

Spring, Cave, Dry Lake and Delamar Valleys

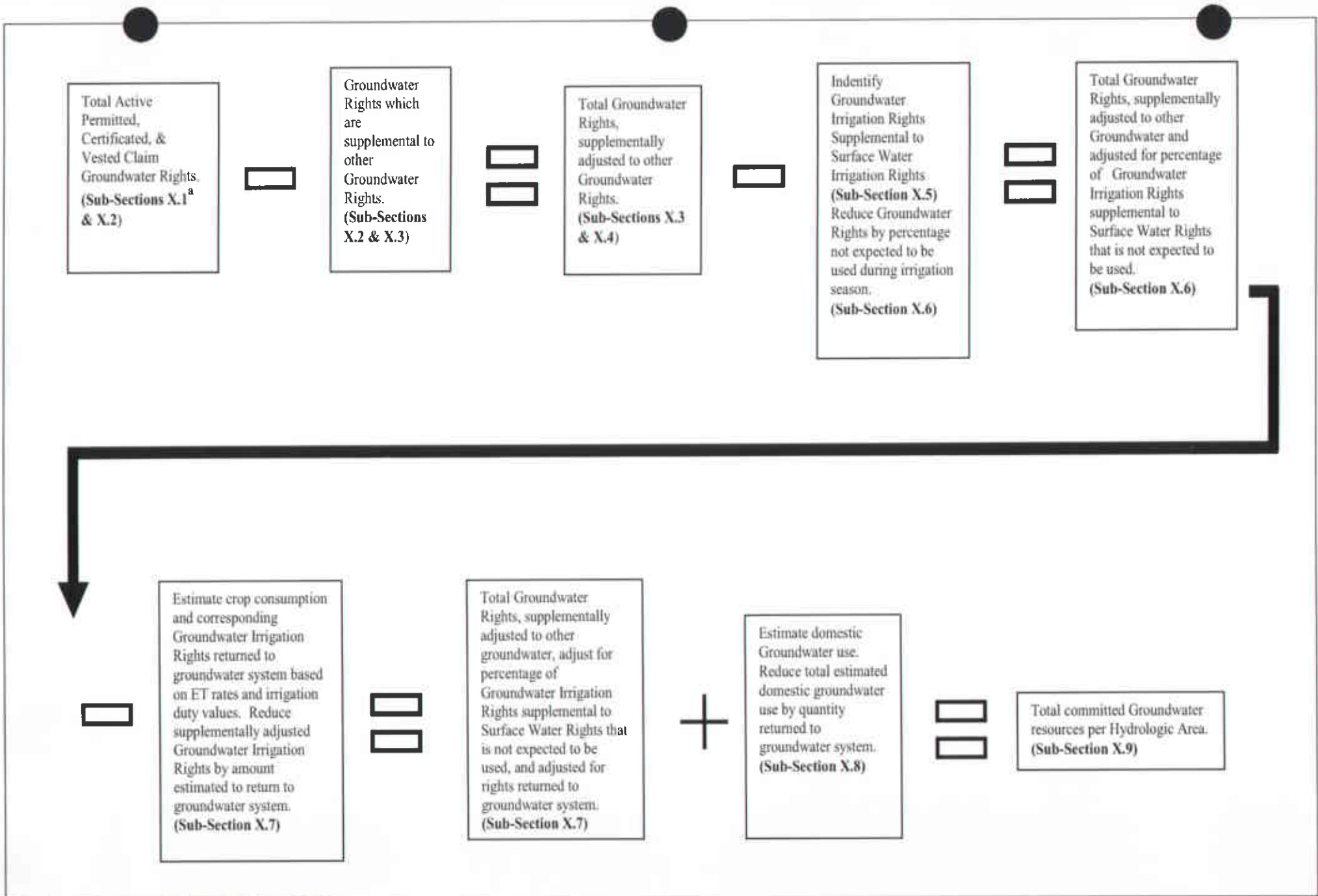


SOUTHERN NEVADA
WATER AUTHORITY

Presentation for
Stanka Testimony
September 27, 2011

**Table ES-1
Estimated Committed Groundwater Resources**

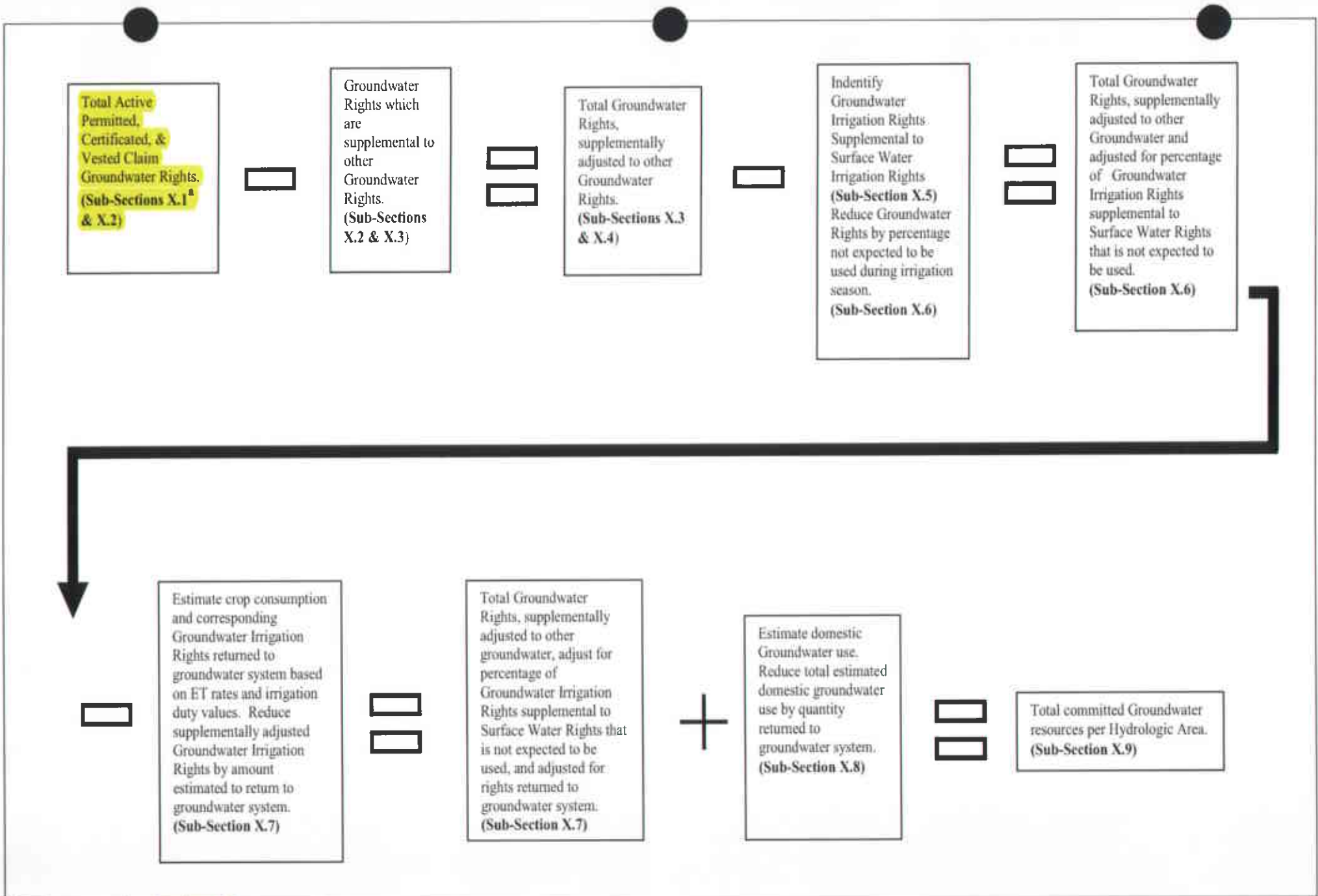
Hydrographic Area	Total Committed Groundwater Resources (af)	Committed Groundwater Resources with Priority dates after October 17, 1989 (af)	Committed Groundwater Resources with Priority dates prior to October 17, 1989 (af)
Cave Valley	51.37	33.6	17.77
Dry Lake Valley	807.78	746.66	61.12
Delamar Valley	8.95	0.00	8.95
Spring Valley	12,768.61	2,339.1	10,429.51



^aX = Corresponding Sections 2.0 through 5.0.

Figure 1-2

Process and Steps to Analyze and Quantify Existing Groundwater Rights within Selected Basins in Nevada



^aX = Corresponding Sections 2.0 through 5.0.

Figure 1-2
Process and Steps to Analyze and Quantify Existing Groundwater Rights within Selected Basins in Nevada

**Table 5-1
Number of Active Records Listed per Manner of Use and Status (Spring Valley)**

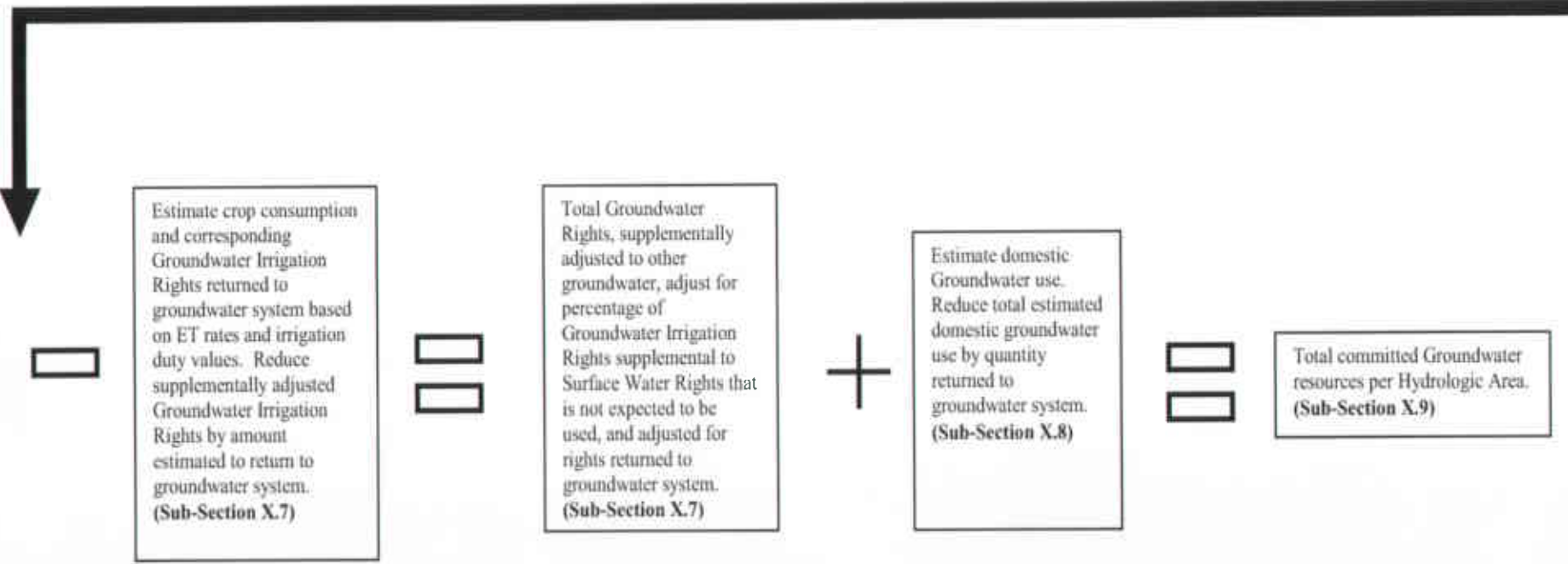
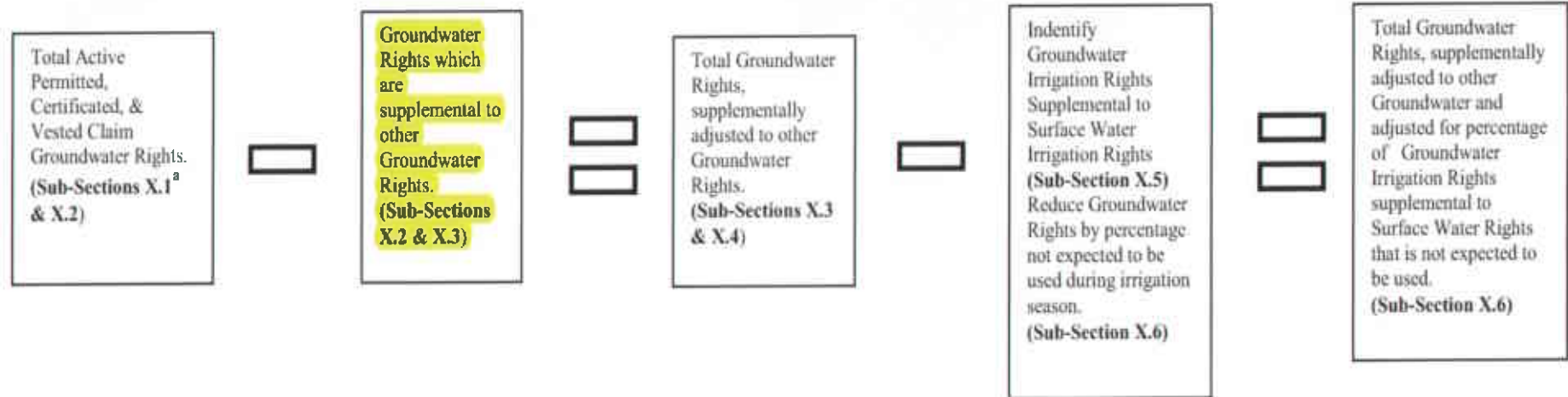
Manner of Use	Number of Records	Vested Claims	Decreed	Certificated	Permitted	Reserved	RFA	RFP	APP
Stockwater	130	48	2	62	1	1	0	5	11
Power	15	0	0	1	0	0	13	1	0
Domestic	3	0	0	1	2	0	0	0	0
Wildlife	6	0	0	1	3	0	0	2	0
Mining and Milling	22	3	0	18	1	0	0	0	0
Other	24	0	0	0	0	23	1	0	0
Municipal/ Quasi Municipal	42	0	0	1	2	0	0	39	0
Commercial	2	0	0	0	0	0	2	0	0
Irrigation	261	46	4	88	20	0	25	70	8
Total	505	97	6	172	29	24	41	117	19

Table 5-2
Number of Active Records Listed per
Manner of Use and Source (Spring Valley)

Manner of Use	Number of Records	Stream	Spring	Underground	Other Surface Water	Reservoir Lake
Stockwater	130	14	79	34	2	1
Power	15	15	0	0	0	0
Domestic	3	0	3	0	0	0
Wildlife	6	0	0	6	0	0
Mining and Milling	22	6	10	6	0	0
Other	24	0	23	1	0	0
Municipal/Quasi-Municipal	42	0	0	42	0	0
Commercial	2	1	0	1	0	0
Irrigation	261	96	60	99	3	3
Total	505	132	175	189	5	4

Table 5-3
Total Groundwater Rights–Not Supplementally Adjusted

Manner of Use	Total Groundwater Rights – Not Supplementally Adjusted
Stockwater	403.92
Wildlife	57.99
Mining and Milling	2,060.63
Municipal/Quasi-Municipal	78.64
Irrigation	26,883.59
Total	29,484.77



^aX = Corresponding Sections 2.0 through 5.0.

