



Measurement Orders

ESPA GWMA Advisory Committee Meeting

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IDAHO DEPARTMENT OF
WATER RESOURCES

Presentation Outline

- 💧 Purpose of Measurement
- 💧 Legal Basis for Measurement
- 💧 ESPA Measurement Order
- 💧 Measurement Standards
- 💧 Data Collection



Purpose for Measurement

- Essential tool for Watermaster
 - accurate delivery of water, quantify use for assessments
- Develop & refine water budgets
- Contribute to modelling efforts
- Identify inefficiencies in irrigation components



Legal Basis for Measurement

- Duties of Director – Idaho Code § 42, Ch. 18
 - inventory water resources
 - ascertain conservation / augmentation methods
 - determine most effective use for the benefit of the State
- Adjudication – Idaho Code § 42, Ch. 14
 - Catalog, confirm the beneficial use, rate, volumes, acres for all water rights
- Measuring Devices – Idaho Code § 42, Ch. 7
 - installation and maintenance of approved measuring devices ensures accuracy of the distribution of water



Measurement Orders Typically...

- Are issued after district creation/modification
 - water district, water measurement district, ground water management area, etc...
- Include a two-year deadline within which to install measuring device
- Set totalizing flowmeters as the standard
 - Variances for existing meter, PCC, timeclock, open-channel device, extension of time (unused wells)
- Measurement required for:
 - Irrigation >5 acres
 - Non-irrigation >0.24 cfs

Cumulative total from well,
regardless of number of water
rights or owners

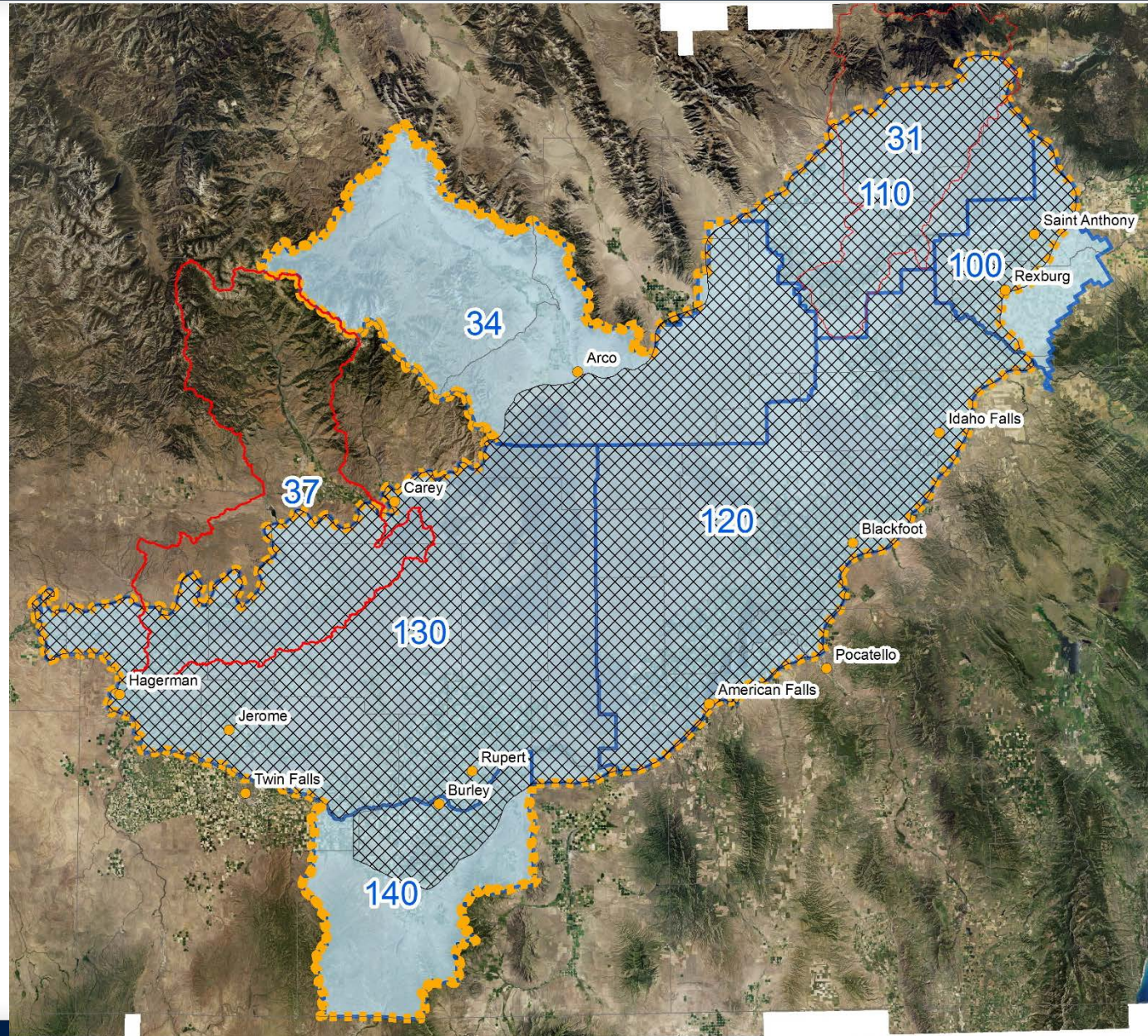


Eastern Snake Plain Aquifer

- July 22, 2016
- 2018 deadline
- ~5,500 wells

Excludes:

