSAC. That the revision corrects this by referring to section 6.1.6. This is in direct response to item 16 in your letter of August 9, 1995.

This completes that the justification of changes contained in that the August 1995 revision of that the UNM AGN-201M reactor technical specifications.