APPENDIX E
PIPELINE SAFETY

This appendix provides additional detail concerning the information presented in Sections 3.3 and 4.3 of the EIS on existing conditions pertaining to pipeline locations and accident frequencies.

E.1 PIPELINE LOCATION INFORMATION

As part of preliminary engineering efforts, the Applicants collected data on the locations of pipelines near the routes for the new construction that would be part of the Proposed Action and Alternatives. In addition, the Applicants collected information on aboveground pipeline locations along part of the No-Build route as part of their efforts to evaluate the feasibility of constructing a new line near SH 225. SEA used field observations to verify this information. In addition, SEA used field observations to collect similar information for other portions of existing rail lines that BNSF would use under the Proposed Action and Alternatives.

For this analysis, SEA focused on hazardous liquid (including petroleum) and gas pipelines as a result of the potential severity of the consequences (relative to other types of pipelines, such as water or wastewater) in the event of an accident and data availability. For aboveground pipelines, SEA used field observations and information developed by the Applicants to estimate the length of new and existing rail lines that would be near aboveground piping. For this analysis, SEA defined "near" as within approximately 50 feet of the rail line. For pipelines identified to be within 50 feet of the rail line, SEA estimated the length of pipeline within this distance of the rail line to the nearest 50 feet. Thus, the minimum length estimated for each location identified was 50 feet. In recognition of uncertainties associated with the information available from the visual observations and in an effort to develop a conservative estimate of the potential likelihood of a release, SEA rounded the resulting estimate up to the nearest one-tenth of a mile. For portions of the routes without detailed information on pipeline locations, SEA estimated the prevalence of pipelines by considering the general similarities and differences in neighboring land use relative to the segments with available data.

For underground pipelines, SEA distinguished between pipelines that would be crossed by the new rail line and those that would be located near the new rail line. Again, SEA defined "near" as within 50 feet. SEA estimated the length of nearby (usually parallel) piping in the same manner as described above for aboveground piping. For each single pipeline that would be crossed by the new rail line, SEA added 50 feet to the overall estimate of the length of pipelines near the new rail line. When several pipelines that would be crossed are located near each other (especially in a pipeline corridor), SEA estimated the length of pipeline near the rail line as the maximum distance between pipelines in the corridor plus 50 feet.

In developing the estimated length of piping that would be near the new rail line, SEA did not distinguish between those portions of the rail line where excavation would or would not occur as part of construction activities. Because excavation is the principal construction activity that could result in pipeline damage and excavation would not be required along the entire route, SEA

believes that this approach produces a very conservative estimate of length of piping that could potentially be affected by construction activities.

E.2 ACCIDENT INFORMATION

As indicated in Section 3.3 of the EIS, SEA used estimated rail accident frequency information, presented in Appendix D, to characterize existing conditions with respect to rail accidents.

SEA used data from USDOT Office of Pipeline Safety (OPS) to estimate accident frequencies for pipeline construction. OPS publishes accident data on its Web site at http://ops.dot.gov/stats.htm. SEA reviewed these data for hazardous liquid pipelines and gas transmission and distribution pipelines and concluded that the subset of information on third-party damage to onshore pipelines was most relevant to estimating the likelihood of a pipeline construction accident during construction of the proposed rail line. To provide a consistent basis across all three types of pipelines, SEA selected data for the period of 1985 through 2001 for analysis.

OPS data for this period indicate that third-party damage caused 345 accidents involving onshore gas transmission pipelines and 1,026 accidents involving gas distribution pipelines. OPS data also indicated that there were on average approximately 1.5 million miles of gas transmission and distribution pipeline in service each year. Using this information, SEA calculated an estimated accident rate of 5.4×10^{-5} accidents per mile per year. For this analysis, SEA made the conservative assumption that all of these accidents were construction-related, when in fact some may have been the result of vandalism, agricultural activities (e.g., plowing), or other causes.

OPS data for this period indicate that there were 541 accidents involving hazardous liquid pipelines that were caused by third party damage. OPS data also indicate that there were on average approximately 154,000 miles of hazardous liquid pipeline in service each year. Using this information, SEA calculated an estimated accident rate of 2.1×10^{-4} accidents per mile per year.

The OPS accident data indicate that in more than half of the accidents caused by third-party damage the excavator failed to contact the "One Call" utility locator to have buried pipelines and other utilities identified prior to excavation activities. SEA believes that, given the Applicants' knowledge of the project area, this scenario is unlikely in the context of the construction of the proposed rail line and, as a result, applied a "notification adjustment" factor of 0.5 to the estimated accident rates when calculating the estimated accident frequency.

SEA estimated the overall chance or likelihood of gas and hazardous liquid pipeline accidents associated with construction of the proposed rail line as the product of the estimated accident rate, the notification adjustment factor, the number of miles of rail construction estimated to occur near pipelines, and the duration of construction in years. The Applicants indicated that they expected construction would last between 16 and 21 months. For this analysis, SEA used the mid-point of this range (18.5 months).