

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

منتدى المياه السعودي
saudi water forum

SWF 2024



Produced Water Desalination Solution for Water Security and Brine Management

Majed Aljeshi, Saudi Aramco



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 لشراكات المياه
Saudi Water Partnership Company



المؤسسة العامة للمياه
Saudi Water Partnership Company



منظم المياه
Water Regulator



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



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Outline

- Introduction
- Produced Water Reuse
- Technologies
- Case Study 1: Low Salinity Produced Water
- Case Study 2: High Salinity Produced Water
- Water Circularity in Oil Operations
- Path Forward



Introduction: Oil and Gas Supply Chain

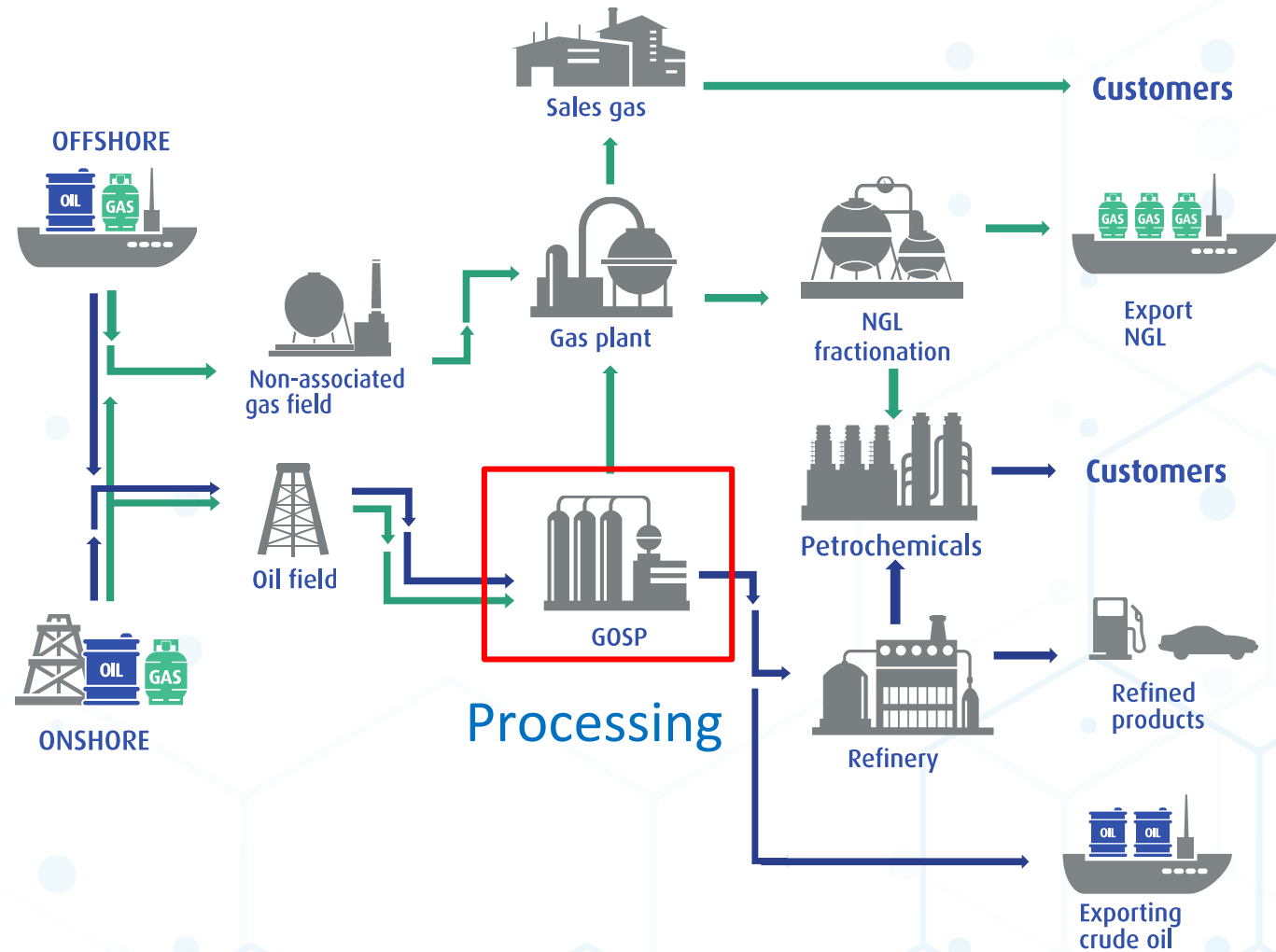


50+ GOSPs

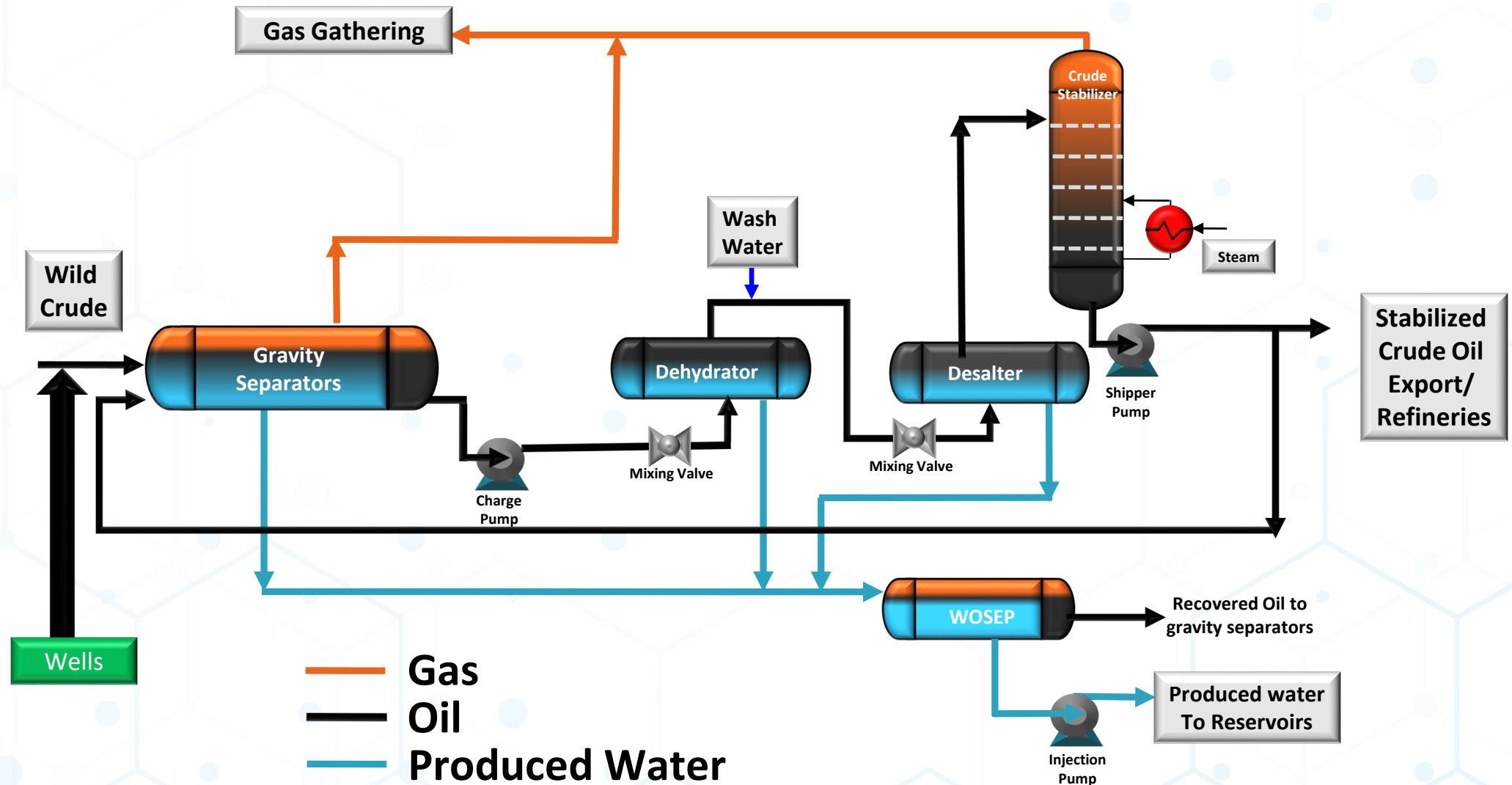


Crude Quality Spec:

- Water content
- Salt-in-Crude



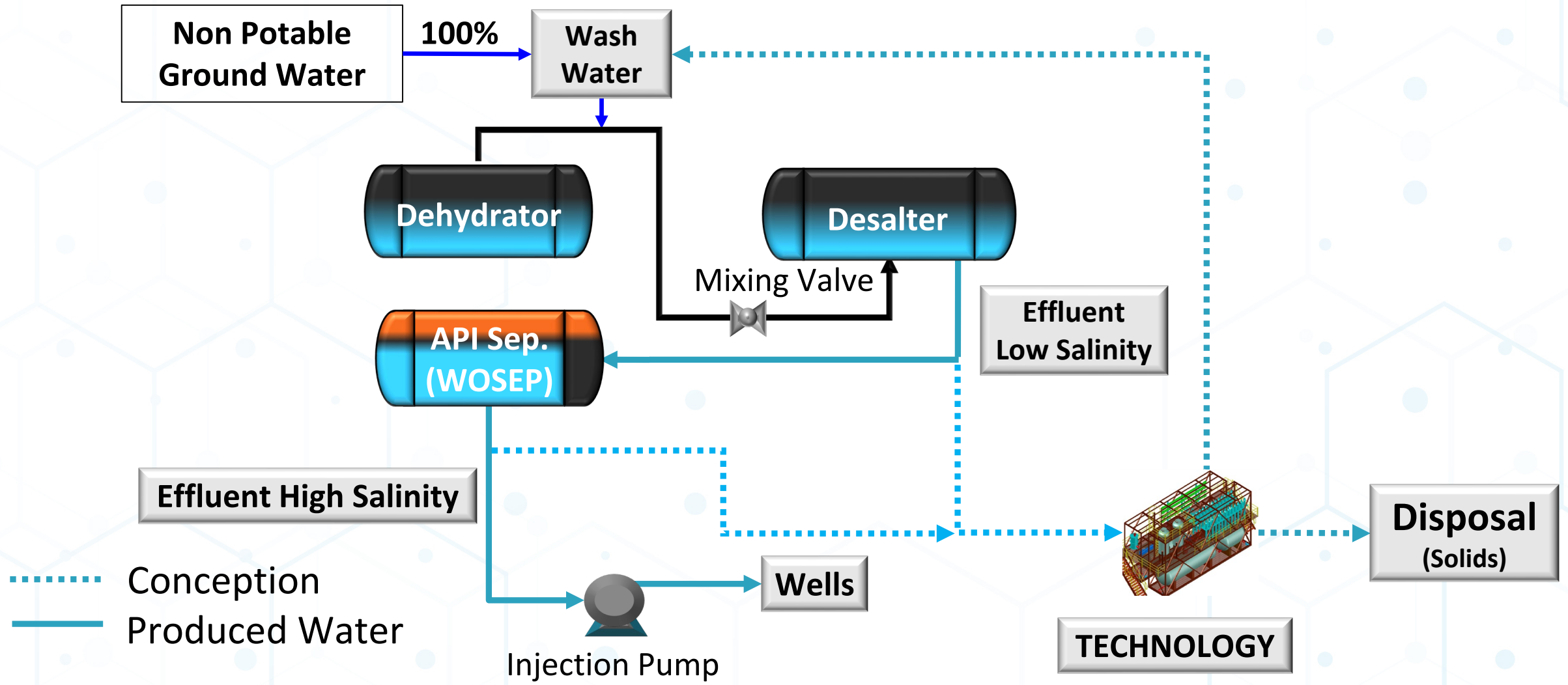
Introduction: Gas Oil Separation Plant (GOSP)



