

DRAFT

Conceptual Framework

Groundwater Extraction Metering Program

For Discussion Only



San Antonio Basin Groundwater Sustainability Agency

Ad Hoc Committee Updates to GSA Board

November 28, 2023 – **Updates in Red**

PROCESS OVERVIEW

1st Step Toward Demand Management

Purpose of the Ad Hoc Committee:

Address the initial exploration and establish a framework for the well registration and metering program. Identify a stepped, linear process for the Board's consideration. Step one, the Well Registration Program, was completed March 31, 2023.

AD HOC COMMITTEE MEMBERS

SABGSA: Kevin Merrill
Chris Wrather

Adv. Comm: Leta Spencer
Matt Scrudato

Staff: Donna Glass, SABWD
Stephanie Bertoux, SABGSA

OTHER METERING PROGRAMS STUDIED

Borrego Valley GSA
Cuyama GSA
Fox Canyon GSA
McMullin Area GSA
Mid Kings River GSA
North Folk Kings GSA
Upper Ventura River GSA

RESOURCES CONSULTED

GSI Water Solutions
Brownstein, Hyatt, Farber & Schreck

METERING PROGRAM OVERVIEW

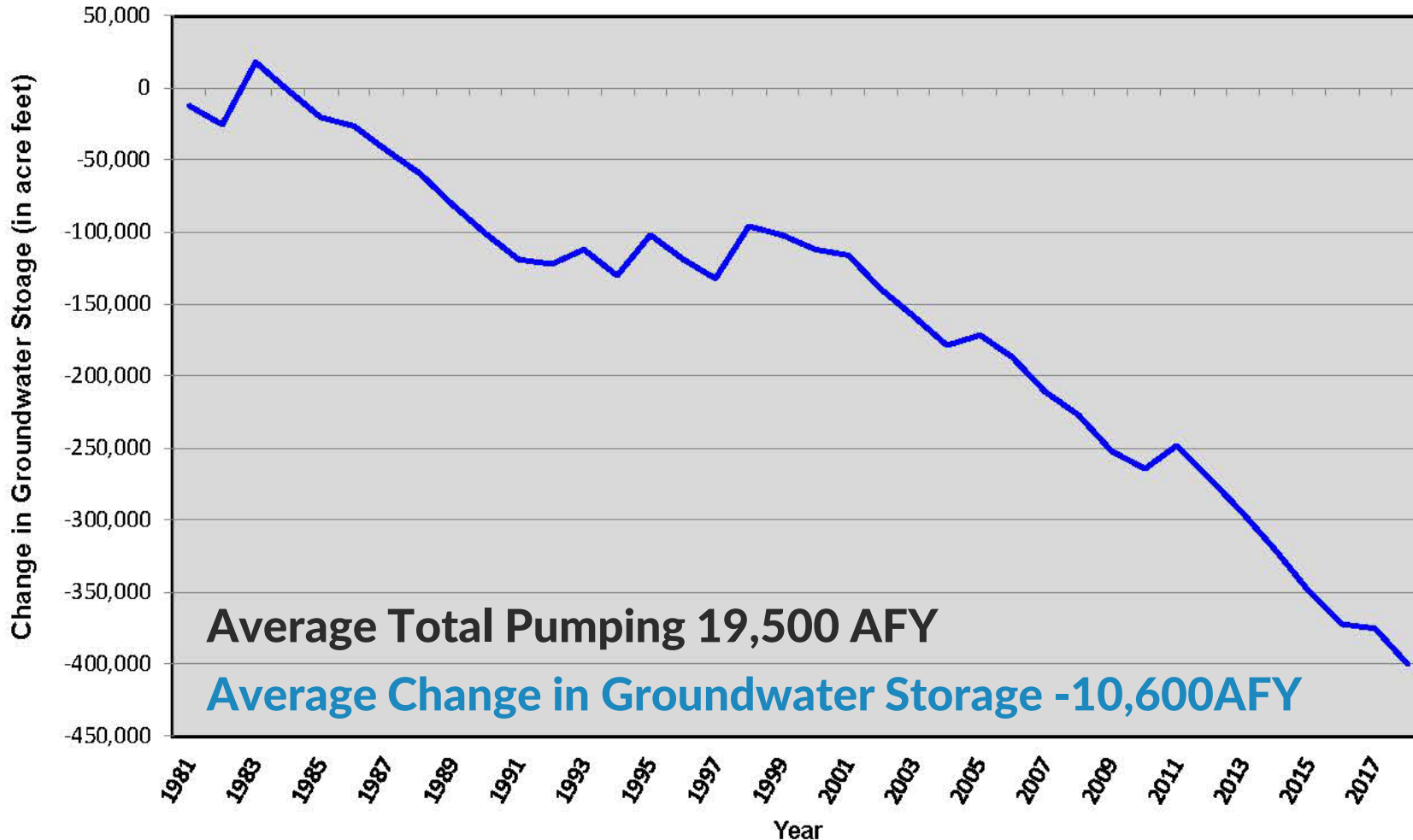
- **Program Objective:** Facilitate consistent and reliable reporting of groundwater extraction volumes excluding de minimis wells (under 2AFY).
- **Program Purpose:** Provide accurate and reliable data of groundwater extraction volumes as specified as a Tier 1 Management Action of the GSP.
- **Overarching Goal:** Sustainably manage, protect and maintain the groundwater resources within the Basin consistent with SGMA for the benefit of all water users.

