
Cleveland Ranch Presentation
2011-11-16
CPB_001

CPB_017

CPB_006

Updated Map 1.1 C.P.B. Holdings and Critical Water Sources in North Spring Valley, Nevada

Water Right Acronyms

Source of Water:

LAK	Lake
OGW	Other Groundwater
OSW	Other Surfacewater
RES	Reservoir
SPR	Spring
STR	Stream
UG	Underground

Claim or Permit Status:

APP	Water Right Application
CER	Permit with Certificate of Appropriation Granted
DEC	Decreed Right
PER	Permit, Certifical of Appropriation not yet Granted
RES	Federal Reserved Right
RFA	Application Ready for Action - Not Protested
RFP	Application Ready for Action - Protested
VST	Vested Claim

Manner of Use:

DOM	Domestic
IRC	Irrigation - Carey Act
IRD	Irrigation - Desert Land Entry
IRR	Irrigation
MM	Mining and Milling
MUN	Municipal
QM	Quasi-Municipal
STK	Stockwatering
WLD	Wildlife

Legend

Critical Water Resources

- Spring (CPB Name)
- Well (CPB Name)
- Roads
- SNWA Point of Diversion With Permit Number
- Deeded Property held by Others
- Deeded Property held by C.P.B.
- BLM Allotment Boundary held by C.P.B.
- Existing Application, Water Right, or Claim held by C.P.B.
- Existing Application, Water Right, or Claim held by Previous Owners

0 0.5 1 2 Miles

Date: August 26, 2011

RESOURCE CONCEPTS INC.

N

Path: R:\projects\Kirton&McConkie\11_146_2\MXDs\Map_1.1.mxdDate: 8/25/2011

CPB_006 Updated Map 1.1

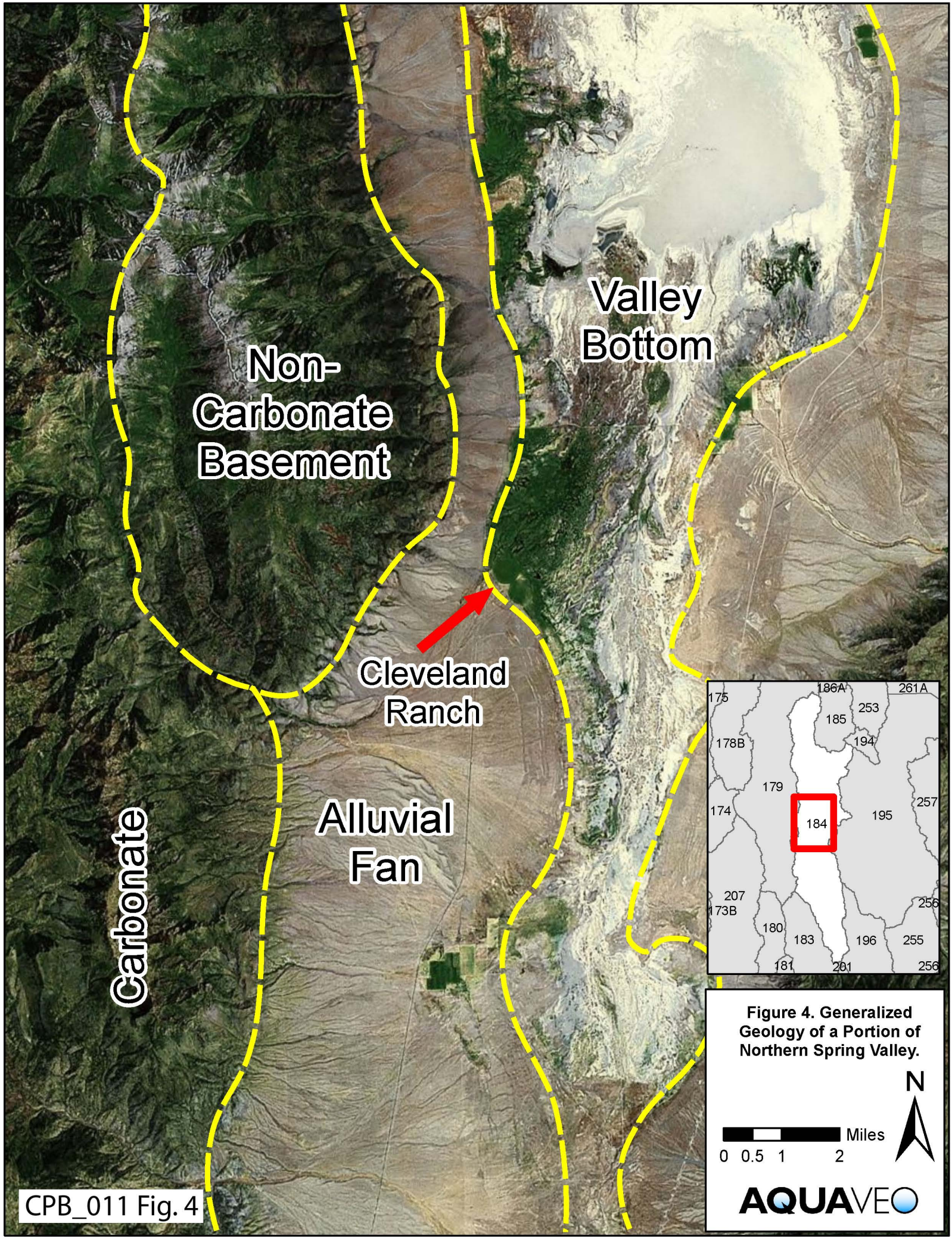
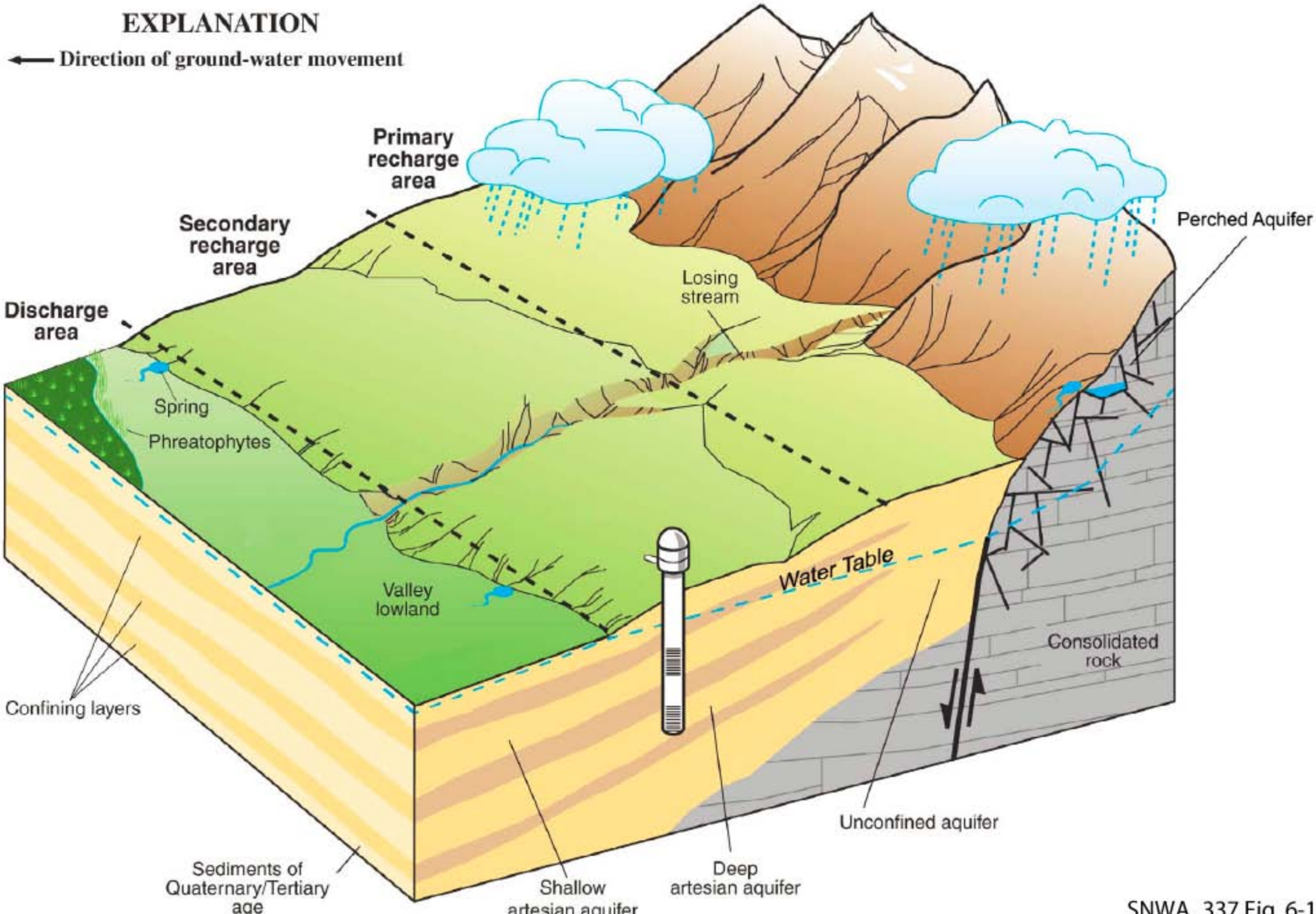


Figure 4. Generalized Geology of a Portion of Northern Spring Valley.