Introduction: Water Quality

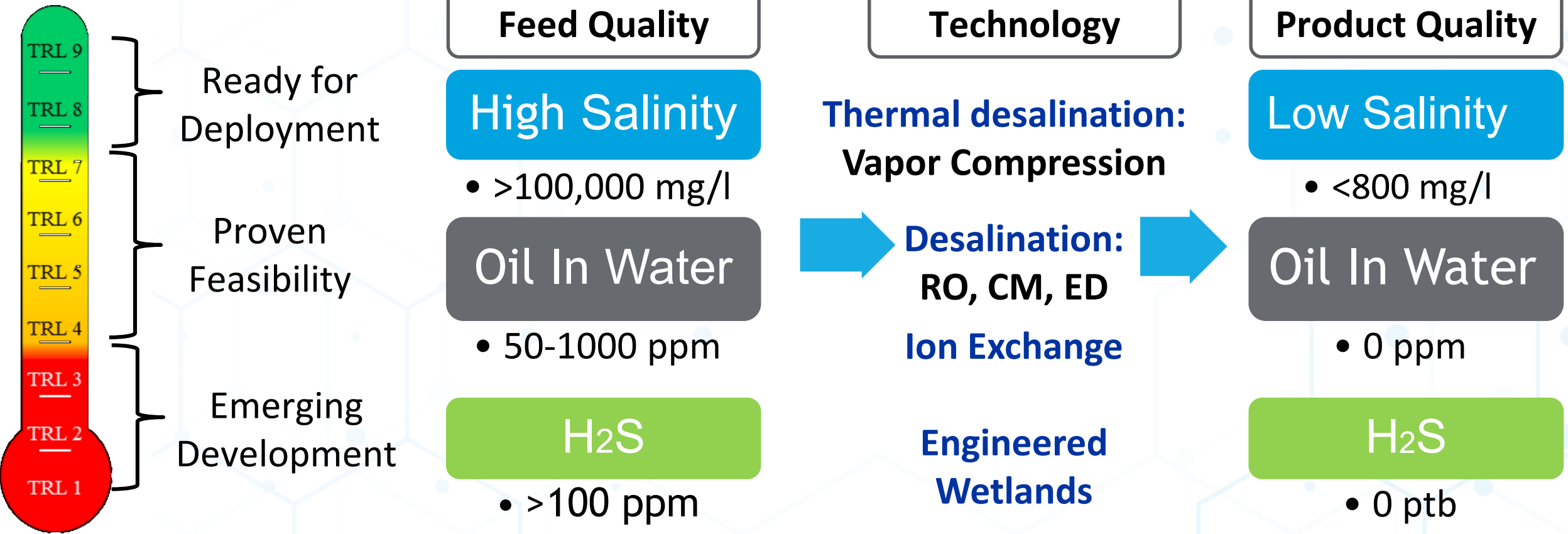
mg/L	Non Potable Aquifer Water 1	Non Potable Aquifer Water 2	Seawater	Produced Water 1	Produced Water 2	Produced Water 3	Produced Water 4
TDS	6,454	54,320	55,740	98,393	94,157	212,930	242,830

