

Appendix K: Pole Attachment Fee Formulas Adopted by TVA and the FCC

The pole-attachment-fee formulas adopted by TVA and the FCC are presented below. The FCC has adopted different formulas depending on whether the attacher is a cable company or a telephone company. Each formula is accompanied by a pole diagram that depicts how the formula allocates pole space among attachers.

TVA Pole Attachment Fee Formula:

$$Fee = \left(\frac{\text{Space Occupied by Attacher} + \left(\frac{\text{Safety Space}}{\# \text{ Telecom Attachers}} \right) + \left(\frac{\text{Space Below Lowest Attachment}}{\text{Total \# Attachers}} \right)}{\text{Total Pole Length}} \right) \times (\text{Est. Annual Pole Cost})$$

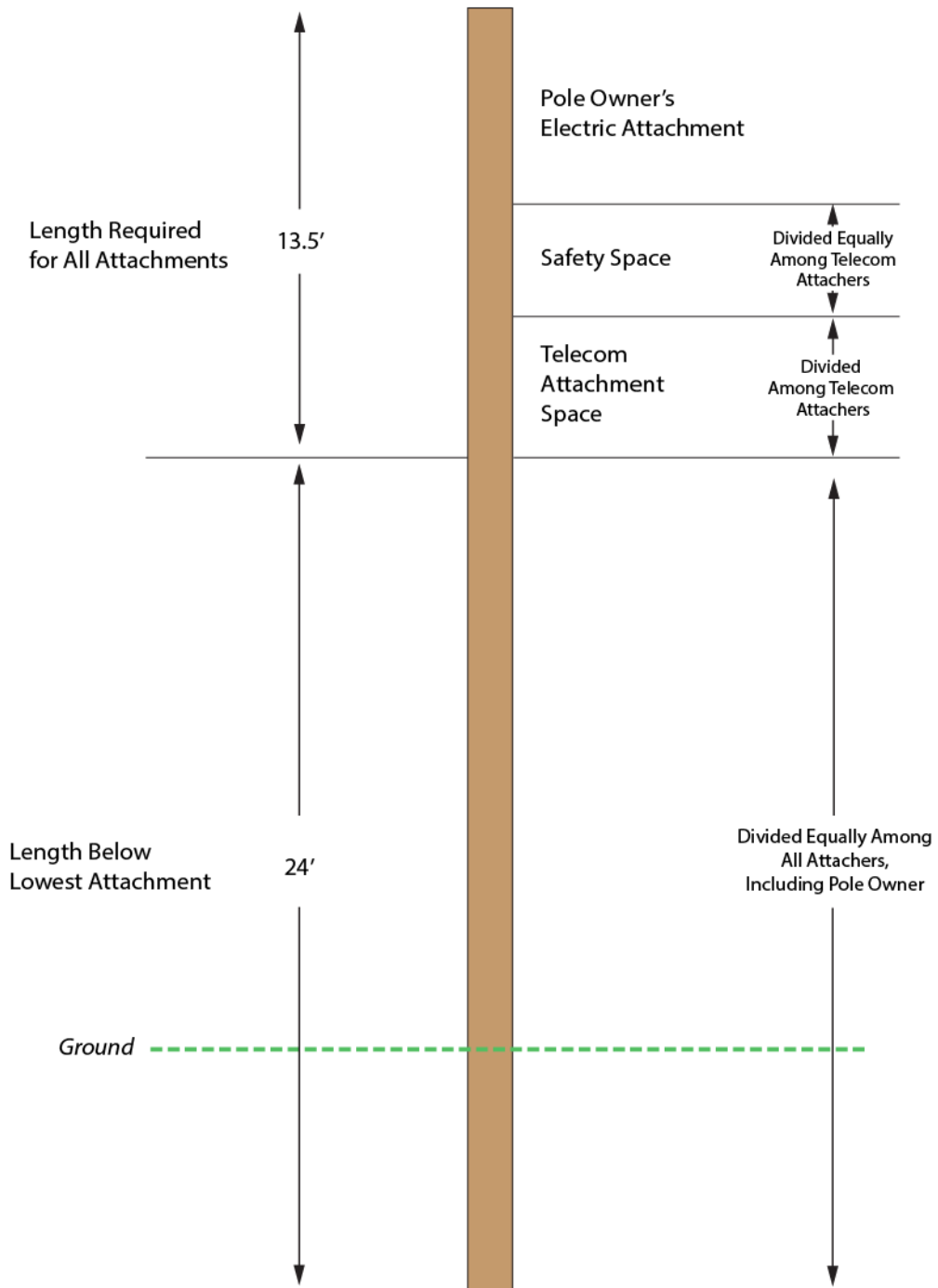
Where

- Space Occupied by Attacher equals the actual space in feet required for the attachment;
- Safety Space equals the space in feet space required to separate electric attachments from telecommunications attachments for worker safety;
- Space Below Lowest Attachment also includes all of the pole that is buried underground;
- # Telecom Attachers includes all attachers except the electric attacher;
- Total # Attachers includes the electric attacher;
- Estimated Annual Pole Cost = $(\text{Net Cost of Bare Pole}) \times \left(\frac{\text{Administrative Expenses for Overall Plant} + \frac{\text{Maintenance Expenses of Poles}}{\text{Net Pole Investment Accs. 364, 365, and 369}} + \text{Depreciation Rate of Poles} + \frac{\text{Taxes for Overall Plant}}{\text{Net Plant Investment}} + \text{Return on Investment} \right)$;
