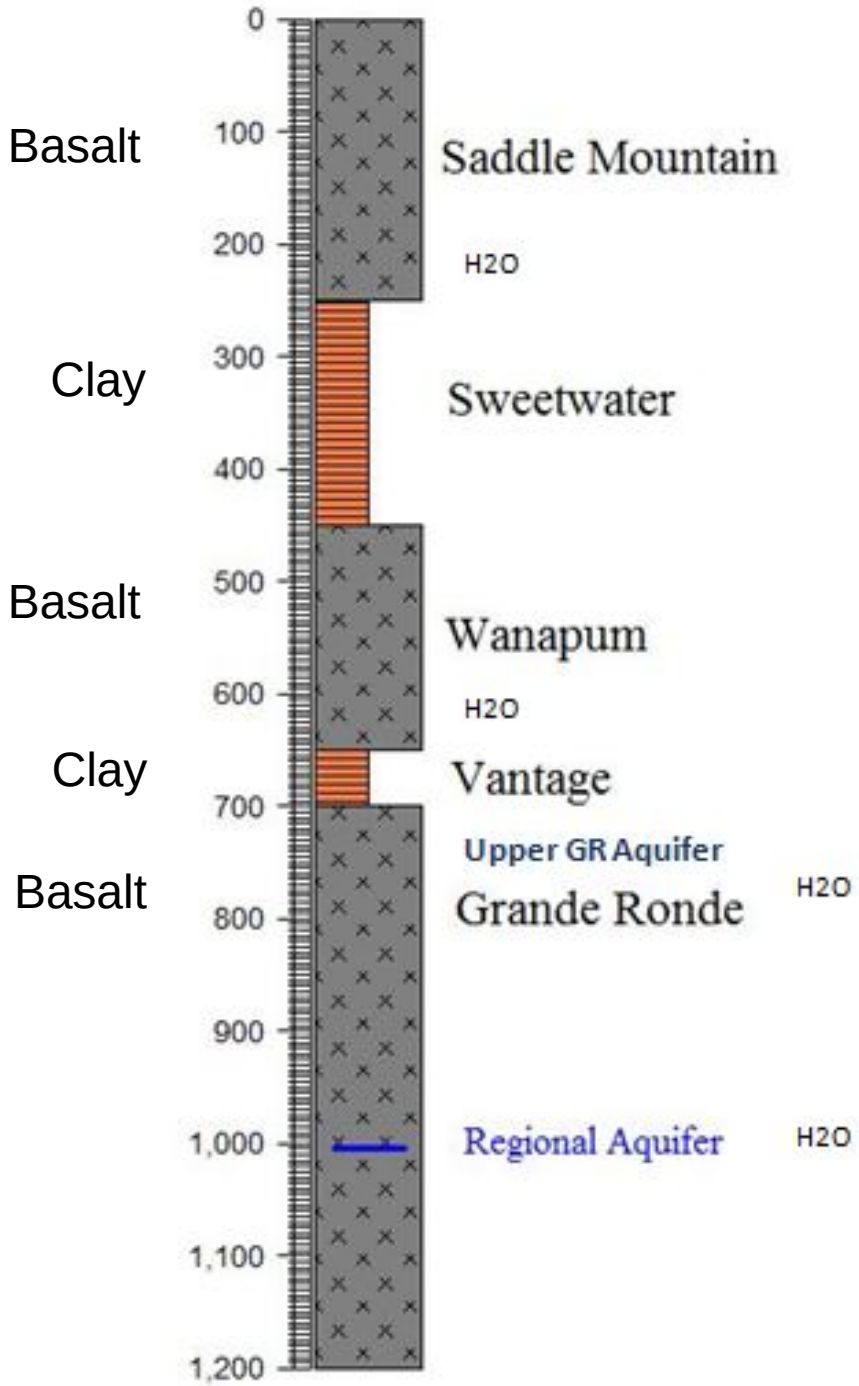
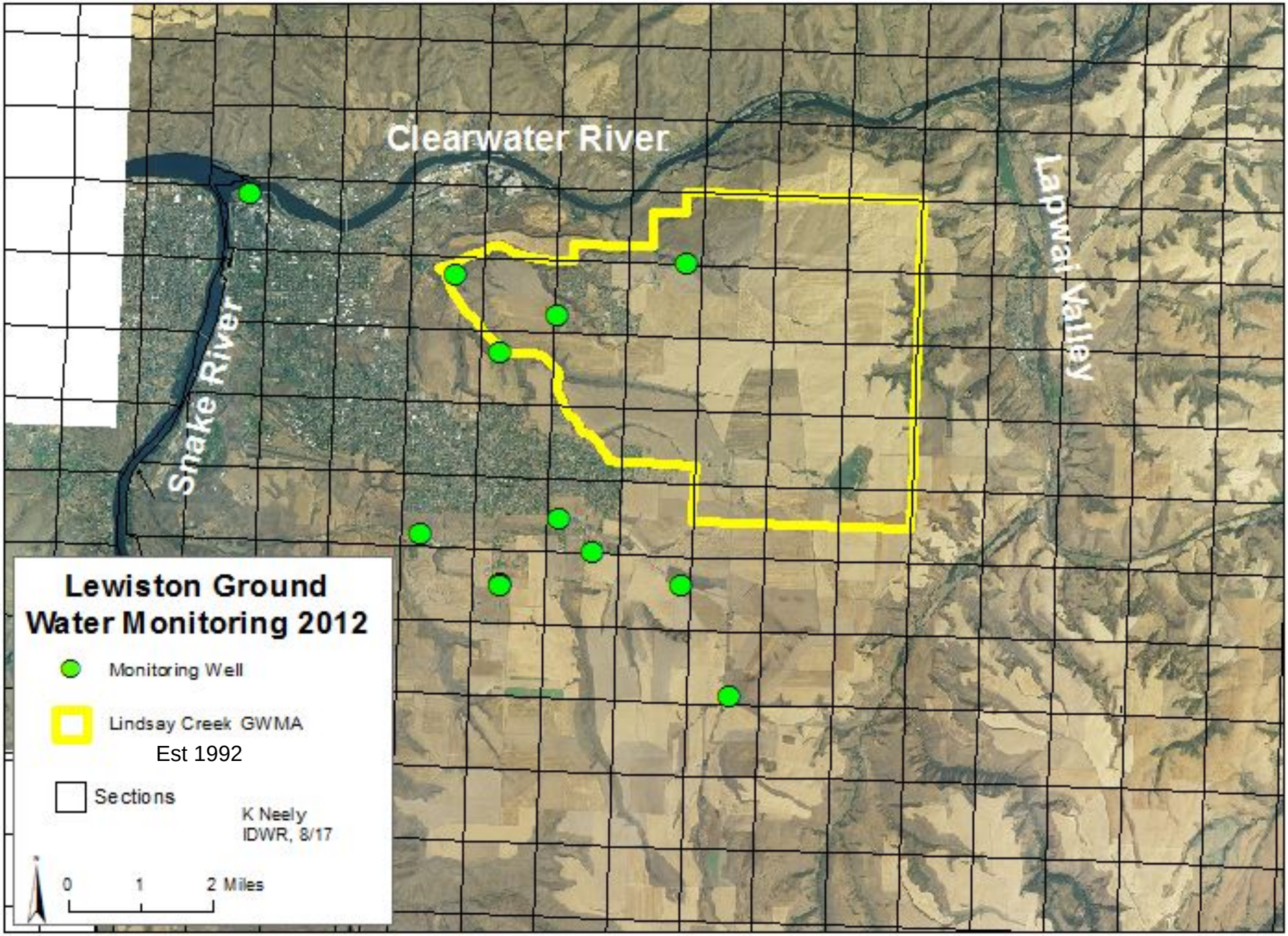
# Lewiston Plateau GWMA
# Overview of the Ground Water Studies

