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C-1 Montana IPTF

"Construction of the Northern Border Pipeline in Montana", Paul Stolen, Assistant Director, Interagency Pipeline Task Force, Montana Department of Natural Resources and Conservation

CONSTRUCTION OF THE NORTHERN BORDER PIPELINE IN MONTANA

Report to File

by

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Interagency Pipeline Task Force

Montana Department of Natural Resources and Conservation

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ACKNOWLEDGEMENTS

PHOTOGRAPH AND FIGURE CREDITS

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Figures	
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INTRODUCTION

The Northern Border Pipeline, a 42-inch natural gas pipeline, was built in Phillips, Valley, and Roosevelt counties in 1981. It is part of the Alaskan Natural Gas Transportation System (ANGTS) which is being built by a consortium of pipeline companies to carry gas from the North Slope of Alaska to California via the Western Leg, and to Illinois via the Eastern Leg. The Northern Border Pipeline is that part of the Eastern Leg from the U.S. - Canada border in Montana to Iowa. The Northern Plains Natural Gas Company of Omaha, Nebraska, one of the consortium members, is the builder and operator of the pipeline. Completion is expected by the end of 1982.

Because of the large size of the ANGTS, legislation was passed by Congress setting up special procedures for building it. Some of these included establishing the Office of Federal Inspector to monitor and expedite permitting and construction, and the imposition of environmental requirements on the builders of the pipeline. There was little recognition of the role of states in the legislation, except for Alaska. In addition, Montana has little authority over gas pipelines, which are largely under the jurisdiction of the Federal Energy Regulatory Administration.

Regulatory actions that were taken by Montana state government were: 1) preparation of a draft and final environmental impact statement by the Department of Natural Resources and Conservation, published in 1980, 2) issuance of numerous state and local permits, and 3) establishment of the Interagency Pipeline Task Force Force (IPTF).

The IPTF was first established by executive order by Governor Judge for the Northern Tier oil pipeline. Governor Schwinden modified it to include any large-diameter pipeline, which allowed the IPTF to negotiate a limited

funding and policy agreement with the Northern Border Pipeline Company (NBPC). The IPTF operated from April 1, 1981 to December 31, 1981 on Northern Border, assisted NBPC with obtaining permits, and assisted state agencies with monitoring construction activities.

Northern Border is one of the first large-diameter pipeline built in Montana. As such, there are lessons to be learned from it. What follows is a description of pipeline construction, right-of-way requirements, special concerns of Montana state lands crossings, a short statement about federal-state relations on the project, and a few suggestions concerning state actions on future large pipeline projects. The project and natural environment of northeast Montana is described in detail in the EIS. Most photographs were selected from IPTF files. The report is not intended to be a complete description of all the issues that occurred, but rather was formulated as a guide to assist agency personnel working on future pipeline projects. Additional interpretations can be drawn from the data, tables, and photographs that may be useful in planning and regulating other large-diameter pipelines, but I have not presented detailed interpretations here.

GENERAL ASPECTS OF NORTHERN BORDER CONSTRUCTION

Construction of the approximately 181 miles of pipeline in Montana began on May 4, 1981. The photographs in this section depict the main features of construction, which are right-of-way (r-o-w) clearing, pipe-stringing, pipe bendings, ditching, welding, taping, lowering-in, back-filling (covering the pipe and trench), tie-ins (welding, lowering, and covering openings in the pipeline that were bypassed by the other operations), contouring and clean-up, river crossings, hydrostatic testing, and initial reclamation practices. These operations were largely completed by October 15, 1981. Work on valves, compressor station site, and reclamation operations continued after this date. Photographs frequently are of state-owned land (a total of about 13 miles of the 181 miles in Montana) crossed by the pipeline. If so, they are identified by the parcel number used by NBPC, such as PH012. Letters refer to counties: PH is Phillips county, VA is Valley county, and RO is Roosevelt County. A list of the state parcels, the legal description of locations and photographs of them is given in Table 1 on page 4.

A detailed description of the sequence of pipeline construction, and the differential rate at which separate construction operations proceeded, is given in Table 2. These operations are described in photos #1 through #49.

Table 1.

MONTANA STATE LANDS CROSSED BY THE
NORTHERN BORDER PIPELINE

"As-Built" Survey Stations*

Tract#	Enter	Leave	Legal Description	Photograph#
SPREAD NO. 1				
PH012.0	328+67.8	392+47.4	Sec. 36-T37N-R32E	15, 17, 19, 61, 62, 72, 73
PH018.0	516+03.8	572+84.7	Sec. 16-T36N-R33E	11
PH019.0	572+84.7	599+07.4	Sec. 21 T36N-R33E	11
PH021.0	648+36.7	651+46.2	Sec. 22-T36N-R33E	56, 57
PH022.0	651+46.2	667+37.3	Sec. 27-T36N-R33E	-
PH023.0	667+37.3	687+94.4	Sec. 26-T36N-R33E	-
PH026.0	741+59.1	809+47.1	Sec. 36-T36N-R33E	58, 63-66
PH033.0	992+62.8	1016+40.5	Sec. 16-T35N-R34E	81
VA001.0**	1326+02	1339+26.9	Sec. 7-T34N-R35E	20, 28, 29, 30, 45
VA006.0	1448+06.9	1502+51.2	Sec. 16-T34N-R35E	59
VA027.5	1994+02.5	2026+28.6	Sec. 36-T34N-R36E	68, 77
VA051.0	2804+01.2	2858+36.4	Sec. 17-T33N-R39E	69-71
VA052.0	2858+36.4	2913+76.7	Sec. 16-T33N-R39E	8, 74
VA053.5	2913+76.7	2922+92	Sec. 15-733N-R39E	-
VA055.0	2941+52	2968+29	Sec. 15-T33N-R39E	-
VA056.0	2968+29	2969+10.4	Sec. 22-T33N-R39E	76
VA057.0	2969+10.4	3023+11.9	Sec. 23-T33N-R39E	5, 50, 51, 75
VA058.0	3023+11.9	3046+56.4	Sec. 24-T33N-R39E	-
SPREAD NO. 2				
RO142	262+54.8	266+15.0	Sec. 16-T29N-R55E	79, 80
RO195***	1341+38	1407+72	Sec. 36-T28N-R58E	53, 54

* Submitted to DNRC August 10, 1981. "As-Built" refers to the survey made after the pipeline is buried. On Spread One, this is the distance in feet from the United States - Canadian Border; i.e. read 328+67.8 as 32,876.8 ft. On Spread Two, the survey began at Big Muddy Creek.

** This is a DNRC parcel; the rest are DSL.

*** As-Built surveying had not reached this point yet; this is a preliminary survey.

Table 2. Weekly progress of pipeline construction operations, given in miles, on Spread One, the 148.6 miles between the United States-Canada Border and Big Muddy Creek.

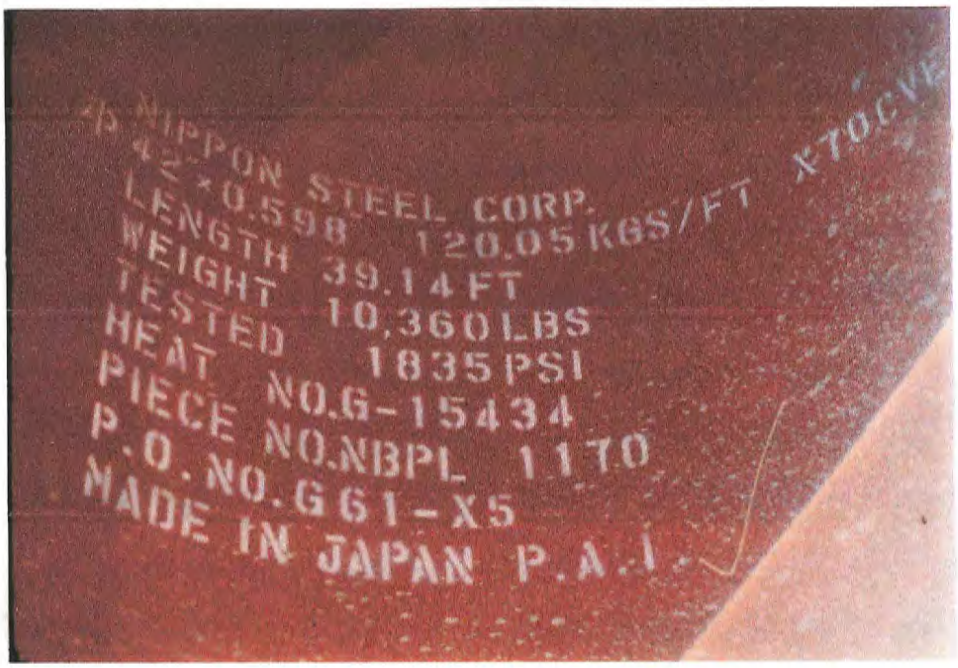
	May*	June			July				August		
		4-10	11-17	18-23	24-1	2-8	9-15	16-22	23-29	30-5	6-12
Temporary fencing	87.4	0	17.8	14.8	9.6	14.7	4.3	complete	--	--	--
Clear/grade right-of-way	80.4	6.6	16.0	15.0	10.2	13.8	5.8	complete	--	--	--
Pipe-stringing	10.0	5.3	5.9	12.1	13.6	8.1	6.6	9.1	10.0	11.9	13.2
Ditching	6.5	7.4	5.0	9.6	8.1	8.6	8.1	12.2	12.0	14.1	14.5
Bending	1.5	8.3	3.5	10.7	10.3	6.7	7.3	10.3	12.5	14.2	14.6
Welding	0	0.3	1.2	6.8	9.2	8.5	9.8	11.9	12.2	16.3	13.1
Tape/lower-in/ back-fill	0	0	0.3	5.2	9.7	7.2	9.7	8.5	12.8	16.5	9.5
Right-of-way clean-up	0	0	0	0	8.2	4.5	2.4	3.6	9.3	6.8	16.9
Tie-ins	0	0	0	0	14.8	7.2	8.2	4.5	9.6	15.0	13.9
Hydrostatic testing	0	0	0	0	0	0	0	0	0	0	0

Table 2. Continued

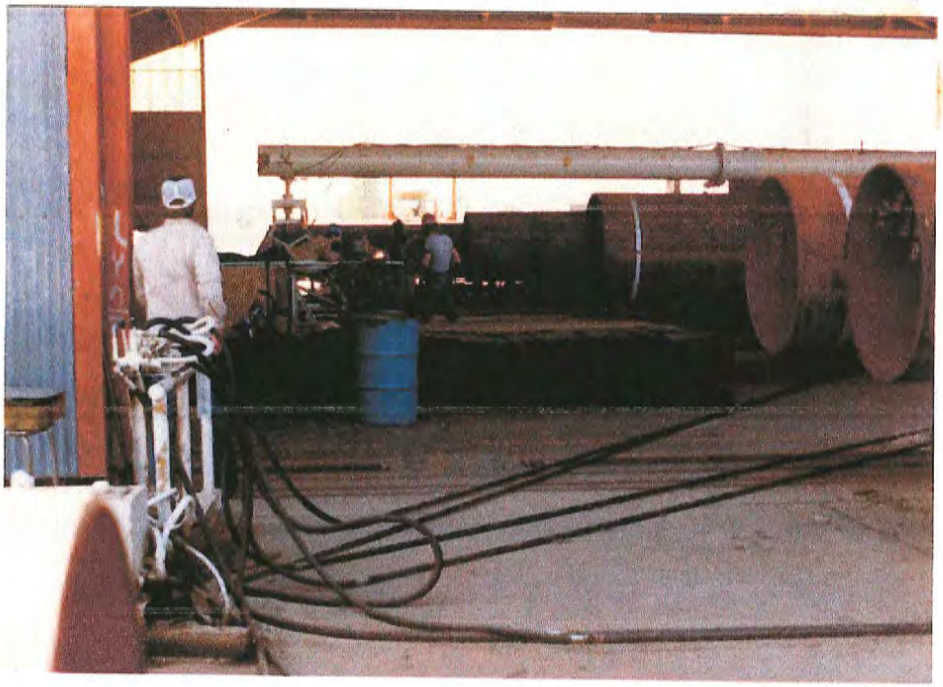
	August			September				October	
	13-19	20-26	27-2	3-9	10-16	17-23	24-30	1-7	8-14
Temporary fencing	--	--	--	--	--	--	--	--	--
Clear/grade right-of-way	--	--	--	--	--	--	--	--	--
Pipe-stringing	14.7	13.3	12.2	2.1	complete	--	--	--	--
Ditching	12.8	11.9	10.0	7.3	complete	--	--	--	--
Bending	14.5	9.3	10.4	14.0	complete	--	--	--	--
Welding	10.9	12.2	5.3	9.1	9.2	4.8	7.0	0.6	complete
Tape/lower-in/ back-fill	14.8	11.3	10.6	7.3	10.4	2.5	1.8	3.6	complete
Right-of-way clean-up	28.0	19.1	12.2	9.4	6.4	12.2	5.2	2.2	0.6 (complete)
Tie-ins	15.4	12.2	9.9	10.8	6.3	14.6	0	4.2	1.6 (complete)
Hydrostatic testing	0	0	0	51.3	6.0	76.6	9.4	0	5.3 (complete)

* A weekly breakdown for May was not reported to the IPTF

SOURCE: Reported to the Montana IPTF by the Office of the Federal Inspector, as reported by NBPC's inspectors. There may be discrepencies. Daily averages should be computed on the basis of a seven-day work week.



