

## iPRSM Applications / Scenarios

When evaluating the pressure relief requirements for a facility, it is important to examine all possible means by which a pressure relief requirement may arise. All applicable scenarios for a protected system should be evaluated and calculated. For many systems, one scenario will require the largest orifice area, while another has the highest associated inlet pressure drop, and a third scenario has the highest associated outlet pressure drop. The ability to automatically calculate multiple applicable scenarios is one of the primary advantages of iPRSM over spreadsheet based calculation tools.



































The following are the standard scenarios that can be automatically loaded into a Protected System in iPRSM. For further information on overpressure scenarios, please consult the API 521 guidance document.

- Blocked outlet
- Inadvertent valve opening
- Check-valve failure
- Cooling failure
- Reflux failure
- Loss of absorbent, quench, or cold feed
- Automatic control failure
- Abnormal heat or vapor input
- Entrance of highly volatile material
- Exchanger tube rupture
- Chemical reaction
- Thermal expansion
- Fire
- Instrument air failure
- Power failure
- Other utility failure
- Other

Users are not limited to the above scenarios and may define alternative scenarios for their facilities within iPRSM.

Protected System | body shop, 77598 - Go... | Convert | Sele

Contingency Scenarios

|    | OVP Type - Extension / Hazard Type - Flow Type | Required Area or Flow | Inlet Drop / Back Press. | Apply / Vibr'n Ok        | Status |   |
|----|--|-----------------------|--------------------------|--------------------------|--------|---|
| 1  | Blocked Outlet                                 |                       |                          | <input type="checkbox"/> |        |       |
| 2  | Inadvertent Valve Opening                      |                       |                          | <input type="checkbox"/> |        |       |
| 3  | Check Valve Failure                            |                       |                          | <input type="checkbox"/> |        |       |
| 4  | Cooling Failure                                |                       |                          | <input type="checkbox"/> |        |       |
| 5  | Reflux Failure                                 |                       |                          | <input type="checkbox"/> |        |       |
| 6  | Loss of Absorbent, Quench, or Cold Feed        |                       |                          | <input type="checkbox"/> |        |       |
| 7  | Automatic Control Failure                      |                       |                          | <input type="checkbox"/> |        |       |
| 8  | Abnormal Heat or Vapor Input                   |                       |                          | <input type="checkbox"/> |        |       |
| 9  | Entrance of Highly Volatile Material           |                       |                          | <input type="checkbox"/> |        |       |
| 10 | Exchanger Tube Rupture                         |                       |                          | <input type="checkbox"/> |        |       |
| 11 | Chemical Reaction                              |                       |                          | <input type="checkbox"/> |        |       |
| 12 | Thermal Expansion                              |                       |                          | <input type="checkbox"/> |        |       |
| 13 | Fire   |                       |                          | <input type="checkbox"/> |        |       |
| 14 | Instrument Air Failure                         |                       |                          | <input type="checkbox"/> |        |       |
| 15 | Power Failure                                  |                       |                          | <input type="checkbox"/> |        |     |
| 16 | Other Utility Failure                          |                       |                          | <input type="checkbox"/> |        |   |
| 17 | Other  |                       |                          | <input type="checkbox"/> |        |   |

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