Produced Water Reuse

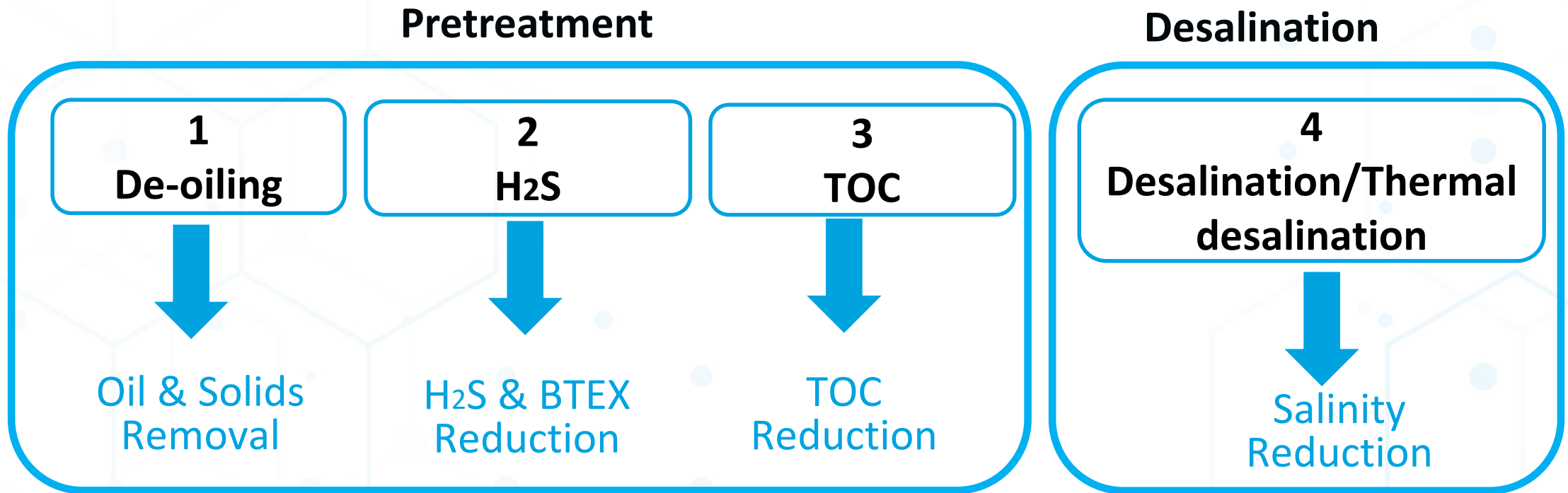


..... Conception
— Produced Water

Technology Selection Plan : PW Desalination

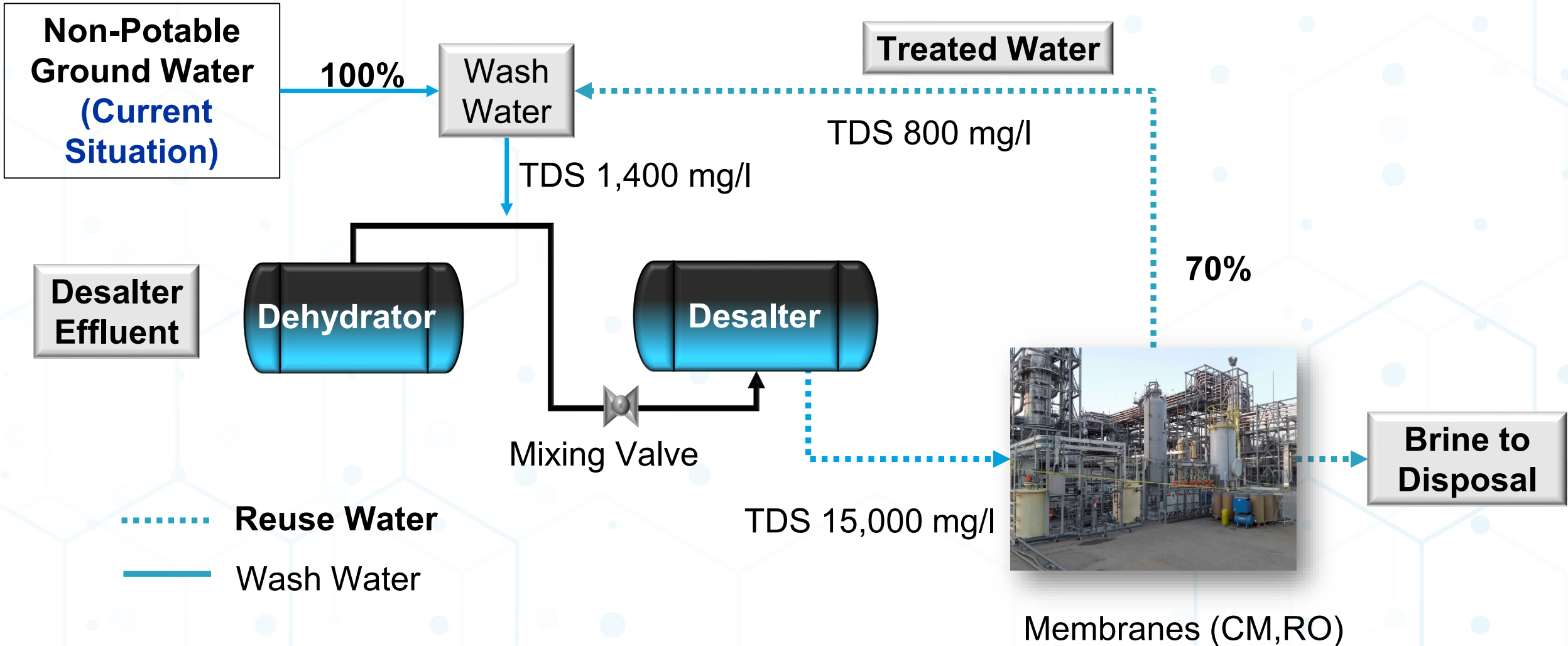


