NOTE: If there is potential for equipment to be over pressurized, establish relief valve set pressure to prevent system pressure from exceeding:

- The maximum allowable pressure of the lowest rated component in the test boundary
- The maximum allowable seat or backseat pressure for boundary valves
- The maximum allowable pressures established by the applicable code or project specification.

5.3.8 The RS shall[19] address and resolve the following during preparation for pressure testing:

- Receive and review the Construction Work Package for Pressure Testing
- Assess, coordinate, and resolve impacts on scheduling and/or access to surrounding work
- Control and ascertain the installation of temporary devices and materials required to assure the readiness of the system to be tested

5.3.9 For pneumatic pressure tests, safety boundaries are determined from Appendix 6. When test parameters are greater than those provided in Appendix 6, use the calculation below and Table 2 to determine the safety boundary. The RFE enters test pressure, free air volume, and stored energy onto the Pressure Test Data Sheet (Appendix 2). The Stored Energy Calculation Sheet to be included with the Pressure Test Report. The stored energy equation is:

$$SE = 2.5 \cdot V \cdot [144 \cdot (P + 14.7)] \cdot \left[1 - \left(\frac{14.7}{P + 14.7}\right)^{0.286}\right]$$

Where:

SE = stored energy in foot pounds force (ft-lb_f)

V = test boundary free air volume in cubic feet (ft^3) (inside pipe diameter area in ft^2 multiplied by linear ft of pipe = ft^3)

P = test gauge pressure in psi

NOTE: Ensure the inside pipe diameter area is in square feet.

- Second Review of calculation is confirmed via signature on pressure test record

5.3.10 Table 2: Limited Access/Safety Boundary

Table 2: Limited Access/Safety Boundary

Stored Energy	Limited Access/Safety Boundary
Less than 9,588,801 ft-lb_f	50 ft
9,588,801 ft-lb_f to 25,078,400 ft-lb_f	100 ft
25,078,401 ft-lb_f to 199,152,000 ft-lb_f	300 ft
Greater than 199,152,000 ft-lb_f	660 ft

Appendix 6 Pneumatic Pressure Test Boundaries

Pressure (psi) \ Pipe Diameter	0.25"	0.375"	0.5"	0.75"	1"	1.25"	1.5"	2"	2.5"	3"	3.5"	4"	5"	6"	8"	10"	12"	14"	16"	18"
5	0	0	0	0	0	0	0	0	0	10	10	10	10	10	25	25	25	25	25	25
10	0	0	0	0	0	0	0	10	10	10	10	10	25	25	25	25	25	25		
15	0	0	0	0	0	0	10	10	10	10	10	25	25	25	25	25				
20	0	0	0	0	0	10	10	10	10	10	25	25	25	25	25	25				
25	0	0	0	0	0	10	10	10	10	25	25	25	25	25	25					
30	0	0	0	0	10	10	10	10	10	25	25	25	25	25	25					
35	0	0	0	0	10	10	10	10	25	25	25	25	25	25						
40	0	0	0	0	10	10	10	10	25	25	25	25	25	25						
45	0	0	0	10	10	10	10	10	25	25	25	25	25	25						
50	0	0	0	10	10	10	10	25	25	25	25	25	25	25						
55	0	0	0	10	10	10	10	25	25	25	25	25	25	25						
60	0	0	0	10	10	10	10	25	25	25	25	25	25							
65	0	0	10	10	10	10	10	25	25	25	25	25	25							
70	0	0	10	10	10	10	10	25	25	25	25	25	25							
75	0	0	10	10	10	10	25	25	25	25	25	25	25							
80	0	0	10	10	10	10	25	25	25	25	25	25	25							
85	0	0	10	10	10	10	25	25	25	25	25	25	25							
90	0	0	10	10	10	10	25	25	25	25	25	25								
95	0	10	10	10	10	10	25	25	25	25	25	25								
100	0	10	10	10	10	25	25	25	25	25	25	25								
105	0	10	10	10	10	25	25	25	25	25	25	25								
110	0	10	10	10	10	25	25	25	25	25	25	25								
115	0	10	10	10	10	25	25	25	25	25	25	25								
120	0	10	10	10	10	25	25	25	25	25	25	25								
125	0	10	10	10	10	25	25	25	25	25	25	25								
130	0	10	10	10	10	25	25	25	25	25	25	25								
135	0	10	10	10	10	25	25	25	25	25	25									
140	0	10	10	10	10	25	25	25	25	25	25									
145	0	10	10	10	10	25	25	25	25	25	25									
150	0	10	10	10	10	25	25	25	25	25	25									
155	10	10	10	10	10	25	25	25	25	25	25									
160	10	10	10	10	25	25	25	25	25	25	25									
165	10	10	10	10	25	25	25	25	25	25	25									
170	10	10	10	10	25	25	25	25	25	25										
175	10	10	10	10	25	25	25	25	25	25										
180	10	10	10	10	25	25	25	25	25	25										
185	10	10	10	10	25	25	25	25	25	25										
190	10	10	10	10	25	25	25	25	25	25										
195	10	10	10	10	25	25	25	25	25	25										
200	10	10	10	10	25	25	25	25	25	25										
225	10	10	10	10	25	25	25	25	25											
250	10	10	10	25	25	25	25	25	25											
275	10	10	10	25	25	25	25	25	25											
300	10	10	10	25	25	25	25	25	25											
350	10	10	10	25	25	25	25	25												
400	10	10	25	25	25	25	25	25												
450	10	10	25	25	25	25	25	25												
500	10	10	25	25	25	25	25													

1- Select the largest diameter pipe in the test using the top row.
2- Select the test pressure using the left column.
3- Determine the intersection of the two values using the table and this will reveal the safety boundary.
For example a 2" diameter pipe at 100 psi will have a safety boundary of 25'.
4- All pneumatic pressure test boundaries are in feet.