#1 Label inside a pipe section showing origin, strength, weight, thickness, and grade (X70). American-made pipe was used in other states along the Northern Border route. Forty-foot sections were transported by rail to the Valley Industrial Park near Glasgow.



#2 Two forty-foot sections were machine welded together at Valley Industrial Park ("double-jointing").

#3 Storage of 80-foot sections ("joints) at VIP.

#4 Right-of-way clearing June 26. Soil and spoil is usually moved perpendicular to the centerline to simplify recontouring. All clearing was completed in Montana by July 15.

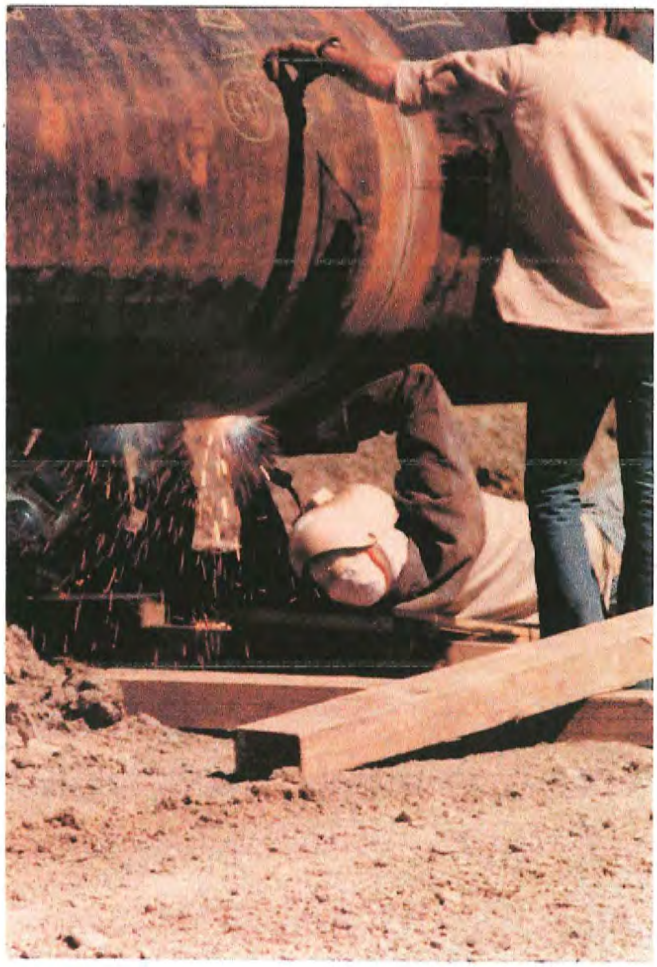
#5 Dozer blading 3-4 inches of topsoil from over trench area prior to ditching. This operation was combined with r-o-w clearing when the terrain was not as flat as shown in the photo, taken on July 16 on state land parcel VA057 west of the West Fork Procupine Creek.

#6 Pipe truck hauling three 80-foot joints on U.S. Highway 2. Load is approximately 63,000 pounds.

#7 Stringing pipe on r-o-w, which was used as road in many locations, after clearing was completed. Photo taken June 23.

#8 Trenching on state parcel VA052 on July 16. Note the grass remaining on the work area. Terrain was flat and little side-hill cutting was required.

#11 Welding spread in Phillips County on state land parcel PH018 near Turkey Track Road. Photo taken June 25. Note the welding trailers at each weld. The farm tractor on the right side of the r-o-w was used to pull the trailer. The bus was used to bring pipeliners to work. It was about a 1.5 hour one-way trip to this work site from Glasgow.

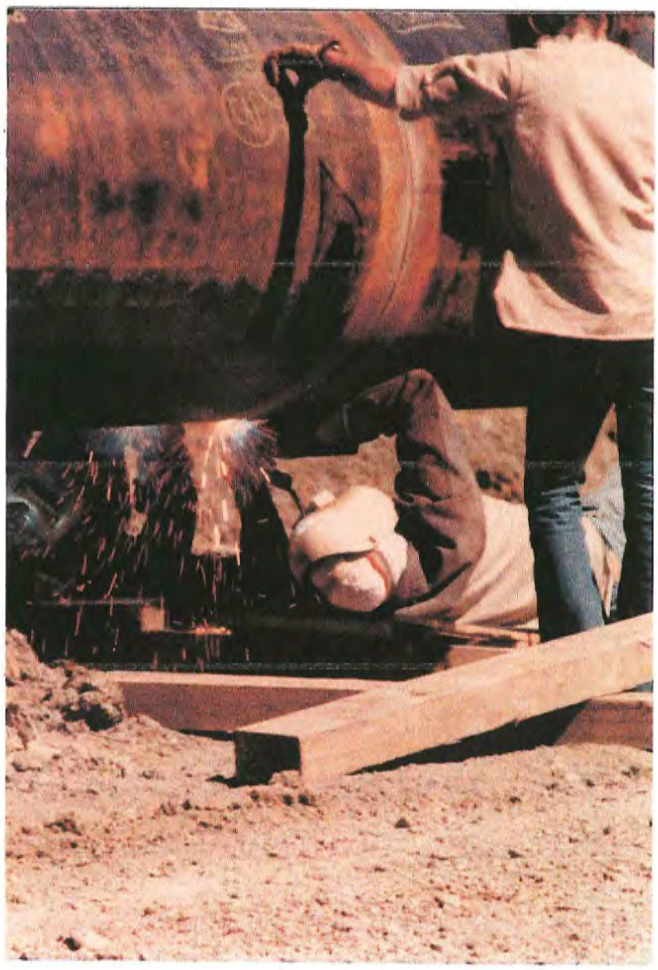


#12 Two welders joining 80-foot joints. Eleven welding passes were needed to join the .598 inch thickness pipe. Each weld was x-rayed for damage or faulty welds.

#9 Pipe joint in bending machine in Idaho on the Western Leg of the ANGTS. Similar machines were used in Montana. Pipe was coated with teflon, rather than tape, on the Western Leg. Pipe is bent to closely conform to terrain after it is strung out on the r-o-w.

#10 Bending machine again in Idaho. Note the "pig" which is run into the pipe joint to prevent kinking during bending by applying hydraulic pressure against the inside of the pipe. Photo taken June 24, 1981.

#11 Welding spread in Phillips County on state land parcel PH018 near Turkey Track Road. Photo taken June 25. Note the welding trailers at each weld. The farm tractor on the right side of the r-o-w was used to pull the trailer. The bus was used to bring pipeliners to work. It was about a 1.5 hour one-way trip to this work site from Glasgow.



#12 Two welders joining 80-foot joints. Eleven welding passes were needed to join the .598 inch thickness pipe. Each weld was x-rayed for damage or faulty welds.

#13 Welding completed, and pipe ready for wrapping and lowering-in in Phillips County.

#14 Taping machine. In operation, it is suspended by a side-boom tractor. Pipe was coated with Teflon on the Western Leg of ANGTS rather than being wrapped with tape (see photo #9).

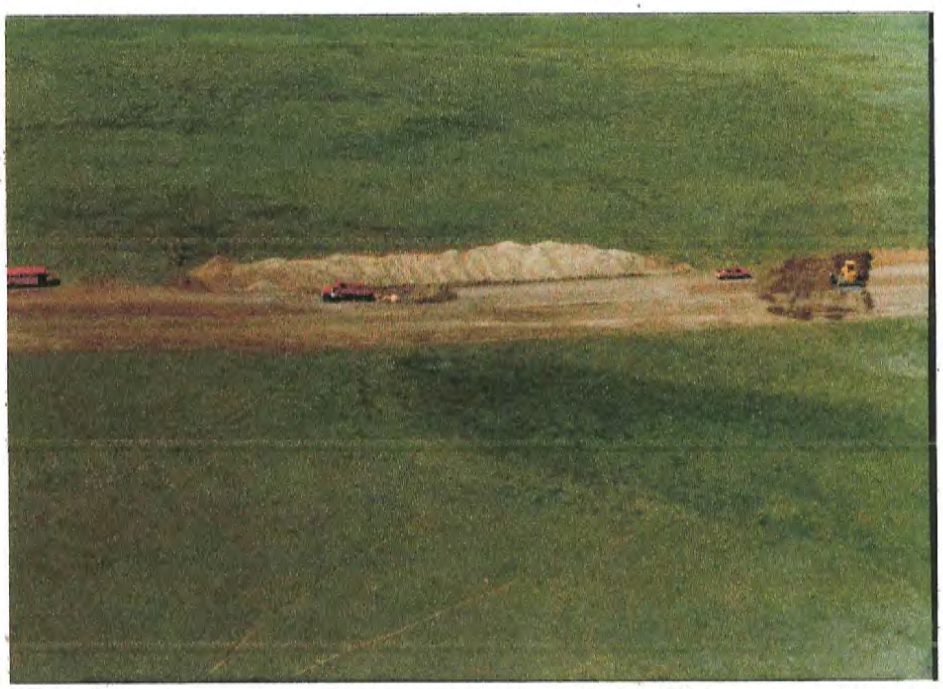
#15 Side-boom tractors lifting pipe and feeding it into the tape machine behind them. The tractors move slowly forward and the pipe is suspended on rollers. After wrapping, the pipe is lowered into the trench. The tractor in the foreground pulls a cart which carries hardwood blocks that prop up the welded pipe. This is state parcel PH012 on June 26.

#16 Taping machine wrapping pipe with plastic tape to prevent corrosion. It was stalled at the time of the photograph.

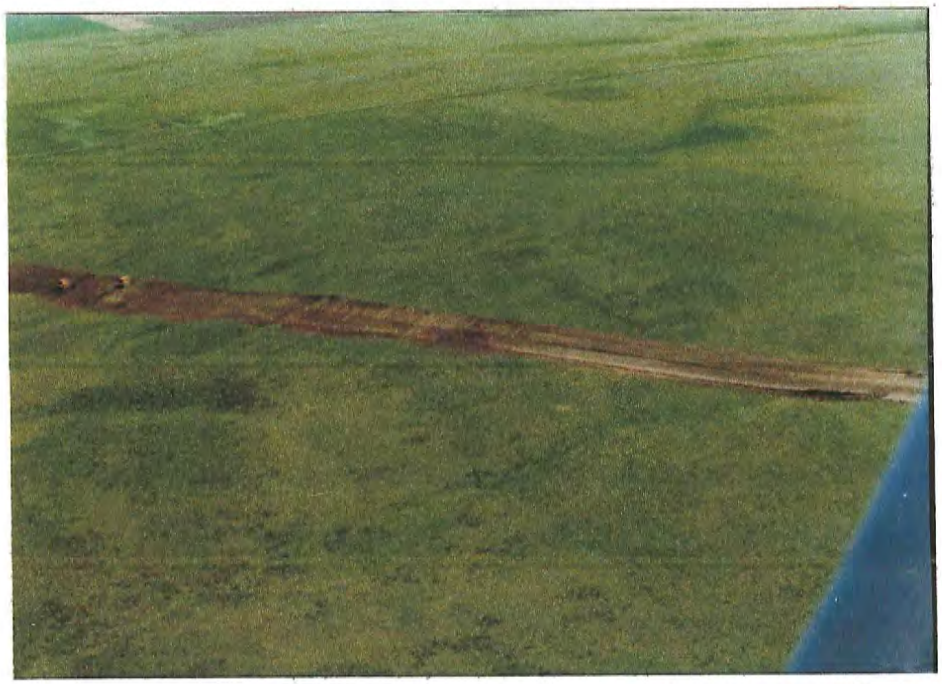
#17 Taped pipe after lowering-in, ready to be covered. Photo taken June 26 on state parcel PH012.

#18 Ditch spoil being replaced by auger mounted on front of tractor.

#19 Backfill operation consists of: augering, a dragline pulling in the rest of the ditch spoil, and a front-loader bringing up the rear acting as a packer. The man on the pipe in front of the auger is responsible for flipping rocks off the pipe to prevent damage to the wrap. Photo taken June 26 on state parcel PH012.



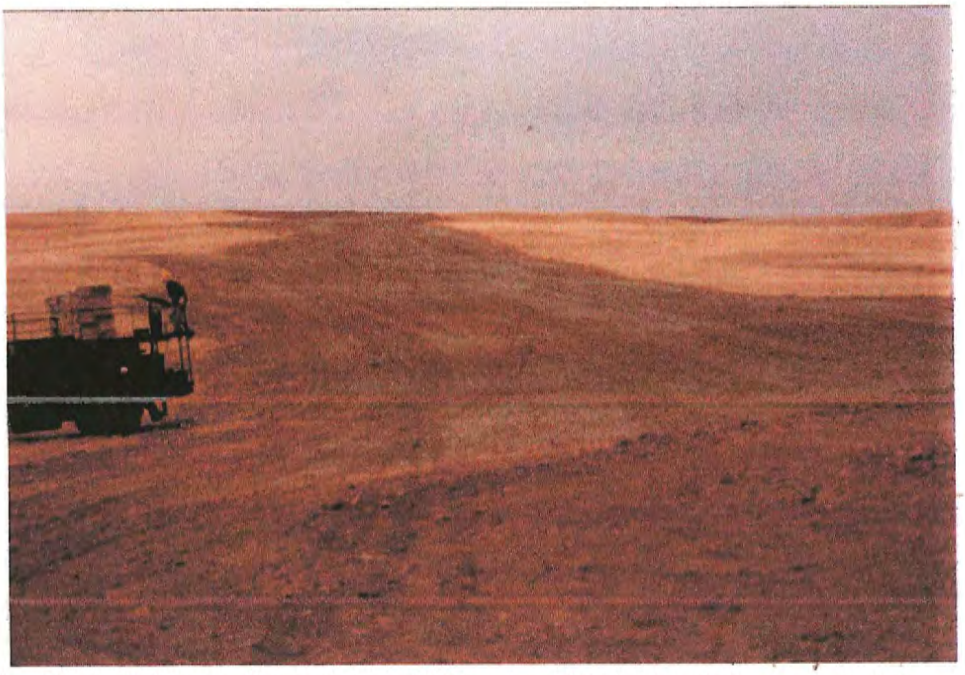
#20 Aerial view of clean-up operation in Phillips County as it begins on June 26. The dump truck is burying rock, dug up during trenching and clearing, in a side-hill cut.