Produced Water Desalination: Process Scheme

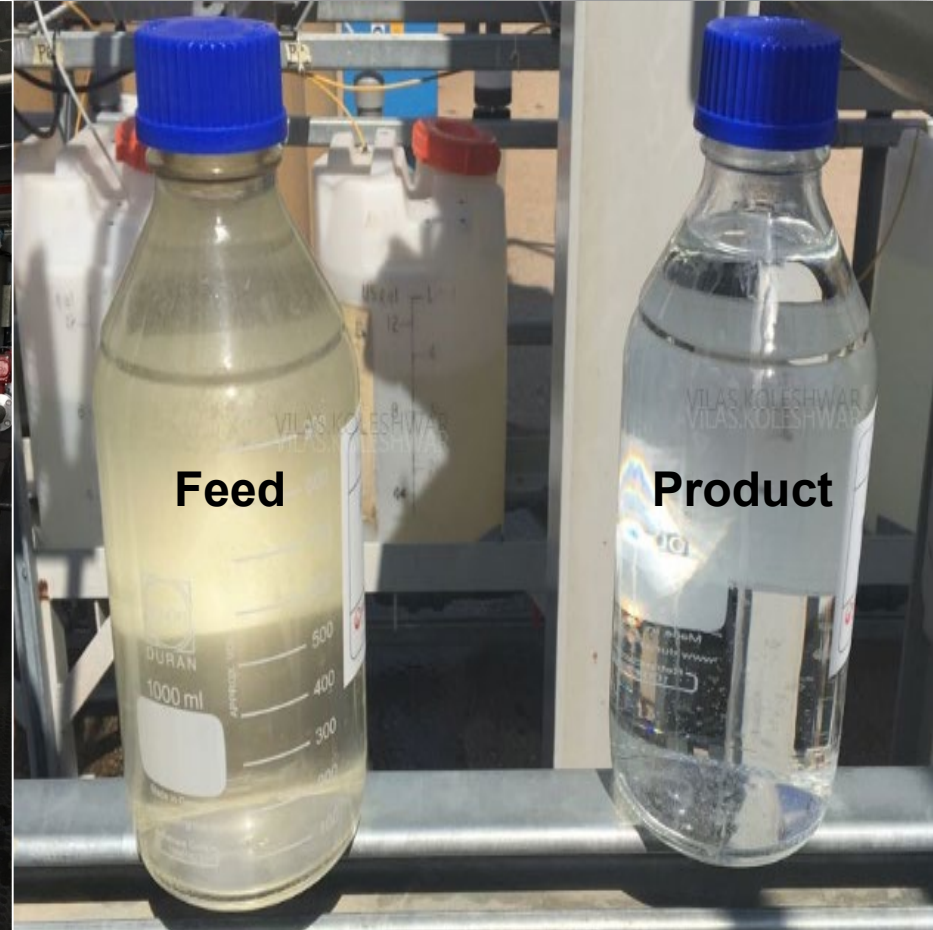
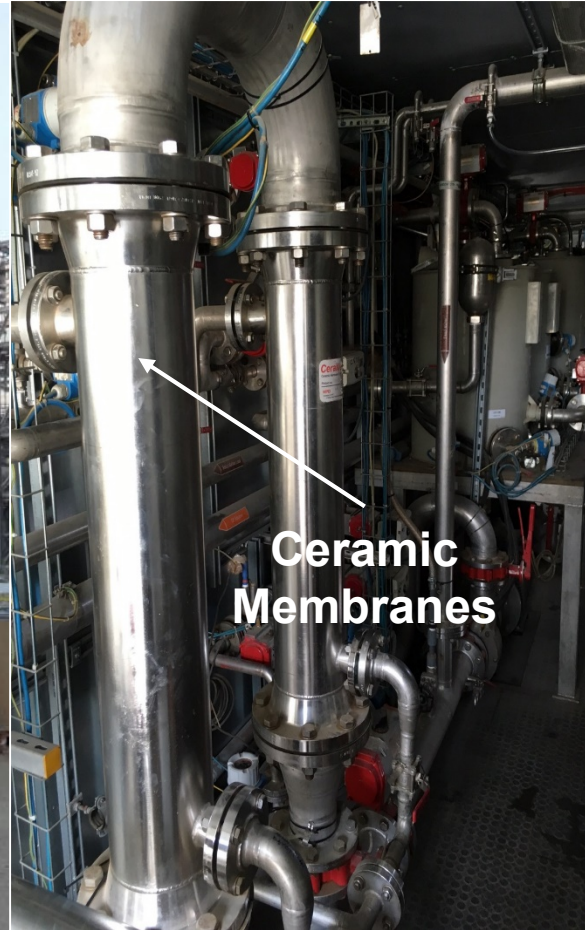


24 x 7; 70% Water Recovery; High Temperature 140-150°F (60-65°C)

