

Kinney County Groundwater Model Technical Memoranda

I have attached a summary of all the Technical Memoranda associated with documenting the model. The final report will be essentially a summary of the development process and these Technical Memoranda will be included as appendices. These Technical Memoranda are detailed and require a knowledge of modeling, particularly MODFLOW 6. The final report will be written for a more general audience.

I have completed an initial draft of the first six Technical Memoranda. These are attached to this email.

All the Technical Memoranda and the associated files have been uploaded to a Google Drive for anyone who wants to review the underlying data and pre-processor programs. The link to the Google Drive is included in each Technical Memorandum and is also provided below:

https://drive.google.com/drive/folders/1mpyv5T2_CcDI5CLMDIFeYOwvvpPLudW2H?usp=share_link

I will continue to complete drafts and send them to you as they are completed.

Please let me know if you have any questions or wish to discuss.

Bill



TechMemoList.pdf

78.1kB



TechMemo23-01(GridZone).pdf

1MB



TechMemo23-02(mfsim.nam).pdf

300.9kB



TechMemo23-03(IC6).pdf

284.4kB



TechMemo23-04(OC6).pdf

279.6kB



TechMemo23-05(NPF).pdf

2.2MB



TechMemo23-06(STO).pdf

330.2kB

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Kinney County Groundwater Model Technical Memoranda

Technical Memorandum (TM) Number	Pages	Subject	Version 1 Completion Date	Most Recent Version and Completion Date	Notes
23-01	14	Model Grid and Unstructured Discretized Input File (DISU)	3/23/2023		Grid numbering and cell geographic attributes (old model row and column, top and bottom elevations, county, GMA, watershed, faults, model edges).
23-02	5	Simulation Name File, Time Discretization, Model Name, and Solver (mfsim.nam, TDIS, NAM, and IMS)	3/23/2023		Quarterly stress period (3 months each).
23-03	3	Initial Conditions (IC6)	3/23/2023		Set initial conditions to land surface for initial run. Will add steady state output as initial conditions after initial run.
23-04	3	Output Control (OC6)	3/23/2023		Saves head and cell by cell flows for each stress period
23-05	28	Node Property Flow (NPF6)	3/27/2023		Initial values based on assumption of preferential flow paths due to karst
23-06	10	Storage (STO6)	3/27/2023		Initial values are based on constant storativity and specific yield for each layer
23-07		Time-Variant Specified Head (CHD6)			Initial = Layer specific. Need to add geographic areas for each layer
23-08		Well (WEL6)			4 instances (Ag, Non Ag Non Exempt, Municipal, Exempt)
23-09		Drain (DRN6)			2 instances (Las Moras and other seep/spring areas)
23-10		Recharge (RCH6)			2 instances (Near stream channel and upland)
23-11		Evapotranspiration (EVT6)			Initially limited to Layer 1 (Alluvium)
23-12		Calibration Data			TWDB groundwater levels, KCGCD groundwater levels, Las Moras Spring
23-13		Initial Model Run			To verify that all input files are working and plan for initial calibration steps
23-14		Calibration Results			Summary of Calibration. Each TM will be updated as appropriate with details
23-15		Initial Predictive Simulations			Pumping and recharge sensitivity to scope alternative management simulations