Single valve isolation method shall be defined based on:

1. Operating pressure, fluid type, and Valve type as the main criteria. Table 1: Minimum valve isolation method requirements shall be used as the decision tool for designing an isolation.
2. Volumes and temperature of the fluid to be isolated.
3. Non-Hazardous fluid and utilities.
4. Isolation Flowchart (Page 3).

Table 1: Minimum valve isolation method requirements:

Fluid Type	Design Pressure (Maximum Allowable Working Operating Pressure)	
	0 psig to 725 psi	726 psi and above
Process fluids and hazardous utilities	V = SVI	V = DBB MOC Required for SVI
Non-hazardous fluids and utilities	V = SVI	V = SVI MOC Required for SVI

DBB	Double Block and Bleed	PSI	Pounds per square inch
V	Valving required	SVI	Single Valve Isolation

Process fluids and hazardous fluid	Non-hazardous utilities/fluids are:
Flash point less than 100.4 degrees F Corrosive, and toxic or irritant chemicals Toxic to humans and/or the environment Lube oil, steam, or hot water NORM Crude oil and condensate/ Natural gas liquids Single valve isolation where the valve has a history of leakage Nitrogen Drill mud Diesel oil, aviation turbine kerosene Gas (e.g., methane, H2S, etc.) Fluid containing hydrocarbon gas/ Process fluids Non processed heated water	Air Potable water Untreated seawater Cold Water Fresh Water Cooling Water

Note: An isolation method that cannot meet the isolation requirements in Table 1 is classed as ***non-conformant***, and an MOC must be obtained to work behind single isolation.

Single valve isolation requirements
1. Any valve used for SVI shall provide a reliable seal and have proven integrity. If the valve used for SVI fails the integrity test or the valve integrity cannot be verified, the valve shall not be used as an isolation point.
2. Verify valve is rated as per (P&IDs), operating pressure, and or temperature and application.
3. Non return valves and valves used for flow control valves shall not be used.
4. Preferred Valve types for single isolation is gate or ball type.

Valves not to be used
1. Check valves shall not be used for isolations.
2. Globe valves shall not be used for isolations.
3. PSV valves shall not be used for isolations.
4. Fail open or fail closed valves shall not be used for isolations.

The following hazards shall be considered
1. Type of fluid (e.g. hazardous, non-hazardous) and operating conditions (pressure, temperatures).
2. Fluid toxicity.
3. Potential for escalation if the valve integrity fails.
4. Simultaneous operations.

General isolation requirements
1. All relevant drawings including Piping and Instrumentation Diagrams (P&IDs), electrical single-line drawings, electrical schematics and instrument drawings shall be verified for accuracy.
2. Drawings shall be marked up to show each isolation point and a unique identification number.
3. The isolation points on the drawings should be color coded to denote the isolation type.
4. All drawings used for isolations shall be current and prepared to provide sufficient detail to accuracy and clearly indicate how the system is going to be isolated.

Isolations Safeguards
1. Gas test at intervals on hazardous utilities.
2. Pressure build-up test (i.e., checking for a leaky valve prior to starting work).
3. Regular monitoring of isolation.
4. Announce breaking containment to notify every one of potential hazards (Radio, PA, etc.).
5. Development of contingency plan against leakage.
6. Identification of back-up isolation valves, shutdown system, etc.
7. Portable firefighting kit available/ Firewatch /standby.

Note: Follow IHE Policy for additional information on isolation safeguards.

