

Under the Patronage of His Excellency **Eng. Abdulrahman bin Abdulmohsen AlFadley**  
Minister of Environment, Water & Agriculture

# منتدى المياه السعودي

saudi water forum **SWF 2024**



## WATER CYCLE WORKSHOP

### PART 2



29 April - 01 May 2024



Hilton Riyadh Hotel & Residences  
Riyadh, Saudi Arabia

Organized by

وزارة البيئة والمياه والزراعة  
Ministry of Environment Water & Agriculture



المؤسسة العامة لتحلية المياه المالحة  
Saline Water Conversion Corporation (SWCC)



شركة المياه الوطنية  
National Water Company



الشركة السعودية لشركيات المياه  
Saudi Water Partnership Company



المؤسسة العامة للتقني  
National Water Research and Technology Institute



منظم المياه  
Water Regulator



المركز الوطني لكفاءة وترشيد المياه  
NATIONAL WATER EFFICIENCY AND CONSERVATION CENTER  
NAECC



Organizing Partners

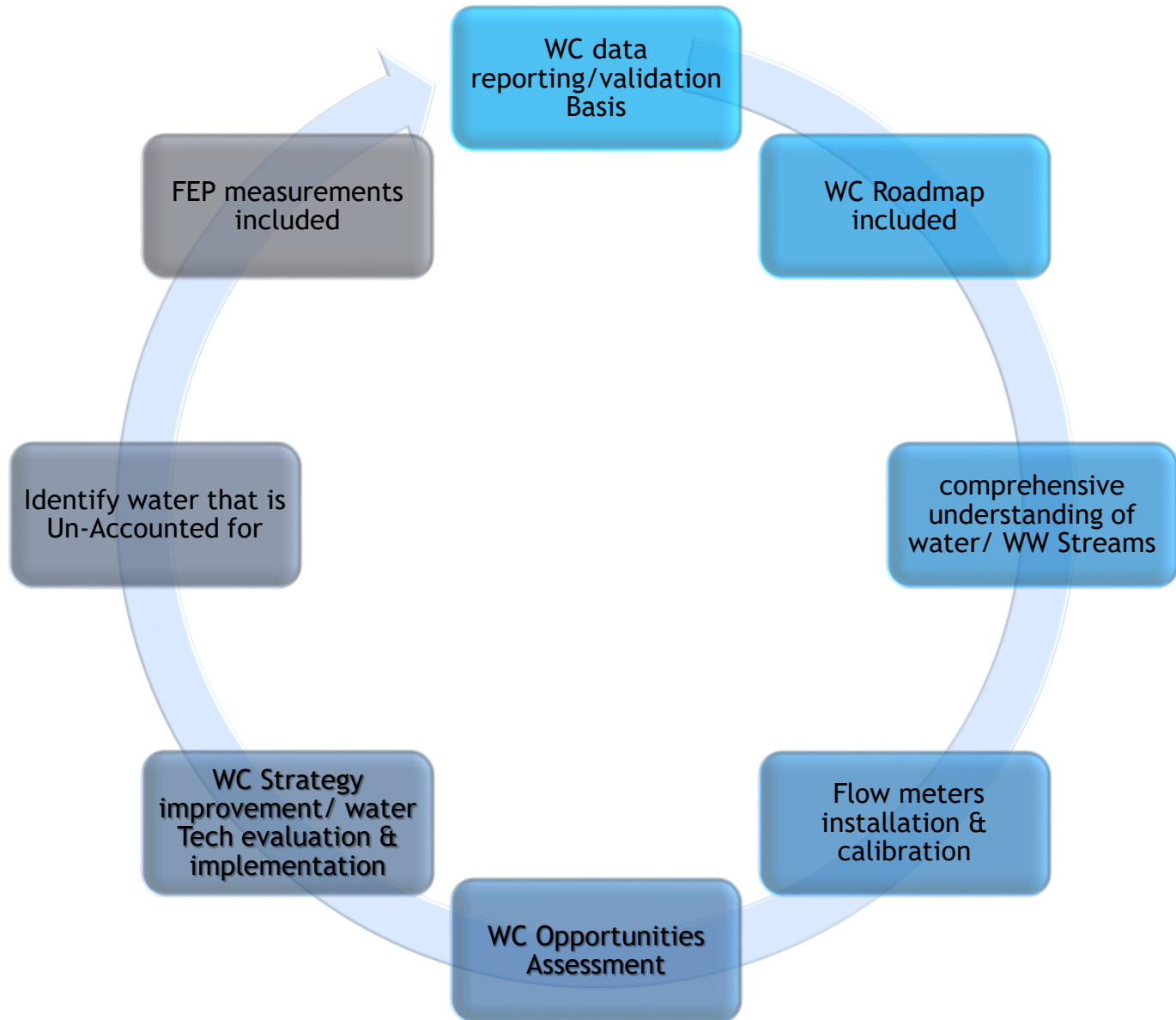


Water Cycle represents a whole overview of facility's water system including the water sources, uses and discharges along with the average flows.

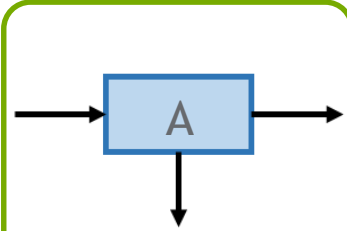


Water cycle shall be available, completed, accurate and up-to-date.