Figure 1-2 SNWA Exhibit 097
Process and Steps to Analyze and Quantify Existing Groundwater Rights within Selected Basins in Nevada

App	Status	Source	Place of Use					Meridian	Acres
			QQ	Q	Sec	Twn	Rng		
54204	Permit	U/G	NE	NE	13	16N	66E	Mt. Diablo	40.00
54205	Permit	U/G	NE	NE	13	16N	66E	Mt. Diablo	40.00
54204	Permit	U/G	SE	NE	13	16N	66E	Mt. Diablo	40.00
54205	Permit	U/G	SE	NE	13	16N	66E	Mt. Diablo	40.00
54204	Permit	U/G	NE	SE	13	16N	66E	Mt. Diablo	40.00
54205	Permit	U/G	NE	SE	13	16N	66E	Mt. Diablo	40.00
39817	Permit	U/G	NE	SE	13	18N	66E	Mt. Diablo	40.00
39817	Permit	U/G	SE	SE	13	18N	66E	Mt. Diablo	40.00
39817	Permit	U/G	SW	SE	13	18N	66E	Mt. Diablo	40.00
39817	Permit	U/G	SE	SW	13	18N	66E	Mt. Diablo	40.00
39817	Permit	U/G	NE	NE	24	18N	66E	Mt. Diablo	40.00
39817	Permit	U/G	NW	NE	24	18N	66E	Mt. Diablo	40.00
39817	Permit	U/G	NE	NW	24	18N	66E	Mt. Diablo	40.00
39818	Permit	U/G	NE	SE	24	18N	66E	Mt. Diablo	40.00
39818	Permit	U/G	SE	SE	24	18N	66E	Mt. Diablo	40.00
39818	Permit	U/G	NE	NE	25	18N	66E	Mt. Diablo	40.00
39818	Permit	U/G	SE	NE	25	18N	66E	Mt. Diablo	40.00
39818	Permit	U/G	NE	SE	25	18N	66E	Mt. Diablo	40.00
39818	Permit	U/G	SE	SE	25	18N	66E	Mt. Diablo	40.00
39818	Permit	U/G	NE	NE	36	18N	66E	Mt. Diablo	40.00
27378	Cert	U/G	NW	NE	11	19N	66E	Mt. Diablo	3.49
27378	Cert	U/G	SE	NE	11	19N	66E	Mt. Diablo	36.00
27378	Cert	U/G	SW	NE	11	19N	66E	Mt. Diablo	39.85
27378	Cert	U/G	NE	SE	11	19N	66E	Mt. Diablo	40.00
27378	Cert	U/G	NW	SE	11	19N	66E	Mt. Diablo	40.00
27378	Cert	U/G	SE	SE	11	19N	66E	Mt. Diablo	30.48
27378	Cert	U/G	SW	SE	11	19N	66E	Mt. Diablo	40.00
27378	Cert	U/G	NE	SW	11	19N	66E	Mt. Diablo	1.47
27378	Cert	U/G	SE	SW	11	19N	66E	Mt. Diablo	0.73
27378	Cert	U/G	SW	NW	12	19N	66E	Mt. Diablo	25.34
27378	Cert	U/G	NW	SW	12	19N	66E	Mt. Diablo	28.65
27378	Cert	U/G	SW	SW	12	19N	66E	Mt. Diablo	2.20
27378	Cert	U/G	NE	NE	14	19N	66E	Mt. Diablo	18.37
27378	Cert	U/G	NW	NE	14	19N	66E	Mt. Diablo	25.71
56049	Permit	U/G	NE	NW	24	19N	66E	Mt. Diablo	40.00
56049	Permit	U/G	SE	NW	24	19N	66E	Mt. Diablo	40.00
56049	Permit	U/G	NW	SE	24	19N	66E	Mt. Diablo	40.00
56049	Permit	U/G	SW	SE	24	19N	66E	Mt. Diablo	40.00
56049	Permit	U/G	NE	SW	24	19N	66E	Mt. Diablo	40.00
56049	Permit	U/G	SE	SW	24	19N	66E	Mt. Diablo	40.00
56049	Permit	U/G	NE	NE	25	19N	66E	Mt. Diablo	40.00
56049	Permit	U/G	NW	NE	25	19N	66E	Mt. Diablo	40.00
56049	Permit	U/G	SE	NE	25	19N	66E	Mt. Diablo	40.00
56049	Permit	U/G	SW	NE	25	19N	66E	Mt. Diablo	40.00
56051	Permit	U/G	NE	SW	25	19N	66E	Mt. Diablo	40.00
56051	Permit	U/G	NW	SW	25	19N	66E	Mt. Diablo	40.00
56051	Permit	U/G	SE	SW	25	19N	66E	Mt. Diablo	40.00
56051	Permit	U/G	SW	SW	25	19N	66E	Mt. Diablo	40.00

Yellow Highlighted areas = Same location, Qtr/Qtr, Place of Use

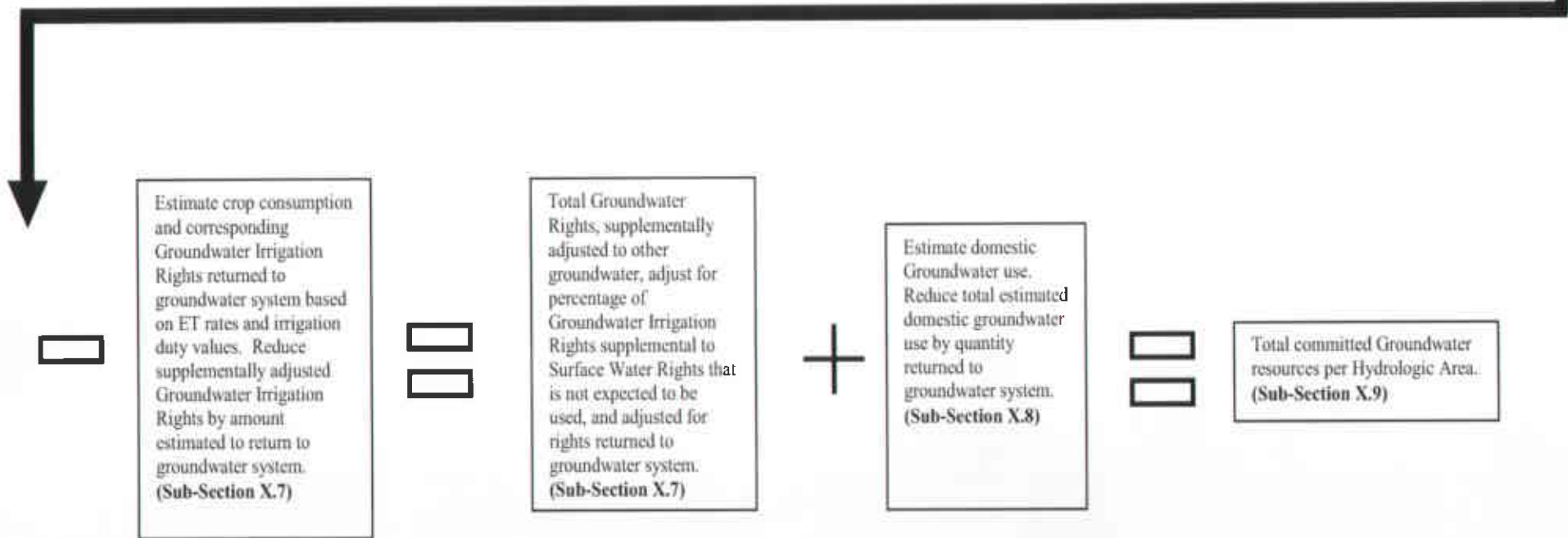
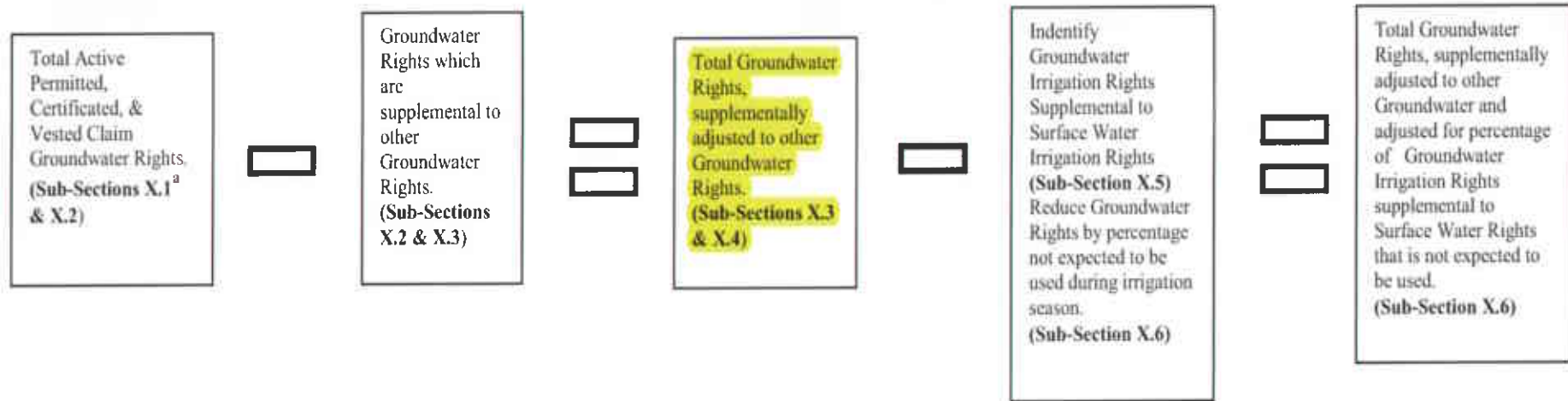
**Table 5-6
Certificated Groundwater Rights with Manner of Use as Irrigation**

App	Status	POU (acre)	POU (af)	Supplemental Analysis	Appendix No. of Mapped Water Rights	Duty afa	Non-Supplemental		Supplemental	
							(acre)	(af)	(acre)	(af)
18524	Cert.	5.289	21.166	Same qrt qrt POU as 30319; analysis shows non supplemental POU	51	4.0	5.289	21.166	0	0
18525	Cert.	14.462	57.848	Same qrt qrt POU as 30319. 14.462 acres of 30319 would be considered supplemental to 18525	51	4.0	14.462	57.848	0	0
19654	Cert.	143.958	575.832	No other groundwater rights within qrt qrt POU	52	4.0	143.958	575.832	0	0
20817	Cert.	160.00	640.00	See Table 5-7	52	4.0	160.00	640.00	0	0
22645	Cert.	15.00	60.00	Same qrt qrt POU as 45287. 13.77 acres (55.08 AF) of 45287 would be considered supplemental to 22645	51	4.0	15.00	60.000	0	0
25439	Cert.	60.00	240.00	No other groundwater rights within qrt qrt POU	52	4.0	60.00	240.00	0	0
25679	Cert.	157.56	630.24	POU within POU of 25680. 157.56 acres of 25680 would be considered supplemental to 25679. Portion of POU also within POU of 30319. Approximately 76.4 acres of 30319 would be considered supplemental to 25679	51	4.0	157.56	630.24	0	0
25680	Cert.	157.56	630.24	POU of 25680 is same POU as 25679. 157.56 acres (630.24 AF) of 25680 would be considered supplemental to 25679. Portion of POU also within POU of 30319. Approximately 76.4 acres of 30319 would be considered supplemental to 25679 and 25680	51	4.0	0	0	157.56	630.24
26228	Cert.	59.75	239.00	See Table 5-7	52	4.0	59.75	239.00	0	0
26229	Cert.	39.42	157.68	See Table 5-7	52	4.0	39.42	157.68	0	0
26502	Cert.	18.37	73.48	No other groundwater rights within qrt qrt POU	52	4.0	18.37	73.48	0	0
26546	Cert.	39.42	157.68	See Table 5-7	52	4.0	0	0	39.42	157.68
26952	Cert.	59.75	239.00	See Table 5-7	52	4.0	0	0	59.75	239.00
26953	Cert.	59.75	239.00	See Table 5-7	52	4.0	0	0	59.75	239.00
27378	Cert.	332.29	1,266.64	No other groundwater rights within qrt qrt POU	49	3.81*	332.29	1,266.64	0	0
28653	Cert.	0.30	1.20	No other groundwater rights within qrt qrt POU	52	4.0	.30	1.20	0	0
29219	Cert.	390.28	1,561.12	29219, 29220 and 29221 share the same POU. 29220 and 29221 would be considered supplemental to 29219	52	4.0	390.28	1,561.12		
29220	Cert.	390.28	1,367.97	Supplemental to 29219	52	3.51	0	0	390.28	1,367.97
29221	Cert.	390.28	1,049.76	Supplemental to 29219 and 29220	52	2.69	0	0	390.28	1,049.76
30319	Cert.	211.70	730.72	14.462 acres considered supplemental to 18525. 76.4 acres considered supplemental to 25679 and 25680. (90.862 acres total supplemental, 120.838 acres non supplemental) Duty of 30319 is 3.452 afa.	51	3.452*	120.838	417.09	90.862	313.63
38972	Cert.	192.12	768.48	No other groundwater rights within qrt qrt POU	52	4.0	192.12	768.48	0	0
34727	Cert.	201.197	804.788	See Table 5-7	52	4.0	164.254	657.016	36.943	147.772
45287	Cert.	78.20	312.80	13.77 acres within POU of 18525 and would be considered supplemental. Duty is 4.0 afa.	51	4.0	64.43	257.72	13.77	55.08
56050	Cert.	60.00	240.00	No other groundwater rights within qrt qrt POU	53	4.0	60.00	240.00	0.00	0.00
Totals		3,236.936	12,064.634	---	---	---	1,998.321	7,864.502	1,238.615	4,200.132

*Duty calculated from acre-feet/irrigated acres

Table 8
Permitted Groundwater Rights with Manner of Use as Irrigation

Application	Status	Acre	Acre-Feet	Comments	Appendix No. of Mapped Water Rights	Non-Supp.	Supp.
39817	Permit	300.00	1,200.00	Duty = 4.0 afa. No other groundwater rights within POU of 39871	48	1,200.00	0.00
39818	Permit	860.00	3,440.00	Duty = 4.0 afa. No other groundwater rights within POU of 39818	48	3,440.00	0.00
54204	Permit	694.10	2,082.30	Combined duty terms in permits 54204 and 54205 694.10 acres/2,082.3 af. Duty = 3.0 afa. 54204 and 54205 both have priority dates after Oct 17, 1989	47	2,082.30	0.00
54205	Permit						
56049	Permit	180.00	720.00	Duty = 4.0 afa. No other groundwater rights within POU of 56049	49	720.00	0.00
56051	Permit	60.00	240.00	Duty = 4.0 afa. No other groundwater rights within POU of 56051	48	240.00	0.00
63532	Permit	392.00	1,176.00	63532 and 63533 have total combined permit terms of not to exceed 1,176 af. Duty = 3.0 afa. 63532 and 63533 both have Priority dates after Oct 17, 1989.	51	1,176.00	0.00
63533	Permit						
71525	Permit	272.167	1088.667	71525, 71526, 71603, and 74274 have combined duty terms of not to exceed 1,088.667 af. Duty = 4.0 afa. 71525 and 71603 have Priority Dates after October 17, 1989. The 1088.667 af combined duty term is based on Permits 71526 and 74274 which has a priority date prior to October 17, 1989	51	1088.667	0.00
71526	Permit						
71603	Permit						
74274	Permit						
71840	Permit	280.00	1,120.00	Duty = 4.0 afa. No other groundwater rights within POU of 71840	50	1,120.00	0.00
78107	Permit	270.00	1080.00	See Table 5-7	52	841.004	238.996
Pre Oct 17, 1989 Priority Date	Sub-total	2,222.167	8,888.667			8,649.671	238.996
Post Oct 17, 1989 Priority Date	Sub-total	1,086.10	3,258.30			3,258.30	0.00
	Total	3,308.267	12,146.967			11,907.971	238.996



^aX = Corresponding Sections 2.0 through 5.0.