SNWA_337 Fig. 6-1


CPB_016 Img. 8944

CPB_016 Img. 8997


CPB_016 Img. 9070

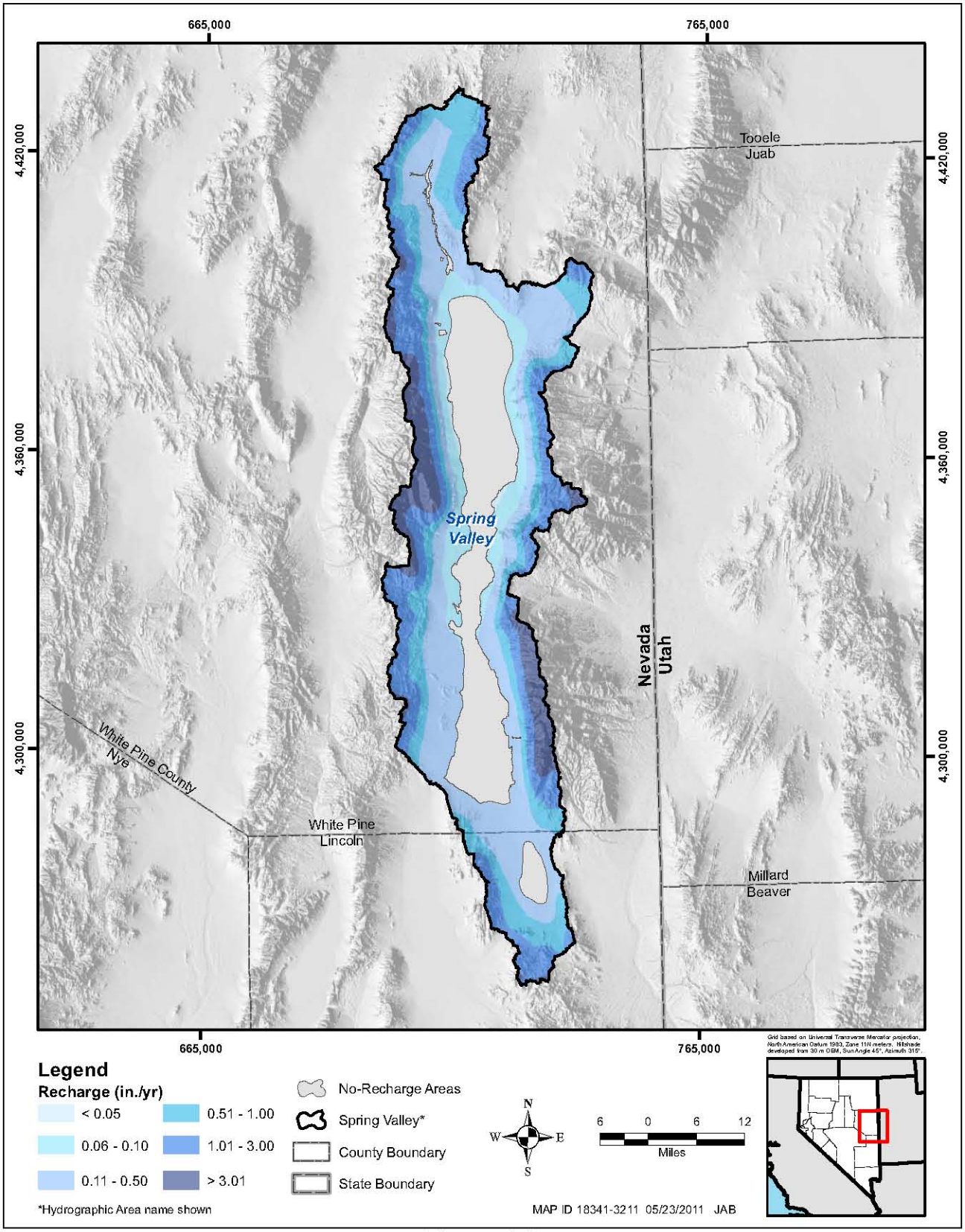


Figure 6-2
Potential Recharge Distribution for Spring Valley

SNWA_258 Fig. 6-2

CPB_016 Img. 9067

CPB_016 Img. 9077


CPB_016 Img. 9042


CPB_016 Img. 9055


CPB_016 Img. 9156

CPB_016 Img. 9137

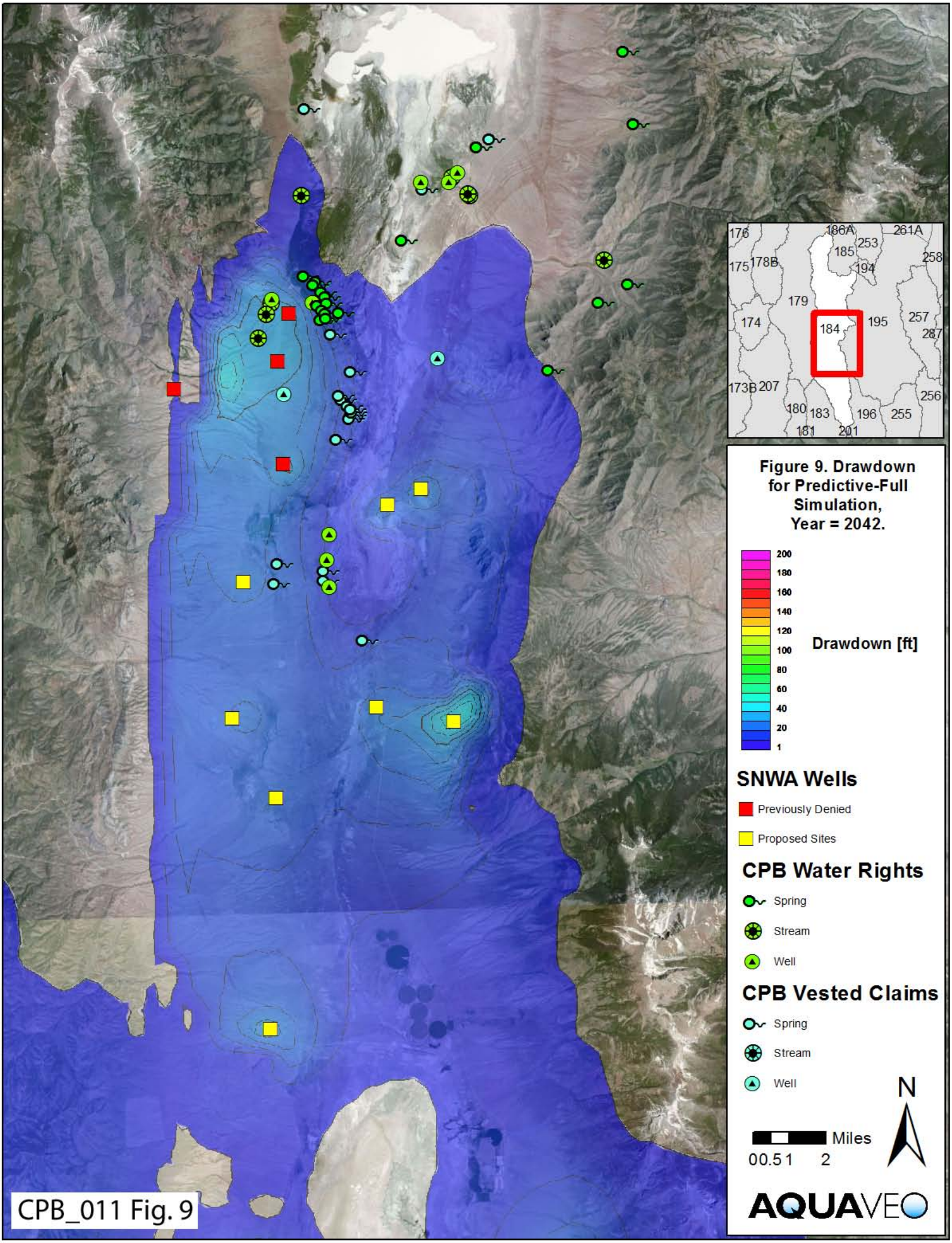


Figure 9. Drawdown for Predictive-Full Simulation, Year = 2042.

Drawdown [ft]

200
180
160
140
120
100
80
60
40
20
1

SNWA Wells

- Previously Denied
- Proposed Sites

CPB Water Rights

- Spring
- Stream
- Well

CPB Vested Claims

- Spring
- Stream
- Well

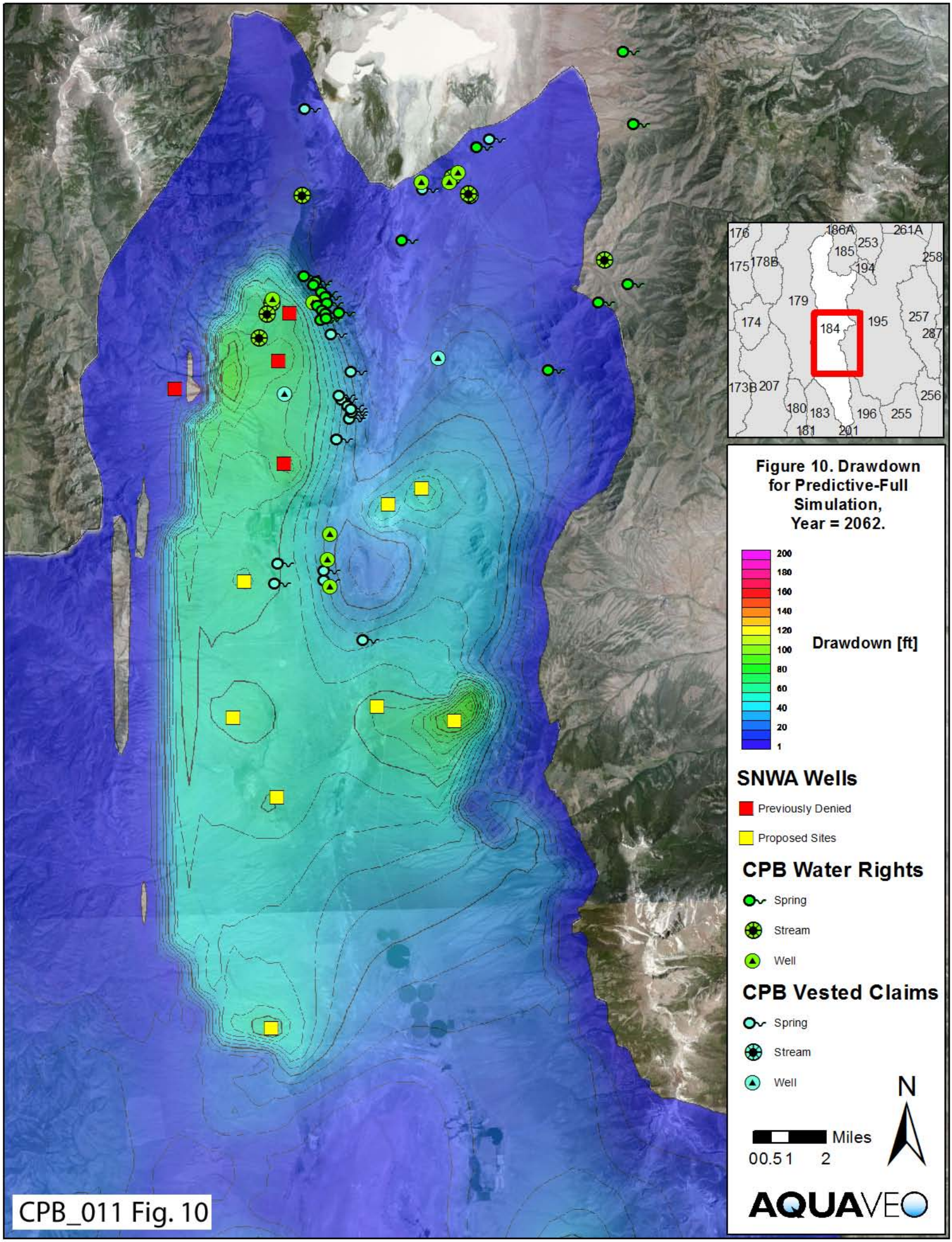
N

Miles

0 0.5 1 2

AQUAVEO

CPB_011 Fig. 9


176
186A
261A
253
185
175
178B
258
194
179
174
184
195
257
287
173B
207
256
180
183
196
255
181
201
Figure 10. Drawdown for Predictive-Full Simulation, Year = 2062.
200
180
160
140
120
100
80
60
40
20
1
Drawdown [ft]
SNWA Wells
Previously Denied
Proposed Sites
CPB Water Rights
Spring
Stream
Well
CPB Vested Claims
Spring
Stream
Well
N
Miles
0 0.5 1 2
AQUAVEO
CPB_011 Fig. 10

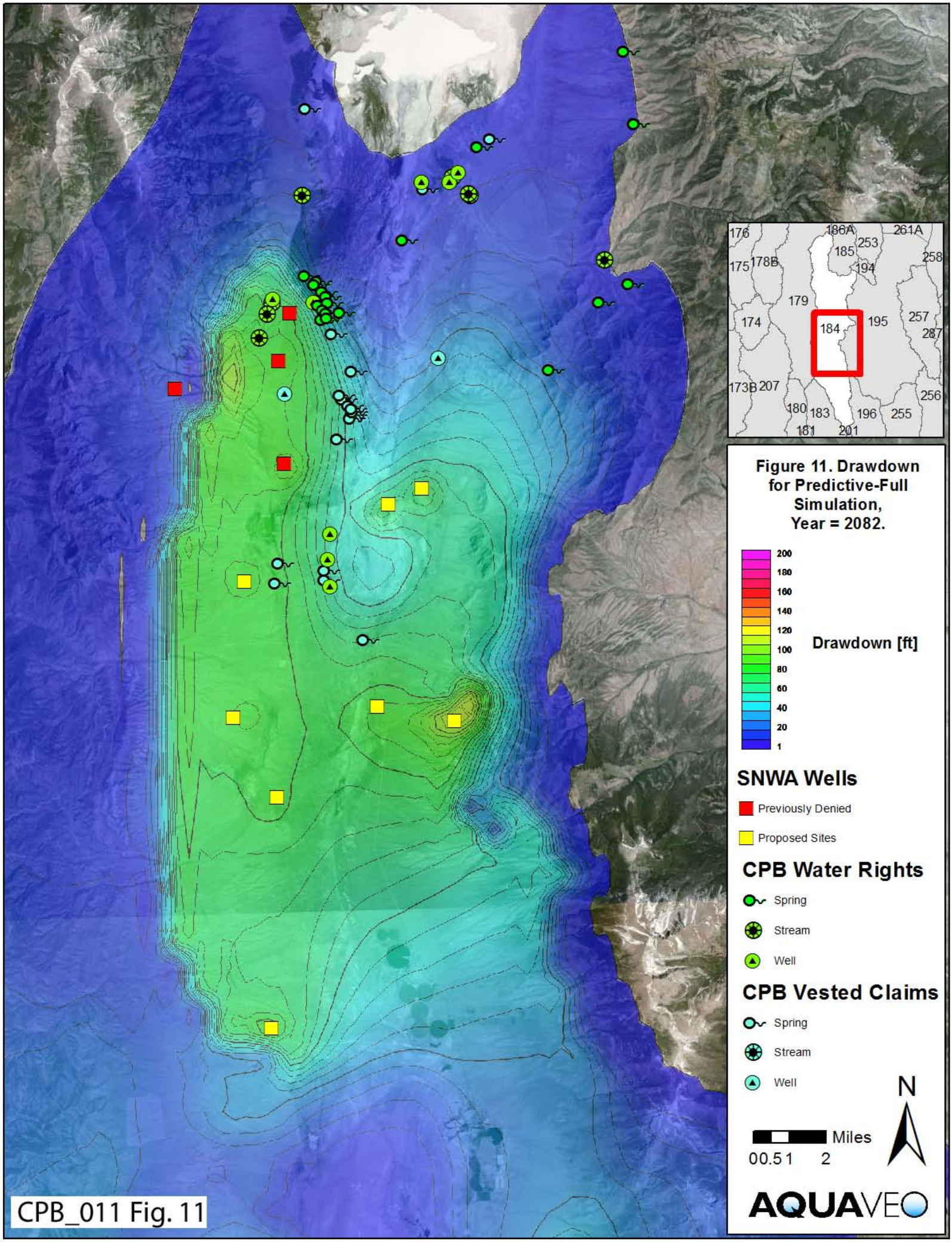


Figure 11. Drawdown for Predictive-Full Simulation, Year = 2082.

