

**MOUND BASIN GROUNDWATER SUSTAINABILITY AGENCY**  
**REGULAR BOARD OF DIRECTORS MEETING and PUBLIC RATES HEARING**

Thursday, July 16, 2020 | 1:00 PM  
via Zoom, due to COVID-19 Meeting Protocol

**MINUTES**

**DIRECTORS IN ATTENDANCE:**

Mike Mobley, Chair  
Susan Rungren, Secretary  
Glenn Shephard, Treasurer  
Jim Chambers  
Conner Everts

**STAFF IN ATTENDANCE:**

Bryan Bondy, Executive Director  
Joseph Hughes, Agency Counsel  
Jackie Lozano, Clerk of the Board

**PUBLIC IN ATTENDANCE:**

Burt Handy  
Cutis Hopkins, Hopkins Groundwater Consulting  
Neal Maguire, Mound Basin Ag Water Group (MBAWG)  
Kathleen Kuepper, UWCD  
John Lindquist, UWCD  
Jason Sun, UWCD

**CALL TO ORDER 1:00 PM**

Chair Mobley called the meeting to order at 1:00 PM.

**1. PLEDGE OF ALLEGIANCE**

Chair Mobley led the participants in reciting the Pledge of Allegiance.

**2. PUBLIC COMMENTS ON ITEMS NOT APPEARING ON THE AGENDA**

Chair Mobley asked if there were any public comments.

For the consideration of the Board, Mr. Burt Handy presented his research and recommendation for a potential new water source and monitoring well near the City of Ventura's Sanjon Road facilities. He feels this is an area that has untapped groundwater resources.

Chair Mobley asked if Executive Director Bondy had any thoughts. Executive Director Bondy replied that MBGSA does not develop groundwater resources and suggested that Mr. Handy take up the question of a new production with the City of Ventura. He added that the area in question is not a priority for new monitoring well because there is no pumping in that part of the basin. He added that new monitoring wells should be prioritized in areas where there is pumping and located to monitor for seawater intrusion.

Chair Mobley asked Mr. Handy if there was anything he would like to add. Mr. Handy added that the area he presented as a source of potential water for the City of Ventura should be checked by the City to see if it is available. The presentation is attached for reference.

**3. ROLL CALL**

The Clerk of the Board called the roll. All Directors were present for the meeting.

**4. BRIEF OVERVIEW OF ZOOM FEATURES**

None were offered.

**5. APPROVAL OF AGENDA**

**Motion**

Chair Mobley requested going forward to move Item 3 Roll Call to Item 2, after the Pledge of Allegiance.

Executive Director Bondy recommended removing Item 10d (Past Due Groundwater Extraction Fees) from the agenda per Agency Counsel recommendation.

The Clerk advised the Board that Consent Calendar Items 6b Approval of Warrants and 6c Monthly Financial Reports were revised after the initial posting and distribution of the meeting packet. Revisions were distributed to the Board, posted on the website, and emailed to the public on July 15, 2020. Revised documents are attached to these Minutes for reference.

Motion to approve the agenda as amended, Director Everts; Second, Director Rungren. Roll call vote: five ayes (Chambers, Everts, Mobley, Rungren, Shephard); none opposed. Motion carries unanimously 5/0.

**6. CONSENT CALENDAR**

**6a Approval of Minutes**

**Motion**

The Board will consider approving the Minutes from the June 18, 2020, Regular Mound Basin GSA Board of Directors meeting and Public Rates Hearing.

**6b Approval of Warrants**

**Motion**

The Board will consider approving payment of outstanding vendor invoices.

**6c Monthly Financial Reports**

**Information Item**

The Board will receive the monthly profit and loss statements and balance sheets for the month of June 2020.

Chair Mobley had a question about the income received for groundwater extraction fees as listed on the income statement for the year. Does the statement include two billing cycles?

Executive Director Bondy responded he does not believe so. He explained that the amount reflects the July through December 2019 billing period only and that invoicing for the January through June 2020 period has not yet occurred. He further explained that the Agency is on accrual accounting, so revenue for the January through June 2019 billing period would not appear on the fiscal year 2019-2020 income statement. The revenue is booked based on the pumping period, not the invoicing date. Executive Director Bondy will verify with finance staff.

Chair Mobley asked since so under budget, why the City of Ventura is not extracting as much as the Agency budgeted for and asked if that is why there is a large discrepancy? Executive Director Bondy replied that it was his understanding that finance has yet to book the January through June time period yet, which has the lesser pumping of the two periods. After further review, it was noted by Chair Mobley that the staff report for Item 6c confirmed the Executive Director's explanation.

No further comments or questions by the Directors.

No public comments were offered.

Motion to approve the Consent Calendar, Director Everts; Second, Director Rungren. Roll call vote: five ayes (Chambers, Everts, Mobley, Rungren, Shephard), none opposed. Motion carries unanimously 5/0.

## **7. BOARD MEMBER ANNOUNCEMENTS**

**7a** None offered.

**7b** Since the previous Board meeting, the Directors reported no time spent on grant eligible activities.

## **8. EXECUTIVE DIRECTOR UPDATE**

Executive Director Bondy reviewed the staff report with the Board. There was nothing critical to report regarding administration, financial or legal activities. Currently, he is working with counsel on an approach to address unpaid extraction fees. He reported progress on the groundwater monitoring well. The City is agreeable to siting a monitoring well at the wastewater treatment plan and drill site has been identified. An Administrative Coastal Development Permit will be required from the City. The City Planning Department is developing an application for the Agency use for the permit application. Executive Director Bondy will follow up with the City Planning Department. Once the requirements are known, he will circle back with DWR to check if the Agency is still able to receive funding for the monitoring well under the Technical Support Services program.

Chair Mobley was wondering if the Agency will require Coastal Commission approval for the well. Executive Director Bondy responded that, because the City has a local coastal development plan, it will be the lead permitting agency. However, the Coastal Commission does review all applications and reserves the right to take over the approval process.

No further comments or questions by the Directors.

No public comments were offered.

## **9. INFORMATION ITEMS**

### **9a Mound Basin Study Presentation Information Item**

Curtis Hopkins of Hopkins Groundwater Consulting presented a preliminary review of study findings of the Mound Basin groundwater conditions and perennial yield to the Board. The presentation is attached for reference.

Upon conclusion of the presentation, Chair Mobley opened the floor for questions or comments. Board members had questions about the timeframe used to calculate the perennial yield, how perennial yield might compare to sustainable yield, and potential sources of dissolved constituents detected in groundwater samples from the Community Park well. Mr. Hopkins explained that the study period was 1985 through 2015 with 2005 starting to get into the dryer years.

Executive Director Bondy commented that perennial yield is different than the sustainable yield that the Agency is required to estimate for the GSP. He cautioned the Board and stakeholders not to assume the numbers presented by Mr. Hopkins would necessarily be the sustainable yield. He explained that the sustainable yield will depend on how the MBGSA defines its sustainability goal and management criteria. He added that the GSP sustainable yield will also need to consider conditions in the different principle aquifers and

other factors not addressed in a perennial yield analysis. Mr. Bondy also noted that the recent isotope study concluded that evaporite deposits in the aquifer are a likely cause of the dissolved constituents detected at the Community Park well.

Chair Mobley thanked Mr. Hopkins for the presentation.

No further comments or questions by the Directors.

No public comments were offered.

## 10. MOTION ITEMS

### 10a Groundwater Sustainability Plan Monthly Update (Grant Category (d), Task 4)

#### Motion

Executive Director Bondy reviewed the staff report with the Board and provided a summary. The GSP Development Team is currently wrapping up the hydrogeologic conceptual model (HCM) and groundwater conditions sections of the GSP, which will be posted to the website in the next few weeks. The second GSP newsletter is ready and will be sent out soon. The GSP development process is not shifting to the sustainable management criteria (SMCs).

Executive Director Bondy has been meeting with UWCD staff concerning groundwater model development status. UWCD staff has been busy working on extending the regional groundwater model to include the Santa Paula, Fillmore, and Piru basins. The new model will better simulate groundwater flow from the Santa Paula Basin into the Mound Basin and other changes affect recharge in the Oxnard Forebay area, which has some influence in the Mound Basin. UWCD staff recommends, if possible, to wait for the updated version for analysis. However, there is some uncertainty regarding when the updated model will be done. If UWCD needs more time, then the Agency will use the existing model that does not include the Santa Paula, Fillmore, and Piru basins and then evaluate updating the work later.

Executive Director Bondy asked the Board to provide comments, questions, and approval to move forward on the release of the draft newsletter attached to the staff report.

Director Shephard provided comment regarding the model. UWCD is getting ready to perform model calibration and go through a peer review to get the system to work well. It was Director Shephard's understanding that UWCD staff would calibrate and self-certify to use for the GSP. There seems to be a sense of urgency with getting the GSP completed. Director Shephard asked if the Agency should wait for this process to proceed or use what is the most current? Executive Director Bondy replied that model peer review is in tandem. Those processes are coming together at the same time and UWCD has a version that the Agency can use for the GSP. The documentation will follow later. Executive Director recommended deciding no later than August whether to stick use the forthcoming or existing model.

Chair Mobley offered insight saying that UWCD staff discussed the model at their last board meeting and are obtaining feedback from experts. Things are moving along very well and hopefully the Agency will gain use of the model soon.

Regarding public outreach, there was a discussion about sending a bill stuffer with the City of Ventura's water bills. The bill stuffer would reach the general public, including disadvantaged communities in the Basin. Director Rungren mentioned the cost of the mailing would be around \$2,500. The City's bills are split into two different time frames and because of different cycles and areas, Mound Basin covers a certain portion depending on water usage, so the Agency should plan on mailing the newsletter along with a map to all customers the Agency serves and have it ready soon. The timing of the mailing depends on how far a reach the Agency decides on. Chair Mobley mentioned there is an

electronic version of the newsletter on the Agency's website. The format is simple and contains good and pertinent information. The mailing would not incur a huge expense. There is a need to reach out to disadvantaged communities. All the DACs are served by the city and this is one way to reach out to them and demonstrate the Agency has done that. Should also consider printing the newsletter two-sided and in Spanish and make the Board aware of the cost and update the budget mid-year. Executive Director Bondy will work with Director Rungren and her staff on a bill stuffer.

Director Chambers asked if the mailing will also be placed in the MBGSA billing. Executive Director Bondy said he will ask the finance staff to include the newsletter with the next bills.

No further comments or questions by the Directors.

No public comments were offered.

Motion to receive the GSP monthly update and approve the distribution of the newsletter, Director Chambers; Second, Director Shephard. Roll call vote: five ayes (Chambers, Everts, Mobley, Rungren, Shephard), none opposed. Motion carried unanimously 5/0.

**10b Sustainability Goal Public Draft Release (Grant Category (d), Task 4)**

**Motion**

Executive Director Bondy explained that the draft Sustainability Goal is being presented again for discussion and release for public comment. The plan is to revisit and consider Board adoption in August, so the Agency has a goal for planning. Executive Director Bondy recommended the Board approve the draft goal for public comment release.

Chair Mobley suggested spelling out "Groundwater Sustainability Plan" instead of abbreviating and putting "GSP" in parentheses. Chair Mobley further commented that the goal looks great, but "SGMA" should also be spelled out and the acronym placed in parentheses, similar to "GSP." Executive Director Bondy said he would make those improvements.

No further comments or questions by the Directors.

No public comment was offered.

Motion to adopt the draft Sustainability Goal for public comment release, Director Rungren; Second, Director Chambers. Roll call vote: five ayes (Chambers, Everts, Mobley, Rungren, Shephard), none opposed. Motion carries unanimously 5/0.

**10c Set Date and Time for the Groundwater Sustainability Plan Stakeholder Workshop – Webinar (Grant Category (c), Task 3)**

**Motion**

Executive Director Bondy requested the Board approve a date and time to hold the stakeholder workshop webinar. After reviewing their calendars and eliminating any meeting conflicts, the Board members agreed on Thursday, September 3, 2020, at 5:00 p.m.

Director Chambers questioned if the format is different as a webinar? Executive Director Bondy said yes and explained that the meeting organizer and panelists will have access to present and speak during the webinar, but public participants are muted and will be able to comment via texting within the webinar framework. Organizers will unmute attendees, one at a time, when attendees "raise their hand" to ask questions, and there will be polls presented throughout the webinar to engage the audience. Director Chambers thanked Executive Director Bondy.

No further comments or questions by the Directors.

No public comment was offered.

Motion approve the date and time for the Groundwater Sustainability Plan Stakeholder Workshop, Director Rungren; Second, Director Chambers. Roll call vote: five ayes (Chambers, Everts, Mobley, Rungren, Shephard), none opposed. Motion carries unanimously 5/0.

10e **Reappointment of Stakeholder Directors**

**Motion**

Chair Mobley asked if the Board or public had any comments or questions regarding the reappointment of the Agriculture and Environmental Stakeholder Directors for a new one-year term.

Chair Mobley stated that the Agency's current directors, Director Everts and Director Chambers, had been nominated by their respective stakeholder organizations for another term. Both are representing their stakeholders well and he approves of them representing as stakeholder directors.

No further comments or questions by the Directors.

No public comment was offered.

Motion to approve the reappointment of Director Chambers as Agricultural Stakeholders Director and Director Everts as Environmental Stakeholder Director for a new one-year term, August 2020-August 2021, Director Rungren; Second, Director Shephard. Roll call vote: three ayes (Rungren, Shephard, Mobley) none opposed. Motion carried unanimously 3/0. (According to the Agency's bylaws, only member directors vote on approving stakeholder representative directors)

**11. FUTURE AGENDA ITEMS**

- UWCD Groundwater Model presentation

Chair Mobley thanked Attorney Joe Hughes for being part of the meeting and asked for input at the next Agency meeting. Executive Director Bondy stated that he has asked Mr. Hughes to become more engaged than in the past as a means for staying up to speed on the GSP and to be ready to answer any questions during GSP development.

**ADJOURNED 2:30 PM**

Chair Mobley adjourned the meeting at 2:30 PM to the next **Regular Board Meeting on Thursday, August 20, 2020**, or call of the Chair.

I certify that above is a true and correct copy of the minutes of the Mound Basin Groundwater Sustainability Agency's Board of Directors meeting of July 16, 2020.

ATTEST:

  
Susan Rungren, Board Secretary

ATTEST:

  
Jackie Lozano, Clerk of the Board

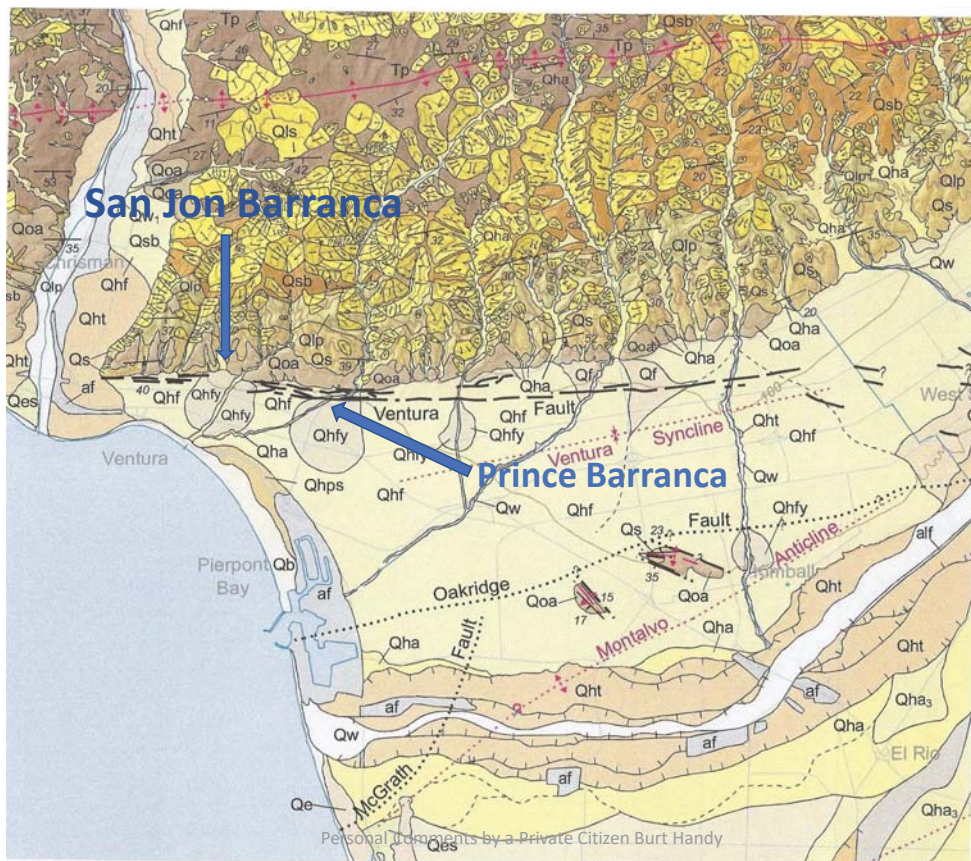


## San Jon Canyon/Barranca and Hall Canyon/Prince Barranca

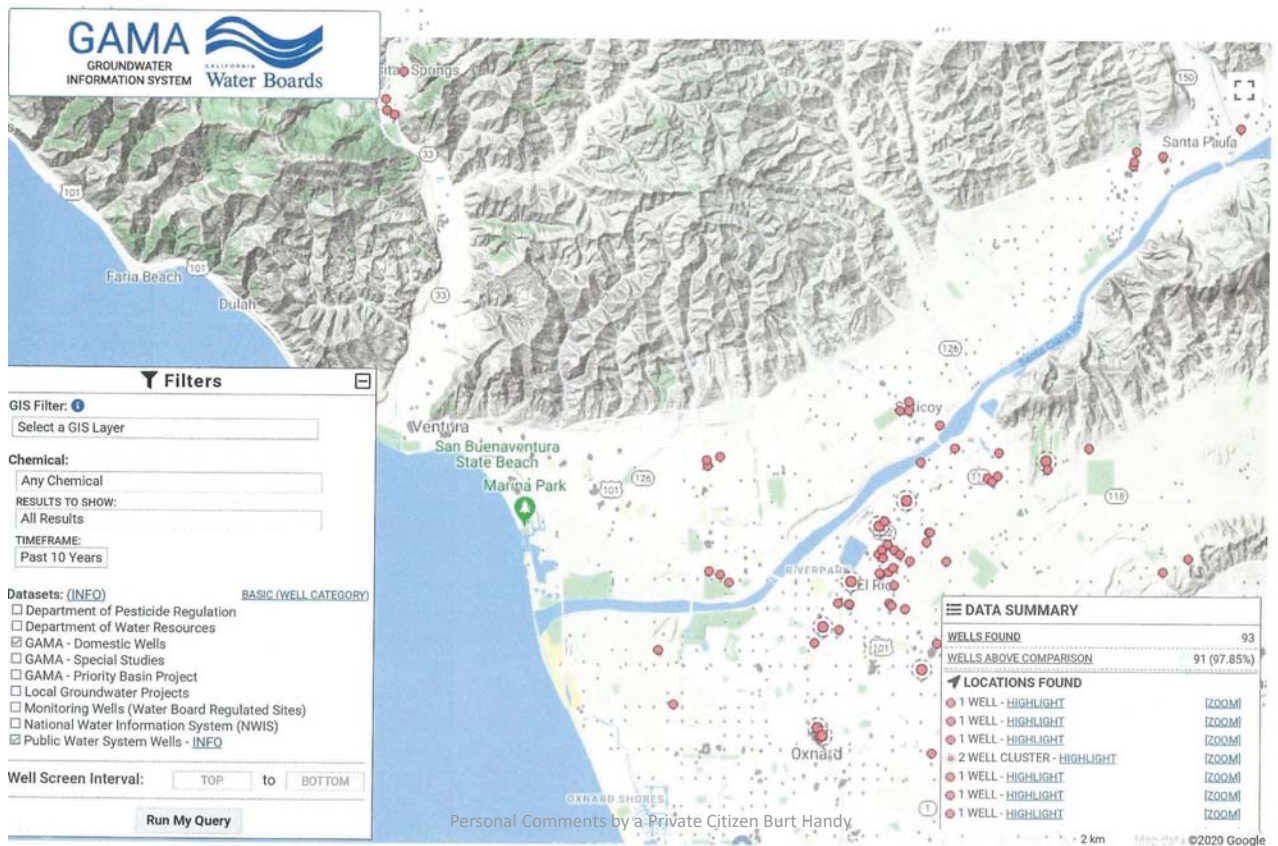


USGS  
Geologic Map  
of the  
East Half

Santa Barbara  
30' by 60'  
Quadrangle  
California  
2008  
Compiled by  
Carlos  
Gutierrez  
Siang S Tan  
Kevin B Clahan

