

# Discharge Report

**Workspace: 72341-1RiempimFSRU**

**Study: Riempimento FSRU-ME4-Water**

**Equipment Item: 1R Manichette GNL riempimento FSRU**

72341-1RiempimFSRU\Riempimento FSRU-ME4-Water\1R Manichette GNL  
riempimento FSRU

| Material | GAS NATURALE |   |
|----------|--------------|---|
| East     | 0            | m |
| North    | 0            | m |

## Scenario (Leak) : 60mm

72341-1RiempimFSRU\Riempimento FSRU-ME4-Water\1R Manichette GNL  
riempimento FSRU\60mm

**Weather: Category 2/F**

### INPUT DATA

#### Inventory data

|                |         |    |
|----------------|---------|----|
| Mass in vessel | 873,047 | kg |
|----------------|---------|----|

#### Stagnation Data (upstream end for long pipe)

|                          |                      |      |
|--------------------------|----------------------|------|
| Initial pressure (gauge) | 5                    | bar  |
| Initial temperature      | -160                 | degC |
| Fluid state              | Non-saturated liquid |      |

#### Scenario data

|                       |        |          |
|-----------------------|--------|----------|
| Phase to be released  | Liquid |          |
| Tank head             | 0      | m        |
| Hole diameter         | 60     | mm       |
| Discharge coefficient | 0,62   | fraction |

### OUTPUT DATA

|                  |         |      |
|------------------|---------|------|
| Mass flow rate   | 36,6419 | kg/s |
| Release duration | 23,8264 | s    |

### Orifice or pipe exit data (before atmospheric expansion)

|  |          |          |
|--|----------|----------|
| Pressure   | 1,01325  | bar      |
| Temperature  | -160,133 | degC     |
| Liquid mass fraction                                   | <b>1</b> | fraction |
| Velocity at vena contracta (at exit for pipe releases) | 47,8618  | m/s      |
| Discharge coefficient                                  | 0,62     |          |

### Final Data (after atmospheric expansion)

|                      |                  |          |
|----------------------|------------------|----------|
| Temperature          | -160,955         | degC     |
| Liquid mass fraction | 0,99454          | fraction |
| Droplet diameter     | 318,425          | um       |
| Expanded diameter    | <b>0,0707001</b> | m        |
| Velocity             | 47,8618          | m/s      |

## Weather: Category 5/D

### INPUT DATA

#### Inventory data

|                |         |    |
|----------------|---------|----|
| Mass in vessel | 873,047 | kg |
|----------------|---------|----|

#### Stagnation Data (upstream end for long pipe)

|                          |                      |      |
|--------------------------|----------------------|------|
| Initial pressure (gauge) | 5                    | bar  |
| Initial temperature      | -160                 | degC |
| Fluid state              | Non-saturated liquid |      |

#### Scenario data

|                       |        |          |
|-----------------------|--------|----------|
| Phase to be released  | Liquid |          |
| Tank head             | 0      | m        |
| Hole diameter         | 60     | mm       |
| Discharge coefficient | 0,62   | fraction |

### OUTPUT DATA

|                  |         |      |
|------------------|---------|------|
| Mass flow rate   | 36,6419 | kg/s |
| Release duration | 23,8264 | s    |

#### Orifice or pipe exit data (before atmospheric expansion)

|  |          |          |
|--|----------|----------|
| Pressure   | 1,01325  | bar      |
| Temperature  | -160,133 | degC     |
| Liquid mass fraction                                   | 1        | fraction |
| Velocity at vena contracta (at exit for pipe releases) | 47,8618  | m/s      |
| Discharge coefficient                                  | 0,62     |          |

#### Final Data (after atmospheric expansion)

|                      |           |          |
|----------------------|-----------|----------|
| Temperature          | -160,955  | degC     |
| Liquid mass fraction | 0,99454   | fraction |
| Droplet diameter     | 318,425   | um       |
| Expanded diameter    | 0,0707001 | m        |



|          |         |     |
|----------|---------|-----|
| Velocity | 47,8618 | m/s |
|----------|---------|-----|