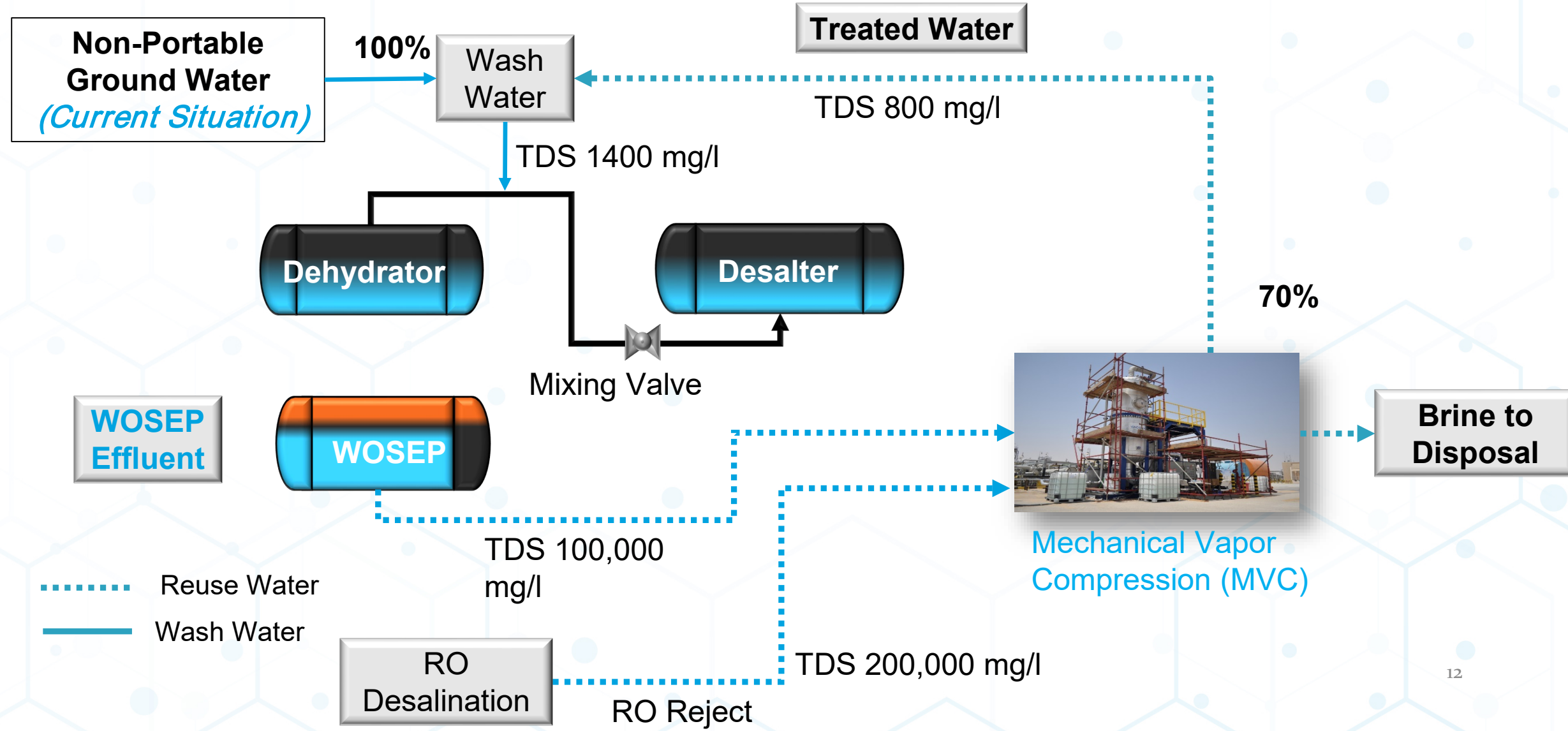
Case Study 1: Low Salinity Produced Water



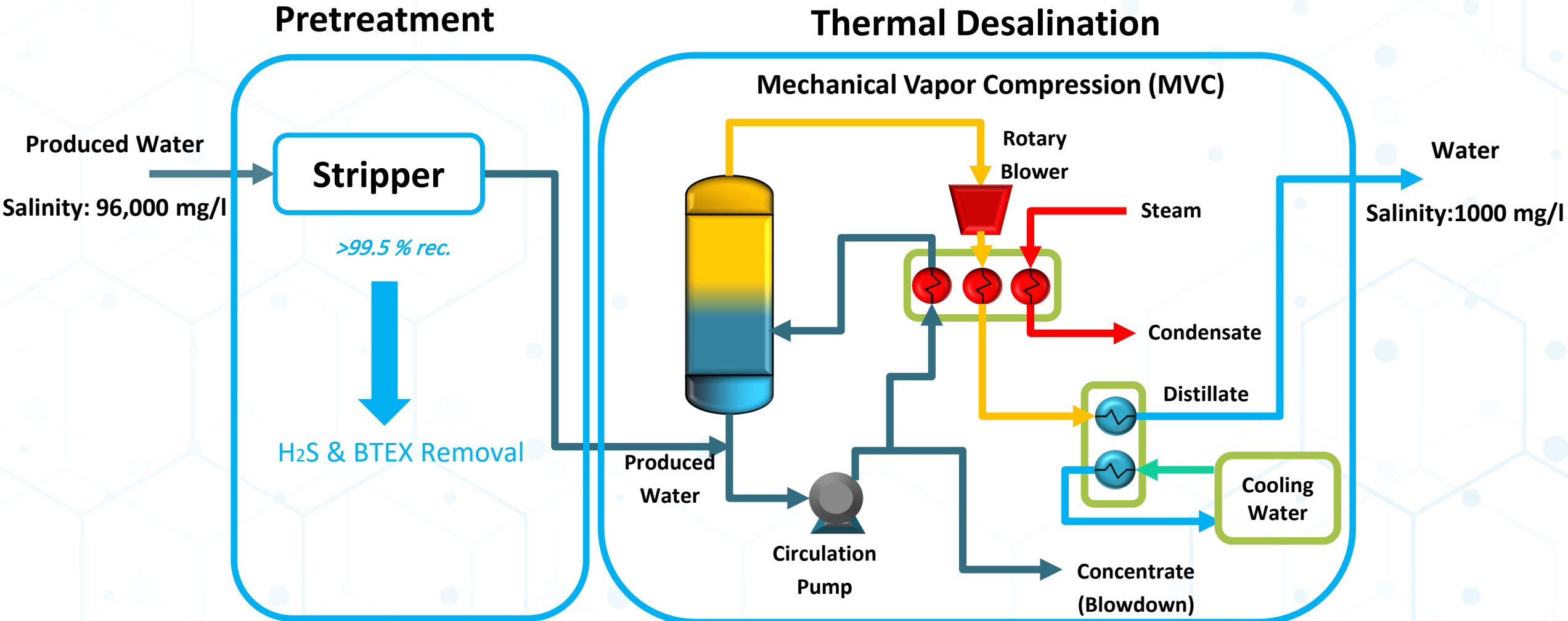
Case Study 1: Low Salinity Produced Water