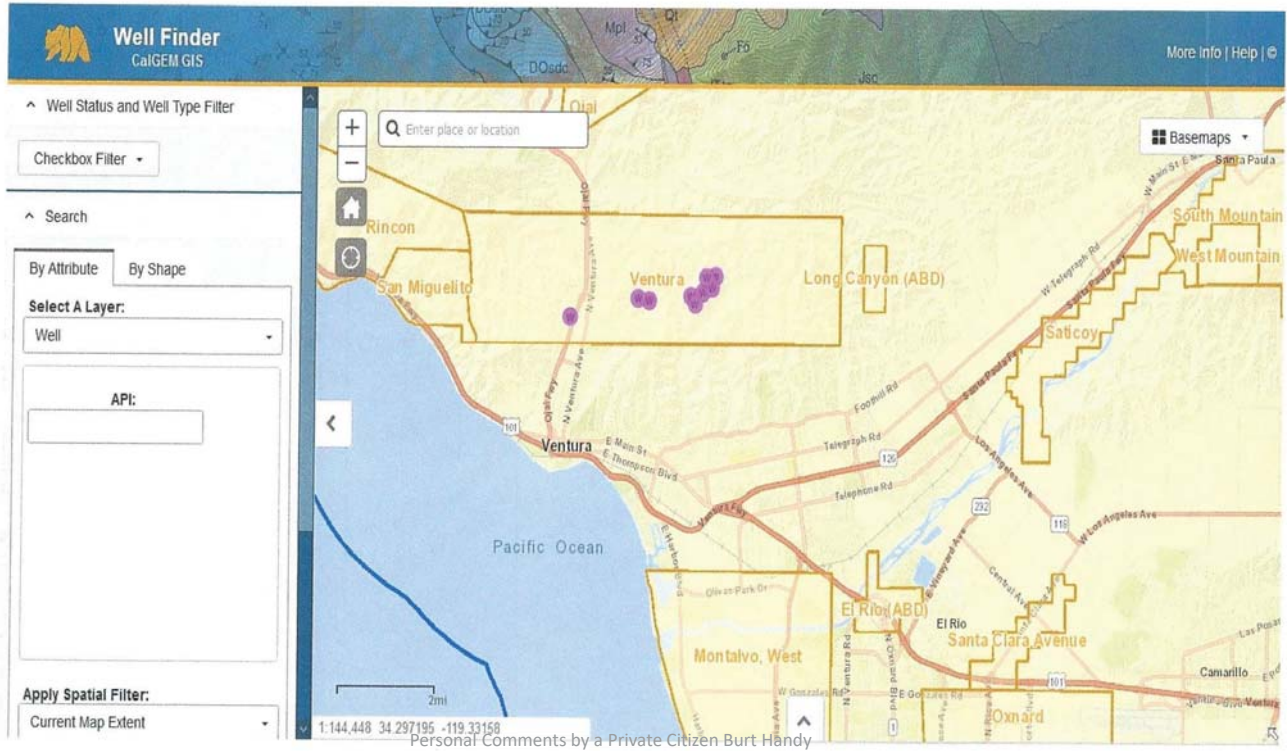








## Water Wells, New, Active, Inactive in the Oil Patch above Ventura

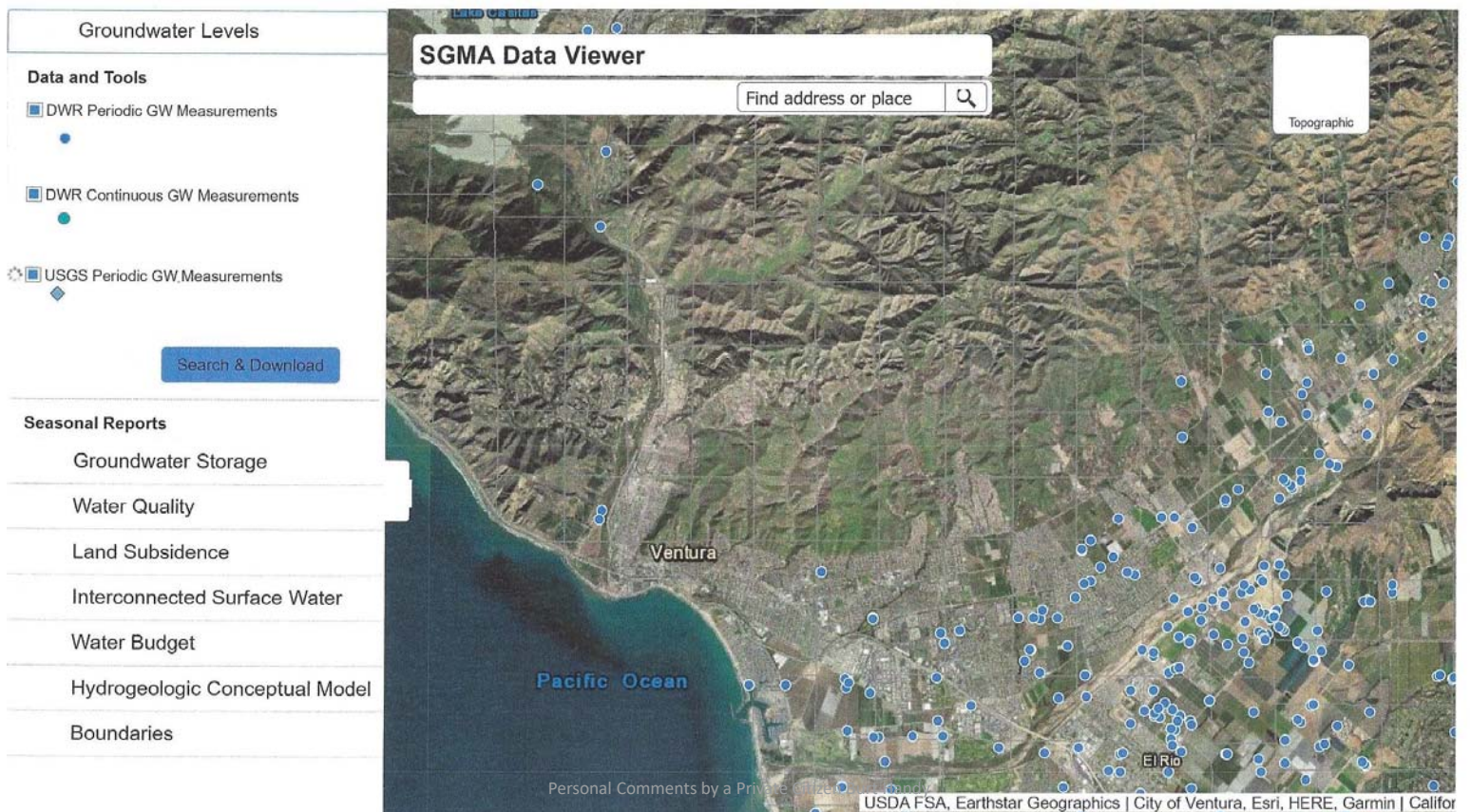
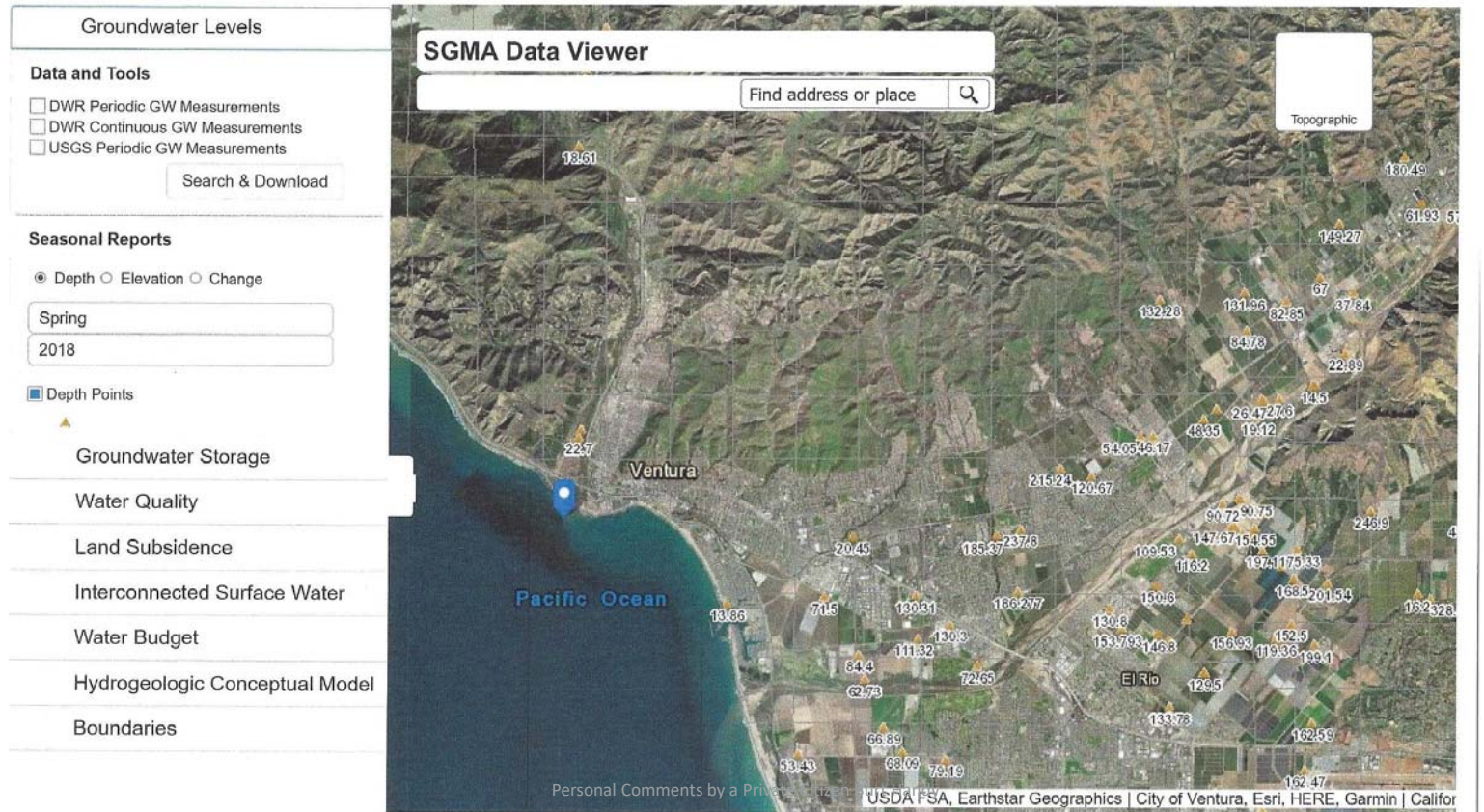


# Questions?

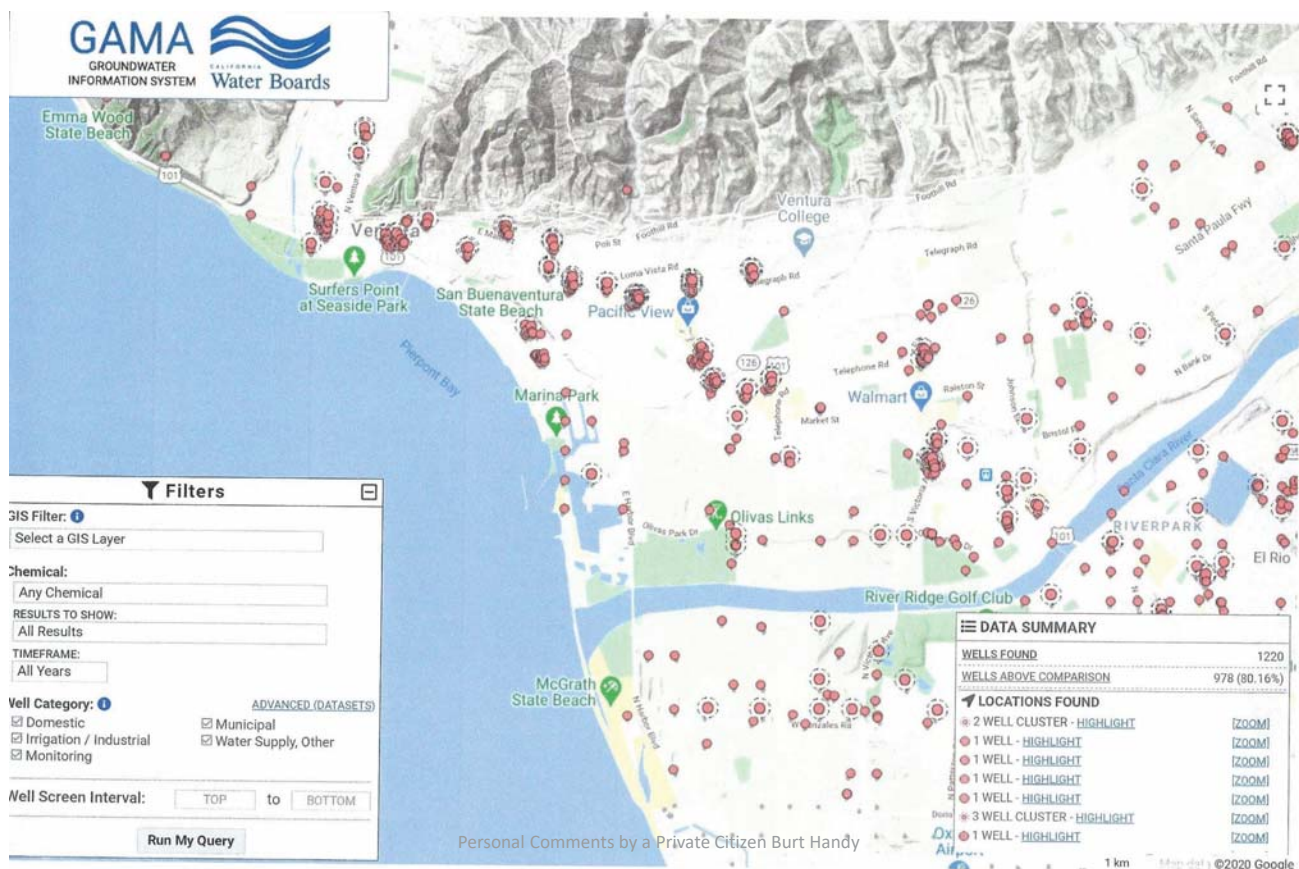
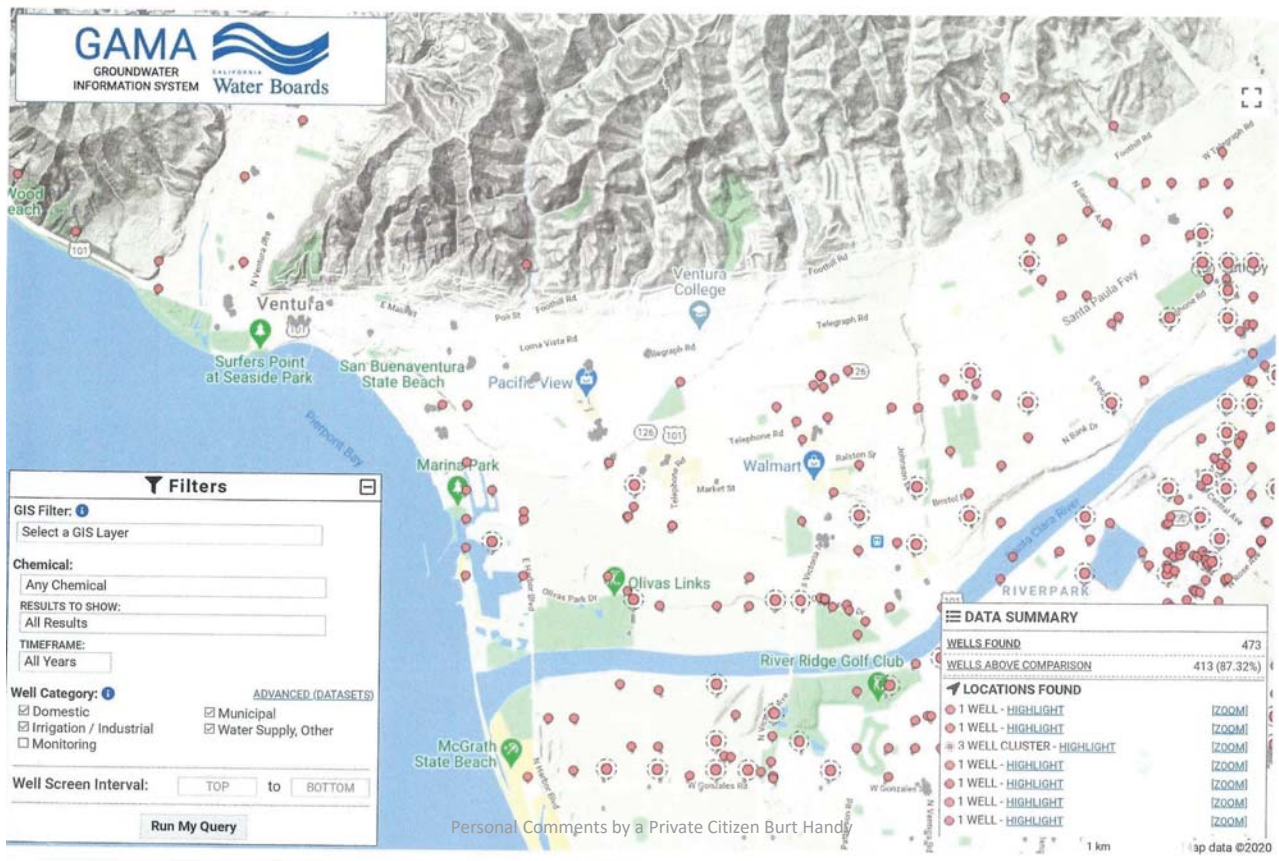


