EAST FORK IRRIGATION DISTRICT HISTORY

The first permanent settlers in Hood River County, Nathaniel Coe and his family, filed a donation land claim in 1854. By 1880, seventeen families lived in the region.

East Fork Irrigation Canal Company

As shown in a Valley Improvement Company record book, the East Fork Irrigation Canal Company was formed from that company in the fall of 1895. Oregon Water Resources Department records reveal that the East Fork Irrigation Canal Company filed a Notice of Appropriation, recorded October 4, 1895. Two subsequent Notices were filed October 15 and November 25 of the same year for a total of 14,000 miners inches (350 CFS). On October 24, 1921 a Hood River County Circuit Court Decree described 7,581.65 acres as being irrigated at that time. The Decree also allowed an additional 4,215.42 acres an inchoate right and required that this land be fully irrigated by January 1, 1925. Since that time Applications for Permit to Appropriate Water have been filed for additional land still being placed in production for irrigation, frost control, orchard spraying and fire protection. The East Fork Irrigating Company built ditches, wooden flumes and pipelines to distribute water. Many of the farmers worked out their charges by building ditches with teams of horses, slip scrapers and hand tools. Some of the first pipe was made of logs bored out at a sawmill owned by the Company along Neal Creek. The mill was powered by a Pelton water wheel.

East Fork Irrigation District

The East Fork Irrigation Canal Company became financially in trouble in 1913 with $52,182 indebtedness and no money to operate on. The East Fork Irrigation District was then formed authorizing bonds to be issued for $150,000, asked for a one year option to purchase the Company and took over the operation of the system for that year. In February 1914, the Company was dissolved and the District took over completely by paying off the debts owned by the Company. The East Fork Irrigation District was organized, in 1913 under the laws of the State of Oregon. The District was organized as a taxing body for the purpose of delivering irrigation water to properties within its territory. It is administered by a Board of Directors elected by registered voters of the district. Currently water is delivered to about 1000 turnouts managed by 970 water users. Revenues are derived from user fees on land within the District. Expenditures are made for the operation, maintenance and improvement of the irrigation system and retirement of assumed bonded debt.

In March 1915 an extensive program of enlarging the distribution system was undertaken. Many contracts were let between 1915 and 1917 to accomplish this work. Much of the enlarging of canals and ditches was done by teams of horses and by hand labor. A single moldboard plow furrow was used to guide a “crowder board” pulled by a team of horses. Repeated passes resulted in a narrow roadbed in which a trench was excavated by hand. Horses were used to string out the pipe along the trench. Sometimes horses were used to pull the wooden pipe out. Many wooden flumes were built across draws and over rocky terrain, because lumber was cheap and faster to install than to dig a ditch. Other flumes were used to replace ditches that proved to be too steep and were eroding the land. The usual life for a flume was about 20 years. In the 1920’s the District started a program of digging ditches around the draws in the Pine Grove area to eliminate as many flumes as possible. This was accomplished with horses and manpower. It provided good winter work, especially in the depression days.
Pipelines placed in 1914 – 1915 were wire bound untreated wood. The wood being vertical grain Douglas fir, free of knots. The wood started rotting with resulting pipe failure about 1932 and was replaced by larger sized, creosote-dipped wood stave pipe or steel pipe where pressure was involved. The last original untreated wood pipeline was replaced in 1961.

Between 1934 and 1940 most of the larger sizes of pipe in mainlines was replaced. Twenty foot lengths of creosote dipped wood stave pipe would be shipped to Hood River by railroad in boxcars or on flat cars. It was a challenge to unload the pipe onto trucks and get laid out along the ditches. Trucks used at that time were of short wheel-base and in order to get a good amount of pipe on, were loaded much too long. Sometimes 4 or 5 men would ride the front bumper of the truck to hold the front end down for steering until the truck reached the top of the steep hill from the railroad yard.

In 1923, concrete pipe was introduced as a means to enclose open ditches or to replace wood pipelines and flumes. Many miles of concrete pipe have been used by the District and also by farmers to install non-pressure “permanent irrigation systems”. Many sections are still serviceable, but some have been abandoned, being replaced with steel, asbestos cement or PVC plastic pipelines to provide gravity pressure for operating sprinkler and micro irrigation systems.