# Water Cycle Importance

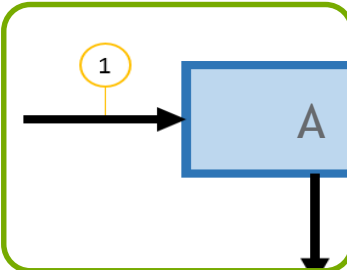


# Water Cycle Developing Guidelines



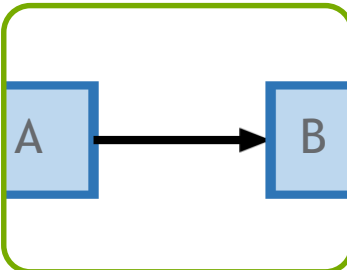
A) Individual **blocks** shall denote all water inlets and outlets, including losses.

Blocks shall be labeled with **unit operation /element** name.



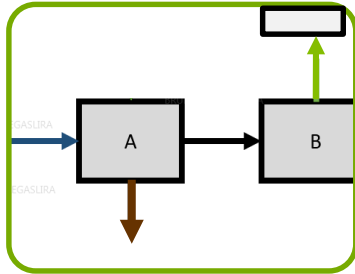
B) Flow **streams** flowing into and out of the blocks are represented by neatly drawn straight lines.

**Streams** must be clearly identified with a unique code and referenced to a table on the Diagram itself.



C) The **direction** of flow of each of each water stream must be clearly indicated by arrows.

# Water Cycle Developing Guidelines

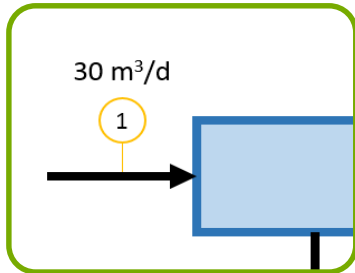


D) **Color code** the streams that correspond to those on the WC data reporting form:

Fresh Water → Blue

Wastewater → Brown

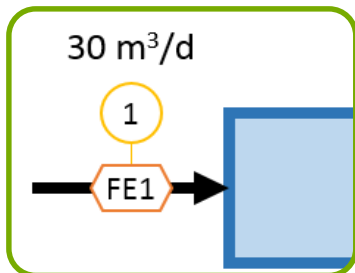
Reuse Stream → Green



E) Average **flow rates** (in m<sup>3</sup>/day) shall be depicted on the diagram itself.

- Provide actual measurements, if available.

- Should there be a space constraint in the diagram, include them on an accompanying table on the same page.