- Net Cost of Bare Pole = $0.85 \times \left(\frac{\text{Net Pole Investment Acc. 364}}{\text{Total \# Poles}} \right)$;
- The modifier 0.85 is used to remove the investment in crossarms included in Net Pole Investment;
- Net Pole Investment Acc. 364 = $\text{Gross Pole Investment Acc. 364} - \text{Depreciation Acc. 364}$;
- Net Pole Investment Accs. 364, 365, and 369 = $\text{Gross Pole Investment Accs. 364, 365, and 369} - \text{Depreciation Accs. 364, 365, and 369}$;
- Account 364 includes poles, towers, and fixtures; 365 includes overhead conductors and devices; and 369 includes other services each reported annually to the Federal Energy Regulatory Commission;
- Net Plant Investment = $\text{Gross Plant Investment} - \text{Depreciation}$;
- Depreciation Rate of Poles = $\text{Depreciation Rate for Gross Pole Investment} \times \left(\frac{\text{Gross Pole Investment}}{\text{Net Pole Investment Acc. 364}} \right)$; and
- Return on Investment = 8.50%.

Source: TVA (see attachment A).

TVA Space Allocation Diagram

TVA Space Allocation Diagram



Note: TVA assumes a 37.5 foot pole with 13.5 feet required for attachments and 24 feet below the lowest attachment, including the length in the ground.

Source: TVA (see attachment A).

FCC Pole Attachment Fee Formula when Attacher is a Cable Company:

$$Fee = \left(\frac{\text{Space Occupied by Attacher}}{\text{Space Used for All Attachments}} \right) \times (\text{Est. Annual Pole Cost})$$