Photo by Burt Handy  
Personal Comments by a Private Citizen Burt Handy

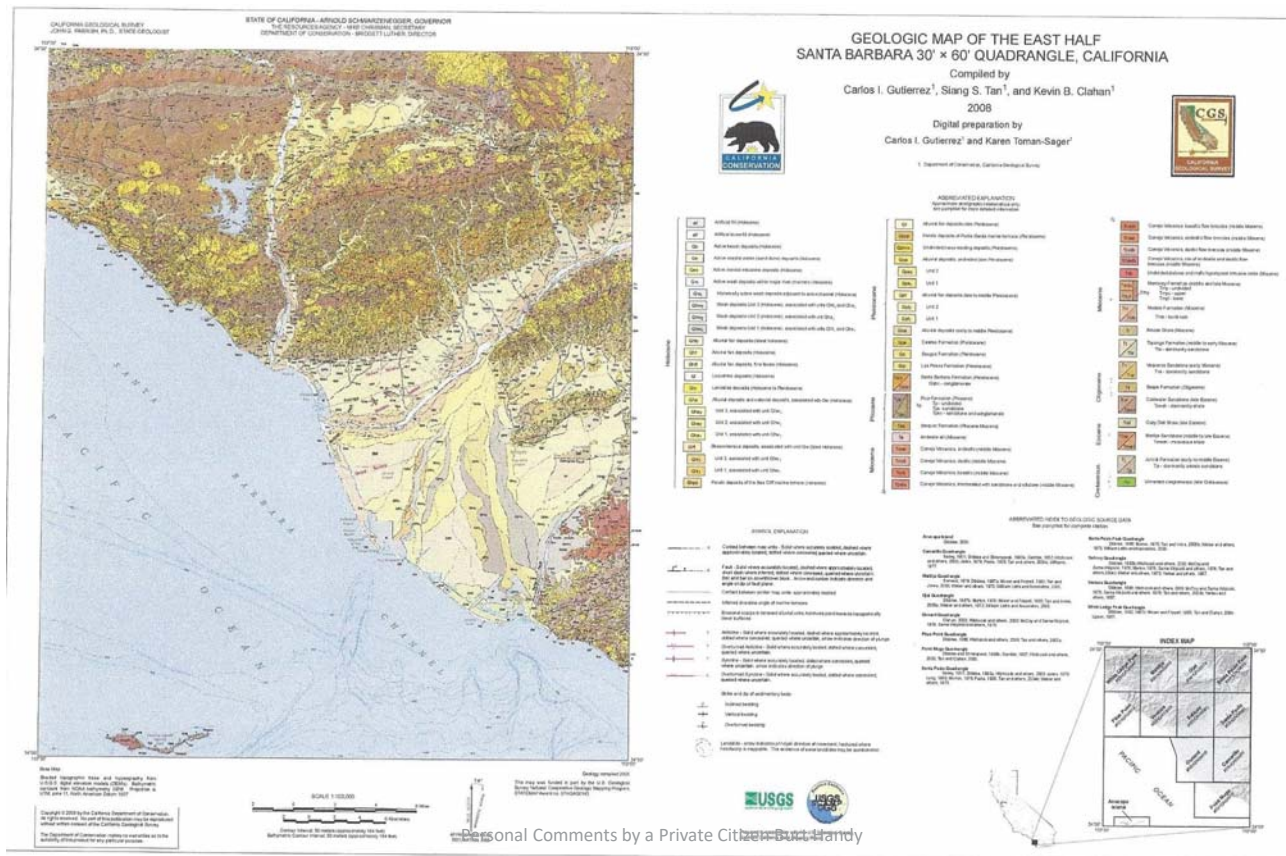


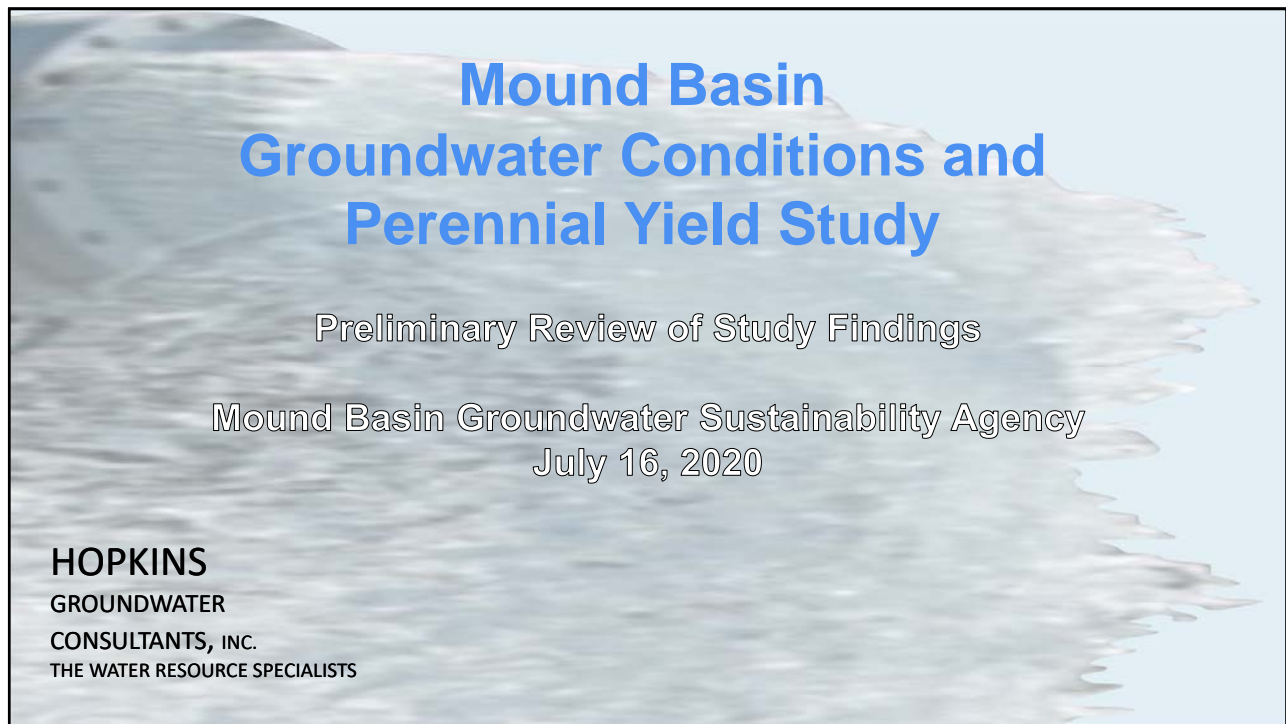




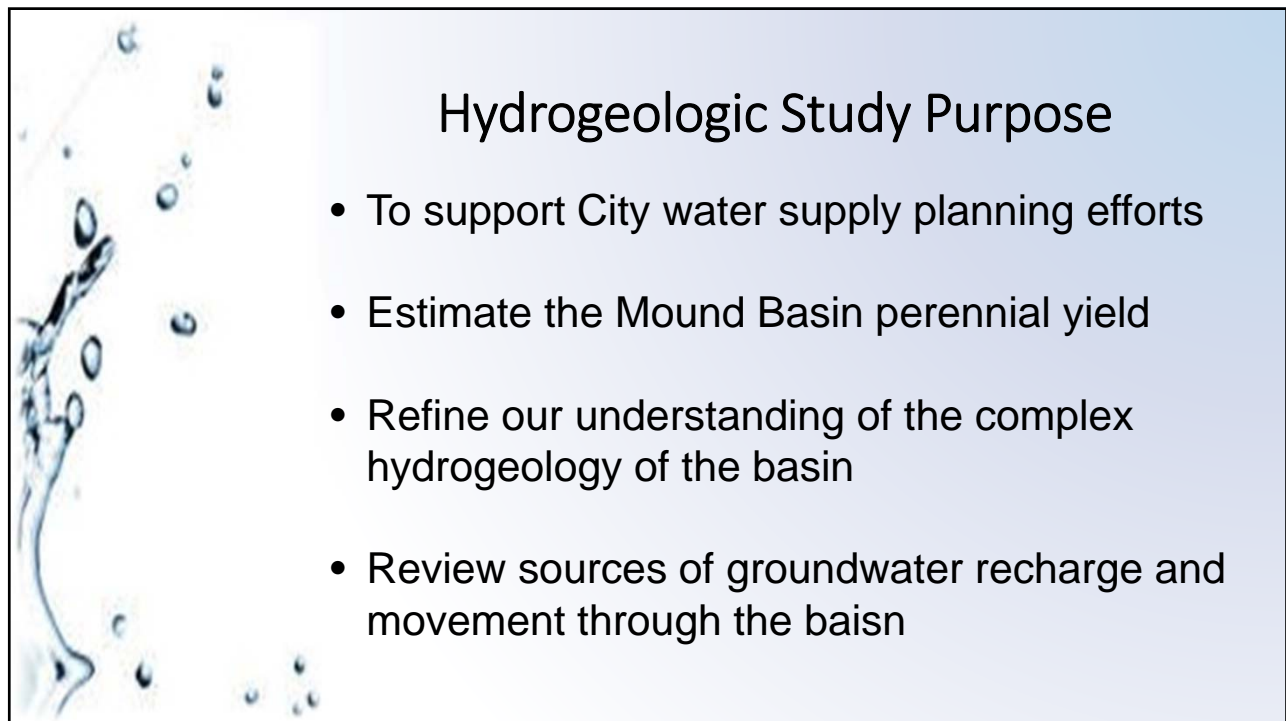









1




2



## Data Sources

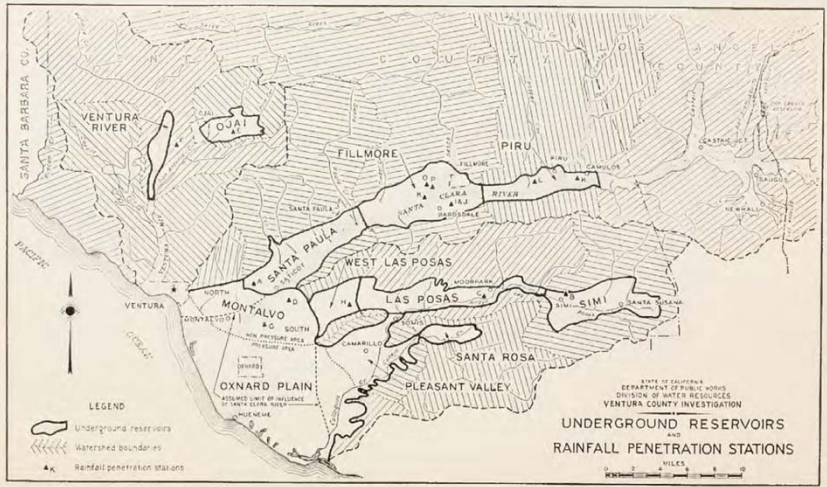
Data Type	Source
Precipitation and Evaporation	Ventura County Watershed Protection District Hydrologic Data Server (Hydrodata) <a href="http://vcwatershed.net/hydrodata/">http://vcwatershed.net/hydrodata/</a> California Irrigation Management Information System (CIMIS) – part of DWR
Streamflow	Ventura County Watershed Protection District Hydrologic Data Server (Hydrodata) <a href="http://vcwatershed.net/hydrodata/">http://vcwatershed.net/hydrodata/</a> U.S. Geological Survey
Groundwater Production and Imported Water Supplies	United Water Conservation District City of San Buenaventura
Groundwater Levels	Ventura County Watershed Protection District United Water Conservation District
Groundwater Quality	Ventura County Watershed Protection District United Water Conservation District
Well Geophysical Logs	Ventura County Watershed Protection District California Division of Oil, Gas, and Geothermal Resources
Spatial Feature Layers (GIS)	Ventura County Farm Bureau, Southern California Association of Governments (SCAG), United Water Conservation District

3



## Historical Studies

### CA Dept. Public Works, Division of Water Resources, Bulletin No. 46, 1933



4



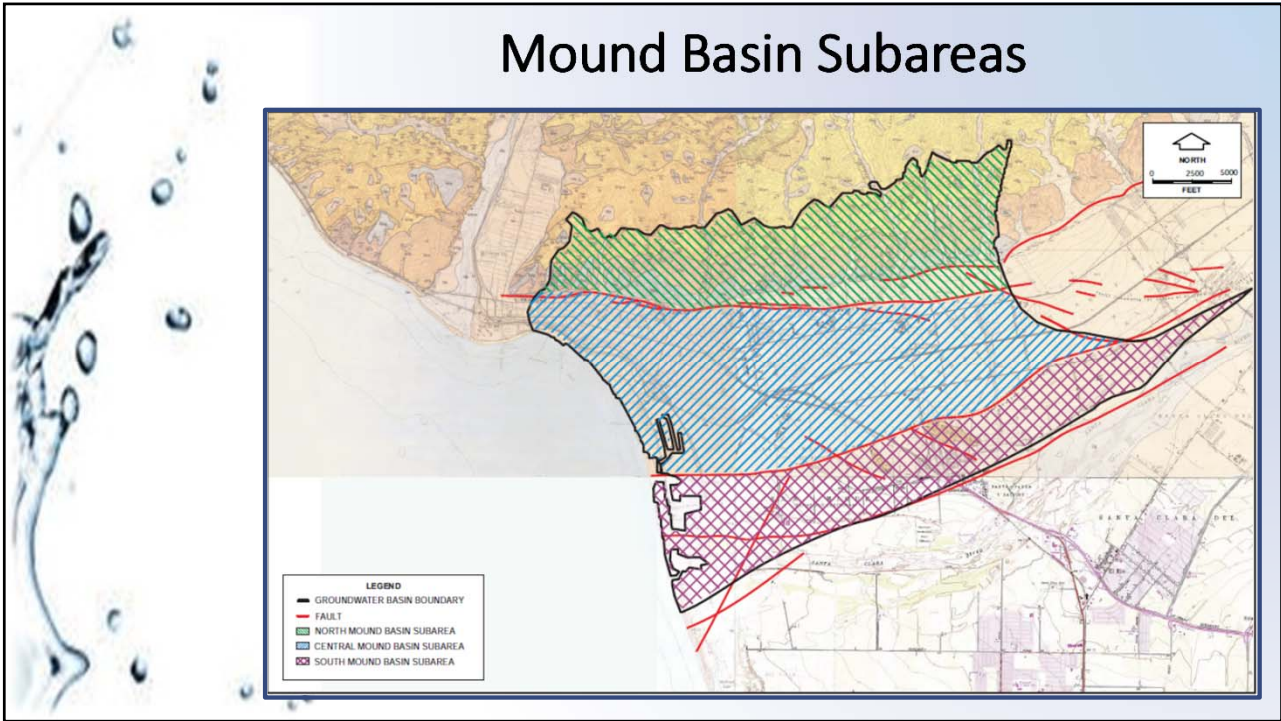
The map displays the Mound Basin area, including the Pacific Ocean to the west and south. The Mound Basin is highlighted in blue. Surrounding basins include the Lower Ventura River Basin to the northwest, the Santa Paula Basin to the northeast, and the Oxnard Plain Basin to the southeast. A table in the bottom left corner provides data on groundwater basins.

Groundwater Basin	Acres
Mound Basin (Total)	14,800
Revised Mound Basin	13,804

3

The map displays a complex geological structure with various units labeled with codes such as Qoa, Qha, Qht, Qhs, Qw, Qs, Qf, Qb, Qc, Qd, Qe, Qf, Qg, Qh, Qi, Qj, Qk, Ql, Qm, Qn, Qo, Qp, Qq, Qr, Qs, Qt, Qu, Qv, Qw, Qx, Qy, Qz, Qaa, Qab, Qac, Qad, Qae, Qaf, Qag, Qah, Qai, Qaj, Qak, Qal, Qam, Qan, Qao, Qap, Qaq, Qar, Qas, Qat, Qau, Qav, Qaw, Qax, Qay, Qaz, Qba, Qbb, Qbc, Qbd, Qbe, Qbf, Qbg, Qbh, Qbi, Qbj, Qbk, Qbl, Qbm, Qbn, Qbo, Qbp, Qbq, Qbr, Qbs, Qbt, Qbu, Qbv, Qbw, Qbx, Qby, Qbz, Qca, Qcb, Qcc, Qcd, Qce, Qcf, Qcg, Qch, Qci, Qcj, Qck, Qcl, Qcm, Qcn, Qco, Qcp, Qcq, Qcr, Qcs, Qct, Qcu, Qcv, Qcw, Qcx, Qcy, Qcz, Qda, Qdb, Qdc, Qdd, Qde, Qdf, Qdg, Qdh, Qdi, Qdj, Qdk, Qdl, Qdm, Qdn, Qdo, Qdp, Qdq, Qdr, Qds, Qdt, Qdu, Qdv, Qdw, Qdx, Qdy, Qdz, Qea, Qeb, Qec, Qed, Qee, Qef, Qeg, Qeh, Qei, Qej, Qek, Qel, Qem, Qen, Qeo, Qep, Qeq, Qer, Qes, Qet, Qeu, Qev, Qew, Qex, Qey, Qez, Qfa, Qfb, Qfc, Qfd, Qfe, Qff, Qfg, Qfh, Qfi, Qfj, Qfk, Qfl, Qfm, Qfn, Qfo, Qfp, Qfq, Qfr, Qfs, Qft, Qfu, Qfv, Qfw, Qfx, Qfy, Qfz, Qga, Qgb, Qgc, Qgd, Qge, Qgf, Qgg, Qgh, Qgi, Qgj, Qgk, Qgl, Qgm, Qgn, Qgo, Qgp, Qgq, Qgr, Qgs, Qgt, Qgu, Qgv, Qgw, Qgx, Qgy, Qgz, Qha, Qhb, Qhc, Qhd, Qhe, Qhf, Qhg, Qhi, Qhj, Qhk, Qhl, Qhm, Qhn, Qho, Qhp, Qhq, Qhr, Qhs, Qht, Qhu, Qhv, Qhw, Qhx, Qhy, Qhz, Qia, Qib, Qic, Qid, Qie, Qif, Qig, Qih, Qii, Qij, Qik, Qil, Qim, Qin, Qio, Qip, Qiq, Qir, Qis, Qit, Qiu, Qiv, Qiw, Qix, Qiy, Qiz, Qja, Qjb, Qjc, Qjd, Qje, Qjf, Qjg, Qjh, Qji, Qjj, Qjk, Qjl, Qjm, Qjn, Qjo, Qjp, Qjq, Qjr, Qjs, Qjt, Qju, Qjv, Qjw, Qjx, Qjy, Qjz, Qka, Qkb, Qkc, Qkd, Qke, Qkf, Qkg, Qkh, Qki, Qkj, Qkl, Qkm, Qkn, Qko, Qkp, Qkq, Qkr, Qks, Qkt, Qku, Qkv, Qkw, Qkx, Qky, Qkz, Qla, Qlb, Qlc, Qld, Qle, Qlf, Qlg, Qlh, Qli, Qlj, Qlk, Qll, Qlm, Qln, Qlo, Qlp, Qlq, Qlr, Qls, Qlt, Qlu, Qlv, Qlw, Qlx, Qly, Qlz, Qma, Qmb, Qmc, Qmd, Qme, Qmf, Qmg, Qmh, Qmi, Qmj, Qmk, Qml, Qmm, Qmn, Qmo, Qmp, Qmq, Qmr, Qms, Qmt, Qmu, Qmv, Qmw, Qmx, Qmy, Qmz, Qna, Qnb, Qnc, Qnd, Qne, Qnf, Qng, Qnh, Qni, Qnj, Qnk, Qnl, Qnm, Qnn, Qno, Qnp, Qnq, Qnr, Qns, Qnt, Qnu, Qnv, Qnw, Qnx, Qny, Qnz, Qoa, Qob, Qoc, Qod, Qoe, Qof, Qog, Qoh, Qoi, Qoj, Qok, Qol, Qom, Qon, Qoo, Qop, Qoq, Qor, Qos, Qot, Qou, Qov, Qow, Qox, Qoy, Qoz, Qpa, Qpb, Qpc, Qpd, Qpe, Qpf, Qpg, Qph, Qpi, Qpj, Qpk, Qpl, Qpm, Qpn, Qpo, Qpp, Qpq, Qpr, Qps, Qpt, Qpu, Qpv, Qpw, Qpx, Qpy, Qpz, Qqa, Qqb, Qqc, Qqd, Qqe, Qqf, Qqg, Qqh, Qqi, Qqj, Qqk, Qql, Qqm, Qqn, Qqo, Qqp, Qqq, Qqr, Qqs, Qqt, Qqu, Qqv, Qqw, Qqx, Qqy, Qqz, Qra, Qrb, Qrc, Qrd, Qre, Qrf, Qrg, Qrh, Qri, Qrj, Qrk, Qrl, Qrm, Qrn, Qro, Qrp, Qrq, Qrr, Qrs, Qrt, Qru, Qrv, Qrw, Qrx, Qry, Qrz, Qsa, Qsb, Qsc, Qsd, Qse, Qsf, Qsg, Qsh, Qsi, Qsj, Qsk, Qsl, Qsm, Qsn, Qso, Qsp, Qsq, Qsr, Qss, Qst, Qsu, Qsv, Qsw, Qsx, Qsy, Qsz, Qta, Qtb, Qtc, Qtd, Qte, Qtf, Qtg, Qth, Qti, Qtj, Qtk, Qtl, Qtm, Qtn, Qto, Qtp, Qtq, Qtr, Qts, Qtt, Qtu, Qtv, Qtw, Qtx, Qty, Qtz, Qua, Qub, Quc, Qud, Que, Quf, Qug, Quh, Qui, Quj, Quk, Qul, Qum, Qun, Quo, Qup, Quq, Qur, Qus, Qut, Quu, Quv, Quw, Qux, Quy, Quz, Qva, Qvb, Qvc, Qvd, Qve, Qvf, Qvg, Qvh, Qvi, Qvj, Qvk, Qvl, Qvm, Qvn, Qvo, Qvp, Qvq, Qvr, Qvs, Qvt, Qvu, Qvv, Qvw, Qvx, Qvy, Qvz, Qwa, Qwb, Qwc, Qwd, Qwe, Qwf, Qwg, Qwh, Qwi, Qwj, Qwk, Qwl, Qwm, Qwn, Qwo, Qwp, Qwq, Qwr, Qws, Qwt, Qwu, Qwv, Qww, Qwx, Qwy, Qwz, Qxa, Qxb, Qxc, Qxd, Qxe, Qxf, Qxg, Qxh, Qxi, Qxj, Qxk, Qxl, Qxm, Qxn, Qxo, Qxp, Qxq, Qxr, Qxs, Qxt, Qxu, Qxv, Qxw, Qxx, Qxy, Qxz, Qya, Qyb, Qyc, Qyd, Qye, Qyf, Qyg, Qyh, Qyi, Qyj, Qyk, Qyl, Qym, Qyn, Qyo, Qyp, Qyq, Qyr, Qys, Qyt, Qyu, Qyv, Qyw, Qyx, Qyy, Qyz, Qza, Qzb, Qzc, Qzd, Qze, Qzf, Qzg, Qzh, Qzi, Qzj, Qzk, Qzl, Qzm, Qzn, Qzo, Qzp, Qzq, Qzr, Qzs, Qzt, Qzu, Qzv, Qzw, Qzx, Qzy, Qzz.

