examination of each type of humaninitiated process and event. The reason for this requirement is to account for the fact that each type of drilling has a distinct rate and unique properties, resulting in a different effect on the disposal system for each type of drilling. For example, oil drilling is conducted at a different depth, rate and with a different drilling technique than water drilling and is, therefore, more likely to penetrate the repository than water drilling. Accordingly, the analyses for each resource must be conducted individually.

In assessing the consequences of human-initiated processes and events, the Agency is proposing that such processes and events be assumed to occur at random intervals in time and space throughout the regulatory time frame. The consequences of each human-initiated process and event shall be calculated in terms of the projected impact on the WIPP disposal system. If more than one human-initiated process or event is predicted to occur, the consequences of any processes and events which occur subsequent to initial ones shall take into account any impacts on the disposal system from such previous disruptions. This is done to take into account the fact that every drilling event introduces potential changes to the disposal system. For example, a disposal system with manmade pathways interconnecting aguifers underlying the disposal system with ground water above the disposal system may react differently than a disposal system that has never been disturbed. In other words, the cumulative consequences of all human-initiated processes and events shall be taken into account in performance assessment

For the purpose of performance assessments, the Agency is proposing different criteria for establishing the frequency of "human intrusion" and the frequency of "human activity". While both are based on the historical record of resource exploration over the past 50 years in the Delaware Basin, an upper and lower limit is placed on the rate of human intrusion. The rate of human activity, however, is not limited to a set range.

Specifically, the rate of human intrusion is determined by first identifying and examining past occurrences of human intrusion in the Delaware Basin over the past 50 years for all resources.

The sum of the individual rates of human intrusion for each resource then becomes the rate of human intrusion to be used in performance assessments, provided that the sum is not less than

25 and not greater than 62.5 boreholes per square kilometer per 10,000 years. In the event that the calculated total rate is less than 25, then the rate of human intrusion to be used in performance assessments should be adjusted upward proportionally to yield a total rate of 25 boreholes per square kilometer per 10,000 years. Thus, if the oil drilling rate is 8 and the natural gas drilling rate is 2, both values are adjusted upward by a factor of 2.5 to yield a rate of 20 for oil and 5 for natural gas. Likewise, if the calculated total rate exceeds 62.5, then the rate of each type of human intrusion should be adjusted downward proportionally to yield a maximum rate of 62.5 boreholes per square kilometer per 10,000 years to be used in performance assessments

By placing an upper and lower limit on the rate of human intrusion, the Agency is adhering to the assumptions that the Agency made in developing the technical basis used for formulating the containment requirements of the final disposal regulations as promulgated in 1985. As part of the development of the disposal regulations, the Agency estimated the range of future human intrusion and human activity for the general case of a repository in bedded salt, the geologic setting of the WIPP. Assumptions were made about the presence near a repository of different types of resources—including oil, gas, minerals and water—though it was assumed that the most significant resources present would be oil and gas. Using drilling data from the contiguous 48 states as a rough guide, the Agency estimated that a region of bedded salt would experience 25 to 62.5 boreholes per square kilometer per 10,000 years. Because the depths at which oil and gas, the only significant resources assumed to be present, are located typically exceed 10,000 feet the estimated range applies only to the rate of human intrusion. Thus, by proposing a human intrusion range of 25 to 62.5 boreholes per square kilometer per 10,000 years, the Agency is grounding the criteria on the same basis as 40 CFR part 191. Discussion of the assumptions as developed for the 1985 final rule of 40 CFR part 191 can be found in "Technical Support of Standards for High-Level Radioactive Waste Management, Volume D" (EPA 520/4-79-007D) and "Addendum to Volumes

The Agency is proposing that, should the Department wish to forego the process of analyzing the historical rates of human intrusion events in the Delaware Basin, the Department shall assume the maximum rate of 62.5 boreholes per square kilometer per

C and D'' (EPA 520/4–79–007E).

10,000 years. The Agency is further proposing that the rate of human intrusion may be reduced in accordance with the criteria found in § 194.41, active institutional controls, and § 194.43(c), passive institutional controls. A complete discussion of reduction of the human intrusion rate can be found in the discussion of those two portions of the criteria.

For consideration of "human activity" in performance assessments, the Agency is proposing that the historical record of drilling be examined, but without placing pre-set limits on the rates. Specifically, the rate of human activity is determined by first identifying and examining past occurrences of human activity in the Delaware Basin over the past 50 years for all resources. The sum of the individual rates for each resource then becomes the rate of human activity to be used in performance assessment.

The Agency is placing no limits on the rate of human activity, in contrast to the treatment of the rate of human intrusion. This divergent treatment is consistent with the final rule of 40 CFR part 191, which was based on an estimate of 25 to 62.5 boreholes per square kilometer per 10,000 years for the general case of a repository in bedded salt in the vicinity of few resources other than oil and natural gas. Because the depths at which oil and natural gas reserves are located typically exceed 10,000 feet, the estimated range of 25 to 62.5 boreholes per square kilometer per 10,000 years applies to the case of human intrusion only. Hence, no limit, upper or lower, is placed on the rate of human activity.

The Agency recognizes that for some resources such as water, the use of that resource may depend upon the quality of the specific reservoir of that resource that is being exploited. A given reservoir of water, for example, may not be of potable quality but may still be usefully withdrawn for controlling dust. Therefore it may be possible to show that certain resources found within the controlled area differ in quality from the same resource as found in rest of the Delaware Basin. For such resources, it could potentially be demonstrated that the resource would normally be exploited for different purposes at a different rate within the controlled area, and further that there is reason to believe that such practices would continue. The Agency is proposing that if such a case can be made in compliance applications, then when examining the historical record of human activity associated with that resource, only that human activity that has been associated with resources of quality similar to that found within the