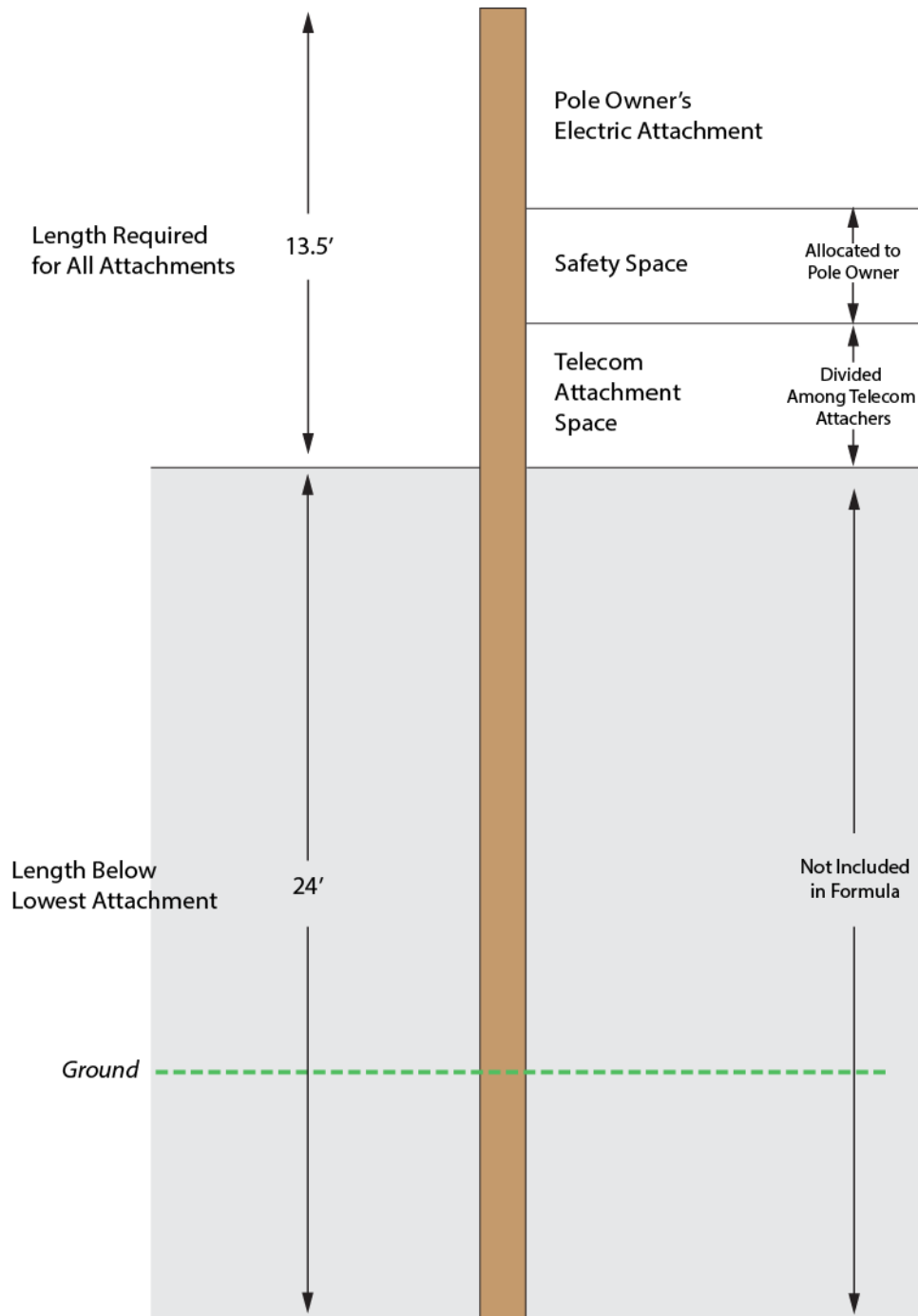
Where

- Space Occupied by Attacher equals the actual space in feet required for the attachment;
- Space Used for All Attachments includes space required to separate electric attachments from telecommunications attachments for worker safety;
- Estimated Annual Pole Cost = $(\text{Net Cost of Bare Pole}) \times \left(\frac{\text{Administrative Expenses for Overall Plant} + \frac{\text{Net Plant Investment Taxes for Overall Plant}}{\text{Net Plant Investment}} + \frac{\text{Maintenance Expenses of Poles}}{\text{Net Pole Investment Accs. 364, 365, and 369}} + \text{Depreciation Rate of Poles} + \text{Return on Investment} \right)$;
- Net Cost of Bare Pole = $0.85 \times \left(\frac{\text{Net Pole Investment Acc. 364}}{\text{Total \# Poles}} \right)$;
- The modifier 0.85 is used to remove the investment in crossarms included in Net Pole Investment;
- Net Pole Investment Acc. 364 = $\text{Gross Pole Investment Acc. 364} - \text{Depreciation Acc. 364} - \text{Deferred Income Taxes on Poles Acc. 364}$;
- Net Pole Investment Accs. 364, 365, and 369 = $\text{Gross Pole Investment Accs. 364, 365, and 369} - \text{Depreciation Accs. 364, 365, and 369} - \text{Deferred Income Taxes on Poles Accs. 364, 365, and 369}$;
- Account 364 includes poles, towers, and fixtures; 365 includes overhead conductors and devices; and 369 includes other services each reported annually to the Federal Energy Regulatory Commission;
- Net Plant Investment = $\text{Gross Plant Investment} - \text{Depreciation} - \text{Deferred Income Taxes on Plant}$;
- Depreciation Rate of Poles = $\text{Depreciation Rate for Gross Pole Investment} \times \left(\frac{\text{Gross Pole Investment}}{\text{Net Pole Investment Acc. 364}} \right)$;
- Depreciation Rate for Gross Pole Investment = $\frac{100\% - \text{Accumulated Depreciation \%} - \text{Future Net Salvage \%}}{\text{Average Remaining Life}}$;
- Accumulated Depreciation % is the portion of the pole investment that has been charged to depreciation expense in previous periods;
- Future Net Salvage is the estimated difference between the amount the utility would receive as salvage for sale of retired poles and the utility's estimated cost of removal;