Original on-farm irrigation systems used mostly rills (small furrows) and sometimes narrow borders to flood the gentle (4%) to steeply sloping (30%) land. Fruit orchards, pasture and hay land were the primary crops irrigated. Head ditches or wooden flumes with holes bored in the sides were used to supply water to rills and borders. Later concrete pipelines with standpipes were used. When tractor drawn speed sprayers came into use, rills were more than a nuisance. Following the development of impact type sprinklers in the early 1940’s and the end of World War II in 1945, when pipeline again became available, converting from flood to hand-move sprinkler irrigation systems became a reality. Irrigation application efficiencies increased from 25 –50% to over 90%. Today most on-farm systems are solid-set sprinklers with a few micro (drip, trickle, minispray/sprinkler, etc.) some with varying degrees of automatic controls.

In 1929, 1930, and 1931 large amounts of sand and glacial flour (rock flakes to colloidal clay sized rock particles) filled the upper section of the main canal. The volume was such an extent that in the middle of the summer water was shut off and farmers with some hired help were called to shovel out enough sediment to allow water to flow. The following winter sand had to be cleaned out the full length of the main canal and also some laterals. That prompted the design of a sand trap to be located immediately below the East Fork of Hood River diversion head gate. A sand trap was built during the 1931-1932 winter at a cost of slightly over $6,000. For many of the following years the sand trap had to be flushed every two weeks during midsummer. There have been a few years when required flushing was only once or twice the entire year. During the 2002 irrigation season daily flushing of at least one bay was required during heavy sediment yield periods. Due to major flood damage in the spring of 1996 a new sand trap and fish screen was constructed in 1996 –1997.
The East Fork of Hood River water supply is generally adequate. However, there have been severe water supply shortages during several years, when there was just barely enough water to meet September and October needs. One of these shortages prompted a study for a storage reservoir. The area containing the Hanel Mill and surrounding property on Neal Creek was chosen as the most suitable location. After an engineering firm conducted a study and prepared a report, the District Board because of high cost and limited benefits rejected the idea. In the 1960’s, 1970’s and 1980’s, Permits for additional water for about 1000 acres was applied for through ORWD.

The District has continued to make changes and upgrade or replace delivery systems. EFID manages the water rights allocated to the District so as not to lose water rights to forfeiture. The District is constantly striving to provide pressurized, less turbid irrigation water to on-farm deliveries. By delivering cleaner irrigation water, the farmers will be able to use smaller sized nozzles in sprinkler systems which will lead to conserving water.

**LIST OF EFID MANAGERS**

J.W. McDonald 1913 – 1914  
R.A. McClanathan 1915 – 1916  
F.A. McDonald 1917 – 1923  
Charles Shaw 1923 – 1945  
Edwin Shaw 1945 – 1980  
Ronald Reinhart 1980 – 1982  
Raymond Moore 1982 – 1985  
Clarence Neville 1985 – 1996  
John R. Buckley 1996 – Present

**LIST OF EFID BOARD OF DIRECTORS**

January 1913 C.R. Bone, J.E. Ferguson, Ed J. Hawkes, J.A. Moore, Chris Dethman  
February 1915 W.D. Allen, Ed J. Hawkes, M. Pendergast, Geo.T. Prather, J.A. Moore  
June 1915 W.D. Allen, M.M. Hill, M. Pendergast, Geo.T. Prather, J.A. Moore  
March 1916 W.D. Allen, M.M. Hill, M. Pendergast, Geo.T. Prather, J.P. Naumes  
February 1917 J.R. Steele, M.M. Hill, M. Pendergast, Geo.T. Prather, J.P. Naumes  
February 1918 Nels O. Hagen, M.M. Hill, M. Pendergast, Geo.T. Prather, J.P. Naumes  
February 1919 Nels O. Hagen, M. Pendergast, C.E. Copple  
1920 Nels O. Hagen, Edward E. Lage, C.E. Copple  
1925 Nels O. Hagen, Edward E. Lage, John E. Plog  
1943 L.E. Allen, Edward E. Lage, John E. Plog  
1948 Harold Fletcher, Edward E. Lage, John E. Plog  
1949 Harold Fletcher, Edward E. Lage, Arvo Anderson  
1960 Harold Fletcher, Edward E. Lage, William R. Gale  
1962 Harold Fletcher, Alan Bickford, William R. Gale  
1966 Sho Endow, Jr., Alan Bickford, William R. Gale  
1968 Sho Endow, Jr., George M. Ackerman, William R. Gale  
1972 Sho Endow, Jr., George M. Ackerman, Robert W. Chamberlin  
1978 Sho Endow, Jr., George M. Ackerman, Merrill R. Graves  
1980 Sho Endow, Jr., George B. Wertgen, Merrill R. Graves  
1983 Sho Endow, Jr., Jim Wells, Merrill R. Graves  
1990 Sho Endow, Jr., Jim Wells, Phil Davis  
2001 Brian Nakamura, Jim Wells, Phil Davis  
2007 Brian Nakamura, Jon Laraway, Phil Davis  
2008 Brian Nakamura, Jon Laraway, Dwight Moe  
2011 Brian Nakamura, Jon Laraway, Grant Porter  
2014 Brian Nakamura, Jon Laraway, Ken Goe
EFID has one point of diversion (POD) from the East Fork Hood River. Irrigation water is diverted for both EFID and Mt. Hood Irrigation District (MHID) from the POD. The unlined Main Canal varies from 20 – 10 feet wide with an average depth of 2.5 feet. This canal carries all the water for both districts. MHID has two PODs along the Main Canal totaling 12.65 cfs. There is a series of 3 silt settling pits on the Main Canal. The Main Canal serves about 550 acres.