**Figure 1-2
Process and Steps to Analyze and Quantify Existing Groundwater Rights within Selected Basins in Nevada**

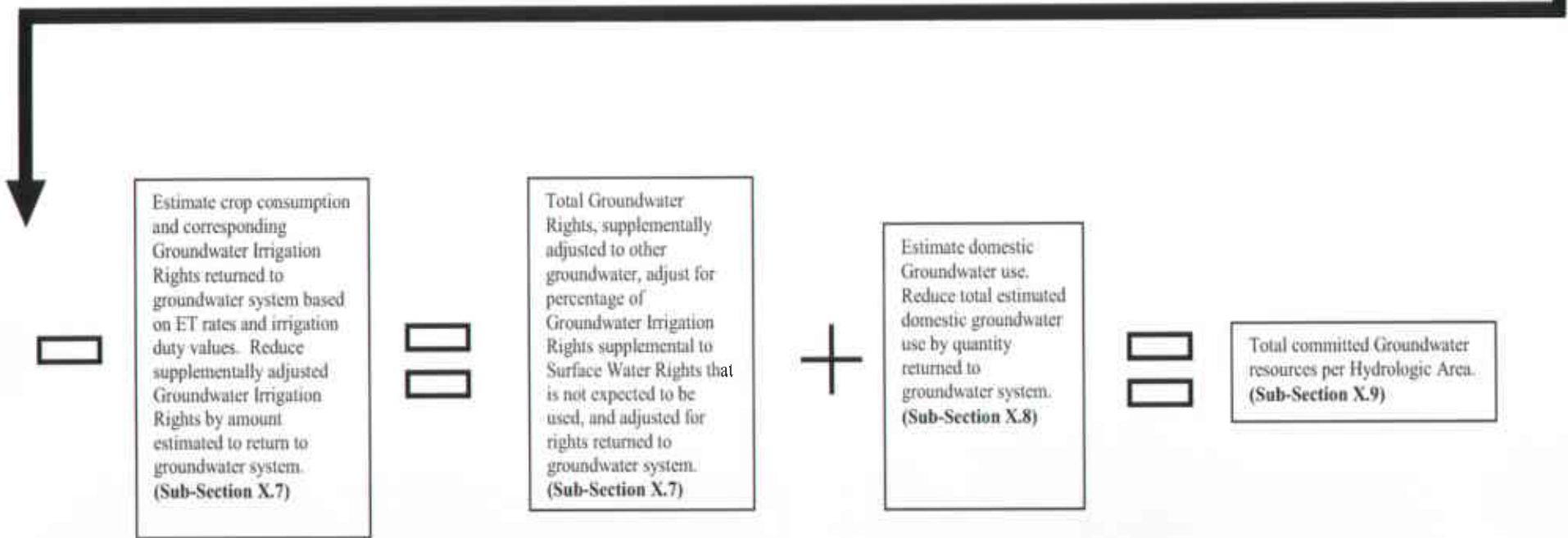
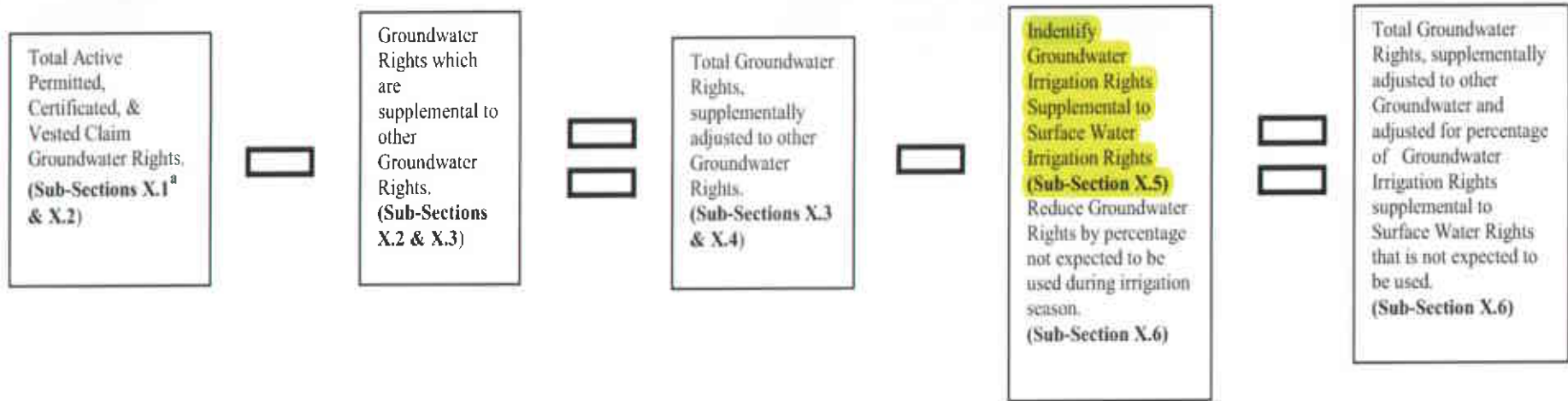
**Table 5-9
Non-Supplemental Groundwater Irrigation Rights in Spring Valley**

	Application (afa)	Total (acre)	Total (af)	With Priority Date After October 17, 1989		With Priority date Prior to October 17, 1989	
				(acre)	(af)	(acre)	(af)
Certificate (Section 5.3.1)	Duty @3.452	120.838	417.09	0.00	0.00	120.838	417.09
	Duty @3.81	332.29	1,266.64	0.00	0.00	332.29	1,266.64
	Duty @4.0	1,545.193	6,180.772	0.00	0.00	1,545.193	6,180.772
Permits (Section 5.3.2)	Duty @3.0	1,086.10	3,258.30	1,086.10	3,258.30	0.00	0.00
	Duty @4.0	2,162.418	8,649.671	0.00	0.00	2,162.418	8,649.671
	Total	5,246.839	19,772.473	1,086.10	3,258.30	4,160.739	16,514.173

Table 5-10
Spring Valley Existing Groundwater Rights, Supplementally Adjusted

Manner of Use	NDWR Hydrographic Summary (af)	Current Analysis Total (af)	Current Analysis with Priority Date After October 17, 1989 (af)	Current Analysis with Priority Date Before October 17, 1989 (af)
Irrigation - DLE	836.98	19,772.473	3,258.30	16,514.173
Irrigation	19,002.67			
Mining and Milling	1,360.70	1,360.70	302.44	1,058.26
Municipal/Quasi-Municipal	78.64	78.64	6.24	72.4
Stockwater	403.92	403.92	2.26	401.66
Wildlife	57.99	57.99	37.98	20.01
Total	21,740.91 ^a	21,673.723	3,607.22	18,066.503

^aAddition of these numbers equates to 21,740.90, however, NDWR Hydrographic Area Summary, Appendix 35, states 21,740.91. The value of 21,740.91 will be used.



^aX = Corresponding Sections 2.0 through 5.0.

Figure 1-2
Process and Steps to Analyze and Quantify Existing Groundwater Rights within Selected Basins in Nevada

Spring Valley: Places of Use of Permitted, Certificated, Vested Claim
and Decreed Groundwater and Surface Water Rights

Place of Use									
App	Status	Source	QQ	Q	Sec	TwN	Rng	Meridian	Acres
2261	CER	STR			23	16N	65E	Mt Diablo	1
V01686	VST	STR		LT01	1	21N	65E	Mt Diablo	13.9
V01686	VST	STR		LT02	1	21N	65E	Mt Diablo	6.4
V01216	VST	STR			24	15N	66E	Mt Diablo	por.
10703	CER	STR	SW	NE	24	15N	66E	Mt Diablo	16.62
10703	CER	STR	NE	SE	24	15N	66E	Mt Diablo	15.17
10703	CER	STR	NW	SE	24	15N	66E	Mt Diablo	2.8
10703	CER	STR	SE	SE	24	15N	66E	Mt Diablo	5.68
V00790	VST	STR	NE	SE	12	16N	66E	Mt Diablo	7.4 (por.)
V00790	VST	STR	SE	SE	12	16N	66E	Mt Diablo	7.4 (por.)
V00790	VST	STR	E2	NE	13	16N	66E	Mt Diablo	26.6 (por.)
V01217	VST	STR			13	16N	66E	Mt Diablo	por.
54204	Permit	U/G	NE	NE	13	16N	66E	Mt Diablo	40.00
54205	Permit	U/G	NE	NE	13	16N	66E	Mt Diablo	40.00
54204	Permit	U/G	SE	NE	13	16N	66E	Mt Diablo	40.00
54205	Permit	U/G	SE	NE	13	16N	66E	Mt Diablo	40.00
54204	Permit	U/G	NE	SE	13	16N	66E	Mt Diablo	40.00
54205	Permit	U/G	NE	SE	13	16N	66E	Mt Diablo	40.00
V00790	VST	STR	NW	SE	13	16N	66E	Mt Diablo	26.6 (por.)
V00790	VST	STR	SW	SE	13	16N	66E	Mt Diablo	15 (por.)
V00790	VST	STR	SE	SW	13	16N	66E	Mt Diablo	15 (por.)
V01215	VST	STR	E2	E2	12	17N	66E	Mt Diablo	160
3383	CER	STR	NW	SE	14	17N	66E	Mt Diablo	1
3383	CER	STR	NW	SE	14	17N	66E	Mt Diablo	1.7
3383	CER	STR	NW	SE	14	17N	66E	Mt Diablo	15.36
3383	CER	STR	NE	SW	14	17N	66E	Mt Diablo	1.9
V00789	VST	STR	NW	NE	1	18N	66E	Mt Diablo	40
V01219	VST	STR	NW	NE	1	18N	66E	Mt Diablo	31.55
V00789	VST	STR	SW	NE	1	18N	66E	Mt Diablo	40
V01219	VST	STR	SW	NE	1	18N	66E	Mt Diablo	27.5
V00789	VST	STR	NE	NW	1	18N	66E	Mt Diablo	40.00
V01219	VST	STR	NE	NW	1	18N	66E	Mt Diablo	40
V00789	VST	STR	NW	NW	1	18N	66E	Mt Diablo	40
V01219	VST	STR	NW	NW	1	18N	66E	Mt Diablo	36
V00789	VST	STR	SE	NW	1	18N	66E	Mt Diablo	40
V01219	VST	STR	SE	NW	1	18N	66E	Mt Diablo	40
V00789	VST	STR	SW	NW	1	18N	66E	Mt Diablo	40
V01219	VST	STR	SW	NW	1	18N	66E	Mt Diablo	35.51
V01219	VST	STR	NW	SE	1	18N	66E	Mt Diablo	28
55363	PER	SPR	SW	SE	1	18N	66E	Mt Diablo	40
55364	PER	SPR	SW	SE	1	18N	66E	Mt Diablo	40
55365	PER	SPR	SW	SE	1	18N	66E	Mt Diablo	40
V01219	VST	STR	NE	SW	1	18N	66E	Mt Diablo	20.7
V01219	VST	STR	NW	SW	1	18N	66E	Mt Diablo	20.7
55363	PER	SPR	SE	SW	1	18N	66E	Mt Diablo	40
55364	PER	SPR	SE	SW	1	18N	66E	Mt Diablo	40
55365	PER	SPR	SE	SW	1	18N	66E	Mt Diablo	40

Black = Groundwater

Blue = Surface Water

Yellow Highlighted areas = Same location, Qtr/Qtr, Place of Use

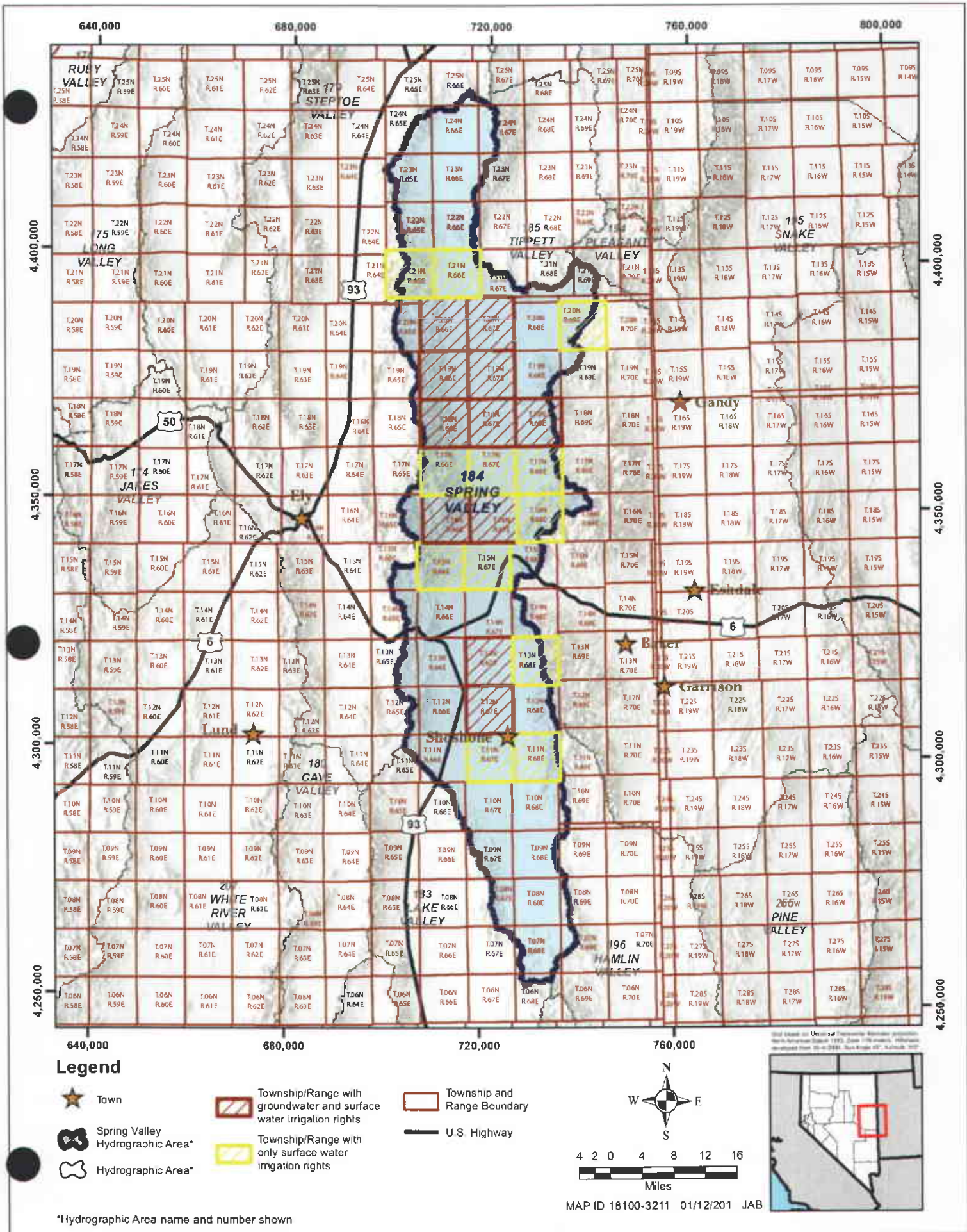


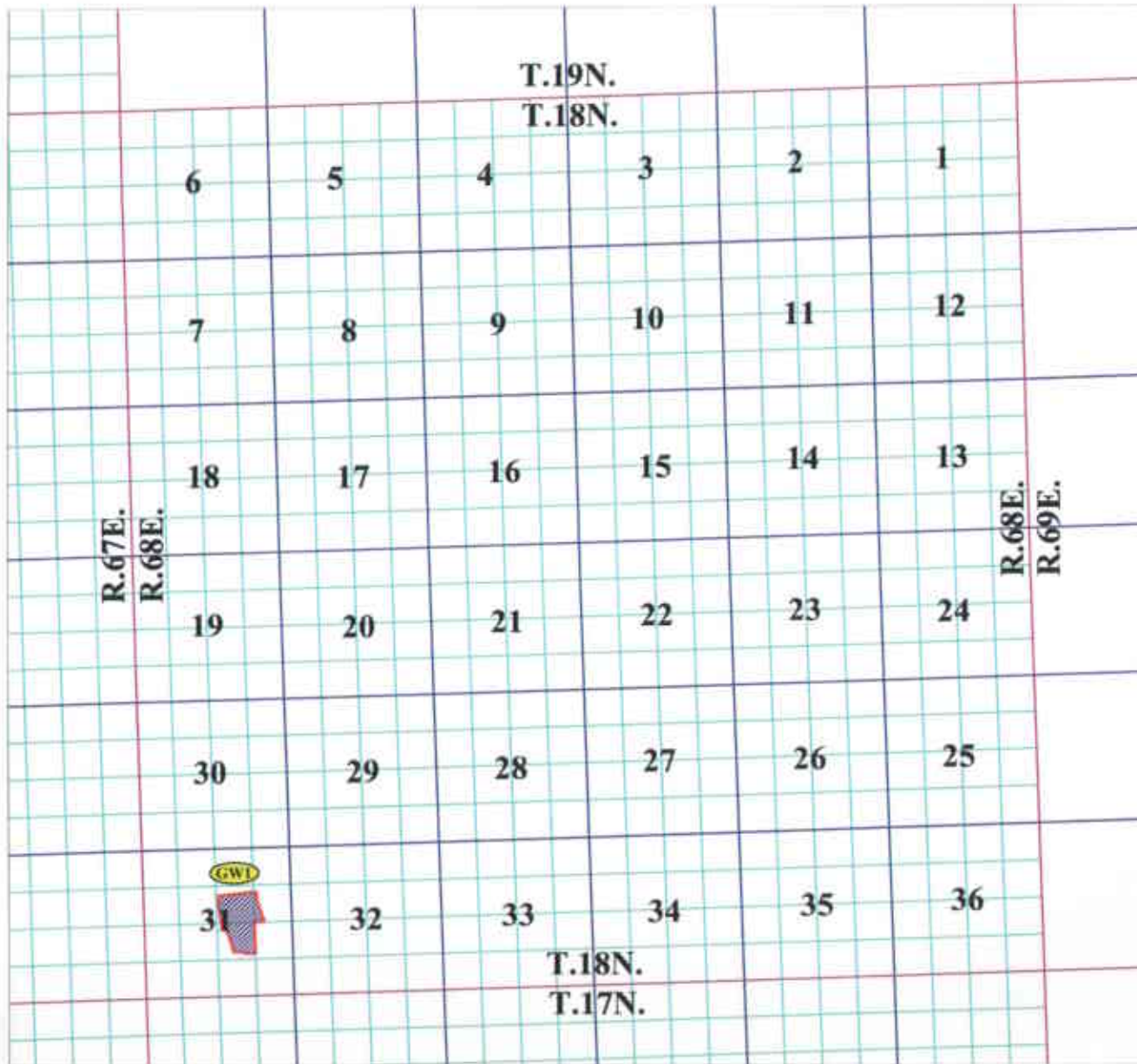
Figure 5-6

Township/Range of Surface Water and Groundwater Irrigation Rights (Spring Valley)