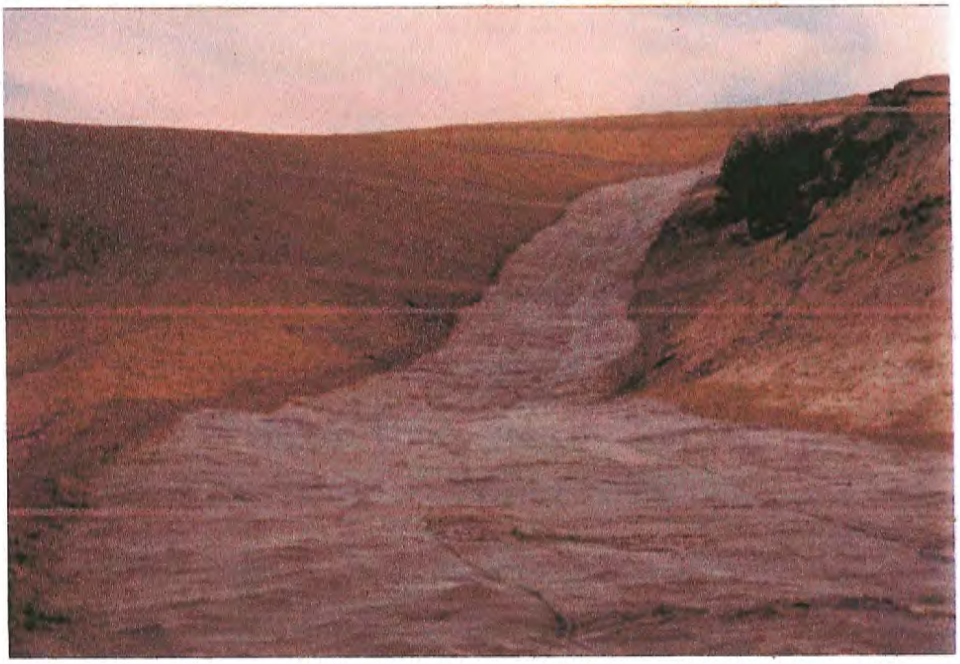
#21 Clean-up, Phillips County, looking northwest on June 26. Note the subsoil showing through. The ditch is on the north side of the r-o-w. (See also photo #78)

#22 West bluff of Frenchman Creek Valley being re-contoured on July 22. See photos #40 to #43 for a more detailed description of restoration on rough terrain.

#23 Clean-up completed by July 24th at the beginning of Spread #2, about 3 miles east of Big Muddy Creek in Roosevelt County.



#24 Reclamation, November, 1981, in Phillips County. Mulch has been applied (photos#24 through #27 courtesy of Office of the Federal Inspector.)



#25 Erosion prevention in drainageway, November 1981. The exposed soil surface is covered with a biodegradable mesh after seeding has been completed.

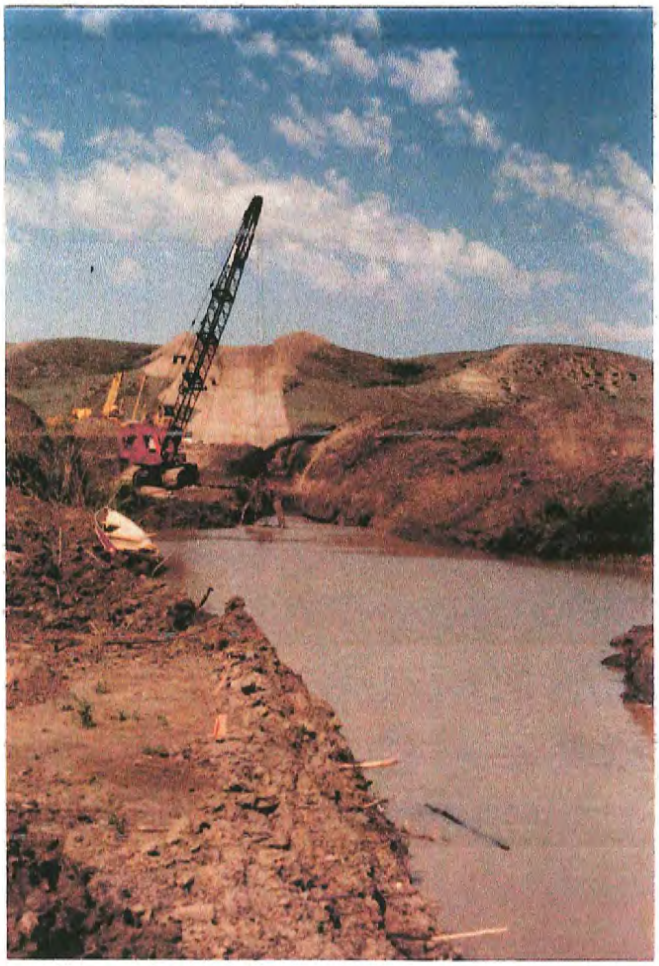
#26 Helicopter seeding crew. The helicopter carries a bucket that spreads native grass seeds on the r-o-w.

#27 Helicopter seeding crew.

#28 Crossing of Frenchman Creek Valley looking east on June 26. The Frenchman Reservoir is just downstream, and a proposal to raise the reservoir level would result in this area being flooded. Note: 1) the east bluff had not been cleared at the time of the photo because no final agreement had been reached with the landowner, even though construction began nearly 7 weeks before, 2) the DNRC owns 40 acres of floodplain just west of the base of the bluff which is crossed by the pipeline (VA001), 3) a floating bridge which remained until completion of construction.

#29 East side of Frenchman Creek floodplain on July 14, pipe ready for welding. The eastern side of state parcel VA001 is just beyond the pipe bend. Note: 1) Trench filled with water across most of floodplain seen in #28, 2) Concrete weights to prevent pipe rising out of saturated floodplain, ready to be placed on pipe. Two kinds can be seen; rectangular "set-ons", and rounded "bolt-ons" are placed both above and below the pipe, 3) Trench side-wall slump, requiring additional backhoe excavation.

#30 Set-on weights being placed on pipe after it is in trench. Note the thick felt pads placed around the pipe to protect it. Photo taken July 14 on state parcel VA001.

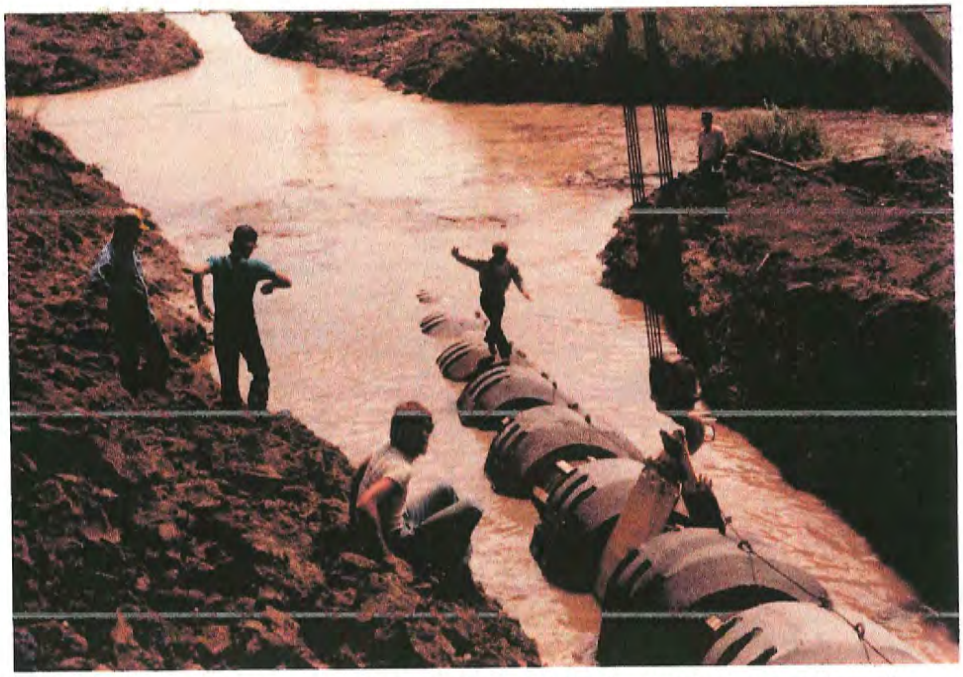


#31 Dragline opening ditch across Frenchman Creek, the last step before placing the pipe. Taken looking west from the east bank on July 14.

#32 Side-boom tractors lifting the creek section to pull it across. Concrete weights in place. The lead tractor, which winches the section across the creek with a cable, is in the foreground.

#33 Another view of the river section ready for pulling. View is looking west on July 14.

#34 Approaching the creek from the west. The lead tractor, not in the photo, has started to run out cable for pulling pipe. The foreman across the stream stands on the spoil bank to the right and orchestrates the movement of the tractors.

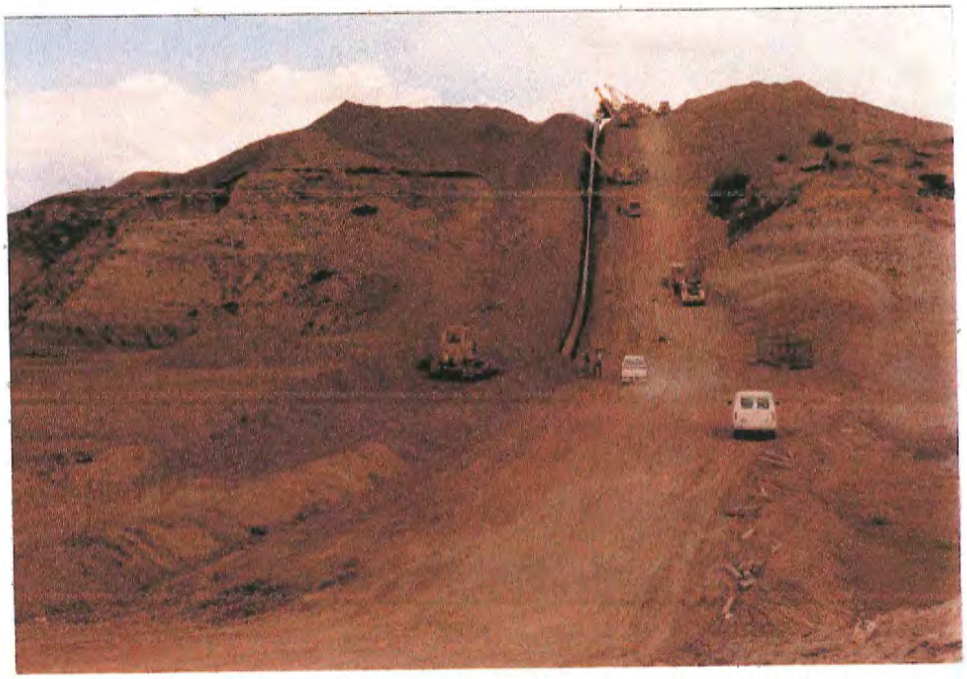


#35 Frenchman Creek section being pulled, looking east. A tractor, out of the picture, is winching it across the stream.

#36 Ditched floodplain of Big Muddy Creek, Roosevelt County, looking west from creek edge on July 24.

#37 Rock Creek Canyon, Valley County, looking south from the pipeline right-of-way on the east bluff on July 14.

#38 Rock Creek Canyon, looking west on July 22, construction in progress. Note: 1) Dozer covering pipeline, 2) River section lying next to creek on the base of the west bluff. This was the roughest terrain encountered in Montana.



#39 East bluff of Rock Creek, pipe being laid on July 22. Note: 1) Sandstone ledge which required blasting, 2) tractor pulling truck up slope, 3) dozer blading spoil back into ditch.

#40 Aerial view of Coyote Coulee area, Phillips County, looking east on June 26 toward Frenchman Creek on the horizon. (This is partially BLM land, parcels PH028 and PH029.) Compare this with next three photos and see "Right-of-way requirements" section.

#41 Same coulee as above, looking west on June 25. Note: 1) the side-boom tractor negotiating the 80-foot pipe section, 2) depth of burial of the pipe in some cuts (see photos #69-#73 below).

#44 Construction across badlands. The r-o-w crosses an unvegetated shale knob on the east side of the Bitter Creek Valley. The top of the knob was crossed rather than a drainageway because less erosion would occur on top. Note the depth of cut into the knob on the right side of the picture. Photo taken looking west on July 22.