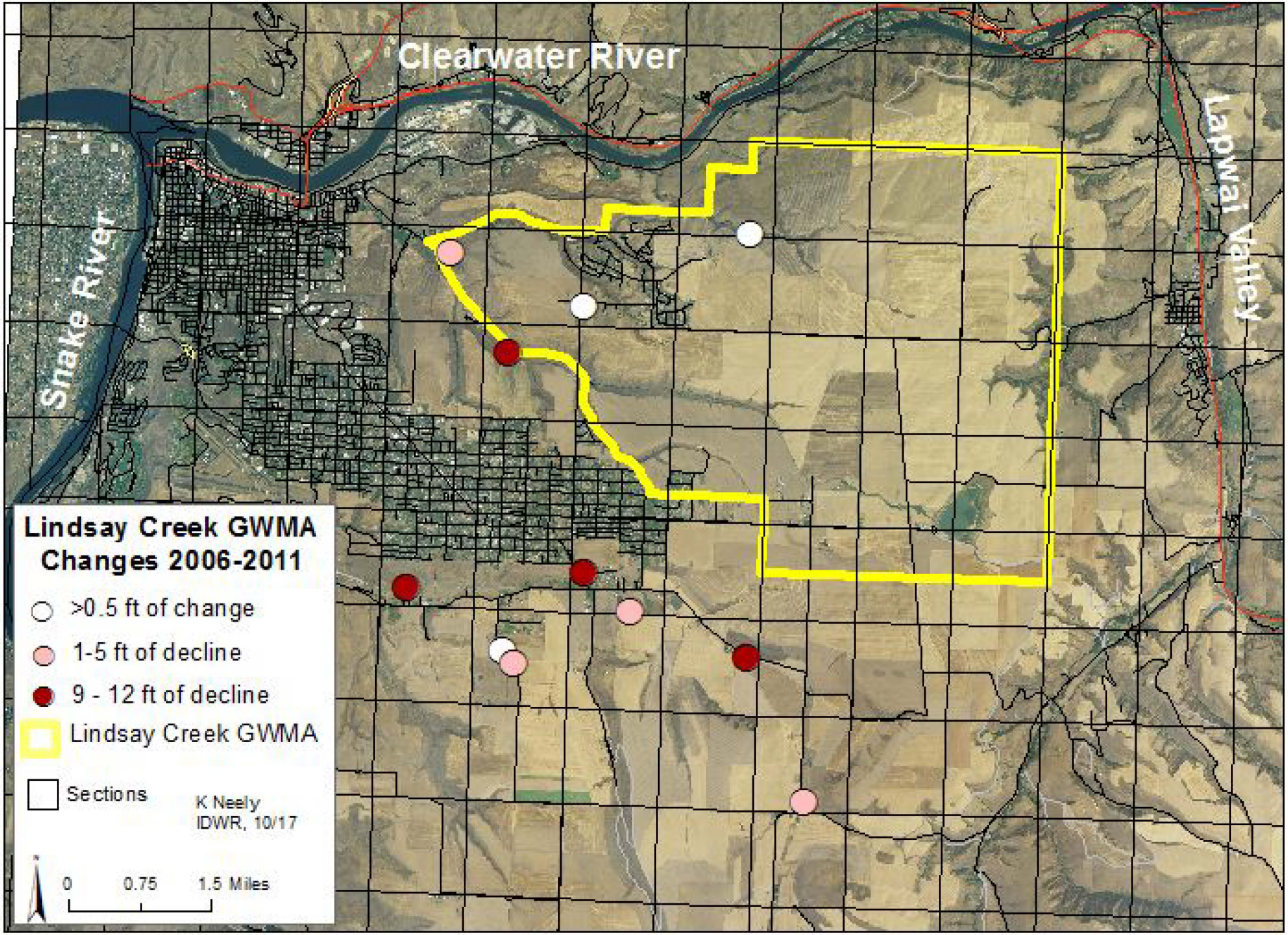
Kenneth W. Neely, Hydrology Supervisor, IDWR

