



Your Local Partner in Conservation

Cachuma RCD Initial Site Consultation

Agriculture System Survey

Observations and Recommendations Check List	
<u>Client:</u> <u>Ranch:</u> <u>Block:</u> <u>Date:</u> <u>Water Source:</u>	
System Components <u>Controller/VFD:</u> <u>Pump Specs Well and/or Booster:</u> <u>Back Flow:</u> <u>Flow Meter:</u> <u>Fert./Chem. Injection:</u> <u>Filter Type:</u> <u>Pump/Filter PRV:</u>	 y n y n y n y n y n
Field/Block Components <u>Regulation:</u> <u>Emitter Manufacturer/Type:</u> <u>Emitter & Plant Spacing:</u> <u>Emitter Condition/Age:</u>	 y n
System Operation <u>Flow/Block or Set (gpm):</u> <u>Pump PSI:</u> <u>Filter PSI (in/out):</u> <u>Block/Set/Station/Field PSI:</u>	
Water Quality <u>Hardness:</u> <u>Emitter Orifice Size:</u> <u>Hardness Visible:</u> <u>Plugging Visible:</u> <u>Irrigation Water Additive(s):</u> <u>Field Discharge Observation:</u>	 y n y n y n
Irrigation Schedule(s): <u>Soil Moisture Monitoring:</u> <u>Weather Info. (Eto):</u> <u>Experience:</u> <u>Soil Type:</u>	 y n y n y n

Estimated Distribution Uniformity (DU) Range Based on this Field Survey Information:

Estimated Water Savings Based on the DU Projection from this Survey:

Observations and Recommendations Check List

Client: _____	
Ranch: _____	
Block: _____	
Date: _____	
Observations:	Recommendations:
Plugging/Clogging	
<input type="checkbox"/> Emitters, sprinklers	<input type="checkbox"/> Flush lines every 2-4 weeks, <input type="checkbox"/> inspect filtration system
<input type="checkbox"/> Material observed in lines	<input type="checkbox"/> Use water additives to avoid plugging, <input type="checkbox"/> inspect filtration system
<input type="checkbox"/> Emitters, sprinklers	<input type="checkbox"/> Flush lines every 2-4 weeks, <input type="checkbox"/> inspect filtration system
Pressure	
<input type="checkbox"/> Adequate	
<input type="checkbox"/> Emitters, sprinklers	<input type="checkbox"/> Flush lines every 2-4 weeks, <input type="checkbox"/> inspect filtration system
<input type="checkbox"/> High	<input type="checkbox"/> Check system psi w/pressure gauge, use PC technology
<input type="checkbox"/> Emitters, sprinklers	<input type="checkbox"/> Flush lines every 2-4 weeks, <input type="checkbox"/> inspect filtration system
<input type="checkbox"/> Manually adjusted valve(s)	<input type="checkbox"/> Use different valves:
<input type="checkbox"/> Emitters, sprinklers	<input type="checkbox"/> Flush lines every 2-4 weeks, <input type="checkbox"/> inspect filtration system
Design	
<input type="checkbox"/> Emitters, sprinklers	<input type="checkbox"/> Flush lines every 2-4 weeks, <input type="checkbox"/> inspect filtration system
<input type="checkbox"/> Inadequate filter	<input type="checkbox"/> Upgrade filter
<input type="checkbox"/> Emitters, sprinklers	<input type="checkbox"/> Flush lines every 2-4 weeks, <input type="checkbox"/> inspect filtration system
<input type="checkbox"/> Flow meter	<input type="checkbox"/> Install the device
<input type="checkbox"/> Emitters, sprinklers	<input type="checkbox"/> Flush lines every 2-4 weeks, <input type="checkbox"/> inspect filtration system
<input type="checkbox"/> Operational problems	<input type="checkbox"/> Reduce row length
	<input type="checkbox"/> Check flow rates
	<input type="checkbox"/> Review design for correct technical specifications
Maintenance	
<input type="checkbox"/> Emitters - drip	<input type="checkbox"/> Flush lines every 2-4 weeks, <input type="checkbox"/> inspect filtration system
<input type="checkbox"/> Water leaks	<input type="checkbox"/> Repair: <input type="checkbox"/> Location:
<input type="checkbox"/> Emitters - micro sprinklers	<input type="checkbox"/> Flush lines every 2-4 weeks, <input type="checkbox"/> inspect filtration system
<input type="checkbox"/> Water leaks	<input type="checkbox"/> Repair: <input type="checkbox"/> Location:
Other Concerns:	

Supplement 3) Overall Irrigation/Water Management

Estimated canopy percentage (shading when sun directly overhead): _____ %

Length of irrigation season (months) - average start/stop dates: _____ Start Stop

Estimated seasonal net evapotranspiration: _____ inches/year or crop

Other beneficial water used (leaching, soil prep, etc.): _____ inches/year

Gross average seasonal rainfall: _____ inches/year

Water Quality/Drainage Issues:

SAR high enough to require amendments?	YES	NO
Salinity high enough to require specific leaching applications?	YES	NO
Need to file nutrient management plan?	YES	NO
High water table - no outlet?	YES	NO
High water table - artificial drainage system in place?	YES	NO

Field Variability:

Does the booster pump supply different <u>flow rates</u> to different blocks?	YES	NO
Does the booster pump supply different <u>pressures</u> to different blocks?	YES	NO

If uneven flow rates/pressure to different blocks - why (check all that apply)?