- Average Remaining Life is the estimated future life expectancy of the investment; and
- Return on Investment is the rate of return authorized by the state's public service commission for intrastate service or, in the absence of a state authorized rate, the rate of return authorized by the FCC for local telephone companies.

Source: 47 Code of Federal Regulations 1.1409(e)(1) and 1.1404(g)(1)(x); FCC, *In the Matter of Amendment of Rules and Policies Governing the Attachment of Cable Television Hardware to Utility Poles*, 2 FCC Record 4387 (1987); and FCC, *In the Matter of Amendment of Commission's Rules and Policies Governing Pole Attachments*, 16 FCC Record 12103 (2001).

FCC Cable Formula Space Allocation Diagram

FCC Cable Formula Space Allocation Diagram



Note: The FCC assumes a 37.5 foot pole with 13.5 feet required for attachments and 24 feet below the lowest attachment, including the length in the ground.

Source: 47 Code of Federal Regulations 1.1418.

FCC Pole Attachment Fee Formula when Attacher is a Telephone Company:

The attachment fee under the FCC's guidelines for attachers classified as telephone companies is the greater fee calculated using two applications of the same formula, differing from each other only in the way they estimate annual per-pole costs.

$$Fee = \left(\frac{\text{Space Occupied by Attacher} + \frac{2}{3} \left(\frac{\text{Space Below Lowest Attachment}}{\text{Total \# Attachers}} \right)}{\text{Total Pole Length}} \right) \times (\text{Est. Annual Pole Cost})$$

Where

- Space Occupied by Attacher equals the actual space in feet required for the attachment;
- Space Below Lowest Attachment also includes all of the pole that is buried underground; and
- Total # Attachers includes the electric attacher;

For Application A:

$$\text{Estimated Annual Pole Cost} = (A) \times (\text{Net Cost of Bare Pole}) \times \left(\frac{\text{Administrative Expenses for Overall Plant} + \text{Maintenance Expenses of Poles}}{\text{Net Plant Investment}} + \frac{\text{Taxes for Overall Plant}}{\text{Net Plant Investment}} + \frac{\text{Depreciation Rate of Poles}}{\text{Net Pole Investment Accs. 364, 365, and 369}} + \text{Return on Investment} \right)$$