Table 5-11

Township/Range of Surface Water Irrigation Rights within Spring Valley

Township	Range	Meridian	GW only Maps Appendix No.	SW only Maps Appendix No.	SW and GW Maps Appendix No.
16 N	66 E	MDBM	47	57	64
18 N	66 E	MDBM	48	58	65
19 N	66 E	MDBM	49	59	66
20 N	66 E	MDBM	50	60	67
12 N	67 E	MDBM	51	61	68
13 N	67 E	MDBM	52	62	69
16 N	67 E	MDBM	47	57	64
18 N	67 E	MDBM	48	58	65
19 N	67 E	MDBM	49	59	66
20 N	67 E	MDBM	50	60	67
18 N	68 E	MDBM	53	63	70



Index Key

Groundwater

ID No.	Application No.	Status
GW-1	54050	Certificate

Legend

- Quarter - Quarter Subdivision Lines
- Section Lines
- Township and Range Lines
- Boundary of Place of Use of Water Rights
- Property Lines
- Approximate Place of Overlapping Use

Groundwater Place of Use

Groundwater Reference Label

14 Section Number

Notes

Quarter-Quarter Sections, Sections, Township, and Range Lines obtained from Nevada BLM on-line database. Reference is NAD 83 and State Plane Coordinate System [feet]

SCALE



**Groundwater Places of Use
Township 18 North, Range 68 East;
Mount Diablo Baseline and Meridian**

Index Key

Surfacewater

ID No.	Application No.	Status	Notes
SW-1	V01648	Vested	Exact place of use of vested claim V01648 unknown. No Map on file
SW-2	5923 and V01648	Certificate and Vested	Exact place of use of vested claim V01648 unknown. No map on file

Legend

- Quarter - Quarter Subdivisions Lines
- Section Lines
- Township and Range Lines
- Boundary of Place of Use of Water Rights
- Property Lines
- Approximate Place of Overlapping Use



Surfacewater Place of Use



Surfacewater Reference Label

14 Section Number

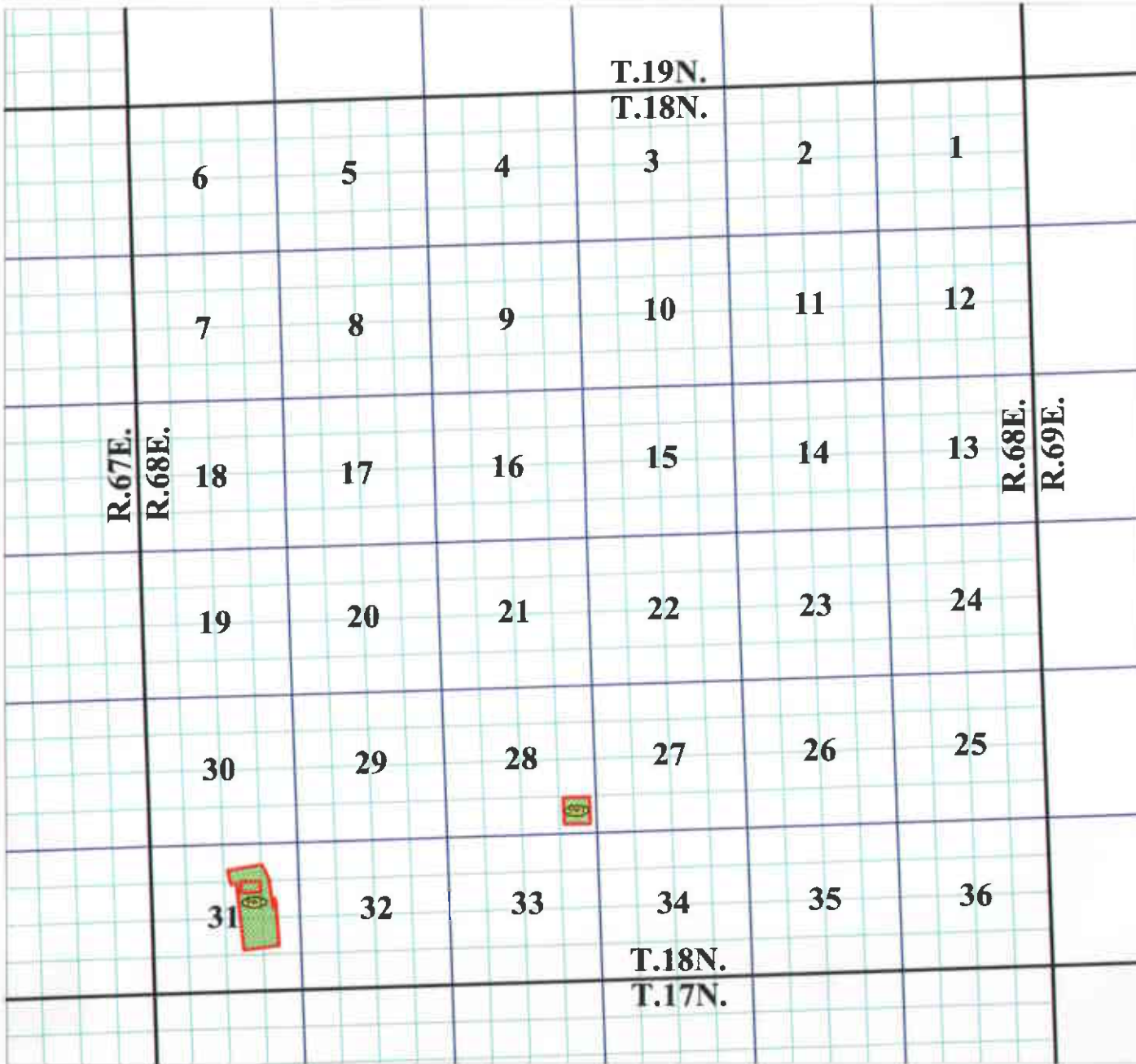
Notes

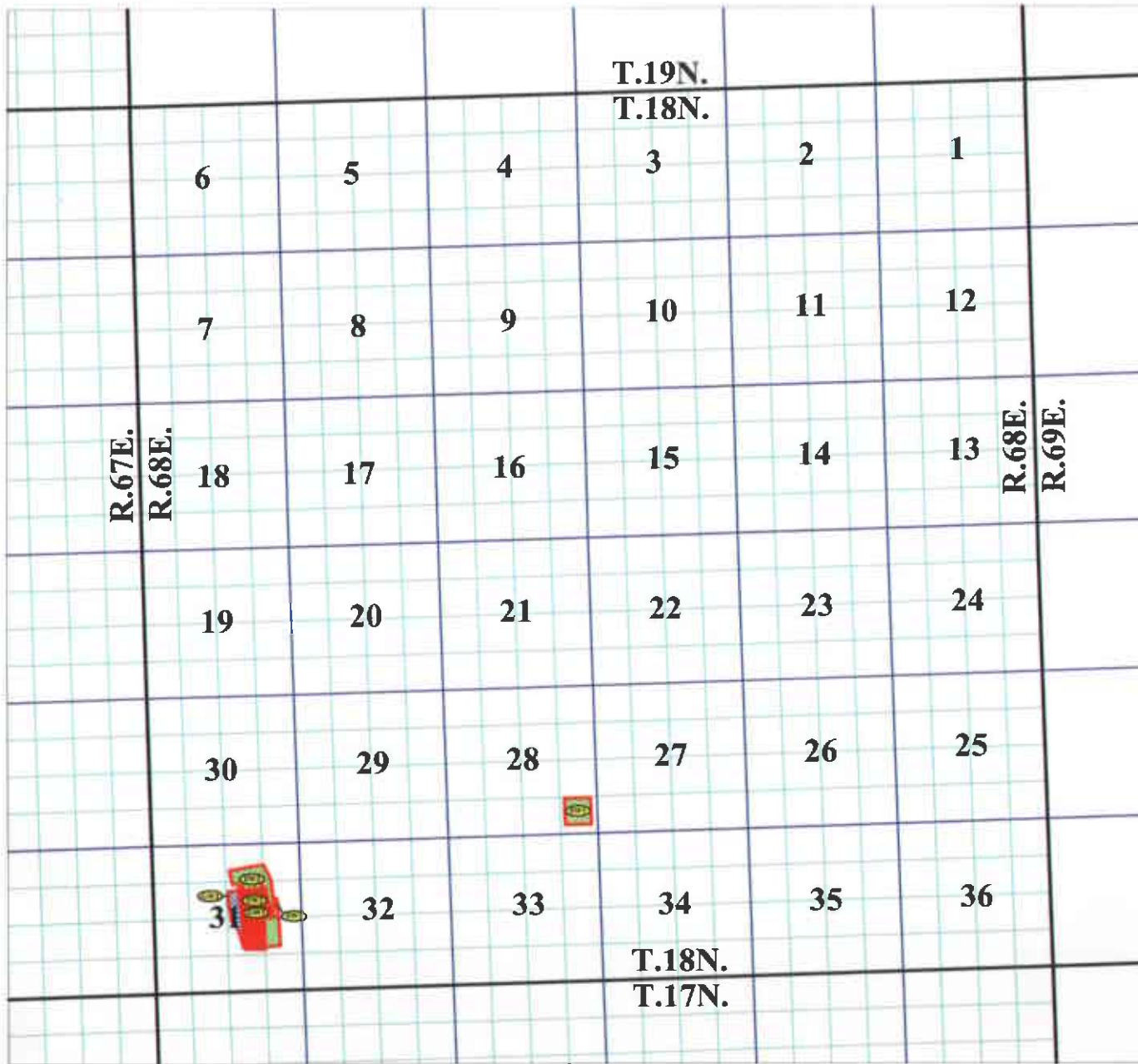
Quarter-Quarter Sections, Sections, Township, and Range Lines obtained from Nevada BLM on-line database. Reference is NAD 83 and State Plane Coordinate System [feet]

SCALE



Surfacewater Places of Use
 Township 18 North, Range 68 East;
 Mount Diablo Baseline and Meridian





Index Key

Surfacewater			Groundwater		
ID No.	Application No.	Status	ID No.	Application No.	Status
SW-1	V01648	Vested	GW-1	56098	Certificate
SW-2	5923 & V01648	Certificate & Vested			

Legend

- Quarter - Quarter Subdivisions Lines
- Section Lines
- Township and Range Lines
- Boundary of Place of Use of Water Rights

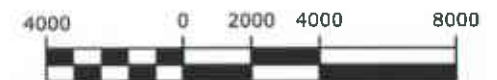
14 Section Number

- Surfacewater Place of Use
- Groundwater Place of Use
- Shared Water Place of Use
- Surfacewater Reference Label
- Groundwater Reference Label

Notes

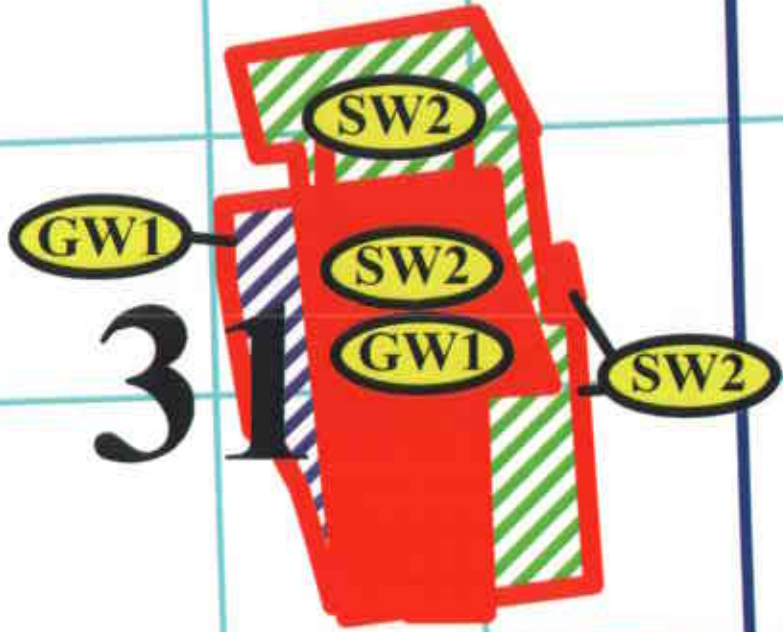
Quarter-Quarter Sections, Sections, Township, and Range Lines obtained from Nevada BLM on-line database. Reference is NAD 83 and State Plane Coordinate System [feet]

SCALE



Groundwater and Surfacewater Places of Use
Township 18 North, Range 68 East;
Mount Diablo Baseline and Meridian

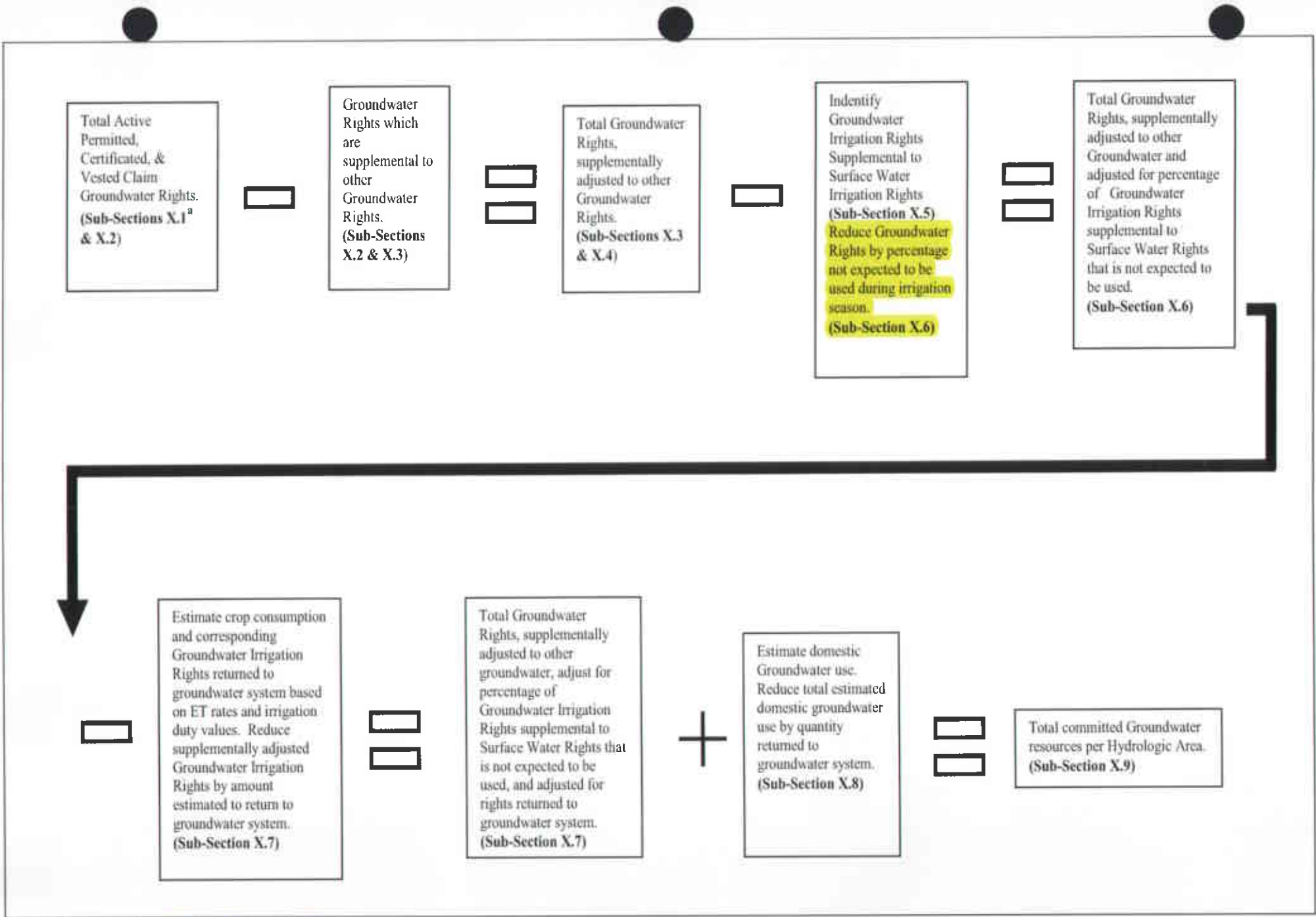
SNWA Exhibit 097, Appendix 70



SNWA Exhibit 097, Appendix 70

Table 5-12
Summary of Groundwater to Surface Water Supplemental Analysis

Permit No.	Status	Supplemental Acres	Duty (afa)	Supplemental (af)
54204/54205	Permit	694.10	3.0	2,082.30
39818	Cert.	540.00	4.0	2,160.00
27378	Cert.	329.34	3.81	1,254.78
71840	Permit	28.90	4.0	115.60
71525/71526/71603/74274	Permit	376.04	4.0	1,504.16
25679/25680	Cert.	76.05	4.0	304.20
25679/25680/30319	Cert.	81.51	4.0	326.04
20817/26228/26229/26546/ 26952/26953/34727/78107	Cert/Permit	303.543	4.0	1,214.17
38972	Cert.	189.71	4.0	758.84
56050	Cert.	57.59	4.0	230.36
Total	---	2,676.783	---	9,950.45



USGS Surface-Water Monthly Statistics for the Nation

The statistics generated from this site are based on approved daily-mean data and may not match those published by the USGS in official publications. The user is responsible for assessment and use of statistics from this site. For more details on why the statistics may not match, [click here](#).

