This presentation premiered at WaterSmart Innovations

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Results of a Performance-based Residential Rebate Program

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Rebate Program Overview

- Began in 2007
- ET Controller Rebate - $500 for controller and install
  - Standard incentive program
  - Qualified list of controllers – Castle Rock Utilities
- Irrigation Audit Program– Free for customers

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1st on To-Do List

- Evaluate programs
- Simple analysis
  - 5-year pre-program participation consumption average
  - Compare to post-program consumption
  - Doesn't include year of participation
  - Averaging normalizes data?

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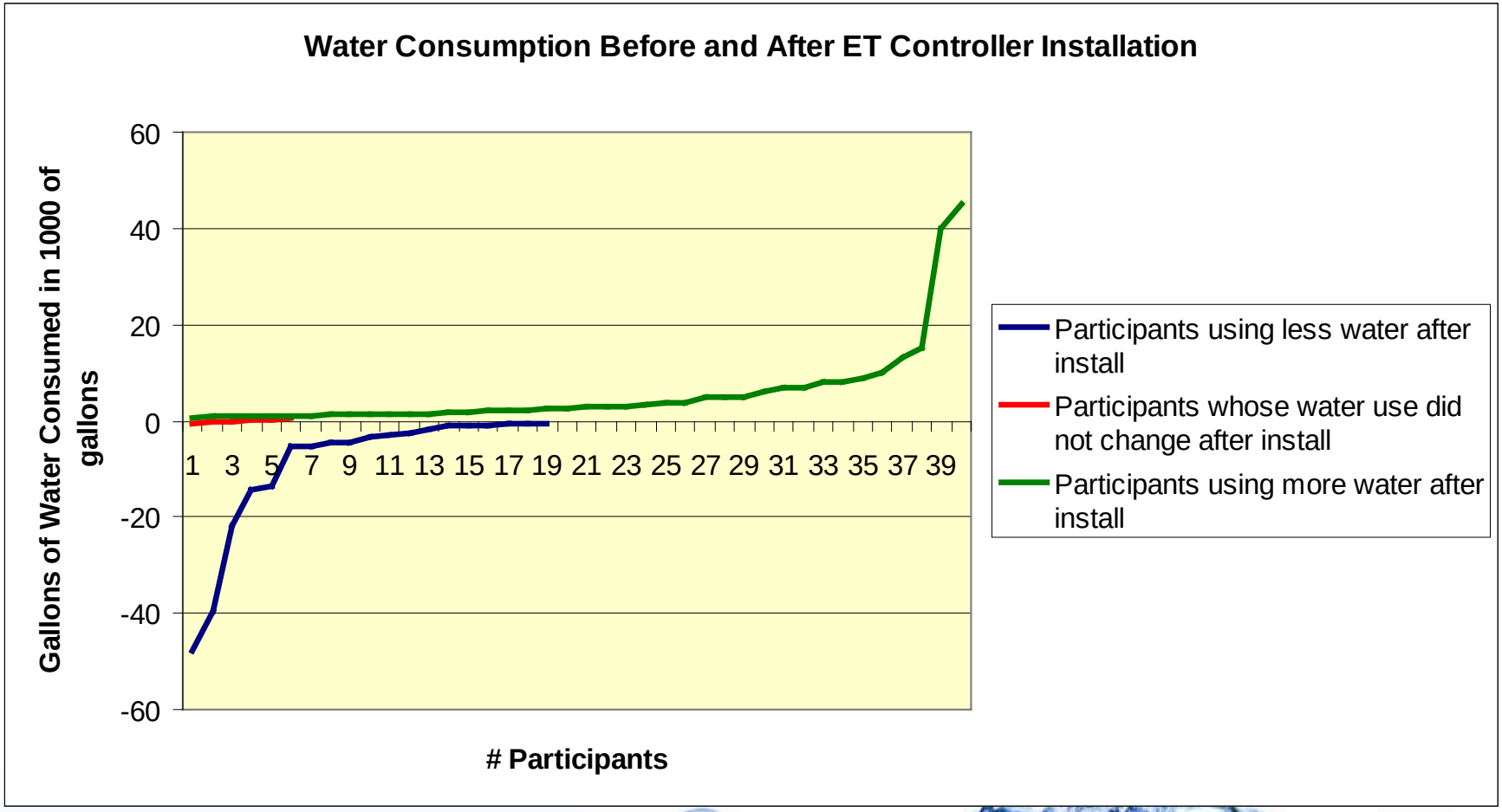
Evaluation = Increased Water Use



