The Crockett Diversion is an irrigation diversion structure on the Logan River. This diversion serves the little Logan Canal and provides irrigation water to the valley. The diversion is operated using horizontal stop logs. Operators must manually install or remove these stop logs to maintain upstream water surface elevation as flow conditions change. The stop logs also cause a lot of build up of run off material such as logs, twigs, and other debris. The cleaning, maintenance, and manual operation of the current set up is tedious and requires a lot of extra human labor at dangerous conditions.

Three options were weighed against one another. The first was to do nothing and leave the current system in place. The second option was to install an automated Obermeyer weir system. The potential danger in spring run off and flood conditions makes the Obermeyer weir the best option for allowing us to do research on the Logan River.

When the airbags are deflated, they fall under the gate panel and are protected by the gate panel. This allows flow over the top of the gate panel. The pneumatic bags can be inflated to varying sizes allowing for different flows or alternating depths behind the weir upstream. This simple and effective design makes the Obermeyer weir the best option for the Logan River.

Table 1: Design Options Pugh Matrix

<table>
<thead>
<tr>
<th>Design Options</th>
<th>Cost</th>
<th>Complexity</th>
<th>Upstream Flood Control</th>
<th>Surface Stability</th>
<th>Debris Control</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do Nothing</td>
<td>5</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>11</td>
</tr>
<tr>
<td>Fixed Crest Weir</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>5</td>
<td>14</td>
</tr>
<tr>
<td>Obermeyer Weir</td>
<td>3.5</td>
<td>2</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>20.5</td>
</tr>
</tbody>
</table>

1: Least Desired / Least Functional
5: Most Desired / Most Functional

The Obermeyer weir inflates durable airbags to open and close the curved gates that either allow flow or block flow. These bags are extremely strong and are even bulletproof. The pneumatic actuators that inflate the bags can be controlled manually or automatically.

The Obermeyer weir with fully inflated bags

Figure 7 and 8 – Side views of Obermeyer weir detailing its function

When the airbags are inflated, they block flow and allow flow or block flow. These bags are extremely strong and are even bulletproof. The pneumatic actuators that inflate the bags can be controlled manually or automatically.

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