#45 Frenchman Creek crossing after re-contouring, looking east from the base of the west bluff on July 22.

#42 Same coulee looking west from east side on June 25.

#43 Same coulee on July 22, from approximately the same spot as #42, after re-contouring. Waterbars, small dikes built across slopes to slow water erosion, are present but not visible.

#46 Deciduous shrub/tree coulee about six miles east of Big Muddy Creek, Roosevelt County. American elm and green ash are the main tree species. The black material on the spoil bank is lignite. Photo taken July 24.

#47 Bored road crossing, Valley County. Boring was done, even on small roads, to prevent road maintenance problems. Photo taken June 23.

#48 Boring equipment (Idaho).

#49 Survey stakes along the r-o-w. Locations are given in the format "0+00". Table 1 gives survey stations for points where the pipeline enters and leaves state lands.

RIGHT-OF-WAY REQUIREMENTS AND STRIPPING OF TOPSOIL

One of the more important issues that appeared during construction was that of the amount of land needed. NPPC has indicated in its environmental assessment and in its easement application to the Montana Department of State Lands (DSL) that a 100-foot r-o-w would be needed for construction in most cases, because of the generally flat terrain in northeast Montana, with some additional space needs on rougher areas and at road and creek crossings. R-o-w width was an issue in DNRC's impact statements on both the Northern Tier and Northern Border pipelines, and the department recommended in both cases a 90-foot r-o-w. These recommendations were based on engineering work done by contractor to the department. Also, on parcels where easement agreements had not been reached, NPPC instituted condemnation proceedings on a 100-foot strip. This caused problems for the company, when, a short time later, construction began (see photo #28). It rapidly became clear that more than 100 feet were required in many areas and NPPC might have to return to the courts to procure the desired easement. In most cases, this did not occur and NPPC worked out an arrangement with the landowner.

This issue of r-o-w width was important to document for several reasons: 1) the extent of side-hill cutting, and subsequent potential for soil horizon mixing and other environmental problems, was underestimated by the applicant and the DNRC, 2) the potential construction delay, landowner problems and expense it caused the company, and 3) the relationship of r-o-w width to other reclamation issues, such as topsoil storage space requirements when extensive side-hill cutting is needed.

Construction on flat terrain, hillsides, and across drainages.

The photographs that follow show specific construction situations in northeast Montana that support the generalizations about r-o-w requirements that are depicted in figures 1-4. They also depict correct and incorrect topsoil storage techniques. According to Bob Morris, Leonard Pipeline Company's foreman for most of the clearing and clean-up operations, there were three chief constraints and requirements guiding r-o-w preparation operations: 1) a level work pad measuring 50 feet from the ditch centerline on the working side of the ditch, and measuring 35 feet on the ditch spoil side, 2) spoil from side-hill cuts had to be pushed away from its original location perpendicular to the centerline to prevent problems for the re-contouring crew (i.e., if spoil is placed in this manner, dozer operators can push it back without guessing where it came from), and 3) the pipe cannot be placed in fill for various engineering and structural reasons.

#50 State land parcel VA057 near the west boundary of the Fort Peck Reservation looking west on April 21 shortly before construction began. (see next photo).

#51 Same view as #50, about 300 yards farther west and from atop the trench spoil bank on July 23. Note that in the distance a trencher was used and in the foreground a backhoe was used. An 85-foot right-of-way was cleared in this area, and it became slightly wider after ditching, especially where the backhoe was used.

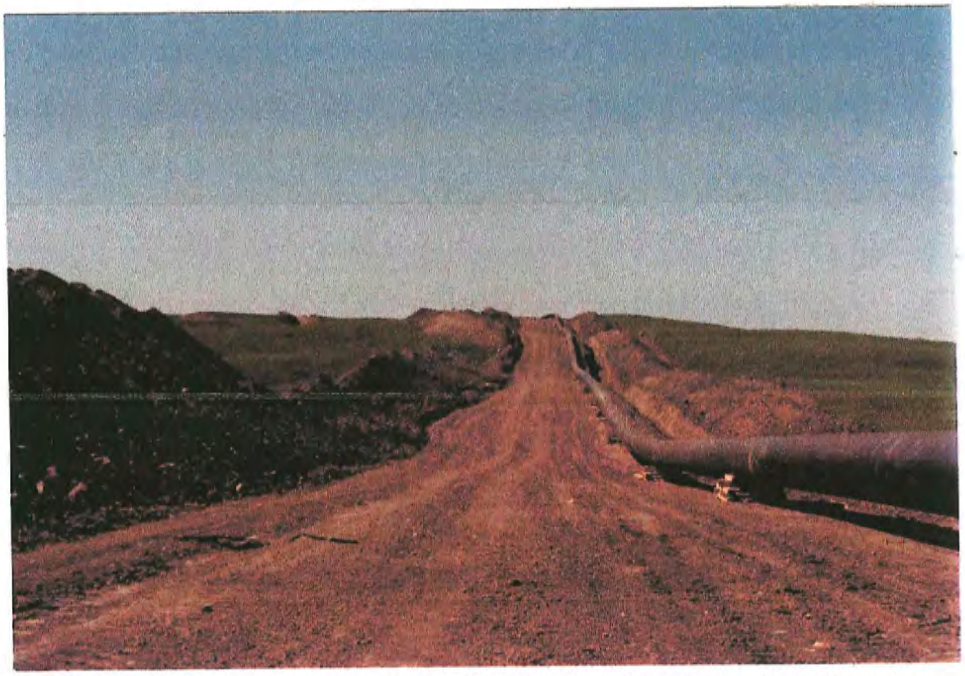
#52 An 85-foot cleared right-of-way on cropland in Roosevelt County on June 26. The r-o-w width increased slightly as the pipeline was constructed, but the width was well within 100 feet in most cases on this flat terrain.

#53 State parcel R0195 southeast of Bainville, looking west on April 21 at an approaching dust storm two weeks before construction began. See next photo.

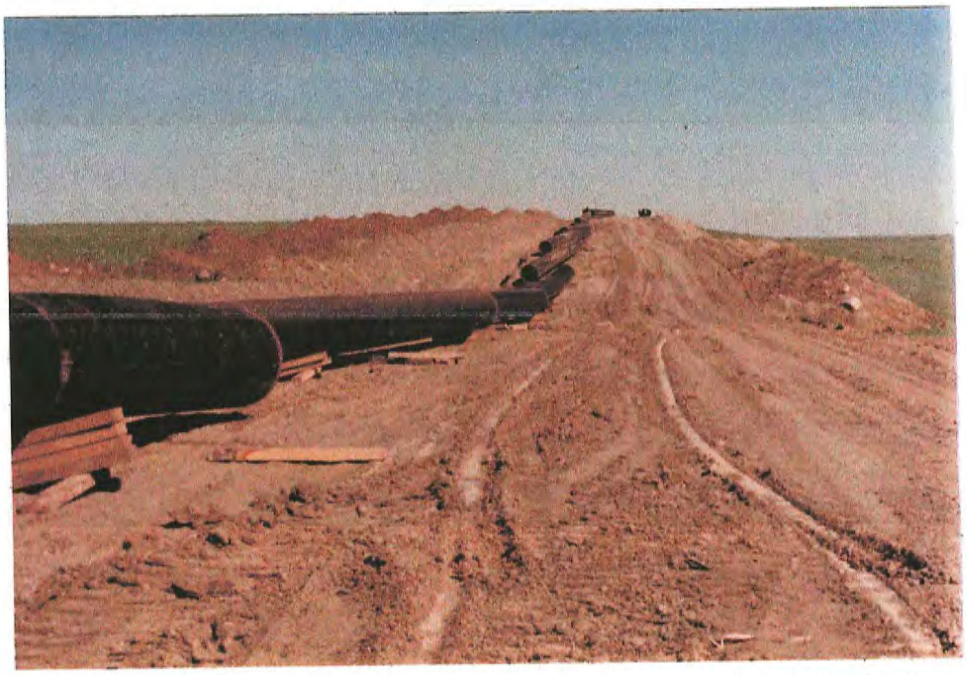
#54 Same view as #53 on July 24. This was the only state parcel that was cropped. The r-o-w was generally about 85 feet wide on this parcel although it was wider in the foreground because the field road was bored under rather than ditched through.

#55 Compare this view with that at cross-section "B" in Figures 1-3 (this view is to the east, however). Note the cut on the left providing fill for the work space on the right. This is taken about 1.5 miles west of state parcel PH018 near Turkey Track Road. Photo taken June 25.

#56 Looking northwest on state parcel PH021 on April 21 before construction began. See next photo.



#57 Same view as #56 on June 25 about 150 yards farther to the southeast. Note similarities to cross section "B" on Figures 1-3.



#58 Looking east on June 25 at a long stretch of south-facing slope on state parcel PH026. Note that on this parcel topsoil has been stored uphill to the left.

#59 Compare this view to views of cross section "A" on Figures 1-3. This photo, taken July 15, looks west on state parcel VA006. Note that there is poor topsoil separation in this area, although a small pile can be seen behind the large pile of subsoil.

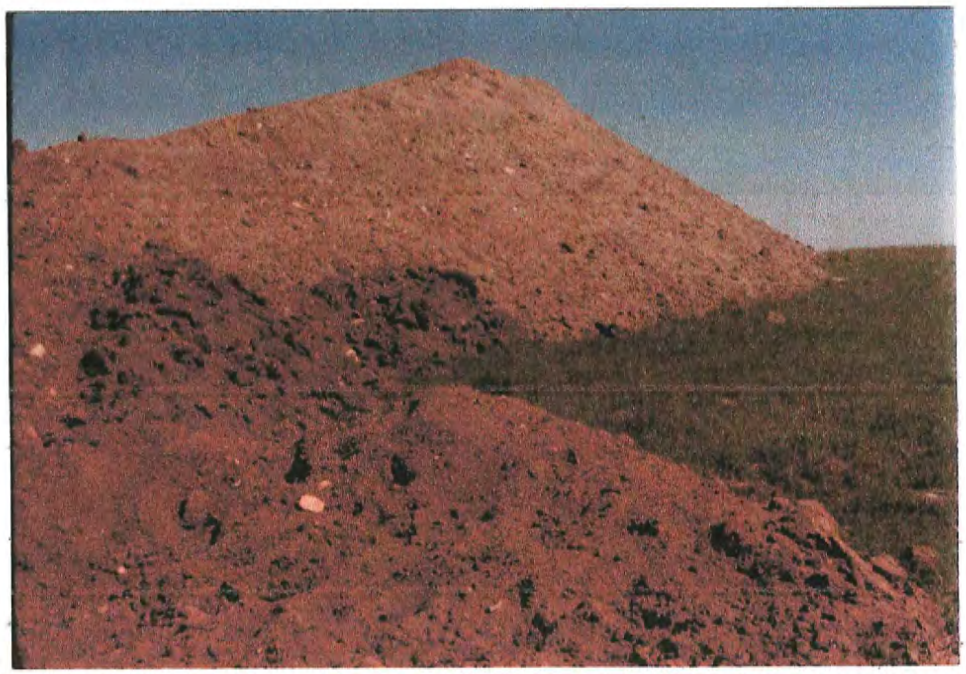
#60 Compare this view to cross section "A" (on Figures 1-3) and to #59. This view looks west on private land several miles west of the parcel shown in #59. Note the pile of topsoil on the outside of the pile of material from the cut.

#61 Compare this view with that of #62. Both look west on state parcel PH012 from about the same spot. This photo was taken a few feet downhill from #62 on April 21, shortly before construction began.

#62 Same view as #61 on June 26, and see view "A" on Figures 1-3. Note the lack of topsoil storage piles. This section was cleared in the first few days after construction began, and little topsoil was saved even though saving 12 inches of "topsoil" was stipulated on the Department of Lands lease. (See conclusions section.)

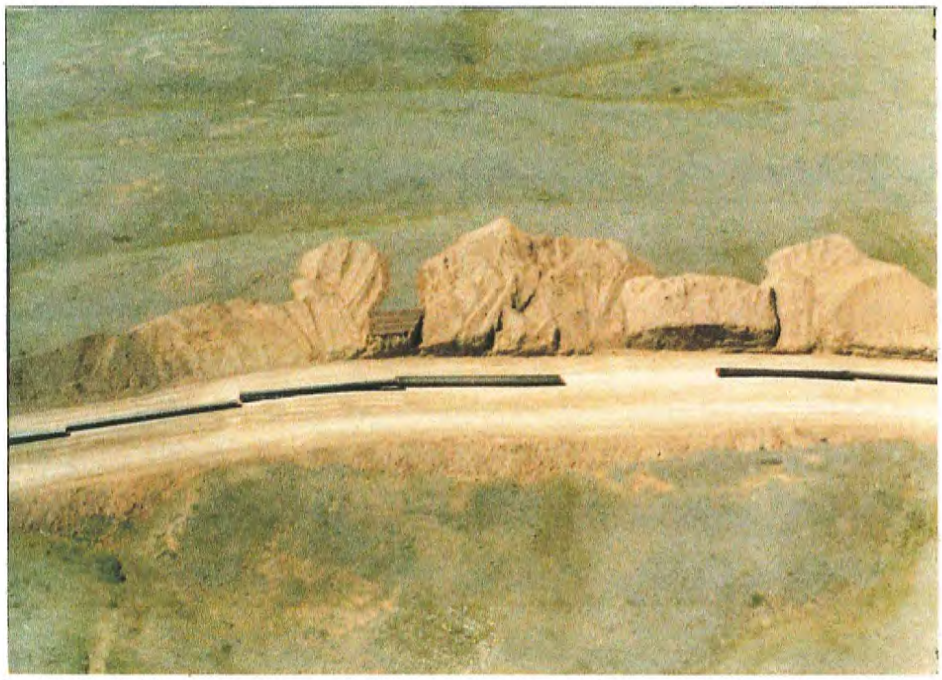
#63 State parcel PH026 on April 21, looking southeast past the reservoir in the middle of the section. See #64, #65, and #66.