Case Study 2: High Salinity PW/ RO Reject



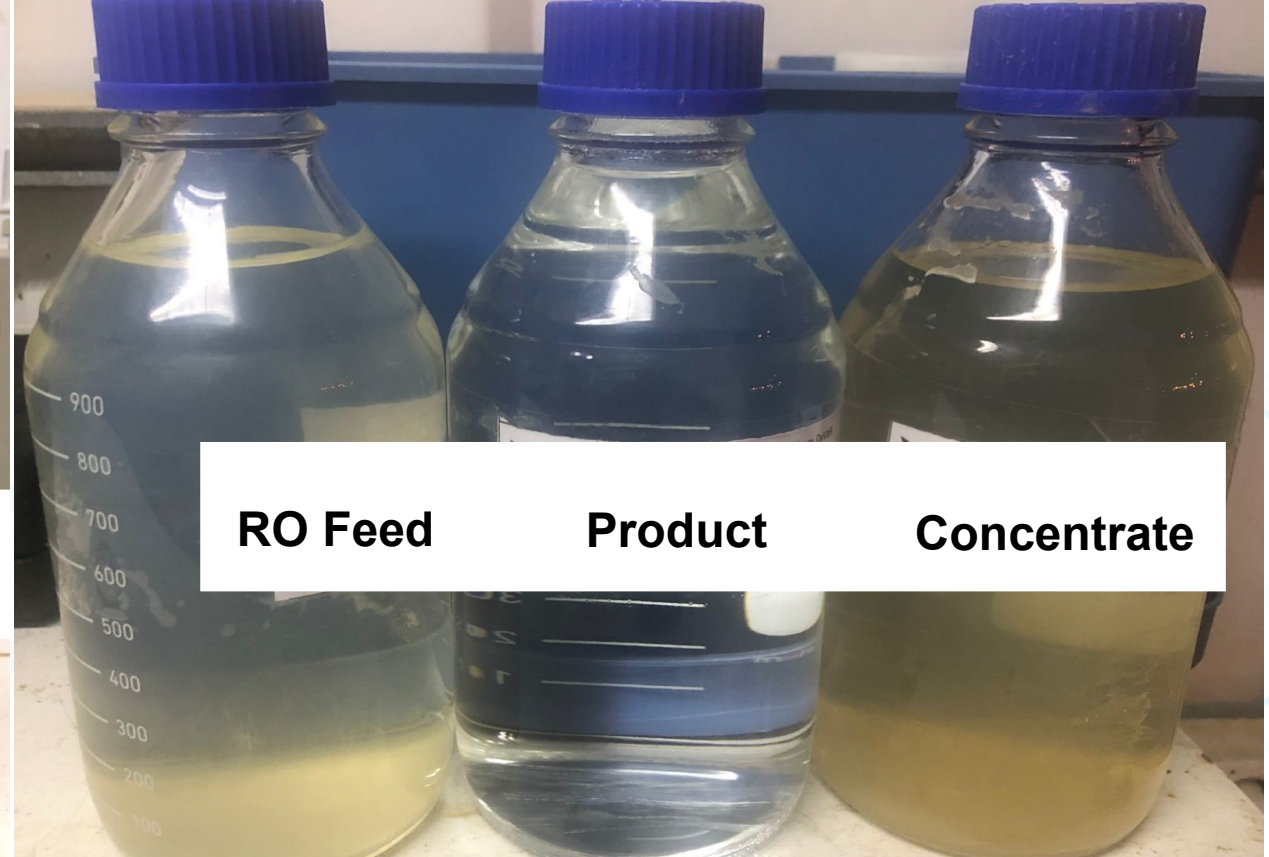
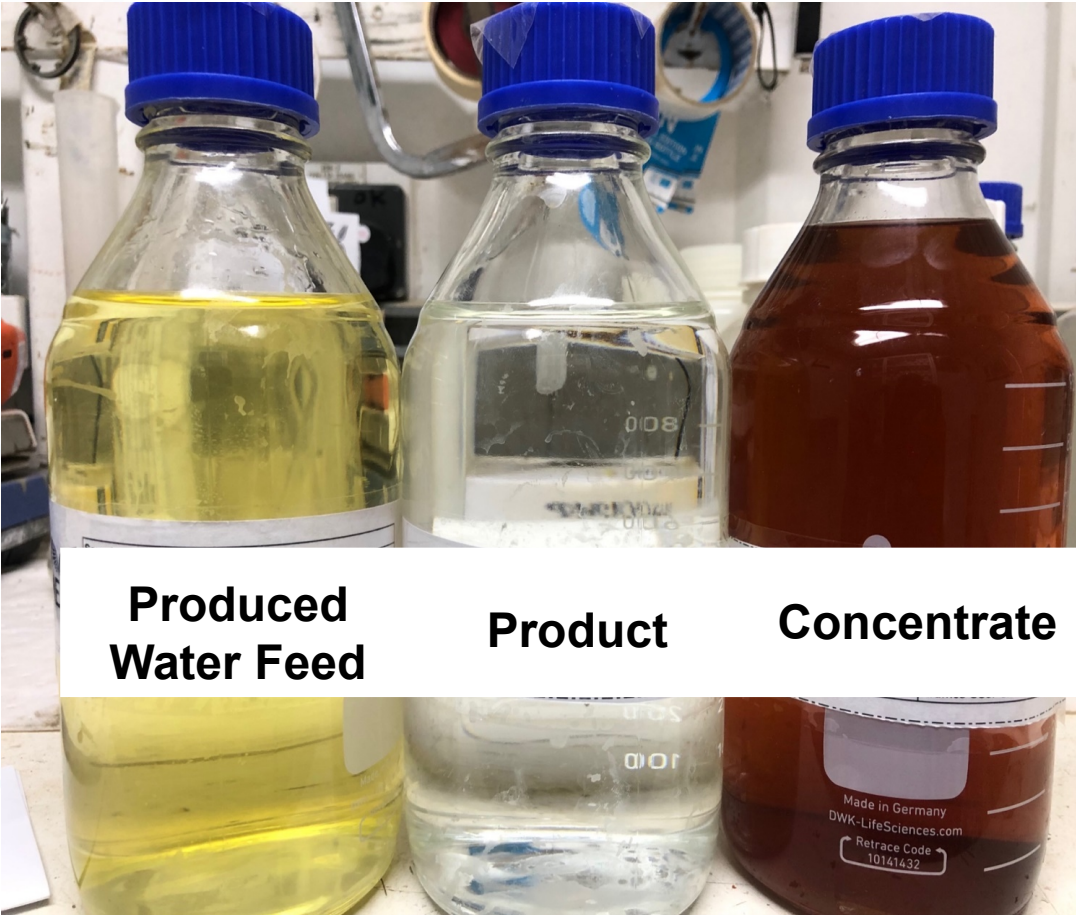
Case Study 2: High Salinity PW/ RO Reject