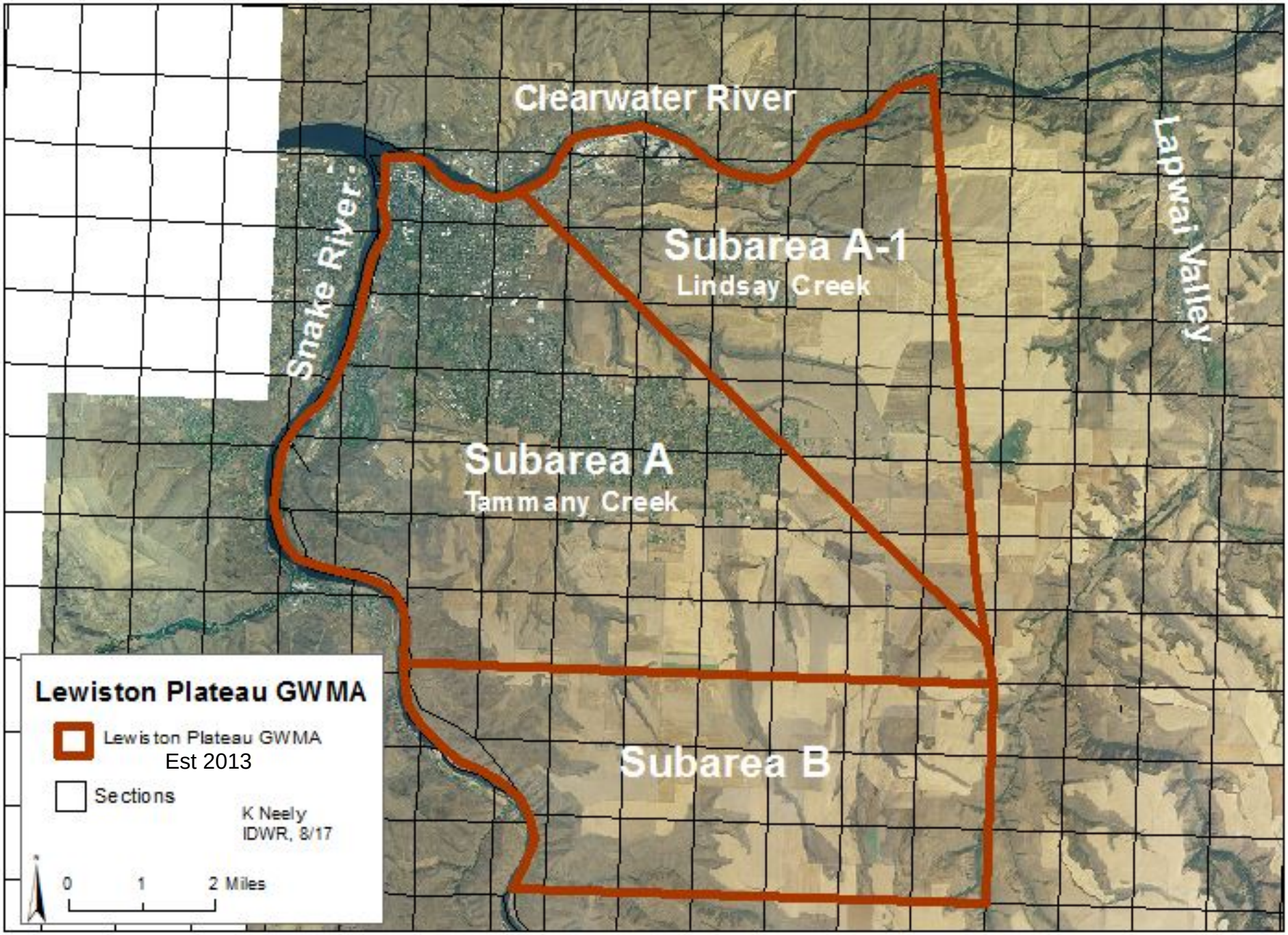
October 19, 2017


Basalt
Clay
Basalt
Clay
Basalt
0
100
200
300
400
500
600
700
800
900
1,000
1,100
1,200
Saddle Mountain
H2O
Sweetwater
Wanapum
H2O
Vantage
Upper GR Aquifer
Grande Ronde
H2O
Regional Aquifer
H2O

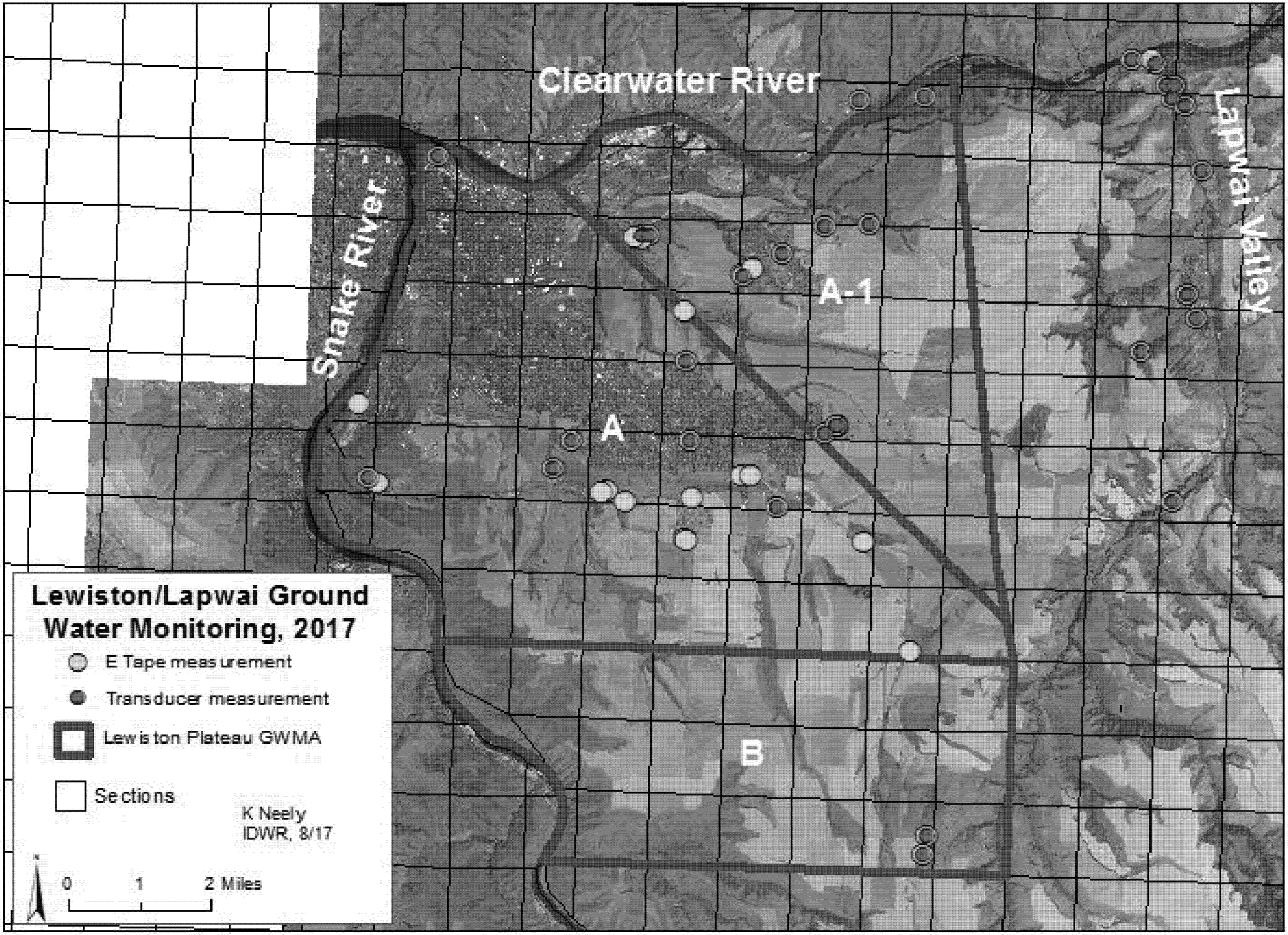

Clearwater River
Snake River
Lapwai Valley
Lewiston Ground Water Monitoring 2012
Monitoring Well
Lindsay Creek GWMA
Est 1992
Sections
K Neely
IDWR, 8/17
0
1
2 Miles

WATERL
ENVIROTECH LTD
Bellingham, WA
USA
SENSITIVITY NORMAL
LO
HI
TEL / FAX 360-676-9635
Made in the USA
BATTERY 9 VOLT
MODEL 500
ENGINEERING
SCALE


Clearwater River
Snake River
Lapwai Valley
Lindsay Creek GWMA
Changes 2006-2011
>0.5 ft of change
1-5 ft of decline
9 - 12 ft of decline
Lindsay Creek GWMA
Sections
K Neely
IDWR, 10/17
0
0.75
1.5 Miles


Clearwater River
Snake River
Lapwai Valley
Subarea A-1
Lindsay Creek
Subarea A
Tammany Creek
Subarea B
Lewiston Plateau GWMA
Lewiston Plateau GWMA
Est 2013
Sections
K Neely
IDWR, 8/17
0
1
2 Miles