6

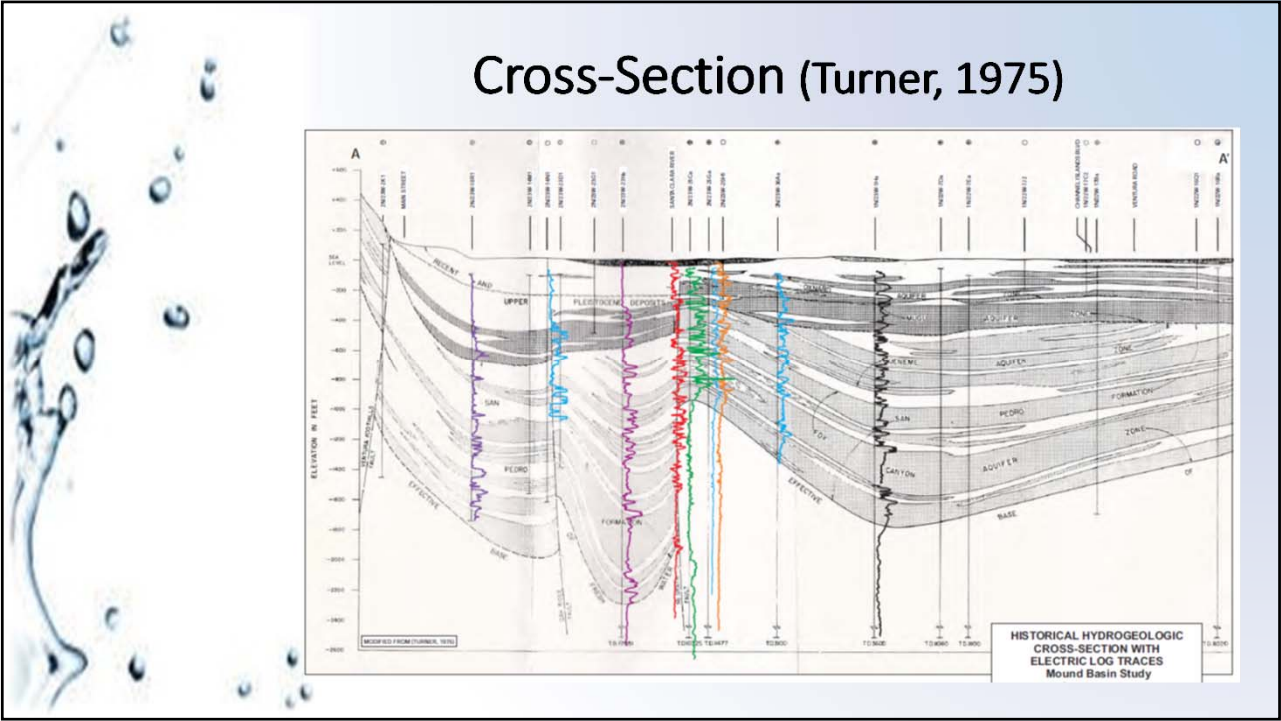


7

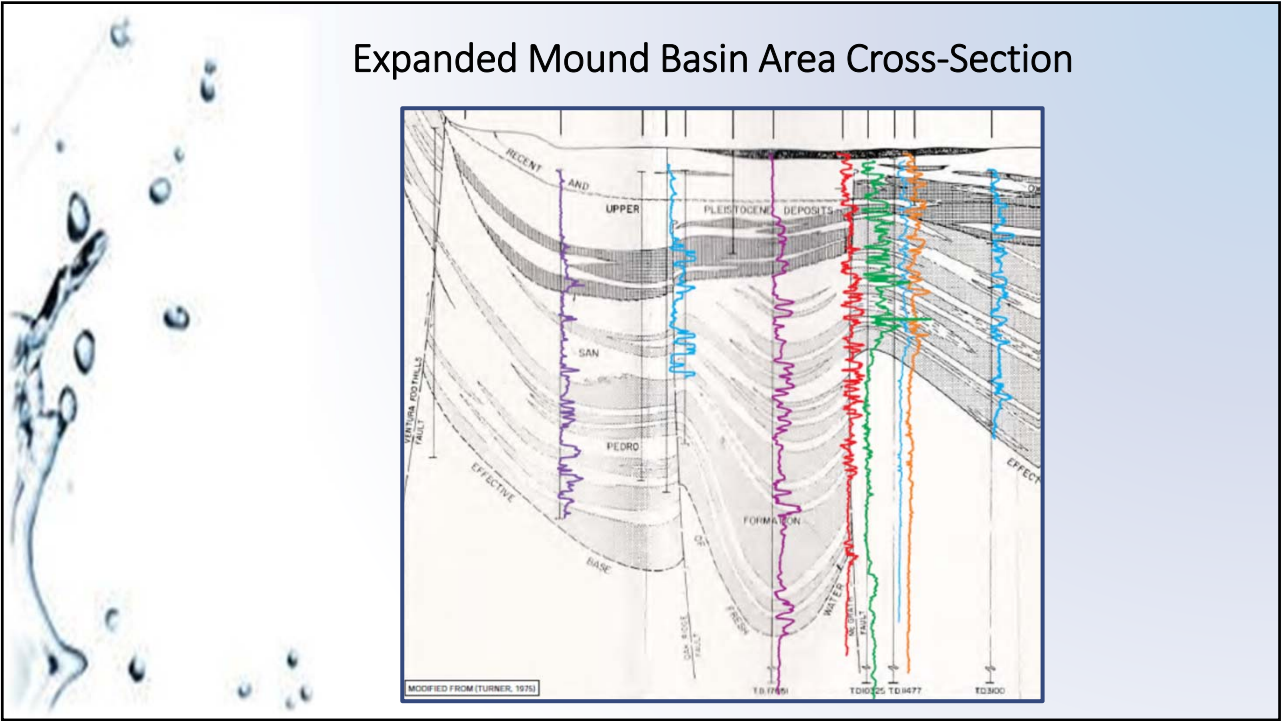


8



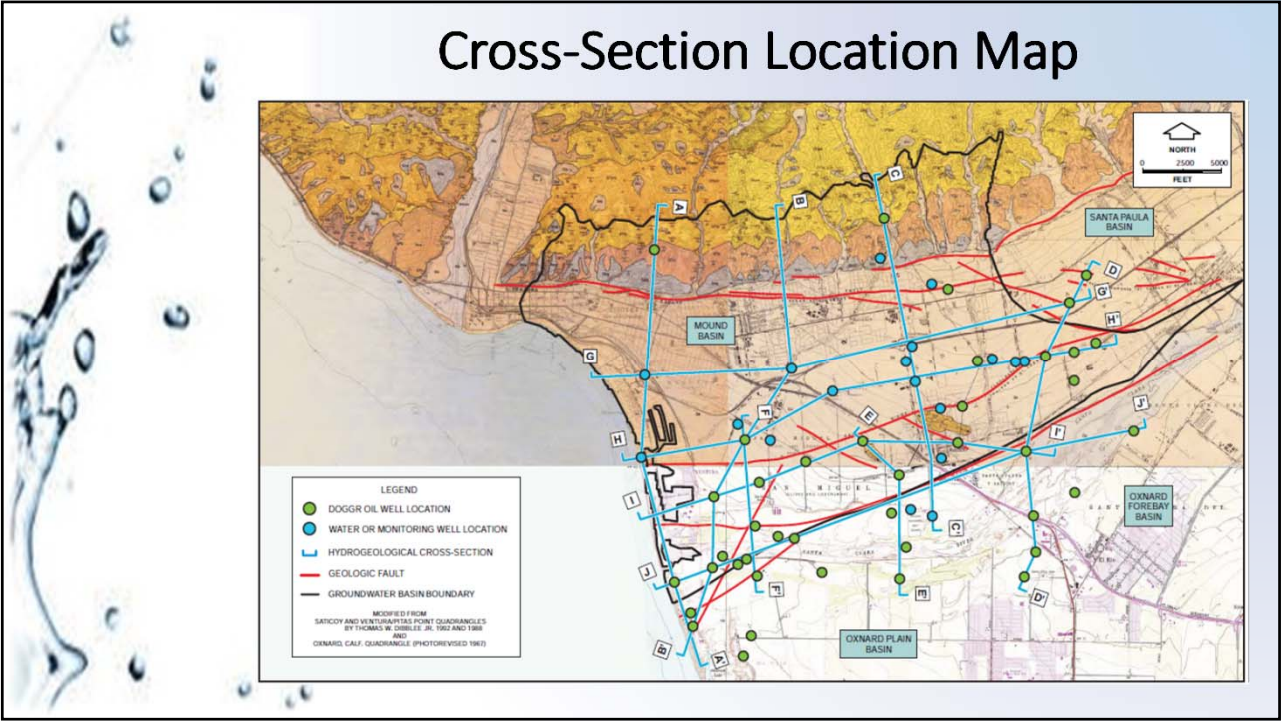


9

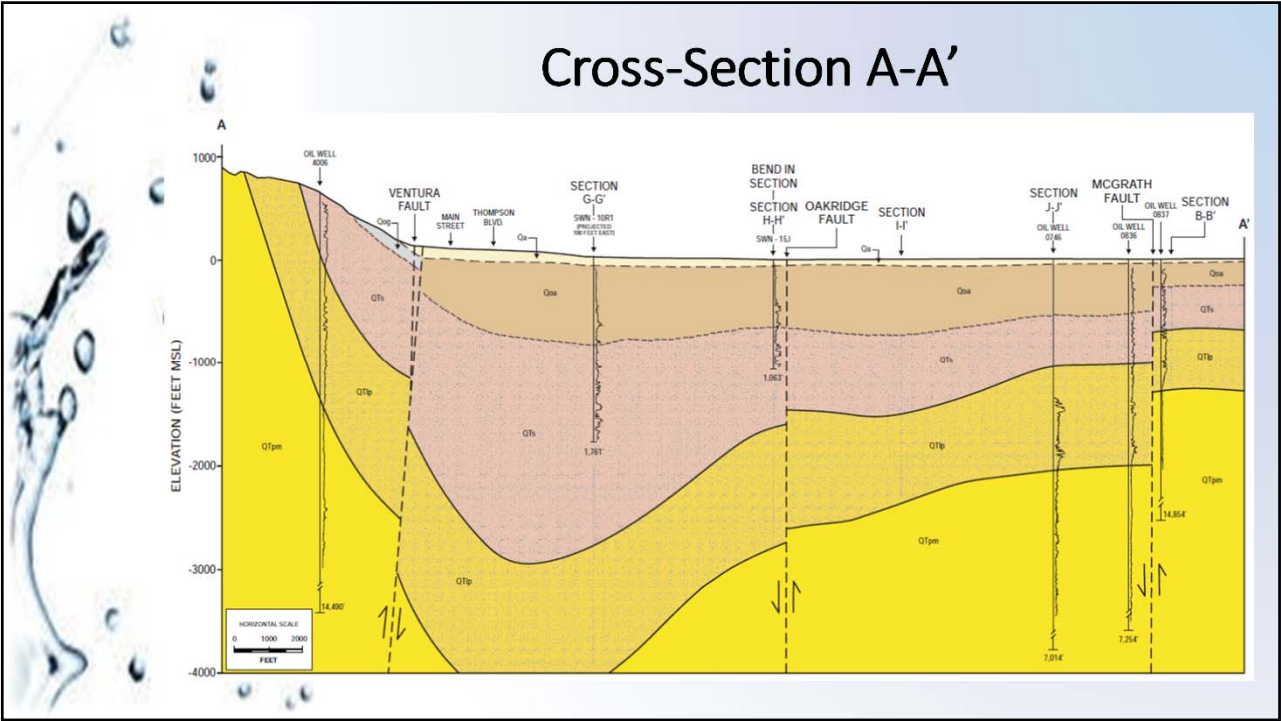


10





11



12

# Cross-Section B-B'

This geological cross-section, labeled B-B', illustrates the subsurface geology along a line from point B to point B'. The vertical axis represents elevation in feet above and below mean sea level (MSL), ranging from 1000 to -4000. The horizontal axis shows the ground surface profile with various landmarks and wells.

**Stratigraphic Units:**

- Q<sub>tm</sub>** (Tertiary Marine): Yellow units at the base of the section.
- Q<sub>tp</sub>** (Tertiary Piedmont): Light brown units above Q<sub>tm</sub>.
- Q<sub>sa</sub>** (Quaternary Alluvial): Tan units at the surface.

**Geological Features:**

- Ventura Fault:** A major fault on the left, indicated by a dashed line with arrows showing the hanging wall moving down.
- Oakridge Fault:** A fault in the center, indicated by a dashed line with arrows showing the hanging wall moving down.
- McGrath Fault:** A fault on the right, indicated by a dashed line with arrows showing the hanging wall moving down.

**Key Locations and Wells:**

- FOOTBALL ROAD:** Located near the Ventura Fault.
- TELEGRAPH ROAD:** Located near the Ventura Fault.
- CAMERO PARK MONITORING WELLS:** A cluster of wells near the center.
- MAIN STREET:** Located near the center.
- OIL WELL 8181:** Located near the center.
- OIL WELL 8154:** Located near the center.
- OIL WELL 8177:** Located near the center.
- OIL WELL 8184:** Located near the center.
- OIL WELL 8183:** Located near the center.
- OIL WELL 8182:** Located near the center.

**Section Labels:**

- SECTION G-G':** Located near the center.
- SECTIONS F-F' AND H-H':** Located near the center.
- SECTION J-J':** Located near the center.
- SECTION A-A':** Located near the right end.

**Horizontal Scale:**

0 1000 2000 FEET

# Cross-Section C-C'

**Cross-Section C-C'**

**Vertical Axis:** ELEVATION (FEET MSL) from -4000 to 1000.

**Horizontal Axis:** HORIZONTAL SCALE (0 to 2000 FEET).

**Geological Features:**

- VENTURA FAULT:** A major fault line running through the center of the section.
- OAKRIDGE FAULT:** A fault line located towards the right side of the section.
- Section G-G':** A vertical section line passing through the center.
- Section H-H':** A vertical section line passing through the center.
- Section I-I':** A vertical section line passing through the center.
- Section J-J':** A vertical section line passing through the center.
- Section K-K':** A vertical section line passing through the center.
- Section L-L':** A vertical section line passing through the center.
- Section M-M':** A vertical section line passing through the center.
- Section N-N':** A vertical section line passing through the center.
- Section O-O':** A vertical section line passing through the center.
- Section P-P':** A vertical section line passing through the center.
- Section Q-Q':** A vertical section line passing through the center.
- Section R-R':** A vertical section line passing through the center.
- Section S-S':** A vertical section line passing through the center.
- Section T-T':** A vertical section line passing through the center.
- Section U-U':** A vertical section line passing through the center.
- Section V-V':** A vertical section line passing through the center.
- Section W-W':** A vertical section line passing through the center.
- Section X-X':** A vertical section line passing through the center.
- Section Y-Y':** A vertical section line passing through the center.
- Section Z-Z':** A vertical section line passing through the center.

**Wells and Features:**

- OIL WELL 5917:** Located on the left side of the section.
- OIL WELL 20000:** Located in the center of the section.
- FOOTHILL ROAD:** A road located near the center of the section.
- TELEGRAPH ROAD:** A road located near the center of the section.
- HIGHWAY 126:** A road located near the center of the section.
- 101 FREEWAY:** A road located on the right side of the section.
- SWN - 561 (UNDEVELOPED 600 FEET WEST):** A well located on the left side of the section.
- SWN - 1701 (UNDEVELOPED 1,000 FEET WEST):** A well located on the right side of the section.
- SWN - 20K1:** A well located on the right side of the section.

**Rock Units:**

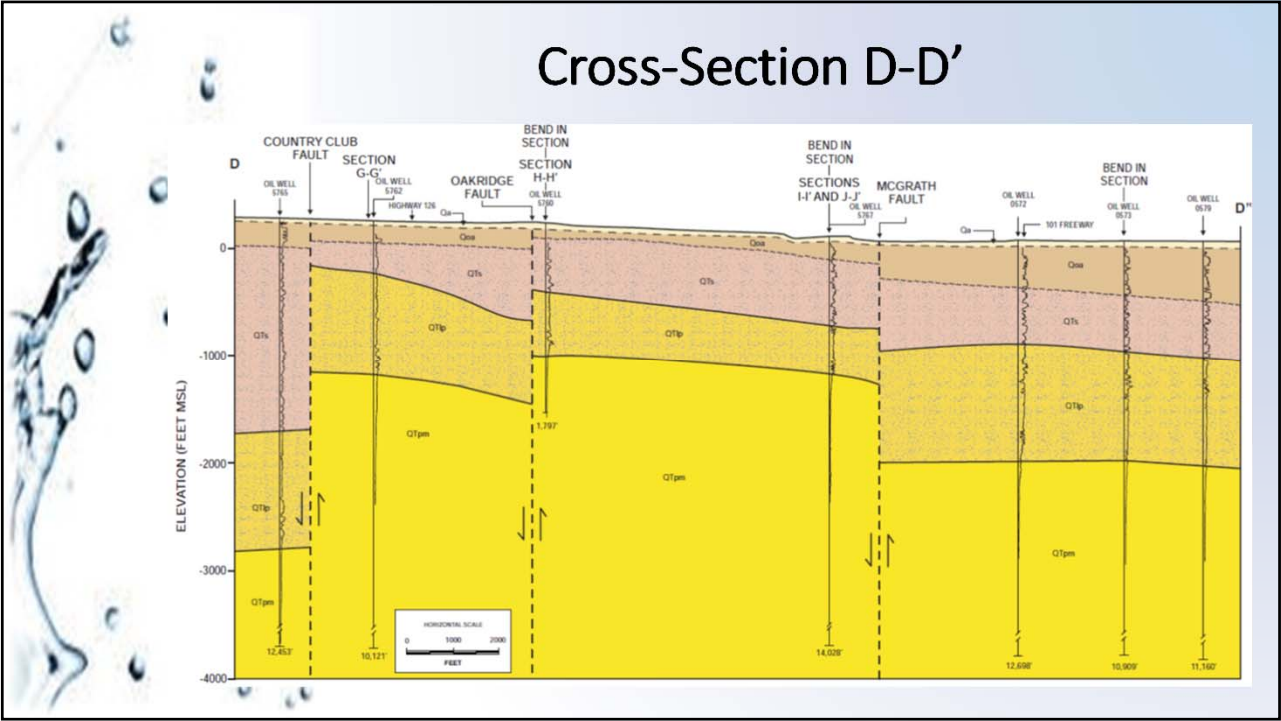
- Qtz:** Quartzite, shown in light brown.
- Qtzpm:** Quartzite, medium-grained, shown in yellow.
- Qtztp:** Quartzite, thin-bedded, shown in light brown.
- Qtzps:** Quartzite, porphyroblastic, shown in light brown.

**Other Features:**

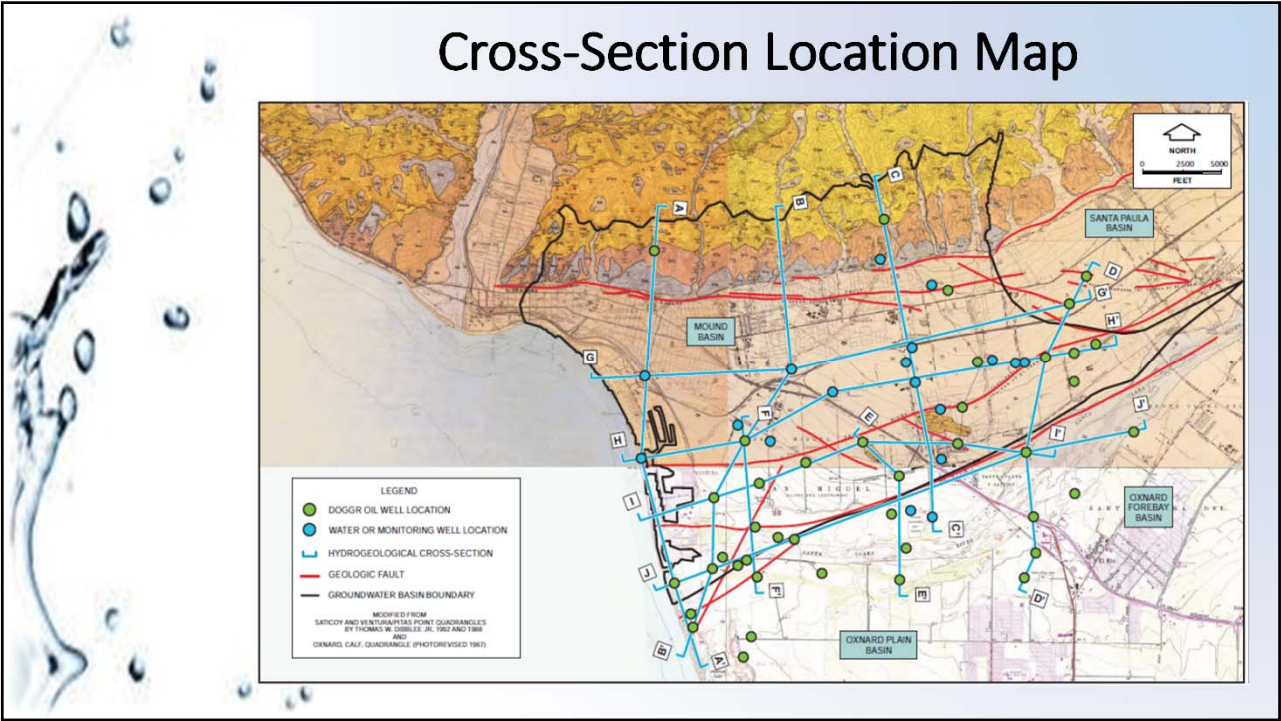
- 7:1:** A slope indicator shown on the left side of the section.
- 1.300':** A depth measurement indicated on the section.
- 1.637':** A depth measurement indicated on the section.
- 1.533':** A depth measurement indicated on the section.
- 1.119':** A depth measurement indicated on the section.
- 913':** A depth measurement indicated on the section.
- 9,357':** A depth measurement indicated on the section.
- 3,047':** A depth measurement indicated on the section.
- 5,588':** A depth measurement indicated on the section.
- 2,969':** A depth measurement indicated on the section.