Case Study 2: High Salinity PW/ RO Reject



Case Study 2: High Salinity PW/ RO Reject



Global Recognition Awards



Global Water Award 2020
“Industrial Project of the year”



World Oil’s 2020 and 2022
“Best Water Management Technology”



2023 Global Show Award
“Suzanne West Environmental Excellence Award”

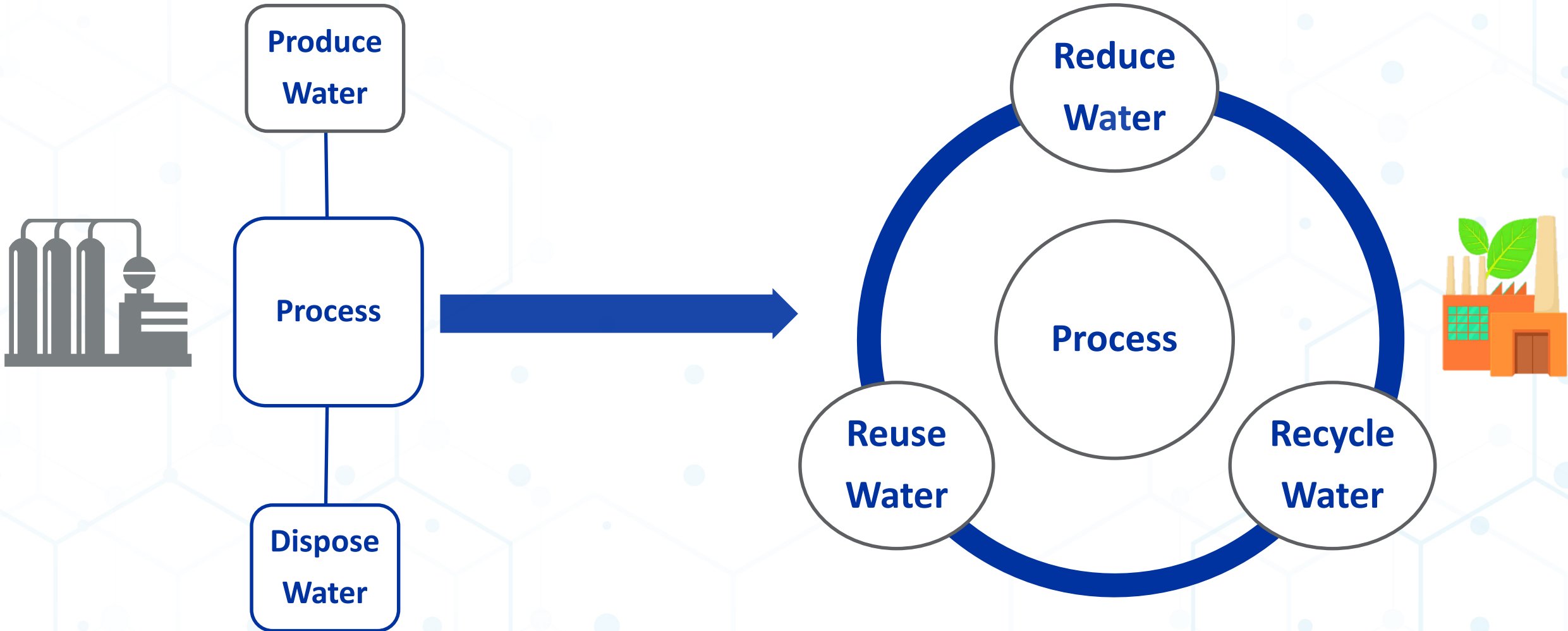


2023 Hart Energy MEA Award
Water Management Award



2022 Aramco Excellence Award for ZLD

Path Forward: Water Circularity



Ground Water (GW), Produced Water (PW)

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THANK YOU!



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