Approximately 6.5 miles down the Main Canal, the district has a traveling screen and diversion. At this diversion structure water is diverted to Dukes Valley/Highline Canals and to the Central Lateral Pipeline which supplies water to the Central area and to the Eastside Canal.

The unlined Dukes Valley Canal is approximately 10 feet wide, 2 feet deep and 5 miles long flowing in a north and westerly direction. A short section of old flume is still in place along the Dukes Valley Canal. This canal serves about 1900 acres. The unlined Highline Canal is very narrow with an average width of 2 feet. This canal flows in the west and southerly direction serving 155 acres. The Central Lateral Pipeline varies from 72” - 60” Weholite pipe, 48” HDPE pipe to 30” steel pipe flowing in the northeasterly direction approximately 4.5 miles before discharging into the Eastside Canal. There are seven main laterals off the Central Lateral Pipeline. The Central Lateral Pipeline serves 3700 acres.

The unlined Eastside Canal flows in the northerly direction approximately 4.5 miles before it is piped. The open canal varies from 14 to 4 feet wide and 1.5 feet deep. The lower eastside is piped to within 1 mile of the Columbia River. The Eastside Canal and pipeline serves 3300 acres.
Description of the Operation and Maintenance Program

East Fork Irrigation District is governed by a Board of Directors comprised of three directors elected by direct vote of the patrons in sequential years. Each director serves an overlapping 3-year term. The Board of Directors sets the policy for the district. They meet the third Tuesday of every month. The district has a full time manager who is responsible to the board of directors, oversees all departments of the district for the day-to-day operations and serves as the secretary of the board. The administrative staff is comprised of a part time office manager and a part time water rights technician. The district has three full time operational field staff. Since 2008, EFID has been hiring two to four seasonal employees to help with the canal cleaning in preparation of the March water delivery.

Operation and Maintenance

During the irrigation season the EFID O&M responsibilities primarily consist of monitoring and adjusting flow rates in open canals and pipelines. Cleaning and repairing water measuring orifices, pipeline diversion screens and trash racks, district patron delivery box screens, fish screens, the traveling screen and Sandtrap bays are daily tasks. Also, responding to district emergencies such as leaky valves, broken delivery pipelines, gopher holes on open canals can be part of their daily routine.
Doing locates of district pipelines for construction projects. The Operational Staff ride (by 4 wheeler) or walk their areas canals or pipelines every week for inspection. During the irrigation season a staff member is available 7 days a week. Every weekend one staff member is on duty to cover the entire district. An emergency pager is available on rotation April through October. During the irrigation season, pipeline upgrades or replacement projects are completed in areas only where water delivery shut down is minimal. Brush and grass control around structures and along access roads, canals and pipeline easements is an annual task.

Fall/Winter maintenance includes excavating all open canals of silt build up. An excavator is used on the larger canals. In areas that cannot accommodate the excavator, sand and silt is removed by hand.

Removal of trees, tree branches, and brush along canals/ditches is performed.

