

Portland Natural Gas Transmission System
Final Abandonment Study
(Prepared by J. H. Taylor)

Estimate Parameters
(Applicable to all Options)

- 1 1. PNGTS transmission pipelines will be retired in 100-mile increments. PNGTS
2 management will begin preparation for each transmission abandonment project two years
3 prior to the scheduled abandonment. PNGTS will manage and coordinate retirement
4 activities prior to and during the actual retirement or hire a construction manager to
5 perform these duties. Retirement work will be completed one year after demolition work
6 commences. PNGTS management and overhead costs are estimated to be 15 percent of
7 pipeline contractor costs, environmental contractor costs, and PNGTS inspection costs.
- 8 2. PNGTS will file a FERC 7(b) abandonment filing that will include a complete
9 environmental report concerning each proposed abandonment project.
- 10 3. All above-ground facilities will be removed to three feet below ground surface and
11 disturbed areas restored. Concrete foundations will be removed to three feet below
12 ground surface.
- 13 4. Remote valve sites are considered to be valve sites not located at PNGTS M&R stations.
- 14 5. Pipeline estimated to be abandoned in-place will first be pigged and cleaned, purged of
15 hydrocarbons, and then filled with nitrogen.
- 16 6. Pipeline estimated to be removed and salvaged will first be pigged and cleaned, purged of
17 hydrocarbons, and then removed.

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- 1 7. Pipeline at all uncased highway and railroad crossings will be grouted and pipe ends
2 capped.
- 3 8. Pipeline at all cased highway and railroad crossings will be pulled from casing, the casing
4 grouted, and pipe ends capped. Vent pipes will be cut and removed.
- 5 9. Pipeline at one small stream crossing per mile will be grouted and pipe ends capped.
- 6 10. Pipeline at horizontal directionally drilled (“HDD”) river and large stream crossings will
7 be filled with water and pipe ends capped.
- 8 11. Pipeline at river and large stream crossings installed using the trench method will be
9 grouted and pipe ends capped.
- 10 12. PNGTS will hire an environmental contractor to check for the presence of hazardous
11 materials and monitor demolition work. Work involves inspection, sampling, evaluation,
12 and report writing. It is estimated that environmental contractor costs will be 5 percent of
13 the direct cost of demolition.
- 14 13. PNGTS inspection costs are based on estimated costs of \$500 per inspector per day.
15 Costs for each inspector include direct labor, transportation, and per diem costs.
- 16 14. The estimated scrap value of carbon steel is \$160 per ton on-site. It is estimated that
17 scrap value on-site is approximately 60 percent of the scrap value at the scrap yard.
18 Salvage contractor will purchase scrap at the work site, prepare material for shipment to

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- 1 scrap yard, and transport scrap to scrap yard. Preparation includes cutting material to
2 proper size, cleaning tanks and vessels, removing pipe coating, etc.
- 3 15. ROW easements will revert back to deeded owners. ROW costs are included in PNGTS
4 management and overhead costs. Additional ROW costs involving ROW damages
5 incurred during pipe removal are included in the line item "Pipe removal".
- 6 16. No costs are included in estimates to allow for potential future liability associated with
7 pipelines abandoned in-place and filled with nitrogen.
- 8 17. All abandonment costs are estimated in December 2007 dollars.