7





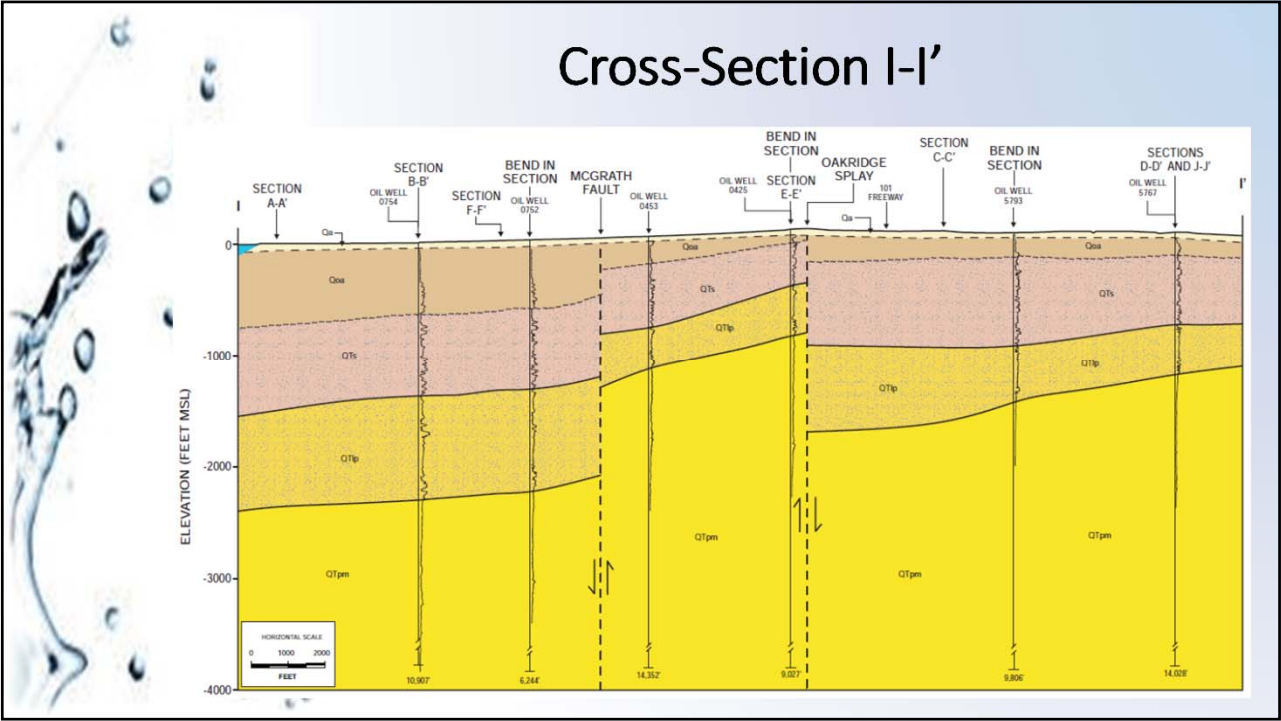
15



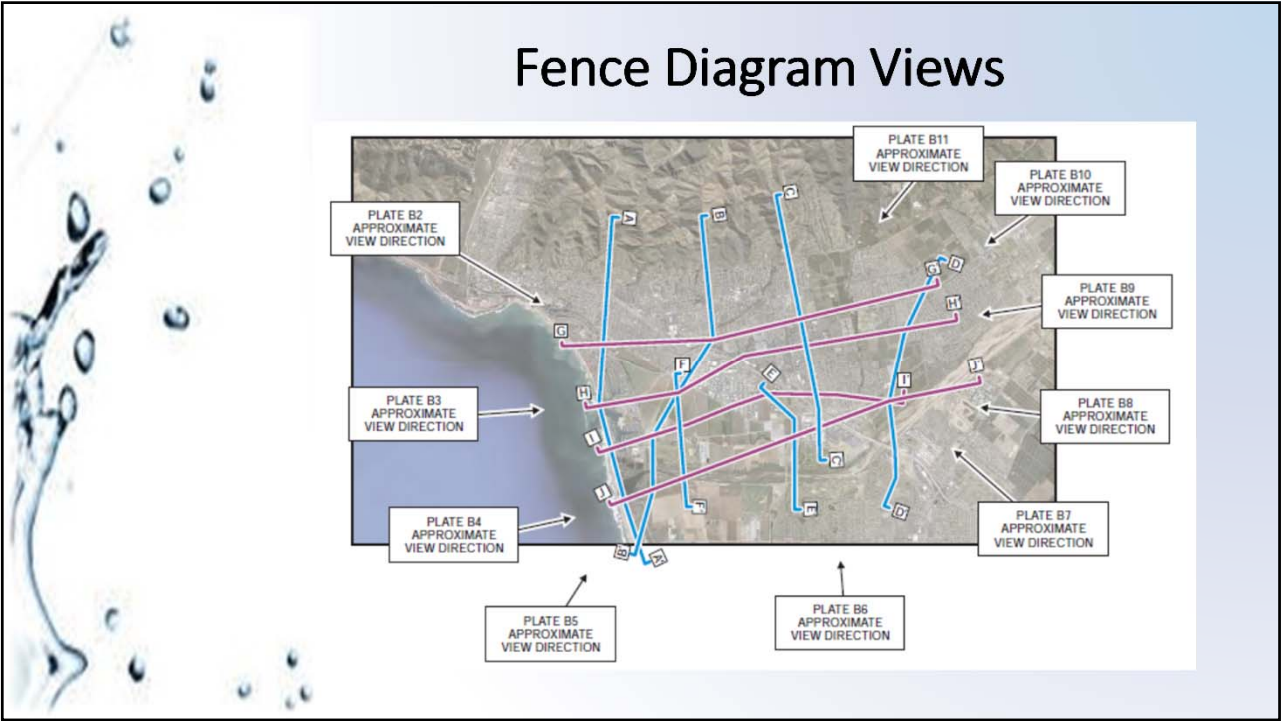
16





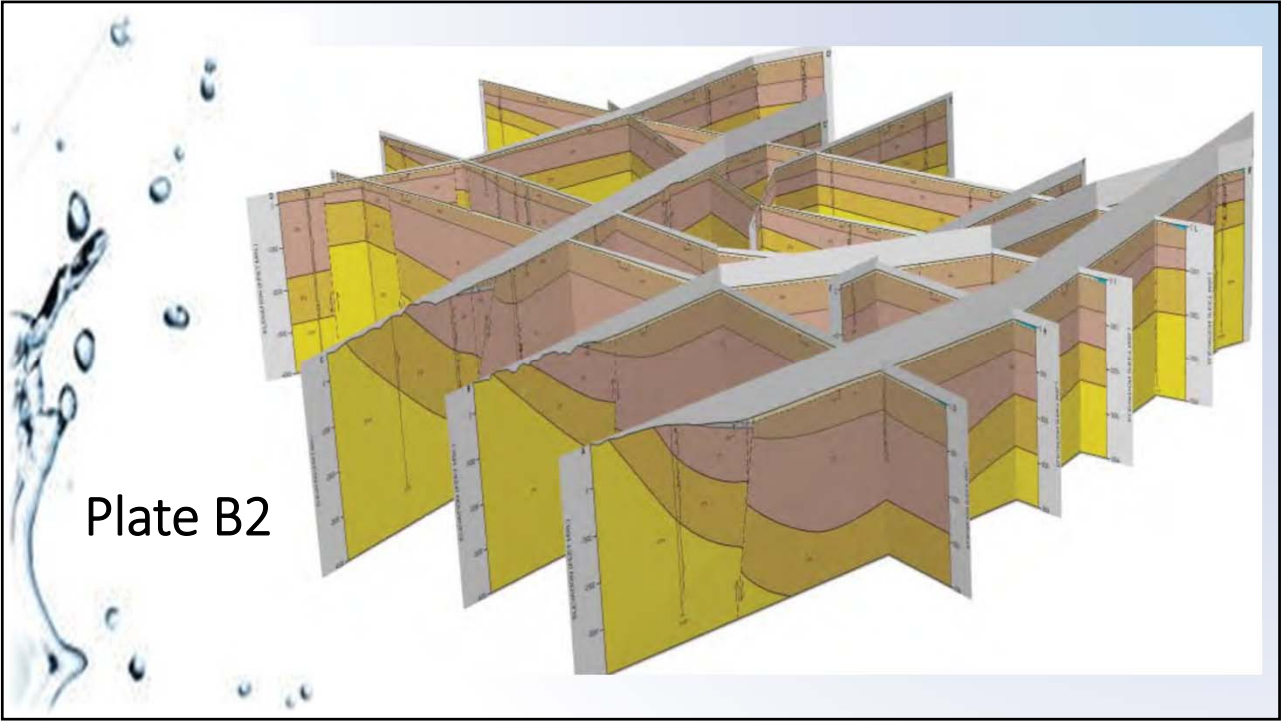


19

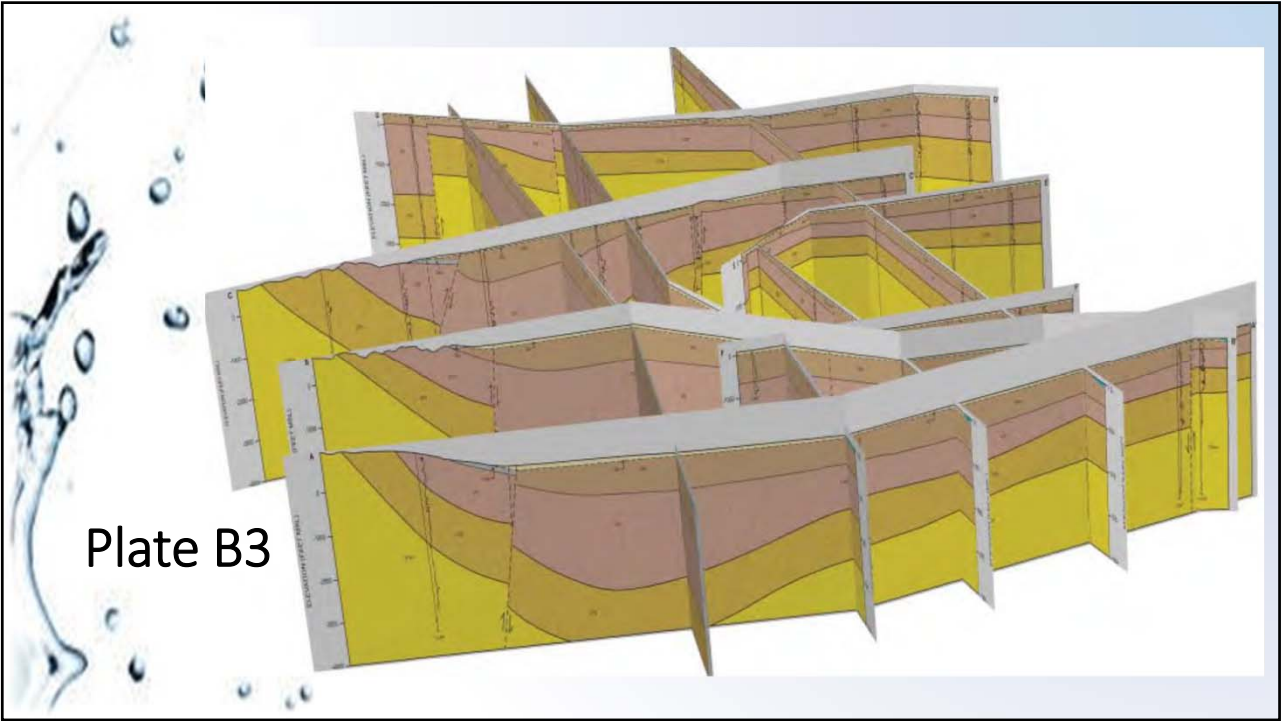


20

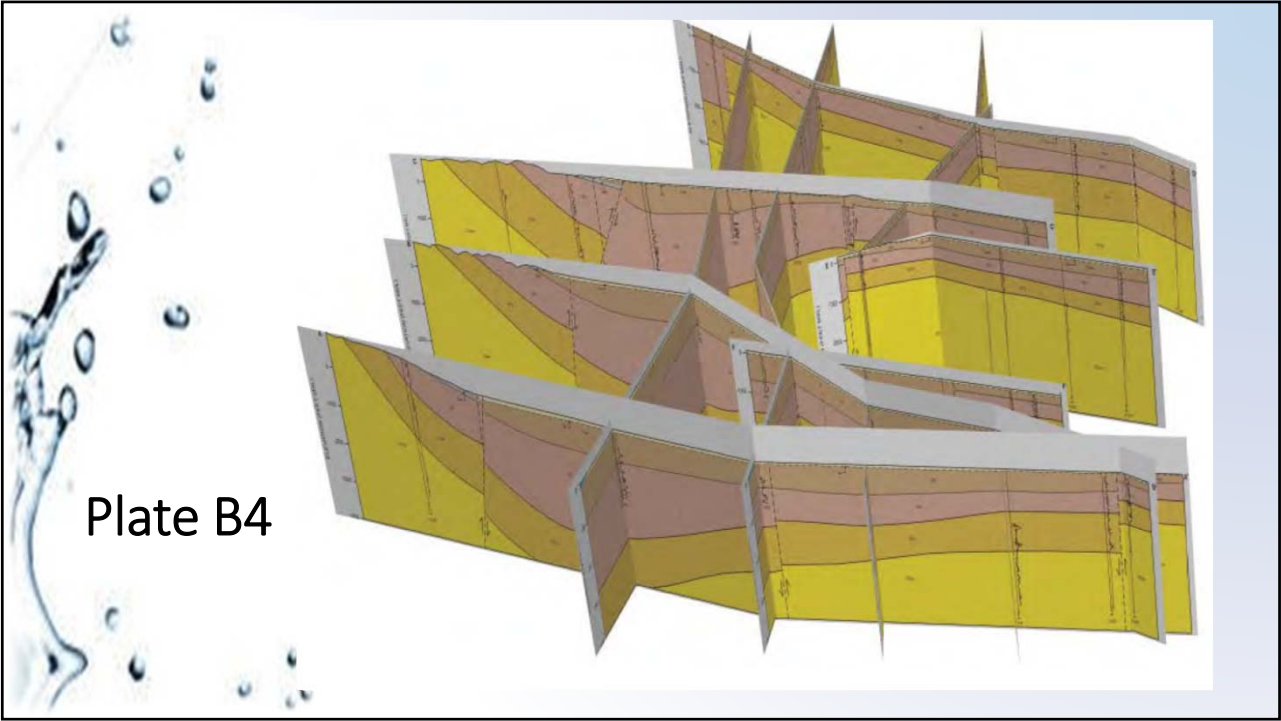




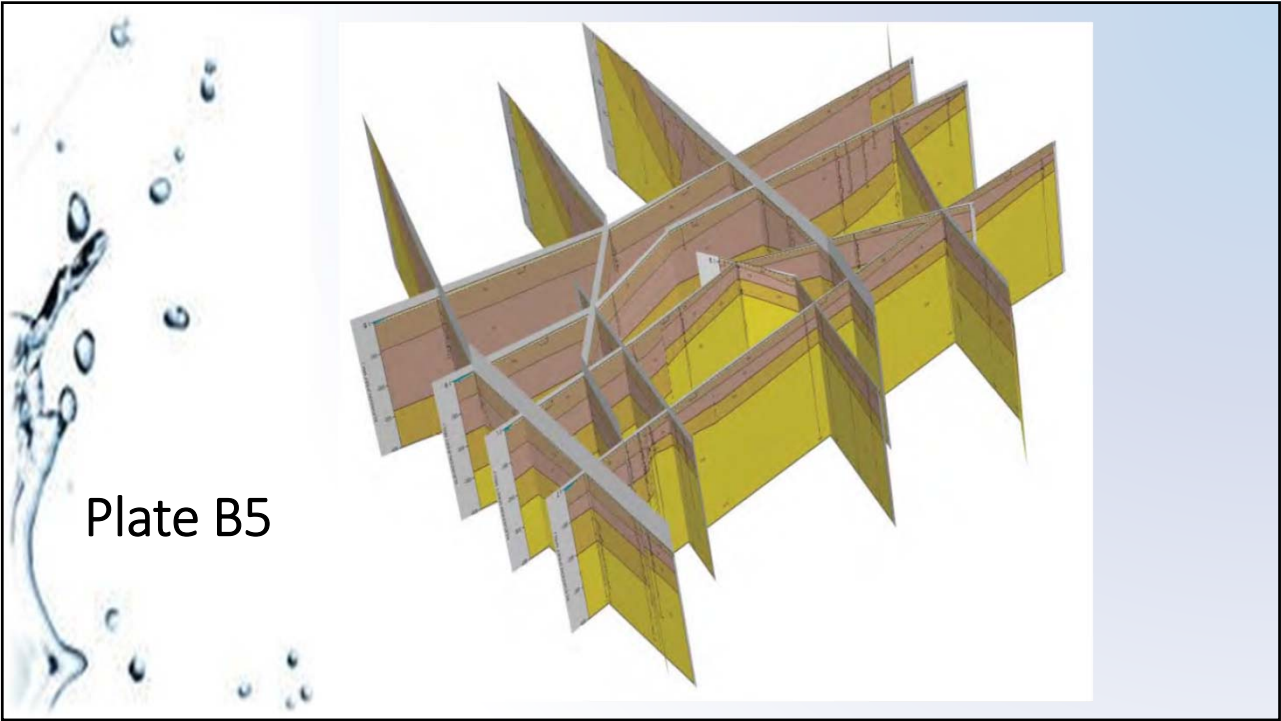
21



22

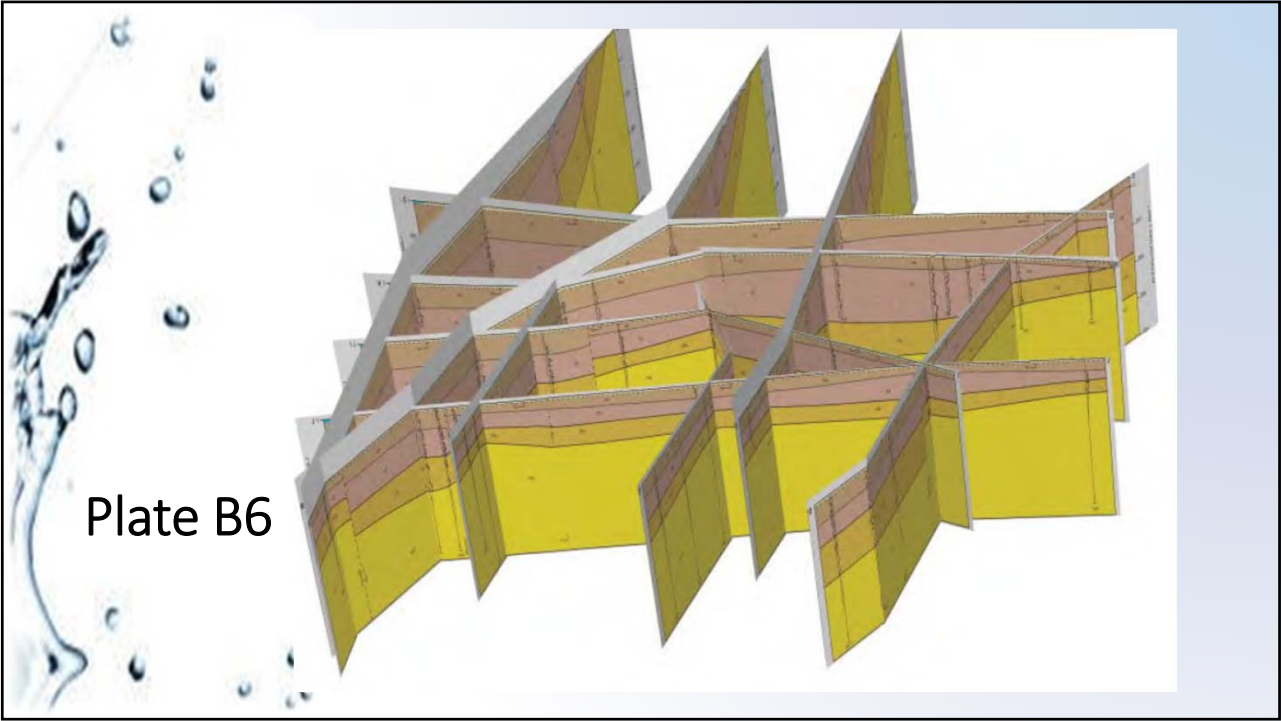


23

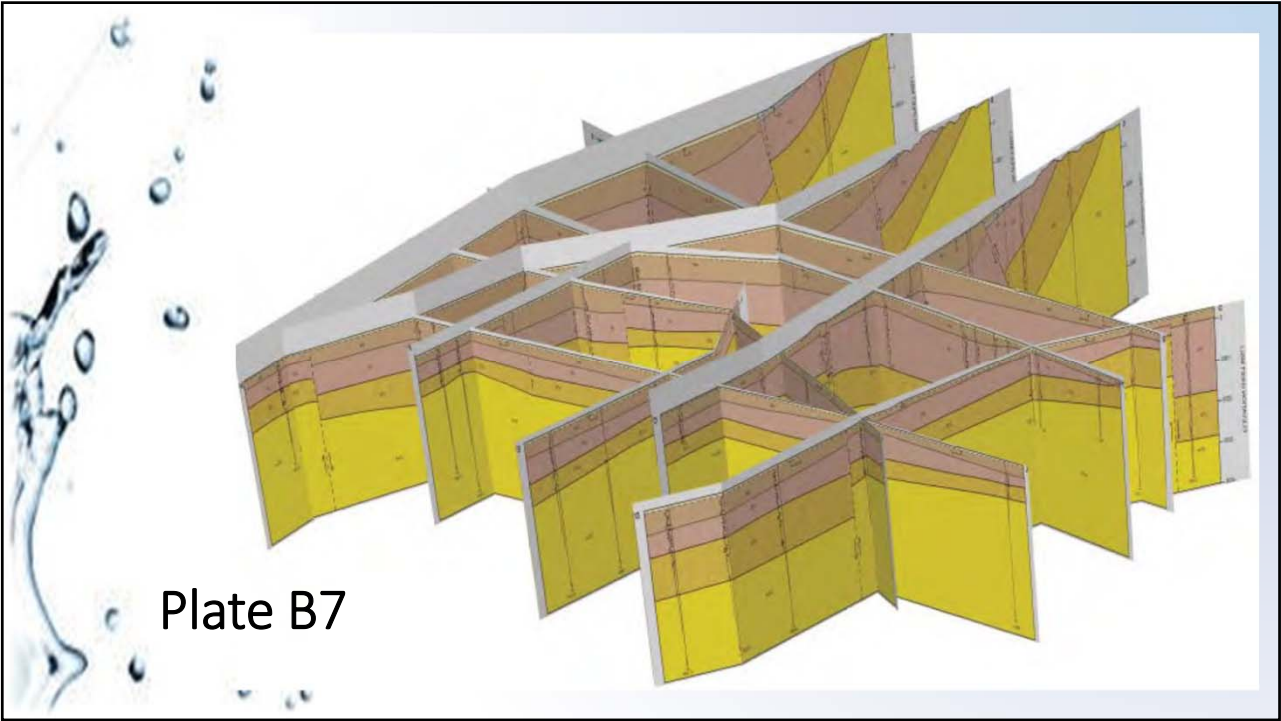


24





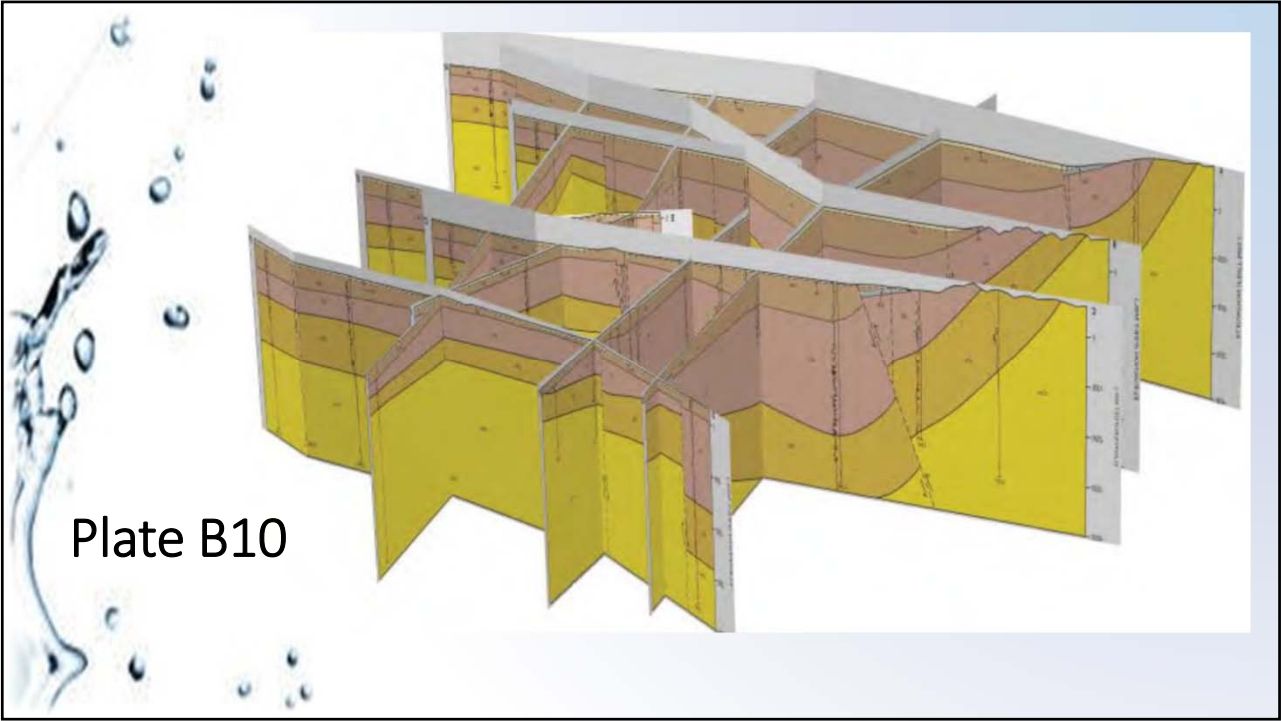
25



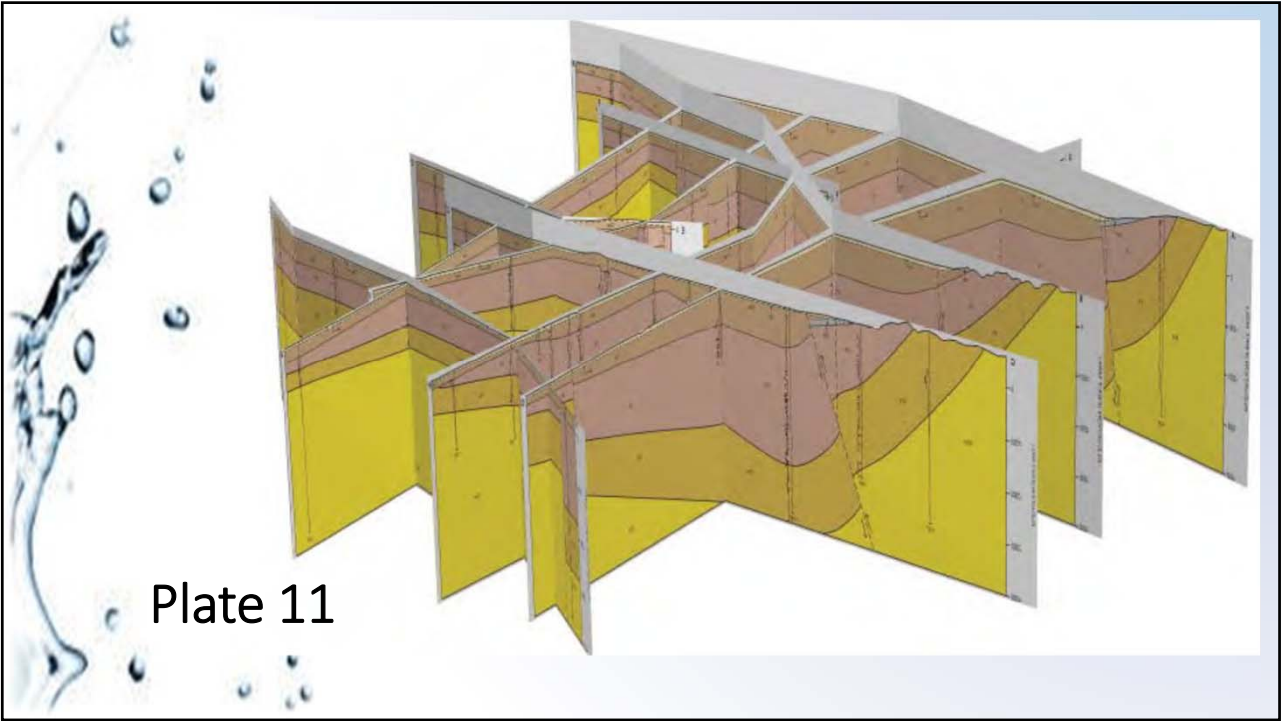
26








29



30




## Perennial Yield

The amount of water that can be withdrawn from an aquifer on a sustained basis without exceeding the natural replenishment rate  
(AWWA, 2010)

