

# How Williams Builds Pipelines



## 1. Pre-construction survey

Before construction begins, Williams surveys environmental features along proposed pipeline segments. Utility lines and agricultural drainages are located and marked to prevent accidental damage during pipeline construction. The pipeline's centerline and the exterior right of way and workspace is staked.

## 2. Clearing and grading

The pipeline right of way is cleared of vegetation. Temporary erosion control measures are installed prior to any earth-moving activities.

## 3. Trenching

Topsoil is removed from the work area and stockpiled in agricultural areas. Williams then uses backhoes and trenching machines to excavate the trench. The soil that is excavated during ditching operations is temporarily stockpiled on the right of way.

## 4. Pipe stringing and bending

Individual joints of pipe are strung along the right of way adjacent to the excavated ditch and arranged so they are accessible to construction personnel. A mechanical pipe-bending machine bends individual joints of pipe to the desired angle at locations where there are significant changes in the natural ground contours or where the pipeline route changes direction.

## 5. Welding, pipe coating and x-ray inspection

After the stringing and bending are complete, the pipe sections are aligned, welded together, and placed on temporary supports along the edge of the trench. All welds are then x-rayed. Line pipe requires a coating at the welded joints. The entire pipe coating is then electronically inspected.

## 6. Lowering pipe in and backfilling

The pipe assembly is lowered into the trench by sideboom tractors. The trench is backfilled. No foreign materials are allowed in the trench.

## 7. Testing

After backfilling, the pipe is filled with water and pressure tested. Tested water is obtained and disposed of in accordance with applicable regulations.

## 8. Restoration

Williams' policy is to clean up and restore the work area as soon as possible. Disturbed areas are restored, as nearly as possible, to their original contours. Temporary environmental control measures are maintained until the area is restored, as closely as possible, to its original condition.