USGS 10243700 CLEVE CK NR ELY, NV

Available data for this site [View data](#) [View statistics](#) [GO](#)

White Pine County, Nevada
 Hydrologic Unit Code 16060008
 Latitude 39°12'59.66", Longitude 114°31'46.7" NAD83
 Drainage area 31.8 square miles
 Gage datum 6,200 feet above sea level NGVD29

Output format
 HTML table of all data
 Tab-separated data
 Reselect output format

00060, Discharge, cubic feet per second,

YEAR	Monthly mean in cfs (Calculation Period: 1914-06-01 -> 2010-09-30)											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1914						29.4	14.2	9.90	8.89	8.76	8.97	7.25
1915	8.09	8.05	8.30	13.3	19.5	20.7	10.1	7.19	6.10	7.19	7.33	6.44
1916	4.83	6.23	14.8	18.6	24.2	17.2	8.19	6.82	6.29	8.24	8.31	5.84
1959										4.67	4.76	4.70
1960	4.05	4.42	5.26	6.34	8.58	6.25	4.96	3.99	3.75	4.56	5.10	4.27
1961	4.09	4.56	4.65	6.54	10.3	8.56	5.16	4.83	4.33	4.71	4.53	4.62
1962	4.45	5.64	5.96	24.4	18.0	14.9	8.22	5.88	5.29	5.79	6.04	5.34
1963	5.15	7.71	5.82	6.28	14.5	27.2	9.92	6.93	6.78	6.37	6.52	6.43
1964	6.50	6.25	6.30	7.74	21.5	14.7	8.10	7.14	6.45	5.49	5.95	6.39
1965	6.13	5.86	6.15	10.2	18.4	20.1	9.30	8.16	8.38	7.23	7.11	6.45
1966	6.29	6.34	6.96	11.5	10.6	7.33	5.52	5.03	5.37	5.12	5.52	6.27
1967	6.19	6.01	6.02	6.28	26.2	58.2	17.7	9.59	8.89			
1976										7.27	6.28	6.02
1977	5.32	5.12	5.17	6.24	8.23	14.4	6.36	6.36	5.53	5.86	5.75	5.20
1978	5.38	5.79	9.53	15.3	37.9	37.7	11.1	8.52	7.16	7.10	8.43	7.59
1979	6.20	8.63	8.99	13.8	29.5	17.4	8.17	7.47	6.77	7.08	7.15	6.89
1980	6.54	7.08	8.25	12.8	38.6	37.0	15.8	10.4	10.6	9.41	9.07	7.38

SNWA Exhibit 097, Appendix 71

http://waterdata.usgs.gov/nwis/monthly/?referred_module=sw&sit... 2/9/2011

1981	6.91	6.52	6.43	8.98	15.9	13.2	7.15	6.48	6.64			
1982												11.0
1983	10.3	10.6	14.5	24.5	82.9	116.7	30.0	21.1	16.2	15.9	14.2	12.5
1984	11.5	11.8	15.4	30.3	70.8	33.9	18.5	15.9	15.2	16.8	15.3	12.9
1985	10.3	9.98	12.1	23.1	20.0	13.9	11.2	8.39	8.66	8.64	8.39	7.95
1986	7.98	8.66	15.4	23.1	28.3	18.5	11.5	9.27	9.40	10.4	9.85	9.42
1987	8.81	8.63	8.84	15.2	16.6	11.4	10.7	8.67	6.48			
1990				6.00	6.85	8.13	5.36	4.37	4.60	4.90	5.06	4.52
1991	5.37	4.83	4.58	5.20	8.51	25.0	7.14	6.54	5.48	5.46	5.47	5.45
1992	5.05	5.33	6.20	7.72	8.44	5.63	4.60	4.25	4.17	4.54	4.78	4.55
1993	4.70	4.95	10.7	10.1	28.3	16.2	8.81	6.95	6.64	6.34	6.00	5.47
1994	5.46	5.28	5.97	7.55	11.0	7.74	5.81	5.45	5.18	5.53	5.67	5.28
1995	5.85	7.10	10.4	11.2	30.0	66.8	24.8	12.1	9.50	8.15	7.73	7.17
1996	7.31	7.01	9.35	10.8	16.1	10.7	7.60	6.77	6.55	6.15	7.01	7.33
1997	6.72	6.47	8.37	10.8	18.2	14.3	10.2	9.36	8.50	8.05	7.85	5.53
1998	5.47	7.44	10.1	12.7	27.8	52.1	24.3	12.5	10.6	9.66	8.97	8.81
1999	9.57	9.56	8.85	9.85	20.7	31.6	14.9	9.81	8.95	8.16	8.06	8.96
2000	9.02	8.23	8.60	10.6	12.7	11.0	7.98	6.96	6.70	6.99	7.12	6.52
2001	5.03	5.61	8.70	14.4	25.6	9.66	7.41	6.32	6.52	5.95	5.83	6.21
2002	6.09	5.87	6.41	8.45	10.2	8.33	5.36	4.96	4.84	5.02	5.68	5.19
2003	5.09	5.17	5.94	7.59	14.8	15.3	7.32	5.57	5.32	5.52	5.14	4.75
2004	5.11	4.43	7.36	9.31	11.6	7.82	5.45	5.18	5.13	6.28	6.47	5.85
2005	7.68	7.99	11.4	22.1	73.0	65.1	26.8	14.1	11.7	11.3	11.3	10.3
2006	10.2	9.81	10.5	20.5	42.8	18.0	11.0	8.66	7.67	8.38	8.35	7.44
2007	7.53	8.16	8.37	7.93	14.4	7.56	7.11	7.72	6.00	5.96	5.74	5.15
2008	5.46	6.77	9.95	7.21	10.5	8.20	5.50	4.79	4.75	5.24	4.88	4.28
2009	4.62	5.57	7.27	9.61	21.2	13.2	8.14	5.75	4.99	5.47	5.38	5.49
2010	5.45	5.66	6.27	11.6	16.0	27.8	10.1	6.70	5.89			
Mean of Monthly Discharge	6.5	6.9	8.5	12	23	23	11	7.9	7.2	7.2	7.2	6.7

** No Incomplete data have been used for statistical calculation

SNWA Exhibit 097, Appendix 71

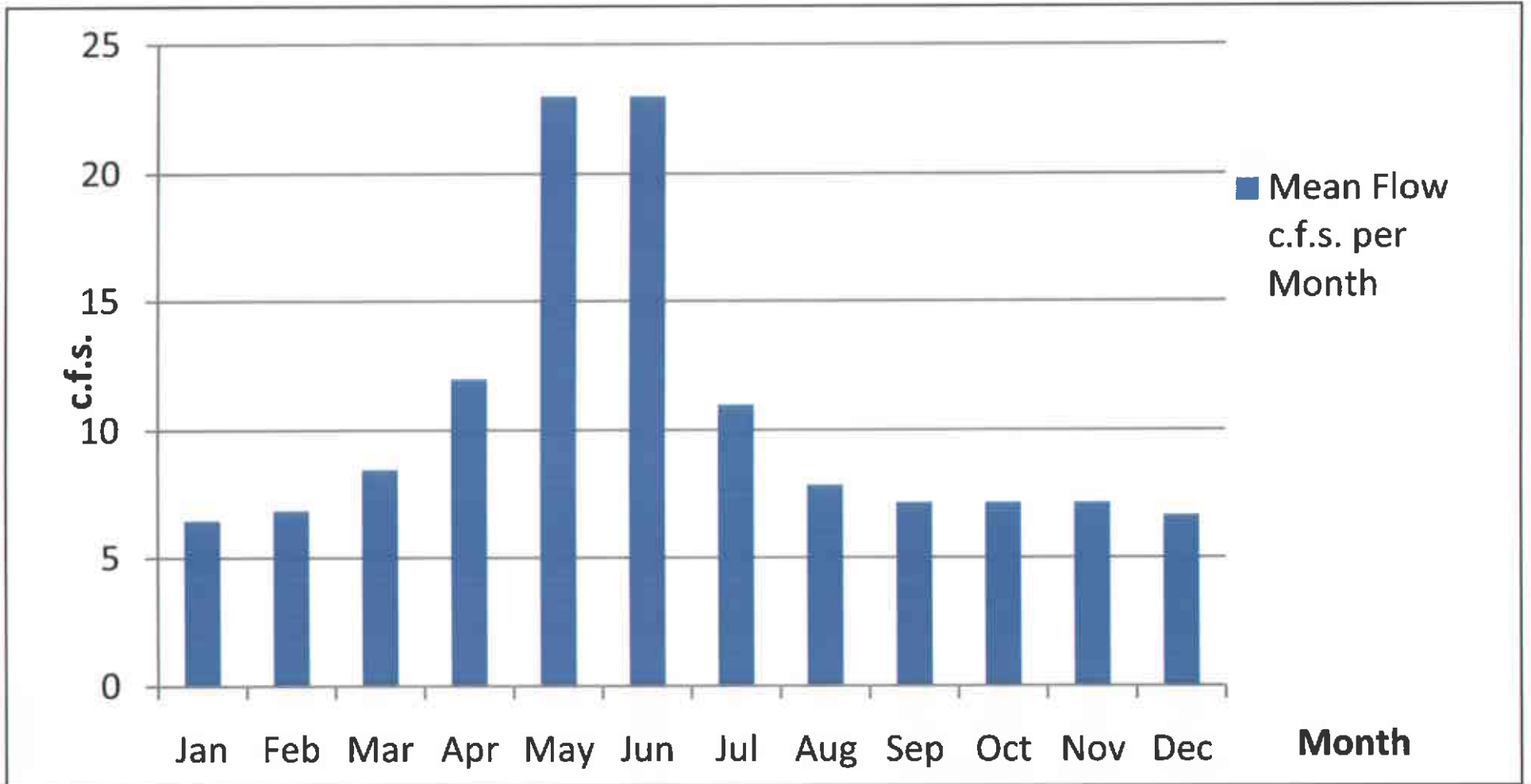


Figure 5-7
Mean Flow per Month - Cleve Creek

An estimate of the average use of groundwater rights supplemental to surface water rights was completed using the following assumptions:

- Surface water source is fully appropriated but not over appropriated.
- Surface water will be used prior to groundwater.
- April 1 to October 31 irrigation season (7-month).
- Full irrigation season used per year.
- Only surface water will be used during April, May, and June.
- July, August, September, and October will use a combination of surface water and groundwater.
- Runoff hydrographs are of roughly similar shape and distribution for all creeks in Spring Valley.

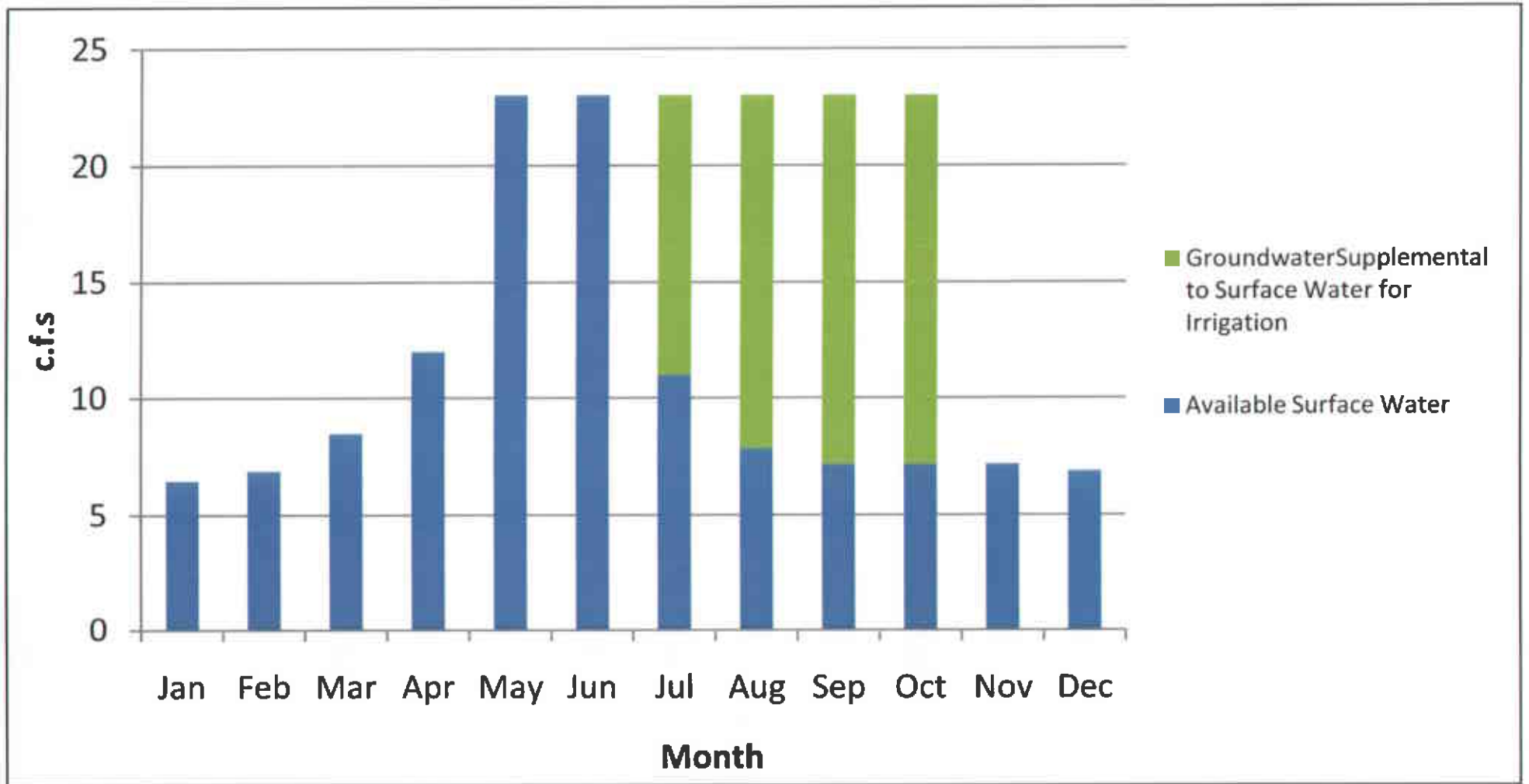


Figure 5-8
Cleve Creek Hydrograph with Supplemental Groundwater

Table 5-14
Surface Water and Groundwater Percentage Used during an Average Year

Month	Total Supplied by Surface Water and Groundwater (c.f.s.)	Monthly Contribution to Total Irrigation Season (%)	Supplied by Surface Water (c.f.s.)	Supplied by Groundwater (c.f.s.)	Percent Delivered by Groundwater
April	12.0	8.00	12.0	0	0.0
May	23.0	15.33	23.0	0	0.0
June	23.0	15.33	23.0	0	0.0
July	23.0	15.33	11.0	12.0	52.17
August	23.0	15.33	7.9	15.1	65.65
September	23.0	15.33	7.2	15.8	68.70
October	23.0	15.33	7.2	15.8	68.70
Percent used per average irrigation season ^a					39.1

^aSummation of: (Monthly Contribution to Total Irrigation Season) × (% delivered by groundwater per month)

Figure 5-8 shows the Hydrograph for Cleve Creek with the proportion of groundwater required to supplement surface water during the months of July, August, September, and October.