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Need a Robust Analysis

- 3rd party importance
- AquaHawk Analysis™

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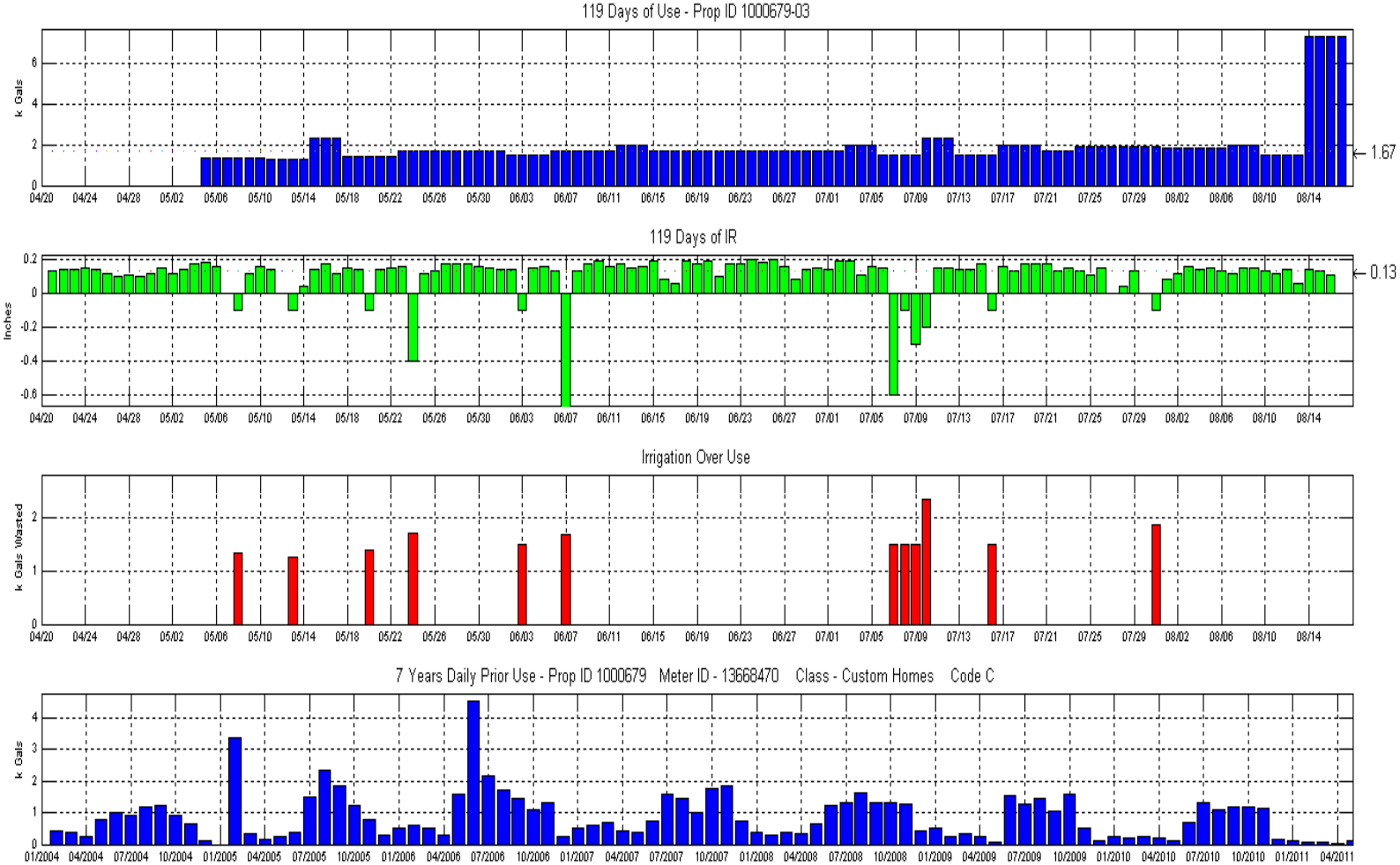


