

Office of River Protection (ORP) Waste Treatment Plant (WTP)

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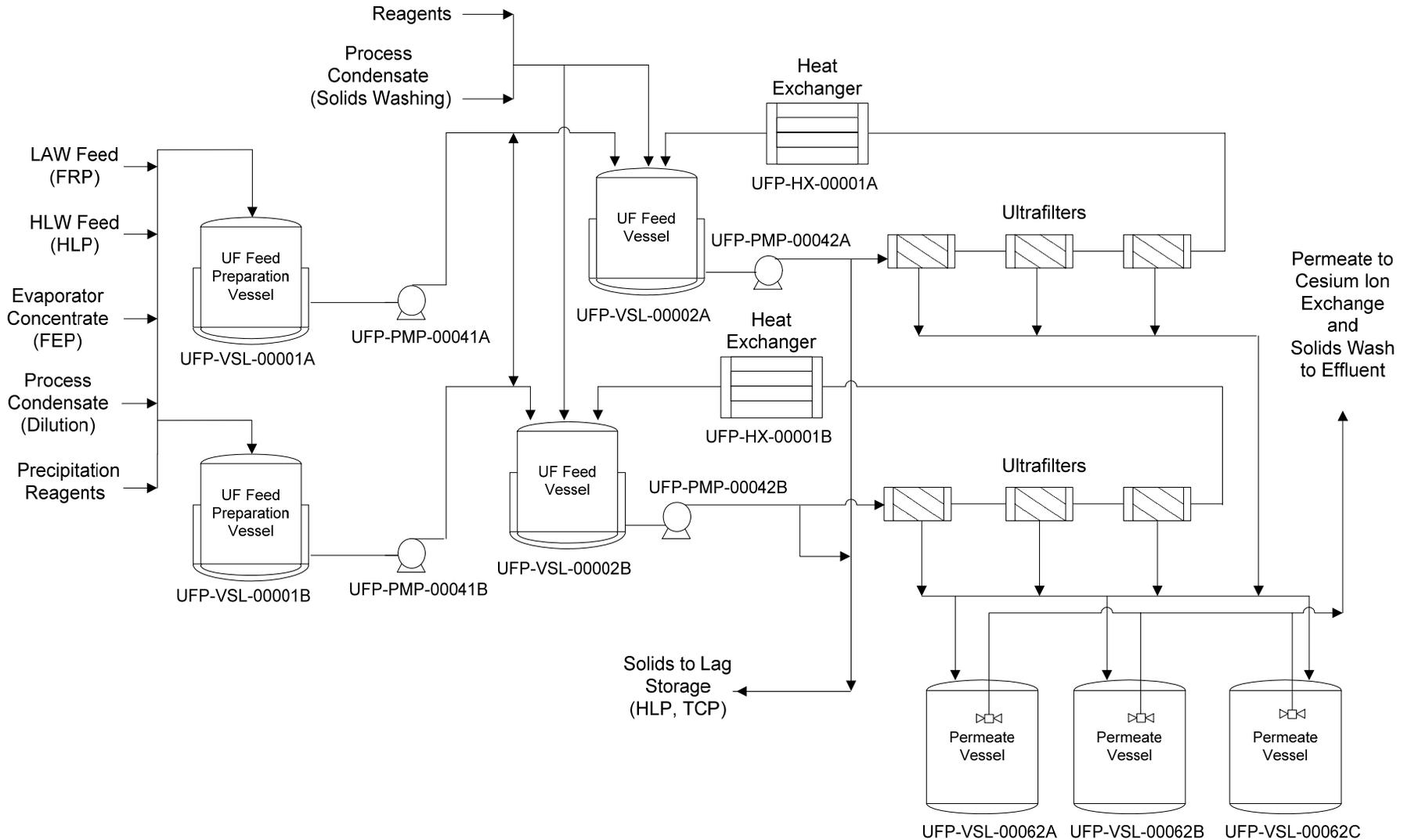