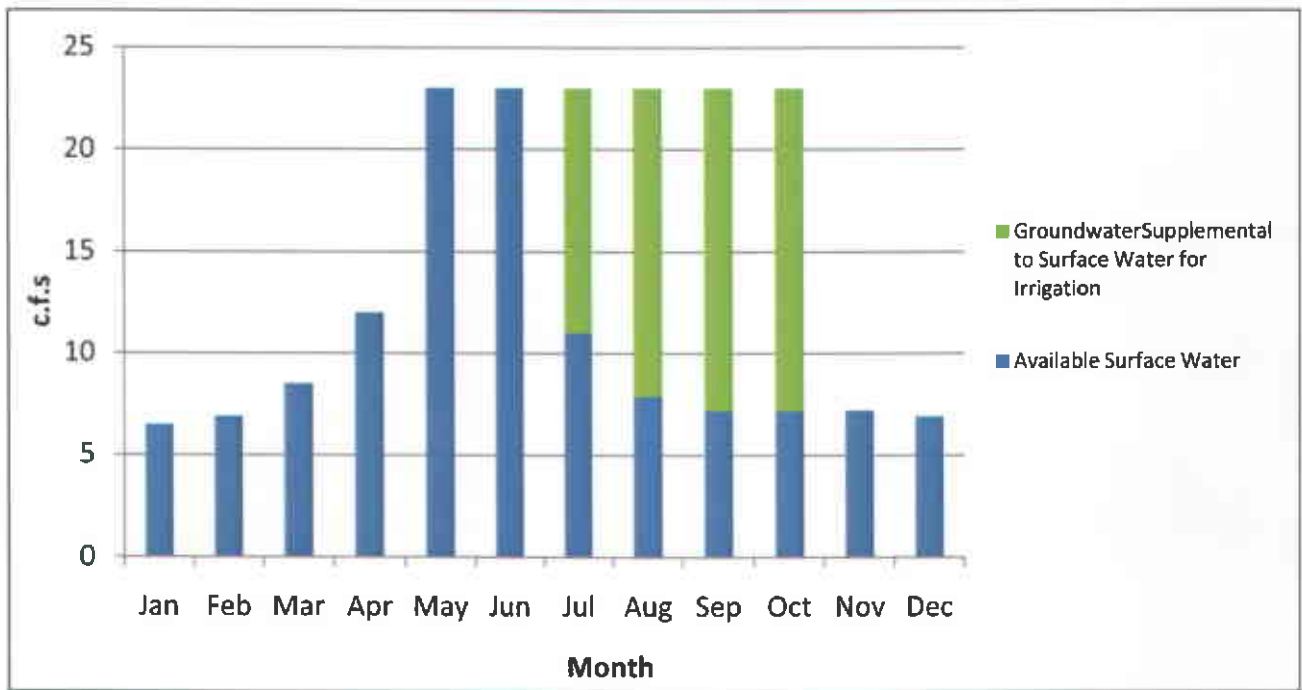


Figure 5-8
Cleve Creek Hydrograph with Supplemental Groundwater

Table 5-14 is based on the Cleve Creek hydrograph data. This table shows the percentage of surface water and groundwater that is expected to be used per month during an average irrigation season. Based on this analysis, it is estimated that 39.1 percent of total groundwater rights supplemental to surface water rights would be used during an average irrigation season.

Table 5-14
Surface Water and Groundwater Percentage Used during an Average Year

Month	Total Supplied by Surface Water and Groundwater (c.f.s.)	Monthly Contribution to Total Irrigation Season (%)	Supplied by Surface Water (c.f.s.)	Supplied by Groundwater (c.f.s.)	Percent Delivered by Groundwater
April	12.0	8.00	12.0	0	0.0
May	23.0	15.33	23.0	0	0.0
June	23.0	15.33	23.0	0	0.0
July	23.0	15.33	11.0	12.0	52.17
August	23.0	15.33	7.9	15.1	65.65
September	23.0	15.33	7.2	15.8	68.70
October	23.0	15.33	7.2	15.8	68.70
Percent used per average irrigation season ^a					39.1

^aSummation of: (Monthly Contribution to Total Irrigation Season) × (% delivered by groundwater per month)

5.6.2 Comparison of Cleve Creek to Daggett Creek

An alternative approach was also completed to estimate the quantity of supplemental groundwater to surface water which is expected to be used per irrigation season. This alternative approach involved: (1) identifying a stream system outside of Spring Valley which had the required parameters and data available, (2) determining the average and peak groundwater usage, and then (3) normalizing that data for application to the Spring Valley area.

Daggett Creek, located in Carson Valley, was selected to use as a comparison to Cleve Creek. This selection was based on discussions with NDWR staff and review of available data. Daggett Creek was chosen for this comparison for several reasons: (1) Daggett Creek surface and groundwater use is metered and documented, (2) surface water is directly related to snow pack runoff, and (3) groundwater rights are fully supplemental to surface water.

- Surface water source is fully appropriated but not over appropriated.
- Surface water will be used prior to groundwater.
- April 1 to October 31 irrigation season (7-month).
- Full irrigation season used per year.
- Only surface water will be used during April, May, and June.
- July, August, September, and October will use a combination of surface water and groundwater.
- Runoff Hydrographs are of roughly similar shape and distribution for all creeks in Spring Valley.

NDWR staff has quantified the amount of groundwater rights supplemental to surface water rights that were used on an annual basis in portion of Carson Valley between 1996 and 2005. This analysis showed that the total duty of supplemental groundwater rights used on a percentage basis ranged from a low of 9.3 percent to a high of 26.7 percent, with an average of 18.0 percent. This data is presented in *Appendix 72, Supplemental Data*.

Daggett Creek is not a direct representation of Spring Valley streams because there is a difference in the timing of runoffs. A correlation was made between the available data on Daggett Creek (Carson River Tributary) and Cleve Creek (Spring Valley). This correlation was based on the following assumptions:

- Seven month growing season (April to October).
- Full irrigation season used.

Carson Valley (Basin 105) Supplemental Groundwater Use for Selected Permits West Side Creeks Only

UG Right	Status	Suppl. Source	2006		2004		2003		2002		2001		2000		1999		1998		1997		1996	
			Supp. Ac. Inr.	Duty Used	Supp. Ac. Inr.	Duty Used	Supp. Ac. Inr.	Duty Used	Supp. Ac. Inr.	Duty Used	Supp. Ac. Inr.	Duty Used	Supp. Ac. Inr.	Duty Used	Supp. Ac. Inr.	Duty Used	Supp. Ac. Inr.	Duty Used	Supp. Ac. Inr.	Duty Used	Supp. Ac. Inr.	Duty Used
26377	CER	UG	21.89	10.47	21.89	19.06	21.89	10.91	21.89	13.21	21.89	15.91	21.89	12.91	21.89	11.09	21.89	13.5	21.89	15.62	21.89	15
60619	PER	UG	1.66	1.43	1.66	2.02	1.66	1.81	1.66	1.88	1.66	2.66	1.66	2.03	1.66	2.49	1.66	1.09	1.66	1.2		0
13886	CER	UG	309.88	58.21	309.88	189.54	309.88	224.08	309.88	70.52												
15388	CER	UG	220	83.2	220	99.17	220	69.51	220	83.01	220	67.66	220	70.32	220	27.85	220	19.12	220	0	220	13.18
30352	CER	UG	362.2	278.13	362.2	718.15	362.2	522.29	362.2	624.31	362.2	676.15	362.2	547.52	362.2	299.88	362.2	149.11	362.2	138.29	362.2	167.97
48538	CER	UG	38.75	39.47	38.75	52.28	38.75	40.79	38.75	45.62	38.75	34.98	38.75	37.21	38.75	28.33	38.75	20.26	38.75	17.95	38.75	23.7
63720	CER	UG																				
12532	CER	UG	195.3	97.66	195.3	104.85	195.3	104.85	195.3	104.85	195.3	104.85	195.3	58.88	195.3	104.85	195.3	112.91	195.3	112.91	195.3	88.72
20765	CER	UG	85.6	123.54	85.6	161.71	85.6	51.38	85.6	122.99	85.6	113.06	85.6	85.89	85.6	73.94	85.6	28.86	85.6	50.77	85.6	56.9
25069	CER	UG																				
25409	CER	UG	54.34	61.07	54.34	100.4	54.34	123.3	54.34	135.36	54.34	136.05	54.34	91.2	54.34	41.95	54.34	26.31	54.34	29.31	54.34	87.35
56296	CER	UG	56.39	21.87	56.39	24.77	56.39	19.12	56.39	18.33	56.39	21.6	56.39	19.09	56.39	21.61	56.39	14.81	56.39	14.82		0
61056	PER	UG	16.25	0.3	16.25	0.89	16.25	1.13	16.25	0.72	16.25	1.53	16.25									
63414	CER	UG	6.87	14.85	6.87	0.72	6.87	20.39	6.87	27.49	6.87	29.67	6.87	25.12	6.87	27.49						
64264	CER	UG	1.87	3.16	1.8	5.75	1.9	6.97	1.9	6.55	1.9	6.55										
Average Percent Usage			1371	773.16	1371.03	1486.11	1371.03	1196.53	1371.03	1254.64	1061.15	1111.17	1059.25	950.17	1043	839.46	1036.13	365.97	1036.13	363.67	976.06	472.62
Duty Used			14.1%		26.7%		21.6%		22.9%		26.2%		22.4%		15.3%		0.3%		0.3%		12.1%	
Duty Used			0.58 AF/AC		1.07 AF/AC		0.87 AF/AC		0.92 AF/AC		1.05 AF/AC		0.90 AF/AC		0.61 AF/AC		0.37 AF/AC		0.37 AF/AC		0.48 AF/AC	

Supplemental Groundwater Right Lowest Percent Usage = 9.3%
 Supplemental Groundwater Right Highest Percent Usage = 26.7%
 Supplemental Groundwater Right Average Percent Usage = 18.0%



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USGS Water Resources

News - updated November 2010

USGS Surface-Water Monthly Statistics for the Nation

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USGS 10310400 DAGGETT CK NR GENOA, NV

Available data for this site: Daily Monthly Yearly

Douglas County, Nevada
 Hydrologic Unit Code 16050201
 Latitude 38°57'55", Longitude 119°50'55" NAD27
 Drainage area 3.82 square miles
 Gage datum 5,100 feet above sea level NGVD29

Output formats

- HTML table of all data
- Tab-separated data
- Reselect output format

YEAR	00060, Discharge, cubic feet per second,											
	Monthly mean in cfs (Calculation Period: 1965-11-01 -> 2009-09-30)											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1965											1.83	1.70
1966	1.61	1.54	1.50	1.80	1.41	0.833	0.806	0.687	0.810	0.939	1.62	1.57
1967	1.96	1.58	1.97	1.92	4.73	3.61	3.07	1.40	1.22	1.55	1.64	1.63
1968	1.79	2.08	1.97	1.69	2.05	1.19	0.832	0.768	0.757	1.47	3.49	2.16
1969	2.65	2.71	2.59	3.31	4.53	5.06	5.30	7.29	2.16	3.48	3.33	2.40
1970	3.40	3.72	3.86	2.50	3.27	3.46	3.35	2.22	4.20	1.16	2.58	3.64
1971	2.81	3.20	2.49	1.77	3.67	3.61	3.80	3.53	2.38	2.49	2.93	1.67
1972	1.85	1.94	2.43	1.86	2.14	1.67	1.01	0.988	1.13	1.35	1.84	1.52
1973	1.92	1.81	2.11	2.42	3.31	1.74	0.964	0.922	0.982	1.22	1.34	1.64
1974	2.66	1.46	2.17	1.97	3.15	2.71	1.83	1.13	0.888	1.28	1.53	1.44
1975	1.57	1.54	2.06	2.45	3.53	3.56	2.01	1.30	1.65	1.55	2.18	2.40
1976	2.19	2.06	2.20	2.60	2.01	1.13	1.08	1.26	1.32	1.07	1.25	0.975
1977	0.989	1.22	1.06	1.21	1.18	1.03	0.819	0.751	0.814	1.06	1.35	1.28
1978	1.25	1.21	1.81	1.60	1.61	1.86	0.988	0.710	0.943	0.972	1.12	1.19
1979	2.42	1.19	1.68	2.12	2.18	0.967	1.07	0.650	0.560	0.693	0.829	0.901
1980	2.44	1.97	1.86	2.87	2.94	2.84	1.75	0.922	1.39	1.27	1.36	1.54
1981	1.55	1.43	1.24	1.60	1.65	1.18	0.753	0.717	0.825	0.963	1.43	1.35

SNWA Exhibit 097, Appendix 73

http://waterdata.usgs.gov/nwis/monthly?referred_module=sw&sit... 2/8/2011

1982	1.12	3.15	1.79	2.63	3.32	3.58	3.66	2.14	1.65	2.70	2.22	1.69
1983	1.57	1.56	2.57	3.35	4.48	6.84	3.73	3.89	2.53			
1988												1.08
1989	0.978	1.36	1.69	1.56	1.22	1.08	0.668	0.878	0.845	0.870	1.38	1.24
1990	1.12	1.08	1.32	1.27	0.984	0.722	1.33	2.03	2.13	1.17	1.12	0.968
1991	1.05	1.04	1.95	1.62	1.07	0.847	0.694	1.19	0.922	0.966	1.27	1.14
1992	1.15	1.06	1.25	1.37	1.05	1.03	0.677	0.594	0.577	0.914	0.944	0.773
1993	1.68	1.41	2.52	1.85	1.59	1.39	1.01	0.942	0.960	1.19	1.13	1.12
1994	1.08	1.13	1.25	1.10	1.01	0.681	0.510	0.564	0.698	0.786	0.953	1.07
1995	1.13	1.25	1.99	2.22	2.62	2.83	2.72	1.24	0.932	0.912	1.04	1.34
1996	1.32	2.44	2.90	3.03	3.51	2.97	1.66	2.16	1.34	1.28	1.86	2.97
1997	5.82	3.28	3.26	3.38	3.78	3.41	2.09	1.67	1.91	2.01	1.90	2.11
1998	2.40	2.45	3.00	2.59	3.25	5.64	2.96	2.11	1.76	1.48	1.44	1.65
1999	1.73	2.61	2.75	3.28	4.29	3.34	1.98	1.73	1.51	1.90	1.85	1.77
2000	1.91	2.34	2.12	2.47	2.71	1.96	1.32	1.20	1.46	1.40	1.40	1.22
2001	1.23	1.28	1.69	1.71	1.30	1.11	1.17	0.942	0.909	0.944	1.32	1.26
2002	1.16	1.20	1.48	1.44	1.07	1.09	1.04	0.947	1.00	1.15	1.51	1.20
2003	1.42	1.25	1.41	1.38	1.32	1.01	0.979	1.01	0.608	0.660	1.04	1.14
2004	0.983	1.27	1.65	1.39	1.07	0.857	0.785	0.800	0.939	0.885	0.878	1.14
2005	1.14	1.21	1.77	1.70	1.64	0.983	0.801	0.867	0.816	0.796	0.788	3.40
2006	2.45	1.60	2.11	3.18	4.20	3.21	1.72	1.24	1.23	1.71	1.68	1.68
2007	1.43	1.51	1.94	1.63	1.55	1.17	0.998	1.06	1.11	1.13	1.35	1.55
2008	1.69	1.79	1.92	1.64	1.42	1.04	1.53	0.967	0.992	1.22	1.32	1.26
2009	1.34	1.41	1.77	1.31	1.34	1.09	0.687	0.906	1.08			
Mean of monthly Discharge	1.8	1.8	2.0	2.1	2.4	2.2	1.6	1.4	1.3	1.3	1.6	1.6

** No incomplete data have been used for statistical calculation

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U.S. Department of the Interior | U.S. Geological Survey
 Title: Surface Water data for USA: USGS Surface-Water Monthly Statistics
 URL: <http://waterdata.usgs.gov/nwis/monthly/>