#64 Side-hill cut on work pad (as in cross section "A" on Figure 2) on state parcel PH026. This was the cut made in the hill on the other side of the drainage way shown in #63. Note the shallow depth of the A horizon (compare to #74 below.) Slope is about 7 degrees on this hill. Photo taken June 25.



#65 Topsoil storage pile covered by spoil from cut close to spot where #64 was taken. Photo taken June 25.

#66 Topsoil storage on PH026. View is to the southeast on June 25.

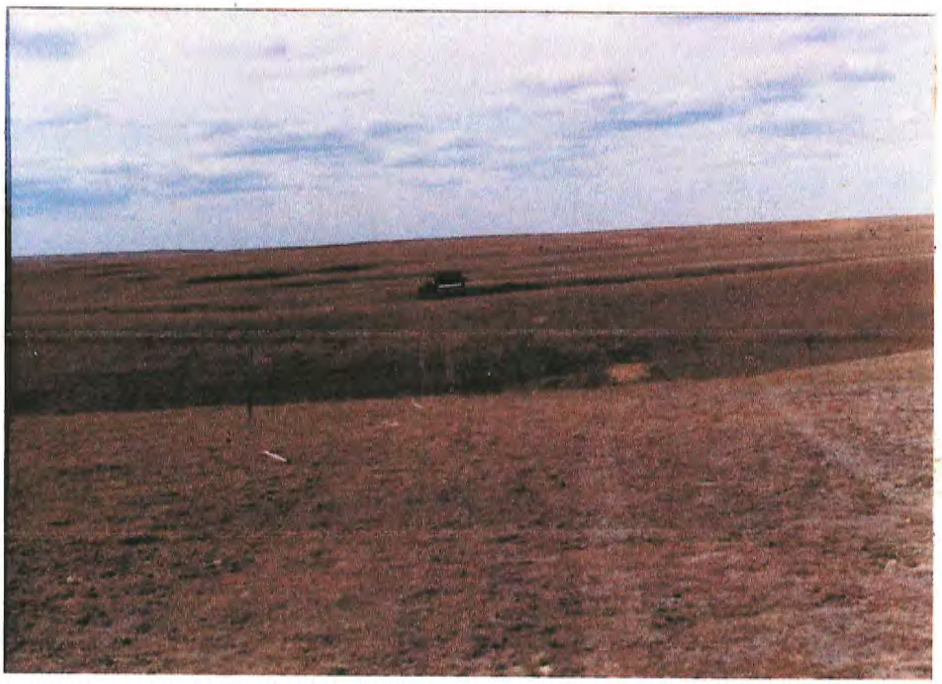


#67 Side-hill cutting similar to cross-section "B" on Figures 1-3. The ditch will be dug next to the cut and the work space is on the near side. This side hill is along a drainage. Photo taken June 26.

#68 View of state parcel VA27.5 looking southeast toward the Willow Creek valley before pipe-stringing began. Note: 1) soil/spoil storage is on alternate sides of the r-o-w, depending on the direction of slope, 2) the cleared r-o-w is about 85 feet wide on the flat areas shown in the photo, and 3) r-o-w requirements rapidly expand when soil/spoil storage areas are needed. VA27.5 begins on the other side of the fence beyond the sharp bend. This bend is the beginning of the "Bitter Creek Re-route" which follows an old road through the Bitter Wilderness Study area. Photo taken on June 26.

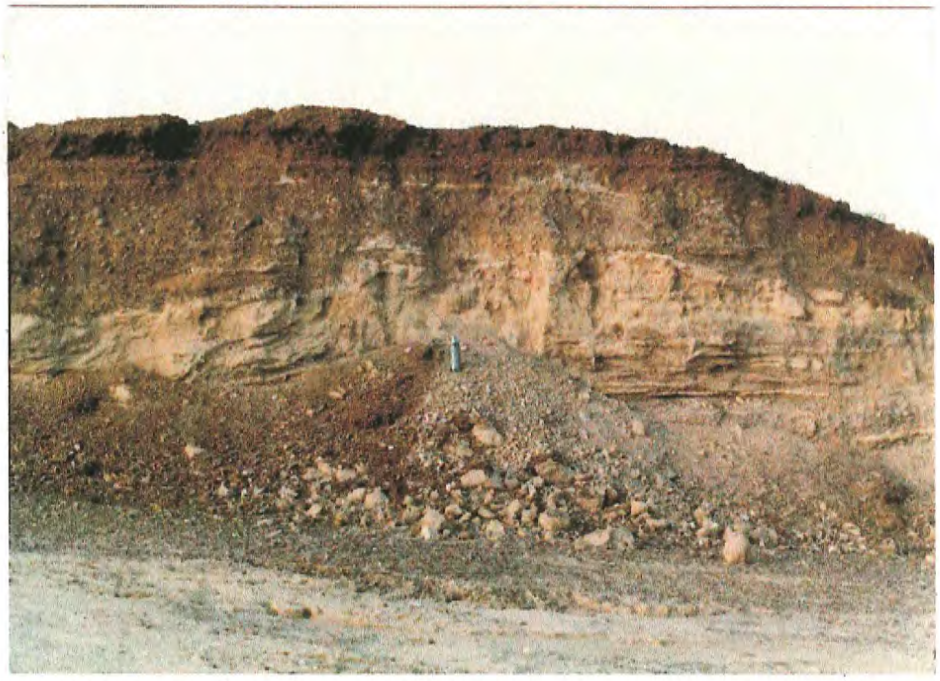
Extra-deep pipe burial on rough terrain

On steeply rolling terrain, or on bluffs above river valleys, pipe bends do not exactly follow the terrain. For example, on the Rock Creek bluffs seen in #38, the drop-off bend into the valley began before it reached the extreme edge of the bluff. This is done to avoid sharp bends as much as possible, and to reduce the overall amount of bending. This can be seen also in the terrain shown in #13. This requirement causes substantial increases in the right-of-way width at the bluff edge, primarily for soil/spoil storage. Photographs #69 through #73 depict some areas where this occurred.



#69 State section VA051 looking west down staked centerline on April 21, 2 weeks before construction began. Compare with #70 and #71. This area is about four miles west of the west boundary of the Fort Peck Reservation.

#70 Same view as #69, same spot, taken June 26, before ditching and pipe stringing began. Note that each ridge is cut extensively, resulting in more gradual bends on top of the hills. This result cannot be obtained at the bottom of drainageways, however, because the pipe cannot be placed in unconsolidated fill.



#71 Close-up view of the first cut on the right side of #70. Note the 1 quart thermos for scale. This area was very gravelly and sandy. The bottom of the pipe will be 7 feet below the level surface at the bottom of the photo. This means pipe burial of about 13 feet deep from the top of this ridge. The cut shown is about 10 feet deep.

#72 State parcel PH012 looking southeast on April 21 down the staked centerline before construction began. NBPC personnel estimated a r-o-w width of 100 feet here on this date. Compare with #73.

#73 Looking southeast at approximately the same spot as #72 on June 25. The r-o-w was about 230 feet wide here as a result of this side-hill cutting, which occurred within a few days of construction start-up (May 4).

Estimates of general r-o-w width requirements.

Figures 1-4 depict the r-o-w requirements for the Northern Border pipeline in Montana, as constructed by the Leonard Pipeline Company. Leonard Company built Spread #1, the first 148 miles, and Leonard/Rohart Inc., a joint venture of Leonard and a minority contractor, built Spread #2, the 28.5 miles from Big Muddy Creek to the North Dakota border. The figures are based on discussions with personnel from Northern Border and Leonard Pipeline Comapny and are generalized from measurements taken at numerous sites, mostly those shown in photos #50 through #73.

It should be kept in mind that figures 1-3 are most applicable to rangeland, which tends to be more rolling terrain, and are thus applicable to not more than half the Montana route. The other half is flat cropland and figure 4 shows the r-o-w requirements that are more typical of this terrain.

Explanation of Figures 1 through 3

Figure 1

Perspective view of a west-to-east pipeline r-o-w across rolling terrain. The situation depicted is similar to situations encountered on the Northern Border route (also generally west-to-east) across rangeland in northeast Montana. In this figure, looking west, the route first crosses a north-facing slope of about 7 degrees, then a relatively level area, and then a south facing slope, also about 7 degrees. Based on field

measurements, slopes on most of the rolling terrain rangeland in northeast Montana crossed by Northern Border did not exceed 7 degrees, except for ravines such as in photo #40, and frequently were about 5 degrees.

Figures 2 and 3

The cross sections and vertical views show the different effects of clearing on the slopes shown in figure 1. The work space must be on the same side of the right-of-way because the ditch and pipe cannot be crossed by equipment, and is usually on the right side of the ditch when facing the direction of construction, because of convention. Equipment such as side-boom tractors and trenchers have thus been constructed with booms on the left. In other words, side-boom tractors cannot build a pipeline from east-to-west on the right-of-way depicted here. The main requirement is a level work space, with little deviation, on either side of the trench. This level space requirement allows a trench of uniform depth to be dug, safe and smooth operation of the very heavy equipiment required to move large pipe, easier construction, and lower stress on welded pipe moved into the trench.

Note that the south facing slope, "B", has a narrower r-o-w because spoil can be used as fill and thus less space is needed for soil and spoil storage. As shown in the pictures in the previous section, there is considerable variation from site-to-site, especially with spoil and soil storage.

Figure 4

Vertical view of a cleared and ditched r-o-w on level terrain. Commonly, sod remains on the work space on this terrain, if it is rangeland. "Grade debris" refers to small amounts of soil, sod bladed from high spots, and the above-surface portions of any woody plants that are present.

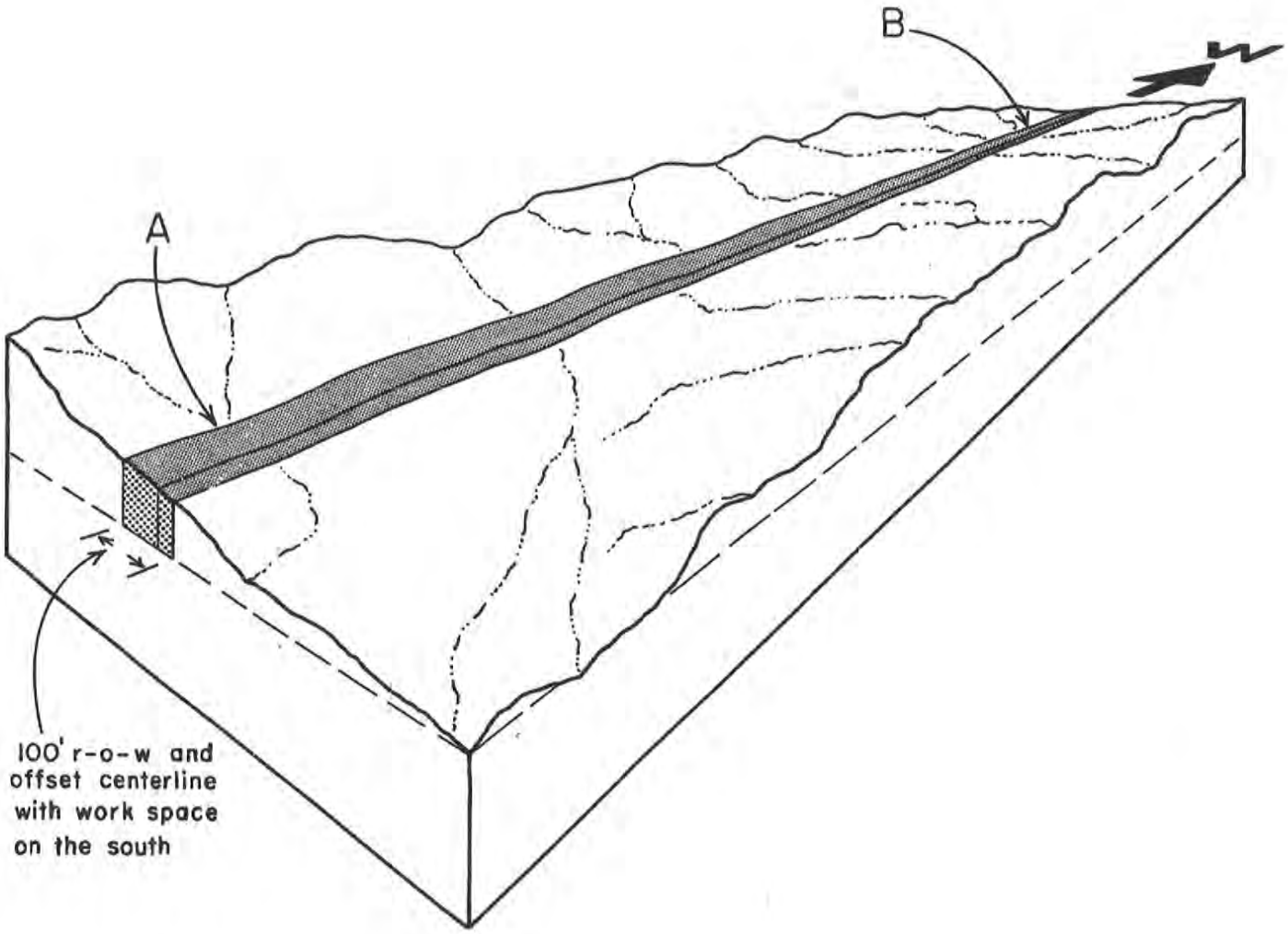


FIGURE 1

Generalized view of an east-west 100' pipeline Construction right-of-way as foreseen in Northern Border Pipeline Company's applications to cross Montana state lands. The terrain is typical of Montana state lands crossed in Phillips and Valley counties, where, aside from drainages, the steepest slopes are on the order of 5-7°, and rangeland is the primary land use.