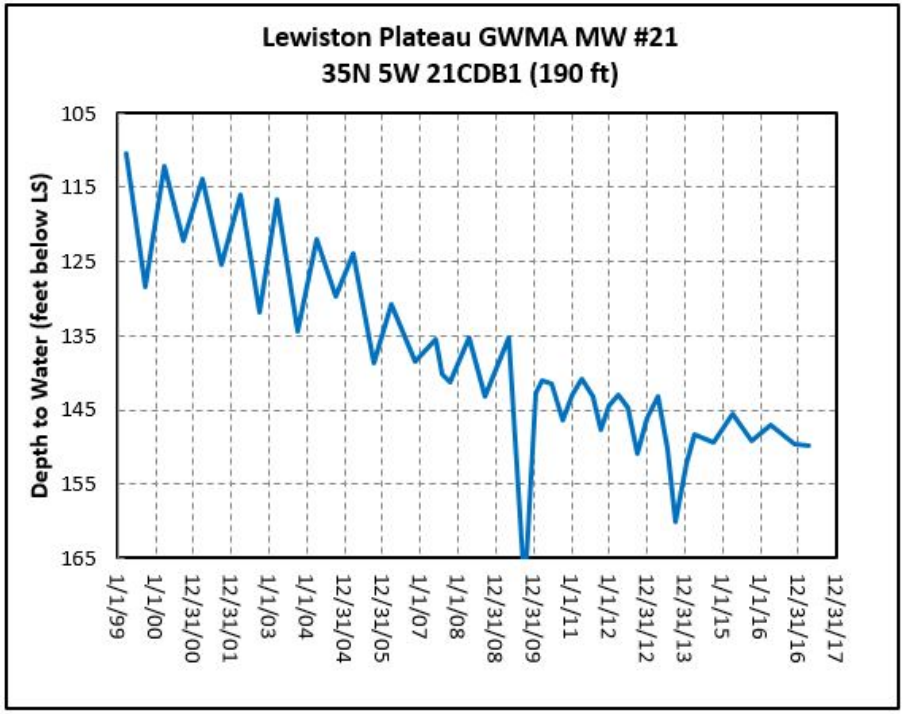
In-Situ Inc.
Level TROLL 400

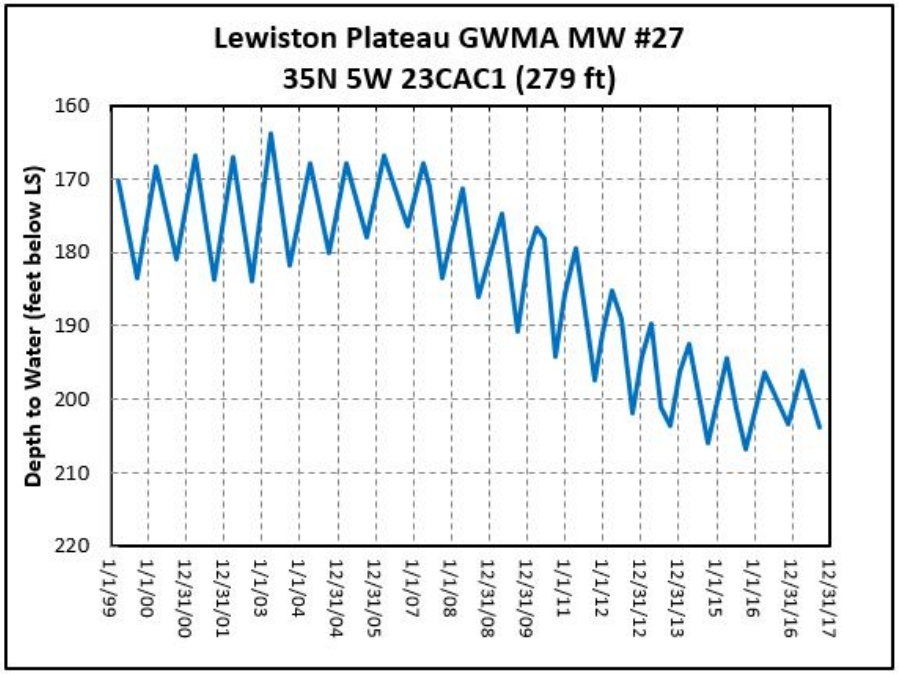

Clearwater River
Snake River
Lapwai Valley
A-1
A
B
Lewiston/Lapwai Ground Water Monitoring, 2017
E Tape measurement
Transducer measurement
Lewiston Plateau GWMA
Sections
K Neely
IDWR, 8/17
0
1
2 Miles

# The Keys to Hydrologic Analyses

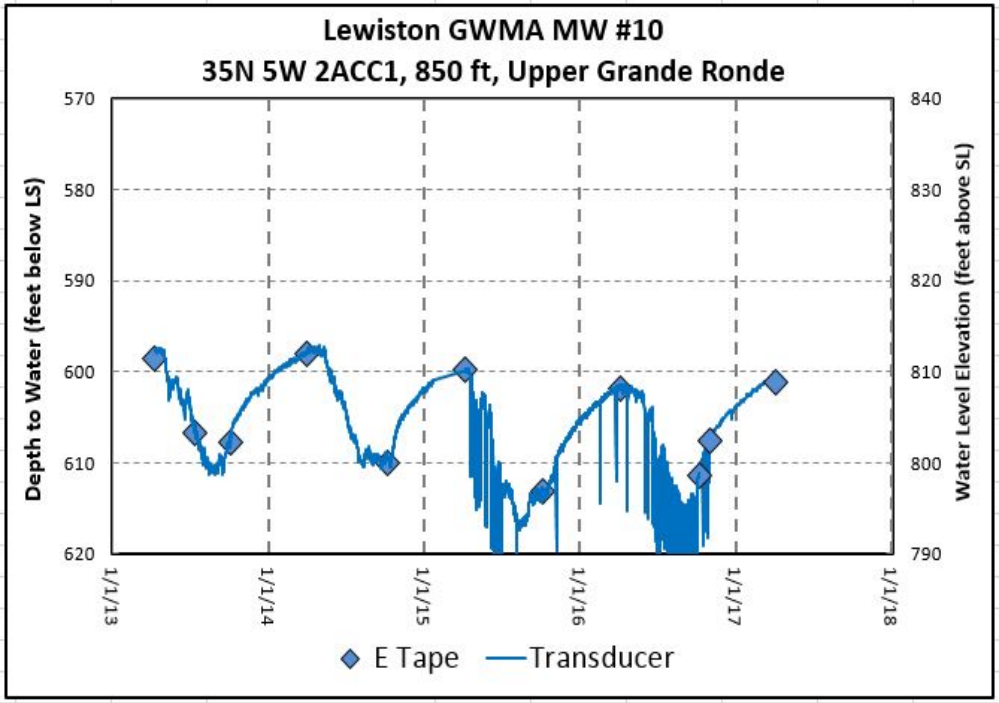
1. Ground water level trends
2. Ground water – surface water relationships
3. Rock chip analysis
4. Geologic cross sections
5. Field work
6. Unique data collection opportunities (LOID 5 pump test in early 2017)
7. Water quality and water chemistry testing