200
180
160
140
120
100
80
60
40
20
1

Drawdown [ft]

SNWA Wells

- Previously Denied
- Proposed Sites

CPB Water Rights

- Spring
- Stream
- Well

CPB Vested Claims

- Spring
- Stream
- Well

N

Miles
0 0.5 1 2

AQUAVEO

CPB_011 Fig. 11

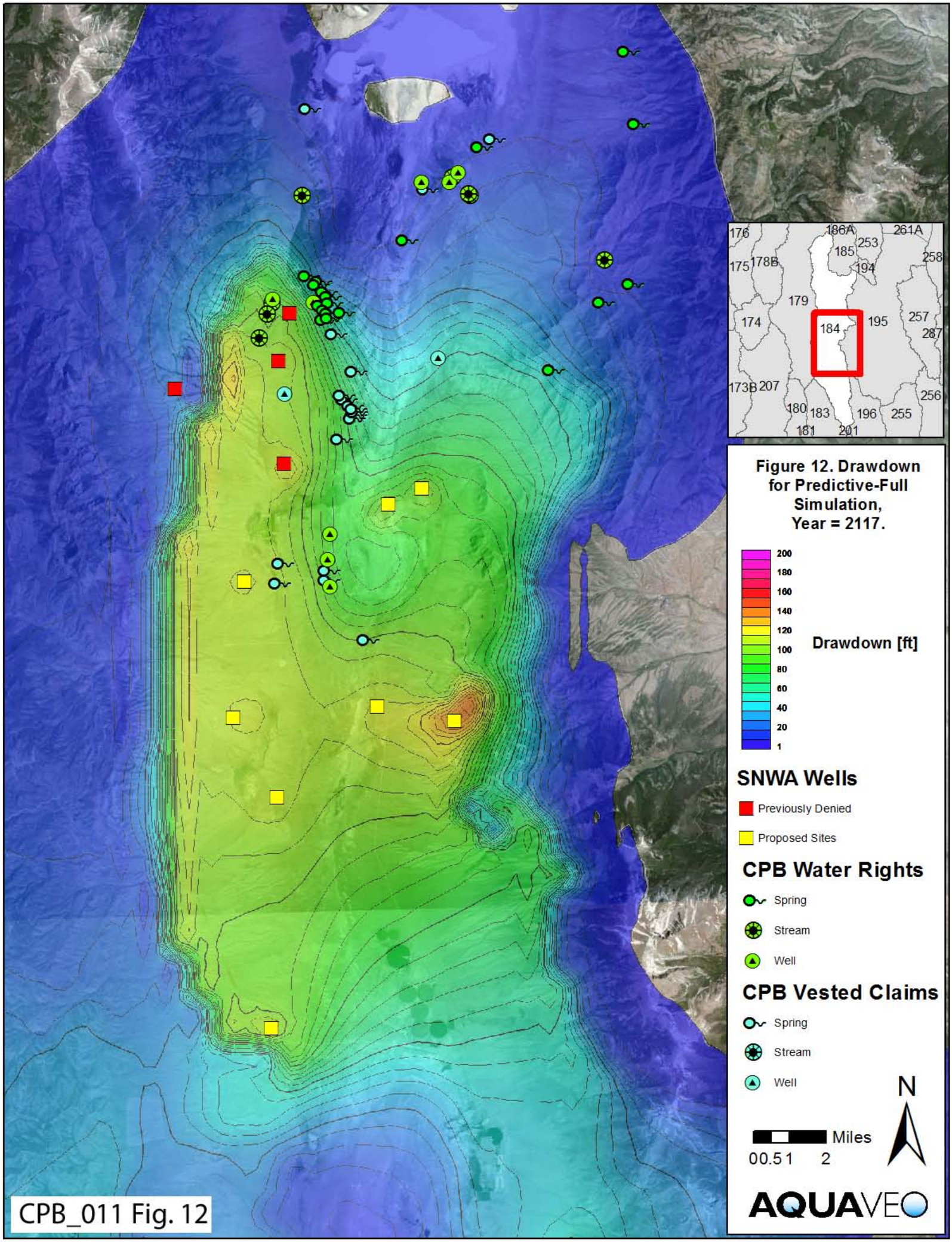


Figure 12. Drawdown for Predictive-Full Simulation, Year = 2117.

200
180
160
140
120
100
80
60
40
20
1

Drawdown [ft]

SNWA Wells

Previously Denied

Proposed Sites

CPB Water Rights

Spring

Stream

Well

CPB Vested Claims

Spring

Stream

Well

N

Miles

0 0.5 1 2

AQUAVEO

CPB_011 Fig. 12

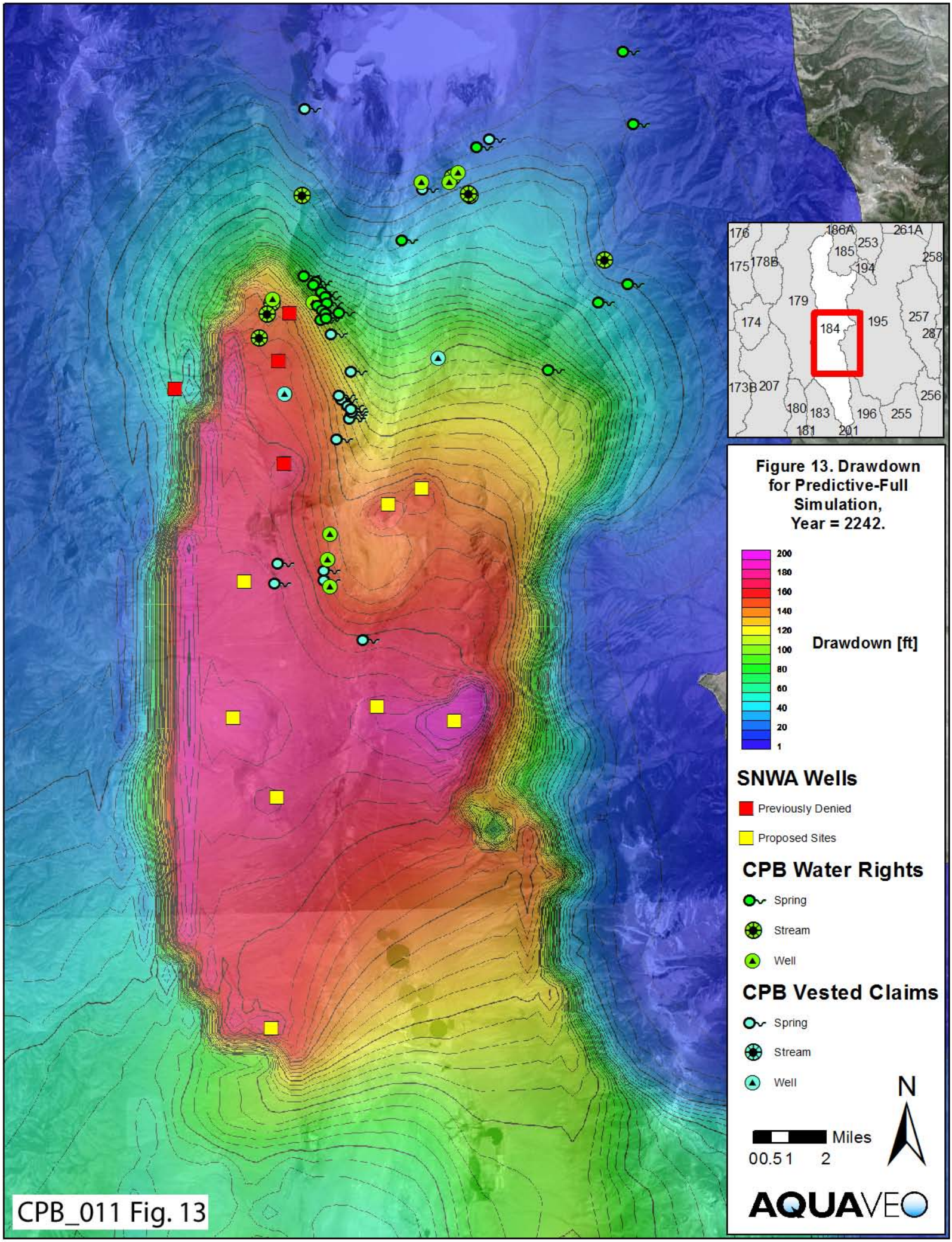


Figure 13. Drawdown for Predictive-Full Simulation, Year = 2242.

200
180
160
140
120
100
80
60
40
20
1

Drawdown [ft]

SNWA Wells

Previously Denied

Proposed Sites

CPB Water Rights

Spring

Stream

Well

CPB Vested Claims

Spring

Stream

Well

N

Miles

0 0.5 1 2

AQUAVEO

CPB_011 Fig. 13

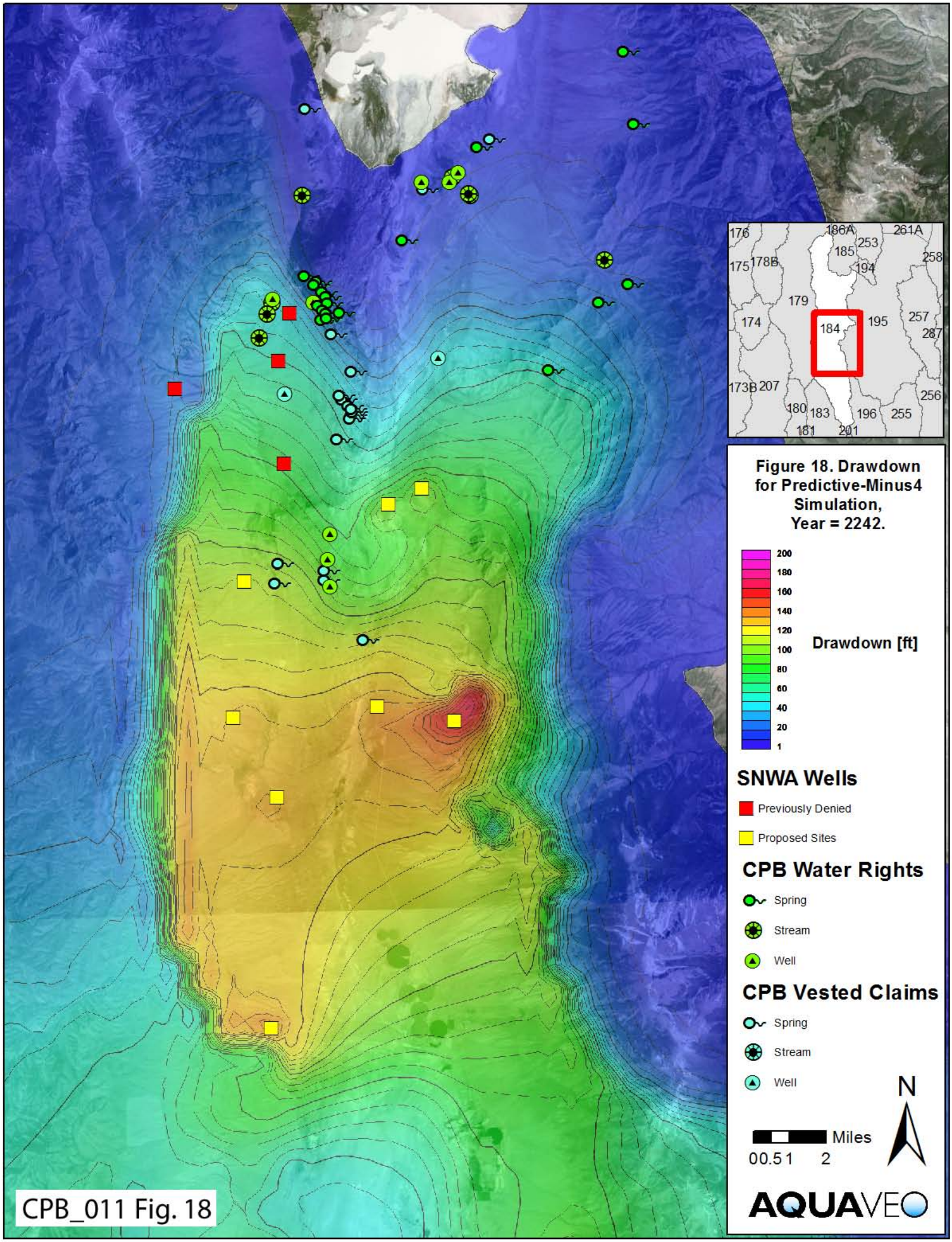


Figure 18. Drawdown for Predictive-Minus4 Simulation, Year = 2242.