Lesson Learned

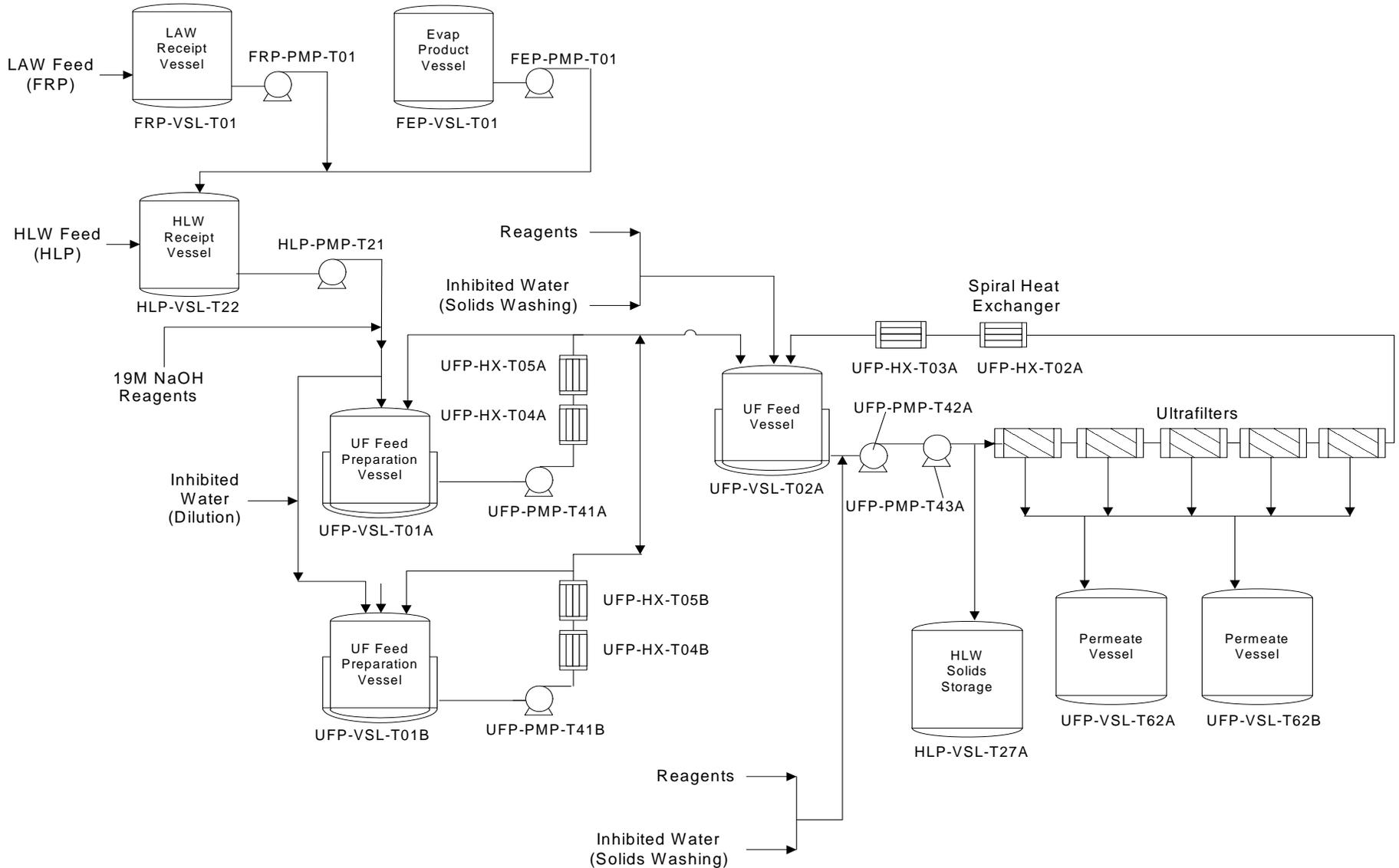
- WTP design and construction is well underway; however, significant issues requiring testing must be addressed
- ORP, Expert Flowsheet Review Team, and BNI assessments concluded engineering/pilot-scale testing of the ultrafiltration system was required
 - The ultrafiltration system and leaching processes had not been demonstrated beyond the bench scale and testing with conditions representing the WTP flowsheet had not been completed
 - Capacity of the ultrafiltration system was uncertain
 - Operating approaches for the ultrafiltration system were not demonstrated

Lesson Learned: Ensure processes have been demonstrated at appropriate scale and in a relevant environment to support final design

Ultrafiltration Flow Diagram



Simplified PEP Flow Diagram



UFP System Changes

- Significant changes made to address issues:
 - Increased filter surface area to achieve throughput
 - Added leaching capability in ultrafiltration feed preparation vessels
 - Added in-line mixing capability
 - Increased leaching temperature for boehmite dissolution
 - Increased filtration temperature
 - Add caustic to permeate after filtration
 - Revised approach to flush filters

UFP System Issues

- Significant issues requiring testing or demonstration
 - Mixing
 - Leaching kinetics
 - Leaching effectiveness
 - Filter flux
 - Post filtration precipitation
 - Method of heating
 - System hydraulics
 - Performance with spectrum of tank waste