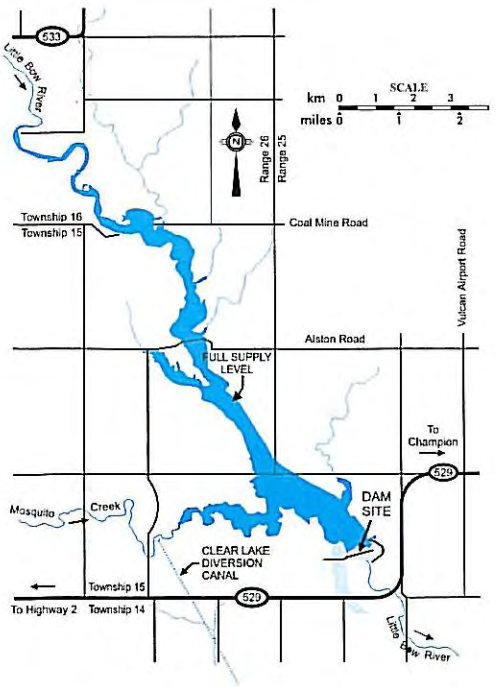
THE Water Hauler's Bulletin

VOLUME 71, 2000

The Little Bow Project

For decades, periodic low summer flows in the Highwood and Little Bow Rivers have contributed to insufficient water supply and water quality problems for people living in the Little Bow River Basin. Since the early 1900's, water has been diverted from the Highwood River to the Little Bow River Basin. Diversions from the Highwood River, to meet irrigation demand, often coincided with low flows in the Highwood River. People living in the area experienced frequent shortages.

Numerous solutions to water supply problems and demand imbalances in the Little Bow and Highwood River basins have been evaluated since planning began in 1980, but little opportunity existed for addressing the water management problems except by further reducing demand. As a result, a moratorium on further irrigation expansion was put into effect in 1983. Studies revealed that benefits could not be achieved without additional water storage in the Little Bow River Basin.



Location Plan

The Little Bow Project proposes a dam and reservoir on the Little Bow River and enlargement of the Little Bow Canal at High River. The Little Bow Canal, through the town of High River, diverts water from the Highwood River to the Little Bow River. The capacity will be tripled to 300 cfs to divert more water during high flow periods for storage in the new reservoir. The proposed dam will create a reservoir that will cover 2,060 acres and hold 50,000 acre-feet of water. Maximum depth of water will be 73 ft. The reservoir is located approximately 11 miles west of the town of Champion.

The Little Bow Project will have many benefits including:

- Reducing the diversion from the Highwood River during

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ISSN 0827-2212
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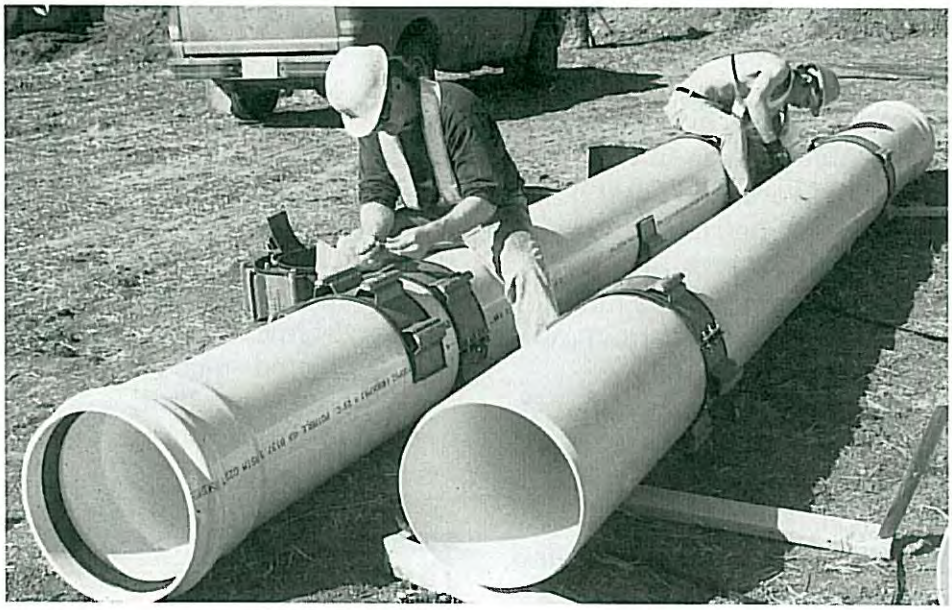
critical summer low flows, thus improving the water quality and in stream flows to benefit fish and recreation in the lower Highwood River.