## Water Budget

Basin Water Budget = Inflow – Outflow + Change in Storage

31

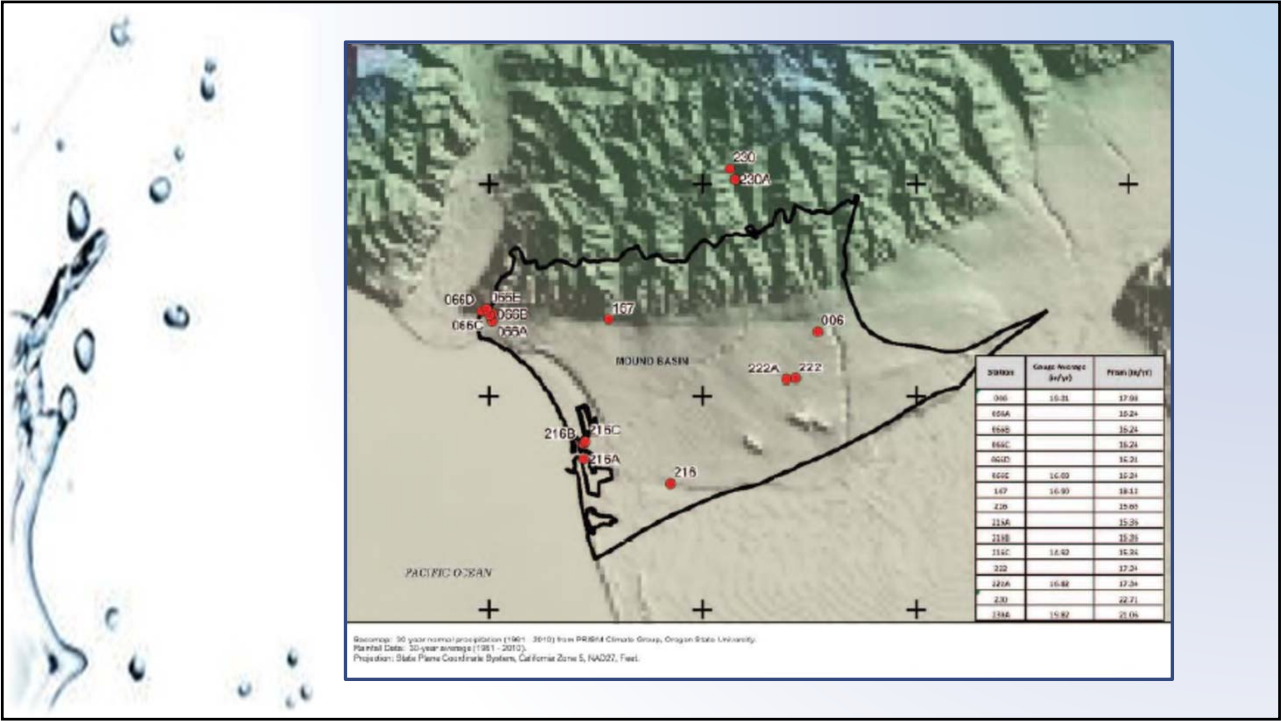


## Hydrologic Base Period

- The beginning and ending climatic conditions should be similar (cumulative departure from the average)
- It should ideally contain a wet cycle and a dry cycle
- Have adequate rainfall data
- Have sufficient water level measurements
- It should ideally have reported groundwater extraction amounts from all wells in the basin

32





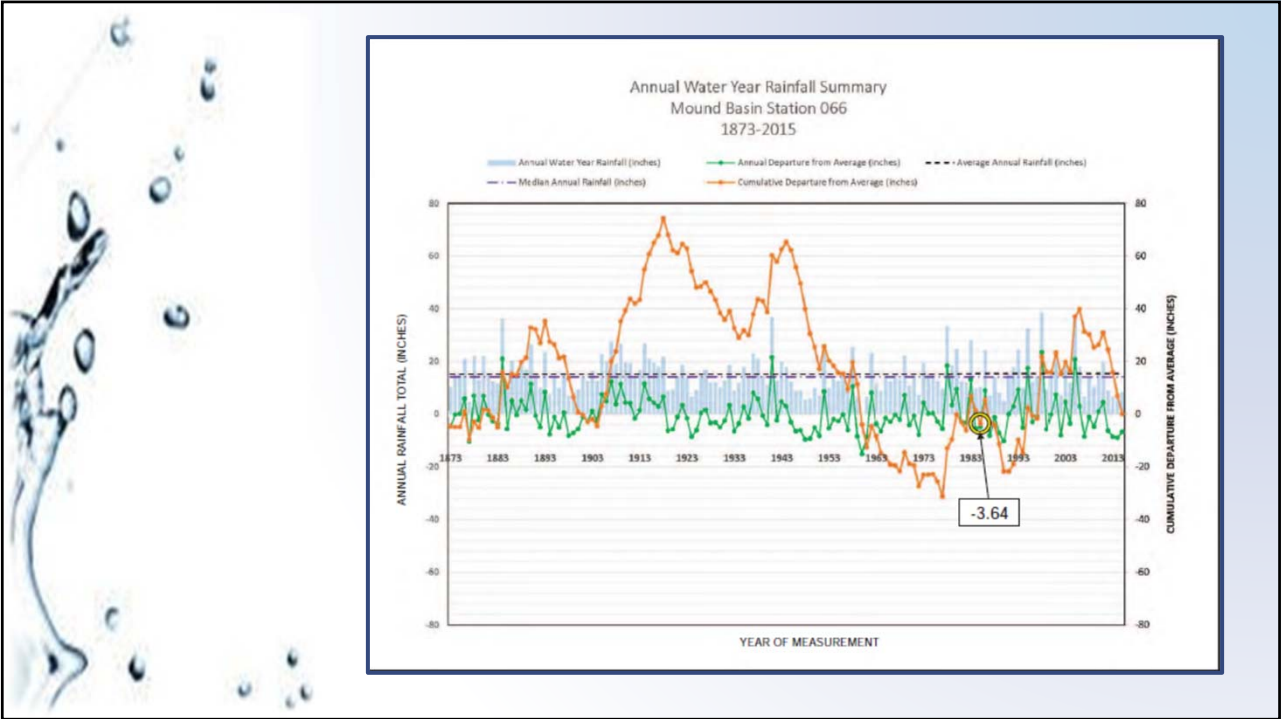
33

Historical Rain Gauges

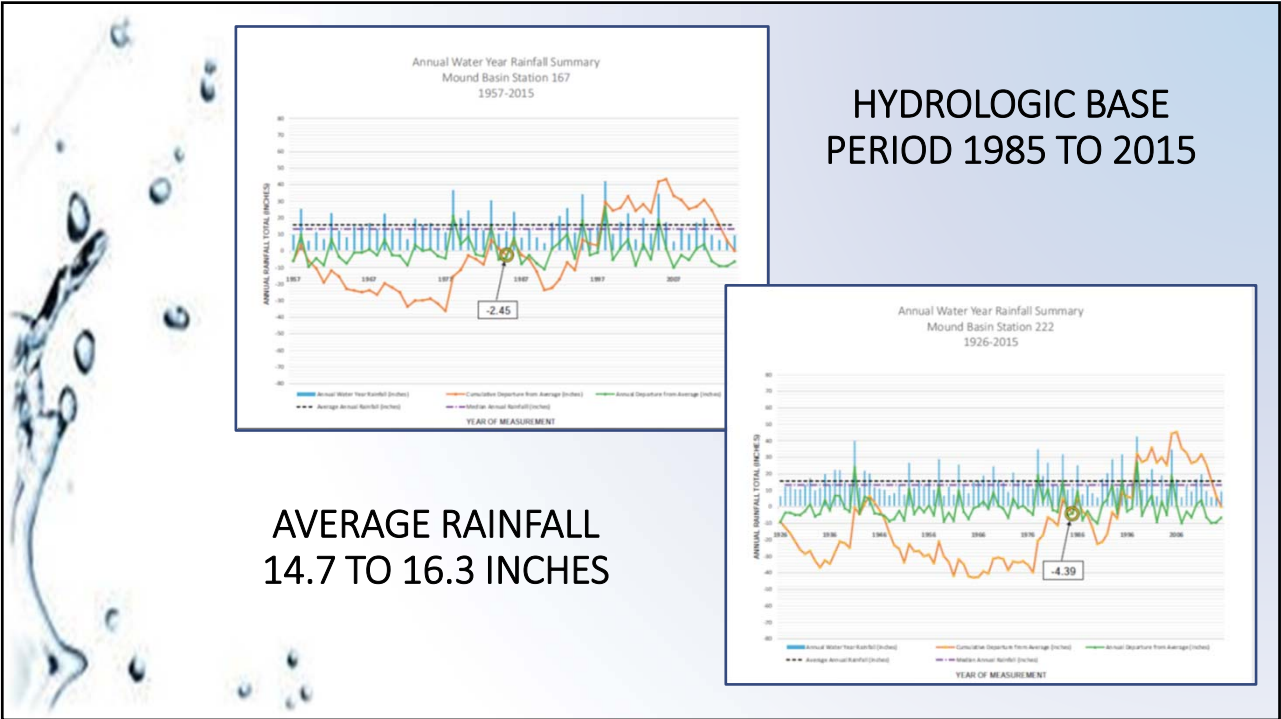
Station No. Description	General Location	Lat. / Long.	Data Range	Status	Average / Median Rainfall <sup>1</sup> (in/yr)
006 Del Mar Ranch	Telephone Road, East Basin	Not available	1925 - 1998	Inactive	16.3 / 14.4
066 Downtown Ventura	West Basin	34.2811 -119.2917	1873 - 2016	Active	15.2 / 14.1
167 Hall Canyon	Central Basin	34.2805 -119.2595	1957 - 2016	Active	15.8 / 13.3
216 Ventura Marina	West Basin	34.2521 -119.2659	1965 - 2016	Active	14.7 / 12.9
222 Ventura Govt. Center	Central Basin	34.2673 -119.2112	1926 - 2016	Active	15.6 / 13.3

<sup>1</sup> – Average/median rainfall values are for the entire data range listed in column 4, *Data Range*