December 1981

DNRC

Northern Border Pipeline

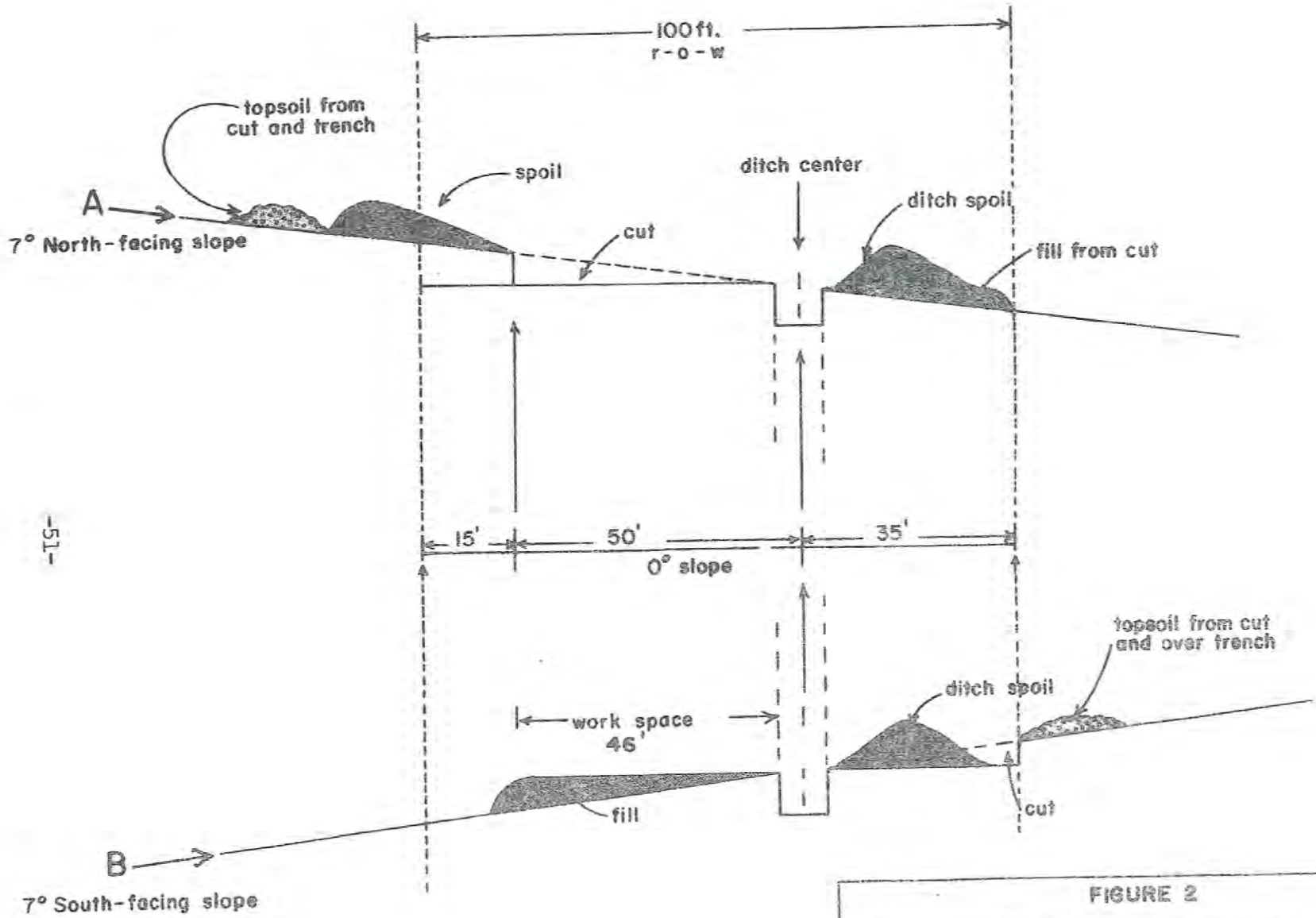


FIGURE 2

Cross sections of the cleared right-of-way at points A and B in Figure 1, as seen looking west.

Trench dimensions are depicted at 7' deep and 8' wide.

December 1981

DNRC

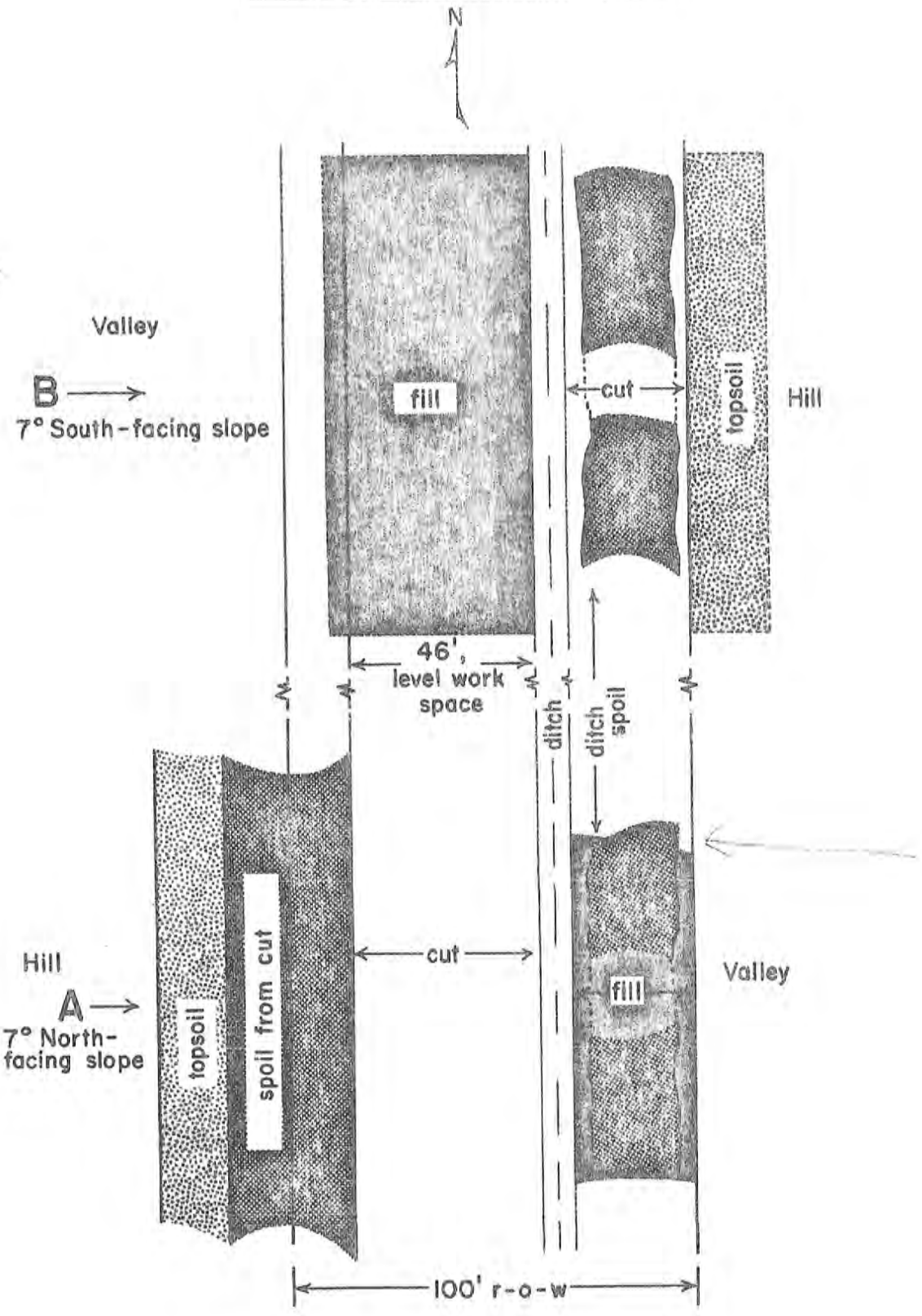
Northern Border Pipeline

FIGURE 3

Vertical view of cleared right-of-way at "A" and "B" locations of Figure 1. See figure 2 for additional measurements.

December 1981

DNRC
Northern Border Pipeline



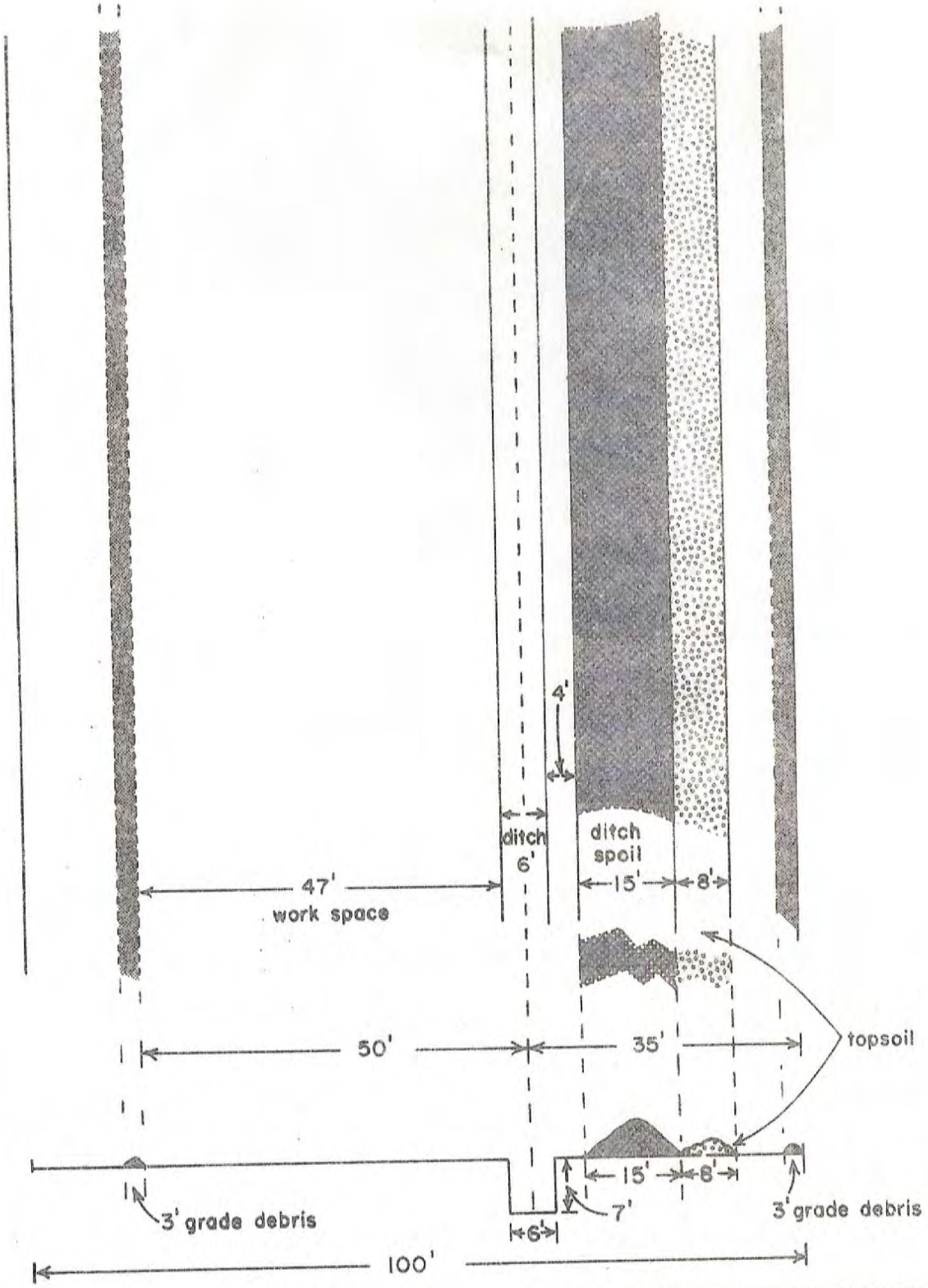


FIGURE 4

Construction across flat terrain. In this case a six-foot-wide ditch is depicted, which occurs when a trenching machine is used, and no backhoe work was necessary.

December 1981

DNRC

Northern Border Pipeline

Conclusions

The photographs and figures in this section indicate the following possible conclusions about r-o-w width requirements and topsoil stripping:

1) Any deviation from flat terrain (0 degree slope) causes a geometric increase in width requirements, primarily for soil and spoil storage.

2) There is often a progressive increase in r-o-w width after initial r-o-w clearing as the different stages of construction proceed.

