Proposed General Volume Outline for APPLIED HYDROGEOLOGY IN CALIFORNIA

Draft X.1

December 5, 2013

General note: The volume is focused on California and its continental borderlands. Compelling original papers may be considered from areas outside of California on a case-by-case basis. Abstracts and lead author information and a general description of the paper should be sent to Garry Maurath by 15 January 2014 at gmaurath@yahoo.com. You can call him at 916.752.3016

TITLE:

APPLIED HYDROGEOLOGY IN CALIFORNIA

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Why develop the volume in the first place?

Answer: To cover some of the gaps in practice and updates in techniques that have evolved in the past decade in a single volume that is intended to be a reference work for current practitioners.

The hard bound, full color volume will have an accompanying CD to hold graphics, spreadsheets, and other materials not suitable to be presented in the main text. The Volume will be also available through Star Publishing Company website.

ACKNOWLODGEMENTS

PREFACE

FOREWARD

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CHAPTER 5: LAND SUBSIDENCE RELATED TO GROUNDWATER WITHDRAWAL

Groundwater withdrawal versus oxidation of organic deposits

Regional case histories and long-term projections

Impact on existing infrastructure

CHAPTER 6: ENVIRONMENTAL ISSUES – MONITORING

Monitoring techniques and equipment

Leaking underground tanks

Soil Vapor – delineation, extraction and monitoring

Landfills – lining and monitoring systems

Oil and gas operations

Mining – treatment of heavy metals

Agricultural Industry and Land Development

Salt water intrusion

CHAPTER 7: ENVIRONMENTAL ISSUES – RISK ASSESSMENT AND CLOSURE

Evolving role of Risk Assessment in site monitoring and closure decisions

Long-term track record of PRA's

Case histories

CHAPTER 8: FRACKING

Where, when, and potential risk to potable water supplies

New fracking techniques to increase permeability of tight contaminated layers

CHAPTER 9: MODELING

Status of regional/statewide groundwater models

Risk Assessment and modeling

Conjunctive use modeling – including impact of global climate change

CHAPTER 10: LEGISLATION AND REGULATION

Statewide efforts on monitoring groundwater basins

Adjudication in Northern California – how not to go the way of Southern California

Trends in legislation and regulation – fracking, basin monitoring

Using groundwater supplies to control/guide land development

CHAPTER 11: MISCELLANEOUS

Effects of faults as hydrogeologic barriers in Southern California

Where do we stand with respect to Enhanced Geothermal Systems in California?

Geothermal – RIS and injection

Pumped Storage – cyclic impact to local groundwater regimes

Shop Talk – short vignettes (less than 1 page) discussing updates and new applications of field or laboratory methods – the following are a few examples

- Problems with swabbing shallow wells when setting the well pack
- Limitations/value of hydropunch data
- When to use centralizers
- Tips when using a bailer to hand sample
- Using photography to monitor the groundwater levels
- Importance of logging every well
- Choosing a well screen
- How to talk with locals who speak a different dialect of groundwater
- Time, temperature, and a fast trip to the lab
- Flow nets – the “slide rule” of numerical modeling – they still work just fine and you need to know how to construct and use them
- Effective use of numerical modeling without burning your budget
- How to check the QA of your environmental lab
- What to look for in your well driller/pump installer

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