

# SCHEDULE 1

## Water Conservation Objective

### Environmental Flow Criteria

The Red Deer River tributaries have a *Temporary Diversion Licence* (TDL) maximum diversion rate, a Red Deer River mainstem *Water Conservation Objective* (WCO) and may have an *In-stream Objective* (IO) minimum flow requirement below which no abstractions are permitted.

### **Tributary Maximum Diversion Rate**

The maximum rate of diversion from a tributary shall not exceed 10% of the current recorded flow measured either at the point of diversion or at a downstream *Water Survey Canada* (WSC) hydrometric station on the tributary, and applies to the cumulative sum total of all upstream concurrent TDL abstractions.

### **Tributary IO**

The following tributaries in sub-basin 05CB have a minimum IO flow below which no abstractions are permitted:

- The Little Red Deer River and its tributaries an IO flow in the Little Red Deer River of 0.467 *cubic metres per second* (m<sup>3</sup>/s).
- Bowden Creek and its tributaries an IO flow in Bowden Creek of 0.093 m<sup>3</sup>/s.
- Dogpound Creek refer to the following Instream Objectives (IO) schedule:

| Week Beginning |        | IO    | Week Beginning |        | IO    | Week Beginning |        | IO    |
|----------------|--------|-------|----------------|--------|-------|----------------|--------|-------|
| No             | Date   | (cms) | No             | Date   | (cms) | No             | Date   | (cms) |
| 1              | 01-Jan | 0.149 | 21             | 21-May | 1.180 | 41             | 08-Oct | 0.656 |
| 2              | 08-Jan | 0.139 | 22             | 28-May | 1.186 | 42             | 15-Oct | 0.644 |
| 3              | 15-Jan | 0.133 | 23             | 04-Jun | 1.190 | 43             | 22-Oct | 0.613 |
| 4              | 22-Jan | 0.135 | 24             | 11-Jun | 1.196 | 44             | 29-Oct | 0.582 |
| 5              | 29-Jan | 0.138 | 25             | 18-Jun | 1.196 | 45             | 05-Nov | 0.550 |
|                |        |       |                |        |       |                |        |       |
| 6              | 05-Feb | 0.141 | 26             | 25-Jun | 1.195 | 46             | 12-Nov | 0.515 |
| 7              | 12-Feb | 0.163 | 27             | 02-Jul | 1.194 | 47             | 19-Nov | 0.443 |
| 8              | 19-Feb | 0.277 | 28             | 09-Jul | 1.192 | 48             | 26-Nov | 0.363 |
| 9              | 26-Feb | 0.402 | 29             | 16-Jul | 1.132 | 49             | 03-Dec | 0.284 |
| 10             | 05-Mar | 0.526 | 30             | 23-Jul | 1.011 | 50             | 10-Dec | 0.205 |
|                |        |       |                |        |       |                |        |       |
| 11             | 12-Mar | 0.666 | 31             | 30-Jul | 0.889 | 51             | 17-Dec | 0.169 |
| 12             | 19-Mar | 0.917 | 32             | 06-Aug | 0.768 | 52             | 24-Dec | 0.160 |
| 13             | 26-Mar | 1.195 | 33             | 13-Aug | 0.667 |                |        |       |
| 14             | 02-Apr | 1.472 | 34             | 20-Aug | 0.656 |                |        |       |
| 15             | 09-Apr | 1.749 | 35             | 27-Aug | 0.656 |                |        |       |
|                |        |       |                |        |       |                |        |       |
| 16             | 16-Apr | 1.804 | 36             | 03-Sep | 0.656 |                |        |       |
| 17             | 23-Apr | 1.638 | 37             | 10-Sep | 0.656 |                |        |       |
| 18             | 30-Apr | 1.472 | 38             | 17-Sep | 0.656 |                |        |       |
| 19             | 07-May | 1.306 | 39             | 24-Sep | 0.656 |                |        |       |
| 20             | 14-May | 1.183 | 40             | 01-Oct | 0.656 |                |        |       |

\*note: cms = cubic metres per second

### ***Red Deer River Mainstem WCO***

The Red Deer River WCO applies to the Red Deer River tributaries in sub-basin 05CB:

- A rate of flow in the Red Deer River that is 45% of the natural rate of flow or 16 m<sup>3</sup>/s whichever is greater at any point in time

### **Environmental Flow Monitoring**

#### ***Summer (Open Water) Season Tributary IO***

##### *Tributaries with Gauging Stations*

The summer open water season typically runs from March 1 to October 31 however the dates may vary annually. Near real-time tributary flows in sub-basin 05CB are monitored by Water Survey Canada for the select stream(s) listed below:

- The Little Red Deer River and its tributaries use the *Little Red Deer River near the Mouth (05CB001)* Water Survey Canada hydrometric station
- The Raven River and its tributaries use the *Raven River near Raven (05CB004)* Water Survey Canada hydrometric station

##### *Ungauged Tributaries*

- Dogpound Creek is a tributary of the Little Red Deer River. If the IO for the Little Red Deer River is not met verify the Dogpound Creek IO with a manual flow measurement.
- All remaining ungauged tributaries in sub-basin 05CB require a manual flow measurement.

#### ***Summer (Open Water) Season Red Deer River WCO***

The summer open water season typically runs from March 1 to October 31 however, the dates may vary annually. During the summer season, the WCO is monitored from the *Red Deer River at Red Deer (05CC002)* Water Survey Canada hydrometric station.

### ***Winter (Ice Cover) Season***

During the winter ice cover season near real-time recorded flows for the Red Deer River tributaries and natural flows for the Red Deer River mainstem are unavailable therefore the following criteria apply:

1. If the tributary has a near real-time 12-month active hydrometric station use the most recent manual WSC stream flow measurement (typically updated monthly).
2. If the cumulative TDL abstraction volume is equal to or greater than 1,000 cu.m on the tributary obtain a manual winter flow measurement
3. If the cumulative TDL allocation volume is less than 1,000 *cubic metres* (m<sup>3</sup>) then:
  - i) If the tributary has historic streamflow data, up to 10% of the historic mean monthly flow may be allocated otherwise,
  - ii) If the tributary is ungauged the water may be withdrawal without monitoring provided the total abstraction volume does not exceed 1,000 m<sup>3</sup>
4. The *Dickson Dam Tunnel Outlet* (05CB007) Water Survey Canada hydrometric station operates during the winter ice cover season. In order to meet the Red Deer River mainstem WCO requirement TDL abstractions require a minimum flow of 16 m<sup>3</sup>/s to be met at the *Dickson Dam Tunnel Outlet* (05CB007).

### **Environmental Flow Monitoring Websites**

Up-to-date water flow information is available most of the year at Alberta Environment's website:

<https://rivers.alberta.ca>

**Sub-Basin 05CB General Location**