Isolation Flow Chart

THE HIGHEST STANDARD OF ISOLATION WILL BE APPLIED IN EVERY CASE. POSITIVE ISOLATION MUST ALWAYS BE CONSIDERED WHEN PLANNING MAINTENANCE WORK. CONFINED SPACE AND HOTWORK CONNECTED TO A HYDROCARBON CONTAINING VESSEL OR EQUIPMENT – MUST HAVE POSITIVE ISOLATION IN PLACE. REFER TO THE GIS IHE POLICY FOR ADDITIONAL INFORMATION ON ISOLATION OF HAZARDOUS ENERGY.
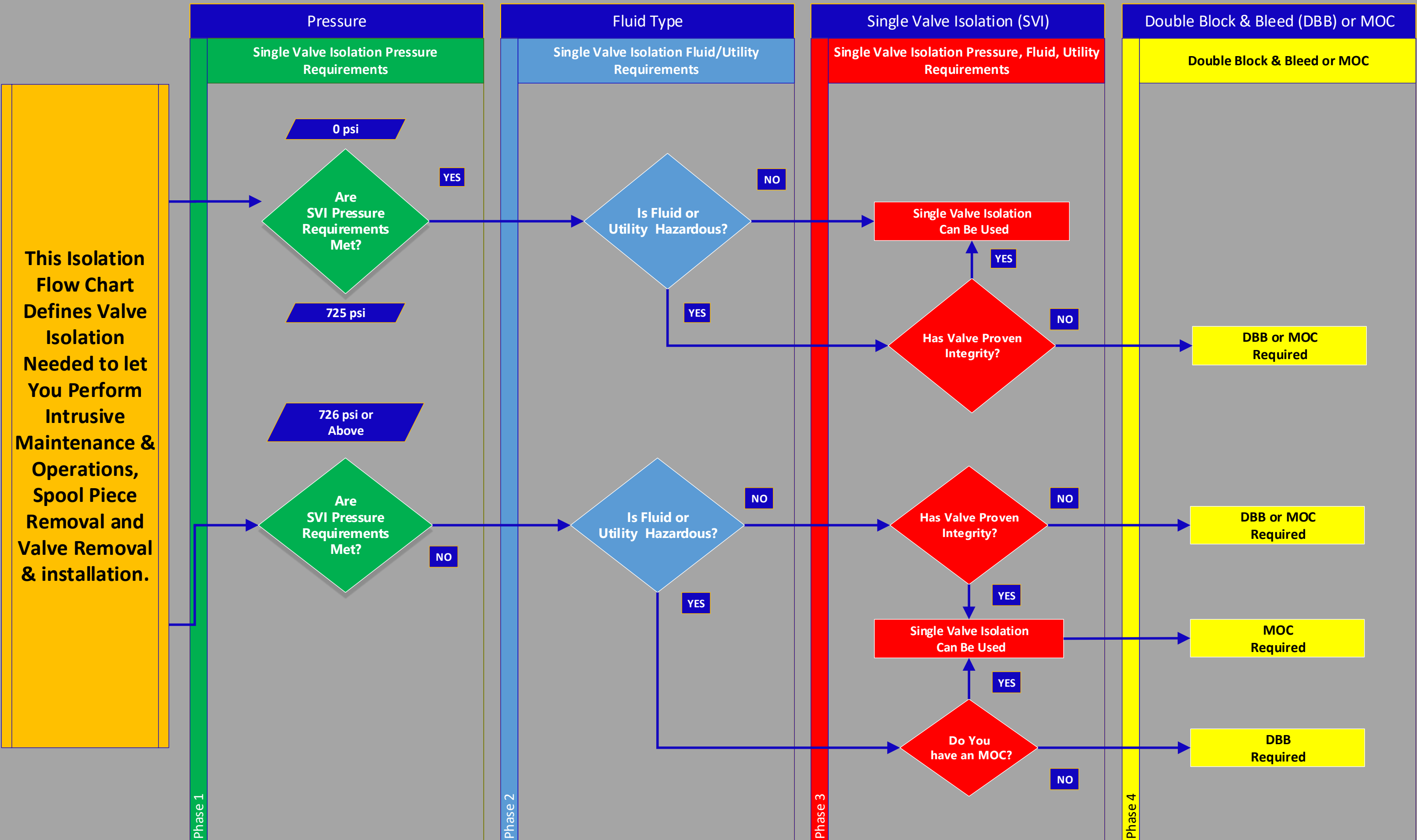
This Isolation Flow Chart Defines Valve Isolation Needed to let You Perform Intrusive Maintenance & Operations, Spool Piece Removal and Valve Removal & installation.

Phase 1 — Pressure

Single Valve Isolation Pressure Requirements

- 0 psi
- Are SVI Pressure Requirements Met? — YES
- 725 psi
- 726 psi or Above
- Are SVI Pressure Requirements Met? — NO

Phase 2 — Fluid Type

Single Valve Isolation Fluid/Utility Requirements

- Is Fluid or Utility Hazardous? — NO / YES
- Is Fluid or Utility Hazardous? — NO / YES

Phase 3 — Single Valve Isolation (SVI)

Single Valve Isolation Pressure, Fluid, Utility Requirements

- Single Valve Isolation Can Be Used
- Has Valve Proven Integrity? — YES / NO
- Has Valve Proven Integrity? — NO / YES
- Single Valve Isolation Can Be Used
- Do You have an MOC? — YES / NO

Phase 4 — Double Block & Bleed (DBB) or MOC

Double Block & Bleed or MOC

- DBB or MOC Required
- DBB or MOC Required
- MOC Required
- DBB Required

Revised
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