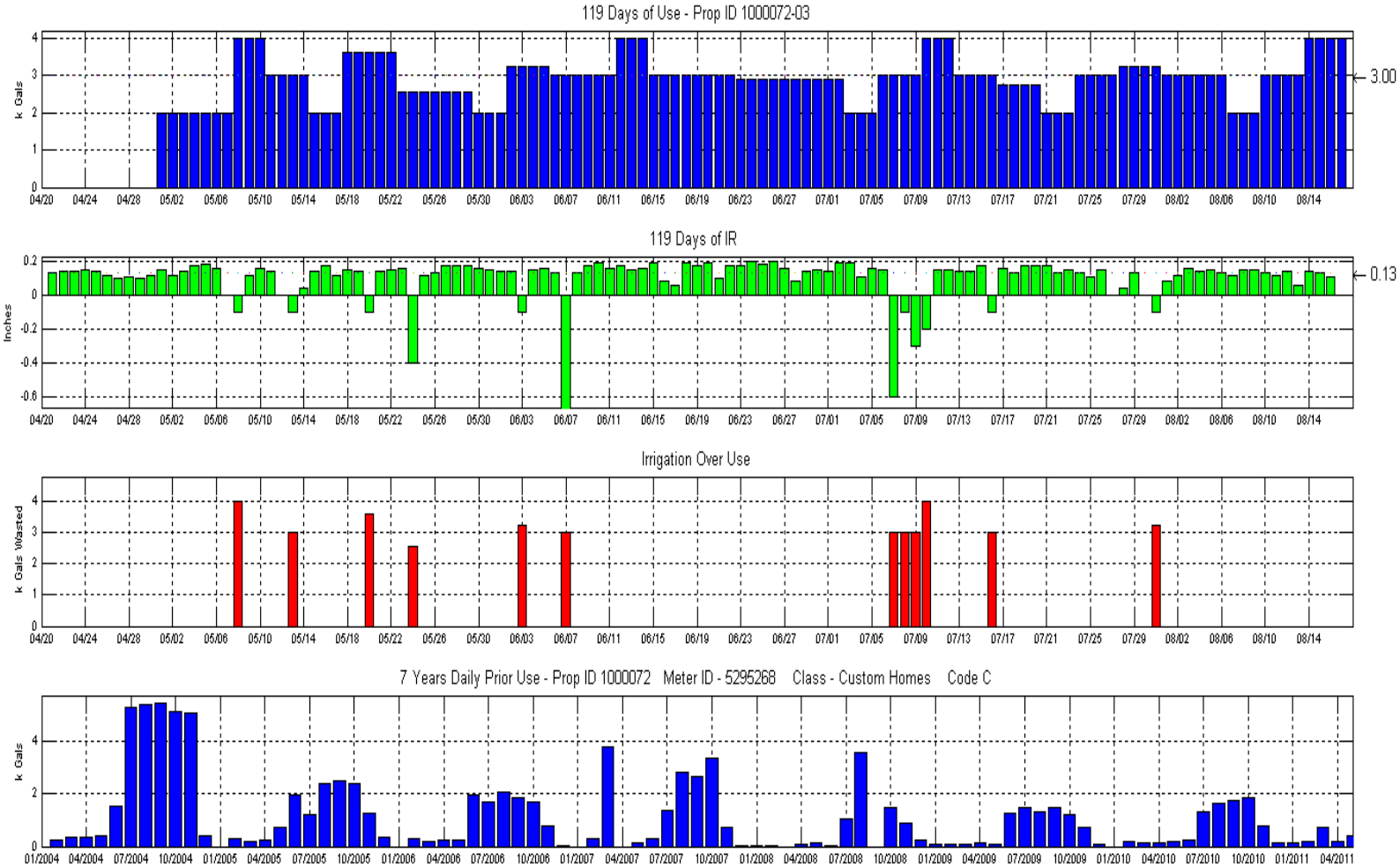
Mean is 1.71-- Median is 1.67-- Max is 2.33-- MaxDate is 05/13/2012-- Last is 7.33