Presentation Goal

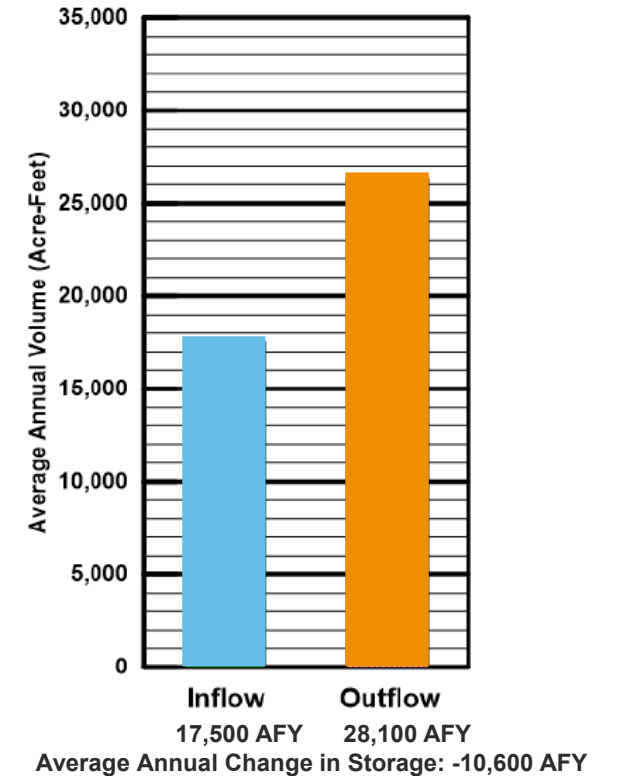
Provide an update and circulate recommendations for the SABGSA Groundwater Extraction Metering Program from Ad Hoc Committee for Discussion