200
180
160
140
120
100
80
60
40
20
1

Drawdown [ft]

SNWA Wells

Previously Denied

Proposed Sites

CPB Water Rights

Spring

Stream

Well

CPB Vested Claims

Spring

Stream

Well

N

Miles

0 0.5 1 2

AQUAVEO

CPB_011 Fig. 18

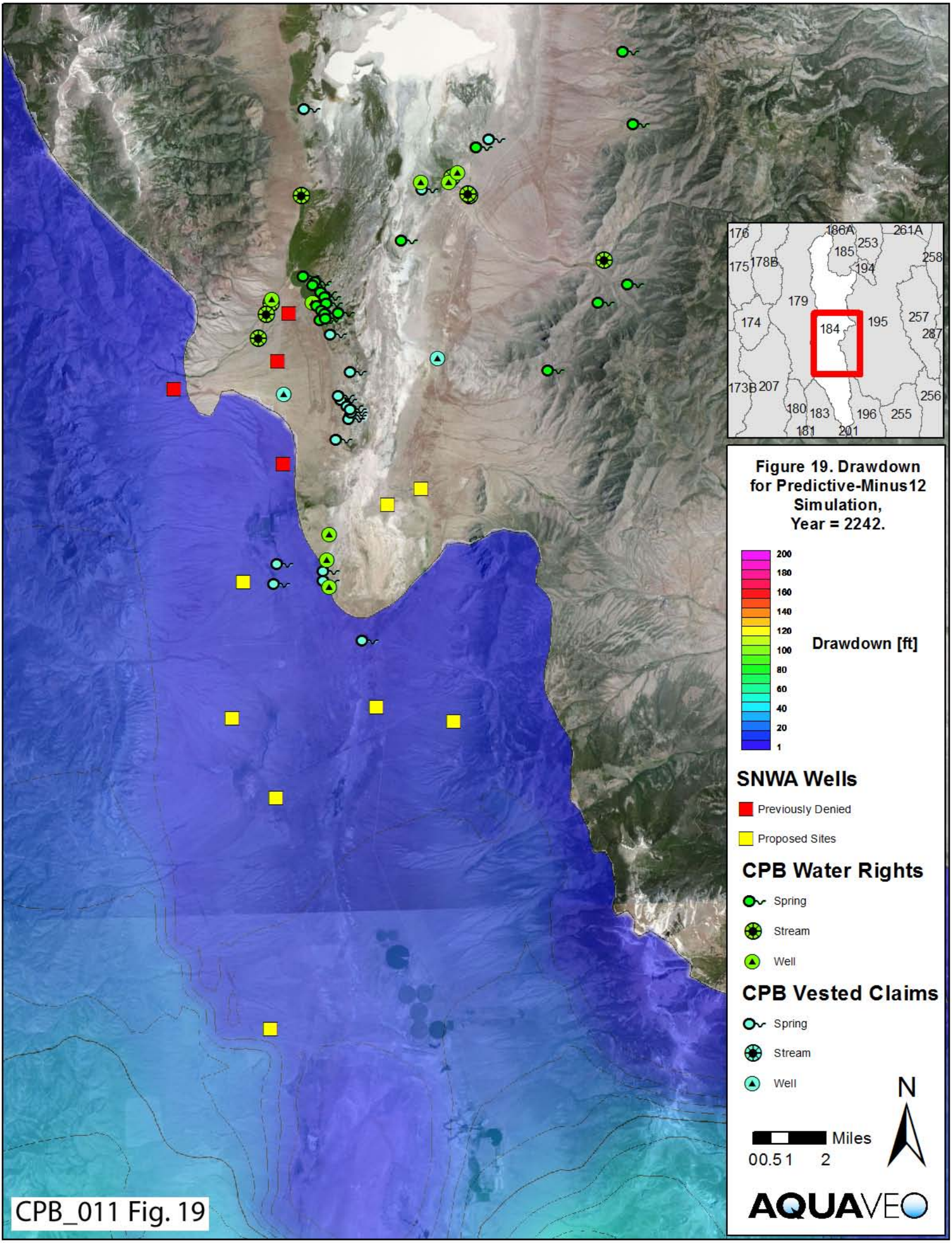


Figure 19. Drawdown for Predictive-Minus12 Simulation, Year = 2242.

200
180
160
140
120
100
80
60
40
20
1

Drawdown [ft]

SNWA Wells

Previously Denied

Proposed Sites

CPB Water Rights

Spring

Stream

Well

CPB Vested Claims

Spring

Stream

Well

N

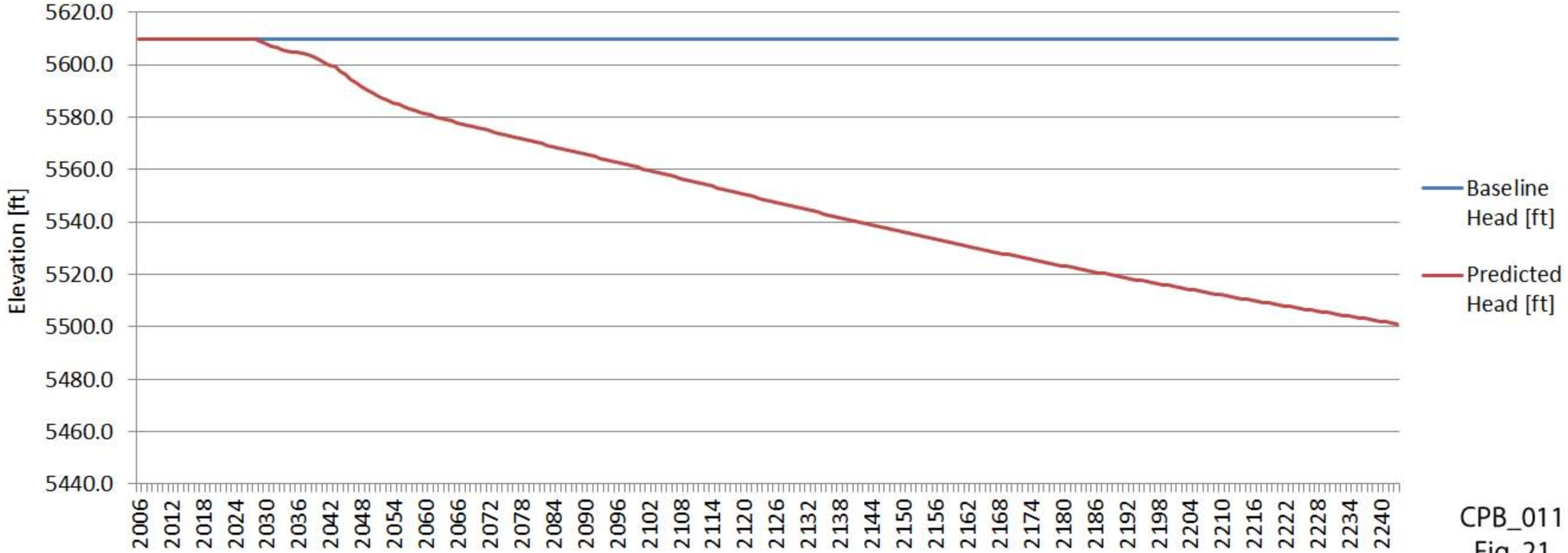
Miles

0 0.5 1 2

AQUAVEO

CPB_011 Fig. 19

Predictive-Full Simulation: Big Reservoir Springs No. 7 (V02824)

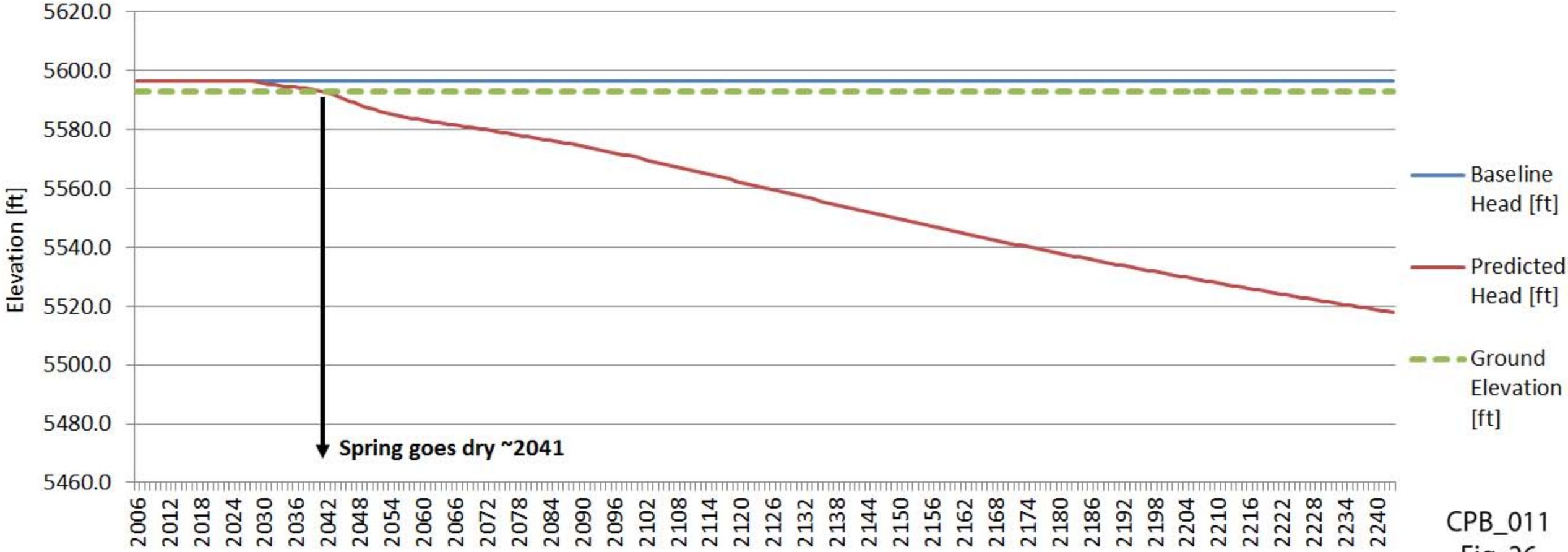


CPB_011
Fig. 21

Table 7 Maximum Predicted Drawdown at Wells and Springs Located in the Alluvial Fan or Valley Floor.

