

any 12-month period. INGAA proposed changing the HCA definition to define an identified site as a building occupied by 50 or more persons at least 5 days a week, 10 weeks a year with the days and weeks not necessarily consecutive, and as an outside area that is small, well-defined and occupied by 20 or more persons at least 5 days a week, 10 weeks a year with the days and weeks not necessarily consecutive.

Industry generally shared INGAA's position that the building should be occupied by 50 or more persons at least 5 days a week 10 weeks a year and the buildings would not be limited to those containing persons of limited mobility. Both Accufacts and Cook Inlet Keeper said the threshold number of persons should be no less than what was specified in the HCA definition.

Response: When RSPA/OPS defined the number of people needed to gather in an outside area, we intended that areas, like the camping area in Carlsbad, would be covered. The number of people and the frequency of use was intended to pick up areas used for recreation on weekends. We did not open for discussion the threshold number of people needed to occupy a building with persons of limited mobility or to gather in an outside rural gathering area or building. The definition did not specify an occupancy rate for buildings with persons who would be hard to evacuate, and specified 20 persons for a rural building or outside area. Nor did we open for comment the specified frequency in an outside area (50 days in any 12-month period). We have not changed the occupancy threshold in these outside gathering areas.

However, we reopened the issue of how to treat rural buildings. In the final rule, we have modified the definition of outside gathering areas to address the rural building issue. The identified site definition in the final rule includes an outside area or open structure that is occupied by twenty (20) or more persons on at least 50 days in any twelve (12)-month period. The days need not be consecutive. Examples of these areas would be beaches, playgrounds, recreational facilities, camping grounds, outdoor theaters, stadiums, recreational areas near a body of water, or areas outside a rural building such as a religious facility where 20 or more people congregate regularly for bazaars or civic activities at least 50 days a year.

We did not change the occupancy threshold for these outside areas and open structures. A threshold of 10, as recommended by several commenters, is too low to be practical and would lose

the focus on higher consequence areas. Current regulations for protecting outdoor areas in which people congregate (*i.e.*, by designating them as Class 3 areas) use a threshold of 20 persons, and this threshold is consistent with that practice. The high consequence area definition differs from current practice in using a criterion of 50 days per year, which need not be consecutive, rather than 5 days per week and 10 weeks per year. This recognizes the patterns by which people congregate, including weekend use of outdoor areas. This frequency is intended to pick up areas similar to the camping area where the Carlsbad accident occurred, where local officials know that people gather regularly.

To further address the rural building issue, the identified site definition in the final rule has been revised to differentiate between outside open structures and rural buildings. The definition in the final rule includes buildings housing 50 or more people 5 days per week and 10 weeks per year (the days and weeks need not be consecutive). This modification is intended to pick up buildings outside populated areas where people gather during the week, or on weekends for recreational activities. Because buildings provide some protection from the effects of a pipeline accident, RSPA/OPS finds it appropriate that the threshold be based on a higher number of people and occupancy criteria consistent with current class location regulations. This will allow operators to make maximum use of the data they already have regarding buildings containing concentrations of people, and further reduce the burden of implementing this rule.

The identified site component also included buildings housing people who would be difficult to evacuate or are of limited mobility. The definition did not include an occupancy threshold for those buildings. We have not modified that component of the definition, rather we are relying on the knowledge of local emergency officials.

C-FER Model, Potential Impact Circle (PIC), Potential Impact Radius (PIR), and Potential Impact Zone (PIZ) Calculations, and Threshold Radius

Many comments related to the proposed use of the C-FER model and the various other calculation methods referenced in the NPRM. The high consequence area definition had been based on the heat affected zone from a rupture calculated using the C-FER model, with an added margin of safety—thresholds of 300 feet for small-diameter, low-pressure pipelines, and

1,000 feet for higher-pressure, larger-diameter pipelines. The NPRM further proposed to add populated areas at distances greater than 660 feet from large-diameter, high-pressure pipelines. The C-FER model used a heat flux of 5,000 Btu/hr/ft². RSPA/OPS has questioned whether a more conservative heat flux rate of 4,000 Btu/hr/ft², the heat flux rate used in the liquefied natural gas regulations (Part 193), should be used instead.

The proposed regulations also included calculations for determining the Potential Impact Radius of a covered segment, for determining the Threshold Radius associated with the Potential Impact Radius, and for identifying the Potential Impact Circle(s) and Potential Impact Zone(s) for the pipeline.

A number of commenters, such as Consolidated Edison and the Iowa Utilities Board, suggested that calculations should be based on the maximum operating pressure and not on the Maximum Allowable Operating Pressure (MAOP).

Several commenters noted that the term, "diameter," should be clarified as inside diameter, outside diameter, or nominal diameter and pressure should be clarified as gage or absolute. Consolidated Edison suggested that the PIR formula for natural gas should be simplified to $r = 0.69d\sqrt{p}$. Air Products suggested operators be allowed to rederive the C-FER model considering product, size of pipeline, and operation of emergency flow restricting devices (EFRDs).

Several commenters supported the use of the C-FER model. Williston Basin asserted the model was reliable and should be used over the full spectrum of pipeline conditions.

Northeast Gas Association, Gas Piping Technology Committee, Peoples Energy and several other commenters contended that there was no justifiable reason to impose an additional safety margin on top of the C-FER calculation. In contrast, NTSB argued that an adequate and uniform safety margin should be applied for all pipelines and noted that the farthest building burned from the Edison, NJ rupture would be within the 1,000 foot threshold. NTSB further suggested that RSPA/OPS consider the effects of horizontal jetting along the pipeline as demonstrated at the Carlsbad, New Mexico rupture site.

Panhandle Eastern, Williams, and other commenters contended that utilizing 5,000 BTUs in the equation was appropriate and there was no technical basis for utilizing 4,000 BTUs. The State of New York alleged that 5,000 BTUs is too high and the value should be an appropriate value to