

Communicating to all Sides:

The Quandary of the Groundwater Scientist

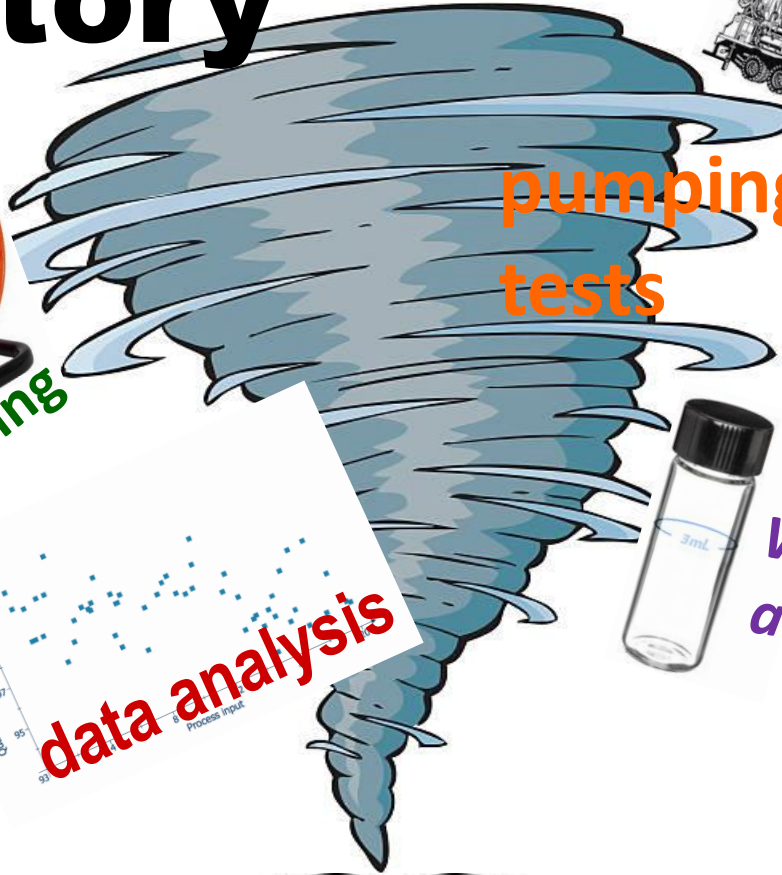
Kelton D. L. Barr, PG

Kelton Barr Consulting LLC

The usual story



field monitoring



pumping
tests



drilling



data analysis

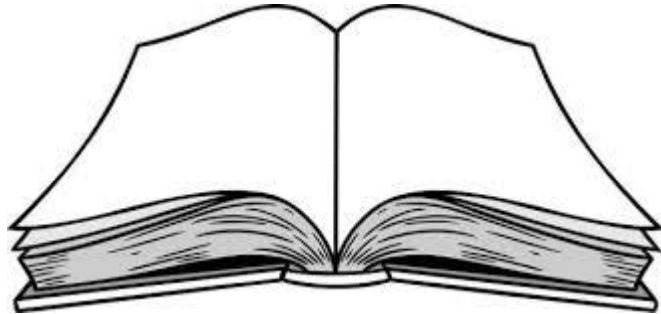


Water
analyses



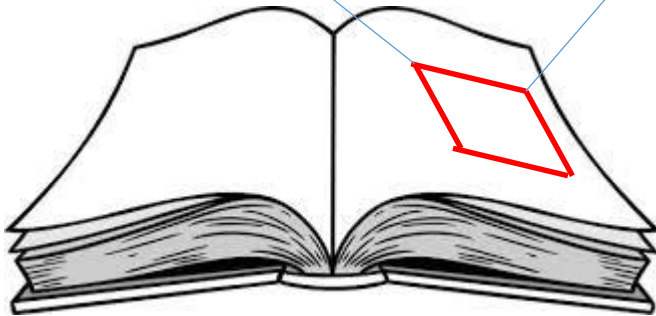
REPORT

The groundwater report...



- factually correct, making proper conclusions
- tempered by client/reviewers/manager
- more circumspect for other stakeholders/regulators/lawyers

Ἐνθ' ἄλλοι μὲν πάντες, ὅσοι φύγον αἰπὺν ὄλεθρον,
οἵκοι ἔσαν, πόλεμόν τε πεφευγότες ἠδὲ θάλασσαν·
τὸν δ' οἶον, νόστου κεχρημένον ἠδὲ γυναικός,
νύμφη πότνι' ἔρυκε Καλυψώ, δῖα θεάων,
ἐν σπέσσι γλαφυροῖσι, λιλαιομένη πόσιν εἶναι.
ἀλλ' ὅτε δὴ ἔτος ἦλθε περιπλομένων ἐνιαυτῶν,
τῷ οἱ ἐπεκλώσαντο θεοὶ οἰκόνδε νέεσθαι
εἰς Ἰθάκην, οὐδ' ἔνθα πεφυγμένος ἦεν ἀέθλων,
καὶ μετὰ οἷσι φίλοισι· θεοὶ δ' ἐλέαιρον ἅπαντες
νόσφι Ποσειδάωνος· ὁ δ' ἀσπερχὲς μενέαινε
ἀντιθέω Ὀδυσῆϊ πάρος ἦν γαῖαν ἰκέσθαι.