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SNWA Exhibit 097, Appendix 73

http://waterdata.usgs.gov/nwis/monthly?referred_module=sw&sit... 2/8/2011

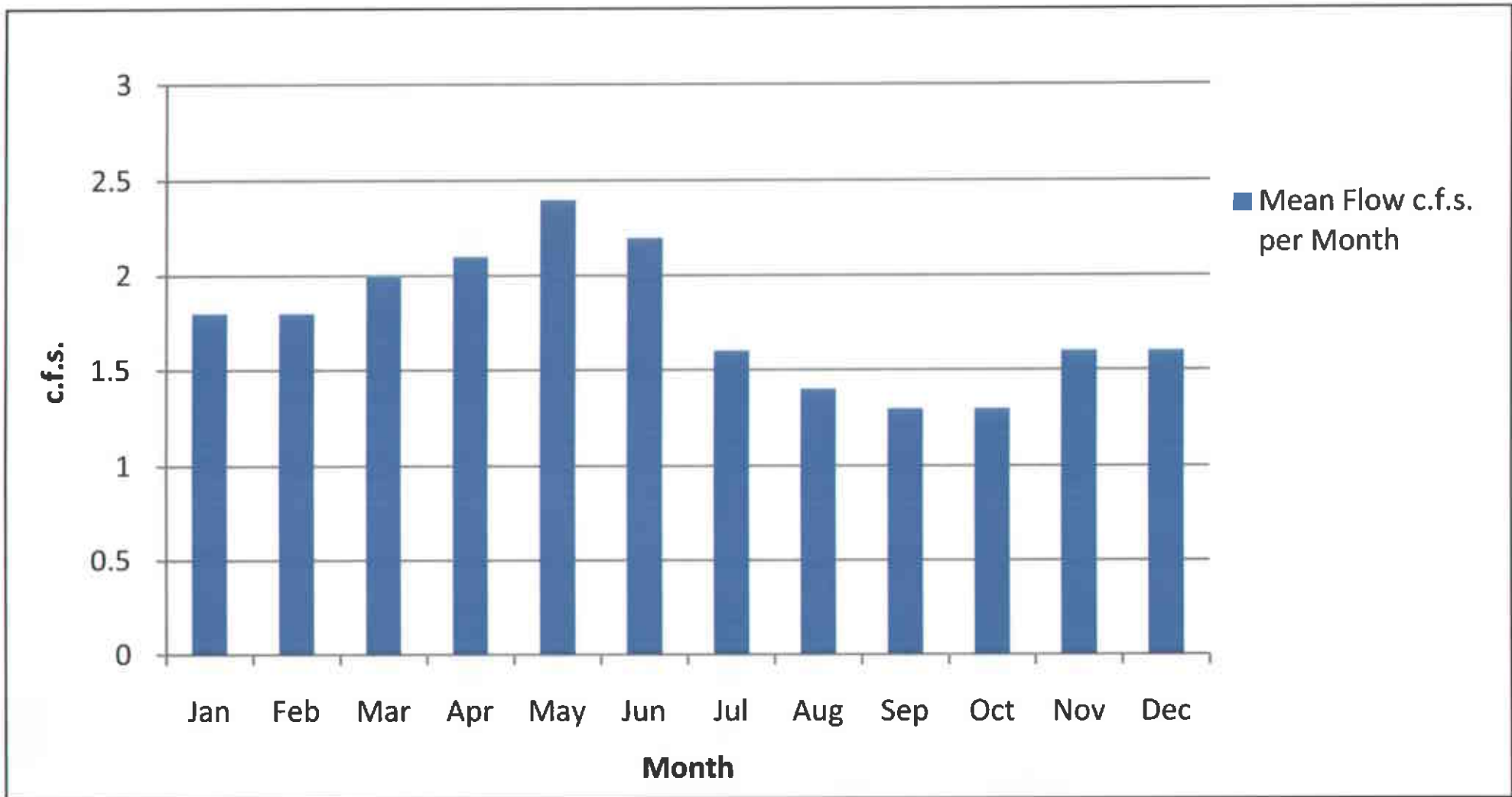


Figure 5-9
Mean Flow per Month - Daggett Creek

$$\frac{18\% \text{ (Avg. sup. GW used Daggett Creek)}}{41.7\% \text{ (Avg. sup. GW required post peak flow Daggett Creek)}} =$$

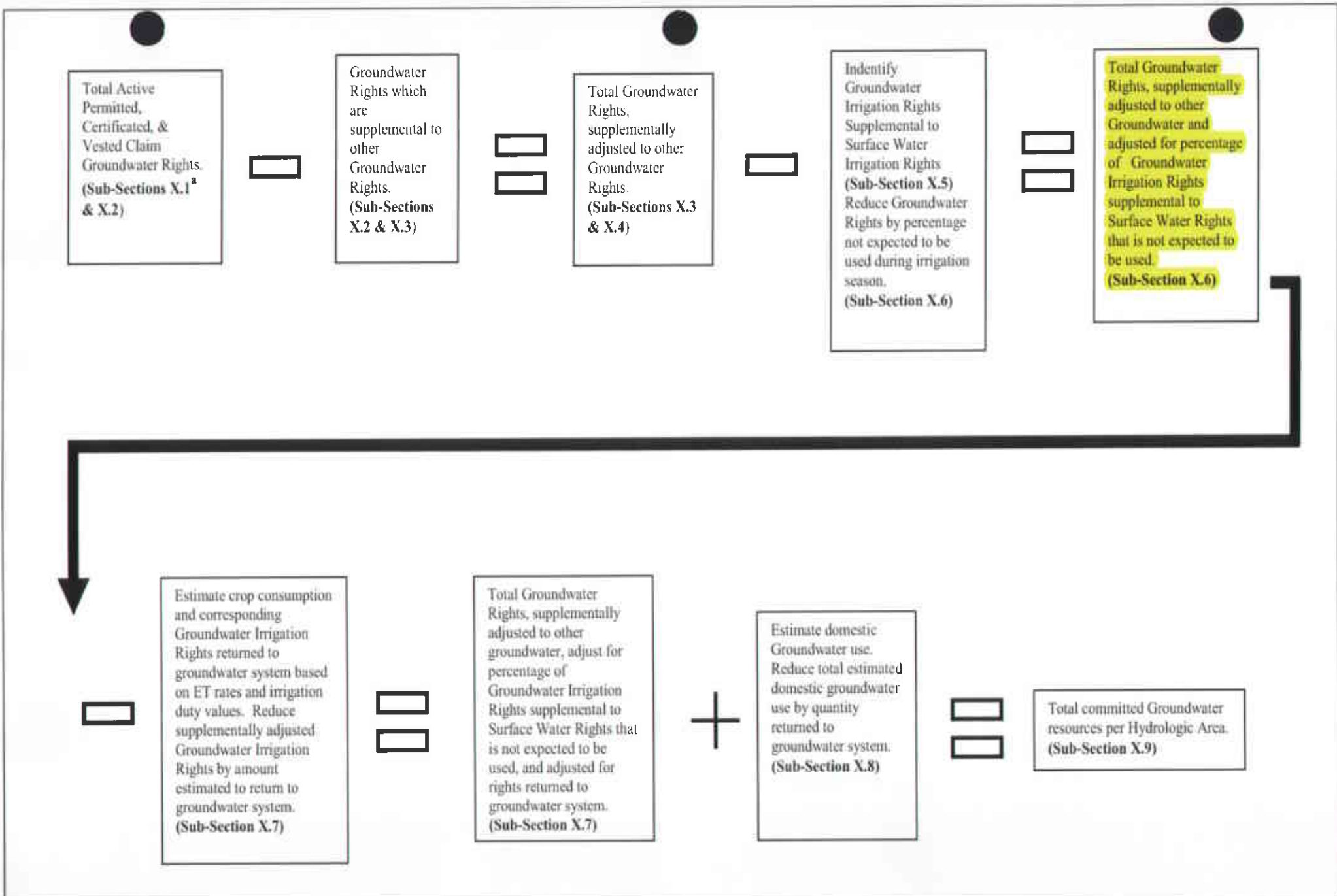
$$\frac{X\% \text{ (Avg. sup. GW needed Cleve Creek)}}{63.5\% \text{ (Avg. sup. GW required post peak flow Cleve Creek)}} \geq X = 27.4\%$$

(Eq. 5-1)

SNWA Exhibit 097

Table 5-15
Spring Valley Adjusted Duty for Supplemental Groundwater to Surface Water Rights

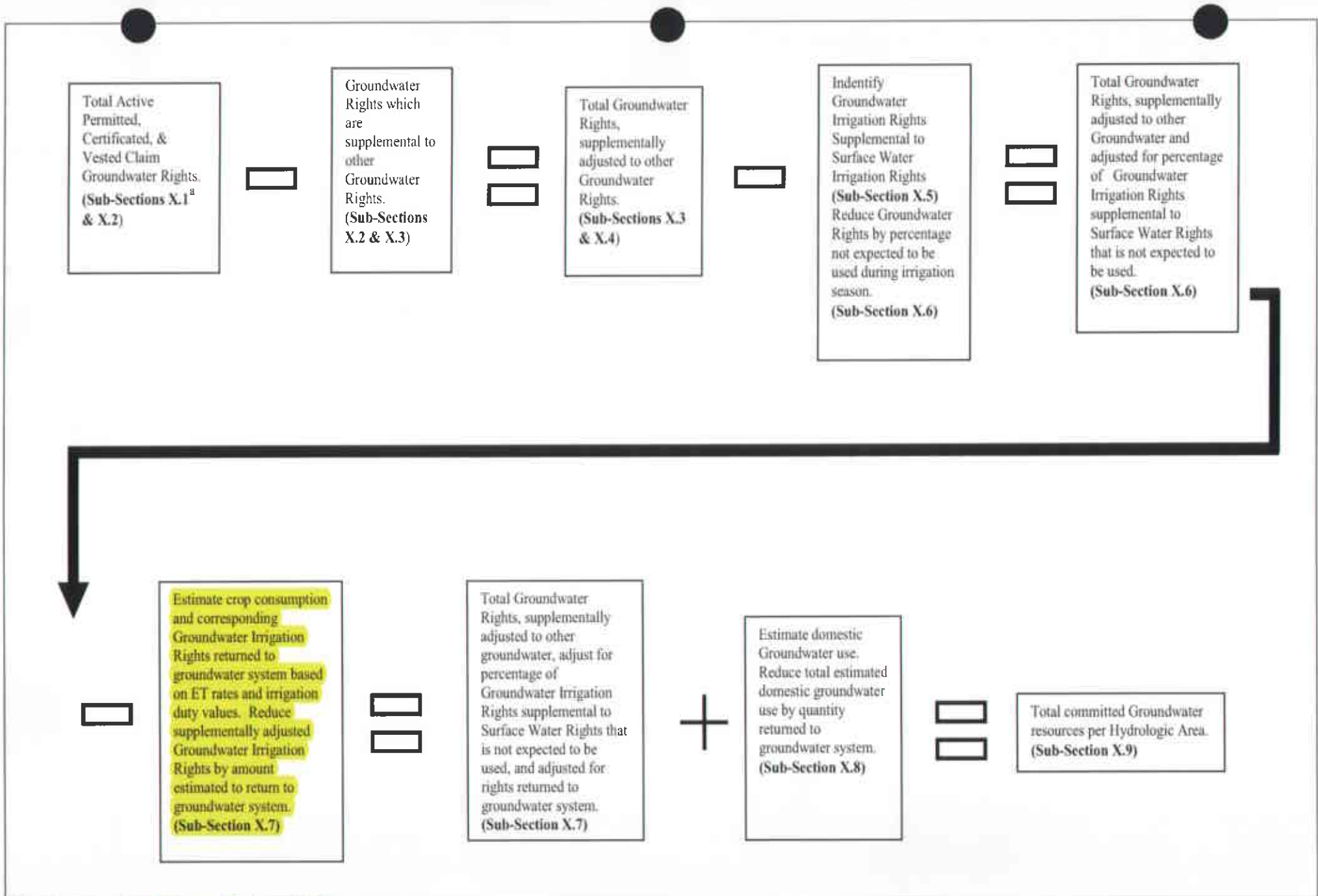
	Total Supplemental Groundwater Irrigation Rights to Surface Water Irrigation Rights (af)	Supplemental Groundwater Irrigation Rights to Surface Water Irrigation Rights with Priority Date after October 17, 1989 (af)	Supplemental Groundwater Irrigation Rights to Surface Water Irrigation Rights with Priority Date prior to October 17, 1989 (af)
Total Supplemental	9,950.45	2,082.3	7,868.15
39.1% of Total Supplemental	3,890.63	814.18	3,076.45



^aX = Corresponding Sections 2.0 through 5.0.

Figure 1-2

Process and Steps to Analyze and Quantify Existing Groundwater Rights within Selected Basins in Nevada



^aX = Corresponding Sections 2.0 through 5.0.

Figure 1-2

Process and Steps to Analyze and Quantify Existing Groundwater Rights within Selected Basins in Nevada

Basin 184 SPRING VALLEY

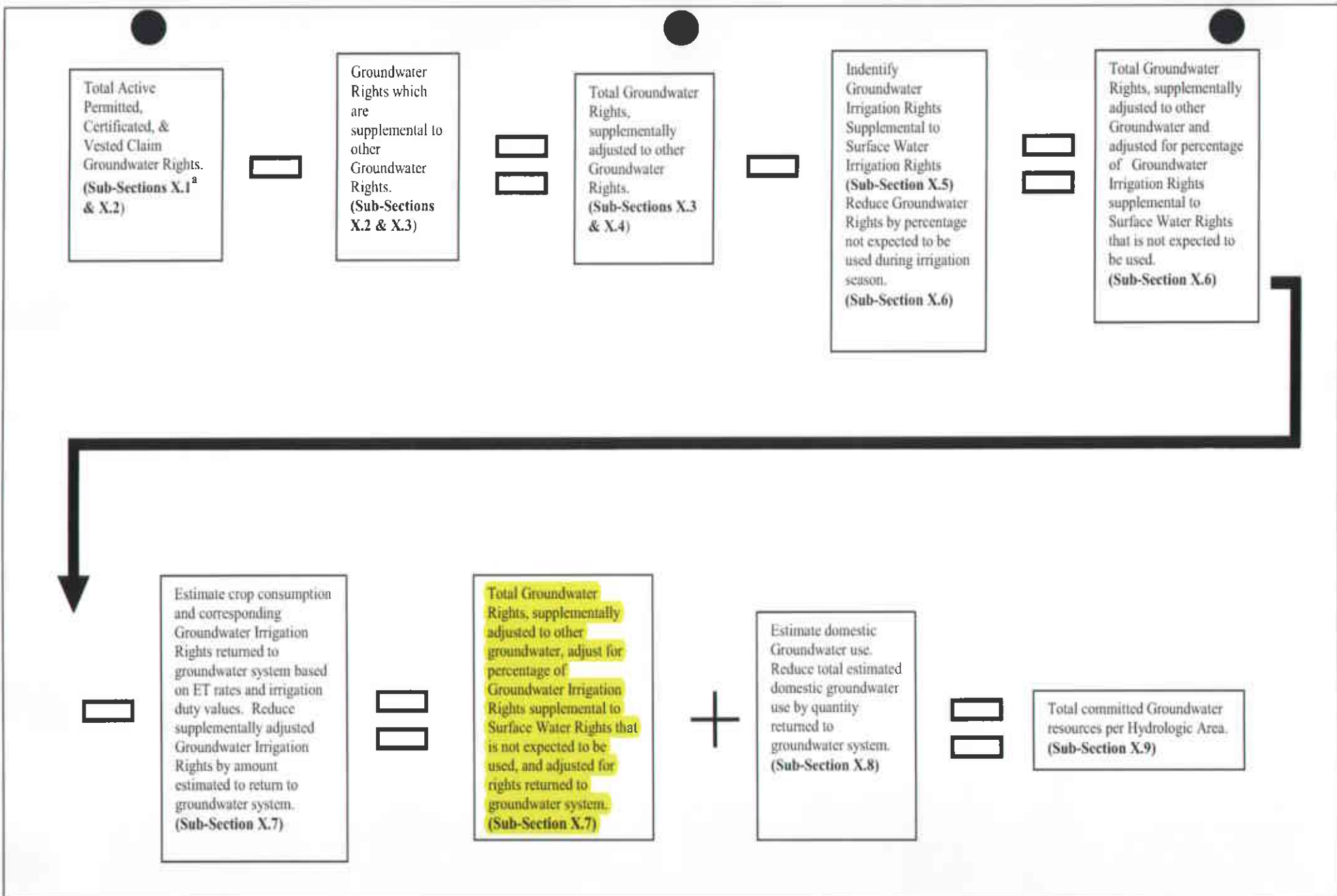
Central Region; Reference ETos (ft): 4.5