- Dom/stock (I.C. 42-111)
- Irr ≤ 5 acres
- Non-Irr ≤ 0.24 CFS



Measurement Methods on ESPA

Measurement Option	# of Wells	Typical Well Use
Flowmeter (1)	4346	irrigation
Flowmeter (8)	743	year-round users
PCC (2)	253	irrigation
Open-Channel	58	spring users
Timeclock (7)	31	irrigation
Alternate (3)	23	various

Flowmeter



Kilowatt data



Weir or flume



Hour meter



Mix of open-channel, estimates based on system components, splitting water usage amongst spring users



Total

~5454

Ongoing Maintenance

Annually, between 5% and 10% of flow meters require maintenance.

Common Issues

Battery replacement

moisture intrusion

negative flow

Internal component failure

rodents chewing grounding wires

Maintenance letters sent after each spring and fall site visit.

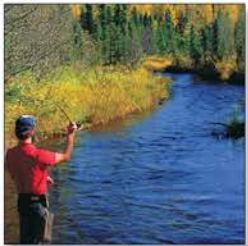
Can be elevated to Notice of Violation if issue is habitually not addressed.



Third Party Flowmeter Testing

IDWR has approved list of meters based on third party testing at certified lab (UWRL at Utah State)

- Testing program initiated 2011
- Mag meters and ultrasonic meters tested
- Must achieve $\pm 2\%$ accuracy and $\pm 0.5\%$ repeatability (compared to volumetric weight tank at UWRL)