Name	Permit	Max Drawdown [ft] Full	Minus4	Minus12
Mud Springs 1,2, and 3	3973	-35.7	-4.7	0.0
South Millick Spring	8721	-15.6	-4.0	0.0
Bastian Creek Allotment	18841	-159.7	-78.8	-0.5
Bastian Creek Allotment	18842	-167.4	-94.1	-1.0
Bastian Creek Allotment	18843	-163.5	-86.4	-0.8
Cleveland Creek Supp	54204	-102.2	-19.3	-0.3
Cleveland Creek Supp	54205	-141.6	-37.6	-0.6
T Property	67333	-18.3	-3.0	0.0
Rogers Area Supp	69726	-23.2	-5.4	0.0
Rogers Area Supp	69727	-21.2	-5.1	0.0
Murphy Springs	V02817	-72.9	-8.9	-0.1
Big Reservoir Springs No. 1	V02818	-68.8	-7.3	-0.1
Big Reservoir Springs No. 2	V02819	-72.1	-8.1	-0.1
Big Reservoir Springs No. 3	V02820	-75.6	-9.4	-0.1
Big Reservoir Springs No. 4	V02821	-97.6	-17.3	-0.2
Big Reservoir Springs No. 5	V02822	-78.5	-10.3	-0.1
Big Reservoir Springs No. 6	V02823	-84.3	-12.0	-0.1
Big Reservoir Springs No. 7	V02824	-108.4	-22.2	-0.3
Big Reservoir Springs No. 8	V02825	-97.9	-17.0	-0.2
Big Reservoir Springs No. 9	V02826	-97.1	-16.8	-0.2
Big Reservoir Springs No. 10	V02827	-99.3	-18.1	-0.2
Big Reservoir Springs No. 11	V02828	-84.4	-12.0	-0.1
South Bastian Spring 2	P01	-166.6	-92.5	-1.0
South Bastion Spring	P02	-164.7	-89.3	-0.9
Cleveland Ranch Spring - North	P03	-107.9	-22.9	-0.2
Cleveland Ranch Spring - South	P04	-113.2	-29.3	-0.2
Cleveland Well	P05	-167.9	-57.5	-0.9
Fera Well	P06	-102.1	-38.6	-0.3
Layton Spring	P08	-178.3	-114.7	-2.0
North Cleveland Unit Spring	P09	-8.7	-1.5	0.0
North Millick Spring	P10	-14.4	-3.8	0.0
Rogers Ranch Spring	P11	-21.8	-4.1	0.0
Unnamed Spring #1.1	P13	-133.8	-42.2	-0.4
Unnamed Spring #1.2	P14	-133.6	-42.5	-0.4
Unnamed Spring #2.1	P15	-129.9	-41.5	-0.3
Unnamed Spring #2.2	P16	-128.1	-40.9	-0.3
Unnamed Spring #3.1	P17	-128.7	-41.7	-0.2
Unnamed Spring #3.2	P18	-129.8	-42.7	-0.2
Unnamed Spring #3.3	P19	-132.2	-44.4	-0.3
Unnamed Spring #4	P20	-145.1	-53.8	-0.4
Unnamed Spring #7	P21	-183.0	-102.6	-2.0
Unnamed Spring #8	P22	-185.8	-108.3	-2.3

Predictive-Full Simulation: Big Reservoir Springs No. 5 (V02822)



CPB_011
Fig. 26


CPB_016 Img. 9101

Table 3 Summary of Northern Spring Valley Groundwater Age Data from the Vicinity of Cleveland and Rogers Ranches.

Sample ID	BYU lab #	Sampling Date	pH	^{14}C [pmc]	+/-	$\delta^{13}C$	+/-	^{3}H [TU]	+/-	$HCO3^-$ [mg/L]	Fontes calculated 14C age [years]
Bastian Creek Spring	9232	7/19/2011	8.01	44.39	0.15	-7.87	0.04			184	1200
Irrigation Well	9234	7/19/2011	8.11	37.56	0.13	-8.22	0.04	3.9	0.2	186	2500
Stephens Creek	9236	7/19/2011						11.1	0.4		
Big Resevoir Spring (#1/2)	9237	7/20/2011	7.93	77.12	0.22	-13.90	0.04			131	modern
Millick Spring	9238	7/20/2011	7.92	44.94	0.14	-8.63	0.04	2.0	0.1	270	1200
Negro Creek Spring	9239	7/19/2011						9.1	0.1		

CPB_011 Table 3

Table 3 Summary of Northern Spring Valley Groundwater Age Data from the Vicinity of Cleveland and Rogers Ranches.

Sample ID	BYU lab #	Sampling Date	pH	^{14}C [pmc]	+/-	$\delta^{13}C$	+/-	^{3}H [TU]	+/-	$HCO3^-$ [mg/L]	Fontes calculated 14C age [years]
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Negro Creek Spring	9239	7/19/2011						9.1	0.1		

CPB_011 Table 3

CPB_016 Img. 8970


CPB_016 Img. 8989

Table 3 Summary of Northern Spring Valley Groundwater Age Data from the Vicinity of Cleveland and Rogers Ranches.

Sample ID	BYU lab #	Sampling Date	pH	^{14}C [pmc]	+/-	$\delta^{13}C$	+/-	^{3}H [TU]	+/-	$HCO3^-$ [mg/L]	Fontes calculated 14C age [years]
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CPB_011 Table 3

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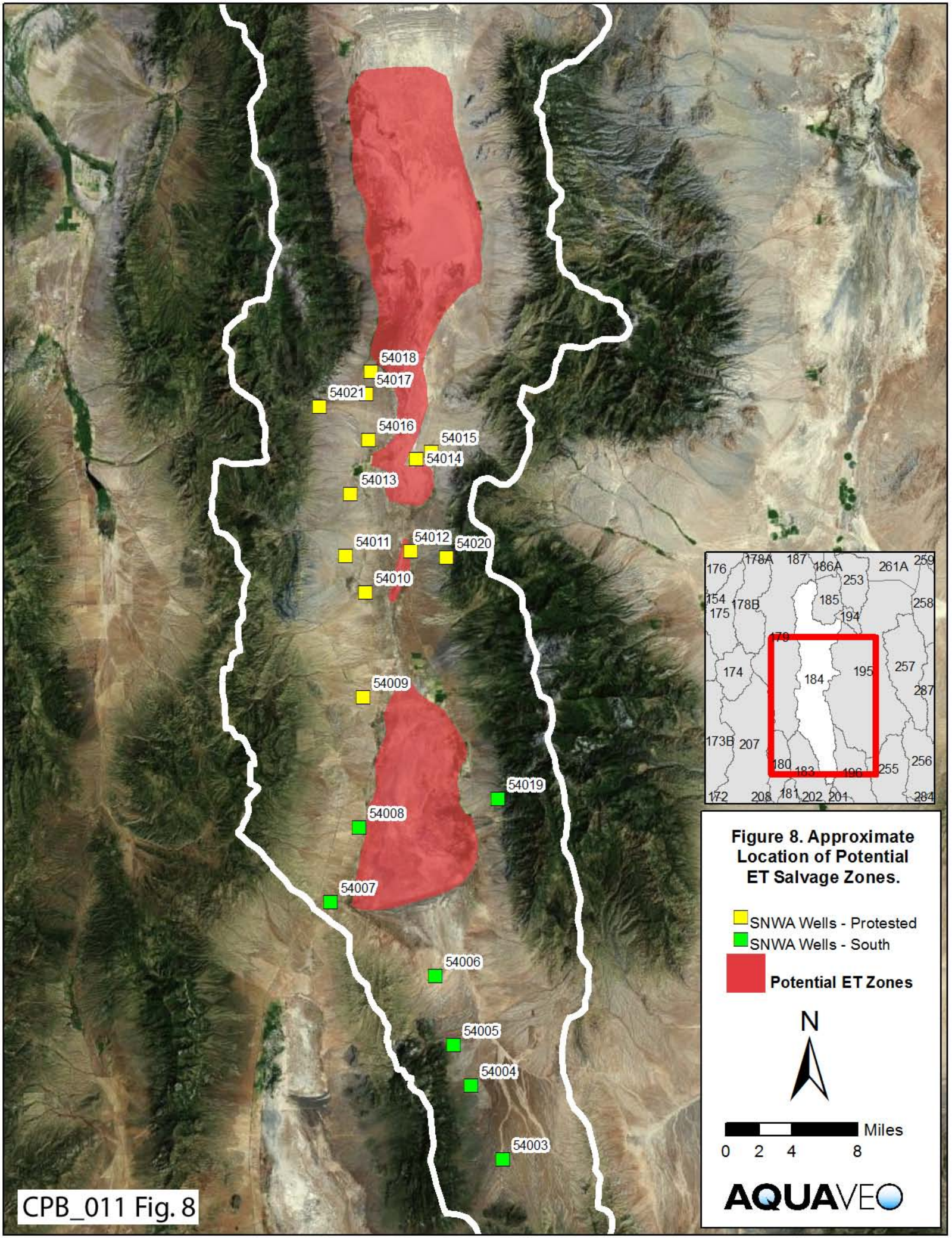
Negro Creek Spring	9239	7/19/2011						9.1	0.1		

CPB_011 Table 3


54018
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54005
54004
54003
176
178A
187
186A
261A
259
253
154
175
178B
185
258
194
179
174
184
195
257
287
173B
207
180
183
196
255
256
172
208
181
202
201
284
Figure 8. Approximate Location of Potential ET Salvage Zones.
SNWA Wells - Protested
SNWA Wells - South
Potential ET Zones
N
Miles
0 2 4 8
AQUAVEO
CPB_011 Fig. 8

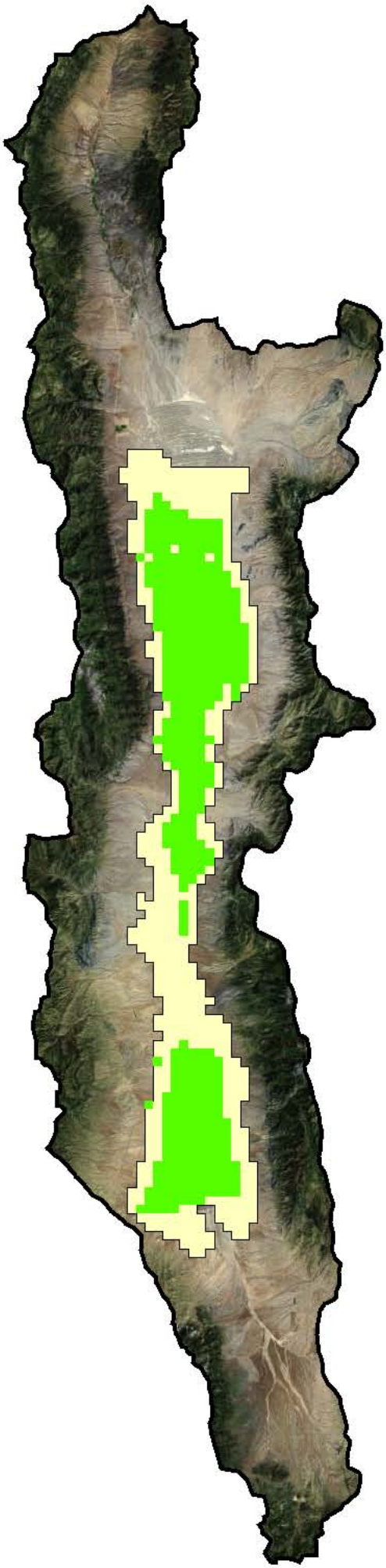


Figure 40. Active ET Drain Cells in Spring Valley, 2029.

Inactive Drain Cells

Active Drain Cells

N

Miles

0 3 6 12

AQUAVEO

CPB_011 Fig. 40

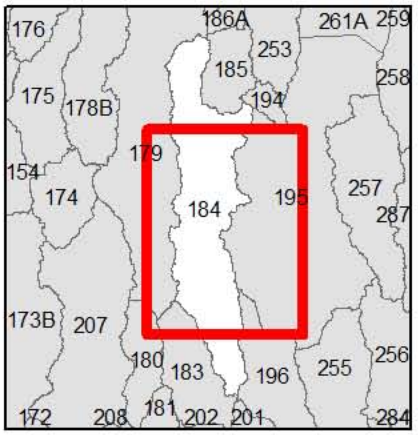


Figure 41. Uncaptured ET in Drain Cells in Spring Valley, Predictive-Full Simulation, 2082.