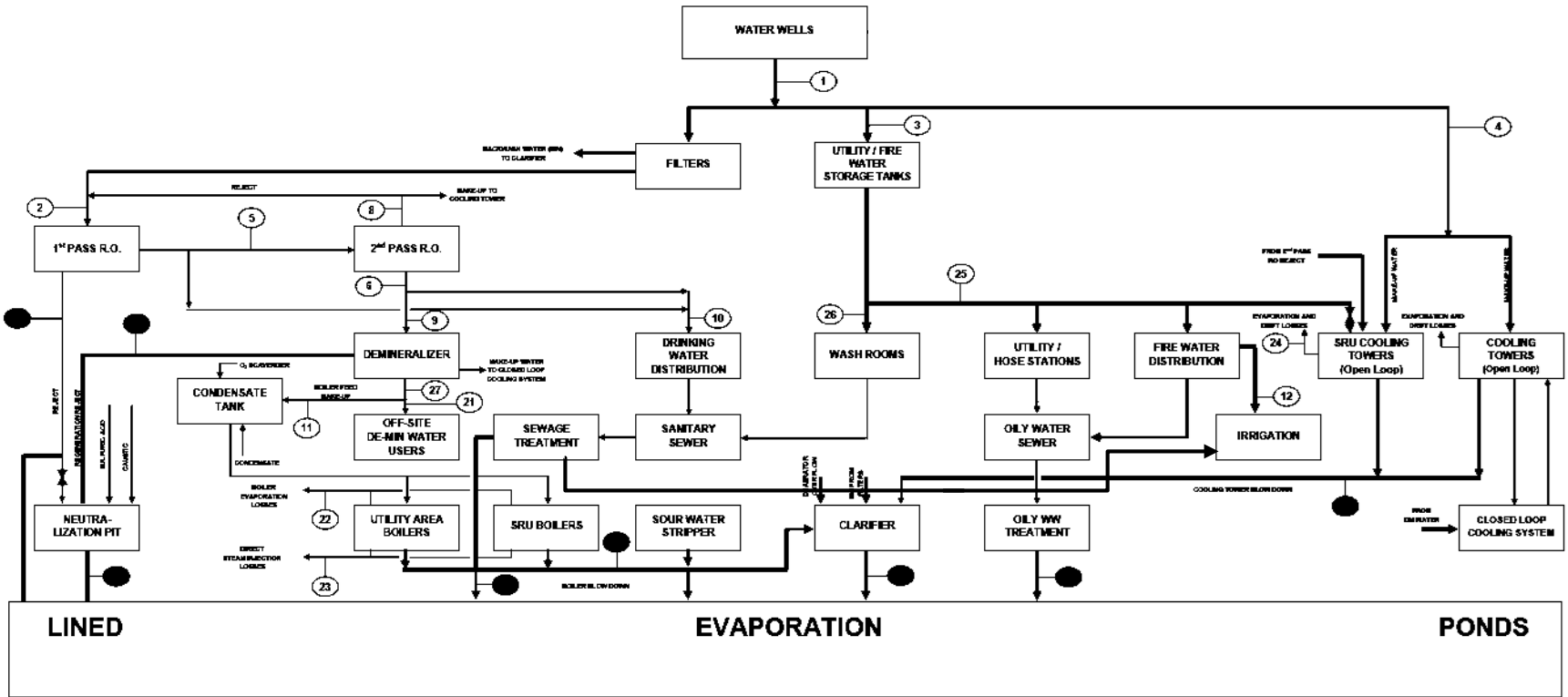


F) The **location** of the required flow meters shall be indicated with a uniform symbol and identifiable with a unique tag or number.