During non-irrigation water season the staff complete pipeline projects, replacing old steel or wood lines and converting to pressurized pipeline delivery systems. Major leaks are also repaired in the off season. Water boxes are repaired with new partitions, weirs, and tops. Pipeline valves are repaired or replaced. The traveling screen is rebuilt, if needed. The automatic control valves are disassembled, cleaned and rebuilt. Screens and trash racks at diversion points of lateral pipelines or canals are repaired or replaced.

When inclement weather occurs and limits outside work, equipment maintenance, inventory and organizational projects are performed. Operational staff attend educational seminars during the off season.
The Sandtrap facility is comprised of five 100'x12'x12' bays. During a typical season, the quantities of sand/silt removed are approximately the equivalent of 270 cubic yards per bay each time it is cleaned up. From June through September the average number of bay clean up is from 10 to 12 times during the month and during the month of October the average number of bay clean up is approximately four times during the month.
During an average year, there is a potential of moving from ten to thirteen thousand yards of sand and silt from the Sandtrap.

**Progress Report on Conservation Measures Since 2004**

EFID has completed several projects since the last previously approved water management and conservation plan. One major project was a collaborative effort that had environmental and district efficiency benefits to improve water quality in Neal Creek by installing a pipeline rather than using the natural stream as a conveyance for irrigation water delivery to the Eastside Canal.

**Central Lateral Pipeline Project** - In 2008, EFID completed the Central Lateral Pipeline Project. This $11M multi-phased project buried approximately 4.5 miles of pipe, 6000 ft. of 72” Weholite pipe, 3765 ft. of 60” Weholite pipe, 5325 ft. of 48” Solid Wall HDPE pipe, and 8938 ft of 30” Coated Steel pipe in the open, unlined Central Canal and about ½ mile of 8” to 2” PVC pipe in the Eastside Canal. It eliminated the use of Neal Creek, a natural stream, as a conveyance for glacial silt laden irrigation water to the Eastside Canal and improved the water quality in Neal Creek. A Central Lateral Canal Seepage Study was conducted by Jonathan La Marche and Ed Lavelle, OWRD personnel, on August 24, 2004 to determine a measurable amount of water loss from the open canal system. The loss estimate was averaged at 2.1 cfs. EFID worked with Oregon Water Trust (OWT) to file an Allocation of Conserved Water Application on the middle phase (1.5 miles) of the project. The District received monies for this project from the United States Forest Service Title II, Bureau of Reclamation, DEQ 319 Grant, OWEB, and Confederated Tribes of the Warm Springs (BPA).
Hood River Watershed Group also provided labor and consulting. Of the funding for the middle phase of the project, 51.58% was from federal and state non-reimbursable funds of which 1.08 cfs will be allocated to the State for an instream water right. The remaining 1.02 cfs (48.42%) of the conserved water was to be used to replace private water rights from Neal Creek. EFID had identified four water users on Neal Creek with 97 acres of private rights that qualified for the EFID conserved water rights (along with monetary compensation from OWT). The hope was to replace most of the 97 acres of private Neal Creek water rights with EFID conserved water rights returning water back into Neal Creek. Of the four water users on Neal Creek only one user plans to participate in the replacement of a small portion of their private water rights with EFID conserved water rights. OWT is no longer involved with the project. Currently the 1.02 cfs is reserved instream until EFID decides on a permanent placement for the conserved water rights. Should EFID have a short water year and Neal Creek has low flows the other 3 users could possibly change their mind about the replacement offer. Removal of the Eastside Canal diversion structure and “drum-style” fish screen from Neal Creek has been completed. USFWS provided money to help with the removal and restoration to Neal Creek.

During the first year of operation of the CLP, the District experienced air venting problems in Waterbox #3 (indicated in the below photo) primarily related to the elevation difference in the
Central Lateral Pipeline Lower Phase B Waterbox #3 2009 Overtopping Event

system from 1600' to 400'. EFID contracted to redesign Waterbox #2 and Waterbox #3 by cutting notches out of the concrete baffles in the boxes letting the water flow with less turbulence. The problem was remedied with a manifold of 8" pipes to release the accumulated air; also a "valmatic" air vent similar to the rest of the District's air vents was placed at the steepest area next to the road above Neal Creek.