- Securing water supplies for the towns of Champion, Vulcan, Carmangay, and five rural water cooperatives.
- Securing water supplies for 11,500 acres of irrigated farmland in the Little Bow River Basin and allowing for expansion of 20,000 acres.
- Restoring and stabilizing water levels in Clear Lake and nearby wetlands for recreation, irrigation, and fish and wildlife habitat.

The project is estimated to cost approximately $48M which includes dam construction and associated works, land acquisition and road relocation. Alberta Infrastructure is responsible for the design and construction of the project which will start in mid June of this year and is proposed to be completed in 2003. Alberta Environmental would take over management of the reservoir and diversions once construction is completed.

Casing Spacers

In 1999, the Lethbridge Northern Irrigation District (LNID) had five highway crossings to be installed on a pipeline project. After a steel casing was augured under the highway, the pvc pipe was pushed through the steel casing.

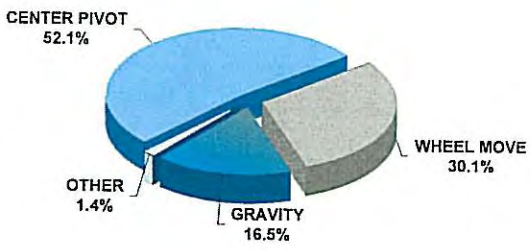


Casing spacers being installed on pvc pipe.

Previously, LNID would have used treated lumber skids strapped to the length of the pipe (except at the bells). On this project, casing spacers were used. Casing spacers are not a new product, but they are an attractive alternative - for saving time and ease of installation. They are made with stainless steel or coated steel bands with reinforced plastic skids. They are also available for pipe sizes from 100 mm diameter to 3048 mm diameter, and in various configurations and types. The manufacturer also recommends using a rubber end seal and/or a link-seal at each end of the casing.

Irrigation Method

In 1999 the thirteen irrigation districts in southern Alberta started using an irrigation software package called District Data Information Tool (DDIT). This software generates a database that tabulates: number of acres irrigated, parcel location, type of crop grown and type of irrigation system used. Through DDIT, we have been able to determine the total amount of acres that have been irrigated by different irrigation methods in the irrigation districts. The adjacent pie chart shows the percentage of irrigation methods used, from 1,211,676 actually irrigated acres.



Crowfoot Creek Watershed Study

Alberta's agricultural industry is under increasing pressure to remain globally competitive, while providing responsible stewardship of natural resources. However, recent studies have documented the presence of agriculturally derived contaminants in both surface and groundwater in Alberta, especially in intensively farmed areas.

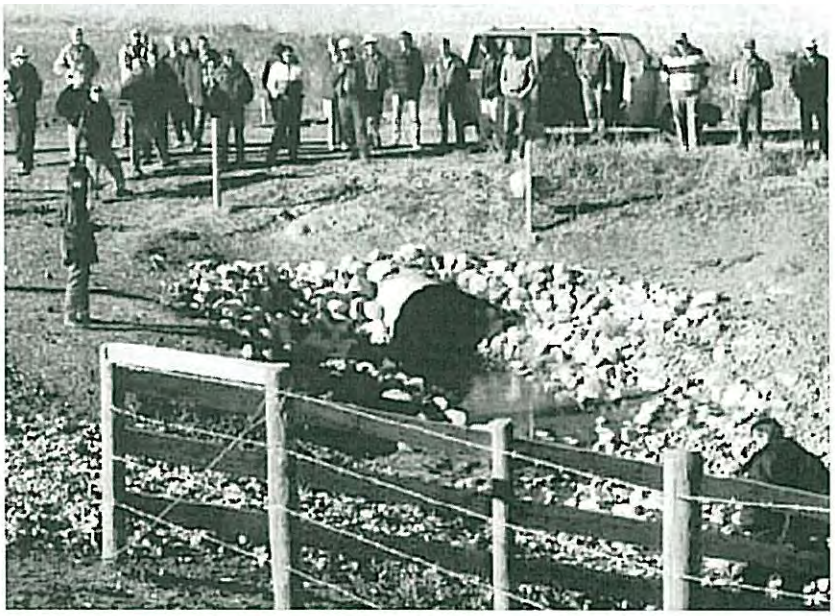
The Crowfoot Creek watershed, approximately 50 km east of Calgary, is in an area of intensive agricultural activity and is a small tributary of the Bow River. It was selected as the location for this detailed study in response to concerns of area residents and to findings of previous studies which identified high concentrations of nutrients and coliform bacteria in the watershed.

