

## Washington Public Power Supply System

P.O. Box 968 3000 George Washington Way Richland, Washington 99352 (509) 372-5000

G02-83-237

March 15, 1983

Docket No. 50-397

Mr. R. H. Engelken  
Regional Administrator  
U.S. Nuclear Regulatory Commission  
Region V  
1450 Maria Lane, Suite 210  
Walnut Creek, California 94596

Dear Mr. Engelken:

Subject: NUCLEAR PROJECT NO. 2  
PLANT PROCEDURE PPM 13.1.1,  
"CLASSIFYING THE EMERGENCY"

The purpose of this letter is to provide an introduction to our Emergency Classification Procedure, PPM 13.1.1, "Classifying the Emergency".

With the lessons learned from the TMI-2 accident firmly in mind, the Supply System has accepted the challenge to not just meet the regulatory requirements, but to provide creative meaningful solutions to safety concerns.

With this philosophy in mind, we set about to provide an emergency classification methodology that is realistic, functional, and fully meets the intent of NUREG-0654. We reviewed the rationale for each emergency class and the many examples given. From this review, it became obvious that the examples listed in Appendix I of NUREG-0654 were events and not symptoms and, thus, could not include all safety concerns. Furthermore, we recognized that they were only examples and not requirements. Therefore, we set about to meet the intent of this new classification scheme by incorporating what we learned from the BWR Owner's Group about Emergency Operating Procedures; namely, that the use of safety parameters in a symptom-based methodology is a much more functional approach than an event-based methodology. (Refer to Supplement 1 to NUREG-0737.)

After several manmonths of analysis and the application of symptom-based Emergency Action Levels (EAL) to the problem of emergency classification, the WNP-2 Procedure PPM 13.1.1, Classifying the Emergency, has been completed and is enclosed for your review.

Unlike the examples in Appendix I to NUREG-0654, every symptomatic EAL in PPM 13.1.1 has a stated basis. (Refer to Attachment D of PPM 13.1.1.) These parameters are a result of extensive accident analysis by General Electric and the BWR Owner's Group performed after the TMI-2 accident. The culmination of this work resulted in the Emergency Procedure Guidelines which identified key parameters whose status define the level of safety of the plant regardless of the event.

Mr. R. H. Engelken

Page 2

March 15, 1983

G02-83-237

The advantages of a symptom-based methodology for accident response (i.e., Emergency Operating Procedures) became obvious and then mandatory in Supplement 1 to NUREG-0737. It also became obvious to the Supply System that this methodology should be extended to include the Safety Parameter Display System and, furthermore, the Emergency Classification. In doing so, the operations personnel will be trained to use a consistent philosophy of symptom-oriented accident response, accident analysis, and accident classification. To help amplify the benefits of this methodology, please consider the following examples.

Example 1: The plant has just experienced a loss of feedwater and the reactor water level begins to drop. As the water level falls, the reactor scrams, recirculation pumps runback, and eventually the HPCS pump starts, etc. Soon, water level is restored and the reactor is under control in a matter of minutes.

Using NUREG-0654, Appendix I, this example would require that an Unusual Event be declared based on the fact that the HPCS pump started. In analyzing the definition of an Unusual Event, the key words are "potential degradation of the level of plant safety."

Since the water level is the most fundamental safety parameter in a BWR and in this case the potential for a degraded safety state did exist, it seems to meet the definition of an Unusual Event. However, the plant is designed for such events and the potentially unsafe condition would only exist for a few moments. Since everything worked properly, what would be the purpose of declaring an Unusual Event just because the plant performed according to its design? To answer this question, we must analyze the purpose of this classification, which is as follows:

- "1. Assure that the first step in any response later found to be necessary has been carried out,
2. Bring the operating staff to a state of readiness, and
3. To provide systematic handling of unusual event information and decisionmaking."

From this analysis, it appears that declaring an Unusual Event for this situation (i.e., the plant responded as designed and the potential safety degradation was only momentary) does not satisfy the purpose and, therefore, is unwarranted.

Mr. R. H. Engelken  
Page 3  
March 15, 1983  
G02-83-237

Example 2: On the other hand, given the same feedwater transient, let's assume that the HPCS pumps came on at Level 2 as designed, but for some reason the flow rate into the vessel is well below rated and water level is being restored very slowly. As time goes on, the reactor pressure is increasing due to MSIV closure on Level 2 and a relief valve is opened and then cannot be reclosed for some reason.

Now, the potential definitely exists for a degraded level of safety. But, note that in this situation the fact that HPCS came on is not indicative of reduced safety -- it is the fact that reactor water level is not returning to normal as designed that creates the potentially unsafe condition.

Hence, the symptomatic EAL of 10 10 reactor vessel water level (Level 2) is much more appropriate than the event of HPCS initiation. Furthermore, from this example, it can be seen that even if a symptomatic EAL is met, judgment on the part of the Shift Manager and operating crew must be used in the final decision to declare an emergency.

Using PPM 13.1.1 (which is symptom-based), Example 1 would have alerted the Shift Manager to a potential Unusual Event, but since everything worked properly there is no need to declare an emergency; i.e., an EAL was met, but only momentarily, and when the condition was rectified immediately, the Shift Manager's experience and judgement (knowing the purpose of declaring an Unusual Event) would lead him to realize no emergency existed.

In Example 2, however, the situation definitely presented an Unusual Event and, using PPM 13.1.1, would lead the Shift Manager and crew to declare an Unusual Event.

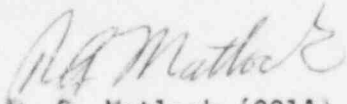
Many other examples are available to amplify the need for symptom-based, judgment-oriented Emergency Action Levels; however, we are confident that upon close examination of PPM 13.1.1 the many advantages will become self-evident.

In addition to the symptom-based Emergency Action Levels in PPM 13.1.1, it also became evident that it is virtually impossible to predefine a symptomatic initiating condition for every conceivable abnormal situation. Therefore, a second methodology was incorporated to accommodate those plant conditions which cannot be quantitatively defined. This second method uses a set of guidelines in the form of definitions and example situations. It is qualitative in nature and, thus, requires more judgment in the classification process.

Mr. R. H. Engelken  
Page 4  
March 15, 1983  
G02-83-237

With the combination of the two methodologies, we believe we have a very realistic and workable procedure that fully meets the intent of NUREG-0696.

With this introduction into our methodology, we request your prompt review of the subject procedure so that we may respond in a timely manner should you have any questions or comments.



R. B. Matlock (901A)  
Program Director, WNP-2

RGM:lp

Enclosure: PPM 13.1.1

cc: Mr. R. F. Fish  
Reactor Radiation Protection Section  
U.S. Nuclear Regulatory Commission  
Region V  
1450 Maria Lane, Suite 210  
Walnut Creek, CA 94596