BASIN STATUS

Extracting More than the Basin's Sustainable Yield

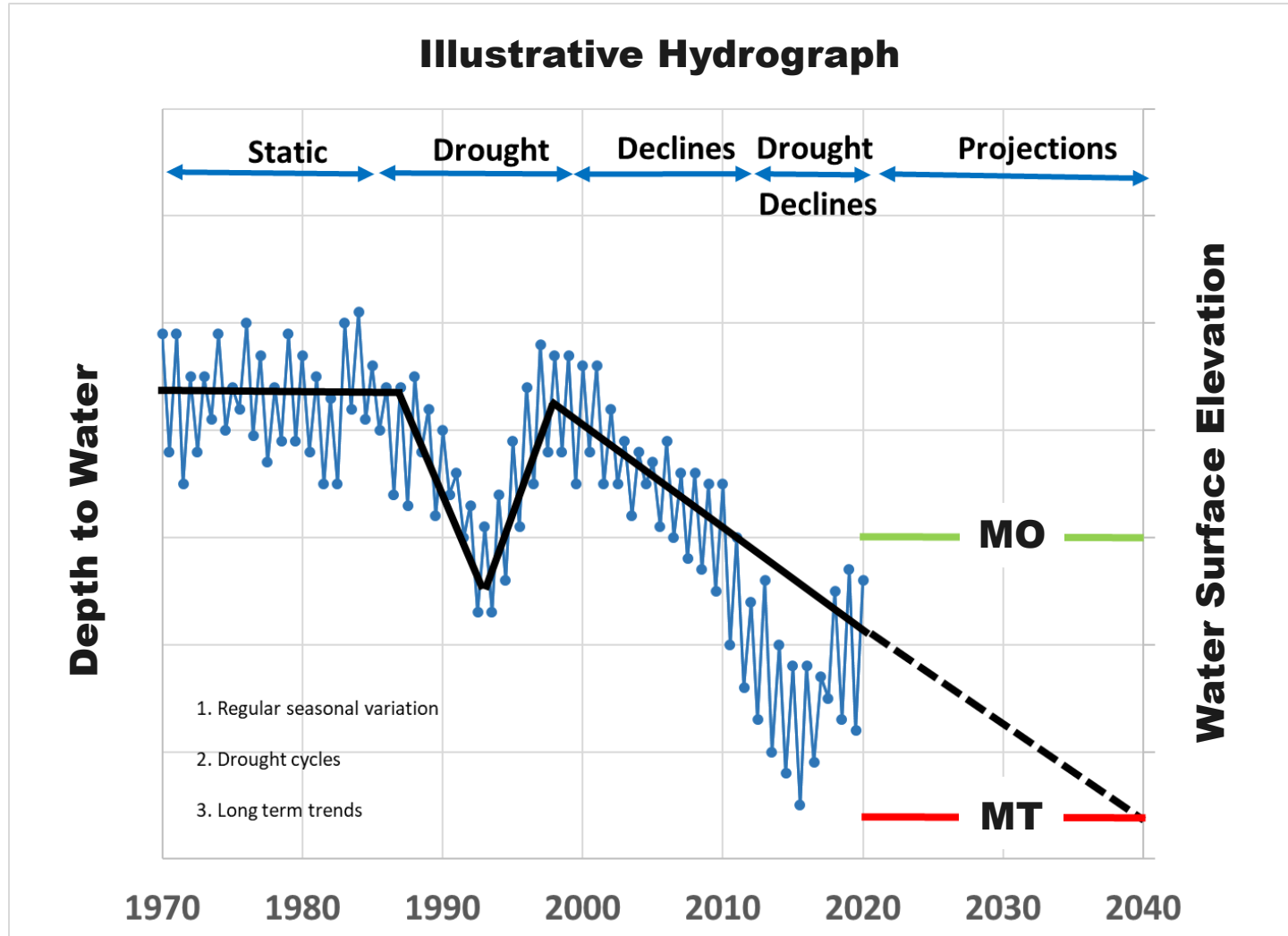


Historical Base Period



BASIN STATUS

Chronic Lowering of Groundwater Levels



Based on Historical
Water Budget...

On average, basin-wide
groundwater levels are
declining about 1.5 ft
per year

Without intervention, 50%
of the RMS wells could
reach their respective MTs
in about 20 years

BASIN MANAGEMENT

Understanding Groundwater Extraction in the Basin

To support effective basin management, two key pieces of information are needed.