Approved Meters Types

Full Profile Electro-Magnetic



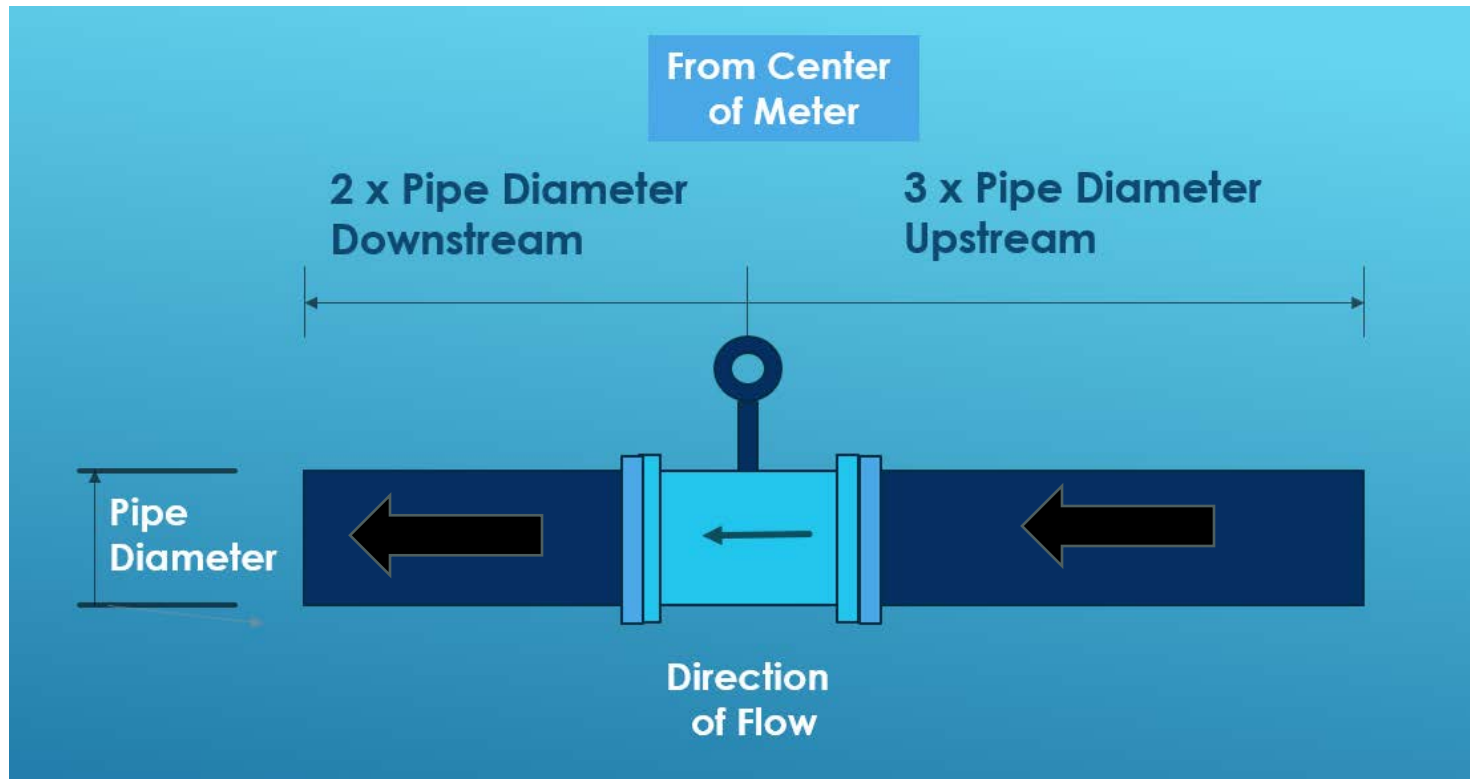
Spooled Ultrasonic



Clamp-on and Wetted
Transducer Ultrasonic



Proper Installation: Spacing



Example: Pipe diameter 6 inches

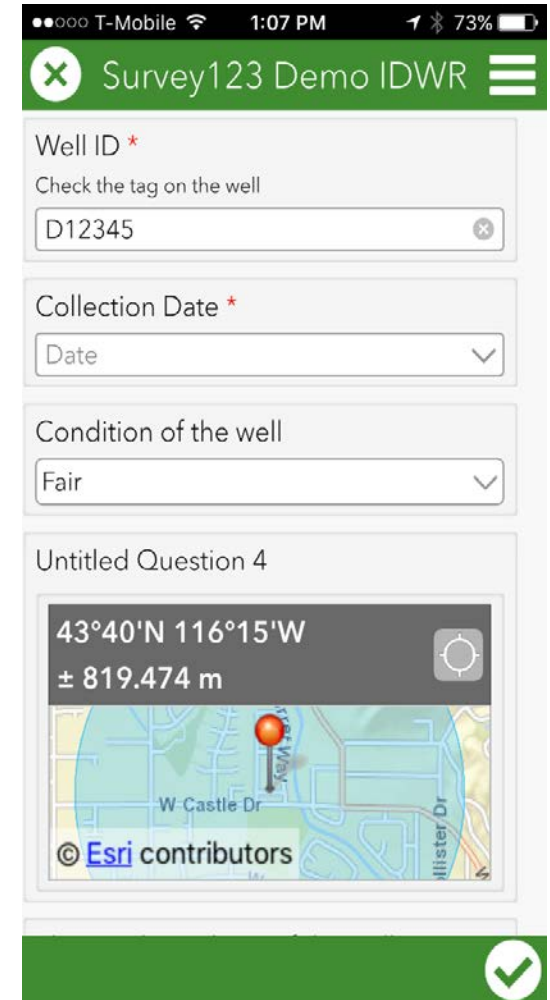
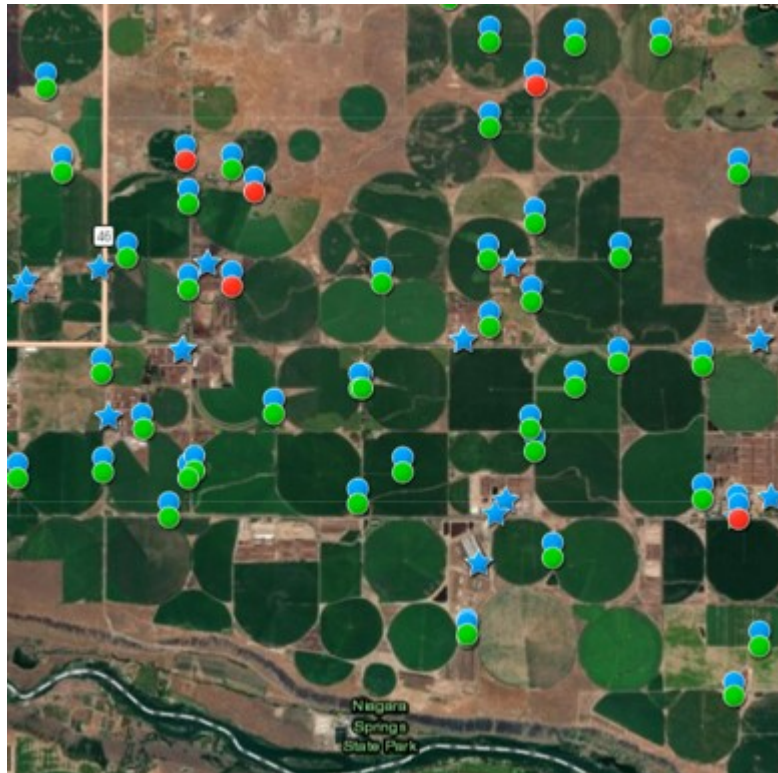
Minimum upstream distance: 18 inches (3 x 6)

Minimum downstream distance: 12 inches (2 x 6)

Mobile Data Collection

Survey123 and navigation map

- Used on phone or tablet



Thank You

Questions?