	ET Actual (ft)	NIWR (ft)
ALFALFA (ft)	3.7	3
HIGHLY MANAGED PASTURE GRASS	3.6	3
LOW MANAGED PASTURE GRASS	3	2.4
GRASS HAY	3.5	2.9
TURF GRASS	3.5	2.9
SHALLOW OPEN WATER	4.7	3.9

Net Irrigation Water Requirement (NIWR)
is ET Actual minus effective precipitation

Table 5-19
Consumptive Use with Varying Duties of Groundwater Rights within Spring Valley

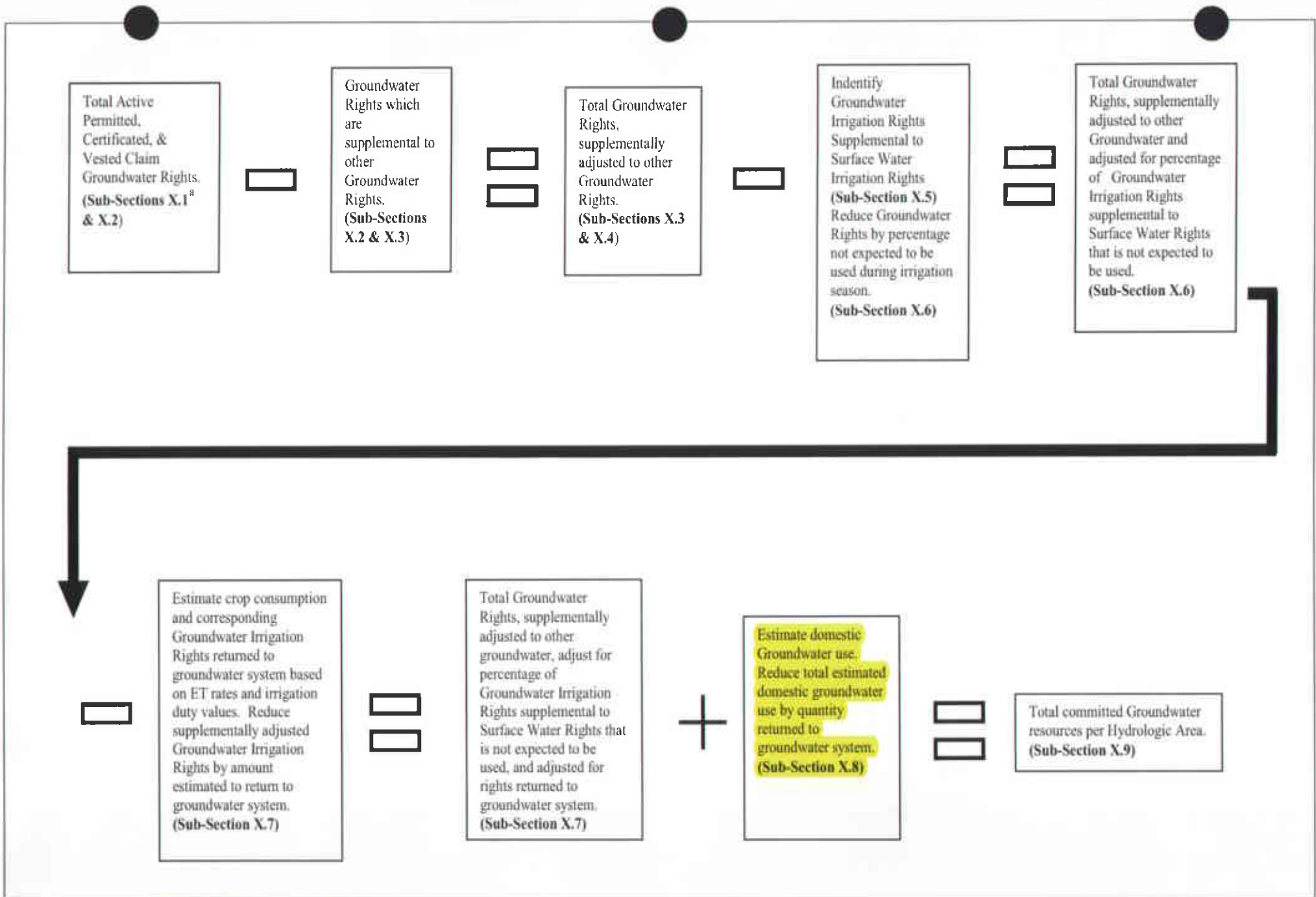
Acres	Duty (afa)	Acre Feet Annually	Total Supplemental (GW to SW) (afa)	Supplemental Reduction (afa) = Supplemental GW Rights × (100%-39.1%)	Acre Feet Annually GW after Supplemental Reduction	Annual Consumptive Use (ft)	Consumptive Use Ratio (%)	Adjusted for Consumptive Use (afa)
1086.1	3.0	3,258.3	2,082.3	-1,268.12	1,990.18	3.0	100	1,990.18
120.838	3.452	417.09	0	0	417.09	3.0	86.9	362.45
332.29	3.81	1,266.64	1,254.78	-764.16	502.48	3.0	78.7	395.45
3,707.611	4.0	14,830.443	6,613.37	-4,027.54	10,802.903	3.0	75.0	8,102.18
Totals 5,246.839	---	19,772.473	9,950.45	-6,059.82	13,712.653	---	---	10,850.26



^aX = Corresponding Sections 2.0 through 5.0.

Figure 1-2

Process and Steps to Analyze and Quantify Existing Groundwater Rights within Selected Basins in Nevada



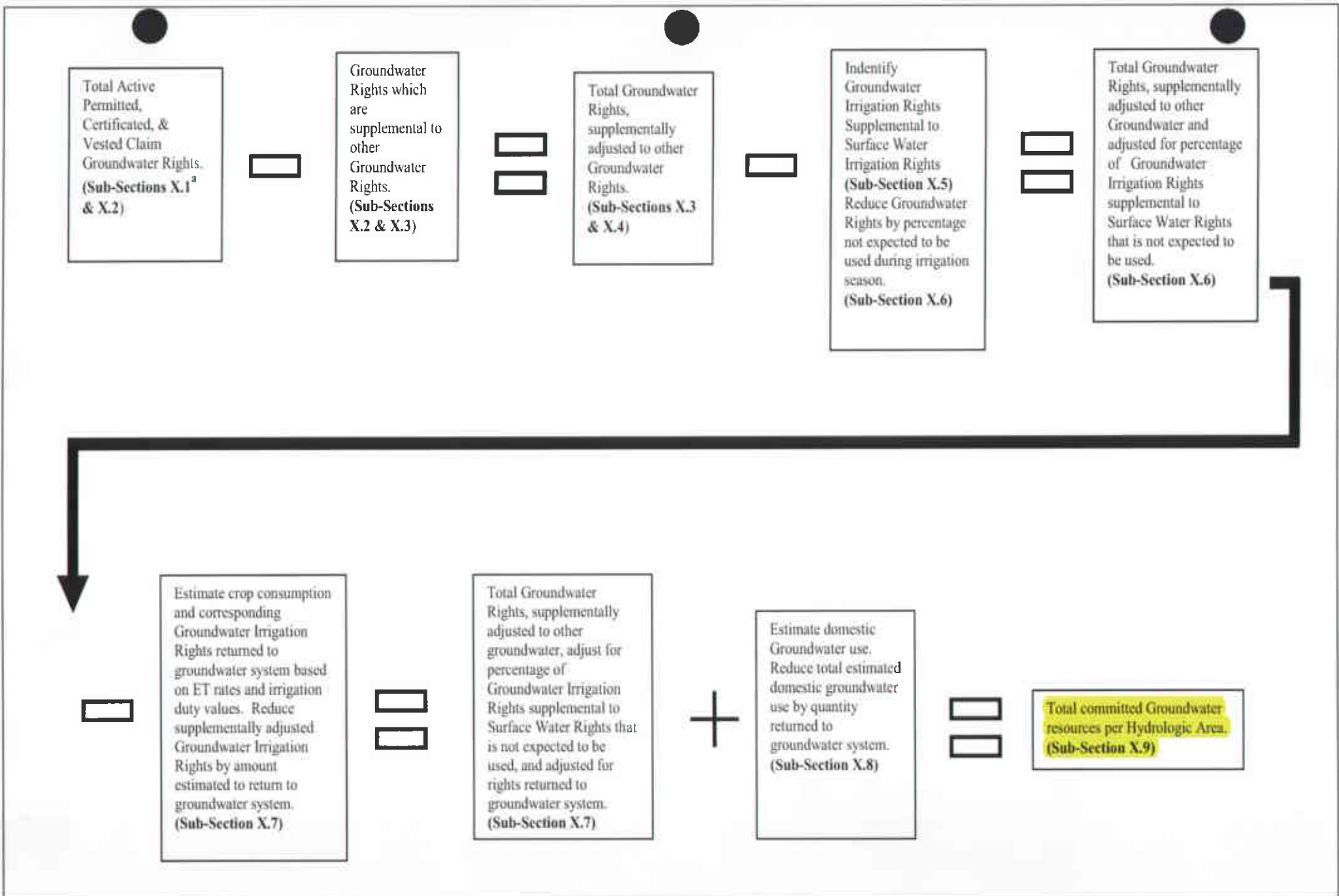
^aX = Corresponding Sections 2.0 through 5.0.

Figure 1-2

Process and Steps to Analyze and Quantify Existing Groundwater Rights within Selected Basins in Nevada

$$\frac{200 \text{ gpd}}{508 \text{ gpd}} = 0.394 \cong 40\% \quad (\text{Eq. 5-2})$$

Therefore, the amount of domestic water used that returns to the groundwater system as secondary recharge, is approximately 40 percent. Based on the analysis presented, it is estimated that 28.5 afa would be pumped from the groundwater system through domestic wells with 17.1 afa (60%) consumed and the remaining 11.4 afa (40%) returned to the groundwater system by secondary recharge.



^aX = Corresponding Sections 2.0 through 5.0.

Figure 1-2

Process and Steps to Analyze and Quantify Existing Groundwater Rights within Selected Basins in Nevada

Table 5-22

Committed Groundwater Rights, Adjusted for Supplemental and Consumptive use

Manner of Use	Total			With Priority Dates After October 17, 1989			With Priority Dates Prior to October 17, 1989		
	Current Analysis Annual Duty (af)	Adjusted for GW Supp. to SW (af)	Adjusted for Consumptive Use Annual Duty (af)	Current Analysis Annual Duty (af)	Adjusted for GW Supp. to SW (af)	Adjusted for Consumptive Use Annual Duty (af)	Current Analysis Annual Duty (af)	Adjusted for GW Supp. to SW (af)	Adjusted for Consumptive Use Annual Duty (af)
Domestic (exempt from permitting)	28.5	28.5	17.1	0.00	0.00	0.00	28.5	28.5	17.1
Irrigation Non-Supplemental	9,822.023	9,822.023	7,710.59	1,176.0	1,176.0	1,176.0	8,646.023	8,646.023	6,534.59
Irrigation - Supplemental	9,950.45	3,890.63	3,139.67	2,082.3	814.18	814.18	7,868.15	3,076.45	2,325.49
Municipal/ Quasi-Municipal	78.64	78.64	78.64	6.24	6.24	6.24	72.4	72.4	72.4
Mining and Milling	1,360.7	1,360.7	1,360.7	302.44	302.44	302.44	1,058.26	1,058.26	1,058.26
Stockwater	403.92	403.92	403.92	2.26	2.26	2.26	401.66	401.66	401.66
Wildlife	57.99	57.99	57.99	37.98	37.98	37.98	20.01	20.01	20.01
Total	21,702.223	15,624.403	12,768.61	3,607.22	2,339.10	2,339.10	18,095.003	13,303.303	10,429.51

Table 6-1
Estimated Committed Groundwater Resources

Hydrographic Area	Total Committed Groundwater Resources (af)	Committed Groundwater Resources with Priority dates after October 17, 1989 (af)	Committed Groundwater Resources with Priority dates prior to October 17, 1989 (af)
Cave Valley	51.37	33.6	17.77
Dry Lake Valley	807.78	746.66	61.12
Delamar Valley	8.95	0.00	8.95
Spring Valley	12,768.61	2,339.1	10,429.51

Appendix A

Table A1 – Groundwater Commitments

Type of Commitment	Duty (AFA)	Consumptive Use (AFA)	Effective Duty (AFA)
Irrigation Water Rights, Stand Alone	10,957	8,551	8,551
Irrigation Water Rights, Supplemental	8,823	7,463	@ 50% 3,731
Non-Irrigation Water Rights	1,901		1,901
Domestic Well Use	20		20
Total	21,702	16,013	14,207

Spring Valley 533.364 Inventory

**Table 5-22
Committed Groundwater Rights, Adjusted for Supplemental and Consumptive use**

Manner of Use	Total			With Priority Dates After October 17, 1989			With Priority Dates Prior to October 17, 1989		
	Current Analysis Annual Duty (af)	Adjusted for GW Supp. to SW (af)	Adjusted for Consumptive Use Annual Duty (af)	Current Analysis Annual Duty (af)	Adjusted for GW Supp. to SW (af)	Adjusted for Consumptive Use Annual Duty (af)	Current Analysis Annual Duty (af)	Adjusted for GW Supp. to SW (af)	Adjusted for Consumptive Use Annual Duty (af)
Domestic (exempt from permitting)	28.5	28.5	17.1	0.00	0.00	0.00	28.5	28.5	17.1
Irrigation Non-Supplemental	9,822.023	9,822.023	7,710.59	1,176.0	1,176.0	1,176.0	8,646.023	8,646.023	6,534.59
Irrigation - Supplemental	9,950.45	3,890.63	3,139.67	2,082.3	814.18	814.18	7,868.15	3,076.45	2,325.49
Municipal/ Quasi-Municipal	78.64	78.64	78.64	6.24	6.24	6.24	72.4	72.4	72.4
Mining and Milling	1,360.7	1,360.7	1,360.7	302.44	302.44	302.44	1,058.26	1,058.26	1,058.26
Stockwater	403.92	403.92	403.92	2.26	2.26	2.26	401.66	401.66	401.66
Wildlife	57.99	57.99	57.99	37.98	37.98	37.98	20.01	20.01	20.01
Total	21,702.223	15,624.403	12,768.61	3,807.22	2,339.10	2,339.10	18,095.003	13,303.303	10,429.51

Table 8
Irrigation and Stockwater Spring
Committed Rights within Spring Valley

Manner of Use	Duty AFA Total	Duty AFA with Priority Dates after October 17, 1989	Duty AFA with Priority Dates before October 17, 1989
Stock	243.58	0.00	243.58
Irrigation	5,826.2	120.00	5,706.2
Total	6,069.78	120.00	5,949.78

Table 3.2. Estimated Duty and Flow of Water Used for Irrigation on the Cleveland Ranch in North Spring Valley

Water Source	NDWR (2011) Duty (AFA)	NDWR (2011) Est Annual Discharge (AFA)	RCI (2011) Duty (AFA)	RCI (2011) Est Annual Discharge (AFA)
Cleveland Creek	^{1/} 13,254.18	7,529.29	^{2/} 25,254.18	7,732
Indian Creek	NA	470.58	Commingled with Cleveland Creek	NA
Stephens Creek	4,800.00	482.87	4,800.00	747
Murphy & Big Reservoir Springs	9,600.00	5,006.00	9,600.00	NA
Total flow to Cleveland Ranch per NDWR (2011) =		13,488.74	^{3/}Per RCI (2011) =	13,485

^{1/} Supplementally Adjusted Demand as noted by NDWR (2011)

^{2/} Additive per water rights held by CPB as noted by RCI (2011)

^{3/} Including NDWR (2011) Spring Flow Estimate

**Table ES-1
Estimated Committed Groundwater Resources**

Hydrographic Area	Total Committed Groundwater Resources (af)	Committed Groundwater Resources with Priority dates after October 17, 1989 (af)	Committed Groundwater Resources with Priority dates prior to October 17, 1989 (af)
Cave Valley	51.37	33.6	17.77
Dry Lake Valley	807.78	746.66	61.12
Delamar Valley	8.95	0.00	8.95
Spring Valley	12,768.61	2,339.1	10,429.51