- Different block sizes
- Different crops
- Different crop ages
- Different system designs
- Blocks go uphill/downhill from booster

Irrigation Scheduling Activities (check all that apply):

- On-farm weather stations
- Soil/plant moisture monitoring
- Soil/plant moisture monitoring with tracking (written or graphical)
- Use CIMIS daily/weekly ETo to set run-time
- Formal water budget
- Personal experience only
- Use of a consultant

Does the grower know system specifications for input pressure and/or flow? If YES, pressure ____psi flow ____gpm	YES	NO
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Multiple booster pumps in the field?	YES	NO
Is booster pump VFD-controlled?	YES	NO

In the main irrigation season, What would be your normal watering pattern (if any)?

_____ days on _____ days off, Is this variable?	YES	NO
_____ hours per day, Is this variable?	YES	NO
_____ hours per week, Is this variable?	YES	NO

Is the variable timing due to any of the following? If so, check
Any type of estimate of crop ETc?

Appearance of crop (experience)?
Soil moisture measurements?
Crop moisture measurements?

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Supplement 3a) Water Supplies to Field

Supply is (check all that apply): Well Water District Surface water(river/creek)

Do you have an on-farm reservoir or other water storage? YES NO

Is it large enough to allow you to shut down your pumps for the 6 hours of electrical on-peak hours? YES NO

If in an irrigation or water district company, or private farm system:

What is the typical delivery season? Start _____ Stop _____

Strict Rotation or Arranged (able to call on and off in advance) STRICT ARRANGED

If Rotation - Days between _____ Days on _____, Flow rate flexibility? YES NO

If Arranged - lead time for ordering water on and off? On _____ Off _____, flexibility? YES NO

What is the total volume delivered to field per year from the district? _____ ac-feet

Flow/volume measuring device installed at outlet? YES NO

How priced: Per Acre-Foot Delivered Per Acre per Year

Price: \$ _____ per acre-foot / per acre-year

Tiered-rate in place? YES NO

Price: \$ _____ per acre-foot for _____ acre-feet

Price: \$ _____ per acre-foot for next _____ acre-feet

Price: \$ _____ per acre-foot for next _____ acre-feet

If a well, is it shared or used solely by you? SHARED SOLE USE:

Power source? DIESEL NATURAL GAS ELECTRIC

Flowmeter installed? YES NO

VFD controlled? YES NO

Water table fluctuation summer to winter (when operating): _____ ft

If shared:

Formal contract between owners as to use? YES NO

Any arrangement as to off-peak operation? YES NO

If the well is solely used by you:

Do you mind turning it on and off every day?, Not in favor - reason?

Is it supplying multiple fields? YES NO

Total Volume delivered from well to field per year? _____ ac-feet

If Direct from surface or farming company, are you using a shared pump or one only used by you? SOLE USE

Flowmeter on pump? YES NO

VFD controlled? YES NO

If shared:

Formal contract between owners as to use? YES NO

Any arrangement as to off-peak operation? YES NO

If the pump is used solely by you:

Do you mind turning it on and off every day?, Not in favor-reason? YES NO

Is it supplying multiple fields? YES NO

Total Volume delivered from pump to field per year? _____ ac-feet

Supplement 3b) Time-Of-Use Operations From PG&E Service

TOU schedule(s) in place? On some pumps?

Well pumps On some pumps?	YES	NO
Booster pumps On some pumps?	YES	NO
Surface lift pumps On some pumps?	YES	NO

Last PG&E time-rate analysis performed? _____

Currently off-peak usage? – (check best answer)

For Wells

- Aggressive/Always
- Try to be off-peak whenever possible
- Can't be off-peak - need all the water it can pump

Don't worry about it

For Boosters

- Aggressive/Always
- Try to be off-peak whenever possible
- Can't be off-peak
 - constraints from supply (e.g., 24 hour delivery)
 - constraints from irrigation system (e.g., need 24 hour day operation at peak ETC)
- Don't worry about it

For Surface Water

- Aggressive/Always
- Try to be off-peak whenever possible
- Can't be off-peak
 - constraints from supply
 - constraints from irrigation system
 - need all the water it can pump
- Don't worry about it

Supplement 3c) Information For Impacted Acres (Leveraging)

Is the block/field evaluated part of a larger field/orchard/vineyard? YES NO
If YES, what is the size of the entire field? _____acres

Do you have other fields/orchards/vineyards that use similar irrigation systems and management? YES NO
If YES, what is the total acreage that is similar to the block/field evaluated? _____acres

Does the total acres include double-cropping as well? YES NO

Is information gained from this consultation useful on other similar fields/orchards/vineyards? YES NO
If YES, which types of information (check all that apply)?

Reasons/problems to look for in improving DU

Reasons/problems to look for in decreasing excess pressure losses

Issues for improving overall water management (scheduling, moisture monitoring)

Issues for moving operations to off-peak hours

Supplement 3d) Irrigation and Pump Test Information

GROWER IRRIGATION RECORDS

Month	Hours/Day	Days/Week
Jan		
Feb		
Mar		
Apr		
May		
Jun		
Jul		
Aug		
Sep		
Oct		
Nov		
Dec		

Total Acre Feet of Water/Yr or Crop

INFO. FROM GROWER PG&E PUMP TEST

PG&E OPE -	%
<u>Discharge psi (wellhead)</u>	
Flow Rate	
<u>Energy Cost (\$/kwh)</u>	
Static H2O level (ft)	
Dynamic Water Level	
<u>Specific Yield (gpn/ft)</u>	
<u>Well Casing Diameter (in.)</u>	
Motor Horse Power	
<u>Motor Efficiency</u>	
<u>Pump Efficiency</u>	
<u>Total Dynamic Head</u>	

\$ Pumping Cost per AF

Compatibility Report for New Ag Field Sheets Dec-2013.xls
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