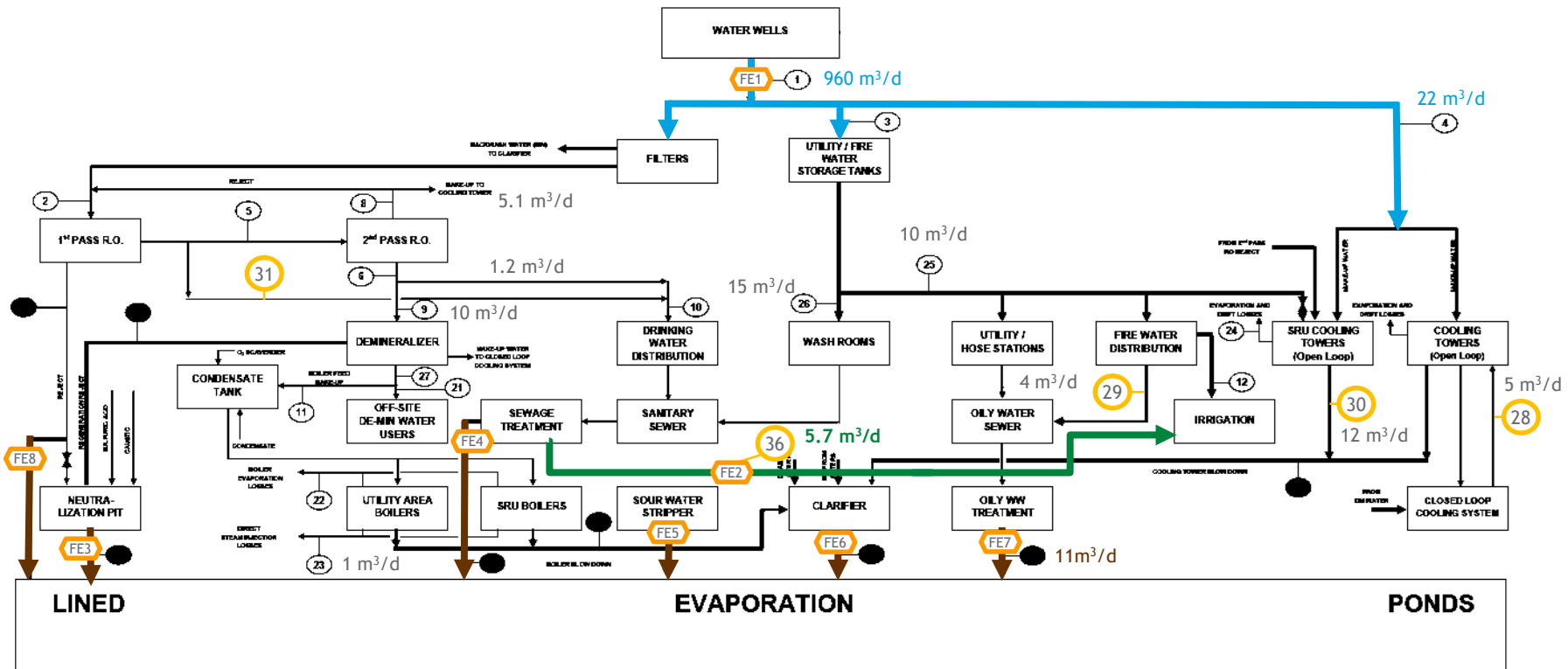


- Label individual **blocks** unit operation
- Represent flow streams by straight **lines** and use a unique code
- Indicated flow direction by **arrows**
- Color code fresh water **blue**- WW **brown** - Reuse streams **Green**
- Identify flow rate in **M3/day** with actual measurements
- Locate Flow Elements (FE) in the diagram
- Insert stream table identification within the diagram itself

# Example



# Example



Stream #	Stream name	Av. Flow (m³/day)	Flow Meter
36	Tertiary Treated Sewage	5.7	FE2
40	Neutralization pit discharge	0.5	FE3
1	Well water	960	FE1
29	Fire water discharge	2	-