METERING PROGRAM COMPONENTS

Who

- All wells in the GSA (excluding de minimis wells)
 - GSA is legally authorized to require flow meters. Landowner is responsible for all associated costs. (Water Code 10725.8)

Flow Meter Specifications

- Flow meter with totalizer calibrated w/accuracy of +/- 5% by volume.

Installation

- Must be installed to manufacturer specifications.

Calibration

- Accuracy of +/-5%.
- If verification error exceeds 5%, then the meter must be recalibrated or replaced with a certifiable meter.
- **Routine calibration schedule: 1) per manufacturers specifications
2) if not dictated in spec, default is every 5 years
3) SABGSA reserves the right to request verification/proof of accuracy if an issue arises.**

Accuracy Level Required by other GSAs

- + / - 5%
 - Cuyama
 - Mid Kings River
 - Upper Ventura River
 - Fox Canyon
 - Borrego Springs
- + / - 2%
 - McMullin

PROGRAM COMPLIANCE & VERIFICATION

Reporting Forms for Compliance

- Ad Hoc Committee has developed reporting form templates for:
 - Groundwater Extraction/Flow Meter Reporting Form
 - Installation/Calibration Compliance Form
 - ~~Routine Calibration Compliance Form~~

Enforcement for Non-Compliance

- SABGSA should consider future enforcement mechanisms (policies and penalties) for non-compliance.
- Legal counsel will develop recommendations for:
 - Well Registration Non-Compliance
 - Flow Meter Installation and Calibration Non-Compliance
 - Flow Meter Reporting Non-Compliance

SABGSA Well Registration Program Stats

- **Registered Wells: 268**
 - Accounts for 12,370.83 irrigated acres – roughly 95.7% of total irrigated acres within the Basin
 - Outstanding Well Registrations account for 555.07 irrigated acres - roughly 4.3% of total irrigated acres within the Basin
- **Metered Wells: 94 of 268 – 35%**
 - **Electromagnetic: 17**
 - **Propeller: 73**
 - **Ultrasonic: 2**
 - **Unknown: 2**
- **Unmetered Wells: 174 of 268 – 65%**



**SAN ANTONIO BASIN GROUNDWATER SUSTAINABILITY AGENCY
FLOW METER INSTALLATION AND CALIBRATION COMPLIANCE FORM**

Due to SABGSA by XXXXXX

This form should be completed for EACH flow meter installed in the San Antonio Creek Valley Groundwater Basin, unless your annual groundwater production is less than 2 AFY. A fillable pdf version of this form can be downloaded at: <https://sanantoniobasingsa.org/metering-program/>

Please return your form(s) to the San Antonio Basin Groundwater Sustainability Agency ("SABGSA") by mail to P.O. Box 196, Solvang, CA 93464 or via email to admin@sanantoniobasingsa.org.

1. Landowner and Well Information

Property Owner Information

Landowner Name: _____ Email: _____

Well Operator Information (if different than above)

Contact Name: _____ Email: _____

2. Well and Meter Location

Assessor's Parcel No. (APN): _____

Geographical Coordinates for Well (decimal degree): [Instructions to find coordinates](#).

Latitude: _____ Longitude: _____

3. Meter Information

Flow Meter Make and Model: _____

Flow Meter Serial Number: _____

Flow Meter Size (inches): _____ Discharge Pipe Size: _____

Well Use: Agricultural Domestic Municipal Industrial Livestock Watering

Meter Units of Measure: Acre-feet Cubic-feet Gal Other: _____

Schedule for Routine Calibration (per Manufacturer's Specifications):

Annually Every 3 Years Every 5 Years Other: _____

4. Installation Information

Installation Date: _____ Date of Last Calibration: _____

5. Attestation and Signature of Property Owner or Property Owner's Legal Designee

I attest to and certify that each of the following statements are true and correct.

- The flow meter with totalizer is installed per the manufacturer's specifications.
- The flow meter is calibrated within an accuracy range of +/- 5%.
- Supporting documentation will be provided to SABGSA upon request.

