

#### 6.1.4.1 DRY HYDROLOGIC CONDITIONS

1. If inflow is less than the seasonal subsistence value, then all inflow must be passed and none impounded or diverted (Line #1).
2. If inflow is less than the seasonal base value and greater than the seasonal subsistence value, then the seasonal subsistence value must be passed and the balance may be impounded or diverted to the extent available subject to senior water rights (Line #2).
3. If inflow is less than the seasonal peak value with a frequency of two (2) per season and greater than the seasonal base value, then the seasonal base value must be passed and the balance may be impounded or diverted to the extent available subject to senior water rights (Line #3).
4. Under dry conditions (extended dry period as defined by the reservoir storage threshold), there is no requirement to pass flow pulses for the environment during the months of September through February (Lines #4a and #4f, General Note #5). This assumes such occurrences to be naturally rare events based on the historical record.
5. During the months of March through May, if inflow is greater than the Spring seasonal high flow pulse peak value with a frequency of two (2) per season and less than one (1) high flow pulse has occurred within the three month period, then all inflow up to the peak value must be passed until either the recommended duration or volume for the Spring season has been achieved. The balance of inflow may be impounded or diverted to the extent available subject to senior water rights (Line #4b). Each season is independent of the preceding and subsequent seasons with respect to high flow pulse frequency.
6. During the months of March through May, if inflow is greater than the Spring seasonal high flow pulse peak value with a frequency of two (2) per season and one (1) qualifying high flow pulse has occurred within the three month period, then the Spring seasonal base value must be passed and the balance may be impounded or diverted to the extent available subject to senior water rights (Line #4c).
7. During the months of June through August, if inflow is greater than the Summer seasonal high flow pulse peak value with a frequency of two (2) per season and less than one (1) high flow pulse has occurred within the three month period, then all inflow up to the peak value must be passed until either the recommended duration or volume for the Summer season has been achieved. The balance of inflow may be impounded or diverted to the extent available subject to senior water rights (Line #4d). Each season is independent of the preceding and subsequent seasons with respect to high flow pulse frequency.
8. During the months of June through August, if inflow is greater than the Summer seasonal high flow pulse peak value with a frequency of two (2) per season and one (1) qualifying high flow pulse has occurred within the three month period, then the Summer seasonal base value must be passed and the balance may be impounded or diverted to the extent available subject to senior water rights (Line #4e).

**Instream Flow Regime Application  
Big Sandy Creek Example**

<u>Line #</u>	<u>Season</u>	<u>Hydrologic Condition</u>	<u>Seasonal Pulse</u>	<u>Inflow (cfs)</u>	<u>Pass (cfs)</u>	<u>Impound or Divert (cfs)</u>	<u>Line Notes</u>
1	Winter	Dry	n/a	15	15	0	Pass all inflow.
2	Winter	Dry	n/a	25	20	5	Pass seasonal Subsistence flow.
3	Winter	Dry	n/a	75	66	9	Pass Dry Base flow.
4a	Winter	Dry	n/a	400	66	334	Pass Dry Base flow. Seasonal pulse does not apply September through February.
4b	Spring	Dry	0	400	313	87	2 per Season Pulse applies. Pass inflow up to 313 cfs for 13 days or 5062 acft.
4c	Spring	Dry	1	400	30	370	Seasonal pulse met. Pass Dry Base flow.
4d	Summer	Dry	0	75	50	25	2 per Season Pulse applies. Pass inflow up to 50 cfs for 6 days or 671 acft.
4e	Summer	Dry	1	75	14	61	Seasonal pulse met. Pass Dry Base flow.
4f	Fall	Dry	n/a	150	20	130	Pass Dry Base flow. Seasonal pulse does not apply September through February.
5	Winter	Average	n/a	75	75	0	Pass all inflow.
6	Winter	Average	n/a	150	106	44	Pass Average Base flow.
7	Winter	Average	0 or 1	400	358	42	2 per Season Pulse applies. Pass inflow up to 358 cfs for 10 days or 5932 acft.
8	Winter	Average	0 or 1	1000	358	642	Pulse day 2. Pass inflow up to 358 cfs for 9 days or 5932 acft.
9	Winter	Average	2	1000	106	894	Seasonal pulses met. Pass Average Base flow.
10	Winter	Wet	n/a	100	100	0	Pass all inflow.
11	Winter	Wet	0	200	163	37	Pass Wet Base flow.
12	Winter	Wet	0	1000	942	58	1 per Season Pulse applies. Pass inflow up to 942 cfs for 16 days or 14,544 acft.
13	Winter	Wet	0	900	900	0	Pulse day 2. Pass inflow up to 942 cfs for 15 days or 14,544 acft.
14	Winter	Wet	1	1000	163	837	Seasonal pulse met. Pass Wet Base flow.

**General Notes**

- 1) Flows passed for senior water rights count towards satisfaction of specified subsistence, base, and pulse flow rates and volumes.
- 2) The applicable hydrologic condition for the entire season is defined on the basis of assessment of hydrologic condition at the beginning of the first day of the season thereby recognizing both drought persistence and practical operations.
- 3) Each season is independent of the preceding and subsequent seasons with respect to high flow pulse frequency.
- 4) Overbank flows may cause extensive damage to private property and endanger the public. Therefore, the S&NBBEST recognizes the ecological benefits of these events, but cannot recommend such events be produced.
- 5) With regard to recommended high flow pulses in the Spring and Summer seasons under Dry hydrologic conditions, it is noted that the Spring season should be shifted to March through May and the summer season should be shifted to June through August. See Recommendation 8 in Section 2.1.8.

# Application Example - Big Sandy Reservoir - Flow Frequency