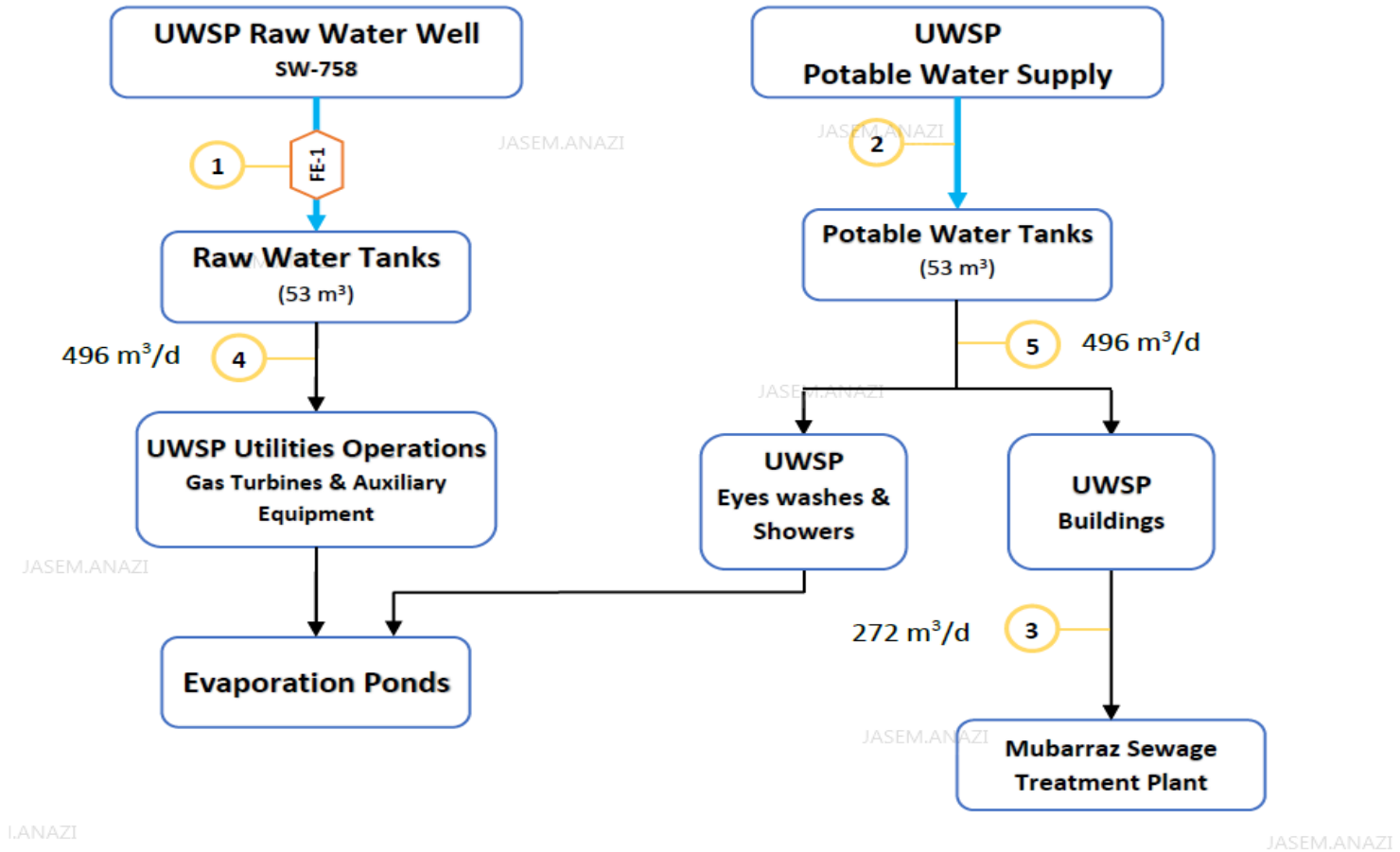
\*This illustration diagram aims to show flow streams, Flowrate (m3/d), Color Code, Flow Element, stream table identification.