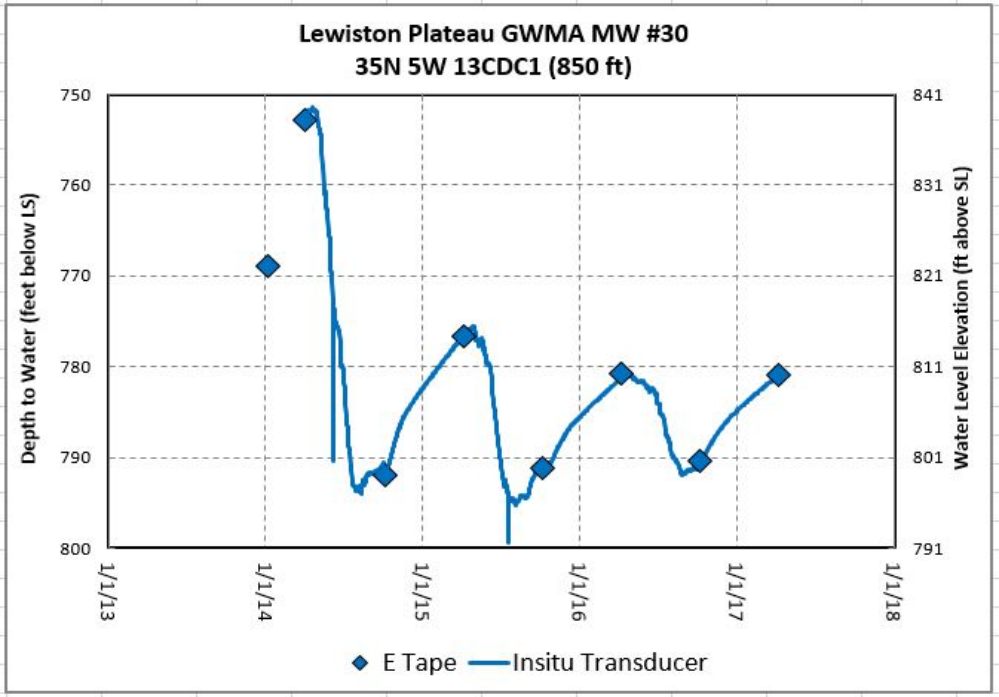
# Water levels using E tape only

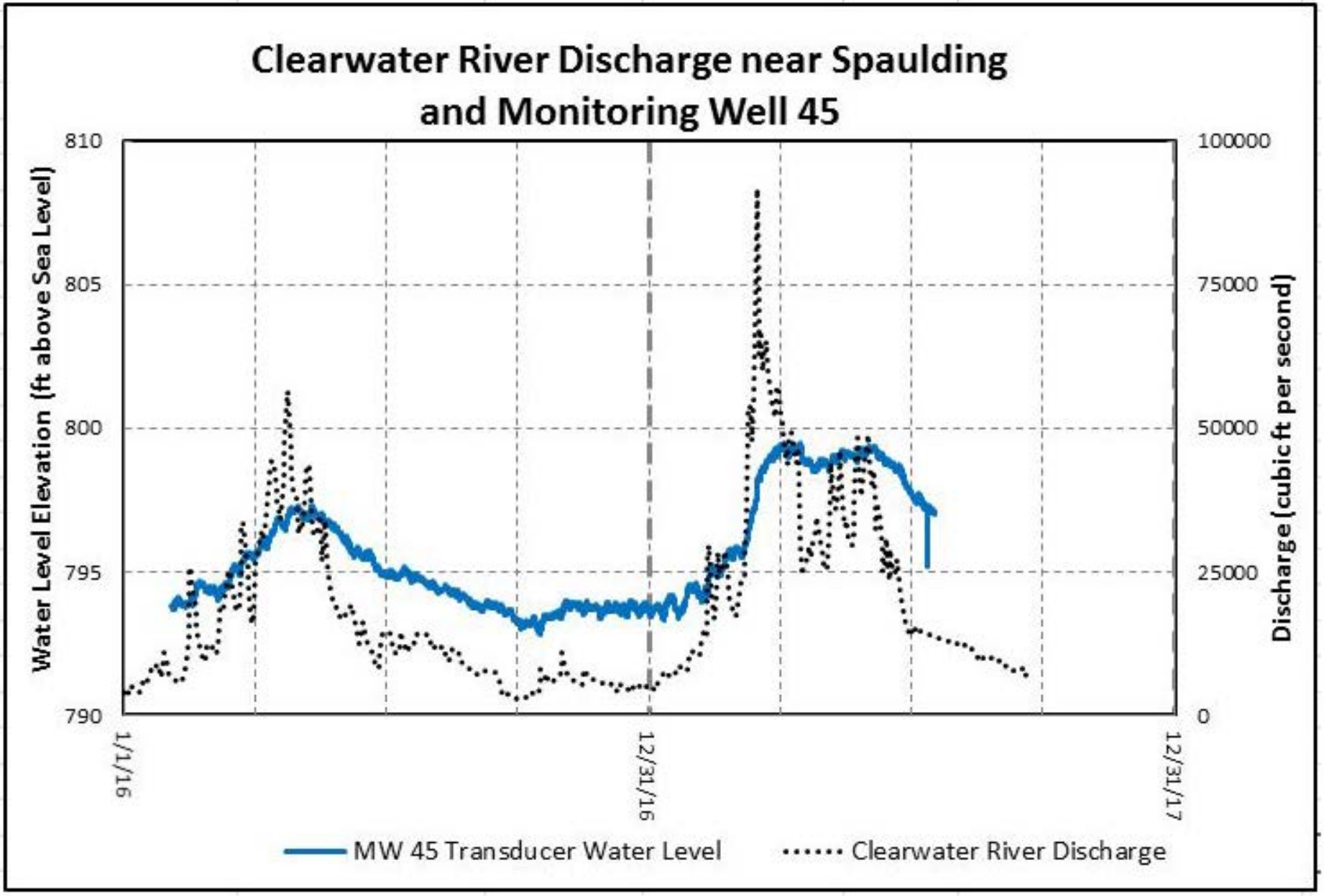


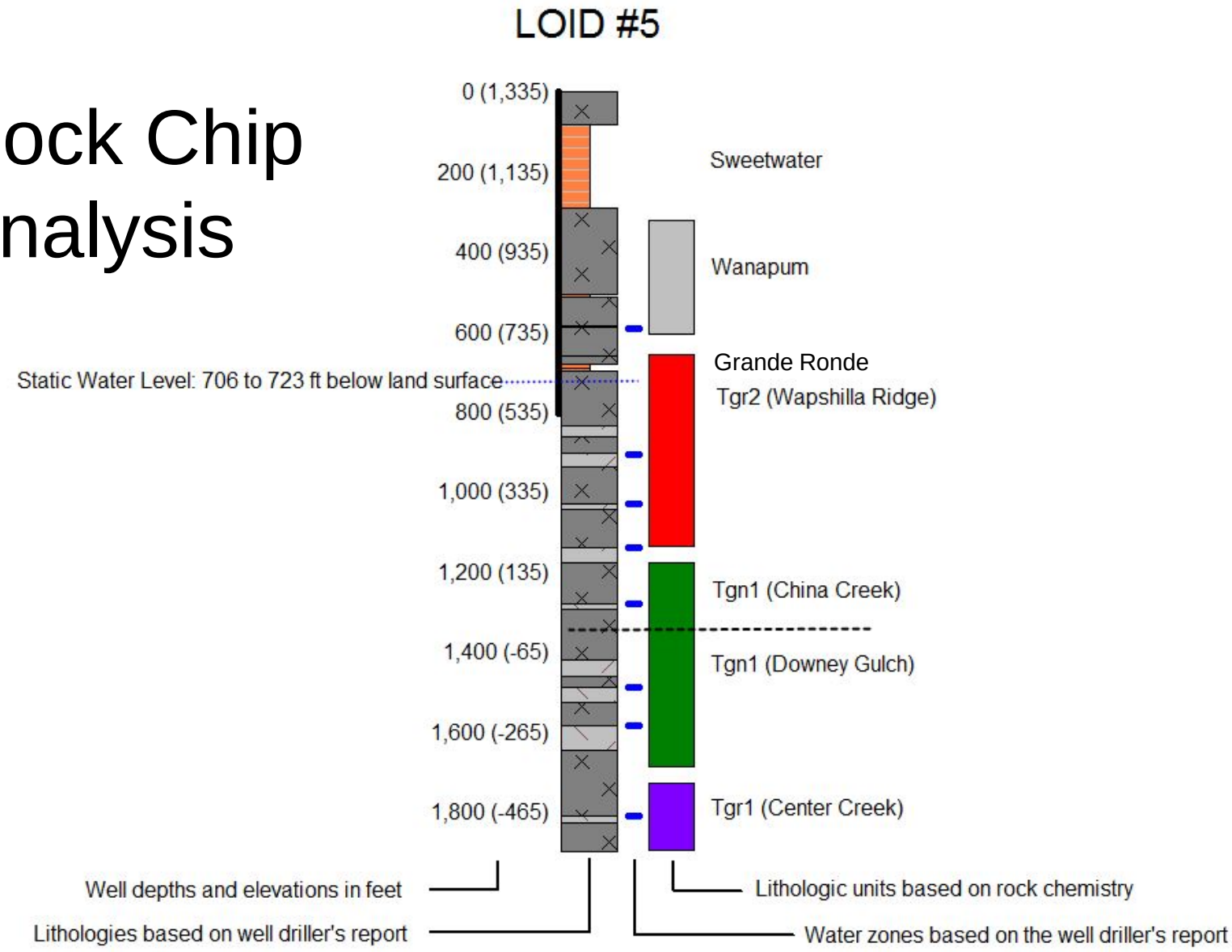
# Water levels using E tape and transducers



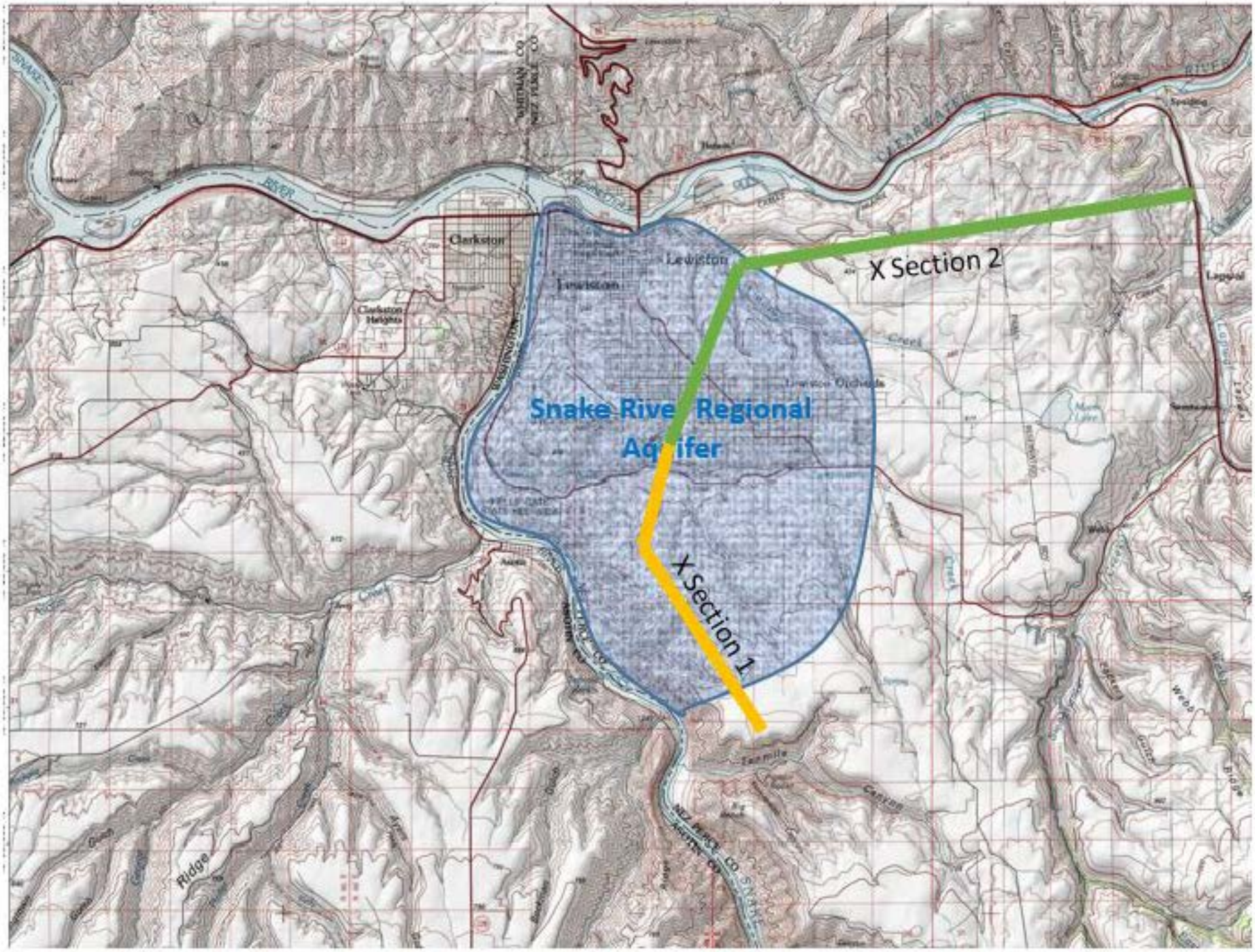




Clearwater River Discharge near Spaulding and Monitoring Well 45
Water Level Elevation (ft above Sea Level)
Discharge (cubic ft per second)
810
805
800
795
790
100000
75000
50000
25000
0
1/1/16
12/31/16
12/31/17
MW 45 Transducer Water Level
Clearwater River Discharge