#3 Prop ID 1000679-03 Cal IRR Area = 13,686 Sq Ft of turf

OverUse = 1333 1250 1400 1714 1500 1667 1500 1500 1500 2333 1500 1875 Gals

OverUse Total = 19,073 Gals

Irr Usage = 52,583 Gals 1000679-03



Mean is 2.69-- Median is 3.00-- Max is 4.00-- MaxDate is 05/06/2012-- Last is 4.00

#10 Prop ID 1000072-03 Cal IRR Area = 21,617 Sq Ft of turf

OverUse = 4000 3000 3600 2571 3250 3000 3000 3000 3000 4000 3000 3250 Gals

OverUse Total = 38,671 Gals

Irr Usage = 80,000 Gals 1000072-03

Survey Customers

- Contacted those who participated via telephone
- Questions
  - Landscaper
  - Clocks managed by whom?
  - System efficiency

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Why ET Controllers were Not Conserving Water

- % ET set too high
  - 60% vs 100%
- Parameters not set correctly
  - Soil type, plant material, exposure
- Homeowners manually start a cycle
- Landscapers override ET
  - Reduced homeowner usage by 50% after reprogramming ET Manager

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What Else?

- No pre-screen of water consumption
  - Deficit Irrigator?
  - Conservation-minded
- No landscape assessment
- No on-site check of equipment installation and correct functionality

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The Problem with Conventional Conservation Incentive Programs:

- Conservation-minded folks look for these programs.
- The folks who really need to conserve don't know they do.
- OR – don't know how or where to go to get info

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How Do We Address These Issues?

- Modeled after DW's Commercial Incentive Program and SAWS Bonus Program
- Needs:
  1. A program that naturally eliminates customers who are deficit irrigating.
  2. A program that gives customers an incentive but also covers the providers cost to provide the water.

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How Much is the Rebate?

- Rebate amounts determined by potential savings – $/AF divided by the cost to acquire new supply $/AF
- New method –
  - Operational cost to pump, treat, and distribute water
  - Difference between historical amount used for irrigation and irrigation requirement

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New Rebate Program

- Meet with customer
- Determine how to increase efficiency
- Develop Water Budget
- Sign MOU
- Work with customer to optimize ROI
- If customer meets reduction expectation, then receive rebate for two years after retrofit.

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Audit to Determine IR

- IA audit protocol
- Measured DU – to help residents get to 75%
- Differentiated between landscape plant material - hydrozones
- Measured hydrozone sizes

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Irrigation Requirement

- Two data points – ET and Landscape size
- 5-year historical seasonal ET
- Landscape – High, Moderate, Low water req.
- ET * 80%, or 50%, or 20%
- Season May - Oct

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DESCRIPTION	MONTH	HISTORICAL ET	PLANT COEFFICIENT	PLANT WATER REQUIREMENT	AVE. RAINFALL	EFFECTIVE RAINFALL	TOTAL WATER REQUIREMENT(IN.)	IRRIGATED SQUARE FOOTAGE	MONTHLY WATER REQUIREMENT (GALLONS)	HISTORICAL AVERAGE USAGE (5 YR)
PLANT TYPE:										
COOL-SEASON TURFGRASS	MAY	5.09	0.8	4.08	0.87	0.44	3.64	7,250	21,936	57,000
	JUNE	7.74	0.8	6.19	3.39	1.70	4.49	7,250	27,075	69,400
	JULY	5.09	0.8	4.07	1.79	0.90	3.18	7,250	19,160	74,200
	AUGUST	6.01	0.8	4.80	2.50	1.25	3.55	7,250	21,419	104,400
	SEPTEMBE	7.37	0.8	5.90	2.00	1.00	4.90	7,250	29,524	83,800
	OCTOBER	2.43	0.8	1.94	1.45	0.73	1.22	7,250	7,324	10,000
OPERATING PERIOD-MIN/DAY	TOTALS	33.73		29.76			20.98	TOTAL	126,439	398,800
DAYS/WEEK								ACRE FEET/YR.	0.39	1.22