34

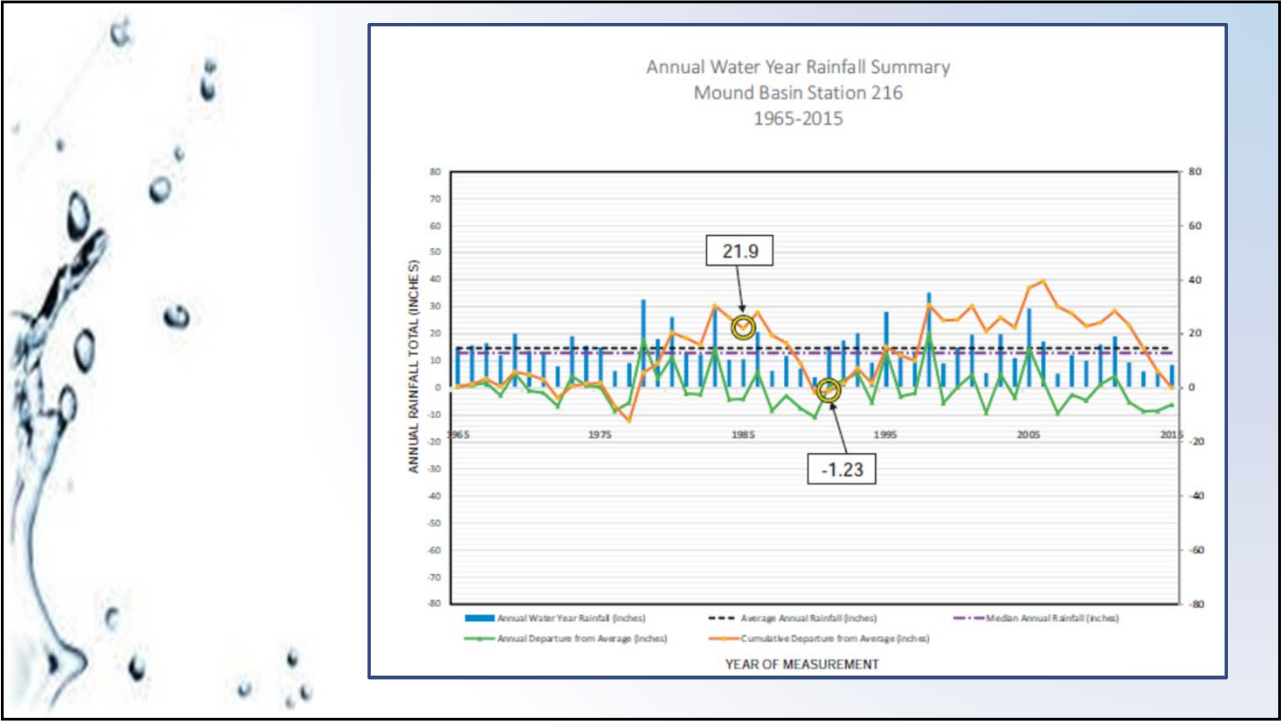


35

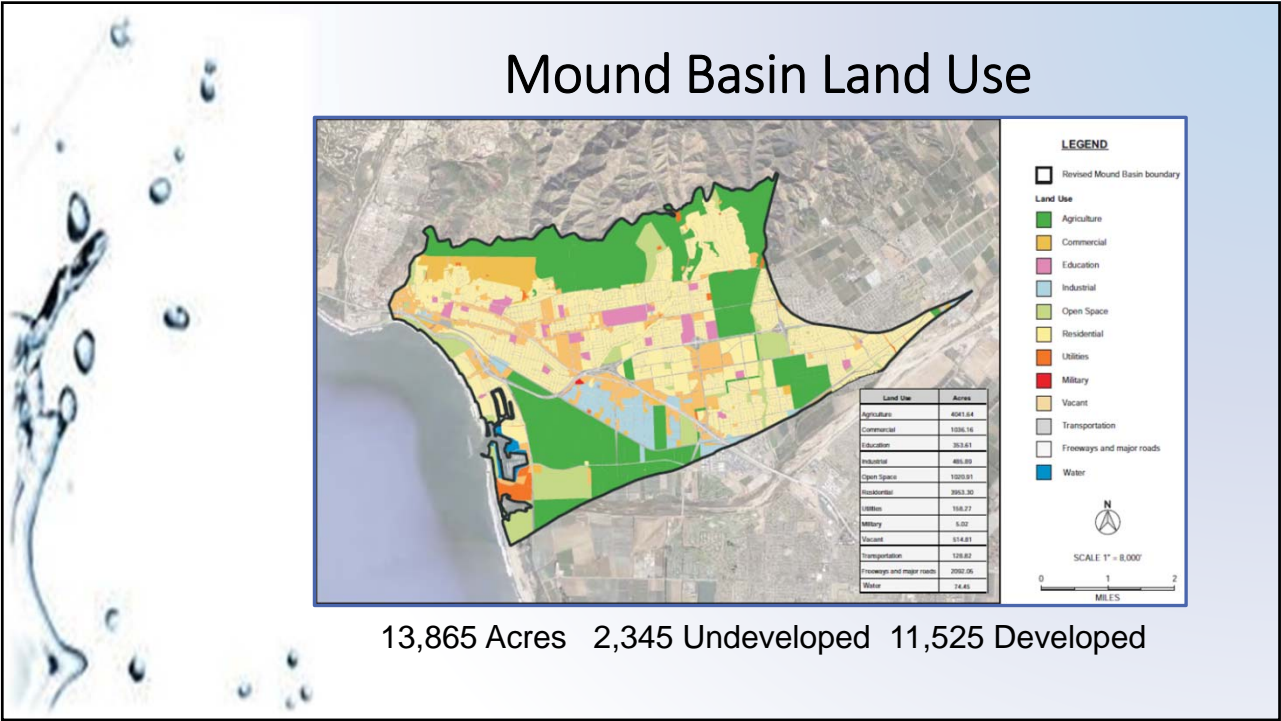


36

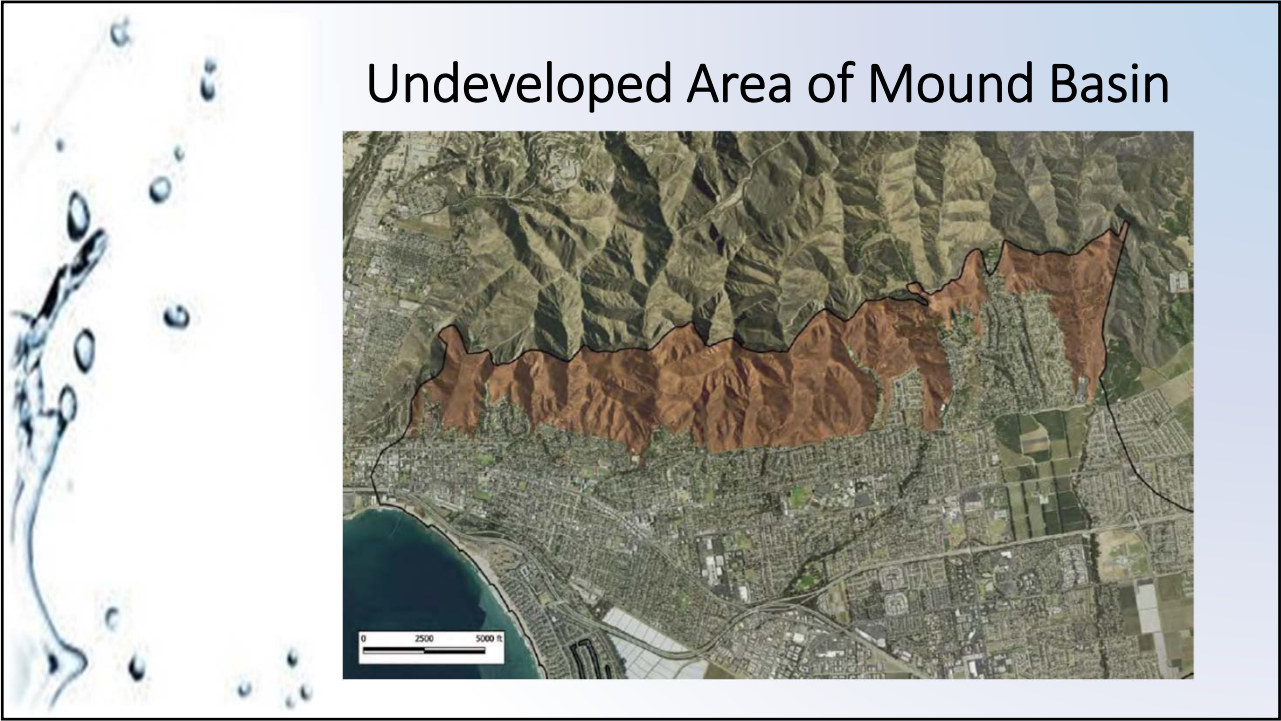




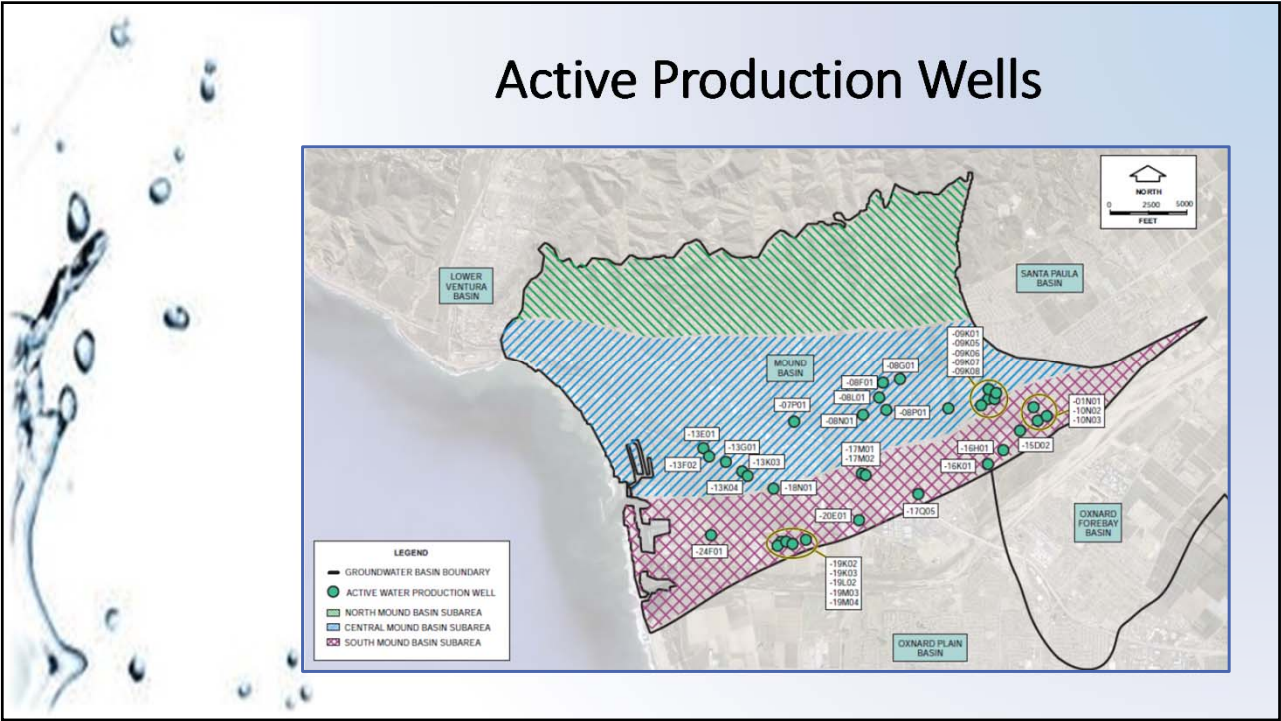
37



38

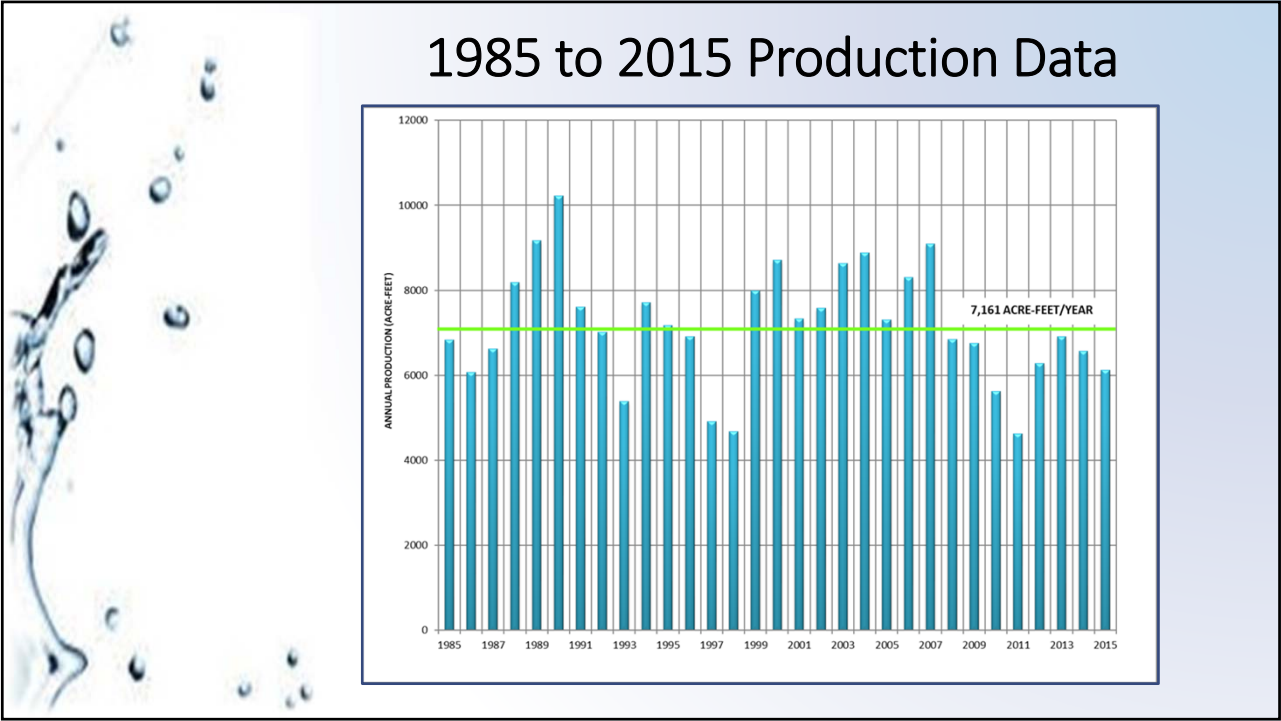


39

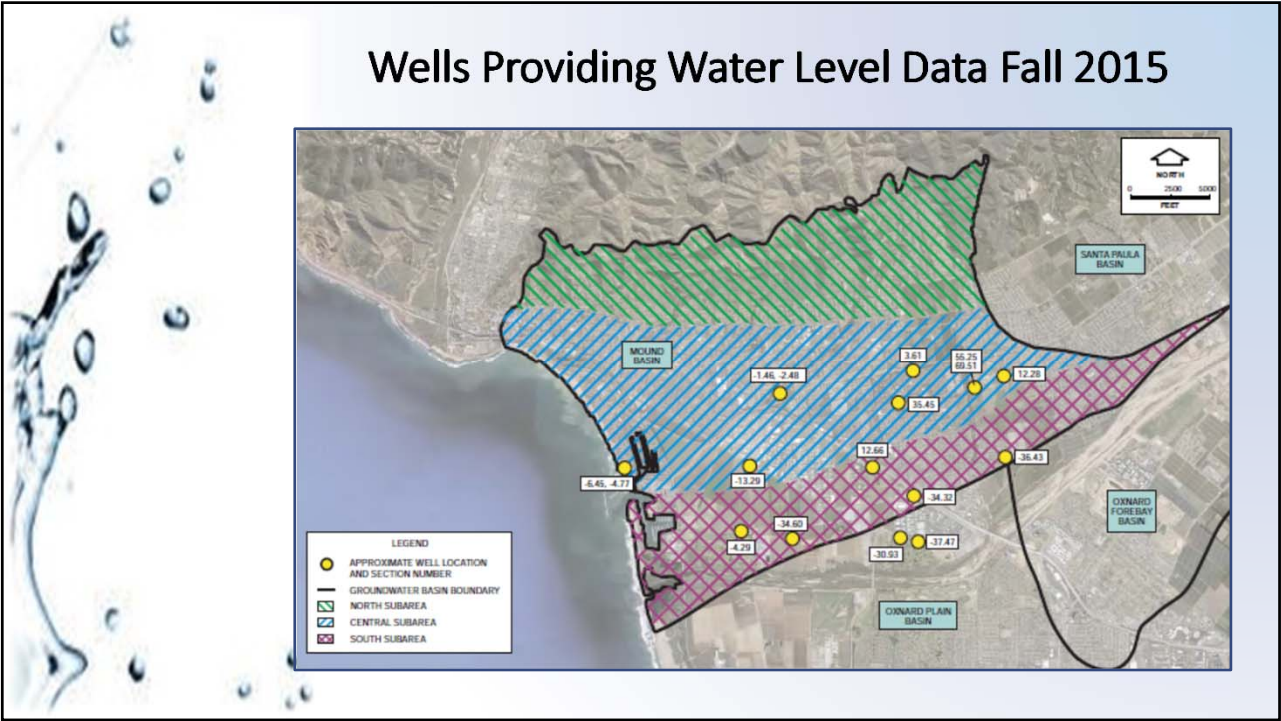


40

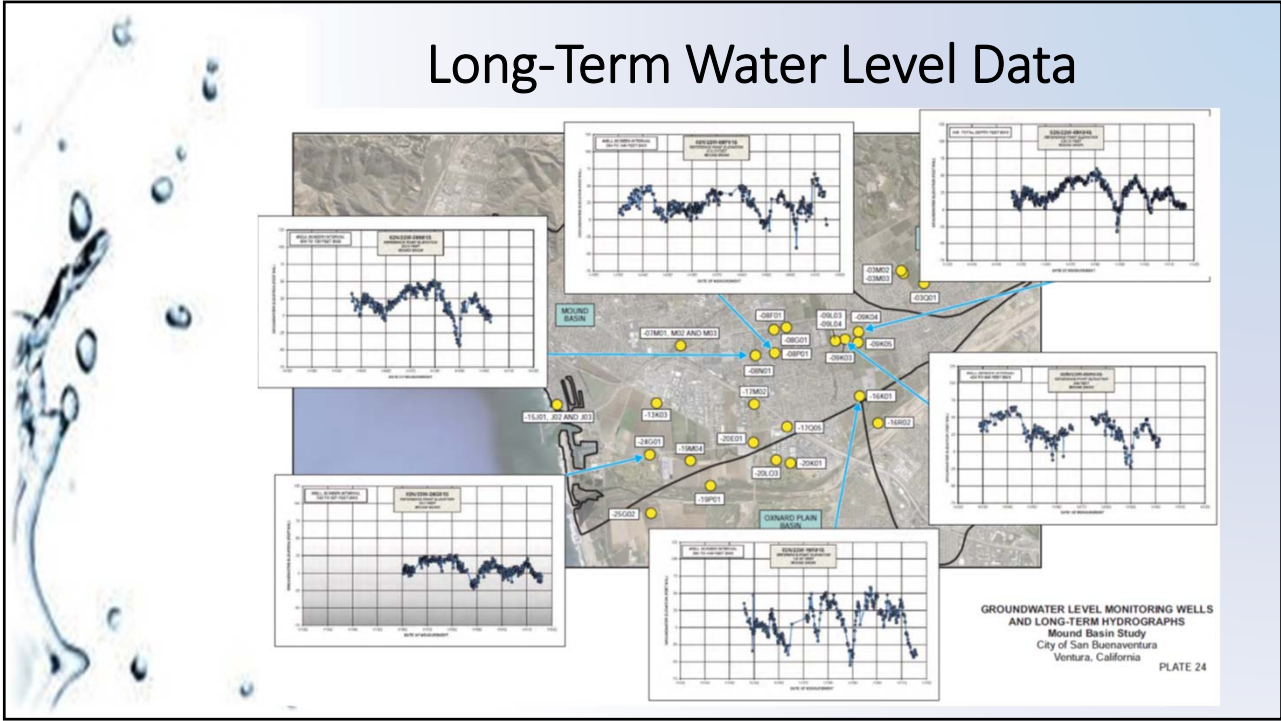




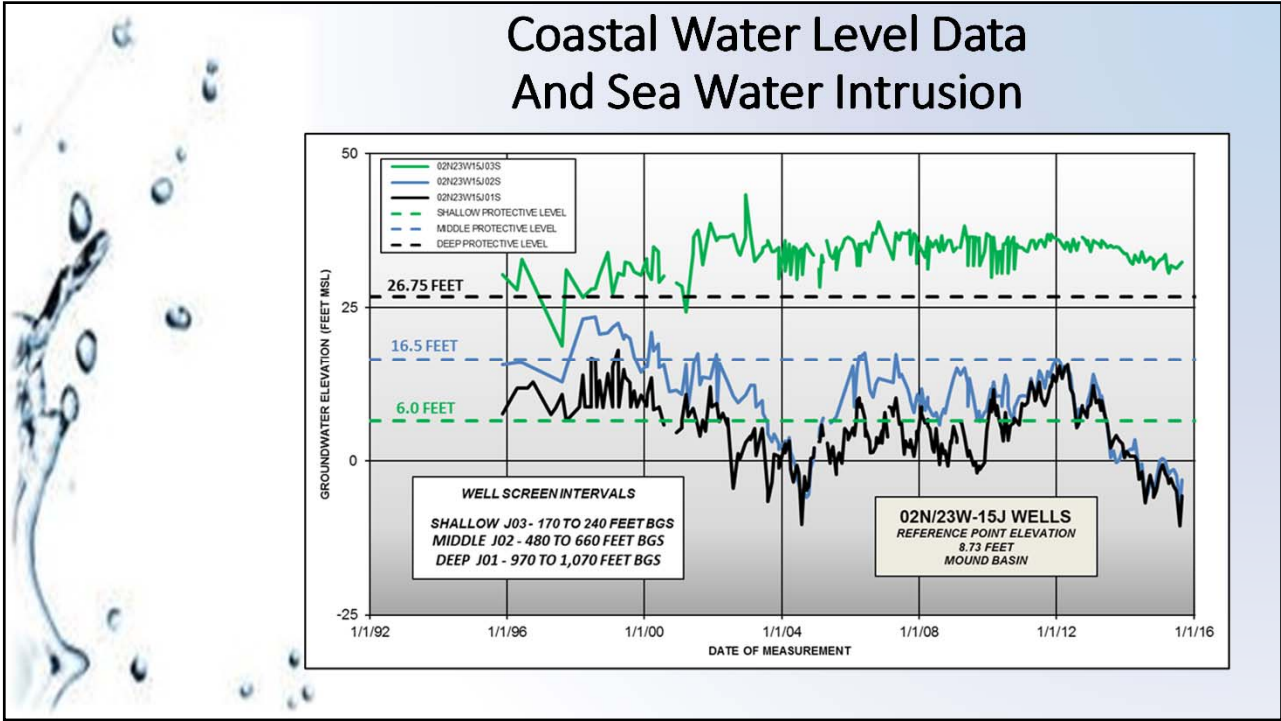
41



42

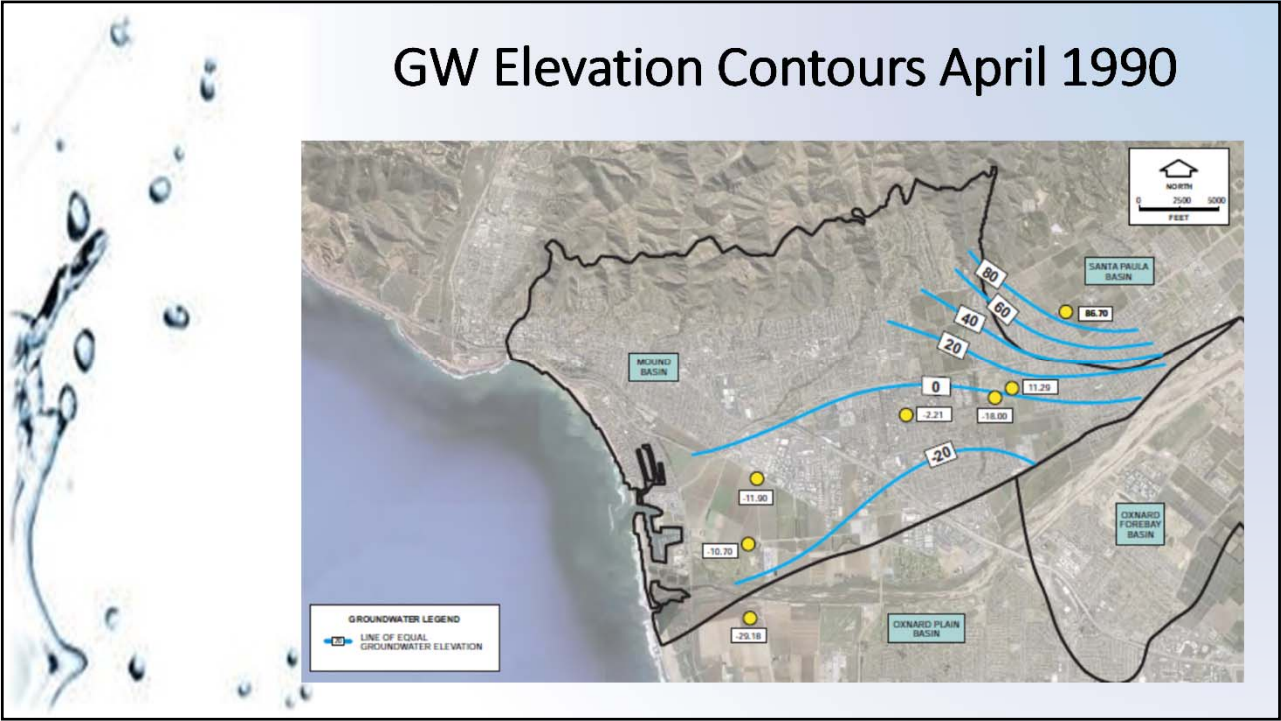


43

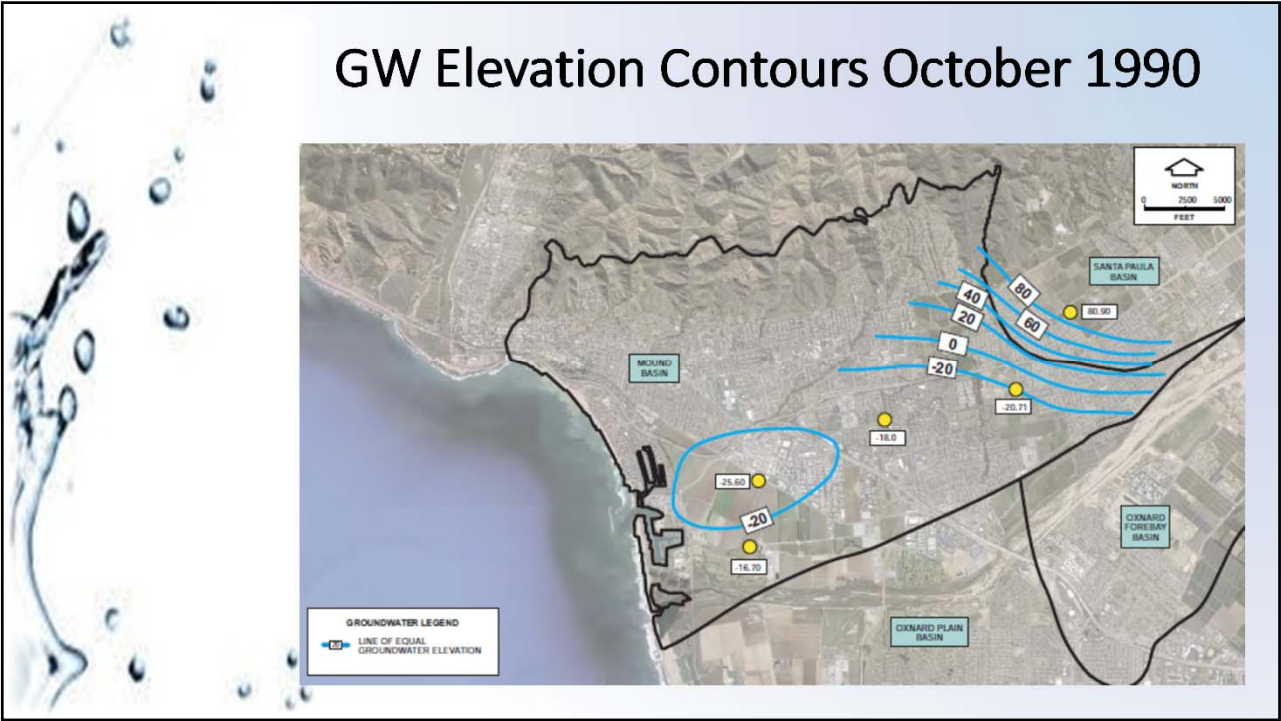


44

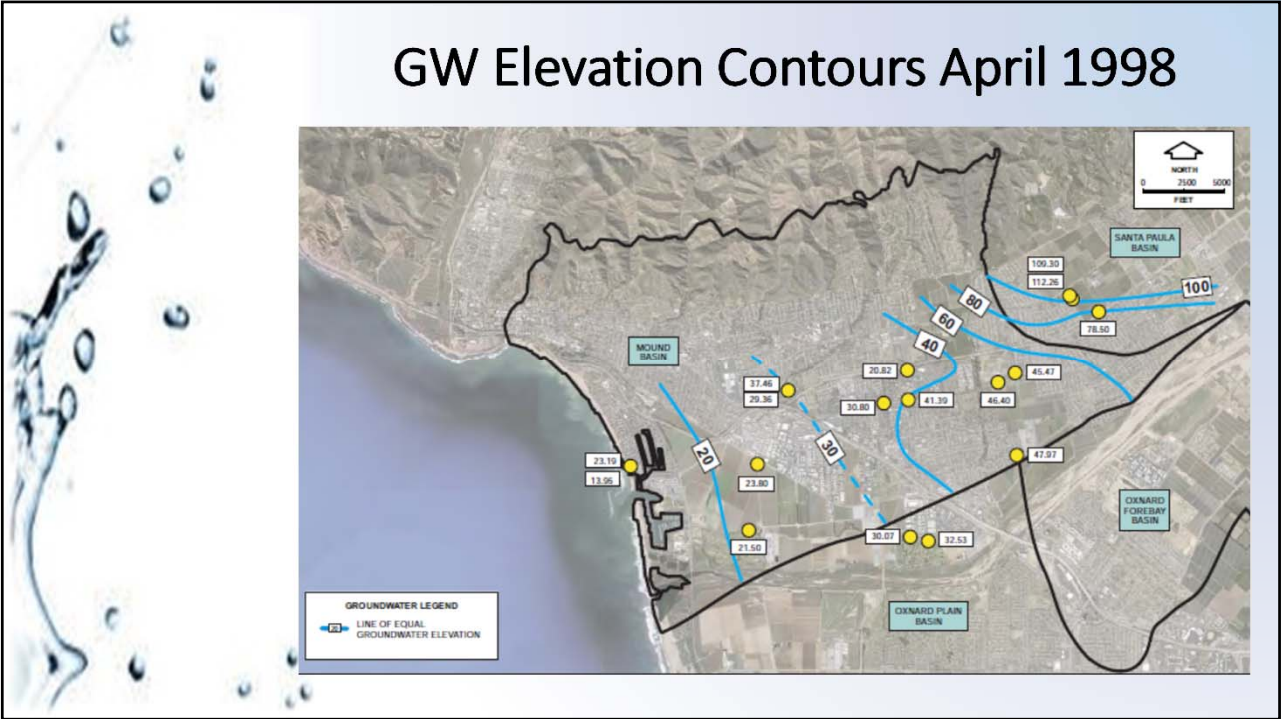




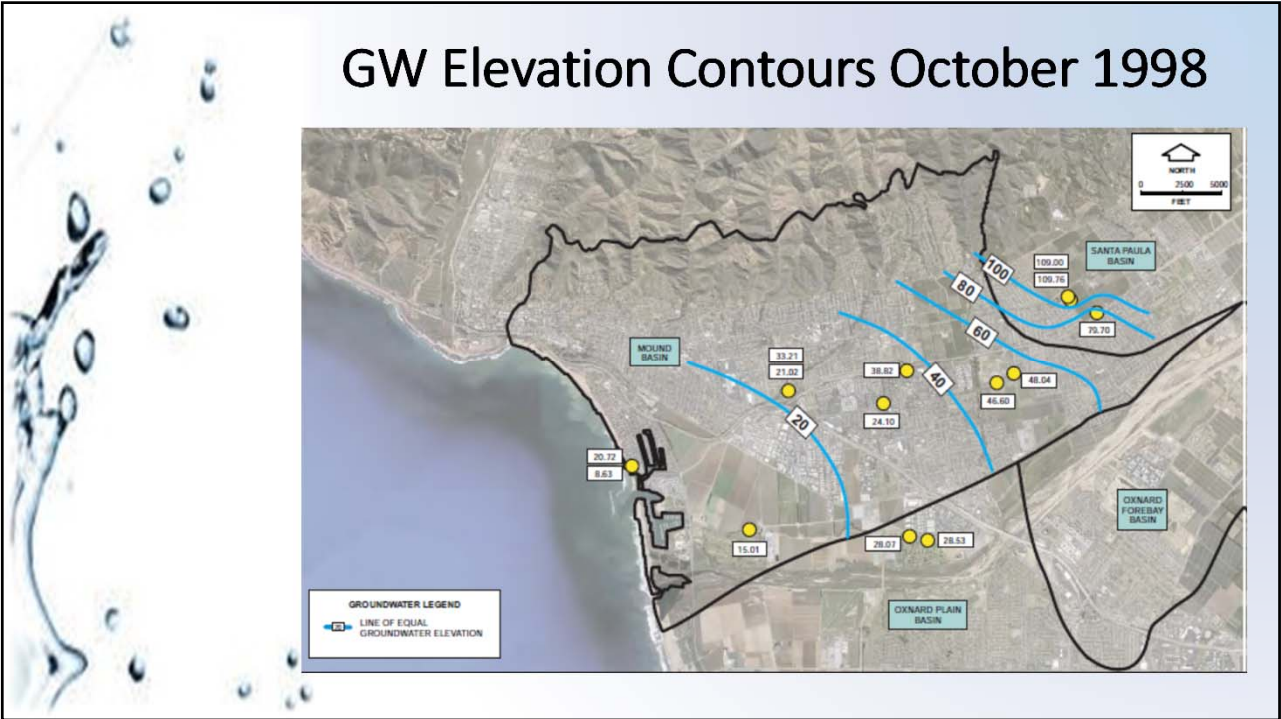
45




46



47




48



### Water Quality Data

WELL LOCATION	STATE WELL NUMBER	WELL SCREEN DEPTH (FEET)	TDS (MG/L)	Ca (MG/L)	Mg (MG/L)	Na (MG/L)	HCO3 (MG/L)	SO4 (MG/L)	Cl (MG/L)
MARINA PARK	02N23W15JO3	170-240	3,293	322	233	371	1,150	1,486	98
MARINA PARK	02N23W15JO2	480-660	919	132	38	103	291	383	44
MARINA PARK	02N23W15JO1	970-1070	1,284	170	46	168	375	519	84
CAMINO REAL PARK	02N22W07MO3	210-280	4,638	590	238	491	606	2,012	439
CAMINO REAL PARK	02N22W07MO2	710-780	946	125	41	109	357	342	57
CAMINO REAL PARK	02N22W07MO1	1200-1280	1,087	134	43	145	347	438	73
VENTURA COMMUNITY PARK	02N22W09LO4	480-510	6,294	524	243	1,144	366	3,733	191
VENTURA COMMUNITY PARK	02N22W09LO3	890-950	1,022	120	33	157	204	462	72