# Rock Chip Analysis

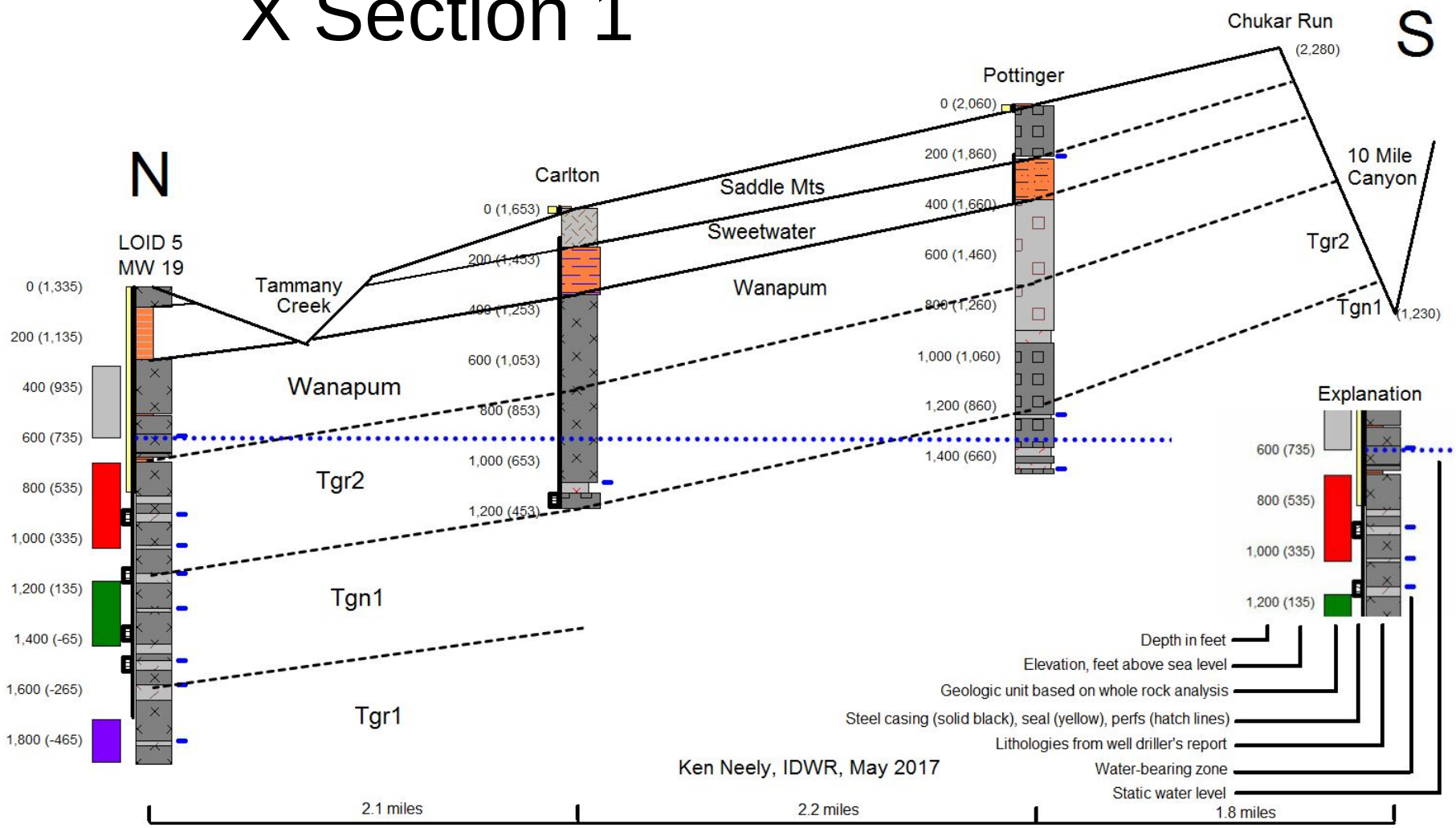


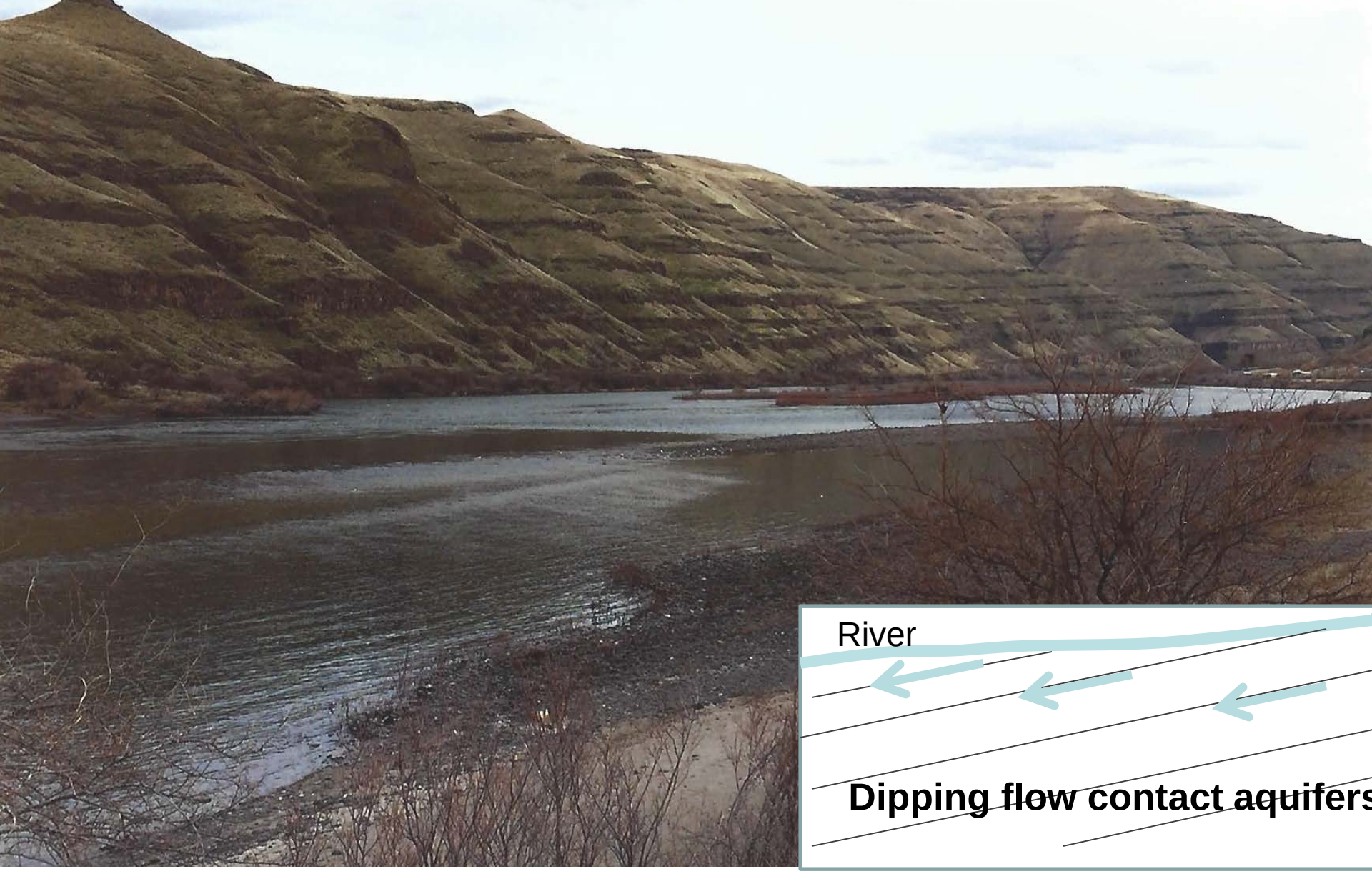

Ken Neely, IDWR, Oct 2017



X Section 2
Snake River Regional Aquifer
X Section 1
Clarkston
Lewiston
Clarkston Heights
Lewiston Orchards
Ridge

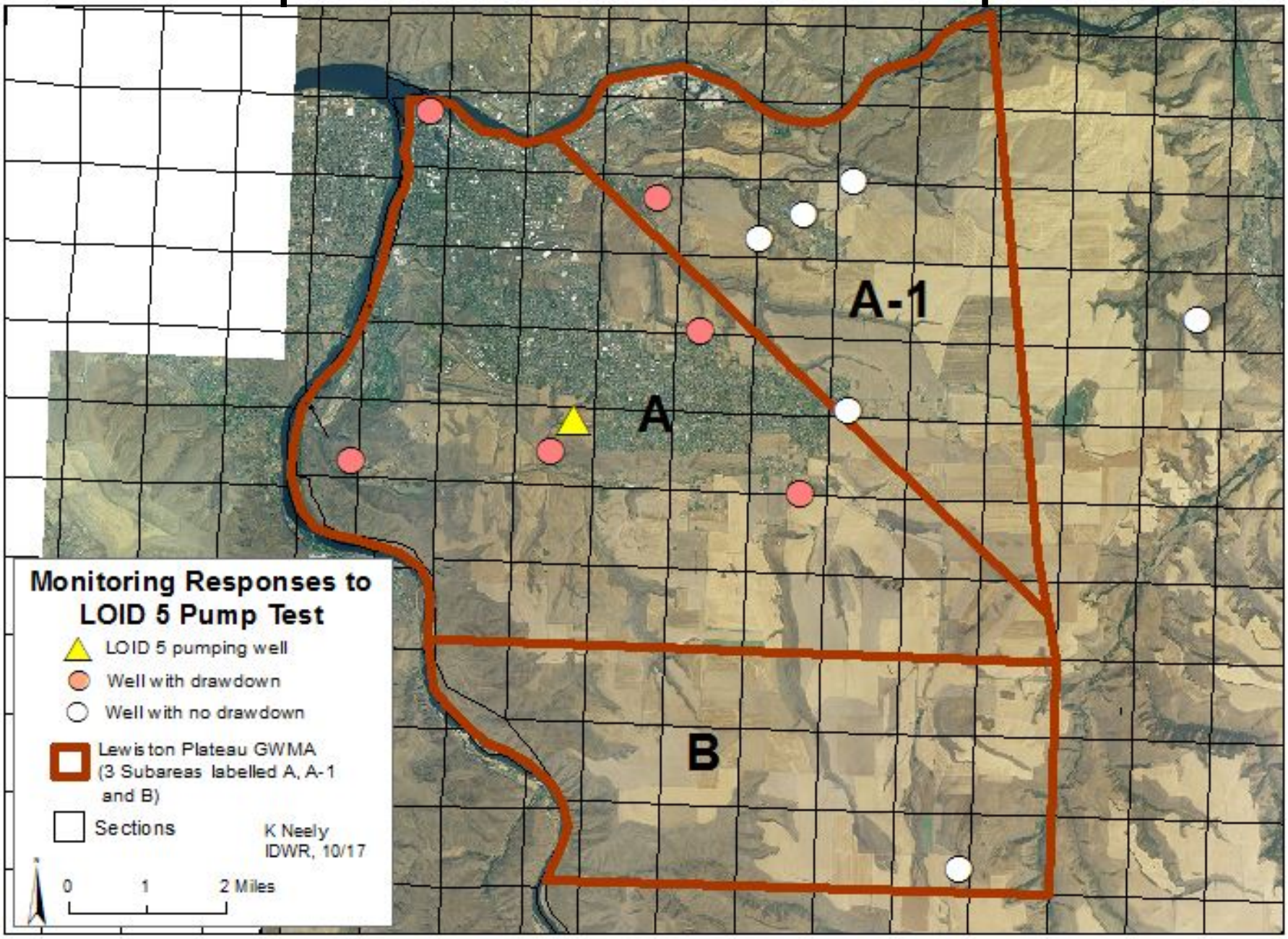
# X Section 1


N
S
LOID 5
MW 19
Tammany
Creek
Carlton
Pottinger
Chukar Run
10 Mile
Canyon
Saddle Mts
Sweetwater
Wanapum
Wanapum
Tgr2
Tgn1
Tgr1
Tgr2
Tgn1
0 (1,335)
200 (1,135)
400 (935)
600 (735)
800 (535)
1,000 (335)
1,200 (135)
1,400 (-65)
1,600 (-265)
1,800 (-465)
0 (1,653)
200 (1,453)
400 (1,253)
600 (1,053)
800 (853)
1,000 (653)
1,200 (453)
0 (2,060)
200 (1,860)
400 (1,660)
600 (1,460)
800 (1,260)
1,000 (1,060)
1,200 (860)
1,400 (660)
(2,280)
(1,230)
Explanation
600 (735)
800 (535)
1,000 (335)
1,200 (135)
Depth in feet
Elevation, feet above sea level
Geologic unit based on whole rock analysis
Steel casing (solid black), seal (yellow), perfs (hatch lines)
Lithologies from well driller's report
Water-bearing zone
Static water level
Ken Neely, IDWR, May 2017
2.1 miles
2.2 miles
1.8 miles




Recharge area for the regional aquifer; Dip of rocks is steeper than the gradient of the Snake

# Responses to LOID 5 Pump Test



# Here's what we know so far…

1. Saddle Mountains is stable but no more development.

2. Wanapum is declining 1.4-2.2 ft/yr. No more development.

3. Grande Ronde Regional in Subarea A has declined some in the last few years, but stable over the long run. Snake River source.

4. Upper Grande Ronde in Subarea A-1 may be stable or slightly declining. Clearwater River and/or Lapwai Creek – sources? Is additional development sustainable?

5. Ground water resources in Subarea B are a mystery. We only have 2 monitoring wells, no rock chip, no aquifer test data.

IDAHO Department of Water Resources