The Crowfoot Creek Study was conducted to determine whether agricultural practices were contributing to the deterioration of surface water quality in the watershed and to attempt to identify specific land uses which have an impact. Water quality was monitored at 28 sites over a four-year period.

Results from this field study indicate four major areas of concern:

- levels of total phosphorus exceeded water quality guidelines most of the time but were highest during spring runoff.
- levels of total nitrogen exceeded guidelines mainly during spring runoff and rainfall events.
- fecal coliform bacteria counts exceeded irrigation guidelines for much of the year and appear to be related to the presence of cattle in the watershed.
- Of 25 pesticides monitored, three herbicides appeared consistently (diacamba, 2,4-D, and MCPA). Diacamba and MCPA exceeded the irrigation guidelines during part of the monitoring period.

In response to the study results, the Crowfoot Creek Watershed Group was formed in January 1999. The group is working towards the adoption of better agricultural management practices, so water leaving the basin will be of equal or better quality than water entering it. The group is comprised of local agricultural producers and residents. Members work in partnership with local, provincial and federal government stakeholders to increase community awareness of water quality issues.



Members of the Crowfoot Creek Watershed Group gather at a demonstration site.

Irrigation guidelines for total dissolved solids were exceeded from spring runoff through early summer, and during rainfall events. Manganese and iron concentrations exceeded some guidelines during spring runoff.

For more information on the Crowfoot Creek Watershed Study, please contact Gerald Ontkean of the Irrigation Branch, Alberta Agriculture, Food and Rural Development at (403) 381-5891.

Events

September 4, 2000

COME AND CELEBRATE
100 Years of Bringing Water to Life

The St. Mary River Irrigation Project (SMRIP) was first conceived to entice settlement in southern Alberta. A weir, known as Kimball diversion, diverted water from the St. Mary River near Cardston. It was constructed to supply water for the Magrath, Raymond and Lethbridge regions. On September 4, 1900, the first irrigation water reached Lethbridge near Henderson Lake, formally known as Slaughterhouse Slough. From these humble beginnings, SMRIP has expanded to become Canada's largest irrigation project, serving approximately 513,000 acres. It is now comprised of the Magrath, Raymond, St. Mary River and Taber Irrigation Districts. A stable water supply has changed "a treeless plain not fitted for the permanent habitation of man" into a densely populated and prosperous agricultural region in western Canada. Celebrate with us - 100 years of bringing water to life.

The celebration starts Sunday September 3, 2000 at 9:00 p.m. with fireworks. Then join our festivities on Monday September 4th, 2000 at the Lethbridge and District Exhibition Grounds from 11:00 a.m. to 4:00 p.m. There will be a family barbecue, dedication ceremony, exhibits, live entertainment, antique equipment demonstrations and much, much more. For more information, phone (403) 328-4401.

November 19-21, 2000

The Alberta Irrigation Projects Association (AIPA) will be holding its annual conference at the Lethbridge Lodge Hotel. Conference chairman, Dr. Andrew Strand says this year's theme is, "Prosperity For Alberta - Just Add Water." For more information please contact conference coordinator/registrar Verna Lees. Telephone: (403) 328-3063, Fax: (403) 327-1043, E-mail: aipa@telusplanet.net, Website:http://www.aipa.org

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Notes

This bulletin is intended to provide Alberta's irrigation industry with items of interest in irrigation. If you would like to submit articles or provide us with input, feel free to contact Brian Taylor by phone in Lethbridge at (403) 381-5542 or E-mail ***brian.taylor@gov.ab.ca***
Copies can be obtained on the internet from the Department of Agriculture's home page at ***http://www.agric.gov.ab.ca/irrigate/hauler/index.html.***
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