3) There were numerous areas of extra r-o-w width needed beyond the 100 foot requested by DNRC.

4) There was a high potential for topsoil mixing in the numerous side-hill cuts.

5) There was an inconsistency in depths to which topsoil was stripped on state land parcels, and an inconsistency in keeping topsoil and substrate in separate piles.

6) Construction crews demonstrated an exceptional ability to re-contour the disturbed surface to the original configuration and replace topsoil when it had been correctly stripped.

7) A r-o-w narrower than 100 feet (approximately 85 feet) is quite possible and reasonable on truly flat terrain (0 degree slope), but apears impractical on terrain with a slope greater than 5 degrees.

8) Separate topsoil storage piles on side-hills require a wide r-o-w. Recontouring without tearing up ground beyond the piles requires even greater widths.

These issues are discussed further in the next section on state lands, and in the conclusions section.

CONSTRUCTION ON MONTANA STATE LANDS

NPPC applied for an easement to cross lands managed by the Department of State Lands (DSL) in early January, 1981. At its April meeting the State Board of Land Commissioners refused them an easement, preferring a lease, effective May 2. Construction started two days later. The IPTF assisted DSL staff and NPPC in the necessary paperwork primarily because of time constraints, and because DNRC (and IPTF) was in the midst of negotiations with the Office of the Federal Inspector concerning federal and state roles during and after construction (see pages 64 and 74 below).

Federal legislation on the ANGTS required that NPPC build the pipeline according to general and site-specific environmental stipulations developed in part with federal and state agencies, and under the supervision of the OFI. The DNRC had examined drafts of these stipulations during the preparation of the EIS on the project. To keep federal and state

requirements as uniform as possible, the IPTF recommended that DSL adopt a modified version of MBPC's environmental plan and stipulations as a binding part of the lease. The modifications were minor, and mostly involved removal of ambiguity about whom would make decisions about reclamation. The DSL accepted this proposal, with some changes. The IPTF also helped develop the site specific stipulations. These stipulations are contained in Exhibit B of the lease.

The main features of the lease stipulations that later became problematic were: 1) insufficient topsoil removal and replacement from over the trench and on side-hill cuts, 2) substantial activity outside the approved r-o-w without prior permission from DSL or notification of the IPTF, 3) relief of soil compaction caused by heavy equipment, and 4) modification of the reseeding program specified in the lease. The significance of these problems is discussed below.

The extent to which additional space was needed beyond that originally requested can be seen in the photographs in this report. The amount of land that MBPC first applied for in its state land easement request (temporary and permanent combined) was about 152 acres. In December, 1981, the final platted calculation of additional space needs submitted by MBPC to DSL was about 43 acres more, or a 28 percent increase. As can be seen in the photos, this added space was largely for soil and spoil storage, indicating an underestimation of the amount of side-hill cutting needed.

The problem of inadequate topsoil handling is more serious, since it would result in some productivity loss. The problem is, of course, confined to those areas where side-hill cutting occurred, and over the trench. Problems on state parcels, however, could indicate problems on the whole route because there was no apparent difference between

construction on state lands and other lands. There is also no apparent reason for the inconsistencies in topsoil handling, although it might indicate an attempt to keep the r-o-w as narrow as possible.

Soil samples were taken in several locations to determine the extent to which topsoil was mixed with parent material. The results of a soil analysis on these samples are given in Appendix A, and it confirms the photographic evidence that there was inconsistent and insufficient topsoil removal and handling during r-o-w clearing and grading. Tests with 7 percent acid solution (HCL) on state parcels VA051, VA052, VA053.5, and VA057 indicated that the calcium carbonate layer on the trench sidewall ranged from 6 inches to 23 inches from the surface after blading and trenching (see photo #74). IPTF observers also saw substantial amounts of gypsum on the soil surface after clean-up on parcels PH018 and Ph019. These crystals were evidence that ditch spoil from several feet below the surface were mixed with top soil.

Soil compaction problems in traffic lanes were dealt with to some extent during clean-up by the Leonard Pipeline Company. NBPC's reclamation plan, however, and the DSL lease, required compaction relief in the fall as part of seedbed preparation. This reclamation work was covered by a separate reclamation contract that was not let until the fall. Even though Leonard Company personnel did have some compaction-reducing equipment, discussions with their field people gave the impression that their contract with NBPC did not require consistent treatment of compaction from a reclamation viewpoint.

The extent of the problem cannot now be readily determined because clean-up operations have replaced topsoil, spoil, and grade debris, and covered compacted areas to varying degress. Studies of soil compaction

have shown that heavy equipment can cause long-term soil damage (see DNRC's draft EIs on Northern Border). Soil in traffic lanes was severely compacted in certain areas, especially where there was a relatively high clay and gravel content, based on observations during construction. The r-o-w was used as a road, and received a high amount of traffic from heavy equipment, pipe-hauling trucks, other trucks, buses, pick-ups, and cars. Leonard Company field people said that heavy-duty, hydraulically-operated, chisel equipment would be necessary to break up the compacted areas.

If NBPC had attempted to relieve soil compaction in the fall, as part of seedbed preparation, there would have been problems with pulling up rocks and boulders which were plentiful in some areas. This would have required another round of removing rocks and boulders. The conclusion indicated by these observations is that compaction relief is best done at the time of r-o-w clean-up. R-o-w width problems led NBPC to request permission from DSL to wait until construction was completed before formally requesting modification of their state land lease. This was granted. Photos #74 through #81 cover some of the reasons for unpredictable increases in r-o-w width.

Difficulties with NBPC's reclamation contracts led to a program of aerial seeding rather than the on-the-ground program stipulated in the DSL lease (see photos #24, #26, and #27). It was felt that getting the seed on the ground in the fall was important. This method is usually used in steep terrain, and is considered to be not as reliable as ground-seeding where seed is drilled in with a seeder.

#74 Lack of sufficient topsoil removal as indicated on trench side wall on state parcel VA052. The top of the yard stick is at the surface after removal of 3-4 inches of topsoil. The pencil is at the level where an acid reaction began (see text). Note the dark and deep A & B horizon.

#75 Traffic off the r-o-w under muddy conditions on state parcel VA57. Photo taken July 15.

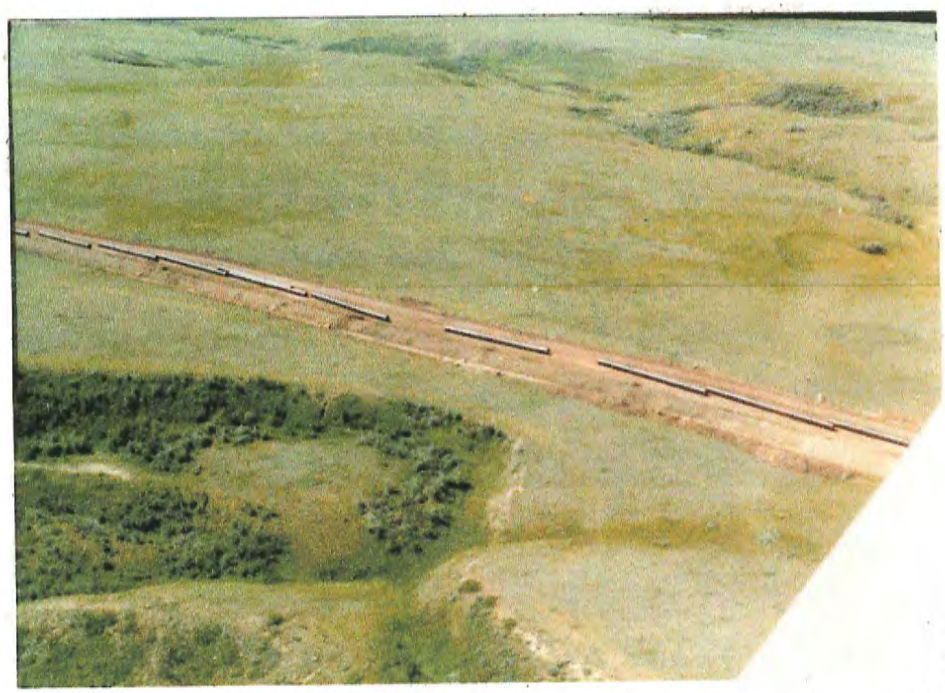
#76 Traffic off the r-o-w to avoid a mudhole on state parcel VA56. The praire in this area was poorly drained. Photo taken July 23.

#77 Traffic off the r-o-w on state parcel VA027.5 to avoid two gates near the northern part of parcel. Photo taken July 15.

#78 Typical clean-up in progress in wide r-o-w area in Phillips County. Dozers first push the soil back roughly to the original contour, then a road grader with chisels reduces soil compaction and finishes contouring. Note that there has been extensive traffic outside soil/spoil storage areas. This adds to r-o-w width requirements as noted earlier. Photo taken July 22.

#79 State parcel R0142. Only the area shown in the photo is crossed by the pipeline. Note that the r-o-w was fenced but backhoe widening of the trench added material to the spoil pile, covering the fence and topsoil. The view looks northwest on July 24 from the southern edge of the parcel.

#80 Lignite seam cut by trench on R0142. The seam is directly below the vantage point in #79.



#81 State parcel PH033, looking south on June 26. The route passes closely to a known buffalo jump at the lower left and crossed several archaeological sites.

HYDROSTATIC TESTING

NBPC had difficulty obtaining water for hydrostatic testing in Phillips and Valley counties. Negotiations with the Frenchman Water Users Association fell through, and NBPC eventually constructed a 10-inch steel water pipeline along Highway 24 from Valley Industrial Park to the route, joining the pipeline next to the West Fork Porcupine Creek. Water from a well at VIP, and from the Missouri River via VIP's pipeline, was used.

IPTF and the Montana DHES visited water discharge points and found no water quality problems, and insignificant erosion. The problem that did occur, however, was a failure to give DHES two weeks prior notice of discharge. This was caused by a Leonard Pipeline Company employee telling the testing foreman that notice had been given.

OFFICE OF THE FEDERAL INSPECTOR

The relationship of the OFI, landowners, and local and state agencies was not clearly stated in the federal legislation, and was not clarified by the time construction began, even though DNRC demonstrated a high degree of interest in coming to an agreement. It may be an understatement to say that the OFI dragged its feet. This probably was largely due to differences of opinion on federal/state jurisdictional issues. Appendix B presents a description and chronology of communications between the DNRC and the OFI regarding such an agreement. Some of these communications are contained in the EIS and the rest are in IPTF files.

At no time during the Northern Border project was there any formalized communication system established between the state and OFI. It was not clear as to how the OFI interpreted its responsibilities on state or private lands. This may have contributed to some of the r-o-w problems and the inconsistency in topsoil removal. For example, the OFI gave MPPC "Notice to Proceed" without having its field inspection system fully in place. Table 2 demonstrates that construction, once begun, proceeds very rapidly. With r-o-w grading proceeding at an average of 20 miles per week in May, there is little time for changing the clearing practice.

As indicated in the correspondence in Appendix B, the problem with the OFI reluctance to deal with state interests probably came from a failure by top-level OFI policy-makers to set up a system for interjecting state interests into the overall monitoring program of the OFI. The evidence indicates that the OFI interpreted the federal legislation to mean that complete authority to build the project resided in Washington. States are unlikely to concede to federal agencies this kind of authority, especially if it is ambiguously stated in the federal legislation. Rather than expediting construction, this may have contributed to delays and expense.

It should be noted that during construction, OFI field personnel indicated a willingness to cooperate and provide information and assistance. The Omaha office of the OFI, overseeing construction of the Eastern Leg, was also quite helpful.

IPTF OPERATIONS

IPTF operations for Northern Border were funded voluntarily by NBPC through a negotiated contract with DNRC. Duties were described in the contract and were largely confined to assisting NBPC obtain permits, and responding to state agency requests for assistance with permits and monitoring of the project. Most of the IPTF work concerned the permit for crossing state lands (both DSL administered land and the DNRC land near Frenchman Creek), the hydrostatic test water discharge permit from DHES, the Conservation District 310 permits, and the DNRC water withdrawal permits. Efforts were made throughout the construction period to document the project in order to apply the knowledge to other large pipelines, especially the Northern Tier oil pipeline which looked as if it was soon to be built.

A description of the purpose and concept of the IPTF is contained in Montana's EIS's on the Northern Tier and Northern Border pipelines. Perhaps the major reason for the creation of the IPTF was that large pipelines are not regulated by the Major Facility Siting Act, although there have been proposals to place them under the act in the last two legislative sessions. The primary concern came from the Northern Tier proposal because the DNRC perceived a high level of public interest in environmental issues and because of the potential red tape for the company caused by the high number of separate governmental jurisdictions involved and the variety of landownerships.

All other states along the Northern Border route (North and South Dakota, Minnesota, and Iowa) regulate pipelines more closely than does Montana. The latter three passed

legislation in response to the ANGTS, and all four provide for county or state inspection during construction. Inspection is in most cases paid for by a per-mile assessment on the company.

Inspection must be carried out as a pipeline is built. On the Northern Border pipeline, there were NBPC inspectors for each of the operations listed in Table 2. OFI inspectors checked the overall operations of pipeline construction throughout the pipeline system in the five states affected.