Inactive Drain Cells

Fraction Uncaptured ET

High : 1.0

Low : 0

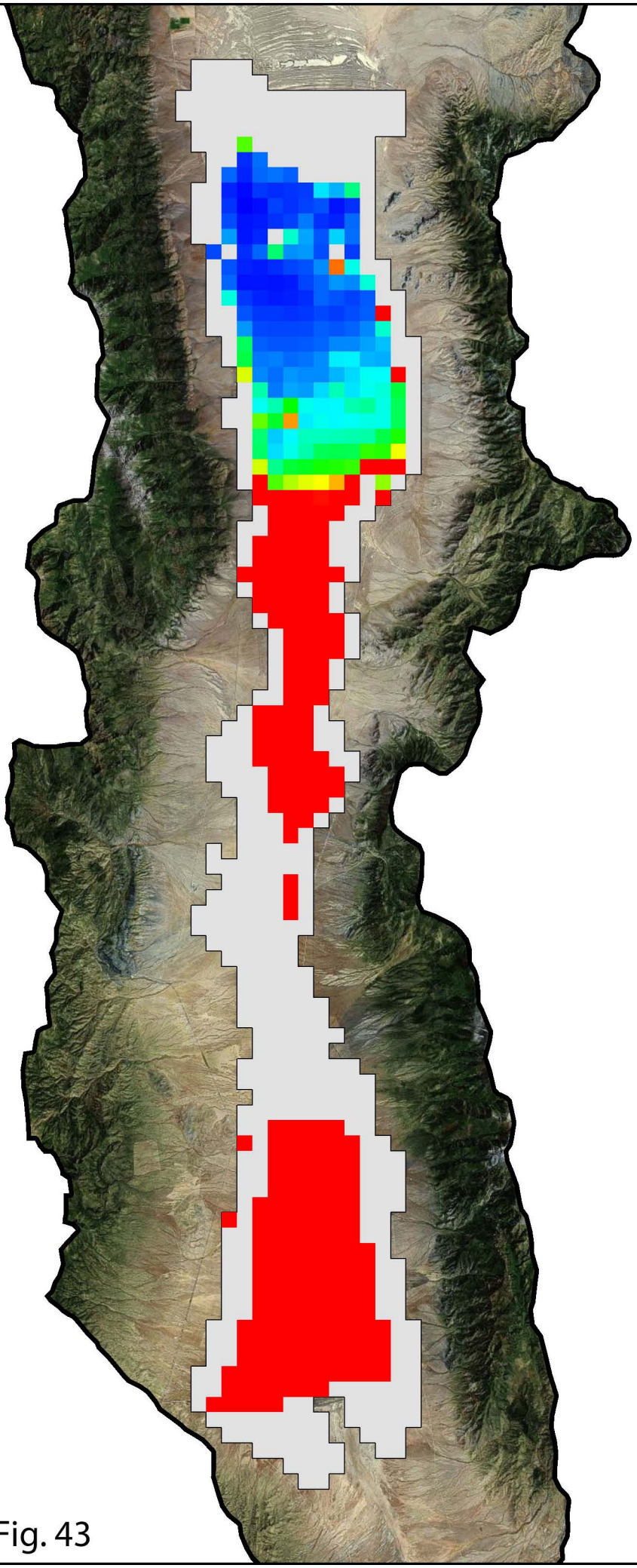
N

Miles

0 1.5 3 6

AQUAVEO

CPB_011 Fig. 41



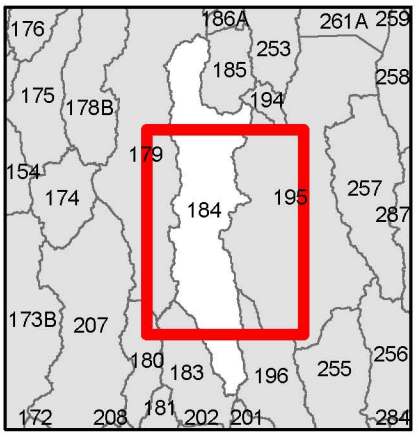


Figure 43. Uncaptured ET in Drain Cells in Spring Valley, Predictive-Full Simulation, 2242.

Inactive Drain Cells

Fraction Uncaptured ET

High : 1.0

Low : 0

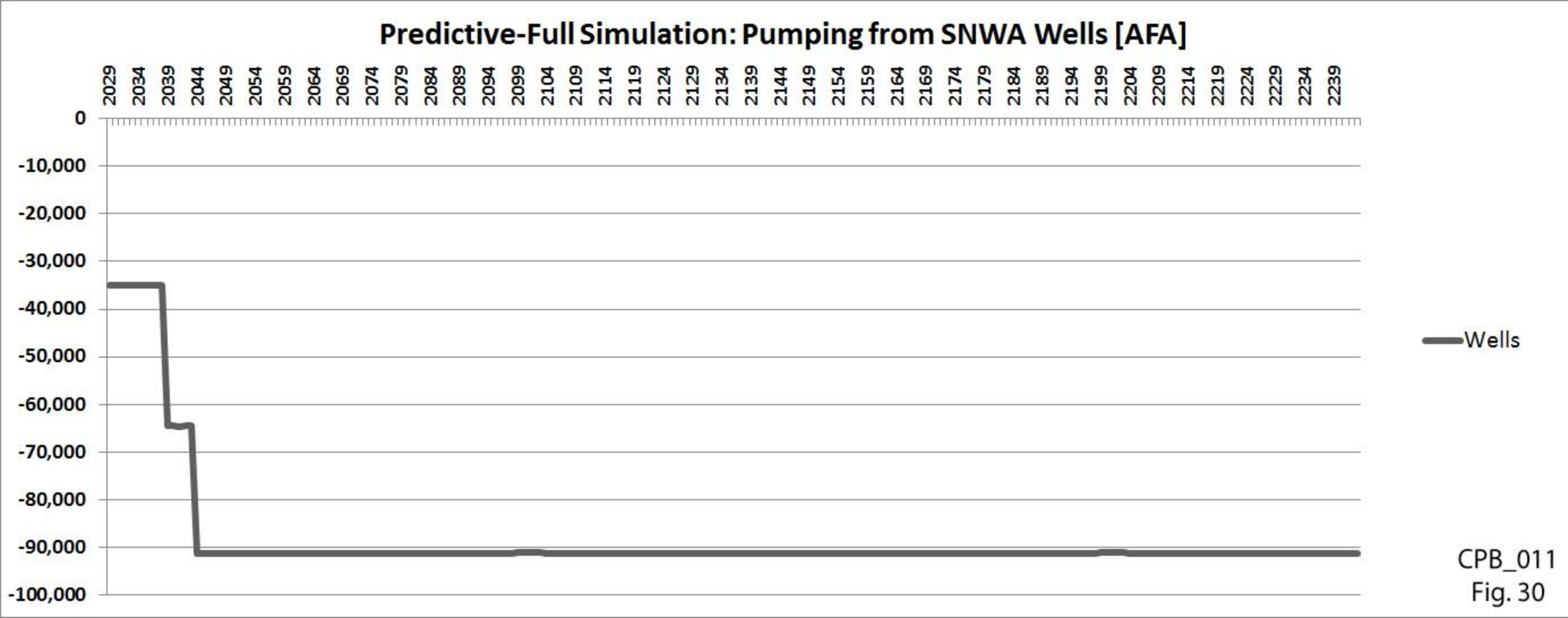
N

Miles

0 1.5 3 6

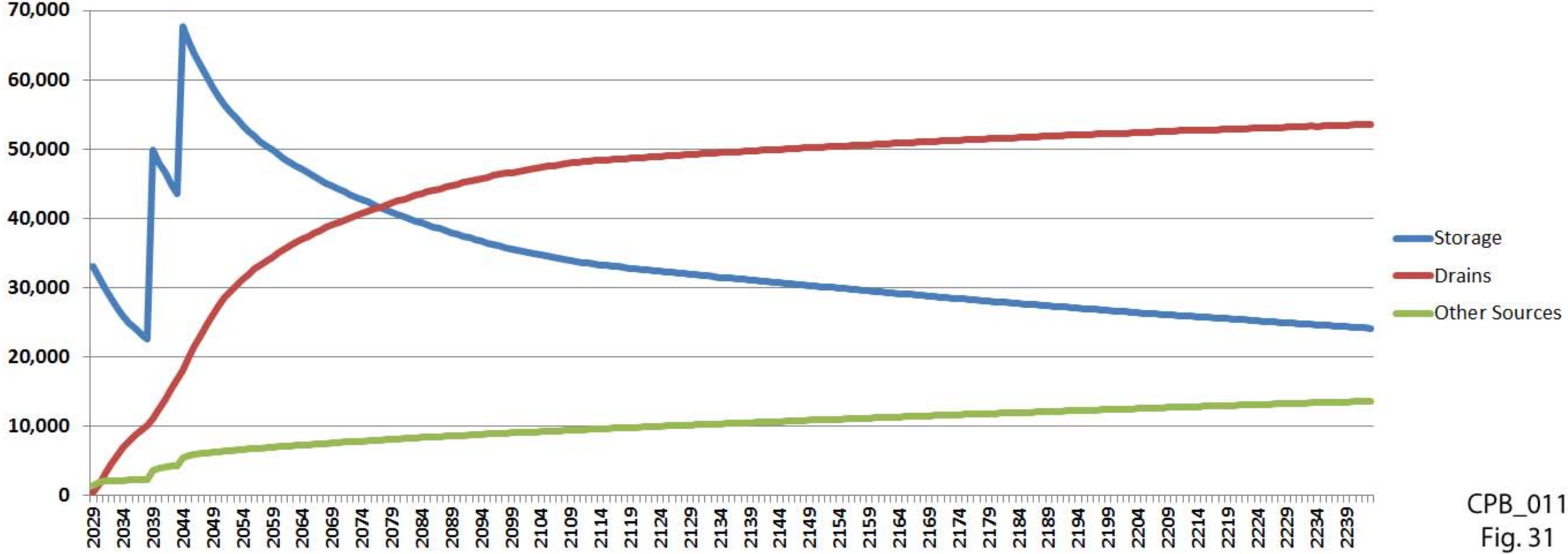
AQUAVEO

CPB_011 Fig. 43



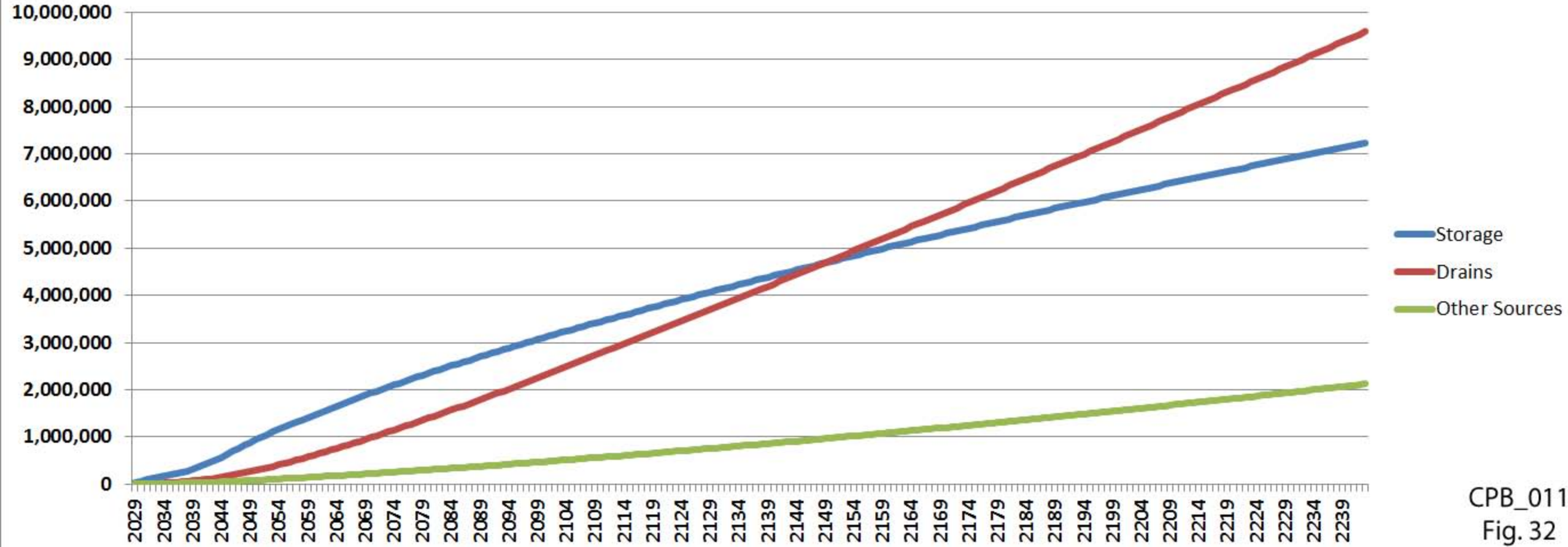
CPB_011
Fig. 30

Predictive-Full Simulation: Net Change in Flow Budget [AFA]

