**Use Case Specification – System Login**

Use Case ID: *001*

Use Case Name: *System Login*

Relevant Requirements: \* *SRS Document.docx*

Primary Actor: *Operator or Any User*

Pre-conditions: *1.User wants to get into the System.*

Post-conditions: 1. *User has been granted access to the system.*

Basic Flow or Main Scenario:   
User with the valid operator account credentials.

1. *User provides valid credentials.*
2. *System responds by allowing login but denying pump control or system logs.*

*User with supervisor account credentials:*

1. *User provides valid supervisor account credentials.*
2. *System responds by allowing login and Supervisor level controls and buttons.*

Extensions or Alternate Flows:

None

Exceptions:

*User with invalid credentials:*

1. *User tries to login with invalid credentials.*
2. *System Rejects the login*

Related Use Cases: 002,003,004

**Use Case Specification – Start Water Pump**

Use Case ID: *001*

Use Case Name: *Start Water Pump*

Relevant Requirements: \* *SRS document.docx*

Primary Actor: *Operator, Water Level Detection System*

Pre-conditions: *1. Water should hit certain maximum threshold levels.  
 2. Operator manually initiates the starting of the water pump.*

Post-conditions: 1. The system logs the operational time.

2. Checks for minimum threshold of water level.  
 *3. Supervisor can turn off the pump even though the water level is above or below the action threshold.*

Basic Flow or Main Scenario:   
1. Water level sensor sends the level of water.

2a. Water Pump Starts if water level is maximum.  
3a. Water pump stops when water reaches below the minimum threshold.

Extensions or Alternate Flows:

2b. Operator initiates the water pump start action.

3b. Operator can stop the water pump at any time.

Exceptions:

1. Water level sensor out of order, log error message.
2. Water Pump out of order, log error message.
3. Computer failure, log error message of failure.

Related Use Cases:

001, 002, 003

**Use Case Specification – Stop Water Pump**

Use Case ID: *003*

Use Case Name: *Stop Water Pump*

Relevant Requirements: \* *SRS document.docx*

Primary Actor: *Operator, Water Level Detection System, Methane sensor*

Pre-conditions: *1. Water should hit certain minimum threshold levels.  
 2. Operator manually initiates the stop of the water pump.*

Post-conditions: 1. The system logs the operational time.

2. Checks for minimum threshold of water level.  
 *3. Supervisor can turn off the pump even though the water level is above or below the action threshold.*

Basic Flow or Main Scenario:   
1. Water level sensor sends the level of water.

2a. Water Pump Stops if water level is at minimum.

Extensions or Alternate Flows:

2b. Operator initiates the water pump stop action at any time.

Exceptions:

1. Water level sensor out of order, log error message.
2. Water Pump out of order, log error message.
3. Computer failure, log error message of failure.

Related Use Cases:

001, 002, 005

**Use Case Specification – Log Access by Supervisor**

Use Case ID: *004*

Use Case Name: *Log access by Supervisor*

Relevant Requirements: \* *SRS document.docx*

Primary Actor: *Supervisor*

Pre-conditions: *1. Users should have supervisor- level permission.*

Post-conditions: 1. Full access to the system logs.

Basic Flow or Main Scenario:

1. User queries the system log.
2. System responds by providing all the log data.

Extensions or Alternate Flows:

None

Exceptions:

None

Related Use Cases:

001

**Use Case Specification – Trigger Methane Alarm**

Use Case ID: *005*

Use Case Name: *Trigger Methane Alarm*

Relevant Requirements: \* *SRS document.docx*

Primary Actor: *Methane Level Detection System*

Pre-conditions: *1. Methane level should hit certain threshold levels.*

Post-conditions: 1. The system logs the operational time.

2. Checks for the minimum threshold of methane level.

3.Supervisor can deactivate the alarm even if the methane level is above or below the action threshold.

Basic Flow or Main Scenario:   
1. Methane sensor detects methane levels.

2a. Alarm is triggered if methane level surpasses the defined threshold.

3a. Supervisor can deactivate the alarm.

Extensions or Alternate Flows:

2b. Operator initiates the deactivation of the alarm.

3b. Operator can stop the alarm at any time.

Exceptions:

1. Methane sensor malfunction; log an error message.
2. Alarm system failure; log an error message.
3. Computer failure; log an error message.

Related Use Cases:

001, 002, 003