As can be seen in Table 2, pipeline construction moves rapidly once begun. Problems with one operation can influence others and cause expensive delays. Rapid inspection and resolution of problems is important. It is also difficult to foresee exactly what will happen once construction begins and decisions may have to be made on the spot about environmental stipulations. The best example of this kind of difficulty on this project was the problems with topsoil salvage and r-o-w width. Thus, the inspection system should be compatible with construction operations. Experienced people with sufficient authority to make decisions at the construction site are essential to a functional inspection/construction system, especially during the beginning of construction. No inspection system was provided for in the IPTF agreement with NBPC. Any inspection carried out was to assist the DSL in monitoring the execution of the stipulations attached to the lease for crossing state lands.

LANDOWNER ASSISTANCE

One of the IPTF functions was to respond to questions and complaints of landowners. There was, however, no provision for the IPTF initiating contacts with landowners. There were a few calls or comments to the IPTF from landowners or surface lessees of state lands concerning open fences and misunderstandings about how construction operations would block cattle movement. There was a general complimentary attitude on the part of the citizens toward NPPC during construction, and high interest in the project. Most contacts with NPPC occurred the year before construction began during the period when r-o-w agents were contacting landowners for easements. Most of these requests were for information on the project, and complaints about levels of reimbursement for damages. Although it is not envisioned that IPTF should interject itself into contract negotiations between the landowner and the company, an earlier role in providing general information to landowners could have eliminated some anxieties concerning easement negotiations and the condemnation process.

CONCLUSIONS AND RECOMMENDATIONS

The conclusions that follow are my opinions gained from experience with preparing the EIS on the project, and on observations made while it was being built. I have made an attempt to base the conclusions on interpretations of the photographic evidence and other objective material presented in this report.

1. MPPC and its main contractor on Spread 1, Leonard Pipeline Company, generally did a good job observing environmental stipulations and state permit conditions. Personnel were very responsive and helpful when problems were brought to their attention. MPPC developed a sound reclamation plan which should mitigate long-term environmental impacts resulting from construction if revegetation and soil stabilization proceed favorably in the future.

2. There were some problems with topsoil handling and insufficient attention to relieving soil compaction on state parcels and on other lands across Montana. This problem may have been made worse by MPPC obtaining easements on r-o-w's that were too narrow for soil and spoil storage in side-hill cut areas.

3. Lack of an agreement between the OFI and Montana contributed to some problems during construction. It is likely that agreement was not reached because the Washington OFI office did not institute an effective and early relationship with the states. Early discussions would have allowed substantial agreements to be consumated which would clearly outline state/federal interaction on the project. The federal legislation on the ANGTS included specific mandates for direct participation by the state of Alaska during construction. It is recommended that the Montana Congressional delegation insist that provisions be made to describe Montana's role in any future legislation or similar projects. It appears that the federal government does not have a strong committment to recognizing the state's interests on projects such as the ANGTS.

4. Construction of a large-diameter pipeline involves a certain amount of surface disturbance, and has a high potential for long-term damage to topsoil due to mixing with parent material. This potential can be reduced to a minimal level through environmental planning such as that done for this project, and through a well managed inspection system during construction. Inspection during the early stages of construction is crucial for environmental stipulations to be effective.

5. If large-diameter pipelines are not placed under the jurisdiction of the Major Facility Siting Act, the Montana legislature should consider establishing some form of inspection and IPTF-like coordination function in state government.

APPENDIX A

DESCRIPTION OF NORTHERN BORDER SOIL SAMPLES,
STATE LAND SECTIONS

Samples 1-5 Taken August 4, 1981 from the side wall of the open trench 28 yds. west of survey station 3028+32 (preliminary survey on VA058.0, Sec. 24, T33N R39E, Valley County). This is about 250 ft. west of the fence where the North/South road crosses the pipeline, and about 500 ft. east of the west boundary of the section. This is on top of the west bluff of the W. Fork, Porc. Creek and is rangeland that doesn't appear to have been plowed.

1. Sample of top layer. At most, 3-4 in. of topsoil had been removed before ditching. Layer is 5-1/2 in. thick. Hard texture, brown.

2. Sample of second layer. Layer is about 3-1/2 in. thick and is brown. Blocky, clayey looking. Layer ends 9 in. below surface. Distinction between #1 and #2 is texture, i.e., #2 is structured (blocky).

3. Sample of top of layer where a strong acid reaction occurs. Whitish deposits begin to be seen at this same depth (9 in. from surface). Brown color disappears.

4. Sample taken 21 in. below surface. Hard, clayey color, with pebbles. (Well within root zone.) Whitish deposits are largely gone. Occasional streaks.

5. Sample taken 84 in. from surface (very close to the bottom of the trench). Wet, clayey.

Samples 5-10 Taken August 4, from the sidewall of the open trench about 1/4 miles east of the west boundary of VA052 (Sec. 16, T33N R39E, Valley County). There is a fenceline along this west boundary. The location is similar (rolling prairie), is in grass and hasn't been plowed.

6. Sample taken from top 3 in. Soil is sandy appearing, and distinctly brown.

7. Sample taken 13 in. from surface, and is just above the point in the profile where the acid reaction begins. Sandy, brown, definite blocky structure. The top two layers are 16 to 18 in. deep in this area.

8. Sample taken about 17 in. from surface. Acid reaction layer -- whitish deposits in it, and brown color fadesaway. Sandy. As one looks down the trench this whitish layer is deeper in the swales and shallower on the knolls.

9. Sample taken 27 in. from surface. At bottom of portion of profile with whitish deposits.

9A. Sample of gravel layer at 58 in. in the profile (this sample was not analyzed). Stones up to egg sized.

10. Sample taken at trench bottom, or about 84 in. from surface. Very sandy.

Samples 11-13 Taken August 4 from the surface after clean-up and restoration on VA006 (Sec. 16, T34N R35E, Valley County). This parcel is rangeland and doesn't appear to have been plowed. Clean-up crew had completed work within previous 10 days.

11. Sample taken from surface over the buried pipeline about 200 ft. east of the west boundary (which is a fenceline). Distinct crown over pipeline was not present, so pipe location was approximate (but within 5 ft.)

12. Sample taken from surface about 500 ft. east of the fenceline on top of the ditch. Distinct crown of soil was present, so sample was taken right above pipe.

13. Sample taken from undisturbed soil surface alongside right-of-way directly south of #12.

Samples 14 and 15 Taken October 14, 1981 from RO195 after clean-up and restoration. This section is on a very flat, cropped floodplain of Shotgun Creek 2 mi. east of Bainville.

14. Sample taken from surface 3 in. directly over the buried pipeline, about 400 yds. southeast of the fenceline which is on the western edge of the parcel. The sample was loose and wet when taken. There was a crown over the pipeline, which appeared as a grayish band as one looked down the r-o-w to the southeast.

15. Sample taken from the same location as #14, but off the r-o-w edge (about 30 ft. north) and beyond the disturbed area. Top 3 in. taken, and soil was wet, loose, and blacker (blacker than #14).

Table 3. Analysis of Soil Samples Taken on State Land Sections

Samples #1-10 were taken on ditch sidewalls, #11-15 are surface samples

Sample Number	Nitrate (ppm)	Phosphorus (olsen) (ppm)	Potassium (ppm)	PH	Electrical Conductivity (mmhos/cm)	Organic Matter (%)	Sand (%)	Silt (%)	Clay (%)	Extractable			Soluable			Sodium Adsorption Ratio
										Calcium (Meq/100)	Magnesium (Meq/100)	Sodium (Meq/100)	Calcium (Meq/100)	Magnesium (Meq/100)	Sodium (Meq/100)	
1	--	29	509	6.2	0.7	4.2	37	40	23				3.8	4.0	0.6	0.3
2	--	10	>598	7.3	0.4	2.3	--	--	--				--	--	--	--
3	--	3	572	8.0	0.5	1.5	--	--	--				1.5	3.0	0.2	0.1
4	--	6	257	8.5	1.0	1.5	40	22	38				--	--	--	--
5	--	9	335	7.2	4.8	1.6	24	30	46				19.0	26.3	32.2	6.8
6	--	3	281	7.0	0.4	2.2	37	35	28				--	--	--	--
7	--	0.6	216	7.8	0.5	0.5	--	--	--				2.0	28	0.7	0.5
8	--	0.2	164	8.1	0.4	0.5	--	--	--				--	--	--	--
9	--	0.6	158	8.3	0.4	0.2	57	15	29				0.7	2.1	3.0	2.5
10	--	4	187	8.3	1.4	<0.1	30	33	37				1.2	6.1	14.8	7.8
11	8	4	257	7.5	4.4	1.0	35	32	33				22.0	32.9	20.0	3.8
12*	9	5	240	7.6	4.8	1.5	41	30	29				25.0	37.9	21.8	3.9
13*	11	4	305	6.7	0.5	4.3	47	37	16				2.5	1.6	0.2	0.1
14**	25	1	305	8.2	4.6	1.2	32	41	27	40	11	1.9	24	31.5	3.0	0.6
15**	48	4	7598	8.0	1.5	3.7	16	44	40	26	5.9	0.1	10	3.6	0.9	0.4

* #12, taken over the ditch after spoil replacement, should be compared with #13, taken from an undisturbed area next to the r-o-w.

** #14 and 15 can be similarly compared. #15 is the undisturbed sample.

APPENDIX B

DESCRIPTION AND CHRONOLOGY OF MONTANA DNRC DISCUSSION WITH THE OFFICE OF THE FEDERAL INSPECTOR REGARDING A FEDERAL-STATE COOPERATIVE AGREEMENT CONCERNING THE NORTHERN BORDER PIPELINE

1) October 19, 1979 - Proposal to begin discussions with the OFI concerning an agreement. (Letter to John Rhett, OFI, from Ted Schwinden, Acting Governor, enclosed.) Note: A contact person was eventually designated in the governor's office, but no discussions regarding an agreement took place.

2) April 8, 1980 - Staff discussions being held between State (DNRC) and Bureau of Land Management (BLM) concerning a draft cooperative agreement (See letter to Neil Morck from Randy Moy, p. 123 of draft EIS).

3) July 30, 1980 - Draft EIS on Northern Border issued. Interagency Pipeline Task Force (IPTF) recommended by Montana DNRC for Northern Border (See p. 107 of draft EIS).

4) July 30, 1980 - Governor Judge issues executive order establishing IPTF for the Northern Tier oil pipeline.

5) August 15, 1980 - BLM, commenting on IPTF proposal in draft EIS, recommends that OFI coordinate responsibilities (Memo from Neil Morck to BLM Director, p. 39, final EIS).

6) August 28, 1980 - OFI questions need for IPTF. (See letter from John Rhett to Ted Doney, DNRC Director, p. 36 of final EIS.)

7) September 15, 1980 - U.S. Department of Interior, representative to OFI, gives partial support to IPTF in letter to OFI (Letter from William Toskey to Robert Mosher, p. 40 of final EIS).

8) October 30, 1980 - Montana DNRC reiterates to OFI the cooperative aspects and advantages of the IPTF and asks for support for the concept (Letter to John Rhett, OFI, from Ted Doney, DNRC Director, p. 43 of final EIS).

9) November 19, 1980 - OFI transfers responsibility for answering the October 30th letter (#8 above) to its Omaha office which was established in September (Letter from Peter Cook, OFI deputy Director, to Ted Doney, enclosed).

10) December 19, 1980 - Montana DNRC issues its final EIS, reiterating support for IPTF, and answering comments received on its proposal (p. 25, 26 of the final EIS).

11) December 24, 1980 - Omaha office of OFI, in responding to Montana's October 30th letter (#8 above) casts doubt on the funding mechanism for the IPTF, by noting that under current FERC rules it appears to be a cost over-run. (See letter from Dennis Schroeder to Ted Doney, enclosed.)

12) February 25, 1981 - Montana DNRC, responding to OFI letter of December 24th, #11 above), explains the status of negotiations with the pipeline company, disagrees with the OFI's interpretation of the FERC financing mechanism, and notes the urgency of some of the state concerns (letter from Leo Berry, DNRC Director to Dennis Schroeder, enclosed).

13) March 4, 1981 - Montana Governor Ted Schwinden signs a new executive order allowing for the inclusion of Northern Border in the IPTF (enclosed).

14) March 13, 1981 - OFI agrees to discuss a cooperative agreement with Montana (letter from Dennis Schroeder to Leo Berry, enclosed).

15) March 25, 1981 - DNRC and OFI staff meet.

16) April 9, 1981 - Montana DNRC informs OFI of its view of the contents of a cooperative agreement based on the March 25th meeting (letter from Leo Berry, Director, DNRC, to Russ Soulen, OFI Staff Director, enclosed).

17) April 30, 1981 - OFI proposes an umbrella agreement to eastern leg of state crossed by the pipeline (letter from Rhodell Fields, OFI Deputy General Counsel, to Randy Moy, enclosed).

18) May 2, 1981 - Construction, including clearing on state lands, begins in Montana.

19) May 8, 1981 - Montana DNRC comments on OFI's proposed agreement (#17 above) and notes that concerns expressed earlier (#16 above) were not addressed, the agreement was not specific enough, and that Montana could not concede complete legal authority to the OFI but, nevertheless, wished to come to an agreement (letter from Leo Berry to Rhodell Fields, enclosed).

20) May 13-14, 1981 - Staff discussion between Montana DNRC, Montana Department of State Lands, and OFI. Some specific language was worked out but no agreement reached. OFI stated that Montana's position would be explained to OFI officials in Washington and, if approval could be obtained, another draft would be sent.

21) No other draft agreements were sent to Montana for review and all discussions on the part of OFI with Montana ceased.