DESCRIPTION	MONTH	HISTORICAL ET	PLANT COEFFICIENT	PLANT WATER REQUIREMENT	AVE. RAINFALL	EFFECTIVE RAINFALL	TOTAL WATER REQUIREMENT(IN.)	IRRIGATED SQUARE FOOTAGE	MONTHLY WATER REQUIREMENT (GALLONS)	HISTORICAL AVERAGE USAGE (5 YR)
PLANT TYPE:										
MODERATE USE TREES & SHRUBS	MAY	5.09	0.5	2.55	0.87	0.44	2.11	11,508	20,202	57,000
	JUNE	7.74	0.5	3.87	3.39	1.70	2.17	11,508	20,781	69,400
	JULY	5.09	0.5	2.55	1.79	0.90	1.65	11,508	15,798	74,200
	AUGUST	6.01	0.5	3.00	2.50	1.25	1.75	11,508	16,766	104,400
	SEPTEMBE	7.37	0.5	3.69	2.00	1.00	2.69	11,508	25,703	83,800
	OCTOBER	2.43	0.5	1.21	1.45	0.73	0.49	11,508	4,666	10,000
OPERATING PERIOD-MIN/DAY	TOTALS	33.73		16.86			10.86	TOTAL	103,916	398,800
DAYS/WEEK								ACRE FEET/YR.	0.32	1.22

DESCRIPTION	MONTH	HISTORICAL ET	PLANT COEFFICIENT	PLANT WATER REQUIREMENT	AVE. RAINFALL	EFFECTIVE RAINFALL	TOTAL WATER REQUIREMENT(IN.)	IRRIGATED SQUARE FOOTAGE	MONTHLY WATER REQUIREMENT (GALLONS)	HISTORICAL AVERAGE USAGE (5 YR)
PLANT TYPE:										
NATIVE GRASS, XERIC PLANTS	MAY	5.09	0.3	1.53	0.87	0.44	1.09	62,857	57,116	57,000
	JUNE	7.74	0.3	2.32	3.39	1.70	0.63	62,857	32,685	69,400
	JULY	5.09	0.3	1.53	1.79	0.90	0.63	62,857	33,070	74,200
	AUGUST	6.01	0.3	1.80	2.50	1.25	0.55	62,857	28,826	104,400
	SEPTEMBE	7.37	0.3	2.21	2.00	1.00	1.21	62,857	63,338	83,800
	OCTOBER	2.43	0.3	0.73	1.45	0.73	0.00	62,857	140	10,000
OPERATING PERIOD-MIN/DAY	TOTALS	33.73		10.12			4.12	TOTAL	215,176	398,800
DAYS/WEEK								ACRE FEET/YR.	0.66	1.22
								Total 5 - year Average	**445,530**	**398,800**

MINIMUM REQUIRED SYSTEM EFFICIENCIES:
Drip irrigation - 90%
Rotor irrigation - 80%
Spray head irrigation: 70%

PROJECTED SAVINGS

IRRIGATED SQUARE FEET	3,440
GALLONS/YEAR	-46,730
REBATE AMOUNT	$ (153.74)

High Hydrozone	MONTHLY WATER REQUIREMENT (GALLONS)	HISTORICAL AVERAGE USAGE (5 YR)
	21,936	57,000
	27,075	69,400
	19,160	74,200
	21,419	104,400
	29,524	83,800
	7,324	10,000
	126,439	398,800
AF/Yr	0.39	1.22
Low Hydrozone	MONTHLY WATER REQUIREMENT (GALLONS)	HISTORICAL AVERAGE USAGE (5 YR)
	57,116	57,000
	32,685	69,400
	33,070	74,200
	28,826	104,400
	63,338	83,800
	140	10,000
	215,176	398,800
AF/Yr	0.66	1.22
Totals	**445,530**	**398,800**

Rebate Amount = $0.00

No reward for deficit irrigators!

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How do Customers and Program Manager Track Usage

www.demo.aquahawk.us/login

Program Results

- More participants than expected.
- Eliminated giving rebates to deficit irrigators.
- Participants used less than they were asked.
- Participants pleased with the District.

Program Success!

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Thank you

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