Signature: _____ Date: _____

DRAFT FLOW METER INSTALLATION AND COMPLIANCE FORM

Ad Hoc Comm. Discussion Items

- One form to be used for:
 - New flow meters (2/3 of wells in Basin)
 - Existing flow meters (1/3 of wells in Basin)
- Calibration schedule and date of last calibration
- Attestation form certifying compliance:
 - Flow meter with totalizer installed per manufacturer's specifications
 - Flow meter calibrated within +/- 5%
- No Additional Documentation Required – SABGSA reserves the right to request photographs, calibration certificate, map of flow meter locations on a parcel (if multiple) etc.
- Consider electronic submissions/online form

FLOW METER REPORTING PROCESS

Semi-Annually by Landowners on May 1 and November 1

Reporting Requirements / Process

- Monthly Readings: ~~1st day of each month.~~ Within the first 5 days of each month.
- Monthly flow meter readings must be reported twice a year in Spring and Fall (SABGSA schedule based on WY)
 - 60 Days to Submit Report to SABGSA
 1. April 1 – September 1 readings – due Nov. 1
 2. October 1 – March 1 readings – due May 1
- Reporting must be completed using the process identified by the GSA.
 - Submit SABGSA Reporting Form
 - Submittal Options for SABGSA Reporting Form:
 1. Hardcopy via US Mail
 2. Electronic (fillable pdf) via Email
 3. Would like to explore online form – may be a future option – build flexibility into Ordinance

Ad Hoc Comm. Discussion Items

- Current DMS can be built out to accommodate electronic reporting/online form.
- Need to identify logistics and costs to build
 - Unique log-in by owner
 - Information that auto-populates
 - Is it an app or desktop log-in, etc.
 - Fields for multiple wells
- Need to identify internal process for entering data and associated costs
 - Hydrogeologist?
 - Intern?
 - Other?



**SAN ANTONIO BASIN GROUNDWATER SUSTAINABILITY AGENCY
GROUNDWATER EXTRACTION / FLOW METER REPORTING FORM**

Due to SABGSA by November 1, 2025
(Reporting Period: Monthly readings for April 1, 2025 – September 1, 2025)

This form should be completed for EACH flow meter installed in the San Antonio Creek Valley Groundwater Basin on all non-de minimis production (> 2AFY) wells. Monthly readings are required to occur within the first 5 days of each month. Complete and accurate responses are critical for an equitable and data driven approach to groundwater management in the Basin. A fillable pdf version of this form can be downloaded at: <https://sanantoniobasingsa.org/metering-program/>

Please return your form(s) to the San Antonio Basin Groundwater Sustainability Agency (“SABGSA”) by mail to P.O. Box 196, Solvang, CA 93464 or via email to admin@sanantoniobasingsa.org.

1. Landowner Contact Information

Property Owner Information

Landowner Name: _____ Email: _____

Well Operator Information (if different than above):

Contact Name: _____ Email: _____

2. Well and Flow Meter Information

Assessor’s Parcel No. (APN): _____

Geographical Coordinates for Well (decimal degree): [Instructions to find coordinates.](#)

Latitude: _____ Longitude: _____

Flow Meter Make and Model: _____ Serial Number: _____

3. Flow Meter Measurement Data

Month	Measurement Date	Totalizing Flow Meter Reading (listed on face)	Flow Measurement Unit (acre-feet, cubic feet, etc.)	Total Extracted (by Month)
April 2025				
May 2025				
June 2025				
July 2025				
August 2025				
September 2025				

Notes: _____

4. Supporting Documentation:

The SABGSA reserves the right to request supporting documentation from the landowner including, but not limited to, proof of flow meter accuracy, photographs, etc.

DRAFT FLOW METER REPORTING FORM

Ad Hoc Comm. Discussion Items

- Should SABGSA ask landowners to calculate total volume of extraction for the reporting period or simply provide the reading and flow measurement unit?
- No Additional Documentation Required – SABGSA reserves the right to request photographs, proof of flow meter accuracy, etc.
- Consider developing excel spreadsheet for landowners with multiple flow meters
- Consider electronic submissions / online form through website or portal

PROPOSED NEXT STEPS

Based on Direction from SABGSA Board....

