

Operation and Accounting for Porosity Storage Reservoirs

After construction is complete and the Porosity Reservoir is ready to put into operation the following steps should be followed to properly administer the storage vessel.

Operation

- 1- The vessel must be tested to prove its hydraulic separation from the surrounding alluvial deposit. The States liner criteria and testing method shall be used. This shall be done using monitoring wells placed at intervals along the interior and exterior that can be relied upon individually to give an accurate representation of any change of water level in a specific area as well as collectively to gauge the amount of water level change in or around the entire reservoir. These monitoring wells shall also be used to monitor real-time storage levels and on-going operations of the vessel.
- 2- The vessels' total storage capacity shall be established by physical measurement. The water shall be metered at any import or export point of the vessel. The amount of total storage capacity shall be determined by measuring complete filling and emptying of the vessel. This test may be required at various times to verify the reservoirs actual storage capacity and any change must be accounted for.
- 3- The vessel shall have depth to capacity relationships established as the water levels fluctuate during rising, declining and static water level situations. The depth to capacity measurements and calculations shall be reported to the State and be of public record. These depth to capacity measurements and calculations shall be used in addition to the measured import/export volumes to establish the vessels real-time water volume. The real-time water volumes of the vessel are to be reported to the State on a real-time basis, and available to the public on the same real-time basis.
- 4- The pre-existing alluvial flow in the alluvium surrounding the vessel site shall be maintained by an exterior mitigation system that keeps the historical flow grade across and around the reservoir site so that neither surrounding waters rights nor the native system are impacted in a negative manner.

Accounting

- 1- Due to the nature of a Porosity Storage Reservoir there are no direct evaporation calculations to be considered.
- 2- Evapotranspiration calculations are needed if the water levels reach the zone that this can occur.
- 3- The amount of top-down seepage of water whether it be from precipitation, flood or excess irrigation water needs to be accounted for and the appropriate amount that is considered "system owned" put back into the "system" with proper timing accounted for. The Porosity Reservoir Accounting Sheet shall be used.
- 4- The vessel accounting method can allow for water flow through the site in any direction for water quality purposes if requested by the owner/operator.
- 5- The owner/operator and the State can agree on a case by case basis if the need exists for seepage allowance adjustments (either in or out) are called for due to the amount of seepage allowed for in the States' guidelines versus the amount actually measured during vessel operations.

- 6- If the vessel is located in an unsaturated alluvial deposit (or a partially saturated alluvial deposit) the vessel may be filled to specific depth levels and maintained at each level long enough to establish seepage data at each level. This test is required to establish a baseline for return flows to the river system. Using the results for liner seepage to the system the operator may use the seepage test results in their overall reservoir accounting to obtain return flow credits.