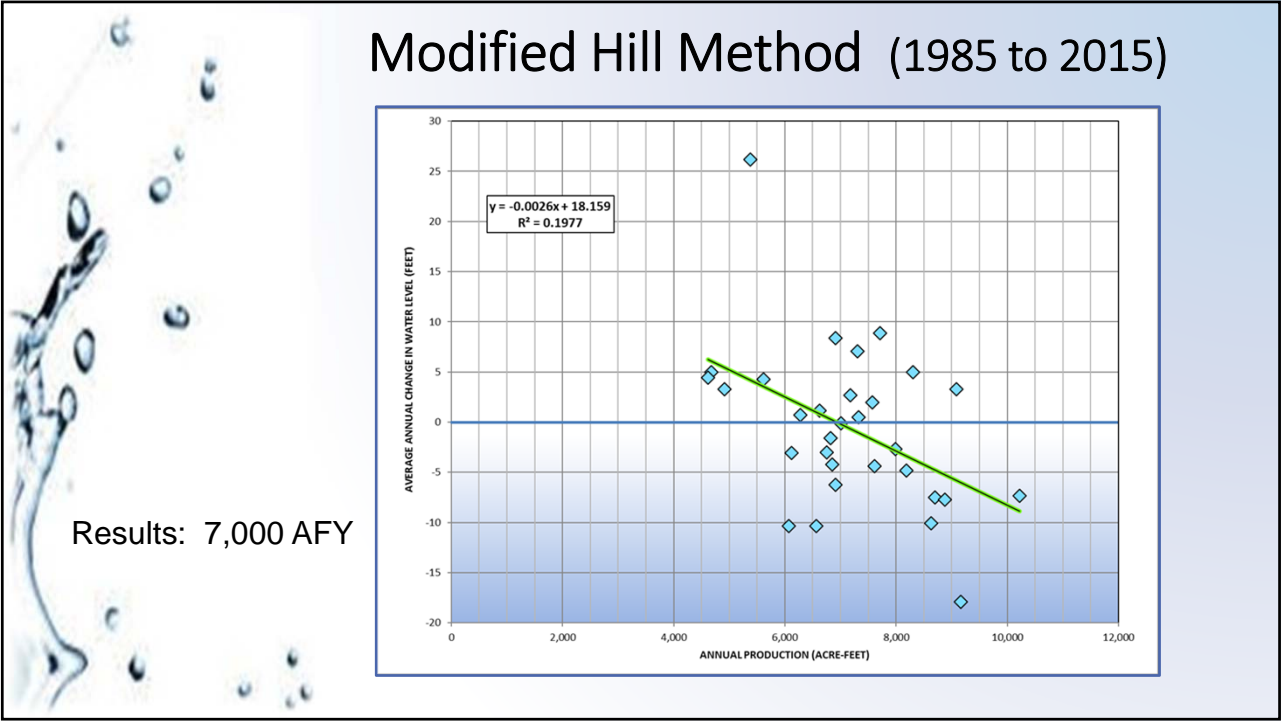
49

- 
- ### Perennial Yield Methods of Estimation

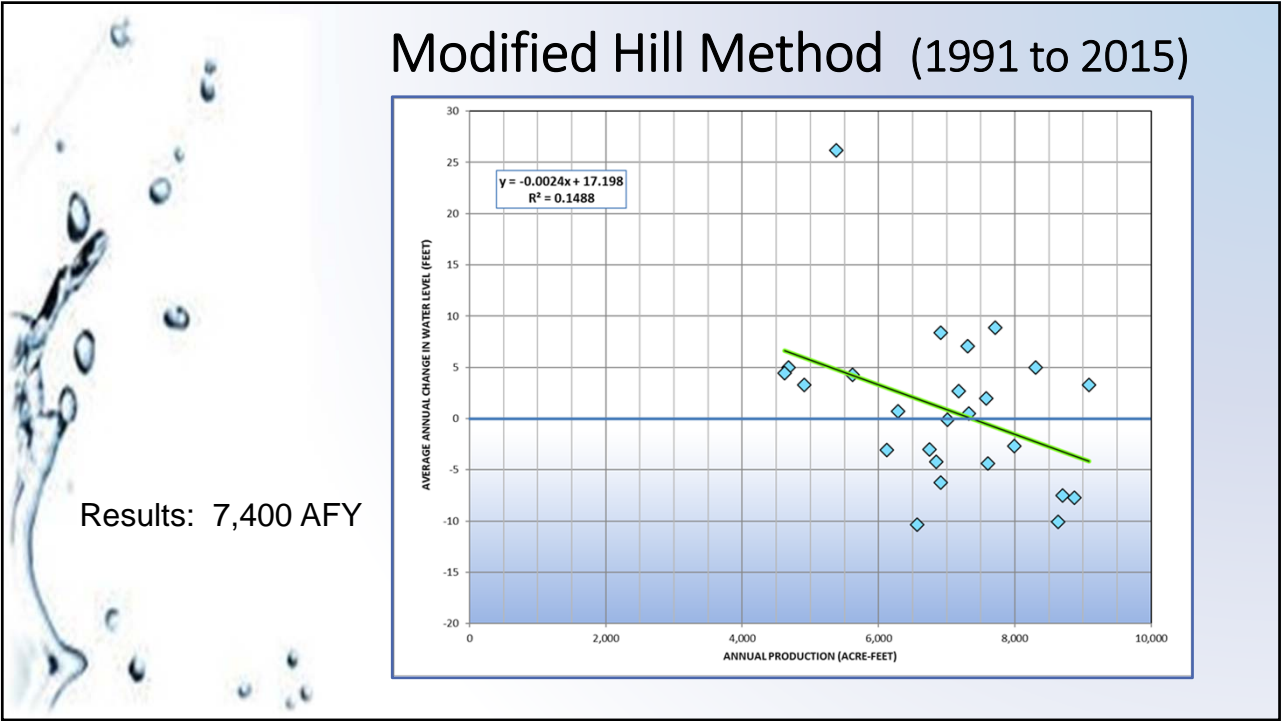
  - Modified Hill Method
  - Groundwater Budget Calculation
  - Groundwater Level Change Over a Hydrologic Base Period
  - Computer Model Simulation (not used)

50

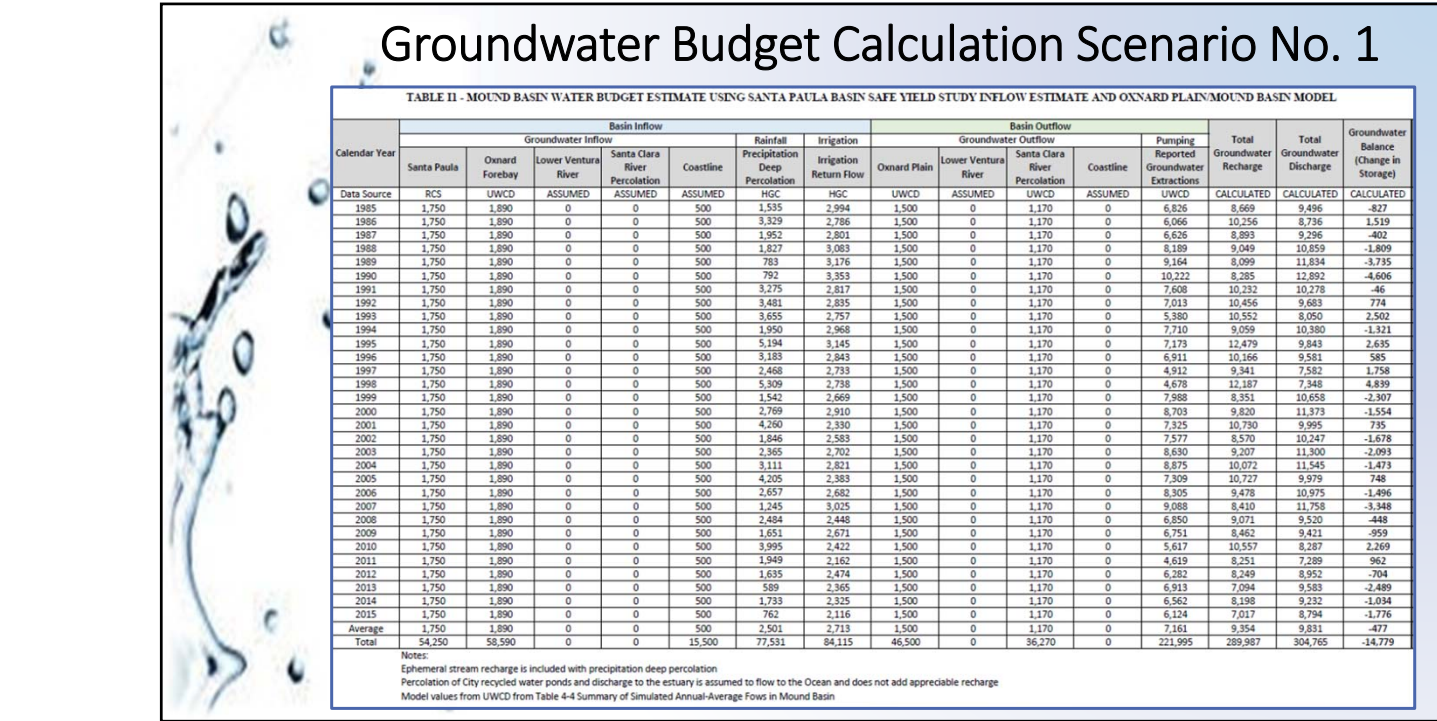




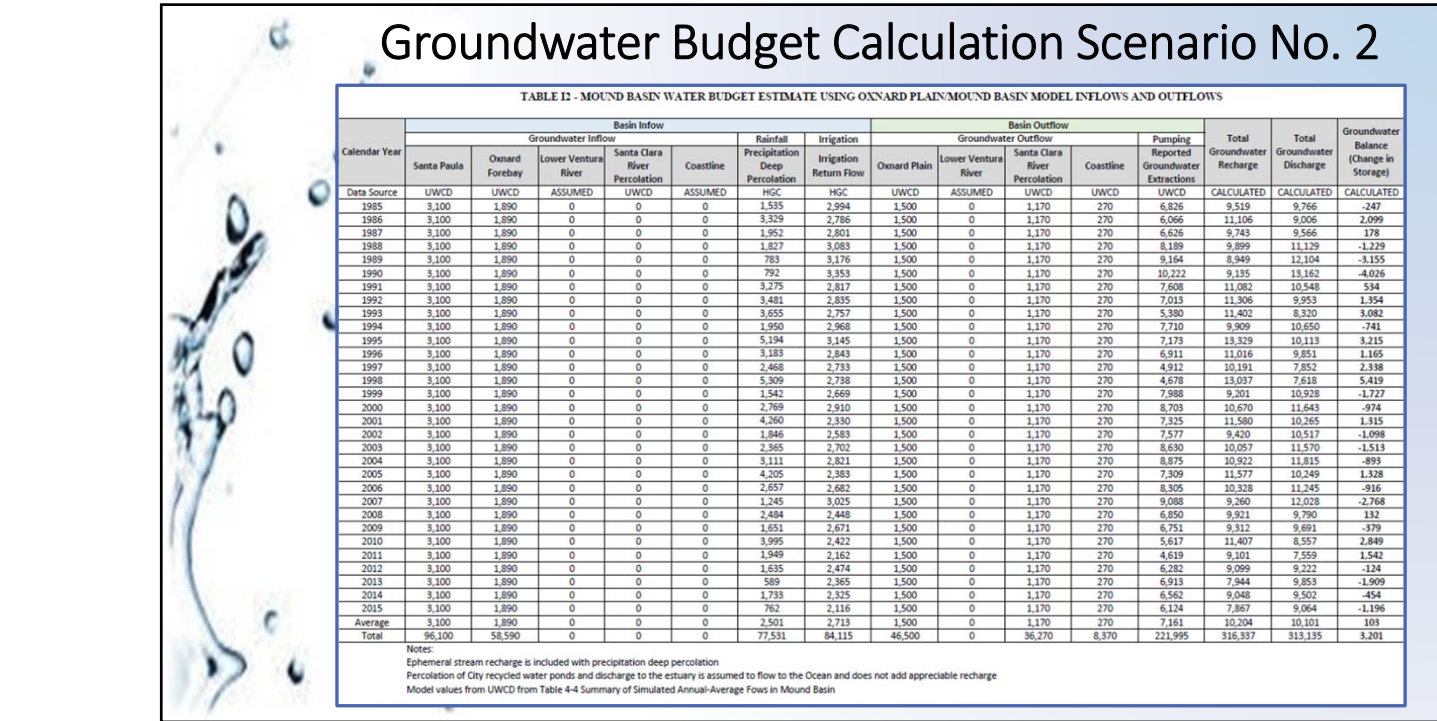
51




52



53



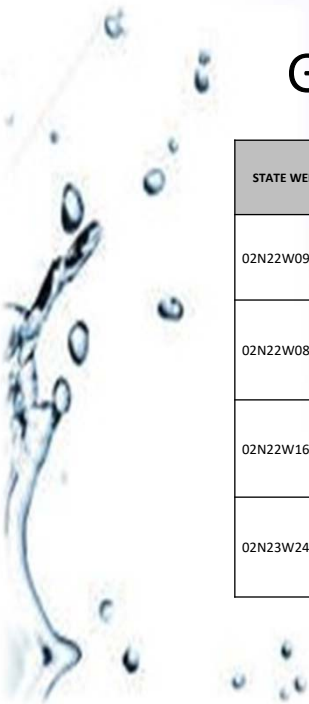
54



## Groundwater Budget Calculations Summary

- Scenario 1 – 1985 to 2015  
Total Change of Storage –14,779 AF  
Average Annual Change of Storage – 477 AFY
- Scenario 2 – 1985 to 2015  
Total Change of Storage 3,201 AF  
Average Annual Change of Storage 103AFY
- Results: Scenario 1   7,161 AFY – 477 AFY = 6,684 AFY
- Results: Scenario 2   7,161 AFY + 103 AFY = 7,264 AFY

55



## Groundwater Level Change 1985-2015

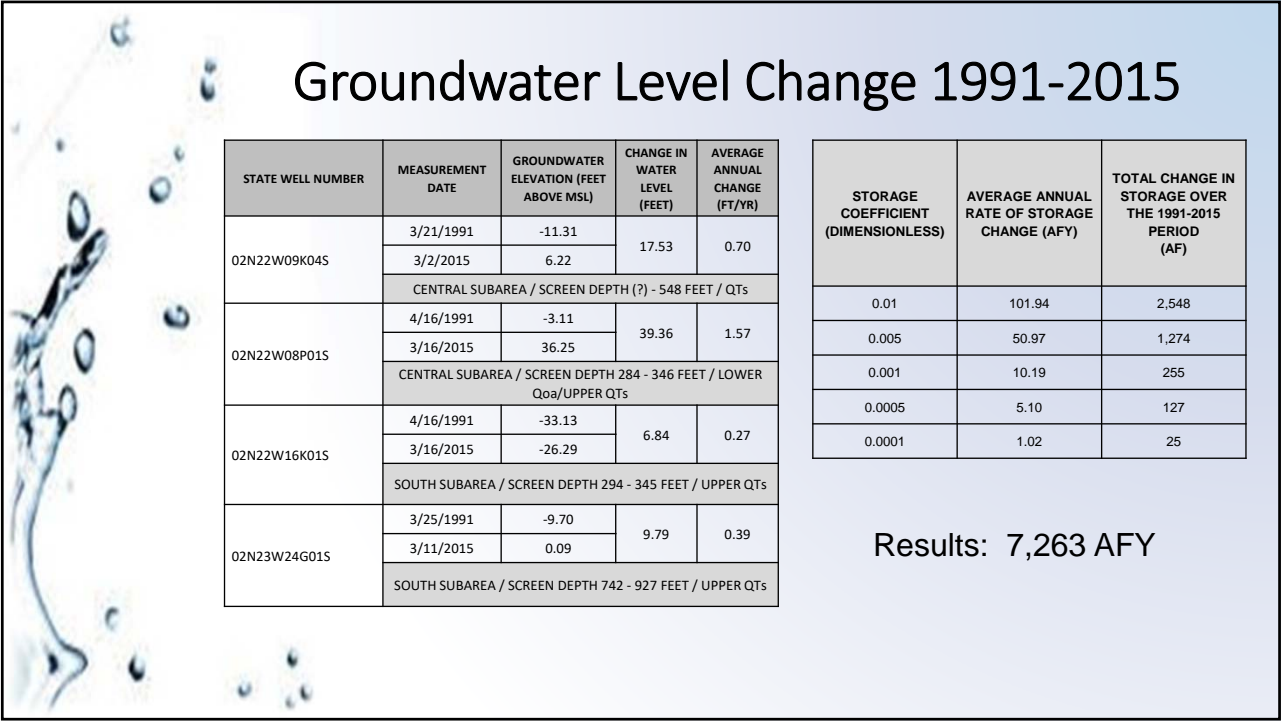
STATE WELL NUMBER	MEASUREMENT DATE	GROUNDWATER ELEVATION (FEET ABOVE MSL)	CHANGE IN WATER LEVEL (FEET)	AVERAGE ANNUAL CHANGE (FT/YR)
02N22W09K04S	4/3/1985	43.69	-37.47	-1.21
	3/2/2015	6.22		
	CENTRAL SUBAREA / SCREEN DEPTH (?) - 548 FEET / QTs			
02N22W08P01S	4/15/1985	40.79	-7.65	-0.25
	3/18/2015	33.14		
	CENTRAL SUBAREA / SCREEN DEPTH 284 - 346 FEET / LOWER Qoa/UPPER QTs			
02N22W16K01S	2/8/1985	36.47	-62.76	-2.02
	3/16/2015	-26.29		
	SOUTH SUBAREA / SCREEN DEPTH 294 - 345 FEET / UPPER QTs			
02N23W24G01S	2/13/1985	16.80	-16.71	-0.54
	3/11/2015	0.09		
	SOUTH SUBAREA / SCREEN DEPTH 742 - 927 FEET / UPPER QTs			

STORAGE COEFFICIENT (DIMENSIONLESS)	AVERAGE ANNUAL RATE OF STORAGE CHANGE (AFY)	TOTAL CHANGE IN STORAGE OVER THE BASE PERIOD (AF)
0.01	-139.32	-4,319
0.005	-69.66	-2,159
0.001	-13.93	-432
0.0005	-6.97	-216
0.0001	-1.39	-43

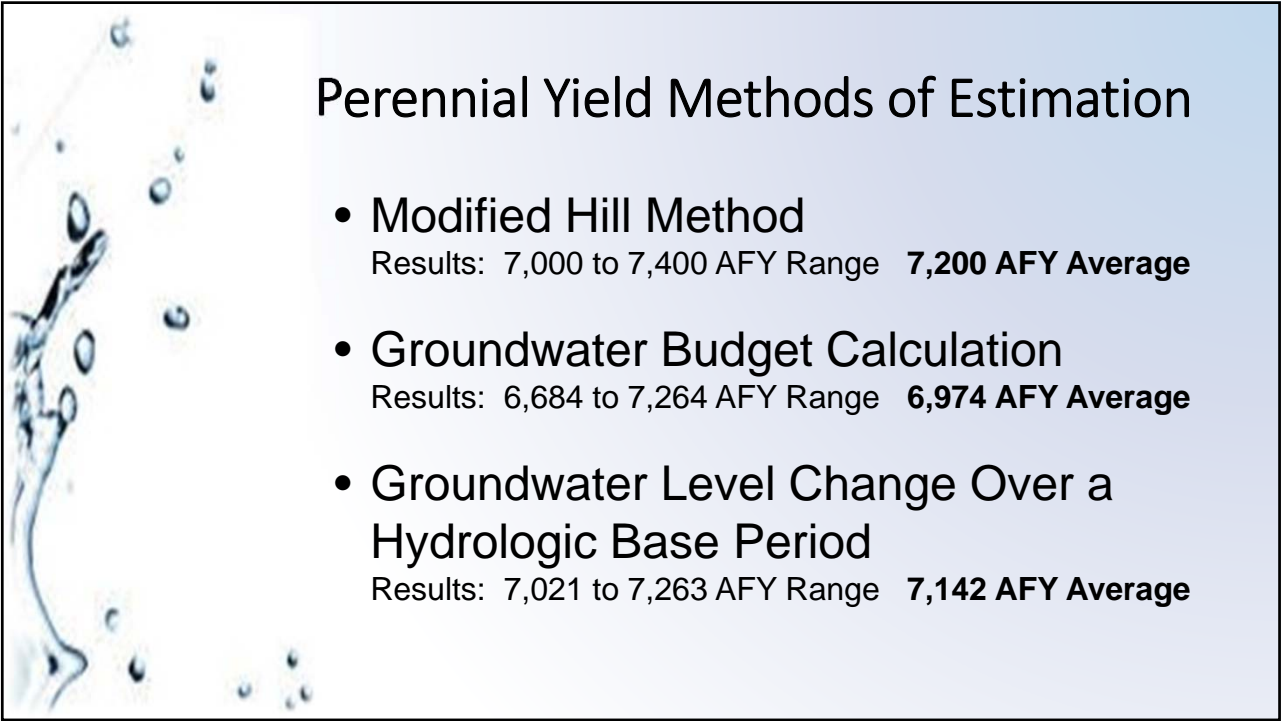
Results: 7,021 AFY

56






57




58



## Conclusions

- We believe 1985 to 2015 was an acceptable base period given available data
- Study estimates indicate the Mound Basin is capable of providing an average annual perennial yield in the range of 6,700 to 7,400 AFY which is believed reasonable
- Data across the Mound Basin are lacking to allow refinement of the yield estimate at this time
- The complexity of the Basin should be considered when evaluating data in the future and planning to establish additional monitoring locations

59



## Questions

60