

1. NEPC 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. NEPC 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 NEPC 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 consummated 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 commitment 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 fades away. 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 R0195 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 (colsen) (ppm)	Potassium (ppm)	PH	Electrical Conductivity (mmhos/cm)	Organic Matter (%)	Sand (%)	Silt (%)	Clay (%)	Extractable			Soluble			Sodium Adsorption Ratio			
										Calcium (Mec/100)	Magnesium (Mec/100)	Sodium (Mec/100)	Calcium (Mec/100)	Magnesium (Mec/100)	Sodium (Mec/100)				
1	--	29	509	6.2	0.7	4.2	37	40	23				3.8	4.0	0.6	0.3			
2	--	10	7598	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	3.6			
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	40	26	11	1.9	1.9	24	31.5	3.0	0.6
15**	48	4	7598	8.0	1.5	3.7	16	44	40				10	3.6	0.9	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.