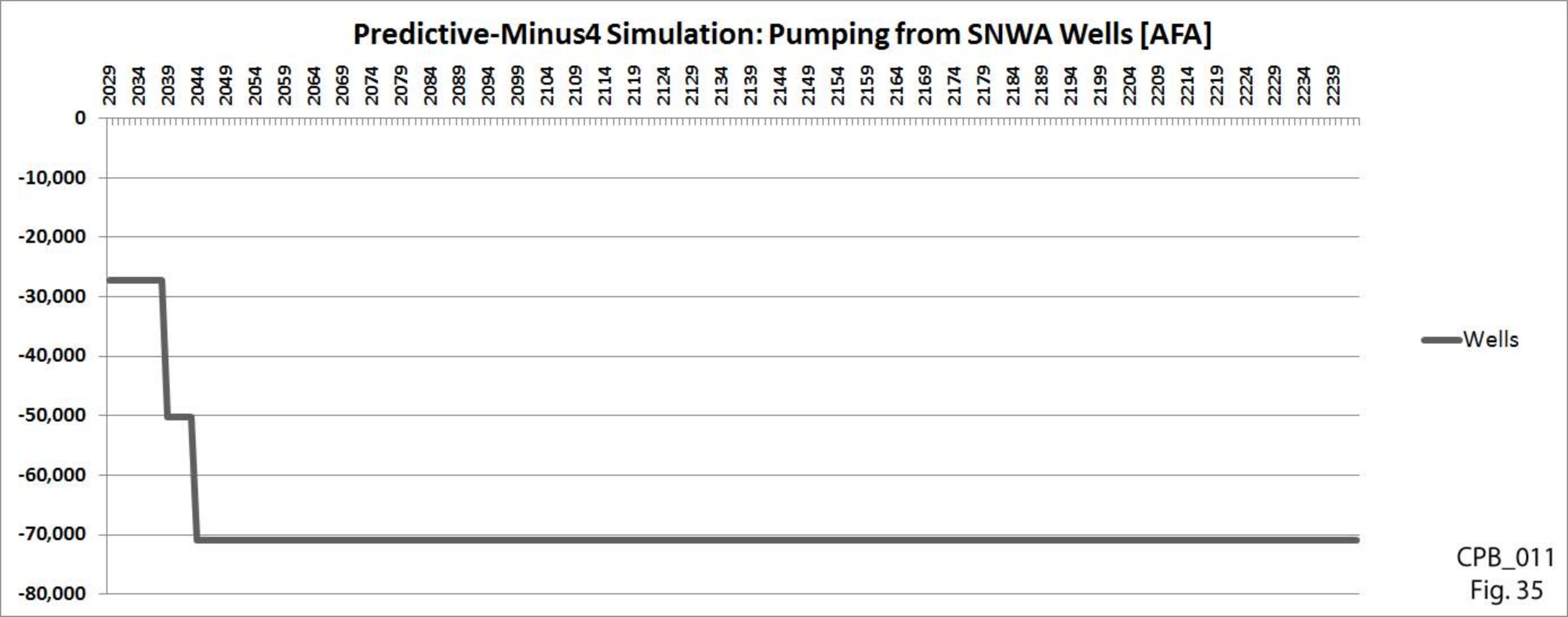


CPB_011
Fig. 31

Predictive-Full Simulation: Cumulative Volumes [AFA]

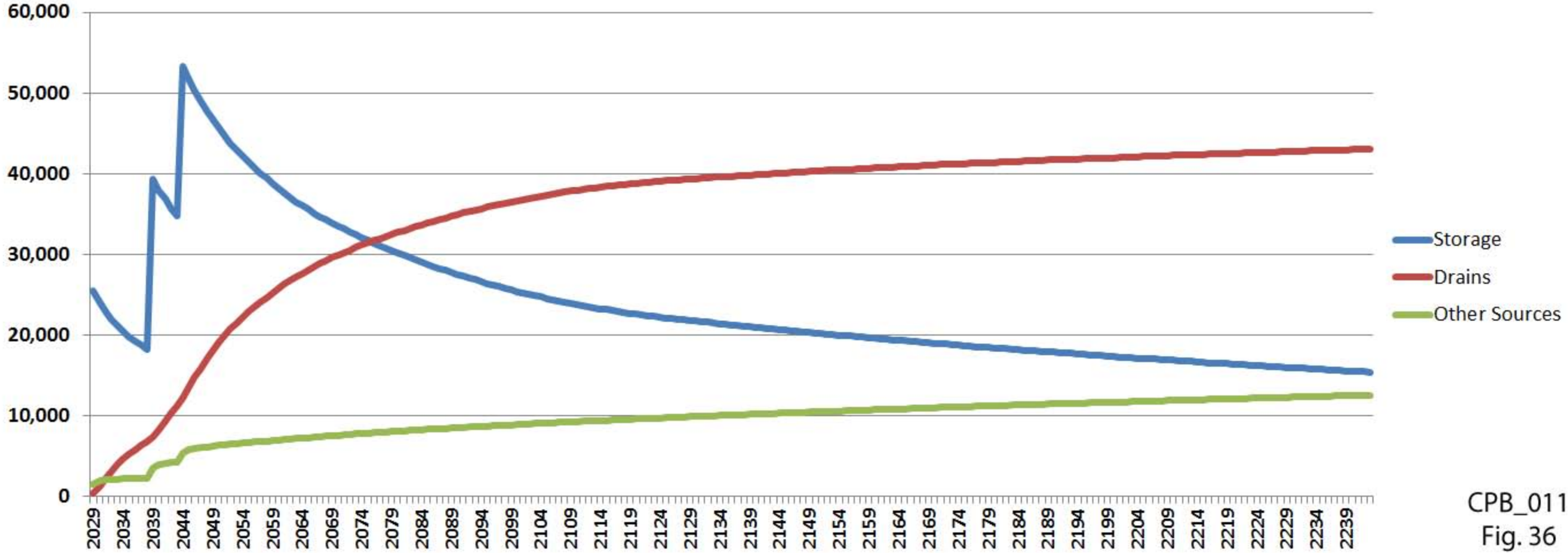


CPB_011
Fig. 32



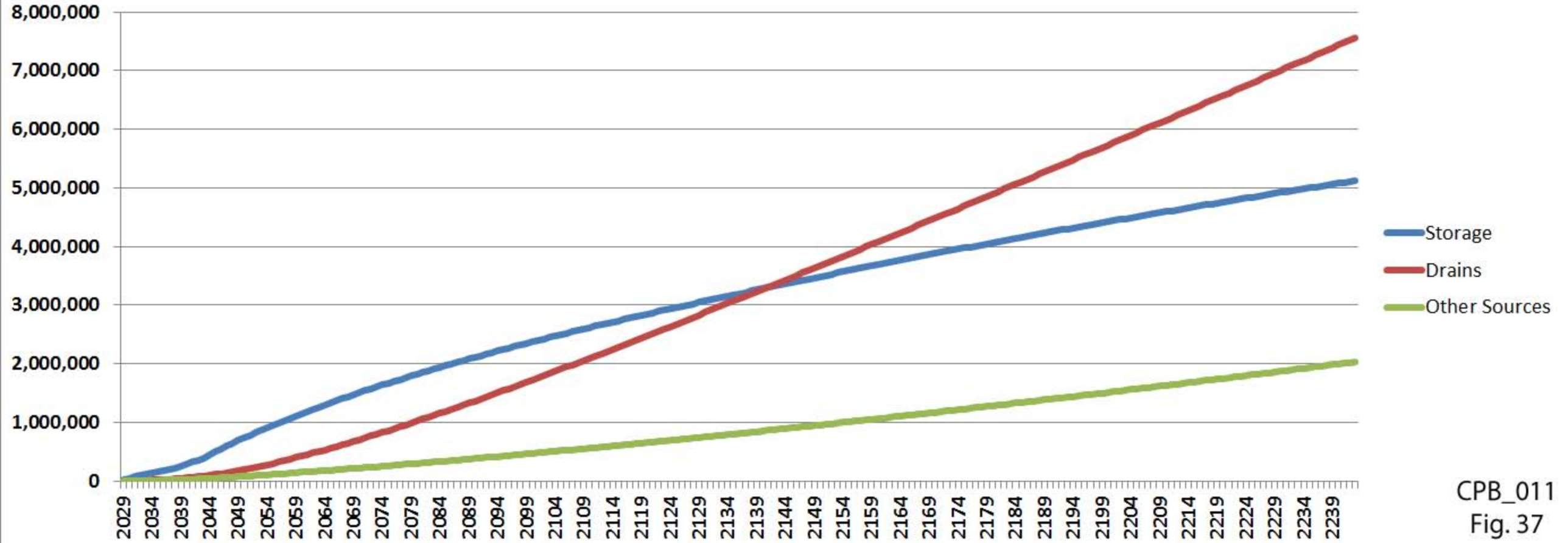
CPB_011
Fig. 35

Predictive-Minus4 Simulation: Net Change in Flow Budget [AFA]



CPB_011
Fig. 36

Predictive-Minus4 Simulation: Cumulative Volumes [AFA]



CPB_011
Fig. 37

North Stephens
33 Acres

Stephens Creek Diversion

Stephens Pond

Stephen's Meadow
96 Acres

North Four Mile
539 Acres

South Stephens
41 Acres

Winter Wheat
159 Acres

Race Track
103 Acres

Doe
27 Acres

Buck
73 Acres

Lister
59 Acres

Middle Four Mile
449 Acres

Lower Bull
33 Acres

Big Meadow
80 Acres

Upper Grover
61 Acres

Lower Grover
43 Acres

Middle Bull
32 Acres

North Horse
29 Acres

Lower Purebred
93 Acres

Upper Bull
28 Acres

Upper Purebred
36 Acres

Fillmore
232 Acres

Sheep North
9 Acres

Horse
39 Acres

Sheep
13 Acres

Pivot 1
120 Acres

Murphy
65 Acres

Lower Cleveland Reservoir

Brush
90 Acres

Lower Cleve Creek Diversion

Text

Pivot 2
112 Acres

Reservoir
163 Acres

Upper Cleveland Reservoir

Pivot 3
83 Acres

South Four Mile
1974 Acres

Winter Ditch Diversion

Legend

- Diversions/Collectors
- Ditches
- Pipelines

Infrastructure

- Fencing
- Cleveland Ranch Deeded Property

Map 1.2 Cleveland Ranch Pastures, Infrastructure, and Water Delivery

RESOURCE CONCEPTS INC.