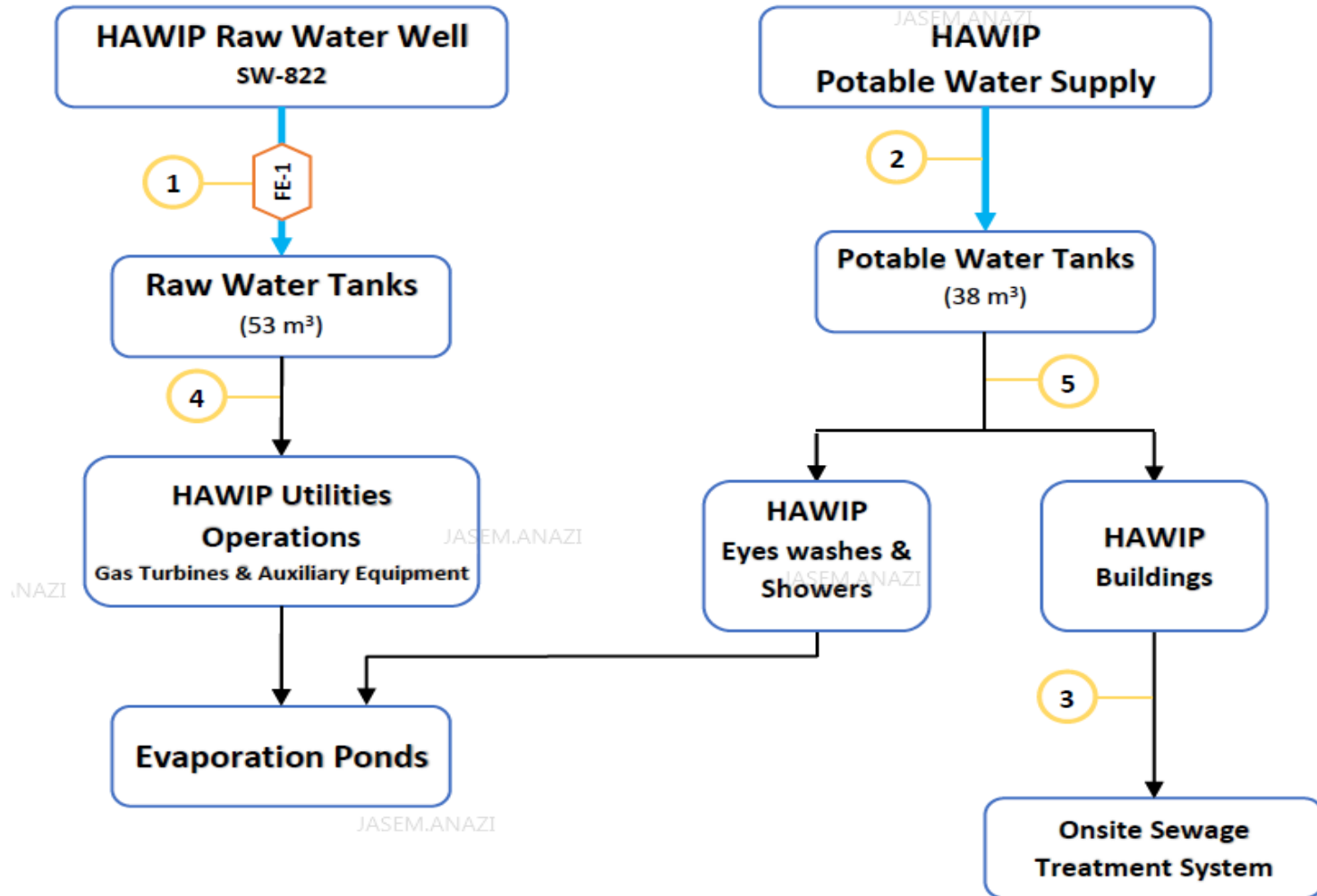
# Thank you



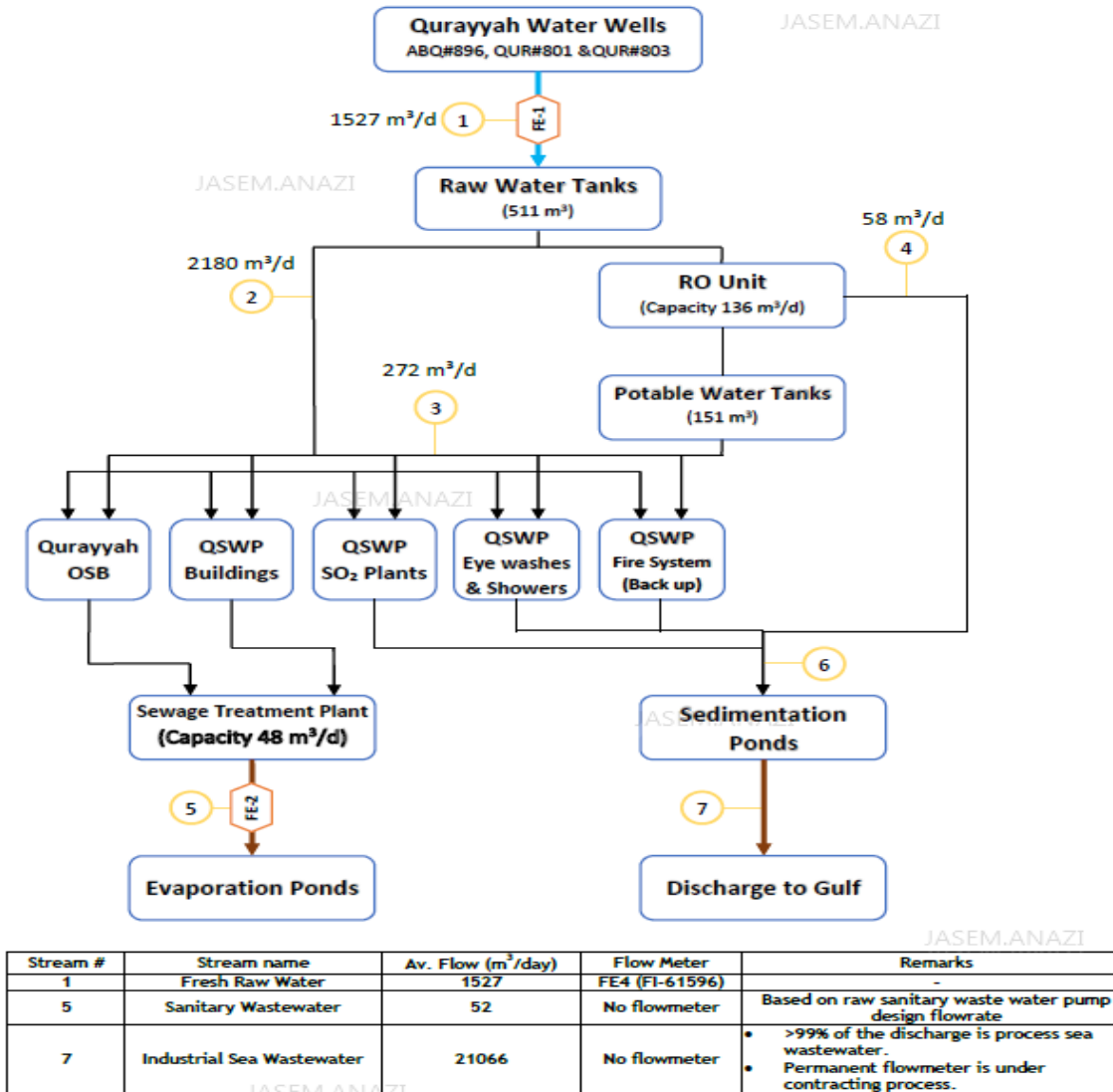
# Water Cycle Scenarios -Scenario 1



# Water Cycle Scenarios -Scenario 1



# Water Cycle Scenarios - Scenario 1



# Water Cycle Scenarios - R&NGLF

## Scenarios:

- One scenario for RR
- One scenario for RT-1
- One scenario for JNGLF-1
- One scenario for YR AND YNGL