Where

- A is equal to
 - 31% if two total attachers;
 - 44% if three;
 - 56% if four; or
 - 66% if five;
- Net Cost of Bare Pole = $0.85 \times \left(\frac{\text{Net Pole Investment Acc. 364}}{\text{Total \# Poles}} \right)$;
- The modifier 0.85 is used to remove the investment in crossarms included in Net Pole Investment;
- Net Pole Investment Acc. 364 = *Gross Pole Investment Acc. 364 – Depreciation Acc. 364 – Deferred Income Taxes on Poles Acc. 364*;
- Net Pole Investment Accs. 364, 365, and 369 = *Gross Pole Investment Accs. 364, 365, and 369 – Depreciation Accs. 364, 365, and 369 – Deferred Income Taxes on Poles Accs. 364, 365, and 369*;
- Account 364 includes poles, towers, and fixtures; 365 includes overhead conductors and devices; and 369 includes other services each reported annually to the Federal Energy Regulatory Commission;
- Net Plant Investment = *Gross Plant Investment – Depreciation – Deferred Income Taxes on Plant*;

- Depreciation Rate of Poles
= *Depreciation Rate for Gross Pole Investment* $\times \left(\frac{\text{Gross Pole Investment}}{\text{Net Pole Investment Acc.364}} \right)$;
- Depreciation Rate for Gross Pole Investment = $\frac{100\% - \text{Accumulated Depreciation \%} - \text{Future Net Salvage \%}}{\text{Average Remaining Life}}$;
- Accumulated Depreciation % is the portion of the pole investment that has been charged to depreciation expense in previous periods;
- Future Net Salvage is the estimated difference between the amount the utility would receive as salvage for sale of retired poles and the utility's estimated cost of removal;
- Average Remaining Life is the estimated future life expectancy of the investment; and
- Return on Investment is the rate of return authorized by the state's public service commission for intrastate service or, in the absence of a state authorized rate, the rate of return authorized by the FCC for local telephone companies.

For Application B:

$$\text{Estimated Annual Pole Cost} = (\text{Net Cost of Bare Pole}) \times \left(\frac{\text{Administrative Expenses for Overall Plant} + \frac{\text{Maintenance Expenses of Poles}}{\text{Net Pole Investment Accs.364,365,and 369}}}{\text{Net Plant Investment}} \right)$$