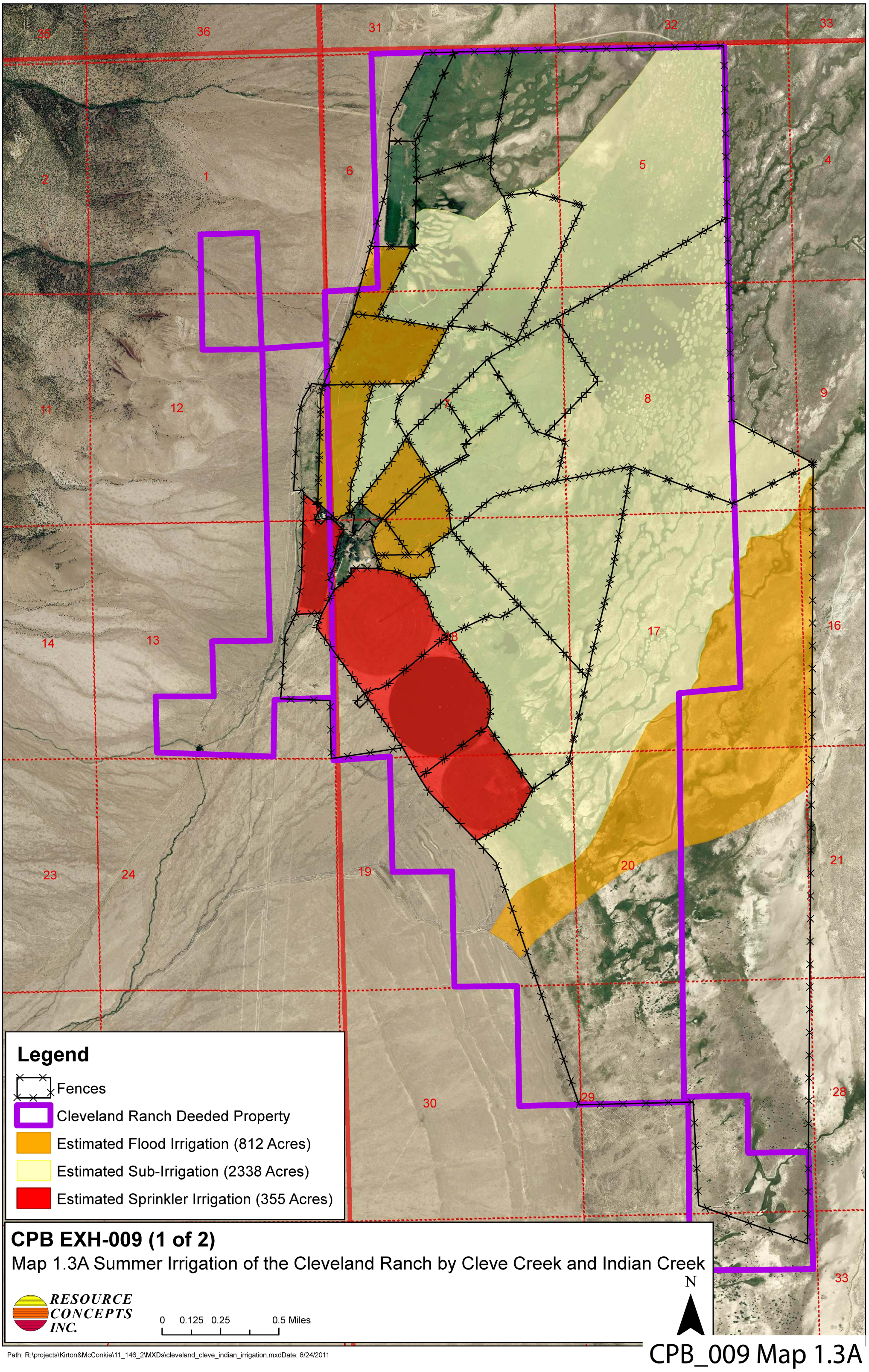
0 0.25 0.5 Miles

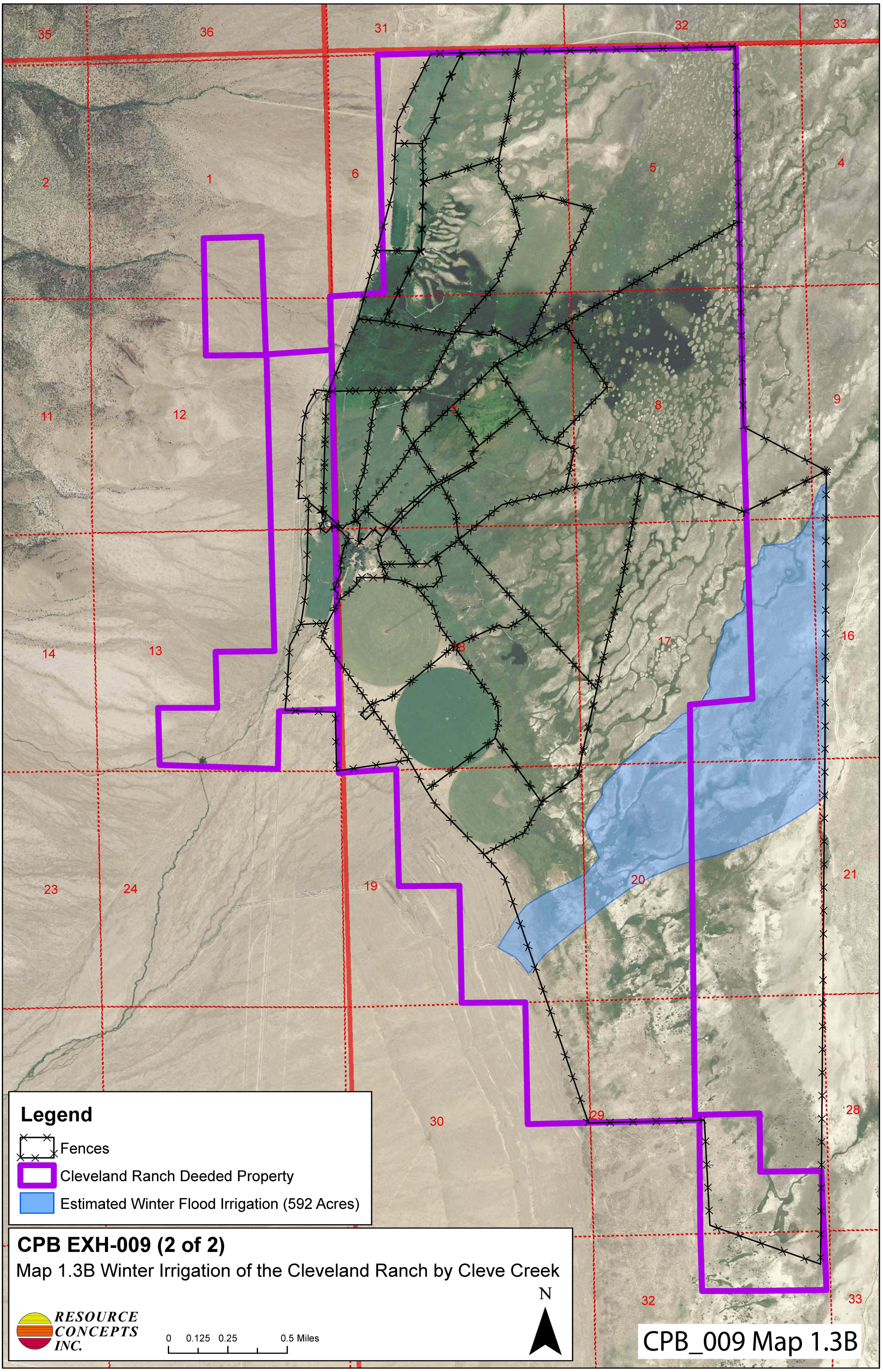
Date: June 5, 2009

N

CPB_001 Map 1.2

R:\projects\Delmar_livestock\07_276_2\MXDs\current_land_usage_cleveland.mxd June 5, 2009


35
36
31
32
33
1
2
6
5
4
11
12
7
8
9
14
13
18
17
16
23
24
19
20
21
30
29
28
Legend
Fences
Cleveland Ranch Deeded Property
Estimated Flood Irrigation (812 Acres)
Estimated Sub-Irrigation (2338 Acres)
Estimated Sprinkler Irrigation (355 Acres)
CPB EXH-009 (1 of 2)
Map 1.3A Summer Irrigation of the Cleveland Ranch by Cleve Creek and Indian Creek
RESOURCE CONCEPTS INC.
0 0.125 0.25 0.5 Miles
N
Path: R:\projects\Kirton&McConkie\11_146_2\MXDs\cleveland_cleve_indian_irrigation.mxdDate: 8/24/2011
CPB_009 Map 1.3A



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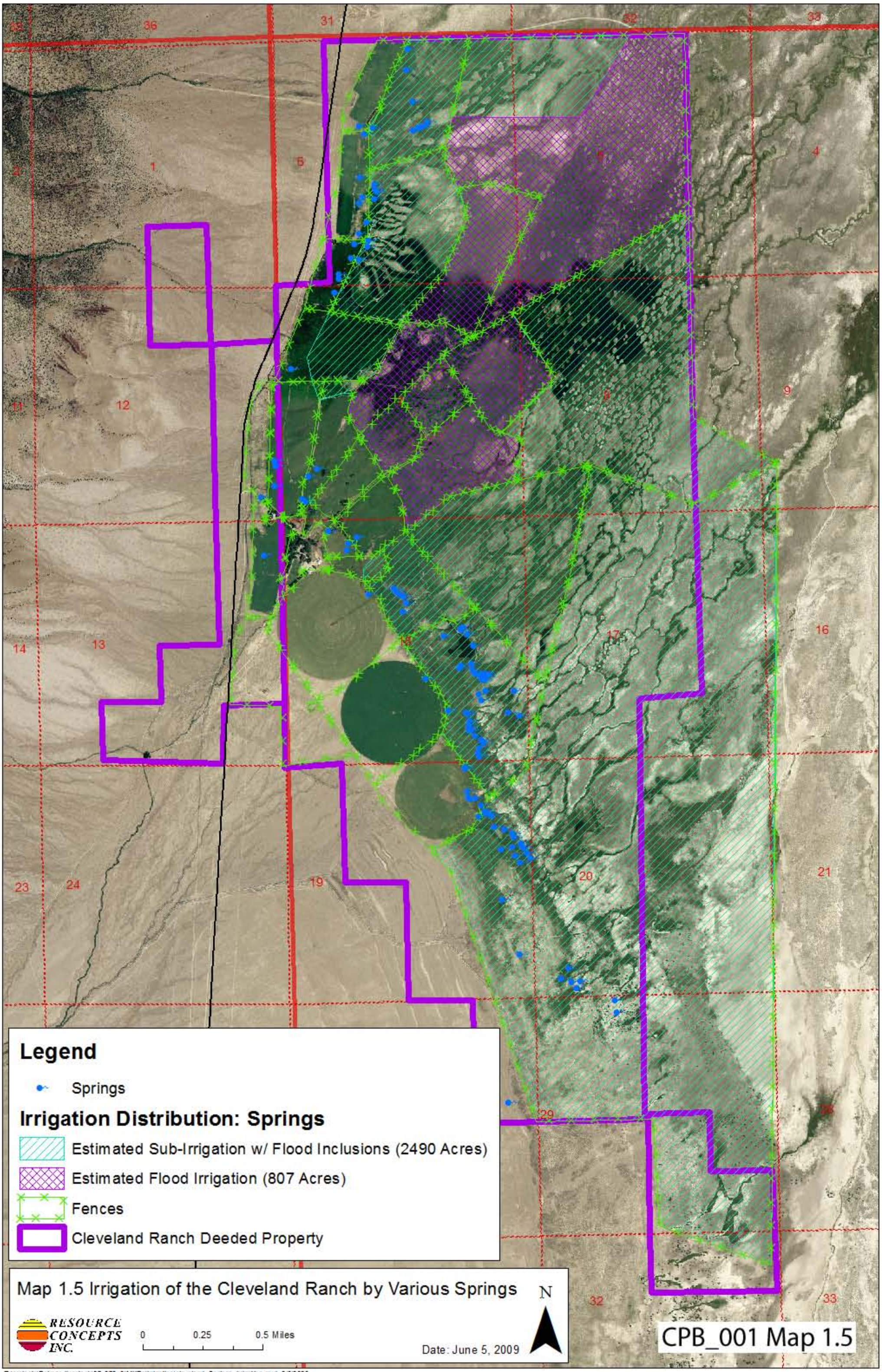
Legend
Springs
Irrigation Distribution: Springs
Estimated Sub-Irrigation w/ Flood Inclusions (2490 Acres)
Estimated Flood Irrigation (807 Acres)
Fences
Cleveland Ranch Deeded Property
Map 1.5 Irrigation of the Cleveland Ranch by Various Springs
RESOURCE CONCEPTS INC.
0
0.25
0.5 Miles
N
Date: June 5, 2009
CPB_001 Map 1.5
R:\projects\Delmar_livestock\07_276_2\MXDs\Irrigation\cleveland_Springs_irrigation.mxd 6/5/2009

35 36 31 32 33

2 1 6 5 4

11 12 7 8 9

14 13 18 17 16

23 24 19 20 21

26 25 30 29 28

32 33

Legend

Springs

Cleveland Ranch Deeded Property

Map 1.5 Irrigation of the Cleveland Ranch by Various Springs

RESOURCE CONCEPTS INC.

0 0.25 0.5 Miles

Date: June 5, 2009

N

CPB_001 Map 1.5

Path: R:\projects\Kirton&McConkie\11_146_2\MXDs\Map_1.5_Springs_only.mxd Date: 11/10/2011


CPB_016 Img. 9061


CPB_016 Img. 9025