01

AD HOC COMMITTEE

Revise Reporting and Compliance Forms, DRAFT Q&A for Metering

AD HOC COMM. DELIVERABLES

Feb 20th GSA Board Meeting

- 1st DRAFT Q&A
- Updated reporting and compliance forms, if necessary.

02

LEGAL COUNSEL

At January or February Board meeting, consider authorizing legal counsel to begin work

LEGAL COUNSEL DELIVERABLES

Mar 19th GSA Board Meeting

- Legal counsel presents first draft of Ordinance for discussion including enforcement mechanisms (policies and penalties) for non-compliance.

03

AD HOC COMMITTEE

Investigate DMS logistics including budget

AD HOC COMMITTEE DELIVERABLES

Mar 19th GSA Board Meeting

- Present initial research and options for data entry/management – may consider RFP

DISCUSSION

- **Questions**
- **Additional Items for Ad Hoc Comm. Exploration**
- **Direction from SABGSA Board**

LEGAL AUTHORITY

Water Code 10725.8 - SGMA

(a) **WATER MEASURING DEVICE:** A groundwater sustainability agency may require through its GSP that the use of **every groundwater extraction facility** within the management area of the GSA be **measured by a water-measuring device** satisfactory to the GSA.

(b) **COSTS, INSTALL, CALIBRATION:** **All costs associated** with the purchase and installation of the water-measuring device shall be **borne by the owner** or operator of each groundwater extraction facility. The water-measuring devices shall be **installed by** the GSA or, at the groundwater sustainability agency's option, by **the owner or operator** of the groundwater extraction facility. Water-measuring devices shall be **calibrated on a reasonable schedule as may be determined by the GSA.**

(c) **REPORTING:** **A GSA may require,** through its GSP, that the owner or operator of a groundwater extraction facility within the GSA file **an annual statement** with the GSA **setting forth the total extraction in acre-feet** of groundwater from the facility during the previous water year.

(d) In addition to the measurement of groundwater extractions pursuant to subdivision (a), a GSA may use any other reasonable method to determine groundwater extraction.

(e) **DE MINIMIS EXTRACTORS EXEMPT:** This section does not apply to de minimis extractors.

FLOW RATE TO ENERGY USAGE METHOD

Preliminary Analysis – Requires Discussion with Ad Hoc Comm.

INDIRECT FLOW MEASUREMENT:

The types of meters SABGSA has considered (propeller, ultrasonic, and electromagnetic) are all direct measurements of flow. **The flow rate to energy usage method can be considered an indirect measurement of flow.** It can be **fairly accurate if the well pumps consistently at a fairly consistent water level.** That breaks down over time as water levels drop so knowing the relationship between water levels and the pump discharge at that level is important to correct the Kwh to the right flow.

CALIBRATION:

This method would **likely require calibration at least once a year, if not twice**, to determine the kWh multiplier during seasonal high water levels and during seasonal low water levels and would still require a big assumption that operating conditions remain similar throughout the intervening periods.

FACTORS THAT IMPACT ENERGY USE VS. FLOW:

Dynamic changes in pump condition, dynamic changes in back pressure on any system irrigation lines the pump might be feeding into, pumps outfitted with VFDs (variable frequency drive), drawdown from adjacent wells, fluctuating water levels throughout the year, etc. **Essentially, any dynamics in the system that result in changing resistance to the operation of the pump motor can throw this method into question.**

EXAMPLE PROVIDED TO SABGSA FOR CONSIDERATION:

The provided kWh conversion calculated during the Gato Cyn Ranch Pump Test suggests a linear relationship between flow and energy use. This relationship is more likely a curve, hence the need for a monitoring program like PumpMonitor.