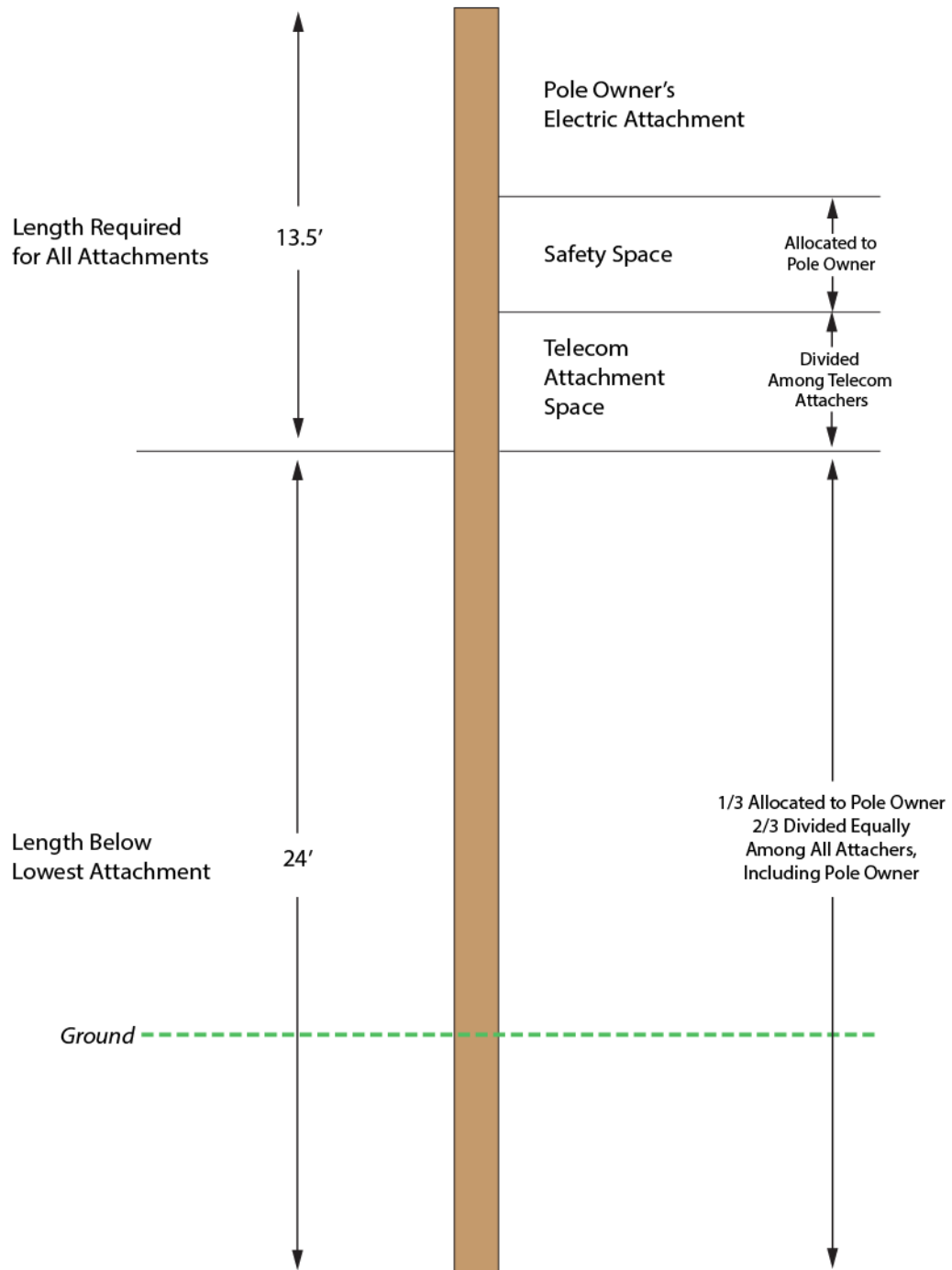
Where

- Net Cost of Bare Pole = $0.85 \times \left(\frac{\text{Net Pole Investment Acc.364}}{\text{Total \# Poles}} \right)$;
- The modifier 0.85 is used to remove the investment in crossarms included in Net Pole Investment;
- Net Pole Investment Acc. 364 = *Gross Pole Investment Acc. 364 – Depreciation Acc. 364 – Deferred Income Taxes on Poles Acc. 364*;
- Net Pole Investment Accs. 364, 365, and 369 = *Gross Pole Investment Accs. 364, 365, and 369 – Depreciation Accs. 364, 365, and 369 – Deferred Income Taxes on Poles Accs. 364, 365, and 369*;
- Account 364 includes poles, towers, and fixtures; 365 includes overhead conductors and devices; and 369 includes other services each reported annually to the Federal Energy Regulatory Commission; and
- Net Plant Investment
= *Gross Plant Investment – Depreciation – Deferred Income Taxes on Plant.*

Source: 47 Code of Federal Regulations 1.1409(e)(2)(ii) and 1.1404(g)(1)(x); FCC, *In the Matter of Implementation of Section 224 of the Act a National Broadband Plan for Our Future*, FCC 15-151 (2015); FCC, *In the Matter of Amendment of Rules and Policies Governing the Attachment of Cable Television Hardware to Utility Poles*, 2 FCC Record 4387 (1987); and FCC, *In the Matter of Amendment of Commission's Rules and Policies Governing Pole Attachments*, 16 FCC Record 12103 (2001).

FCC Telephone Formula Space Allocation Diagram

FCC Telephone Formula Space Allocation Diagram



Note: The FCC assumes a 37.5 foot pole with 13.5 feet required for attachments and 24 feet below the lowest attachment, including the length in the ground.

Source: 47 Code of Federal Regulations 1.1418.