The result to the general public:

--professional-speak

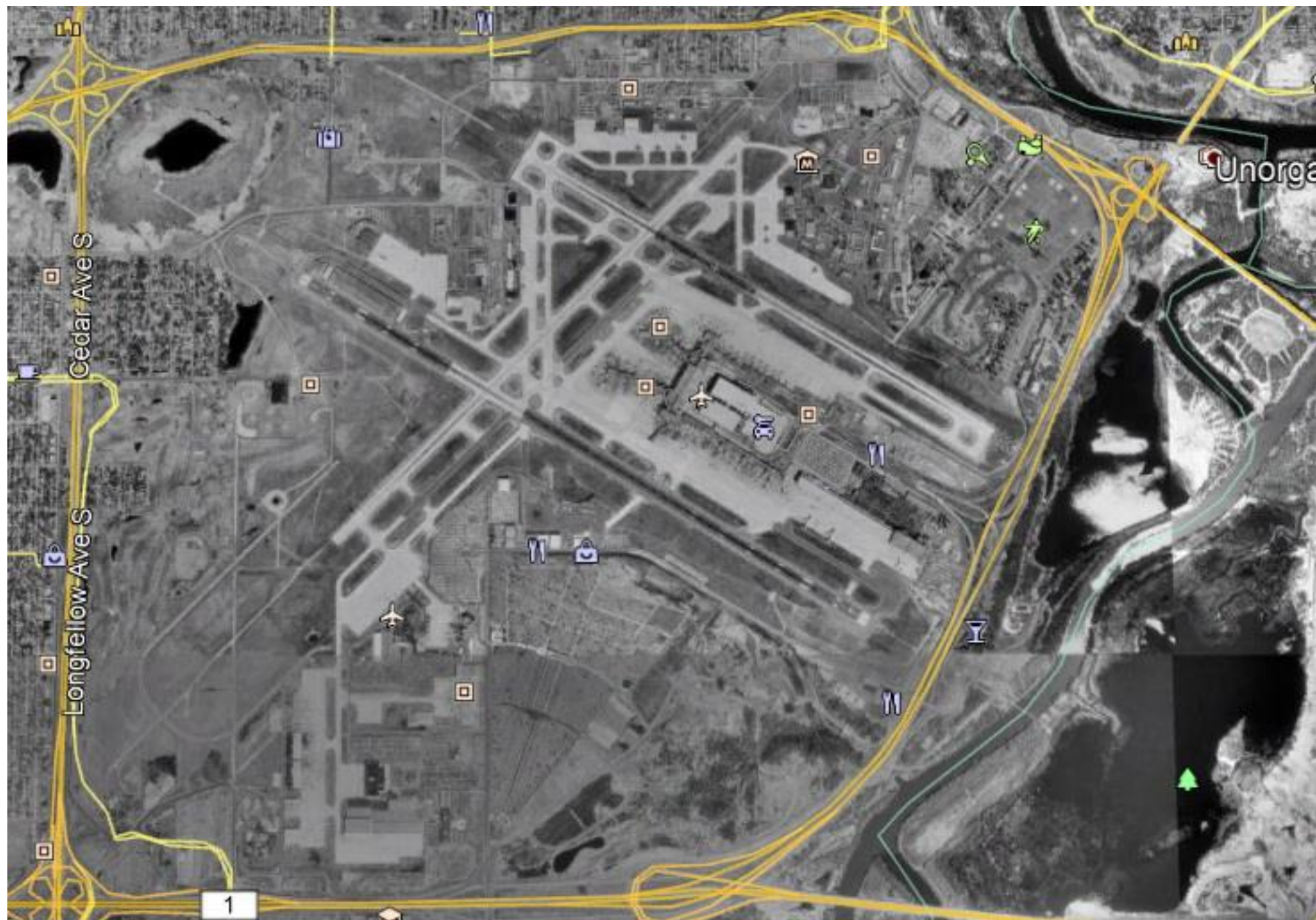
--arcane language

--baffling

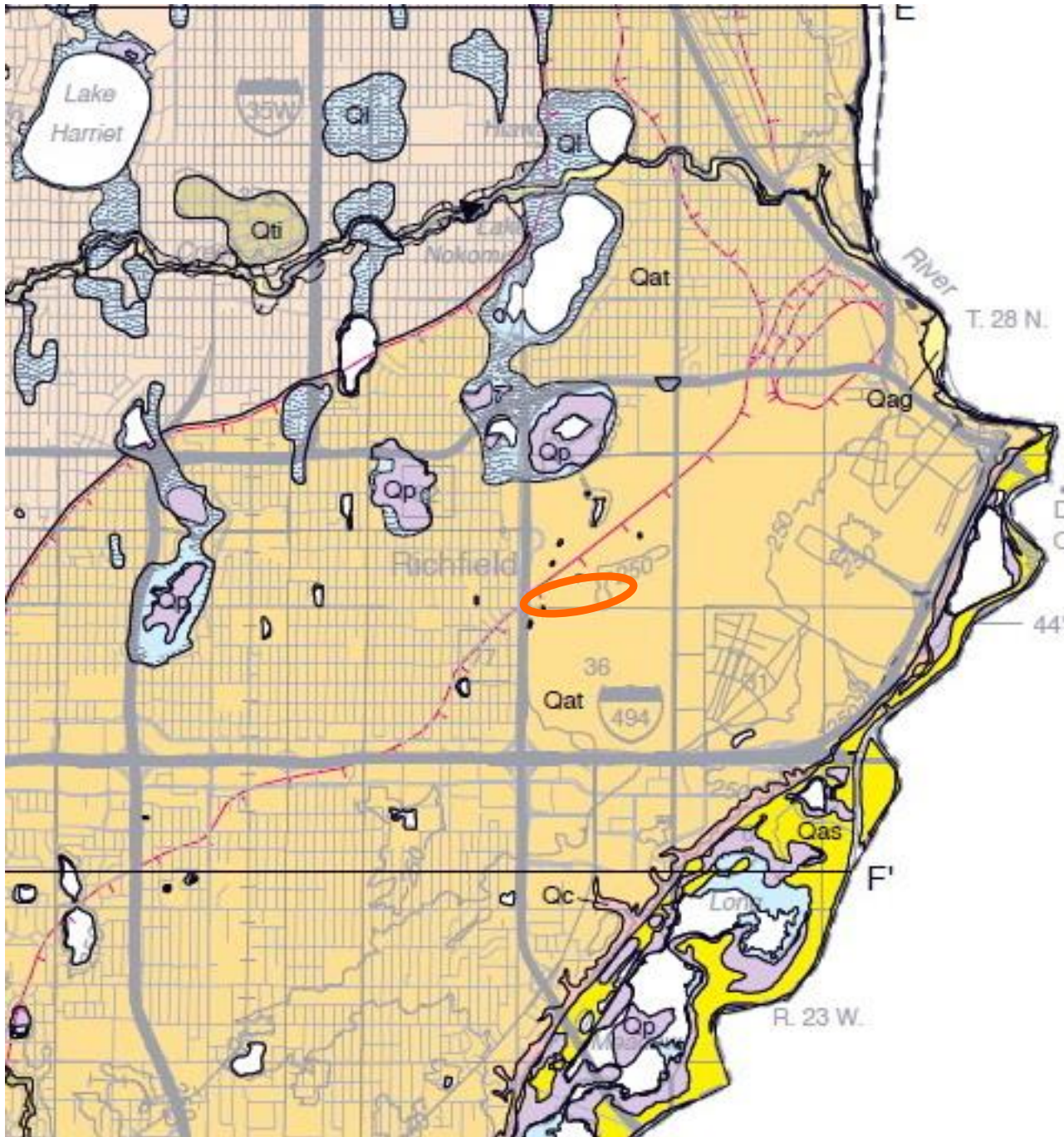
--incomprehensible

--inaccessible

--misinterpreted







K = 500 feet/day

**MAC model: Q up to
6,000 gpm**

....drawdown beneath Lake Nokomis. However...

....drawdown of Lake Nokomis.

A runway project could cause Lake Nokomis to drop 4 feet and affect other nearby lakes, a consultant says.

Tunnel work could lower lakes

By Mark Brunswick
Star Tribune Staff Writer

Water levels at Lake Nokomis, a popular recreation area in south Minneapolis, could drop

and Mother lakes, a consultant for the Minnehaha Creek Watershed District has concluded.

The data so concerns district officials, who must issue permits for the project, that they've

tunnel and the new north-south runway under which it would pass, says its data show that lake levels would be affected only slightly.

Ground water moves below

Issues are emotional.

Hundreds at public meetings

Solutions are technical.

Consensus modeling

Decisions are political.

They built a wall

Sheet piling could cost several millions of dollars more than dewatering.

- 1 A box would be built out of metal I-beams driven into the ground around the construction area. The pilings would be driven through the aquifer into a layer of clay beneath the ground water.

Seams between the pilings would be filled with concrete grouting or other material to keep water out.

Steel retaining wall

Tunnel and roadway

Finished tunnel and runway

- 2 The tunnel would be built in normal fashion in the now dry interior of the box.

- 3 The box would be removed and the area filled in. The runway would be built over the tunnel.

Source: Star Tribune research, Kelton Barr Consulting, Inc.

Star Tribune graphic by Mark Boswell



For further reading:

“An Inside Look at the Minneapolis-St. Paul Airport Ground Water Dewatering Controversy” by Stu Grubb, MGWA Newsletter, September, 2000; Volume 19, Number 3.

“Public Perceptions behind the Airport Dewatering Controversy” by Mark Toso, MGWA Newsletter, December, 2000; Volume 19, Number 4.

Thank you for your time!