**Bowcut** - The Bowcut ditch which supplies 71 acres of irrigation water to 22 district patrons was completely piped. In 2003, 860 feet of 10" PVC pipe was installed beginning at the south end of the ditch. In 2007, approximately 1100 feet of 12" PVC pipe was installed from a new diversion water box off the Main Canal and connected with the 10" PVC pipe. Most patrons below the pipeline have pressurized water deliveries; the others, especially those above the pipeline, still need to pump their water.

**Nunamaker Pipeline** – In 2002, EFID installed a new pipeline to upgrade the old Nunamaker line. The Nunamaker line is approximately 8700 feet, the south 4000 feet is 8" PVC pipe and the remaining 4700 feet is 4" PVC. All 21 patrons are delivered pressurized water. Hookups were completed in 2009.

Currently, the overflow has not been eliminated. EFID needs to install a pressure regulating valve to control the high pressure delivery due to the drop in elevation.
**Duniphin/Castaneda Line** – In 2008, EFID replaced an old leaky wood and steel line with 6” PVC. An overflow was eliminated. The trenching was provided by Hood River Electric Coop for an electric line for a new cellular tower. This pipeline was cooperatively funded between Mr. Duniphin, Mr. Castaneda and EFID.

**Paasch Line** – In 2004, 1390 feet of 8” PVC was installed (in cooperation with NW Natural Gas Company trench) to pressurize the lower part of the Paasch Line (west from Eastside Road). In 2009, 1500 feet of 8” PVC pipeline was installed (east from Eastside Road to the water box in Moore Orchards (2N-11-07). Also, about 1600 feet of 4” PVC pipe was installed cooperatively between a water user (Fox) and the District. The water user purchased the pipe and trenched 800 feet of the ditch and the district staff excavated the other 800 feet of ditch and laid the entire new pipeline. This eliminated the use of pumps and water boxes.

**Ackerman Hill Line** – In 2009, installed a 1900 foot section of 8” PVC pipeline from Wy’east Road east on the Castaneda, Byers, and Tatyrek properties and then north along the west edge of Glacier Ranch property. This pipe installation is part of the first phase of the Ackerman Hill pressurization project.

**Rasmussen Line** – In 2008, installed a 1400 foot section of 10” PVC pipeline to replace an 8” and 10” concrete pipeline. EFID also installed 400 feet of 4” PVC pipeline to deliver pressurized water to Evans’ filter (2N-11-19). The overflow was reduced and relocated. In spring of 2010, approximately 1350 feet of 3” PVC pipeline was laid in the Thomsen Road right-of-way to supply pressurized irrigation water to Wilhite (2N-10-25). In the summer of 2010, approximately 1900 feet of 6” PVC pipe was installed to supply 5 water users (Wright, Bailey, L. Moore, Moore Orchards and Roulette).

**Dominguez Silt Pond** – This silt pond is located at the head of the Main Canal. In March 2010, EFID extended the silt pit by digging two additional pits 50’ long by 18’ wide and about 8’ deep each on down the canal. With the increase in the silt settling area at the beginning of the Main Canal, the water introduced into the delivery system should be cleaner especially in the summer months of late July, August and early September when the water from Mt. Hood can become heavily silt laden.

**Other Goals Completed**

All permits are now finalized into certificates. The District used OWRD’s Reimbursement Authority Program to expedite the processing of the Claim of Beneficial Use for their last 2 permits.

EFID installed a temporary fish ladder in the East Fork Hood River at the Headworks in spring of 2008 in cooperation with CTWS and OWEB grant funding. This fish ladder has been removed from operation due to the 2014 completion of the Headworks replacement project which included installation of an Obermeyer wier and fish ladder.

**Headworks Replacement Project:** This $1.7 million project was completed and became operational in Spring 2014. The new diversion and Headworks project replaced the push-up dam and an antiquated 100-year old timber headgate. The single, 8-ft timber headgate was aligned directly with streamflow at a bend in the river allowing large amounts of sediment, aggregate, and debris to enter the diversion channel, as well as some juvenile fish. The Headworks was moved downstream and aligned perpendicular to the stream flow reducing both fish and sediment entering the system. An Obermeyer wier (inflatable bladder) was installed to divert water into the Headworks and can be partially or fully deflated to allow passage of debris and higher flows. A fish ladder was
incorporated in the diversion Headgate structure to allow fish passage up and downstream around the inflatable bladder.

View Upstream of New Headworks Completed in 2014